

The Effect of Fiduciary Standards on Institutions' Preference for Dividend-Paying Stocks

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Many researchers apparently believe that some institutional investors prefer dividend-paying stocks because they are subject to the "prudent man" (PM) standard of fiduciary responsibility, under which dividend payments provide prima facie evidence that an investment is prudent. Although this was once accurate for many institutions, during the 1990s most states replaced the PM standard with the less-stringent "prudent investor" (PI) rule, which evaluates the appropriateness of each investment in a portfolio context. Controlling for the general decline in dividend-paying stocks, we find that institutions reduced their holdings of dividend-paying stocks by 2% to 3% as the PI standard spread during the 1990s. Studies of asset pricing and corporate governance should no longer consider dividend payments when evaluating the actions of institutional investors.

Institutional investors play a prominent role in US equity markets by making investment choices on behalf of many savers. These institutions' share of US equity ownership has risen from 11% in 1960 to more than 50% in 2000, and they account for an even larger proportion of equity trading volume (Griffin, Harris, and Topaloglu, 2003). Historically, a "prudent man" (PM) standard of fiduciary care caused some institutional investors to avoid holding shares that did not pay cash dividends. The PM standard judged the appropriateness of each security position on a stand-alone basis, and the payment of regular dividends became a "safe harbor" indicator of a stock's "prudence." The literature contains clear evidence that the PM standard caused bank trust departments to shun non-dividend-paying stocks (Del Guercio, 1996; Schanzenbach and Sitkoff, 2007). Moreover, PM restrictions probably had effects far beyond their narrow applicability to trusts. Legal precedents encouraged other fiduciaries to make similar choices as protection against judicial review of their investment decisions. Yet during the 1990s, most states replaced the PM standard of fiduciary care with the less-stringent "prudent investor" (PI) standard, which evaluates the appropriateness of each investment in a portfolio context. These changes should have weakened or eliminated a restriction on many institutional investors' opportunity sets.

Given the importance of institutional investors to the equity market, researchers must understand the extent to which their behavior was (is) subject to special restrictions. Institutions are typically viewed as rational, informed, and profit-oriented investors. They can provide important

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monitoring (governance) services to firms whose stock they hold (Shleifer and Vishny, 1986; Allen, Bernardo, and Welch, 2000). Institutions are also viewed as arbitrageurs who will seek profits by offsetting “irrational” asset price movements. Researchers have suggested that constraints on institutional holdings of nondividend-paying shares limited their ability to arbitrage apparent market inefficiencies (Badrinath, Kale, and Noe, 1995). Mauer and Senbet (1992) indicated that institutional preferences for dividend-paying shares limited their ability to speculate against IPOs’ high initial returns. Kamara (1997) asserted that investing constraints limited the ability of well-informed institutions to correct the “Monday effect” in stock returns caused by the irrational behavior of smaller investors. Chung (2000) noted that institutions exhibit a preference for high-quality companies because of prudence concerns.

Corporate finance issues are also interwoven with constraints on institutional investing. Allen et al. (2000) speculated that the PM restriction might be turned to the firms’ advantage if introducing dividend payments serves to attract additional institutional investors, which provide valuable monitoring services. In their 2002 survey, Brav, Graham, Harvey, and Michaely (2005) asked 166 executives at dividend-paying firms whether institutional preferences affected their dividend decisions, and reported,

The CFOs do not indicate that institutions as a class prefer dividends over repurchases, *except perhaps the existence of a small dividend payout that is needed to attract certain types of institutions.* (p. 509, emphasis added)

Grinstein and Michaely (2005, p. 1390) examined the institutional ownership proportions of traded stocks from 1980 to 1996 and presented “clear evidence that institutions prefer dividend-paying firms.” They further concluded that “institutions do not show any preference for firms that pay high dividends. . . . In fact, we find some evidence that institutions prefer low-dividend stocks to high-dividend stocks.” Gompers and Metrick (2001) and Bennett, Sias, and Starks (2003) also concluded that a stock’s institutional holdings varied inversely with its dividend yield over 1980-1996 and 1983-1997, respectively.

Although the PM standard of fiduciary care once applied to many institutional investors, that standard has been largely replaced in state statutes and Employee Retirement Income Security Act (ERISA). Since 1992, 43 states have substituted the less-restrictive PI standard of fiduciary responsibility, which uses modern portfolio theory to assess an investment’s prudence in the context of the overall portfolio. If PM biased institutions *toward* dividend-paying stocks, the change to PI removed this constraint and should have increased their appetite for non-dividend-paying shares. We present evidence here that the states’ removal of PM restrictions led institutional investors to expand their holdings of non-dividend-paying stocks during the 1990s.

Despite these potentially important changes, some recent research continues to suggest that PM restrictions encourage some institutions to hold dividend-paying shares for noneconomic reasons.

1. A 2007 paper on dividend clienteles (using data from 1990 to 1998) explained,

“Clienteles” for certain stock characteristics, such as dividend yield, may exist not only because of tax considerations at the managers’ level but also because of differences in capital requirements, liquidity needs, or other investor constraints. For example, manager types such as banks and pensions may prefer dividend-paying stocks because of Prudent Man rules.

2. A 2005 study of firm payout policy from 1980 to 1996 speculated, "Perhaps institutions prefer dividend-paying stocks because of the prudent-man regulations."
3. A widely cited paper published in 2000 argued that firms would attract institutional investors who provide valuable monitoring services and hence raise firm value. The study's main argument was that many institutions value dividends because they have relatively low tax rates, but the authors also mentioned fiduciary considerations:

One could justify an institutional preference for dividend-paying stocks directly by appealing to common institutional charter restrictions (which force institutions to invest only in stocks that pay dividends), or to the *Prudent Man rule*. In this context, the PM rule forces many institutional managers to invest overwhelmingly in stocks with high dividend yields.

4. Finally, a 2001 published paper suggested, "One possible cause of differences between individuals and institutions is the legal environment that institutions face as fiduciaries. We refer to fiduciary motives as 'prudence.'"

The lingering belief that PM restrictions govern institutional preferences has two potentially problematic implications. First, if a study's data set entirely predates the shift to PI standards, its conclusions may not apply to current institutional arrangements (e.g., Mauer and Senbet, 1992; Badrinath et al., 1995; Cebenoyan, Cooperman, and Register, 1995; Dhaliwal, Erickson, and Trezevant, 1999). Second, if a study's data set spans the change from PM to PI, its conclusions may be biased by the change in institutional incentives.

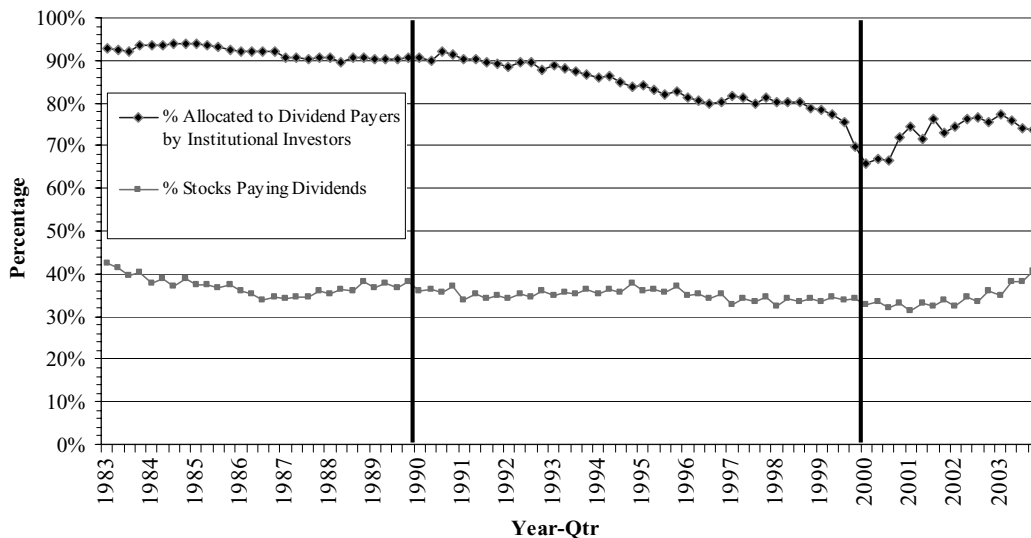
On its face, the demise of PM standards appears to have affected institutional portfolios: our data indicate that average institutions' proportion of dividend-paying stocks declined from 91% of their equity portfolio's market value in 1990 to 67% in 2000 (see Figure 1, which indicates the limits of our sample by vertical lines). This trend reversed after 2000, but the institutions' end-of-period share of non-dividend-paying stocks still substantially exceeded their holdings in the early 1990s. The post-2000 reduction in institutions' nondividend payers reflected a marketwide pattern. Chetty and Saez (2005, p. 808) note that "the total number of publicly traded firms fell precipitously since late 2000 and most delisted firms were young, nonpaying firms (the so-called 'dot com bust')." Fama and French (2001) also traced a decline in dividend-paying stocks from 1978 to 1999. These marketwide patterns must be considered in any tests of the impact of prudential standards on institutional preferences for dividend-paying shares.

