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The Prudent Investor Rule and Market Risk: An Empirical Analysis

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The prudent investor rule, enacted in every state over the last 30 years, is the centerpiece of trust investment law. Repudiating the prior law's emphasis on avoiding risk, the rule reorients trust investment toward risk management in accordance with modern portfolio theory. The rule directs a trustee to implement an overall investment strategy having risk and return objectives reasonably suited to the trust. Using data from reports of bank trust holdings and fiduciary income tax returns, we examine asset allocation and management of market risk before and after the reform. First, we find that the reform increased stockholdings, but not among banks with average trust account sizes below the 25th percentile. This result is consistent with sensitivity in asset allocation to trust risk tolerance. Second, we present evidence consistent with increased portfolio rebalancing after the reform. We conclude that the move toward additional stockholdings was correlated with trust risk tolerance, and that the increased market risk exposure from additional stockholdings was more actively managed.

I. Introduction

"October. This is one of the peculiarly dangerous months to speculate in stocks in. The others are July, January, September, April, November, May, March, June, December, August, and February" (Twain 1899:123). The long tradition of equating stock investment with speculation deeply influenced the law of trust investment, which until recently discouraged investment in stock as "speculative" and favored investment in government bonds. In emphasizing avoidance of default risk, traditional law did not account for the relationship between risk and return, the difference between

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idiosyncratic risk and market risk, or heterogeneity in risk tolerance. Worse still, courts considered the riskiness of each investment in isolation rather than in light of overall portfolio risk, creating a perverse incentive not to diversify.

Twentieth-century advances in economics and finance, however, led to extensive reform of the law of trust investment. The centerpiece of this reform is the *prudent investor rule*, which reorients trust investment from risk avoidance to risk management in accordance with modern portfolio theory. Today, every state has enacted a statute that applies the rule to trust investment (see the Appendix). In addition, almost every state has applied the rule to charitable endowments,[1] and federal law applies the rule to most private pension funds.[2] The rule has also been adopted across the British Commonwealth, and it is regularly invoked in other fiduciary investment contexts.[3] All told, the rule governs the investment management of many trillions of dollars—and the rule will soon apply to trillions more because a 2016 rulemaking by the Department of Labor will extend trust fiduciary law to financial advice about retirement saving.[4]

As canonically stated by the Restatement (Third) of Trusts (1992)[5] and the Uniform Prudent Investor Act (1994) (UPIA), the prudent investor rule requires a trustee to manage a trust portfolio with "an overall investment strategy having risk and return objectives reasonably suited to the trust" and to "diversify the investments of the trust" (UPIA, § 2[b], 3; see also Restatement [Third], § 90[a]–[b]). The rule thus reorients trust investment law from investment-level risk avoidance to portfolio-level risk management. Upon assuming office, a trustee has a "reasonable time" to "make and implement" an investment program that complies with the rule (UPIA, § 4; Restatement [Third], § 92). Compliance with the rule is thereafter a "continuing responsibility" (UPIA, § 2, comment). In sum, under the rule, a trustee must minimize idiosyncratic risk, align market risk with trust risk tolerance, and manage risk on an ongoing basis.

Incorporating modern portfolio theory into the law of trust investment should provoke little controversy. Whether trustees have applied the law properly in practice, however, has yet to be studied. The importance of this question is highlighted by the

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[1]The Uniform Prudent Management of Institutional Funds Act (UPMIFA), promulgated in 2006 and since adopted by almost every state, applies the prudent investor rule to charitable endowments (UPMIFA § 3).

[2]A version of the rule is adopted by the Employee Retirement Income Security Act of 1974 (ERISA), which governs the fiduciaries of most pension funds (29 U.S.C. § 1104[a]; see also 29 C.F.R. § 2550.404a-1[b]). In *Tibble v. Edison Int'l*, 135 S. Ct. 1823 (2015), for example, the Supreme Court applied the rule in a dispute under ERISA over the investment options in an employer-sponsored pension fund.

[3]The rule has been formally adopted in England and most of the British Commonwealth (Getzler 2009:238–39), and it influences norms of fiduciary investment even in contexts in which it has not been adopted expressly (Sitkoff 2014b:48).

[4]The rulemaking expands the definition of who is a "fiduciary" under ERISA to include financial advisors to retirement savers (Definition of the Term "Fiduciary"; Conflict of Interest Rule—Retirement Investment Advice, 81 Fed. Reg. 20946 [proposed Apr. 6, 2017, to be codified at 29 C.F.R. parts 2509–2510]).

[5]The 1992 Restatement provision on the prudent investor rule was superseded without material changes by Restatement (Third) of Trusts § 90 (2007) (hereafter, Restatement [Third]).

fact that since adoption of the rule, stockholdings in personal trusts have increased substantially at the expense of government bonds, partly in response to the rule (Schanzenbach & Sitkoff 2007). Against this backdrop of movement outward on the risk/return curve, we examine how the rule has affected management of market risk by trustees. It bears emphasis that the rule "does not call for avoidance of risk by trustees," but for "prudent management of risk" (Restatement [Third], § 90, comment e[1]).

Our analysis, which relies primarily on data from bank trust holdings, proceeds in two steps. First, we assess whether trustees have been sensitive to trust risk tolerance in asset allocation. The heart of the prudent investor rule is the requirement that a trustee implement "an overall investment strategy having risk and return objectives reasonably suited to the trust" (UPIA, § 2[b]; see also Restatement [Third], § 90[a]). We use average trust account size as a proxy for trust risk tolerance. A larger trust can more readily tolerate market volatility without imperiling its distribution obligations, such as support payments to a surviving spouse. Moreover, given the strong correlation between overall personal wealth and inheritances, the beneficiaries of a larger trust are more likely to have other sources of support.

We find that adoption of the prudent investor rule primarily increased trust stockholdings by bank trustees with average trust account sizes in the 25th to 90th percentiles. Banks with small average trust account sizes did not increase their trust stockholdings after the reform, likely because those trusts were inframarginal—that is, they should have been conservatively invested in all events and so were not constrained solely by prior law. In some specifications, banks with the largest average trust account sizes also appear less responsive to the reform, suggesting that the reform may have mattered less for the largest trusts.

Second, we assess ongoing management of market risk by examining the correlation between changes in year-end observed trust assets and annual S&P 500 returns. Despite increased stockholdings after the prudent investor rule, the correlation between changes in year-end reported trust assets and annual market returns did not change. We adduce evidence that this result reflects increased rebalancing over the course of the year between our year-end observations of trust assets.

There is good reason to suppose that rebalancing would increase after the rule. The normal practice among banks and other professional trustees is to have an "investment policy statement" for each trust account that prescribes a target asset allocation range appropriate to the risk tolerance of the trust. As a trust portfolio drifts out of its target asset allocation range, the normal practice, emphasized by the federal regulator that examines banks with fiduciary powers and required by the "ongoing duty" imposed by the rule "to monitor investments and to make portfolio adjustments if and as appropriate" (Restatement [Third], § 90, comment e[1]), is to rebalance the portfolio back into the target asset allocation. However, owing to the need for liquidity to make distributions to the beneficiaries, a constraint expressly recognized by law, rebalancing may be more common in rising than in falling markets.

In light of this institutional context, we test for rebalancing in two ways. First, although the correlation between changes in year-end reported trust assets and full-year S&P 500 returns did not change after the reform, we find that changes in year-end trust assets did become more correlated with January-to-September S&P 500 returns, consistent with increased rebalancing between our year-end observations of trust assets.

Second, changes in year-end trust assets became less correlated with positive full-year S&P 500 returns, but remained strongly correlated with negative full-year returns, consistent with a liquidity constraint on rebalancing in down markets. Given the background legal-institutional context, we interpret these results as suggestive of periodic rebalancing in up markets between our year-end observations of trust assets. We also discuss the possibility of broader diversification after the reform, which is not mutually exclusive with increased rebalancing. Although we cannot test for increased diversification, the results of our rebalancing tests cannot be explained by increased diversification alone.

All told, our findings suggest sensitivity to risk tolerance in trust asset allocation and ongoing risk management. These results correct a misunderstanding in an ongoing policy debate about trust investment law. Some have suggested that in the years leading up to the financial crisis of 2008, the prudent investor rule encouraged trustees to amass imprudently excessive stockholdings (see, e.g., Sterk 2010; Hofri-Winogradow 2014, 2015; see also Fishman 2014). On this assumption of failed risk management, critics in both the United States and the British Commonwealth have urged that trust investment law be reoriented toward safe harbors or lists of approved investments (see, e.g., Sterk 2010; Getzler 2009). This study calls into doubt the empirical assumptions that motivate those proposals.

To be clear, we do not pass judgment on whether the shift in trust asset allocation after the prudent investor rule from government bonds to stockholdings reflects optimal investment practice. Making such an inference would require consensus views on assessing market risk and its relationship to risk tolerance. But there is significant disagreement among academics and practitioners on the particulars of those matters (see, e.g., Canner et al. 1997). The Restatement recognizes that no categorical rule "can be set for a degree of risk that is or is not prudent" (Restatement [Third] § 90, comment e[1]). We therefore conclude only that the move from government bonds toward additional stockholdings was correlated with trust risk tolerance and that the resulting increase in market risk exposure was more actively managed. Nonetheless, for those who believe that modern portfolio theory, as codified by the rule, is an appropriate benchmark for trust investment management, and that a target asset allocation range in an account-specific investment policy statement imposes a constraining process safeguard, our empirical results provide some comfort.

The remainder of this article is organized as follows. Section II motivates the empirical analysis by reviewing the economics and finance of trust investment. Section III describes our data. Section IV reports our analysis and results. Section V concludes.

II. Trust Investment Law, Economics, and Finance

A. Fiduciary Governance

A trust is a legal arrangement in which a *settlor* transfers property to a *trustee* to hold and manage as a *fiduciary* for one or more *beneficiaries*.[6] Managerial intermediation by way of trusteeship allows the settlor to postpone and delegate important decisions about

[6]A settlor may also declare a trust with himself as trustee, that is, the trustee need not be a third party (Dukeminier & Sitkoff 2013:407–08).

investment and distribution of the trust property. Instead of imposing inflexible instructions in advance, the trustee may be empowered to make investment and distribution decisions in light of changing market conditions and the beneficiaries' evolving circumstances. In consequence, a trust puts the beneficiaries at the peril of the familiar agency problem arising from an incomplete contract that separates beneficial ownership from control (Sitkoff 2004; Langbein 1995).

The primary legal mechanism for suppressing agency costs in trust governance is trust fiduciary law. Fiduciary obligation is a plastic concept that allows a court to complete the parties' contract ex post and impose liability on the fiduciary for conduct inconsistent with what the parties would have agreed to if they had anticipated the circumstances (Cooter & Freedman 1991; Easterbrook & Fischel 1993; Sitkoff 2014a). Trust fiduciary law subjects a trustee to primary fiduciary duties of loyalty and prudence. A trustee is also subject to a host of subsidiary duties that reflect judicial and legislative elaboration of the meaning of loyalty and prudence as applied to specific circumstances. Examples include the duties to keep records, to earmark trust property, and to keep the beneficiaries informed of significant developments. A trustee's fiduciary duties in the investment function of trusteeship are specified by the law of trust investment.