We present two forms of empirical evidence. First, we use the states' staggered replacement of the PM with the PI fiduciary standard to identify the impact of this statutory change on institutions' holdings of dividend-paying shares. We construct a panel data set describing each institutional investor's holdings of dividend-paying stocks as a proportion of its entire equity portfolio. We examine changes in this proportion over time and find that the mean institutional investor reallocated roughly 2% to 3% of its portfolio from dividend payers to nondividend payers following the adoption of the new PI rule by the relevant state legislature.¹ With so much equity under institutional managers' control, such a shift in preferences could affect equilibrium prices and returns.

Our second form of analysis studies the institutional demand for individual stocks, as in Gompers and Metrick (2001), Bennett et al. (2003), and Grinstein and Michaely (2005). Using multivariate regression, we confirm earlier findings that institutions exhibit an aversion to higher

¹According to the Federal Reserve Board's Flow of Funds data (Table L213), institutions held an average of \$4,476 billion in corporate equities during 1990-2000. A 2% to 3% reallocation by these investors thus represents \$90 billion to \$135 billion.

Figure 1. Allocation to Dividend-Paying Stocks (Our Sample Period Bounded by Vertical Bars)



dividend yield. However, we show that dividend payment was attractive to institutions through 1993 but became substantially unattractive in the subsequent years. This shift in preferences corresponds to the beginning of a state trend toward repealing the PM standard, so our findings are consistent with the hypothesis that changes in the applicable fiduciary standard led institutions to shift their portfolios away from dividend-paying firms.

The paper is organized as follows. Section I reviews the history and importance of prudent investing constraints, and Section II introduces the Portfolio Reallocation Hypothesis. Section III describes the data, and Section IV discusses the methodology and empirical findings for the institutional demand analysis. Section V reports our results for the institutional holdings of individual stocks, and Section VI concludes.

I. Potential Effects of Fiduciary Standards

In many situations, investment managers exercise discretionary control over clients' assets. The resulting agency concerns led the state legislatures to define appropriate standards for fiduciary conduct. Potential agency problems are most substantial in trust and employee pension situations because the asset beneficiaries cannot readily select (or change) their investment advisers. Trust and pension fund investment managers therefore have been most directly affected by legislated standards of fiduciary care. For many years, state statutes imposed a PM standard of care, which derived from English common law established early in the eighteenth century. The PM standard favored security of principal over long term returns and took the view that an asset's stand-alone properties determined suitability (or prudence):

In making investments of trust funds the trustee is under a duty to the beneficiary . . . to make such investments and only such investments as a *prudent man* would make of his own

property. . . . The purchase of shares of preferred or common stock of a company *with regular earnings and paying regular dividends* which may reasonably be expected to continue is a proper trust investment if prudent men in the community are accustomed to invest in such shares when making an investment of their savings with a view to their safety. (American Law Institute, 1959, Section 227, emphasis added)

Under PM, a trustee could be held liable for losses suffered on an individual investment even if the beneficiary's overall portfolio return was positive.²

The PM standard does not restrict fiduciaries to specific investments, but it does require them to weigh the prudence of each investment *in isolation*. Fiduciaries therefore were keen to identify investment properties that could be defended as (ex ante) prudent in the event of loss. Prior to the Great Depression, suitable investments were sometimes restricted to "legal lists" of approved assets such as government securities and other fixed income products. Most state legislatures did not codify PM standards until after bond values crashed in the 1930s and legal lists fell out of favor (Shattuck, 1951). Dividend payments became a readily observed indicator of prudence for equity investments (Badrinath et al., 1995; Gompers and Metrick, 2001; Mehrotra, Mikkelsen, and Partch, 2003; Parrino, Sias, and Starks, 2003).

Although the PM standard applied most specifically to trust fiduciaries (a subset of all institutional investors), Gompers and Metrick (2001, p. 238) reported, "Empirical studies and survey evidence, however, suggest that many nonbank institutions also consider prudence characteristics." Courts considering fiduciary issues frequently cited the American Law Institute's (1959) influential *2nd Restatement of Trusts* (quoted above). The PM standard received temporary federal support with the 1974 passage of the ERISA, whose original language specified a standard of care very close to PM for managers of private pension funds.³ However, portfolio theory, which had emerged in the 1960s, challenged the idea that an asset's "risk" could be assessed in isolation from the portfolio in which it is held. As derivatives, mutual funds, international stocks, and portfolio theory became mainstays of investing, PM seemed increasingly outdated. When ERISA was amended in 1979, its PM standard was replaced by a less prescriptive fiduciary standard. The so-called PI standard evaluates investments on the basis of their ex ante suitability within a portfolio. Such a change might reduce or eliminate fiduciaries' defensive incentives to concentrate their equity holdings in dividend-paying blue chip stocks.⁴ The American Law Institute's *3rd Restatement of Trusts* (1992) strongly argued for a PI standard and formed the basis for a Uniform Prudent Investor Act (UPIA) drafted in 1994 by the National Conference of Commissioners on Uniform State Laws. The UPIA stated simply,

All categoric restrictions on types of investments have been abrogated; the trustee can invest in anything that plays an appropriate role in achieving the risk/return objectives of the trust.
(p. 1)

²Badrinath, Gay, and Kale (1989) and Del Guercio (1996) present more detailed histories of the PM standard. See Table I.

³ERISA further specified that a private pension's investment manager found in breach of fiduciary duties could be held personally responsible for any losses. An informal survey of insurance companies' websites found all firms offering fiduciary insurance cited ERISA as the origin of fiduciary liability.

⁴Modern portfolio theory and the PI standard also complicated the administration of trusts managed for the benefit of both an income recipient and a residual claimant on principal (Langbein, 1996). Under PM, dividends were clearly income, while a stock's market value was principal. Schanzenbach and Sitkoff (2007) contended that state rules defining trust principal and income began to change rapidly after about 1997 and that these changes affected the asset composition of trust assets managed by commercial banks. See their footnote 54.

Table I. Legal Standards of Prudence for Fiduciaries

The legal standards for prudent investing evolved over time. This table highlights the major changes affecting fiduciary behavior.

1959	American Law Institute's <i>Restatement of Trusts</i> (2nd)	Permitted fiduciaries to purchase stock "of a company with regular earnings and paying regular dividends."
1974	Employee Retirement Income Security Act (ERISA)	While ERISA does not prohibit the purchase of non-dividend-paying stocks, it does codify the threat of lawsuits for employee pension and benefit plan fiduciaries. Exculpatory clauses are barred. "Any person who is a fiduciary with respect to a plan who breaches any of the responsibilities, obligations, or duties imposed upon fiduciaries by this subchapter shall be personally liable to make good to such plan any losses to the plan resulting from each such breach, and to restore to such plan any profits of such fiduciary which have been made through use of assets of the plan by the fiduciary, and shall be subject to such other equitable or remedial relief as the court may deem appropriate, including removal of such fiduciary" (Title 29, Chapter 18, Subtitle B, Part 4, Paragraph 1109—"Liability for breach of fiduciary duty").
1979	ERISA Amendment	While maintaining the threat of legal liability and refusing to clarify "diversification of risk," the prudence standard for employee pension and benefit plans was amended. "The 'prudent' rule in the Act sets forth a standard built upon, but should and does depart from, traditional trust law. . . . [T]he relative riskiness of a specific investment or investment course of action does not render such investment or investment course of action either per se prudent or per se imprudent" (Federal Register, Vol. 44 No. 124, 6/26/79—Department of Labor, "Pension and Welfare Benefit Programs").
1985	Delaware	Revised its standards of prudence to encourage the use of modern portfolio theory.
1992	American Law Institute's <i>Restatement of Trusts</i> (3rd)	Formal introduction of prudent investor standards. "All categoric restrictions on types of investments have been abrogated; the trustee can invest in anything that plays an appropriate role in achieving the risk/return objectives of the trust." Notes applicability to other fiduciaries. "Other fiduciaries. . . sometimes have responsibilities over assets that are governed by the standards of prudent investment. It will often be appropriate for states to adapt the law governing investment by trustees under this Act to these other fiduciary regimes. . ."
1994	Uniform Prudent Investor Act (UPIA)	Adopted by the National Conference of Commissioners on Uniform State Laws, the UPIA "draws upon the revised standards for prudent investing promulgated by the American Law Institute in its Restatement (Third) of Trusts."
1992-2004		UPIA or similar legislation is adopted by 43 states.

Table II indicates that 43 states adopted PI rules or similar legislation between 1992 and 2004. Our data cover 1990-2000, when 39 states adopted PI legislation.⁵

The UPIA's straightforward language appears to eliminate a trustee's defensive need to hold individually "prudent" investments. However, statutory changes may not influence business practice broadly until they pass the hurdle of judicial approval. For example, former SEC Commissioner Bevis Longstreth (1986, p. 36) observed,

The Labor Department's flexible interpretation of the statutory language, coupled with the absence of narrow judicial interpretations, would appear to leave pension funds significantly less constrained than other fiduciaries to use unconventional investment products and techniques . . . Nevertheless, *even the liberality of ERISA's prudence standard has proved insufficient to overcome the craving for safety in numbers* (and the attendant bias against innovation) that characterizes fiduciaries subject to less sophisticated versions of the prudent man rule (emphasis added).

The extent of a fiduciary's legal risk is well illustrated by a suit brought by the Laborers National Pension Fund against its pension manager in 1995. Long after ERISA had approved the use of modern portfolio theory, the American National Bank and Trust of Chicago (ANB, subsequently acquired by Northern Trust) had invested a portion of the Laborers National Pension Fund assets in interest-only mortgage-backed (IO) securities. The fund had a positive return for 1992 but suffered losses on its IOs. The fund's trustees sued ANB for breach of fiduciary duty under ERISA. The district court initially found for the plaintiffs by explicitly rejecting the PI standard of care: "It does not matter that other investment consultants in the industry held the opinion that IOs were appropriate for modern investment portfolios or that the portfolio as a whole made an adequate return" (*Laborers National Pension Fund vs. American National Bank and Trust*, 1995). The Fifth Circuit Court reversed this decision in 1999, asserting that the lower court used a "clearly erroneous standard" of individual asset risk. The lower court's rejection of modern portfolio theory may reflect the influence of state fiduciary standards on common law: the Laborers National Pension Fund is located in Texas, which did not adopt PI until 2004. Perhaps surprisingly, the threat of legal liability remained—or, at a minimum, the possibility of prolonged court battles.

We hypothesize that many institutions' preference for "prudent," dividend-paying stocks abated only when states affirmatively endorsed the PI standard of fiduciary care. Our tests are based on the assumption that the laws of an adviser's state affect the adviser's investment choices, even if all the adviser's customers may not reside in the same state.⁶ If this assumption is substantially incorrect, the timing of state legal changes should not affect managers' investment decisions. Another issue likewise makes it more difficult to reject the null hypothesis (of no

⁵The state of Delaware presents a unique situation. Delaware relaxed its governance of fiduciaries in 1985, well before the UPIA was written. While the state never passed the formal PI legislation, the de facto circumstances match those states in which PI laws existed. In our reported results, Delaware was coded as having PI laws in effect throughout 1990-2000. However, treating Delaware as a state that never adopted the PI legislation does not change the findings in any material way.

⁶Each trust specifies which state's legal structure should govern trustee actions. Many trusts are managed in the same state in which they were set up, but there are exceptions. For example, Fidelity Management Company manages all its trust accounts through a federally chartered subsidiary located in Boston, the Fidelity Personal Trust Company (FSB). Differences between the location of the fiduciary and the beneficiary raised the possibility that a suit might be brought under *either* state's laws. Schanzenbach and Sitkoff (2007) studied the impact of PI adoption on trust companies operating in the state that changed its law. They argued that such trusts are clearly subject to their home state's fiduciary standards, assuming implicitly that all their trust assets belong to trusts established in the same state.

Table II. Prudent Investor Adoption by Year

States that have adopted the Uniform Prudent Investor Act, or similar legislation, are listed by year of adoption. These dates were obtained from each state's statutes. States adopting prudent investor legislation after 2000 are not included in our analysis.

1985	Q1	Delaware*	1997	Q3	Maine
			1997	Q3	Nebraska
1992	Q1	Illinois*	1997	Q3	North Dakota
			1997	Q4	Connecticut
1993	Q4	Florida*			
			1998	Q2	Alaska
1994	Q4	Maryland	1998	Q3	Vermont
1995	Q1	New York*	1999	Q1	Washington, DC
1995	Q1	South Dakota*	1999	Q1	Massachusetts
1995	Q3	Colorado	1999	Q1	New Hampshire
1995	Q3	New Mexico	1999	Q1	Ohio
1995	Q3	Oregon	1999	Q2	Indiana
1995	Q3	Utah	1999	Q3	Wyoming
1995	Q3	Washington			
1995	Q4	Oklahoma	2000	Q1	North Carolina
			2000	Q1	Pennsylvania
1996	Q1	California	2000	Q1	Virginia
1996	Q3	Arizona	2000	Q2	Michigan
1996	Q3	Montana	2000	Q3	Iowa
1996	Q3	Rhode Island	2000	Q3	Kansas
1996	Q3	West Virginia			
			2001	Q3	South Carolina
1997	Q1	Arkansas			
1997	Q1	Minnesota	2002	Q3	Tennessee
1997	Q2	Hawaii			
1997	Q2	New Jersey	2003	Q3	Nevada
1997	Q3	Idaho			
			2004	Q1	Texas

* These states adopted legislation similar, but not identical, to the UPIA.

reaction to fiduciary change): uncertainty about the applicability of state laws based on an investment manager's state of incorporation versus its headquarters. For some institutions, the states of headquarters and incorporation differ, and it is not clear which state effectively sets the relevant fiduciary standards. We deal with this ambiguity by evaluating two data sets: those institutions for which we know the state of incorporation and those institutions for which we know the headquarter's state.⁷ It seems likely that the disparity between locations of the fiduciary and beneficiary would be greater for the largest managers in our sample. We therefore repeat some of our tests for a subset that excludes investment managers holding the largest quartile of equity.

⁷These data were hand-collected from EDGAR. EDGAR identifies the state of incorporation *or* the headquarters' state for 1,642 (out of 1,848) institutional investors. We analyze two samples according to whether we have positive identification of the investor's state of headquarters or incorporation. Some investors are included in both samples.

II. Hypotheses and Regression Specifications

The academic and trade literatures suggest that dividend payments provided legal confirmation of a trustee's prudence under the PM standard of fiduciary care. Under the Portfolio Reallocation Hypothesis (PRH), the introduction of a PI fiduciary standard should reduce institutional investors' holdings of dividend-paying stocks. We test this hypothesis in two ways. First, we examine intertemporal changes in institutions' holdings of dividend-paying shares. Second, we show that the institutional demand for dividend-paying stocks declined over the time PI standards were replacing PM.

A. Institutions' Portfolio Reallocations

Many factors might have influenced institutional investors' preferences for dividend-paying stocks throughout 1990-2000. We control for these other factors by estimating a "difference-in-difference" model of institutional share holdings. Bertrand, Duflo, and Mullainathan (2004) showed that serially correlated residuals can bias traditional applications of difference-in-difference methodologies toward rejecting the null hypothesis that a policy change has no effect. Moreover, these biases can be large, particularly when all observations share the same event date (e.g., a change in the national minimum wage). In contrast, our analysis concentrates on the effects of PI rules, whose adoptions were staggered through time. Bertrand et al. concluded that the results would be more reliable under such circumstances. However, they also used Monte Carlo simulations to identify a procedure that preserves the advantages of difference-in-difference analysis while avoiding statistical biases based on serial correlation. They recommended that the researcher first regress the variable of interest on a group of exogenous variables, leaving a set of residuals unrelated to economywide or industrywide events. The impact of a policy change can then be measured by comparing the average residuals before versus after the applicable event date(s).