B. The Legal Lists and Prudent Man Rule

Trust investment law "got off to a bad start" (Langbein 1996:643). After the South Sea Bubble burst in 1720, the English Court of Chancery settled on a list of presumptively proper investments. The list was later codified, albeit in a somewhat broader form, by statutes in England and across the United States. Reflecting the salience of default risk after the South Sea Bubble, these *legal lists* required risk avoidance. They tended to favor government bonds and first mortgages and to exclude investments in equity (Langbein & Posner 1976). Structurally, the legal lists were in keeping with the legal technology of the era, in which agency problems, such as between a trustee and a beneficiary, were resolved by limiting the agent's powers (Langbein 1995; Sitkoff 2011). The problem with disempowerment, however, is that it also disables the agent from undertaking acts useful for the principal, defeating the purpose of the agency.

In the seminal case of *Harvard College v. Amory* (26 Mass. 446, 461 [1830]), the Massachusetts Supreme Judicial Court rejected the legal list and adopted the *prudent man rule*. The court held that a trustee must "observe how men of prudence, discretion and intelligence manage their own affairs, not in regard to speculation, but in regard to the permanent disposition of their funds, considering the probable income, as well as the probable safety of the capital to be invested." In the mid 1900s, after the American Bankers Association sponsored a model statute codifying *Amory*, most states abrogated their legal lists in favor of the prudent man rule (Langbein & Posner 1976; Shattuck 1951).

The prudent man rule was phrased as a standard that called for case-by-case adjudication in light of all the circumstances. In application, however, courts generalized rules from the specific facts of prior cases, giving rise to "specific subrules prescribing the types and characteristics of permissible investments for trustees" (Restatement [Third], part 6, ch. 17, intro. note; see also Gordon 1987). In this way, the risk-

avoidance emphasis of the legal lists persisted. "Based on some degree of risk that was abstractly perceived as excessive, broad categories of investments and techniques often came to be classified as 'speculative' and thus as imprudent per se" (Restatement [Third], part 6, ch. 17, intro. note). In the Restatement (Second) of Trusts (hereinafter, Restatement [Second]), which was published in 1959, the American Law Institute took the position that investing in "speculative" stock, defined as a company without "regular earnings and paying regular dividends which may reasonably be expected to continue," buying securities on margin, or buying discounted bonds were presumptively improper. By contrast, "[o]rdinarily it is proper for a trustee to invest in ... bonds of the United States or of the State or of municipalities, in first mortgages on land, or in corporate bonds" (Restatement [Second], § 227, comments f, m).

The preoccupation under the prudent man rule with avoiding default risk encouraged investment in government bonds, exposing trusts to inflation risk, and invited hindsight bias in adjudication in the form of "post hoc searches for evidence that investments were too risky" (Rachlinski 2000:79–81).[7] The problem of hindsight bias was aggravated by the practice of reviewing each investment in isolation. If a risky investment failed to pay off, the trustee faced liability exposure even if the investment was sound in the context of the portfolio as a whole. The rule thus worked perversely against diversification.

C. The Prudent Investor Rule

1. Codifying Portfolio Theory

In the late 1970s, scholars and sophisticated practitioners began calling for reform of the prudent man rule (see, e.g., Langbein & Posner 1976, 1977; Longstreth 1986; Gordon 1987). Drawing on modern portfolio theory and consensus views of financial economics prevailing at the time, the critics argued that the law should differentiate between market risk, which is inherent to participating in the market, and idiosyncratic risk, which is particular to a given investment. Generally speaking, to obtain a greater expected return, an investor must assume greater market risk. Market risk is thus compensated in that more exposure to market risk yields more expected return. Idiosyncratic risk, the critics argued, is different because it is generally uncompensated. Such risk can be reduced or even eliminated by diversifying. It follows, therefore, that the prudence of a given investment must be considered in light of its contribution to the overall portfolio's expected risk and return. Under the prudent man rule, however,

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[7]An infamous example is *In re Chamberlain's Estate* (156 A. 42, 43 [N.J. Prerog. 1931]):

> It was common knowledge, not only amongst bankers and trust companies, but the general public as well, that the stock market condition at the time of testator's death [in August 1929] was an unhealthy one, that values were very much inflated, and that a crash was almost sure to occur. In view of this fact, I think it was the duty of the executors to dispose of these stocks immediately upon their qualification as executors, and that the loss to the estate resulting from their failure to act should be taken into consideration now in awarding them compensation for their services.

courts evaluated the prudence of each investment in isolation, without regard to its place within the portfolio as a whole.

These criticisms led to a movement in the mid to late 1980s to revise the prudent man rule, refashioning it as a *prudent investor rule* that would reorient the law of trust investment from investment-level risk avoidance to portfolio-level risk management consistent with modern portfolio theory. The aspiration of the reform movement was "to free trustees from the old preoccupation with avoiding speculation" (Langbein 1996:650). The rule implements two key reforms.[8] First, "[a] trustee's investment and management decisions respecting individual assets must be evaluated not in isolation but in the context of the trust portfolio as a whole and as a part of an overall investment strategy having risk and return objectives reasonably suited to the trust" (UPIA, § 2[b]; see also Restatement [Third], § 90[a]).[9] Second, a trustee must "diversify the investments of the trust unless the trustee reasonably determines that, because of special circumstances, the purposes of the trust are better served without diversifying" (UPIA, § 3; see also Restatement [Third], § 90[b]).

Accordingly, the prudent investor rule requires a trustee not to avoid risk altogether but to evaluate the purpose and circumstances of the trust, to choose a commensurate level of overall market risk and expected return, and to avoid wasteful idiosyncratic risk.[10] Upon assuming office, a trustee has a "reasonable time" to "make and

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[8]A third reform was reversing the nondelegation rule of prior law, enabling a trustee who lacks expertise in portfolio management to delegate that function to a specialist (see Langbein 1996:650–54).

[9]The embrace of portfolio-as-a-whole investing by the prudent investor rule brought into view the need for a corollary reform. Trusts commonly provide for "income" to be paid to a life beneficiary, with the "principal" to be paid to a remainder beneficiary at the life beneficiary's death. Under traditional law, the form of an investment return determines its classification as income or principal. Rents, cash dividends on common stock, and interest on bonds are classified as income, but increases in asset value such as stock or land appreciation (and so capital gains) are classified as principal. In consequence, the duty to produce a "reasonably appropriate" level of income that fairly balances the interests of the income and principal beneficiaries sometimes compelled the trustee to skew the trust's investment program by favoring either interest and dividends or capital appreciation. Such skewing is in obvious tension with portfolio theory (Langbein 1996:667–68). As the Restatement explains, "only when beneficial rights do not turn on a distinction between income and principal is the trustee allowed to focus on total return . . . without regard to the income component of that return" (Restatement [Third] of Trusts, § 90, comment i). To reconcile principal-and-income accounting with portfolio theory and the prudent investor rule, every state except one has adopted at least one of two corollary reforms (see Appendix Table). The first is a *power to adjust*, meaning a power to reclassify returns as principal or income irrespective of their form (see Uniform Principal and Income Act [1997], sec. 104). The second is the so-called *unitrust*, under which income is redefined as a specific percentage of the total trust assets. The tax treatment of these reforms, however, was unsettled until Treasury regulations recognizing the reforms took effect in 2004 (see Treas. Reg., sec. 1.643[b]-1). Most states therefore enacted their reforms in 2004 or shortly thereafter, and several of the earlier enactments were revised around the same time to conform to the regulations. Although these roughly simultaneous enactments complicate testing the independent effect of principal-and-income reform, we report some results controlling for principal-and-income reform and some with the sample cut in 2004.

[10]Dukeminier and Sitkoff (2013:635) survey examples of "special circumstances" that could justify not diversifying and so bearing idiosyncratic risk.

implement" a compliant investment program (UPIA, § 4; Restatement [Third], § 92).[11] What constitutes a reasonable time is context specific, depending, for example, on the liquidity of the trust assets and the tax and other transaction costs of reallocation.

A trustee is also under an "ongoing duty to monitor investments and to make portfolio adjustments if and as appropriate" (Restatement [Third], § 90, comment e[1]), for example, by rebalancing the portfolio in light of actual investment performance and changes in circumstances. In the words of the Supreme Court, "a trustee has a continuing duty to monitor trust investments and remove imprudent ones. This continuing duty exists separate and apart from the trustee's duty to exercise prudence in selecting investments at the outset" (*Tibble v. Edison Int'l*, 135 S. Ct. 1823, 1828 [2015]). The prudent investor rule thus governs the trustee's "continuing responsibility for oversight of the suitability of investments already made as well as the trustee's decisions respecting new investments" (UPIA, § 2, comment).

Widespread enactment of the prudent investor rule came after the American Law Institute endorsed it in a 1992 revision to the Restatement of Trusts and the Uniform Law Commission promulgated the UPIA in 1994. The Appendix dates the earliest enactment of the reform in each state, by which we mean a codification of portfolio-as-a-whole risk management (see also Kiziah 2011).[12] Most of these enactments occurred in the 1990s. By 2006, every state had adopted the UPIA or a nonuniform statute to similar effect.

2. Matching Market Risk with Trust Risk Tolerance

Structurally, the prudent investor rule is a facts-and-circumstances standard. By requiring "an overall investment strategy having risk and return objectives reasonably suited to the trust" (UPIA, § 2[b]; see also Restatement [Third], § 90[a]), the rule calls for "subjective judgments that are essentially unavoidable in the process of asset management, addressing the appropriate degree of risk to be undertaken in pursuit of a higher or lower level of expected return from the trust portfolio" (Restatement [Third], § 90, comment e[1]). Part of what makes this judgment subjective is that "tolerance for risk varies greatly with the financial and other circumstances of the investor, or in the case of a trust, with the purposes of the trust and the relevant circumstances of the beneficiaries. A trust whose main purpose is to support an elderly widow of modest means will have a lower risk tolerance than a trust to accumulate for a young scion of great wealth" (UPIA, § 2, comment).

The rationale for a facts-and-circumstances standard is that no categorical rule "can be set for a degree of risk that is or is not prudent" (Restatement [Third] § 90, comment e[1]). The rule "does not call for avoidance of risk," but for "prudent management of risk" (Restatement [Third], § 90, comment e[1]). In "applying the fiduciary

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[11]Federal law requires national banks, "[u]pon the acceptance of a fiduciary account for which [the bank] has investment discretion, … [to] conduct a prompt review of all assets of the account to evaluate whether they are appropriate for the account" (12 C.F.R. § 9.6[b]).

[12]Several states that had adopted such a statute prior to the UPIA later replaced those statutes with the UPIA.

duty of prudent investing, it is essential to recognize that compensated risk is not inherently bad" (Restatement [Third], § 90, comment e[1]). Instead, prudent "risk management by a trustee requires that careful attention be given to the particular trust's ... tolerance for volatility" (Restatement [Third], § 90, comment e[1]).