We implement this methodology by first regressing institutions' equity portfolio share of dividend-paying stocks on a small set of exogenous variables:

$$Div_Share_{it} = \alpha_i + \gamma Size_{it} + \sum_{t=2}^T \gamma_t Quarter_t + \sum_{j=2}^5 \gamma_j Type_j + \varepsilon_{it}, \quad (1)$$

where

Div_Share_{it} is the proportion of its equity portfolio held in dividend-paying stocks by manager i at the end of quarter t .

$Size_{it}$ is the log of the i th investor's assets under management at quarter t .

$Quarter_t$ is a dummy variable equal to unity for observations in that quarter, and zero otherwise. The sample period runs 44 quarters, from 1990-I through 2000-IV; we include only the last 43 $Quarter_t$ variables to avoid the dummy variable trap.

$Type_i$ is a dummy variable denoting the manager's institutional type, as identified by Thomson Financial:

Type 1 = banks

Type 2 = insurance companies

Type 3 = investment companies (including mutual fund advisers)

Type 4 = independent investment advisers (include brokers)

Type 5 = other (a portmanteau category which includes, among others, pension funds and university endowments).

The residuals from this pooled cross-sectional time-series Regression (1) are purged of time and institutional effects. The quarterly dummy variables remove marketwide effects of investor preferences and the availability of dividend-paying stocks (as discussed by Fama and French, 2001). The *Size* and *Type* variables similarly absorb systematic effects of these variables on the demand for dividend-paying shares. Bertrand et al. (2004) recommended a difference-in-difference method that compares the pre- and postchange mean residuals for each institution in the sample. The PRH implies that the postreform residuals should be smaller (in algebraic value) than the prereform residuals. We therefore compare institution *i*'s residuals over the quarters preceding—versus following—passage of his state's PI law. (The quarter of passage is omitted.) We implement a simple *t*-test via the regression:

$$Residual_{it} = \beta_0 + \beta_1 PI_{it} + \varepsilon_{it}, \quad (2)$$

where $Residual_{it}$ is the *i*th investor's residual from Regression (1) for quarter *t*, and PI_{it} is a binary variable equal to unity for postadoption period in the *i*th institution's state.

A significant negative coefficient on *PI* indicates that investment managers held a smaller proportion of their equity as dividend-paying stocks after the PI fiduciary standard was introduced in their states, *ceteris paribus*. As written, Equation (2) weighs each residual observation equally. So an institution with more observations in the data set has more weight in determining the value of $\hat{\beta}_1$. This precludes institutions with limited observations from having an undue influence.

Two aspects of Equation (2) require further specification. First, it is not always clear when an institutional investor's applicable fiduciary standard changed because some institutions are headquartered in one state but incorporated in another. As described in Section I, we define PI_{it} two ways, separately identifying when a manager's headquarters state or its state of incorporation adopted a PI standard.

PI_HQ_{it} is a binary variable equal to unity if the corporate headquarters of the *i*th institutional investor is located in a state with a PI law in place at time *t*. Otherwise, $PI_HQ = 0$.

PI_INC_{it} is a binary variable equal to unity if the *i*th institutional investor is incorporated in a state with a PI law in place at time *t*. Otherwise, $PI_INC = 0$.

We undertake separate tests for each definition of the "relevant" statutory change. Second, it is not clear how wide a window should be examined around the adoption quarter, although it seems likely that institutional investors will take some time to rearrange large portfolios.⁸ We therefore examine several annual (or longer) windows to determine how quickly an institution's portfolio responds to the change in fiduciary standards and whether that response builds over time. As additional checks of robustness, we present further subsample analysis. We exclude the largest institutions and rerun the test after to ensure they are not driving the results. Last, we examine responses to PI for each institution type and for different time periods separately.

B. A Stock's Institutional Ownership

Our second set of tests evaluate the determinants of a stock's ownership composition, in the spirit of Gompers and Metrick (2001), Bennett et al. (2003), and Grinstein and Michaely (2005). Although these studies differed in their primary focus, they all found that institutional investors preferred stocks with lower dividend *yields*.⁹ The data in these empirical papers included both PM

⁸Note that institutions may anticipate the date when the standard changes, beginning their portfolio adjustment in advance of the date we measure. This effect will bias our tests against finding a significant effect of the change in standards.

⁹Grinstein and Michaely (2005) concluded further that institutions have no preference for whether a stock pays dividends. Brav et al.'s (2005) survey provided some slight contradictory evidence.

and PI regimes—approximately 1980 to 1997. During the second half of this period, many states replaced their PM standard of fiduciary care, which made nondividend payers more attractive to at least some institutional investors. It thus seems plausible that these changes might have affected the studies' conclusions. We most closely follow Bennett et al. in running cross-section regressions explaining the proportion of each firm's shares held by institutional investors:

$$IO\%_i = \alpha + \beta_1 X_i + \beta_2 DivDum_i + \varepsilon_i, \quad (3)$$

where

$IO\%$ = the proportion of the i th firm's outstanding shares (float) held by all types of institutional investors combined.

X_i is a set of other firm and share traits defined by Bennett et al. (2003) (listed in Section V).

$DivDum_i$ is a binary variable equal to unity if the stock paid a cash dividend within the prior year. Otherwise, $DivDum = 0$.

We estimate the cross-sectional Regression (3) quarterly for all stocks in the CRSP/Compustat universe. If the PM standard had encouraged institutions to hold dividend-paying shares, we should find smaller coefficients on $DivDum$ in the later periods. Another way to implement this test uses a pooled regression

$$IO\%_{it} = \alpha_t + \beta_1 X_{it} + \beta_2 DivDum_{it} + \sum_{k=1983}^{2003} \beta_k Year_k + \sum_{k=1983}^{2003} \alpha_k DivDum_{it} * Year_k + \varepsilon_{it}. \quad (4)$$

In this specification, the PRH will be reflected in decreasing coefficients on the terms $DivDum_{it} * Year_k$.

III. Data

Our analysis requires data on the applicable fiduciary standard of care for institutional investors and those investors' holdings of dividend-paying stocks over time. We began by identifying the universe of institutional investors. The Securities Exchange Act of 1934 requires any investor who owns or controls at least \$100 million of Section 13(F) securities to report its portfolio holdings at the end of each quarter.¹⁰ From a database maintained by the CDA/Spectrum subsidiary of Thomson Financial, we collected a list of institutional investors filing at least one 13F report between March 1990 and December 2000. Because we needed to observe an investor's time series behavior, we retained only the 1,848 managers whose data spanned the four quarters on either side of their legislative event quarter.

Starting with the entire CRSP/Compustat universe, we identified equity securities that paid dividends. Following Fama and French (2001), we defined a dividend-paying stock as one with positive US cash dividends, taxed as dividends, and paid on a quarterly, semiannual, or annual basis.¹¹ We excluded firms with assets less than \$500,000 or book value of equity less than

¹⁰Section 13(F) securities have voting rights or can be converted into securities with voting rights. Following Gompers and Metrick (2001), we refer to the entities filing 13F reports as either "institutions" or "managers."

¹¹Unlike Fama and French (2001), we do not exclude utilities or financial firms because institutions may hold these securities in their portfolios regardless of their dividend status.

\$250,000. We also excluded securities with a CRSP shares code other than 10 or 11. (This matches with Compustat stock codes of 0 and limits the sample to publicly traded firms.) We then matched this list of dividend-paying stocks against each institution's share holdings (from their 13F filings) to compute a proportion of assets invested in dividend-paying stocks for each institution at each quarter-end between March 1990 and December 2000. While a few states changed their fiduciary standards after this period, the sample is limited to the pivotal first decade because of the laborious nature of the data collection and because the threat of legal liability diminished after the majority of states had switched.

IV. Changes in the Institutions' Portfolio Composition

The Bertrand et al. (2004) difference-in-difference method begins by estimating Regression (1), whose results are reported in Table III. The positive coefficient in *Size* indicates that larger institutional investors concentrate significantly more in dividend-paying shares. Among the different investor types, investment companies, independent investment advisers, and others hold substantially (and significantly) fewer dividend-paying shares than the omitted category (Banks). Figure 2 plots the coefficients on the *Quarter_t* dummy variables, which show a strong downward time trend in institutional holdings of dividend paying stocks. This could reflect a decline in the aggregate supply of dividend-paying firms, or some unexplained shift in economywide institutional preferences. The important thing to emphasize here is that the residuals from Equation (1) are orthogonal to this time trend, which permits us to concentrate on institutional responses to the states' changes in fiduciary standards.