Although assessing risk tolerance is a subjective undertaking, a trustee must make that assessment on the basis of objective factors at the trust level.[13] For example, among the "circumstances that a trustee shall consider in investing and managing trust assets" are the need "for liquidity, regularity of income, and preservation or appreciation of capital" and the "other resources of the beneficiaries" (UPIA, § 2[c][6]–[7]). These factors are objective indicators of the trust's tolerance for volatility. The Restatement cautions specifically that "a particular danger to be considered is that of having to raise significant amounts of cash for distribution in a down market" Restatement [Third] § 90, comment f).

Accordingly, in the paradigmatic trust, with a present income beneficiary (such as a surviving spouse) and future remainder beneficiaries (such as surviving descendants), trust size is a highly salient factor in reckoning risk tolerance. Holding all else constant, a $1 million trust can tolerate more exposure to market risk than a $100,000 trust without compromising the trust's distribution program. Moreover, there is a strong correlation between an individual's receipt of a wealth transfer and the individual's personal wealth (see, e.g., Wolff & Gittleman 2014).[14] The beneficiaries of larger trusts will therefore tend to be wealthier and so more risk tolerant, and the rule directs trustees to consider the beneficiary's other resources. The relationship between wealth and tolerance for market volatility is evident in household data as well. Abundant evidence shows a strong relationship between household wealth and the percentage of household assets held in stock (see, e.g., Campbell 2006).

The role of trust size in reckoning risk tolerance is so salient that the drafters of the UPIA considered carving out smaller trusts from the prudent investor rule. The drafters ultimately decided, however, that such a carve out was unnecessary. The official commentary to the UPIA explains: "The Drafting Committee declined the suggestion that the Act should create an exception to the prudent investor rule ... in the case of smaller trusts. The Committee believes that [the risk-and-return rules] of the Act emphasize factors that are sensitive to the traits of small trusts" (UPIA, § 2, comment).

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[13]Recall that the rule speaks of "risk and return objectives *reasonably suited to the trust*" (UPIA, § 2 (emphasis added); see also Restatement [Third], § 90[a]). The background principle is that the terms and purposes of a trust are established ex ante by the settlor, whose intent is the "controlling consideration" in interpreting the trust (Restatement [Third] of Property: Wills and Other Donative Transfers, § 10.1 [2003]), rather than the ex post preferences of the beneficiaries.

[14]Wolff and Gittleman (2014:460 tbl. 3) find that, for households with a net worth of $1 million or more, transfers comprised only 18 percent of those households' total wealth. By contrast, for households with a net wealth between $100,000 and $250,000, transfers comprised 45 percent of those households' total wealth.

3. The Investment Policy Statement and Periodic Rebalancing

As an internal process safeguard, the normal and customary practice among banks and other professional fiduciaries is to prepare "a written investment policy statement for each new trust account, reciting investment guidelines that reflect the purpose of the trust" (Dukeminier & Sitkoff 2013:634). An investment policy statement should specify "the account's risk tolerance," its "investment goals and return requirements," and "asset allocation guidelines" (Comptroller of the Currency 2001:106–07; see also fi306 2013:47).[15] The usual practice, in accordance with the prudent investor rule, is to apply portfolio theory in "deciding how to allocate portfolio assets among the major asset categories" (Comptroller of the Currency 2001:106).

Consistent with the higher standard of care required of a professional trustee (UPIA, § 2[f]; Restatement [Third], § 77[3]), courts have rebuked bank trustees for failing in a timely manner to "establish an investment plan" (see, e.g., *In re Estate of Janes*, 681 N.E.2d 332, 338 [1997]; *In re Hunter*, 955 N.Y.S.2d 163, 165 [2012]). "The lack of an investment policy statement, or the existence of a poorly developed one, is a weakness in portfolio management risk control. ... Failure to create such a formal statement invites a presumption of imprudent conduct" (Comptroller of the Currency 2001:110, 139).

After initial account review, an investment policy statement facilitates "[r]ebalancing ... to maintain proper diversification," ensuring that the "portfolio avoids 'allocation drift' by not straying far from its targeted levels of risk and return" (fi360 2013:48). In the words of the federal regulator that examines banks with fiduciary powers: "Portfolio monitoring and revision is a continual and complicated process that requires extensive analysis and sound judgment. Asset categories may become over- or under-weighted in relation to the asset allocation guidelines because the returns on individual asset categories will vary over time. Portfolio re-balancing involves restoring the portfolio to appropriate percentage allocation ranges" (Comptroller of the Currency 2001:67).

Among banks and other professional fiduciaries, therefore, rebalancing follows naturally from having a target asset allocation in an investment policy statement. "Once the target allocation is established, periodic rebalancing is necessary to maintain the intended risk-return profile of the portfolio" (fi360 2013:48). "Re-balancing guidelines, which define when an asset category should be adjusted, are necessary to maintain a policy's consistency and a portfolio manager's discipline" (Comptroller of the Currency 2001:141).

Another benefit of an investment policy statement is having a "'paper trail' in the event of an audit, litigation, or a dispute" (fi360 2013:48). The professional trustees in our FDIC data, primarily bank trust departments, are typically compensated by a small percentage of total trust assets (fewer than 100 basis points). For such a trustee, avoiding litigation risk may be a more salient consideration than pursuit of additional

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[15]An investment policy statement should also point to "an appropriate performance benchmark" against which to compare the account's performance (Comptroller of the Currency 2001:108–10).

compensation through portfolio growth.[16] Under the prudent man rule, litigation risk was asymmetric because the rule focused on avoiding risk. Under the prudent investor rule, by contrast, trustees have liability exposure not only for too much risk but also for too little risk. The law has come to recognize that "[b]eneficiaries can be disserved by undue conservatism as well as by excessive risk-taking" (Restatement [Third] § 90, comment e[1]).

4. The Effect of the Rule in Practice

Applying modern portfolio theory within the law of trust investment has strong appeal as a matter of policy. But whether the prudent investor rule has had its intended effect in actual trust practice is an empirical question that has yet to be studied. The importance of this question is brought into sharp relief by the fact that, since the reform, stockholdings in personal trusts have increased substantially.

In Schanzenbach and Sitkoff (2007), we examined trust asset allocation between 1986 and 1997. We found that after a state's adoption of the prudent investor rule, institutional trustees held about 2 to 4 percentage points more stock than before, predominately at the expense of government bonds and other investments deemed "safe" by prior law.[17] This effect increased over time, which we attributed to the transaction costs of portfolio reallocation and the rule's allowance of a "reasonable time" to bring an existing portfolio into compliance with the rule (UPIA, § 4; Restatement [Third], § 92). We therefore concluded that the rule freed trustees to move outward on the risk/return curve, specifically by trading government bonds for corporate equity, and that the emphasis on investment-level risk avoidance under the prudent man rule had constrained asset allocation by trustees.

But has the observed movement outward on the risk/return curve been in accordance with the risk management principles prescribed by the prudent investor rule? That is, was the increase in stockholdings since the rule sensitive to trust risk tolerance? Was the increased market risk exposure managed on an ongoing basis by rebalancing or otherwise? These questions, which we did not consider in our prior study, are central to evaluating the success of the rule as applied. As detailed in Figure 2 and Table 1, the share of trust assets invested in stock increased by roughly 15 percentage points over the

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[16]For trusts in which high-power incentives are desired, the usual structure is a directed trust or private trust company (see Dukeminier & Sitkoff 2013:654–55, 657).

[17]There has been little other empirical study of the prudent investor rule. Longstreth (1986) surveyed the 50 largest bank trust departments, college and university endowments, private foundations, and corporate pension fund sponsors. Of the institutions replying, bank trust departments, then operating under the prudent man rule, reported being the most constrained by fiduciary investment law. Begleiter (1999) surveyed 239 banking institutions in Iowa about their interpretation of the Iowa enactment of the prudent investor rule. Of the 61 institutions replying, a substantial majority indicated that they employed risk-and-return analysis in making trust investments. Using Securities and Exchange Commission (SEC) filings, Hankins et al. (2008) and Del Guercio (1996) found that bank trust departments tended to invest conservatively, but more heavily in non-dividend-paying stock after adoption of the rule. However, their SEC data do not distinguish between personal trusts and other funds not covered by state-level fiduciary investment law, such as pension funds governed by ERISA.

1990s, remaining between 60 and 70 percent of total trust asset until the market crash in 2008.[18]

After the financial crisis of 2008, some scholars and practitioners claimed that in application the rule has been a failure. Relying in part on our prior finding of increased stockholdings after the reform, some commentators have argued that in the years leading up to the financial crisis, trustees took on too much market risk by amassing imprudently excessive stockholdings (see, e.g., Sterk 2010; Hofri-Winogradow 2014, 2015; Dagan & Hannes 2014). On this assumption of failed risk management, a question that we did not examine in our prior study, critics in the United States and the British Commonwealth have urged repeal of the reform, replacing it with safe harbors or lists of approved investments (Sterk 2010; Getzler 2009).

We assess whether the observed movement outward on the risk/return curve since the prudent investor rule has been in accordance with the risk management principles prescribed by the rule. In particular, we consider two questions. First, we consider whether trust asset allocation has been sensitive to trust risk tolerance. To test the effect of the prudent investor rule on trust asset allocation, we analyze the rule's effect on stockholdings by trust size. Second, we consider whether trust market risk exposure has been managed on an ongoing basis such as by periodic rebalancing. To test the effect of the rule on ongoing management of market risk, we explore the changing relationship between trust assets and the S&P 500.

III. Data

Our trust data come from two sources: (1) the Federal Deposit Insurance Corporation's Statistics on Depository Institutions,[19] and (2) the Internal Revenue Service's state-level summaries of personal trusts filing Form 1041 (U.S. Income Tax Return for Estates and Trusts).[20] The FDIC data contain information on total trust assets and asset allocation. The IRS data contain information on fiduciary fees, which proxy for total trust assets.

A. The FDIC Data

The FDIC collects detailed annual financial data on "personal trust" accounts from all institutions that are subject to supervision by federal banking authorities.[21] The data are

[18]Our prior results explain at most one-third of this increase. Because our estimation strategy focused on portfolio reallocation directly attributable to a state's statutory adoption of the rule, we could not identify whether the rest of this increase traced to a secular trend or the more general influence of the Restatement [Third] and UPIA separate from state-level statutory adoption.

[19]Available at http://www2.fdic.gov/sdi/main.asp.

[20]Available at https://www.irs.gov/uac/soi-tax-stats-income-from-estates-and-trusts-statistics, with additional years available from the authors upon request.

[21]The data are categorized as "Employee Benefit," "Personal Trusts," and "Estates." We examine only the personal trust category, which includes both private and charitable trusts. Within that category, we examine only those

at the bank level; individual account data are not reported. However, the number of accounts is reported, so we can compute average account size at the bank, state, and national levels.

Between 1986 and 2008, the allocation of personal trust holdings in reporting institutions were reported across 10 separate categories, including "stocks." Mutual funds with a mix of stocks and bonds are reported as "stock," while pure bond funds, money market mutual funds, and municipal bond funds are reported as "bonds," "money market funds," and "municipal bonds," respectively. The bulk of nonstock assets are U.S. Treasuries, municipal bonds, interest-bearing accounts, and money market mutual funds. After 2008, the FDIC no longer reported holdings by asset class within personal trusts. In consequence, although we can examine total trust assets in the FDIC data through 2012, we can examine asset allocation only through 2008.