A. Results for Aggregate Investor Holdings

We first test the PRH for the aggregate set of all institutional investors. Table IV presents the results from estimating the effect of PI laws on resident investment managers' proportion of dividend-paying equity. We take the residuals from Equation (1) and compute their means for various periods before and after the passage of a state's PI standard. The results are quite consistent across the alternative estimation intervals. In the first column of Table IV, we find that the average residual from Equation (1) following the quarter of the statutory change is 3.2% below the same investor's average residual before the change in its headquarter state's financial standard. This difference is highly significant (p -value < 0.000). Using the investor's state of incorporation to indicate the relevant fiduciary standard gives a smaller (−2.4%) effect, which is also highly significant.

We observed above that very large institutions may deal with customers in many states, and hence the institution's state legislative changes may only slightly affect its investment decisions. This effect is likely to be more important for larger institutional investors. We therefore reestimate regression (2) for the 75% of institutional investors with the smallest portfolios. The resulting estimates were close to those reported in the first column of Table IV: −3.1% (p < 0.001) when $PI = HQ$ and −2.1% ($p = 0.074$) when $PI = INC$.

The next four columns in Table IV compare mean residuals for other estimation intervals: the four quarters preceding PI adoption versus the four subsequent quarters, and so forth. In all cases, the estimated effect of the PI statute lies between −3.1% and −3.8% when we identify the relevant state as that of the manager's headquarters. Identifying the relevant state law as that of the manager's incorporation yields slightly weaker, but still significant, results in the range of −1.9%

Table III. First Stage Regression Estimates

Following the method of Bertrand et al. (2004), we regress via OLS all managers' dividend-paying equity shares on control variables as in (1):

$$Div_Share_{it} = \alpha_i + \gamma Size_{it} + \sum_{t=2}^T \gamma_t Quarter_t + \sum_{j=2}^5 \gamma_j Type_j + \varepsilon_{it}, \tag{1}$$

where Div_share_{it} is the proportion of the equity portfolio held in dividend-paying stocks by manager i in quarter t ; α_i measures the effect of manager i ; γ_t measures the impact of quarter t across all managers; $Size_{it}$ is the i th investor's assets under management at quarter t ; and $Type_i$ is a dummy variable identifying the manager's institutional type (bank, insurance company, investment company, independent investment adviser, or other). "Bank" is the omitted category. Coefficient p -values are reported in parentheses below the coefficients. This regression is used only to generate regression residuals to be tested. Because the estimated coefficients' significance is not relevant for our analysis, we do not employ cluster-adjusted or White standard errors. Figure 2 plots estimated coefficients on the quarterly time dummy variables.

Size	0.014 (0.000)
Type = 2, Insurance Companies	0.000 (0.000)
Type = 3, Investment Companies	-0.165 (0.000)
Type = 4, Independent Investment Advisers	-0.186 (0.000)
Type = 5, Other	-0.208 (0.000)
Constant	0.633 (0.000)
N	47,078
Number of managers	1,642
R ²	0.236

Figure 2. Quarterly Time Dummy Coefficients from Bertrand et al. (2004) First-Stage Regression

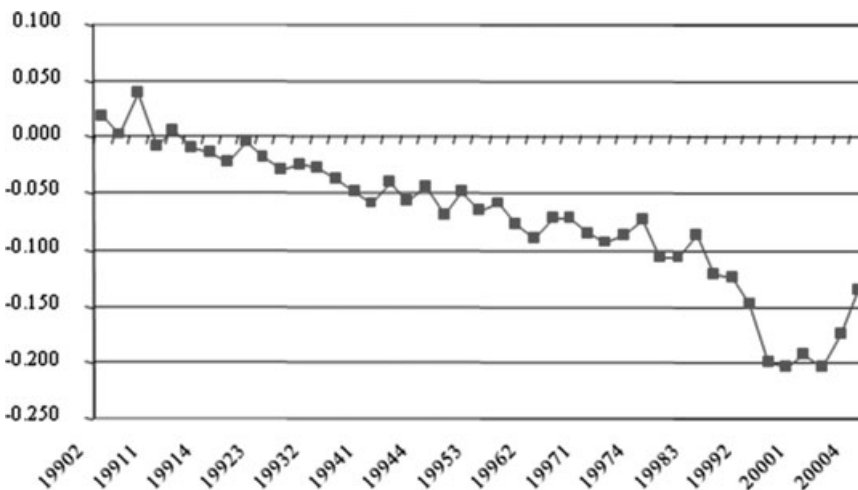


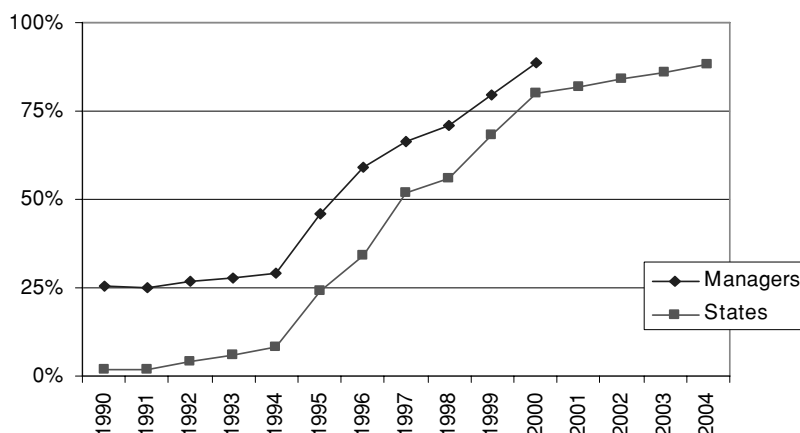
Table IV. Portfolio Reallocation Following Prudent Investor Adoption, All Institution Types (Equally Weighted Observations)

We compare individual managers' average residuals from estimated Regression (1) over several intervals before versus after the quarter in which the fiduciary standard changed by running the regression:

$$Residual_{it} = \beta_0 + \beta_1 PI_{it} + \varepsilon_{it}, \tag{2}$$

where $Residual_{it}$ is the i th manager's residual from Regression (1) for quarter t , and PI_{it} is a binary variable equal to unity for postadoption period in the i th institution's state. The PI_{it} dummy is defined alternatively according to the legislative changes in a manager's state of incorporation ($PI = INC$) or headquarters state ($PI = HQ$). The periods compared are expressed relative to the quarter in which legislation changed. (All event quarter observations are excluded.) Regression residuals are adjusted for clustering at the state level. p -values are reported in parentheses below estimated coefficients.

Preevent Period	Select Periods before and after PI Adoption					
	(1) All Available Quarters	(2) All Available Quarters	(3) Quarters [-4, -1]	(4) Quarters [-4, -1]	(5) Quarters [-4, -1]	(6) Quarters [-8, -1]
Postevent Period	All Available Quarters	All Available Quarters	Quarters [1, 4]	Quarters [5, 8]	Quarters [9, 12]	Quarters [1, 8]
Sample	All Institutions	Smallest 75% of Institutions	All Institutions	All Institutions	All Institutions	All Institutions
$PI = HQ$	-0.032 (0.000)	-0.032 (0.001)	-0.031 (0.000)	-0.033 (0.001)	-0.038 (0.000)	-0.032 (0.000)
Constant	0.011 (0.450)	0.014 (0.400)	0.008 (0.580)	0.008 (0.580)	0.008 (0.580)	0.008 (0.540)
No. of obs.	2,202	1,652	2,188	2,002	1,792	2,188
R^2	0.006	0.005	0.005	0.005	0.007	0.005
$PI = INC$	-0.024 (0.005)	-0.021 (0.074)	-0.019 (0.060)	-0.023 (0.054)	-0.031 (0.013)	-0.021 (0.044)
Constant	0.019 (0.190)	0.025 (0.130)	0.015 (0.340)	0.015 (0.340)	0.015 (0.340)	0.016 (0.300)
No. of obs.	1,349	1,012	1,338	1,207	1,078	1,338
R^2	0.003	0.002	0.002	0.002	0.004	0.002

Figure 3. Proportions of Adopting States and Sample Managers Operating under Prudent Investor Standard

to -3.1% . Moreover, the extent of the reallocation away from dividend payers increases slightly with the amount of time since the statutory revision. Columns (3) to (5) compare the last preevent year's average residual with the first, second, and third postevent years' averages. Regardless how we define the relevant event ($PI = HQ$ or $PI = INC$), the estimated reduction in dividend-paying stocks increases with time. The last column in Table IV compares the two preevent years to the two postevent years. As for the other comparisons, institutional investors significantly reduced their holdings of dividend-paying stocks following the change in fiduciary standards.

Specification (2) assumes that fiduciaries react only to legislation in "their own" state(s). However, it is also possible that portfolio managers felt less potential legal liability after a few states had adopted the new prudence standard. To test this possibility, we divide the sample period into halves and test whether the portfolio reallocations we attribute to PI in Table IV are driven by the earliest adopters. Figure 3 indicates that the median adopting state changed its law in 1997. We therefore define "early" adopters as investment managers whose state of headquarters or incorporation adopted PI before the start of 1998. Table V clearly indicates that the actual adoption date affects managers' investment behavior and that our findings are not driven just by the early adopters. We conclude that PM remained a constraint for some institutions even after the early state adopters had acted.

B. Results for Specific Investor Types

The regressions in Tables IV and V constrain all types of institutions to have the same response to PI legislation. Yet significant coefficients on the institutional *Type* dummy variables in Table III suggest that different types of institutions had different preferences for dividend-paying stocks. Perhaps the overall decline in aggregate *Div_Share* reflects a shift in the composition of reporting institutions toward institutional types that were less strictly bound by statutory fiduciary standards.¹² Unfortunately, there is no simple correspondence between an institutional investor's

¹²For example, Gompers and Metrick (2001) reported that the proportion of investment advisers (Type = 4) among reporting 13F institutions grew between 1980 and 1996, and we find that trend continuing through 2000.

Table V. Early Versus Late PI Adoptions, All Institution Types (Equally Weighted Observations)

We compare individual managers' average residuals from estimated regression (1) over several intervals before versus after the quarter in which the fiduciary standard changed by running the regression:

$$Residual_{it} = \beta_0 + \beta_1 PI_{it} + \varepsilon_{it}, \quad (2)$$

where $Residual_{it}$ is the i th manager's residual from Regression (1) for quarter t , and PI_{it} is a binary variable equal to unity for postadoption period in the i th institution's state. The PI_{it} dummy is defined alternatively according the legislative changes in a manager's state of incorporation ($PI = INC$) or headquarters state ($PI = HQ$). The periods compared are expressed relative to the quarter in which legislation changed. (All event quarter observations are excluded.) The early period includes managers in states that adopted PI in or before 1997. Late adopters are managers in states that adopted PI after 1997. Managers in states that never switched fiduciary laws are included in both subsamples as a baseline. Regression residuals are adjusted for clustering at the state level. p -values are reported in parentheses below estimated coefficients.

	Before 1998	1998 and after
$PI = HQ$	-0.011 (0.084)	-0.022 (0.000)
Constant	-0.017 (0.140)	0.048 (0.001)
No. of obs.	1520	682
R^2	0.001	0.002
$PI = INC$	-0.002 (0.830)	-0.016 (0.018)
Constant	-0.010 (0.510)	0.050 (0.014)
No. of obs.	865	484
R^2	0.000	0.001

type (as identified by Thomson Financial Services in the data) and its sensitivity to changes in fiduciary standards. At one time, commercial banks probably managed the bulk of trust assets, but by the 1990s other institution types were offering personal trust management services and were advising pension funds. We therefore wish to examine the reaction of each institutional type to a change in fiduciary standards.

Table VI reports the results of estimating (2) separately for each institution type.¹³ The first column repeats the "All Institutions" result from Table IV to permit easy reference. The next five columns report separate regression models for each of the five investor categories identified by Thomson Financial. Assuming that the relevant standard goes with an adviser's headquarters state ($PI = HQ$), we see significant declines in dividend-paying stock holdings for all investor types except insurance companies. The largest point estimate (-6.5%) applies to the "other" category, which includes pension funds. The next largest effect (-6.1%) applies to investment companies (including mutual funds). Banks (-2.2%) and independent investment advisers (-2.9%) also manifest statistically significant reductions in their holdings of dividend-paying stocks. Similar

¹³Hsieh and Walking (2005) reported that Thomson Financial incorrectly identified some institutional investors as "other" (Type 5) in recent years. We therefore ran our tests using both the *contemporaneous* institution codes and (following Hsieh and Walking, 2005) the *Type* first assigned to the institution when it entered the database or in 1990, whichever is earlier. The reported results use the initially reported type code.

Table VI. Portfolio Reallocation Following Prudent Investor Adoption by Institution Type (Equally Weighted Observations, All Available Quarters)

We compare individual managers' average residuals from estimated Regression (1) over several intervals before versus after the quarter in which the fiduciary standard changed by running the regression:

$$Residual_{it} = \beta_0 + \beta_1 PI_{it} + \varepsilon_{it}, \quad (2)$$

where $Residual_{it}$ is the i th investor's residual from regression (1) for quarter t , and PI_{it} is a binary variable equal to unity for postadoption period in the i th institution's state. The PI_{it} dummy is defined alternatively according the legislative changes in a manager's state of incorporation ($PI = INC$) or headquarters state ($PI = HQ$). The periods compared are expressed relative to the quarter in which legislation changed. (All event quarter observations are excluded.) Regression residuals are adjusted for clustering at the state level. p -values are reported in parentheses below estimated coefficients.

	All Institutions ^a	Banks	Insurance Companies	Investment Companies ^b	Independent Investment Advisers ^c	Other ^d
$PI = HQ$	-0.032 (0.000)	-0.022 (0.019)	-0.021 (0.340)	-0.061 (0.001)	-0.029 (0.008)	-0.065 (0.000)
Constant	0.011 (0.450)	0.011 (0.120)	-0.111 (0.000)	-0.016 (0.530)	0.009 (0.610)	0.149 (0.000)
No. of obs.	2,202	295	118	120	1,501	154
R^2	0.006	0.014	0.004	0.027	0.004	0.027
$PI = INC$	-0.024 (0.005)	-0.025 (0.080)	-0.009 (0.710)	-0.042 (0.130)	-0.023 (0.044)	-0.065 (0.032)
Constant	0.019 (0.190)	0.016 (0.068)	-0.111 (0.002)	-0.004 (0.890)	0.022 (0.240)	0.166 (0.000)
No. of obs.	1,349	199	68	68	940	65
R^2	0.003	0.017	0.001	0.015	0.003	0.043

^aRegression results repeated from the first column of Table IV.

^bIncludes mutual funds.

^cIncludes brokers.

^dIncludes pension funds and university endowments.

but somewhat smaller and less significant effects occur when the transition to PI is measured in the state of incorporation. We conclude that the movement away from dividend-paying equities in Tables IV and V reflect broad-based responses within the industry.

V. Changes in the Institutional Demand for Stock Characteristics

Our second approach to evaluating the effect of fiduciary standards on institutional attitudes toward dividend-paying stocks follows Gompers and Metrick (2001) and Bennett et al. (2003), who modeled the determinants of a stock's institutional ownership proportion during 1983-1997. Among other things, they documented a negative relationship between dividend *yield* and institutional ownership, which became stronger in the 1990s. Grinstein and Michaely (2005) provided confirmatory evidence that institutions prefer low dividends to high dividends while also preferring stocks that pay some dividends. Recall that the safe harbor for prudence under PM was simply the payment of regular dividends, not their magnitude. A zero-dividend yield should have discouraged institutional ownership early in the period. However, if PM constraints were

initially influential, the preference for dividends per se should have declined as the PI standard replaced PM.

We test for this effect on institutional ownership by adding a dummy variable for firms paying positive dividends to Bennett et al.'s (2003) analysis. They ran a regression like (3) to explain the proportion of each listed firm's shares held by 13F institutions at each quarter-end from 1983-I through 1997-IV. Each cross-section includes all firms on CRSP's NYSE-AMEX-NASD tape with adequate data. They then reported the average and standard deviation of estimated coefficients, as in Fama and MacBeth (1973). We use the same set of stock characteristics (collectively called X_{it} in Equation (3)) as used by Bennett et al.:

Beta is the sum of the coefficients in a regression of the firm's monthly return on the contemporaneous and lagged CRSP NYSE-AMEX value weighted index over the prior 24-60 months.

Standard Deviation is the natural logarithm of the standard deviation of the monthly returns over the prior 24-60 months.

Firm-Specific-Risk is Campbell, Lettau, Malkiel, and Xu (2001) computed daily firm-specific returns as the difference between a firm's return and its industry's return. Their monthly firm-specific risk is the sum of the squared daily values. The *Firm Specific Risk* used in estimating (3) is the natural logarithm of one plus the average monthly risk within the quarter.