We use the "stock" variable as a proxy for exposure to market risk in the sense that reallocation from nonstockholdings to stockholdings would represent movement outward on the risk/return curve. In theory, an increase in stockholdings might not translate to an increase in market risk exposure. The nonstock portion of a portfolio might also be exposed to market risk (e.g., real estate and corporate bonds) or might contain counterweights (e.g., Treasuries may rise in downturns). Nor do we know which stocks comprise the stockholdings. Some stocks, such as public utilities, tend to be less volatile than the market, while others, such as small caps or new technology offerings, tend to be more volatile. Across issues, common shares are riskier than preferred shares. However, all these shares are coded as "stock" within the FDIC data, as are mutual funds that contain a mix of stocks and bonds (pure bond funds are excluded).

To confirm that reallocation to "stock" in fact translates to increased exposure to market risk, we examined the correlation between the "stock" variable, the other trust holding variables, and the S&P 500. Over the course of the data, the correlation between changes in the "stock" variable and S&P 500 returns is 0.87 (see Table 5). By contrast, there is no correlation between changes in other trust holdings and the S&P 500 (the point estimate for the correlation, which lacks statistical significance, is 0.09; see Table 5). In other specifications that allow for rebalancing, we find a perfect correlation between "stock" and the S&P 500 (see Table 7).

The FDIC data identify the reporting institution and the state in which it is headquartered, which allows us to undertake analysis at the state and bank levels in addition to the national level. For a trust with an institutional trustee and a choice-of-law provision, the normal practice is to select an institution located in the chosen state to ensure that the choice will be followed (see, e.g., Sterk 2003:2101–04). For a trust without a choice-of-law provision, the prevailing default rule is that the administration of the trust is governed by the law of "the principal place of administration, which normally is located at the place of business of the corporate trustee or the residence of the individual trustee" (Scoles 2002:237). Accordingly, at least prior to 1997, when interstate branching

accounts that the bank classifies as "managed," meaning trusts for which the bank, as trustee, has investment management discretion. Sitkoff and Schanzenbach (2005:387–90, 434–35) describe these data in greater depth.

was uncommon (see McLaughlin 1995), we may safely assume a strong correlation between reported state and governing law.

Federal banking reform that took effect in 1997, however, eased restrictions on interstate banking.[22] Interstate bank mergers and branch consolidation add noise to state- and bank-level analyses of the data, but not national-level analysis. Assets held by a branch in state *A* are likely governed by the law of state *A*, but if the headquarters of the reporting institution is in state *B*, the branch's assets may be reported as held in state *B*. As such, sizeable bank consolidations and mergers, as took place in the early 2000s, could affect our state- and bank-level analyses, particularly in specifications that test changes in a particular state's law, by confounding our coding of governing state law. To address this concern, we report specifications that examine only national-level data and compare those results to some of our state-level findings, and we report some results that cut the data in 1997, prior to relaxed interstate branching.

Because several of our identification strategies consider total assets and average account size, we must also consider the possibility of noise from jurisdictional competition for trust business. Beginning in the late 1990s, state trust laws became significantly differentiated on a handful of margins in response to lobbying by local bankers and lawyers, who sought to attract out-of-state trust business. In Sitkoff and Schanzenbach (2005), we found that certain of these reforms were associated with substantial increases in reported trust assets and average account size.[23] Accordingly, in some specifications we undertake national-level analysis, cut the data in 1997,[24] or control directly for these reforms (as well as principal-and-income reform). These robustness checks suggest that jurisdictional competition has not biased our prudent investor rule estimates.

Because the FDIC data include only trusts for which a reporting institution serves as trustee, the data are not the full population of trust funds. For example, trusts with an individual trustee, such as a relative or a lawyer, or with an institutional trustee that is not regulated by federal banking authorities, such a nondepository trust company, are not in the data.[25]

B. The IRS Data

The IRS data are state-level aggregations of page 1 of IRS Form 1041, the fiduciary income tax return. A trustee of a trust other than a "grantor trust" must file a 1041 in

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[22]The statute, Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994, Pub. L. No. 103-328, 1994 U.S.C.C.A.N. (108 Stat.) 2338 (1994) (codified at 12 U.S.C. § 1811), was enacted in 1994, but the reform at issue did not take effect until 1997.

[23]The principal effect was in states that authorized perpetual trusts and did not levy a fiduciary income tax on trust assets attracted from out of state (Sitkoff & Schanzenbach 2005:410–11).

[24]With the single exception of perpetual trusts in Delaware, all the jurisdictional competition reforms were enacted in 1997 or later (see Sitkoff & Schanzenbach 2005:430–33, tbl. 5).

[25]By way of example, the Director of the South Dakota Division of Banking reported to us that at year-end 2015, there were 32 private family trust companies in that state with $61 billion in assets.

the year following any year in which the trust earns income.[26] A "grantor trust" is one in which the settlor's retained control warrants treating the property as belonging to the settlor for income tax purposes, such as if the trust is revocable (see I.R.C. §§ 671–677).[27] The data include the number of nongrantor trust income tax returns filed, taxable income and source, and allowable deductions for calendar years 1997 and 2000 through 2011, corresponding to filing years 1998 through 2012.

Because almost every state had adopted the prudent investor rule by the early 2000s, and 40 states had adopted the rule by 1997, the IRS data are not suitable for direct examination of the effect of the reform.[28] However, the IRS data include information on fiduciary fees, which are a deductible expense against gross income. Fiduciary fees are usually assessed as a percentage of total trust assets, so yearly changes in reported fiduciary fees proxy for yearly changes in trust assets. In some specifications we therefore use yearly changes in the fiduciary fees deduction as an alternative measure to yearly changes in total assets as reported in the FDIC data. In interpreting these results, however, we caution that reported fiduciary fees may be less volatile than trust assets because most professional trustees use graduated fee scales with diminishing percentages for larger trusts (see, e.g., Dukeminier & Sitkoff 2013:650 n.101, 654 n.106). Thus, as trust size grows (shrinks), fiduciary fees will not increase (decrease) proportionately.

The sample of trusts in the IRS data overlaps only in part with the FDIC data. Each includes some trusts that are not included in the other. Because the IRS data include all nongrantor trusts that earned income in the relevant year, they include a variety of paid trustees, such as individuals and nondepository trust companies, that are not included in the FDIC data.[29] The FDIC data, by contrast, include all trusts, including grantor trusts, that have a reporting institution as trustee, but no trusts in which the trustee is an individual or nonreporting institution.

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[26]In the jargon, we are speaking of trusts that for federal income tax purposes qualify as a "simple trust" or as a "complex trust." The federal income taxation of trusts is governed by Subchapter J of the Internal Revenue Code (I.R.C. §§ 641–685; see also Sherman 1998). Form 1041 is also filed by the fiduciaries of decedent's estates, bankruptcy estates, certain disability trusts, and pooled income funds, none of which is included in our analysis.

[27]Other examples include irrevocable trusts in which the settlor or the settlor's spouse has discretionary power over, or is entitled to distributions of, income or principal (Dukeminier & Sitkoff 2013:978–79). Although originally meant to prevent abuse, the grantor trust rules are today widely used for tax avoidance (see Ascher 2011).

[28]The state-level aggregations are based on the trustee's address as indicated on the 1041. Because this address need not be in the state whose law governs the administration of the trust, coding governing law for the IRS data faces similar problems to that in the FDIC data. However, we do not use the IRS data, which almost entirely postdate the law reform, to test the effect of the reform directly, but to examine correlation between changes in trust assets and the S&P 500.

[29]A trustee who serves without compensation is included in the IRS data if the trustee files a 1041, but such trusts are not part of our analysis because we examine fiduciary fees paid.

Table 1: Summary Statistics

Assets and Stockholdings in FDIC Data (Yearly Averages)[a]				
	All Years	*1986–1994*	*1995–2000*	*2001–2012*
Asset level (billions)	810.9	583.1	1,020.2	877.0
	(206.5)	(826.7)	(164.0)	(103.7)
Number of accounts	792.4	851.3	852.5	700.8
(1,000s)	(102.8)	(818.0)	(175.4)	(902.8)
Average account size	1,052.1	883.0	1,261.8	1,072.3
(1,000s)	(182.5)	(142.6)	(175.3)	(115.3)
Percent stock	59.1*	49.6	66.6	64.2*

Average Account/Fiduciary Fees[b]			
	FDIC Data Average Account Size (1,000s)		*Fiduciary Fee per Return (IRS Data)*
	State Level	*Bank Level*	*State Level*
Overall average	875.6	607.1	1,461
	(621.4)	(3,927)	(1,653)
90th percentile	1,442	945	2,483
75th percentile	1,047	568.5	1,646
50th percentile	745.9	340.3	1,161
25th percentile	528.6	163.9	804
N	1,347	57,841	650

[a]Dollar amounts are in year 2010 dollars. *Computed through 2008.
[b]Dollar amounts are in year 2010 dollars. Percentiles calculated across all years.

C. Descriptive Statistics

Figure 1 depicts the number of accounts and average account size in the FDIC data from 1986 to 2012. The number of reported accounts declined during this period, which could reflect the growth of nondepository trust companies, including private family trust companies (see Goodwin 2010). Real average account size fluctuates, in part corresponding to market fluctuations, but overall it has grown in the period under study.

Figure 2 traces the percentage of trust assets in the FDIC data held in stock versus in "safe" assets, meaning government bonds, insured deposits, and money market funds, from 1986 to 2008. There are clear, mirror-image trends, with stockholdings increasing and "safe" holdings decreasing in the years after promulgation of the prudent investor rule in the Restatement [Third] in 1992 and UPIA in 1994. Apart from the market crashes in 2002 and 2008, stockholdings have averaged between 60 and 70 percent of yearly trust assets, while "safe" holdings have averaged between 22 and 28 percent. Most of the remainder comprises corporate bonds and real estate, the latter including both real property and shares in real estate investment trusts.

Figure 1: Average account size and number of accounts (FDIC data). [Color figure can be viewed at wileyonlinelibrary.com]

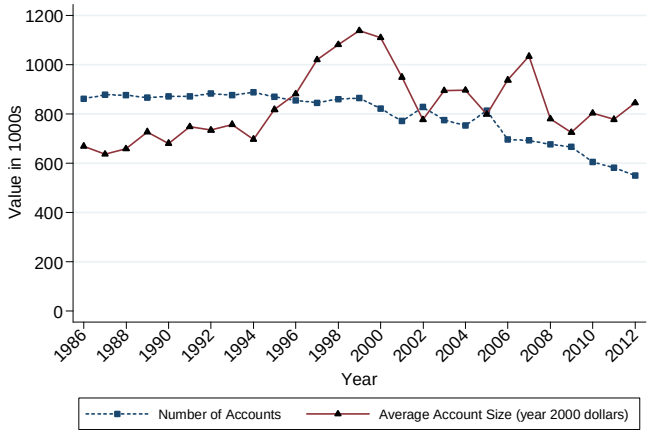


Figure 3 depicts the number of returns and fiduciary fees per return in the IRS data. The number of returns hovers around 2 million for the period under study. Real fiduciary fees per return have varied between $1,600 and $1,900. As with average account size in the FDIC data, fiduciary fees exhibit declines in 2002 and 2008, suggesting declines in trust assets when the markets crashed.