Size is the natural logarithm of the firm's equity capitalization.

Age is the natural logarithm of the number of months the firm has been listed on CRSP since December 1972.

Price is the natural logarithm of one plus the quarter end share price.

Turnover is the natural logarithm of one plus the average ratio of monthly volume to number of shares outstanding in that quarter.

Lagged Return is the firm's cumulative return over the prior six months.

Div Yield is the natural logarithm of one plus the average monthly dividend yield over the prior 12 months.

Our additional variable identifying dividend-paying firms is

DivDum is an indicator variable that equals 1 if the firm has paid a dividend in the prior 12 months. Otherwise $DivDum = 0$.

Table VII extends Bennett et al.'s (2003) Table III to distinguish the effects of dividend payment versus dividend yield. The first row in Panel A replicates their results for their 1983-1997 sample period. The coefficient estimates are similar to those reported by Bennett et al. In particular, the *DivYield* coefficient carries a highly significant, negative coefficient. The second row indicates that adding the *DivDum* indicator does not substantially affect the other coefficient estimates, including the significant negative coefficient on *DivYield*. The estimated effect of *DivDum* (0.004) does not differ reliably from zero. The 60 quarterly cross-sectional regressions generate an approximately equal number of positive and negative coefficient estimates for *DivDum* and a *t*-statistic for the hypothesis that this mean coefficient differs significantly from zero is 0.553 ($p = 0.29$). In other words, over the entire sample period (1983-1997), cash dividends per se have no effect on institutional demand for a company's shares. Note, however, that the cross-sectional coefficients on *DivDum* are often statistically significant: 72% of the 29 positive estimates, and 52% of the 31 negative estimates are significant at the 5% level or better.

Table VII. Changing Institutional Preferences

We extend the Bennett et al. (2003) regressions assessing institutional preferences for stock characteristics by running a cross-sectional regression for each calendar quarter:

$$IO \%_{it} = \alpha_{it} + \beta_1 X_{it} + \beta_2 DivDum_{it} + \varepsilon_{it} \tag{3}$$

Following the same methods described in their paper, we add a new explanatory variable (*DivDum*). Note that all variables are standardized (rescaled to a mean of zero and a standard deviation of one). *DivDum* is an indicator variable equal to unity if the firm paid a cash dividend within the prior 12 months. The time-series average coefficient from the quarterly regressions is in the first row of each cell and the square brackets below report the *p*-value for the hypothesis that this mean differs significantly from zero. In the third row, the fraction of positive coefficients is listed followed by the fraction of positive coefficients that are significant (at the 5% level or better based on White's approach). The fourth row lists the fraction of negative coefficients and the fraction of significant negative coefficients.

Period	Beta	Std Dev.	Firm-Specific Risk	Size	Age	Price	Turnover	Lagged Return	Div Yield	DivDum
<i>Panel A. Bennett et al.'s Original Sample Period</i>										
1983-1997, N = 60	0.046 [0.000] (0.88/0.74)	0.072 [0.000] (0.93/0.8)	0.009 [0.000] (0.73/0.34)	0.351 [0.000] (1.00/1.0)	0.090 [0.000] (1.00/0.97)	0.238 [0.000] (1.00/1.00)	0.070 [0.000] (1.00/1.00)	-0.044 [0.000] (0.07/0.00)	-0.099 [0.000] (0.00/.)	
1983-1997, N = 60	0.046 [0.000] (0.87/0.75)	0.070 [0.000] (0.97/0.8)	0.010 [0.000] (0.73/0.38)	0.349 [0.000] (1.00/1.0)	0.090 [0.000] (1.00/0.93)	0.235 [0.000] (1.00/1.00)	0.069 [0.000] (1.00/0.98)	-0.044 [0.000] (0.05/0.00)	-0.100 [0.000] (0.00/.)	0.004 [0.582] (0.48/0.72)
1983-1997, N = 60	0.046 [0.000] (0.13/0.50)	0.070 [0.000] (0.03/0.0)	0.010 [0.000] (0.27/0.00)	0.349 [0.000] (0.00/.)	0.090 [0.000] (0.00/.)	0.235 [0.000] (0.00/.)	0.069 [0.000] (0.00/.)	-0.044 [0.000] (0.93/0.89)	-0.100 [0.000] (1.00/1.00)	0.004 [0.582] (0.52/0.52)
<i>Panel B. Subperiod Analysis</i>										
1983-1993, N = 42	0.058 [0.000] (0.98/0.73)	0.056 [0.000] (0.95/0.8)	0.006 [0.005] (0.69/0.24)	0.349 [0.000] (1.00/1.0)	0.092 [0.000] (1.00/0.90)	0.211 [0.000] (1.00/1.00)	0.07 [0.000] (1.00/1.00)	-0.046 [0.000] (0.05/0.00)	-0.099 [0.000] (0.00/.)	0.033 [0.000] (0.69/0.72)
1994-2003, N = 42	-0.005 [0.205] (0.55/0.52)	0.115 [0.000] (1.00/0.9)	-0.005 [0.173] (0.57/0.51)	0.39 [0.000] (1.00/1.0)	0.085 [0.000] (1.00/1.00)	0.264 [0.000] (1.00/1.00)	0.077 [0.000] (0.95/0.92)	-0.054 [0.000] (0.10/0.75)	-0.082 [0.000] (0.00/.)	-0.108 [0.000] (0.00/.)
1994-2003, N = 42	-0.005 [0.55/0.69]	0.115 [0.000] (0.00/.)	-0.005 [0.43/0.66]	0.39 [0.000] (0.00/.)	0.085 [0.000] (0.00/.)	0.264 [0.000] (0.00/.)	0.077 [0.000] (0.05/0.00)	-0.054 [0.000] (0.90/0.89)	-0.082 [0.000] (1.00/0.95)	-0.108 [0.000] (1.00/0.95)

Panel B of Table VII presents similar estimation results for two halves of an expanded sample period: 1983-1993 and 1994-2003. (Similar results occur if we split the Bennett et al., 2003, sample before versus after mid-1990.) Cash dividends attracted 3.3% more institutional ownership before 1994, and this estimate is highly statistically significant. In the later period, however, cash dividends subsequently *discourage* institutional ownership. The 42 estimated coefficients in the 1994-2003 period average -0.108 ; all estimates are negative, and 95% differ from zero at the 5% level or better. These results are consistent with our Section III findings about institutional investors' portfolio shifts because of changing fiduciary standards. When PM was the dominant fiduciary standard, dividend payment per se tended to raise institutional ownership. After 1993, the PI standard was becoming more prominent, and we find the opposite effect of dividend payment.

Table VII reports estimation results using the Fama-MacBeth methodology, but panel estimates (as in Regression (4)) can also be applied to evaluate the time variation in institutional investors' preference for dividends. We report these results in Table VIII, whose two specifications differ

Table VIII. Time Variation in the Preference for Dividend Payment

Both the coefficients and standard errors are reported for the firm-level fixed effect regression:

$$IO\%_{it} = \alpha_t + \beta_x X_{it} + \beta_2 DivDum_{it} + \sum_{k=1983}^{2003} \beta_k Year_k + \sum_{k=1983}^{2003} \alpha_k DivDum_{it} * Year_k + \varepsilon_{it}. \quad (4)$$

The data are constructed following the method of Bennett et al. (2003) with the sample period extended through 2003. Both the dependent and independent variables have been standardized (rescaled to a mean of zero and a standard deviation of one). Share characteristics (X_{it}) are defined in Bennett et al. *DivDum* is a dummy variable that equals unity if the firm paid a cash dividend in the prior year. Year dummies and year dummy interactions with the dividend indicator variable are labeled by their year. White's approach is used in calculating standard errors. Fixed effect coefficients are not reported in the table. Numbers in parentheses below coefficient estimates are *p*-values.