Table 1 presents summary statistics for both datasets. The top half presents yearly averages for the FDIC data, and breaks the data into three time periods: (1) 1986–1994, (2) 1995–2000, and (3) 2001–2012. We chose 1994 as our first breakpoint because that is the year the UPIA was promulgated, just two years after the Restatement was updated,

Figure 2: Personal trust assets in stock and safe assets. [Color figure can be viewed at wileyonlinelibrary.com]

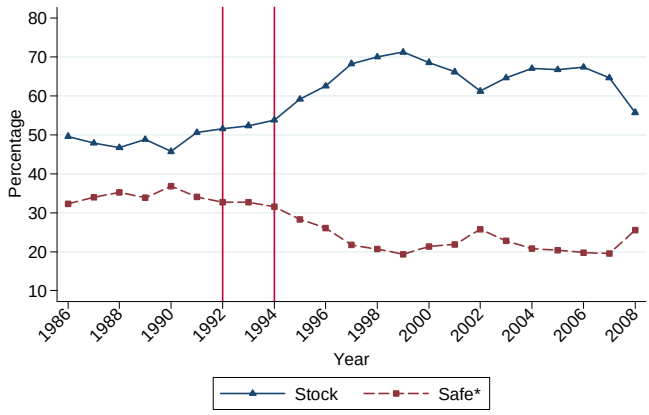
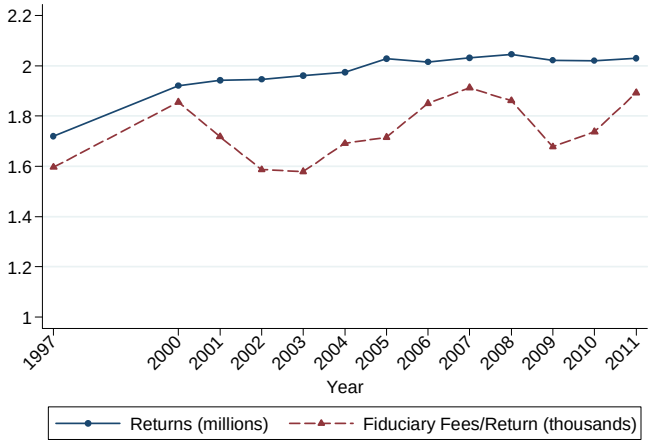


Figure 3: Returns and fiduciary fees per return (IRS data). [Color figure can be viewed at wileyonlinelibrary.com]

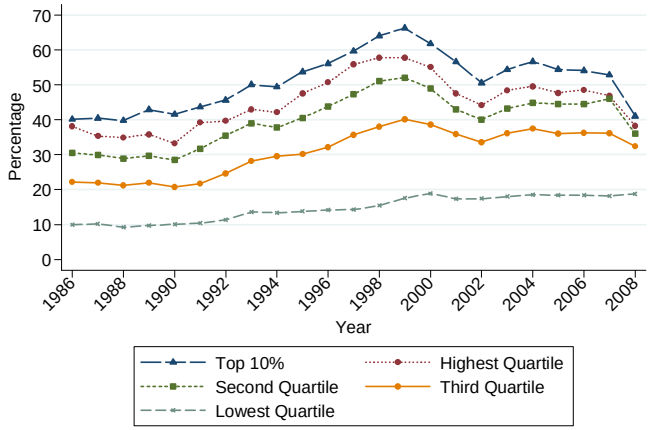


and it coincides with the beginning of the bull market of the mid-1990s. We chose 2000 as our second breakpoint because by 2001 all but three states had adopted the rule, and the stock market experienced increased volatility over the 2000s, with major drops in 2001, 2002, and 2008, followed by significant rebounds. Despite increased market volatility in the 2000s, and the run up in stock prices in the mid to late 1990s, the percentage of trust assets invested in stock was quite similar in both time periods, roughly 15 percentage points higher than in the first period of 1986–1994.

The bottom half of Table 1 reports overall average account size as well as account size at the 90th, 75th, 50th, and 25th percentiles computed across all years of the data. For the FDIC data, the average account size is state or bank total assets divided by the number of accounts. For the IRS data, we report total state fiduciary fees divided by the number of returns. Average account size varies widely across states and banks. In both the FDIC and the IRS data, the 75th percentile state-year observation is roughly twice that of the 25th percentile state-year observation. In the bank-level FDIC data, the average trust account size is $800,000, and the median is $350,000.

The large differences in average trust account size are associated with large differences in the percentage of assets held as stock. Figure 4 depicts the percentage of trust assets held in stock for each quartile of average account size in the FDIC data between 1986 and 2008. We also include the 90th to 100th percentiles as a separate category because the average account size in this group is much larger than the rest. Percent stockholdings line up as expected. The lowest quartile of banks by average account size held only 10 to 20 percent of trust assets in stock, whereas the top quartile held between 40 and 50 percent of trust assets in stock, and the top 10 percent held 45 to 65 percent of trust assets in stock. Figure 4 thus implies that as average account size increases, the trustees in our sample took on increased exposure to market risk.

Figure 4: Stock holdings by bank average account size. [Color figure can be viewed at wileyonlinelibrary.com]



The changes over time in Figure 4 also tell an important story. Stockholdings for all quartiles increased in the period following the promulgation of the Restatement [Third] in 1992 and UPIA in 1994. By the 2000s, each quartile's stockholdings had leveled off at least 10 percentage points higher relative to their levels in the late 1980s and early 1990s.

IV. Analysis and Results

Our analysis considers two aspects of prudent management of market risk: (1) sensitivity in trust asset allocation to trust risk tolerance, and (2) ongoing management of market risk such as by portfolio rebalancing.

A. Asset Allocation and Trust Risk Tolerance

To assess sensitivity to trust risk tolerance in trust asset allocation, we study the correlation between reported stockholdings and bank average trust account size, our proxy for trust risk tolerance. The heart of the prudent investor rule is the duty to implement "an overall investment strategy having risk and return objectives reasonably suited to the trust" (UPIA, § 2[b]; see also Restatement [Third], § 90[a]).

We take the shift since enactment of the prudent investor rule toward increased stockholdings as movement outward on the risk/return curve. This assumption is justified, as noted in our discussion of the data, by the very strong correlation of the "stock" component of trust assets with the S&P 500 and the lack of a correlation with the other reported asset classes (e.g., government bonds, insured deposits, and money market funds). We take average trust account size as a proxy for trust risk tolerance. This assumption is justified, as noted in our discussion of the law, economics, and finance of

Table 2: Quantile Regressions

	Log Average Account (FDIC Data)				*Log Fiduciary Fees per Return (IRS Data)*			
	OLS	*25th Perc.*	*50th Perc.*	*75th Perc.*	*OLS*	*25th Perc.*	*50th Perc.*	*75th Perc.*
Log S&P 500 (state level)	0.367**	0.260**	0.365**	0.406**	0.349**	0.242**	0.285**	0.352**
	(0.0460)	(0.0872)	(0.0699)	(0.0787)	(0.0357)	(0.0630)	(0.0875)	(0.0900)
Log S&P 500 (bank level)	0.123**	0.0993*	0.196**	0.250**				
	(0.034)	(0.0434)	(0.0289)	(0.0278)				

**Significant at < 0.01 level; *significant at the < 0.05 level.
NOTE: Standard errors clustered by state; $N = 1{,}347$ for FDIC state data; $N = 57{,}841$ for FDIC bank data; and $N = 650$ for IRS data. All regressions include a cubic time trend and are unweighted.

trust investment, because a larger trust can more readily meet its distribution obligations in spite of market volatility, and because the larger the trust, the more likely it is that the beneficiaries will have other resources. On these assumptions, if trustees have been sensitive to trust risk tolerance in trust asset allocation, we should observe greater increases in trust stockholdings in banks with larger average trust account sizes than in those with smaller average trust account sizes.

1. Estimation Strategy

We frame our more formal analysis by exploring heterogeneity across states and banks using quantile regressions. Assuming that average trust account size is a good proxy for trust risk tolerance, then a positive correlation between average account size and stockholdings would imply trustee sensitivity to trust risk tolerance. This dynamic would be missed by an OLS analysis of the average effect. We therefore use the following log-log specification in which the coefficient on the S&P 500 is interpreted as the percentage change in trust assets that results from a 1 percent change in the S&P 500:

$$Log\ (Trust\ Assets/Account)_{st} = \alpha + \delta\ LogS\&P500_t + \alpha TimeTrend_t + \varepsilon_{st} \quad (1a)$$

$$Log\ (Fiduciary\ Fees/Return)_{st} = \alpha + \delta\ LogS\&P500_t + \alpha TimeTrend_t + \varepsilon_{st} \quad (1b)$$

where t indexes time and s indexes state. We do not include state dummies because we are interested in differences in correlations across the distribution of states rather than changes within a state. We report regressions with cubic time trends, but controlling for time trends made little difference to the results.

Table 2 reports the results for OLS regressions and for quantile regressions at the 25th, 50th, and 75th percentiles of bank average trust account size ($168,000, $340,000, and $570,000). The results demonstrate heterogeneity at the state and bank level. Qualitatively, changes in trust holdings in states and at banks with smaller average account sizes are less correlated with changes in the S&P 500 than those with larger average account sizes. Interquartile regressions for state-level results did not reject differences between the quartiles, but there is a statistical difference (p value < 0.01) between the 25th and 75th percentiles.

Figure 5: Percent stock by log average account (lowess curves). [Color figure can be viewed at wileyonlinelibrary.com]

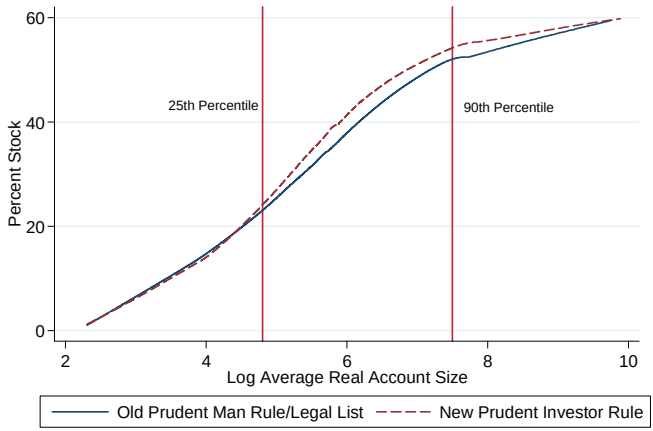


Table 2 shows that the greatest heterogeneity is at the bank level. We therefore undertake a locally weighted regression of percentage stockholdings on log average account size at the bank level, with average account size deflated by the Consumer Price Index. Two lowess curves using bank-year observations are presented in Figure 5: one curve for banks in states after adoption of the prudent investor rule, and the other curve for banks in states with the old prudent man rule. The curves show an approximately linear relationship for much of the distribution, though above the 90th percentile the relationship flattens. Stockholdings in banks in the 25th percentile and below are more or less the same regardless of the applicable legal regime. Accordingly, the effect of the reform appears most pronounced among banks with average account sizes in the 25th to 90th percentiles.

We use the lowess curves to inform our parametric analysis. Figure 5 suggests breaks at the 25th and 90th percentiles. We therefore estimate the following regression at the bank level:

$$\begin{aligned} Percent\ \ Stock_{bst} = {} & \alpha + \gamma_1\, AveAccount\, 25{-}90^{th} pntl_{bst} + \gamma_2 AveAccount\, 25 > 90^{th} pntl_{bst} \\ & + \beta_1 Prudent_{st} \times AveAccount\, 25 < 25_{bs} + \beta_2\, Prudent_{st} \times \\ & AveAccount\, 25{-}90^{th} pntl_{bst} + \beta_3\, Prudent_{st} \times AveAccount\, 25 \\ & > 90^{th} pntl_{bs} + Fixed\ Effects(state,\ holding\ company,\ year) + \varepsilon_{bst} \end{aligned} \tag{2}$$

This regression allows the effect of the prudent investor rule on stockholdings to vary based on the average account size of the bank. The regression is estimated using the bank-level panel, with bank percent stockholdings as the dependent variable. In most regressions, we include holding company fixed effects on the theory that a corporate parent may be an important determinant of investment policies and pooled investment vehicles (if there is no parent, we used the bank's unique identifiers). Average account sizes are calculated in real dollars and indicator variables are included for a bank's place

in the distribution of real average account sizes between 1986 and 2008. These indicators are then interacted with $Prudent_{st}$, allowing the effect of the prudent investor rule to be different for banks with larger or smaller average accounts.

We also undertake event studies with leads and lags around the reform, which helps to isolate the effect of the rule. The leads of the event studies assess whether there were potentially biasing pretrends in states that adopted the rule. The lags assess whether the rule had a delayed effect or one that increased over time. Given the tax and other transaction costs of portfolio reallocation, the rule expressly allows for a "reasonable time" to bring an existing portfolio into compliance with the rule (UPIA, § 4; Restatement [Third], § 92). In Schanzenbach and Sitkoff (2007), we found that the rule had an increasing effect over time, as did Hankins et al. (2008).

The event studies are also important because the percentage of stockholdings in a bank's trust accounts and the bank's average account size are potentially simultaneously determined. More equity probably means higher returns in the long run and so larger average account sizes. Results on the short-run effect of the reform should not exhibit this bias. Finally, assessing the short-run effect of the reform isolates the effect of the prudent investor rule from other law changes, such as principal-and-income and jurisdictional competition reforms, because these other reforms were generally adopted well after the prudent investor rule.

2. Results

The first column of Table 3 reports a simple regression showing percentage stockholdings before and after adoption of the prudent investor rule. We find an economically meaningful and statistically significant increase of 3.34 percentage points in stockholdings.[30]

The remaining columns of Table 3 break out the effect of the prudent investor rule as specified in Equation (2). In Column 2, the coefficient on *Prudent Investor* for banks below the 25th percentile is −2.2 and is not statistically significant. By contrast, for banks with mid-range (25th to 90th percentiles) and very large (above 90th percentile) average account sizes, the rule has a positive effect of 3.7 and 3.1 percentage points, respectively, and these findings are significant at the 0.01 level.

When holding company fixed effects are added in Column 3 of Table 3, the effect of the rule on banks with mid-range account sizes increases slightly to 4.2, but the effect of the reform for banks with large accounts is only 0.77 and is not statistically significant. The results in Column 4, which includes state-specific time trends, are similar with a coefficient of about 5 for mid-range banks and a small and imprecisely estimated effect for banks with large accounts. The coefficient on the effect of reform for banks with trust sizes below the 25th percentile, which had been negative in Column 2, becomes positive when we include bank holding company fixed effects in Columns 3 and 4, but remains statistically insignificant.

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[30]This coefficient is larger than the results reported in Schanzenbach and Sitkoff (2007), which in studying 1986–1997 were on the order of 2.2 percentage points. We attribute the difference to the much longer sample period used in the present study.

Table 3: Percentage Stockholdings by Account Size (Bank Level)

	Years 1986–2008					*Years 1986–2004*	*Years 1986–1997*
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
Prudent investor	3.34**						
	(1.06)						
Real Account Size							
Account size < 25th prct. or less		−29.00**	−18.13**	−17.21**	−18.31**	−19.12**	−20.93**
		(3.449)	(5.908)	(6.013)	(6.065)	(5.91)	(7.007)
Account size between 25th and 90th prct.		−7.348**	−5.824**	−5.971**	−5.889**	−6.273**	−6.699**
		(1.140)	(1.171)	(1.260)	(1.221)	(1.029)	(1.110)
Prudent * 25th prct. or less		−2.189	4.893	4.124	5.51	3.722	0.272
		(4.252)	(4.691)	(4.826)	(4.936)	(4.500)	(4.916)
Prudent * 25th to 90th prct.		3.729**	4.153**	4.975**	4.733**	3.722**	2.403*
		(1.266)	(1.170)	(1.114)	(1.156)	(0.935)	(1.105)
Prudent * >90th prct.		3.130**	0.777	1.510	1.487	1.26	1.490
		(1.137)	(1.172)	(1.195)	(1.376)	(0.980)	(1.048)
Holding company fixed effects			x	x	x	x	x
State time trends				x			
Trust law controls					x		
N	52,442	52,442	52,442	52,442	52,442	46,196	33,567

**Significant at < 0.01 level; *significant at < 0.05 level.

NOTE: FDIC data. The dummy variables *25th percentile or less*, *25th to 90th percentile*, and *90th percentile and above* are taken from the nonparametric results presented in Figure 5. Standard errors clustered by state. Dependent variable is percentage of bank's total personal trust assets held as stock. All regressions include year and state dummies and are weighted by bank personal trust assets denominated in year 2010 dollars. "Trust law controls" include a dummy for the abolition of the rule against perpetuities; a dummy for the recognition of asset protection trusts; and a dummy for adoption of principal-and-income reform. In accordance with Sitkoff and Schanzenbach (2005), the dummies for perpetuities and asset protection are turned on only if the state also does not tax an out-of-state trust on the basis of administration by an in-state trustee.

Reform to principal-and-income accounting rules may have created more flexibility in portfolio design, and bank mergers and jurisdictional competition could confound our analysis. Columns 5 through 7 of Table 3 consider these possibilities. In Column 5, in which we control for principal-and-income reform and the main jurisdictional competition reforms through 2008, the coefficients of interest barely change. In Column 6, we cut the data in 2004, which should remove most of the effect of principal-and-income reform. Some of the coefficients of interest change, but all remain within the range of the estimates of Columns 2 through 5. The main coefficient of interest, the estimate of the effect of the rule on stockholdings in banks with average account sizes in the 25th to 90th percentiles, is 3.7 and remains significant at the 0.01 level. In Column 7, we cut the data in 1997, which is prior to the potential for confounding influences of mergers and nearly all the main jurisdictional competition reforms. The estimate of the effect in the 25th to 90th percentiles falls to 2.4 but remains strongly significant.

It is hard to assess whether the coefficient changes in the robustness checks of Columns 6 and 7 of Table 3 indicate that the estimates using the full sample are biased upward. The estimates in Column 5, in which we control directly for principal-and-

Table 4: Percentage Stockholdings Account Size Between 25th and 90th Percentiles (Leads and Lags)

	Years 1986–2008		*Years 1986–2004*		*Years 1986–1997*	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
PIR −5 years or less		−1.012		−0.756		−0.061
		(0.710)		(0.694)		(0.775)
PIR −3 to −4 years		−1.442		−0.776		0.649
		(1.763)		(1.436)		(1.531)
PIR −1 to −2 years						
PIR year	1.356+	0.631	1.00+	0.544	1.084	0.773
	(0.701)	(0.693)	(0.630)	(0.681)	(0.753)	(0.577)
PIR +1 or 2 years	1.938+	1.231	1.588+	1.140	1.421	0.932
	(0.990)	(1.063)	(0.819)	(0.944)	(1.016)	(0.845)
PIR +3 or 4 years	4.021**	3.377**	3.606**	3.182**	1.759	1.027
	(1.195)	(1.236)	(1.173)	(1.115)	(1.581)	(1.490)
PIR +5 years or more	6.071**	5.557*	4.597**	4.253**	2.824+	1.729
	(1.743)	(2.100)	(1.091)	(1.247)	(1.704)	(1.706)
N	52,442		46,196		33,567	

**Significant at < 0.01 level; *significant at < 0.05 level; +significant at < 0.10 level.

NOTE: FDIC data. Standard errors in parentheses clustered by state. Dependent variable is percentage of bank's total trust assets held as stock. All regressions include year and state dummies and are weighted by bank trust assets denominated in year 2010 dollars. Leads and lags interactions were included for banks in the 90th plus and in the 25th or less percentiles, but because none of the coefficients were significant at conventional levels, they are omitted.

income reform and jurisdictional competition across the entire period under study, do not show the same diminishment. And the effect of the prudent investor rule should increase over time, as the rule allows for a "reasonable time" in light of transaction costs to bring an existing portfolio into compliance (UPIA, § 4; Restatement [Third], § 92).

To allow for the possibility of a lagged effect, and to rule out a prereform trend, we undertake an event study that allows for leads and lags around the reform. Table 4 presents our results for the entire sample (Columns 1 and 2), the years 1986 through 2004 (Columns 3 and 4), and the years 1986 through 1997 (Columns 5 and 6). For each sample, we report a specification with lags and with leads and lags. In interpreting these results, one should bear in mind that fewer states identify the latest and the earliest years. We collapse the time categories into the year of reform, one to two years, three to four years, and five or more years. The coefficients on leads and lags are presented only for banks with average account sizes in the 25th to 90th percentiles. The coefficients for the other percentiles, which are not statistically significant, are suppressed for ease of presentation.

When the entire sample (Columns 1 and 2 of Table 4) or only data through 2004 (Columns 3 and 4) are examined, for banks with average account sizes in the 25th to 90th percentiles we find a small effect in the year the prudent investor rule took effect, a clearer effect within two years, and an increasingly larger and more significant effect later. When we cut the data in 1997 (Columns 5 and 6), the same pattern is evident, though somewhat attenuated. The increasing effect of the rule over time is consistent

with transaction costs in portfolio reallocation, which is contemplated by the rule's allowance for a "reasonable time" to bring an existing portfolio into compliance (UPIA, § 4; Restatement [Third], § 92). The regressions including leads (the even-numbered columns) suggest that there was no pretrend or significant changes just prior to the rule's enactment.

3. Discussion

Our findings suggest that the shift in trust asset allocation after the prudent investor rule from government bonds, insured deposits, and money market funds to stockholdings, and so movement outward on the risk/return curve, traces entirely to banks with average trust account sizes in and above the 25th percentile. In particular, for banks in the 25th to 90th percentiles we find a statistically and economically significant increase in stockholdings after the reform, and this effect is robust to the inclusion of different controls and bank holding company fixed effects. The effect of the rule on banks with mid-sized average account sizes is reduced when we shorten the time period under consideration. This reduced effect could reflect the allowance of a "reasonable time" to bring an existing portfolio into compliance with the rule, the importance of reform to principal-and-income accounting rules, or both.