<i>Panel A.</i>		
	<i>DivDum and DivYield</i>	<i>Only DivDum</i>
Beta	-0.006 (0.000)	-0.006 (0.000)
Standard deviation	-0.023 (0.000)	-0.022 (0.000)
Firm-specific risk	-0.001 (0.215)	-0.001 (0.231)
Size	0.234 (0.000)	0.234 (0.000)
Age	0.061 (0.000)	0.061 (0.000)
Price	0.125 (0.000)	0.126 (0.000)
Turnover	0.025 (0.000)	0.025 (0.000)
Lag return	-0.013 (0.000)	-0.013 (0.000)

Table VIII. Time Variation in the Preference for Dividend Payment (Continued)

<i>Panel A.</i>		
	<i>DivDum and DivYield</i>	<i>Only DivDum</i>
<i>DivYield</i>	-0.006 (0.000)	
<i>DivDum</i>	-0.013 (0.002)	-0.016 (0.000)
Year 1984 * <i>DivDum</i>	0.006 (0.200)	0.007 (0.165)
Year 1985 * <i>DivDum</i>	0.016 (0.001)	0.016 (0.001)
Year 1986 * <i>DivDum</i>	0.020 (0.000)	0.020 (0.000)
Year 1987 * <i>DivDum</i>	0.036 (0.000)	0.037 (0.000)
Year 1988 * <i>DivDum</i>	0.038 (0.000)	0.038 (0.000)
Year 1989 * <i>DivDum</i>	0.048 (0.000)	0.049 (0.000)
Year 1990 * <i>DivDum</i>	0.046 (0.000)	0.046 (0.000)
Year 1991 * <i>DivDum</i>	0.033 (0.000)	0.034 (0.000)
Year 1992 * <i>DivDum</i>	0.029 (0.000)	0.029 (0.000)
Year 1993 * <i>DivDum</i>	0.007 (0.165)	0.008 (0.120)
Year 1994 * <i>DivDum</i>	-0.005 (0.264)	-0.005 (0.355)
Year 1995 * <i>DivDum</i>	-0.004 (0.406)	-0.004 (0.473)
Year 1996 * <i>DivDum</i>	-0.011 (0.029)	-0.010 (0.042)
Year 1997 * <i>DivDum</i>	-0.008 (0.094)	-0.008 (0.122)
Year 1998 * <i>DivDum</i>	-0.013 (0.007)	-0.012 (0.012)
Year 1999 * <i>DivDum</i>	0.002 (0.636)	0.003 (0.538)
Year 2000 * <i>DivDum</i>	0.005 (0.292)	0.006 (0.238)
Year 2001 * <i>DivDum</i>	-0.041 (0.000)	-0.041 (0.000)
Year 2002 * <i>DivDum</i>	-0.057 (0.000)	-0.055 (0.000)
Year 2003 * <i>DivDum</i>	-0.067 (0.000)	-0.065 (0.000)
Constant	-0.168 (0.000)	-0.169 (0.000)
Year dummies	Yes	Yes
No. of obs.	484,589	484,589
No. of groups	17,428	17,428
R^2	0.108	0.108

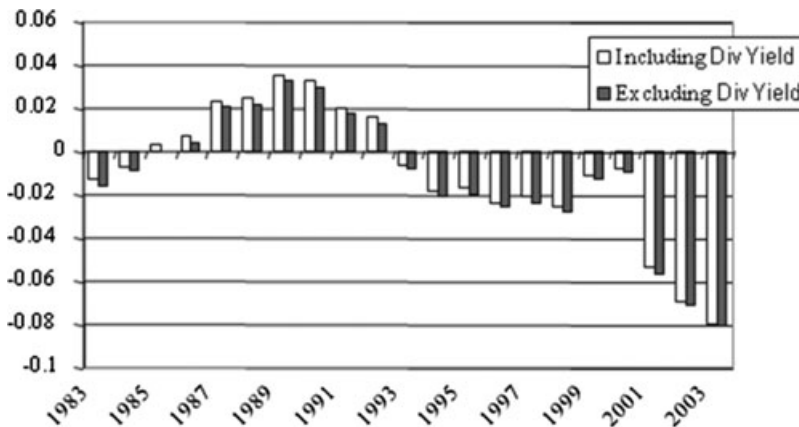
Table VIII. Time Variation in the Preference for Dividend Payment (Continued)

Panel B. Joint Tests (Sum of Coefficients and Level of Significance)

	<i>DivDum and DivYield</i>	<i>Only DivDum</i>
<i>DivDum</i>	-0.013***	-0.016***
<i>DivDum</i> + (Y84 * <i>DivDum</i>) = 0	-0.007	-0.009**
<i>DivDum</i> + (Y85 * <i>DivDum</i>) = 0	0.003	0.000
<i>DivDum</i> + (Y86 * <i>DivDum</i>) = 0	0.007**	0.004
<i>DivDum</i> + (Y87 * <i>DivDum</i>) = 0	0.023***	0.021***
<i>DivDum</i> + (Y88 * <i>DivDum</i>) = 0	0.025***	0.022***
<i>DivDum</i> + (Y89 * <i>DivDum</i>) = 0	0.035***	0.033***
<i>DivDum</i> + (Y90 * <i>DivDum</i>) = 0	0.033***	0.030***
<i>DivDum</i> + (Y91 * <i>DivDum</i>) = 0	0.020**	0.018***
<i>DivDum</i> + (Y92 * <i>DivDum</i>) = 0	0.016**	0.013***
<i>DivDum</i> + (Y93 * <i>DivDum</i>) = 0	-0.006*	-0.008**
<i>DivDum</i> + (Y94 * <i>DivDum</i>) = 0	-0.018***	-0.021***
<i>DivDum</i> + (Y95 * <i>DivDum</i>) = 0	-0.017***	-0.020***
<i>DivDum</i> + (Y96 * <i>DivDum</i>) = 0	-0.024***	-0.026***
<i>DivDum</i> + (Y97 * <i>DivDum</i>) = 0	-0.021**	-0.024***
<i>DivDum</i> + (Y98 * <i>DivDum</i>) = 0	-0.026**	-0.028***
<i>DivDum</i> + (Y99 * <i>DivDum</i>) = 0	-0.011**	-0.013***
<i>DivDum</i> + (Y00 * <i>DivDum</i>) = 0	-0.008**	-0.010***
<i>DivDum</i> + (Y01 * <i>DivDum</i>) = 0	-0.054***	-0.057***
<i>DivDum</i> + (Y02 * <i>DivDum</i>) = 0	-0.070***	-0.071***
<i>DivDum</i> + (Y03 * <i>DivDum</i>) = 0	-0.080***	-0.081***

*** Significant at the 0.01 level.
 ** Significant at the 0.05 level.
 * Significant at the 0.10 level.

Figure 4. Estimated Coefficients on *DivDum*, Table VIII



only in the exclusion of *DivYield* from the second column. Both specifications include (unreported) firm fixed effects and year dummy variables. Statistics reported below the heading “Joint Tests” measure the impact of dividend payment on institutional ownership in each year of the sample. These effects are also plotted in Figure 4, which make it easy to see a regime shift after about 1992. In the late 1980s and early 1990s, institutional ownership was positively correlated with dividend payment. However, in 1993 the presence of dividends began to discourage institutional ownership, and this effect intensified from 1994 through 2003, consistent with the hypothesis that the growing obsolescence of the dividend-friendly PM standard led institutions to shift out of dividend-paying stocks.¹⁴

VI. Conclusions

During the 1990s, US institutional investors reallocated their equity portfolios away from dividend-paying shares. We attribute this effect to the replacement of PM fiduciary standards with a less-constraining PI standard in many state jurisdictions. PI legislation reduced the fiduciary liability potentially associated with holding non-dividend-paying stocks. We estimate that the relaxation of PM constraints led institutions to shift 2% to 3% (\$90 billion to \$135 billion) of their stock portfolio values away from dividend payers. This finding is robust to a variety of model and sample specifications.

If dividends per se no longer attract institutional owners, models based on an institutional preference for dividends require revisions. Any dividend clientele effect among institutional investors is weaker now than it was before the PI standard emerged in the early 1990s. With the demise of PM, firms should not expect to attract institutional investors merely by paying dividends and, in fact, dividends now deter institutional investors. Nondividend payers should therefore suffer no higher cost of capital because institutional investors will remain uninformed about their prospects. The CFOs surveyed by Brav et al. (2005) should understand that institutions' valuation of dividend payments has declined substantially. Expanding institutions' investment opportunities also should remove an impediment to market efficiency, so security price “anomalies” may be more easily arbitrated away. The full impact of this portfolio reallocation on security returns remains a topic for further inquiry. ■

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¹⁴It seems unlikely that the large negative effects in 2001-2003 reflect changes in fiduciary standards, since only three states revised their statutes in these years. (Recall that our sample in Tables III through VI ends in 2000.) Chetty and Saez (2005) noted that many firms were delisted during these years, mostly non-dividend-paying casualties of the dotcom bust.

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