For banks with an average account size at the 90th percentile and above, the estimated effect of the rule is sensitive to whether we include bank holding company fixed effects, but the coefficients are consistently positive. There are at least two reasons why the effect of the reform might have been attenuated for the largest trusts. First, because such trusts had larger stockholdings to begin with, a further increase in stockholdings would amount to a relatively smaller percentage and so would be harder to measure. Second, a custom opt-out from the constraints of the prior prudent man rule, as compared to boilerplate opt-out language (see Dukeminier & Sitkoff 2013:643), is more likely to be found in the largest trusts. Given the inconsistent empirical results and the plausibility of multiple hypotheses, which are not mutually exclusive, we draw no firm conclusions on the effect of the reform on the largest trusts.

Stockholdings by banks with average trust account sizes below the 25th percentile were unaffected by the reform. Although in some specifications the point estimate is positive, in other specifications it is negative or zero, and in all specifications the standard errors are large relative to the point estimate. Given that the nonparametric estimates from the lowess curves show no change in stockholdings for banks with small average account sizes, we interpret the parametric results as a null effect. Another possible interpretation is that the effect of the reform on banks with smaller accounts was heterogeneous, leading to large standard errors and estimates that are highly sensitive to specification. In all events, for the least risk tolerant trusts there is no consistent evidence that the reform prompted a general move outward on the risk/return curve. Some astute observers at the time of the rule's adoption predicted this result (Langbein 1996:650) and, as noted above, the drafters of the rule declined to carve out small trusts on the theory that in correct application of the rule, such trusts would be managed differently (UPIA, § 2, comment).

In sum, taking average account size as a proxy for risk tolerance, our results suggest sensitivity to trust risk tolerance in trust asset allocation.

B. Ongoing Management of Market Risk

To assess the effect of the prudent investor rule on ongoing management of market risk, we study the changing correlation between the S&P 500 and trust assets over time. We begin by describing graphically and in simple time-series regressions the correlation between S&P 500 returns and changes in year-end trust assets at the national level. Because trusts commonly provide for periodic distributions of income, we use S&P 500 returns exclusive of cash dividends, which are classified as income under trust principal-and-income accounting rules. The results are not meaningfully different if we use S&P 500 returns inclusive of cash dividends. We then turn to a state-level difference-in-difference analysis in which we test how the relationship between the S&P 500 and trust assets changed after the rule.

Given the increase in stockholdings after the prudent investor rule, a reasonable intuition is that yearly S&P 500 returns and changes in reported year-end trust assets would be more correlated after the rule. On this view, the correlation between trust assets and the market is roughly the "beta" of the trust assets in our sample. However, we have only year-end observations of trust assets, and trustees can reallocate among asset classes during the year. If trustees did in fact reallocate among asset classes between our year-end observations, then the correlation between changes in year-end trust assets and yearly market returns will not truly reflect market risk (i.e., the "beta" of trust assets). For example, reallocation of stockholdings to government bonds during a year in which the S&P 500 was rising, typically to stay within a target asset allocation range as specified in an investment policy statement, would diminish the correlation between full-year market returns and changes in year-end reported trust assets.

There is good reason to suppose that rebalancing would increase after the prudent investor rule. As a trust account moves out of the target asset allocation range prescribed by the account's investment policy statement, the normal practice, emphasized by federal regulators and required by the "ongoing duty" imposed by the rule "to monitor investments and to make portfolio adjustments if and as appropriate" (Restatement [Third], § 90, comment e[1]), is to rebalance the portfolio back into compliance with the target asset allocation. However, owing to the need for liquidity to make distributions to the beneficiaries, rebalancing may be more common in rising than in falling markets.

In light of this institutional context, we test for rebalancing in two ways. First, we show that after the rule, changes in year-end trust assets did not become more correlated with full-year S&P 500 returns, but changes in year-end trust assets did become more correlated with January-to-September returns. Together, the unchanged correlation with full-year returns and increased correlation with January-to-September returns implies rebalancing activity between our year-end observations of trust assets.

Second, we test for asymmetric changes in the correlations between trust assets and positive versus negative market returns. We find that after the prudent investor

rule, changes in year-end trust assets became less correlated with positive returns while remaining strongly correlated with negative returns. This result is consistent with asymmetric rebalancing—that is, rebalancing in positive years but not rebalancing in down years. The failure of trustees to rebalance in down markets is consistent with a liquidity constraint arising from the need to make distributions from the trust. The Restatement, for example, instructs that in assessing risk tolerance a trustee should consider "regular distribution requirements ... and any irregular distributions that may in fact become necessary" (Restatement [Third], § 90, comment e[1]).

We also discuss the possibility of broader diversification after the reform, which is not mutually exclusive of increased rebalancing. Although we cannot test for improved diversification, this possibility alone cannot explain the results of our rebalancing tests.

1. Estimation Strategy

We begin by estimating the national-level time-series relationship between changes in year-end trust assets and S&P 500 returns. Roughly speaking, we regress "returns" to trust assets on market returns. Of course, trust assets do not change solely because of appreciation. Aggregate trust assets may change as old trusts terminate and new trusts are created. Moreover, trust income is commonly distributed and trust principal may be invaded for distribution as well. We examine both the aggregate change in trust assets as well as the change in average trust account size, thus accounting for changes in the total number of trusts. As is the case with most financial time series that are first differenced or based on returns, we verify that there is no serial correlation. We explore these relationships graphically and in regressions that take the following form:

$$\%\Delta Average\ Trust\ Assets_t = \alpha + \delta \%\Delta S\&P500_t + \varepsilon_t \tag{3a}$$

$$\%\Delta Fiduciary\ Fees\ per\ Return_t = \alpha + \delta \%\Delta S\&P500_t + \varepsilon_t \tag{3a}$$

As before, we denominate trust assets by number of accounts and fiduciary fees by number of returns. In some national-level specifications, we report changes in aggregate trust assets. We also assess the degree to which stock and nonstock assets are correlated with the market by separating trust assets into stock and nonstock categories and reestimating the equations.

Using the FDIC data, we then measure correlations between changes in year-end trust assets and S&P 500 returns before and after state-by-state adoption of the prudent investor rule with the following difference-in-differences regression:

$$\begin{aligned}\%\Delta Average\ Trust\ Assets_{st} = {} & \alpha + \delta\ \%\Delta S\&P500_t + \sigma\, Prudent_{st} + \tau\, Prudent_{st} \\ & \times\ \%\Delta S\&P500_t + \alpha TimeTrend_t + \mu state_s + \varepsilon_{bst}\end{aligned} \tag{4}$$

Prudent is a dummy equal to 1 if the state has adopted the rule. The variables of interest are δ, σ, and τ. The coefficient δ measures the overall relationship between changes in trust assets and market returns. The coefficient σ indicates whether average trust account size grew at a different pace after the rule. The coefficient on the interaction

term, τ, indicates whether the rule affected the correlation between changes in trust assets and changes in the S&P 500. Because the S&P 500 varies only by year, we do not use time dummies but instead use a third-order polynomial in time represented by the variable *TimeTrend*. In some states, the reform took effect during the year rather than as of January 1, but our FDIC data are as of December 31. We therefore code the year of adoption as the percentage of the year in which the rule was effective. The earliest effective dates for the prudent investor rule and for principal-and-income reform in each state are given in the Appendix.

The state-level regressions are vulnerable to the confounding influences of bank mergers and jurisdictional competition. We verify that the state-level approach is valid by comparing the asset-weighted state-level results to the national results in Equation (3a).[31] If the state-level approach is confounded by mergers and asset movements between states, the coefficient δ should be different in the state results. We show that the state-level approach gives results (when weighted) almost identical to the national time-series results. We do not further disaggregate the analysis to the bank level. Changes in asset levels at the bank level are quite noisy, and are driven heavily by mergers and consolidations as well as by the termination or creation of individual trusts.

As a dummy variable, σ measures the shift in yearly changes in trust assets after adoption of the prudent investor rule. In the long run, a move outward on the risk/return curve should make σ positive, reflecting the equity premium. In the short run, however, σ could be positive or negative owing to increased volatility from increased stockholdings. Although σ is positive in some specifications, we do not emphasize this result because it is not robust and we are not certain that our data adequately reflect the long run.

Whether to expect a positive or negative sign on the coefficient τ is likewise unclear. On the one hand, movement outward on the risk/return curve could lead to a stronger correlation between market returns and changes in year-end trust assets, that is, to a positive τ. On the other hand, τ could be zero or even negative if trustees rebalance over the course of the year. We test for increased rebalancing in two ways: (1) comparing the correlation of changes in year-end trust assets with full-year versus January-to-September S&P 500 returns, and (2) allowing for asymmetric correlations with positive versus negative market returns. For these analyses, we focus on trust stockholdings. Among reported trust asset classes, stockholdings are most closely linked to the market and thus are most likely to be affected by rebalancing.

Two points underpin our identification strategy of comparing the correlation of changes in year-end trust assets with full-year S&P 500 returns versus January-to-September returns. First, because we observe trust assets only at year end, there could be multiple rebalancing events between our observations. Second, in the period under study, full-year S&P 500 returns were highly correlated with returns in shorter, partial-year periods; that is, the market tended to move in a steady direction over the course of

[31]We do not control directly for jurisdictional competition in this analysis. Doing so would require several additional interactions with $\%\Delta$ *S&P500*, and we lack the power to identify these possible effects separately.

each year under study.[32] In consequence, rebalancing within a calendar year would mute the correlation between changes in year-end observed trust assets and full-year S&P 500 returns. The muting effect of rebalancing would be especially strong when, as in the 1990s, the market exhibited a consistent upward trajectory such that rebalancing would involve selling into that trajectory. In such circumstances, returns earlier in the year, which would have prompted the rebalancing, will be more predictive of observed changes in year-end trust stockholdings.

Consider a simple example. Suppose a trustee starts with a portfolio of 100, divided equally 50 in bonds and 50 in stock.[33] Suppose also that the market increases by 50 percent in the first half of the year and the trustee rebalances in June. In such a case, the trustee would rebalance from a portfolio of 50 in bonds and 75 in stocks into a portfolio of 62.5 in bonds and 62.5 in stock. Now suppose further that the market increases again by 50 percent in the second half of the year. At year end the observed portfolio would be 93.75 in stock, an increase in stockholdings of 87 percent, yet for the year the market would have increased by 125 percent. A similar muting effect would be present in a down year. If the market declined by 50 percent in the first half of the year, then in June the trustee would rebalance from a portfolio of 50 in bonds and 25 in stock into a portfolio of 37.5 bond and 37.5 in stock. If the market then declined again by another 50 percent, the year-end observed portfolio would have 18.75 in stock, a decrease of 62.5 percent, yet the market would have decreased by 75 percent.[34] Thus, because S&P 500 returns are strongly correlated within each year in our sample, a diminished correlation after adoption of the rule is consistent with rebalancing.

We also explore asymmetric trustee responses to positive versus negative market returns. There is good reason to suppose that trustees may have rebalanced more in up years than in down years (as is suggested by Figure 8). Because trusts typically require periodic distributions to one or more beneficiaries, and because these distributions normally must be continued even in the event of a diminished trust size, trustees may be constrained in their ability to reallocate toward stock following a large loss. Moreover, most of the down years in our sample were quite dramatic, including 2001, 2002, and 2008, and coincided with significant recessions. The value of a trust's assets as well as the separate wealth of the trust's beneficiaries may well have declined in those years, resulting in a diminished tolerance for risk within the trust, warranting a lowering in the bottom range of the trust's target equity allocation.

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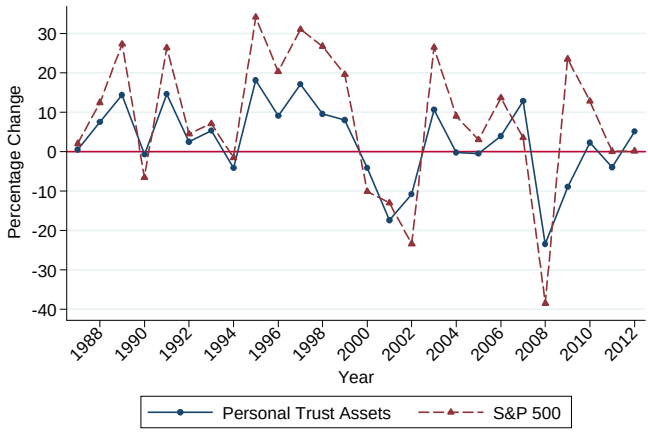
[32]Between 1986 and 2012, the correlation between full-year returns and January-to-September returns was 0.89 and the correlation between full-year returns and January-to-June returns was 0.79.

[33]In other words, suppose an investment policy statement that calls for a target asset allocation of 50 percent in stocks and 50 percent in bonds.

[34]Rebalancing could have the opposite effect if the market decreased in the first half of the year and then rebounded. For example, if trustees rebalanced by buying into a down market, and then the market rebounded later in the year, trust assets that were more aggressively rebalanced would outperform those that were not. However, the market did not decrease substantially and then rebound within any calendar year under study. Moreover, in our asymmetric response regressions (see Table 7), we find that trustees did not rebalance by buying into down markets, and that rebalancing occurs primarily when the market is increasing.

Figure 6: Trust corpus and S&P 500 (FDIC data). [Color figure can be viewed at wileyonlinelibrary.com]



2. Results

We begin with graphical depiction of the correlation between S&P 500 returns and yearly changes in trust assets. Figure 6 depicts year-to-year percentage changes in the S&P 500 and total trust assets in the FDIC data. Because trust assets are reported as of year-end, in analyzing the FDIC data we use the year-over-year change in the S&P 500 as our measure of change in the market. When the S&P 500 rises or falls, trust assets do likewise, but to a lesser degree. For most years the percent yearly change in trust assets was approximately one-half that of the S&P 500. Figure 6 thus implies that, in general, changes in reported year-end trust assets are about one-half as volatile as the market.

Figure 7 is the IRS data analogue to Figure 6, linking yearly changes in fiduciary fees per return with yearly changes in the S&P 500. Because fiduciary fees are assessed over the course of the year based on periodic valuations of the trust assets, commonly monthly or quarterly, for analysis of the IRS data we take the yearly change in the monthly average of the S&P 500 as our measure of change in the market. As with Figure 6, when the S&P 500 rises or falls, fiduciary fees do likewise, but generally by about half as much.[35]

[35]Although we hesitate to focus too much on one or two data points in isolation, a comparison of Figures 6 and 7 points to an anomaly in 2009 that warrants further discussion. Consistent with the general trend across both graphs, in Figure 7 fiduciary fees fall in 2009 about half as much as the decline in the S&P 500. In Figure 6, by contrast, total assets fall but the year-over-year change in the S&P 500 is positive. This anomaly, with the S&P 500 in the same year decreasing in one graph and increasing in another, is an artifact of the different manners by which we computed changes in the S&P 500 for the two graphs. Alone among the years under study, in 2009 the S&P 500 experienced a sharp decline in the first part of the year, followed by a sharp recovery and, ultimately, an increase relative to the beginning of the year. Accordingly, Figure 7, for which we computed the change in the S&P 500 as the yearly change in the monthly average of the S&P 500, shows a decrease in the S&P 500. In Figure 6, by contrast, for which we computed the change in the S&P 500 as its year-over-year change, there is an increase in the S&P 500. In some specifications we exclude 2009 and subsequent years to verify that this anomaly does not drive our results.

Figure 7: Change in fiduciary fees and S&P 500 (IRS data). [Color figure can be viewed at wileyonlinelibrary.com]

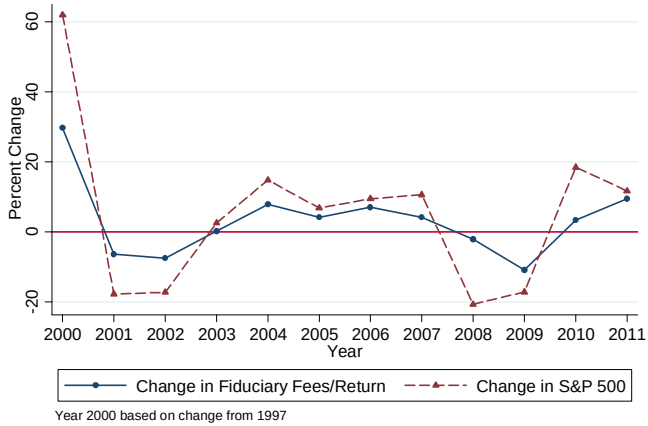


Figure 8 refines Figure 6 by breaking out the aggregate trust assets variable into its stock and nonstock components. The latter consists primarily of government and corporate bonds and real estate. The yearly change in nonstock assets is little related to the yearly changes in the S&P 500 index, suggesting that the value of these "safe" assets does not vary either with the market or relative to stockholdings. By contrast, the yearly change in stock is strongly related to the S&P 500 and quite variable.

Table 5 presents time-series estimates of the figures just described using Equations (3a) and (3a). The numbers in the first row are interpreted as the effect of a 1 percentage point change in the S&P 500 on the change in each trust variable. The estimated

Figure 8: Nonstock assets, stock, and S&P 500 (FDIC data). [Color figure can be viewed at wileyonlinelibrary.com]

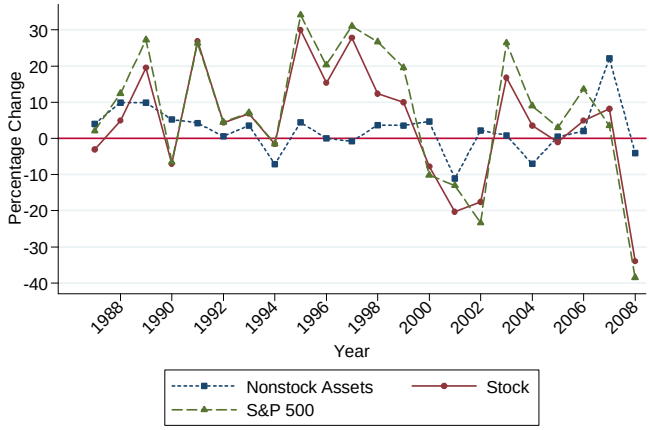


Table 5: Relationship Between %Δ Trust Assets and %Δ S&P 500 (National Level)

	FDIC Data						*IRS Data*	
	%Δ *Trust Assets*		%Δ *Stockholdings*		%Δ *Nonstockholdings*		%Δ *Fiduciary Fees*	
	Total Assets	*Average Account*	*Total Assets*	*Average Account*	*Total Assets*	*Average Account*	*Total Fees*	*Average Fees*
%Δ S&P 500	0.491**	0.531**	0.823**	0.870**	0.0929	0.132	0.394**	0.385**
	(0.0650)	(0.0801)	(0.0500)	(0.0668)	(0.0786)	(0.0907)	(0.0711)	(0.0677)
R^2	0.704	0.647	0.931	0.895	0.065	0.096	0.774	0.782
N	26	26	22	22	22	22	11	11

**Significant at < 0.01 level.

NOTE: FDIC data. Robust standard errors in parentheses. Results using "Total Assets" or "Total Fees" employ the percentage aggregate yearly change. "Average Account" and "Average Fees" divide the yearly aggregate by number of accounts and number of returns, respectively. FDIC data for total trust assets are 1986–2012 and for asset allocation are 1986–2008. IRS data are 2000–2011. Durbin-Watson and Bruesch-Pagan tests reject first-order autocorrelation.

effect of a 1 percent change in the S&P 500 on the change in trust assets is 0.49 percent for total assets and 0.53 percent for average account size. These results imply that a 1 percent increase in the S&P 500 leads to roughly a 0.5 percent increase in year-end total trust assets. The fiduciary fees results suggest that a 1 percent change in the S&P 500 leads to about a 0.4 percent change in trust assets, a somewhat smaller result that is consistent with fiduciary fees being assessed on a graduated scale. The two datasets therefore yield similar results that are in line with our interpretation of Figures 6–8. Durbin-Watson and Bruesch-Pagan tests reject first-order autocorrelation for all specifications, as is to be expected in a financial times series taking first differences on returns on assets.

In middle columns of Table 5, we examine trust stockholdings and nonstockholdings separately. The estimated effect of a 1 percent change in the S&P 500 on stockholdings is 0.82 for total assets and 0.87 for average account size. In other words, a 1 percent change in the S&P 500 leads to a 0.82 or 0.87 percent change in year-end stockholdings. The *R*-squared for these specifications is 0.9, which means that almost all the changes in stockholdings can be explained by changes in the S&P 500. By contrast, the estimated effect of a 1 percentage point change in the S&P 500 on nonstockholdings is small (0.09 or 0.13), not statistically significant, and these regressions have a low *R*-squared (0.07 or 0.10). All told, trust stockholdings are strongly correlated with the market and nonstockholdings are not. These results are consistent with interpreting increased stockholdings as movement outward on the risk/return curve.

We next test the effect of state-by-state enactment of the reform using Equation (4). We first rule out bank mergers and jurisdictional competition as confounding effects. In a simple state-level regression of %Δ *Average Account* on %Δ *S&P 500,* the coefficient on %Δ *S&P 500* was 0.50, which implies that a 1 percent increase in the S&P 500 yields a 0.50 percent increase in average account size. Including state fixed effects and a cubic time trend in the regression yielded a similar estimate of 0.54. These state-level results are nearly identical to the national-level results of Table 5

Table 6: Relationship Between %Δ Average Account Assets, %Δ S&P 500, and the Prudent Investor Rule

	%Δ Average Account Assets Dependent Variable, %Δ S&P Measured Jan–Dec			*%Δ Average Account Assets Dependent Variable, %Δ S&P Measured Jan–Sep*		
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
%ΔS&P 500	0.559**	0.860**	0.835**	0.447**	0.768**	0.860**
	(0.033)	(0.045)	(0.042)	(0.067)	(0.068)	(0.045)
Prudent	2.34	3.34	−0.42	0.121	−2.19	3.34
	(3.27)	(4.21)	(7.58)	(3.20)	(5.15)	(4.21)
%ΔS&P 500 * Prudent	0.0201	.0579	0.0776	0.193+	0.311**	0.318**
	(0.063)	(.0847)	(0.0950)	(0.111)	(0.138)	(0.138)
Stockholdings only		x	x		x	x
State time trends			x			x
N	1,294	1,099	1,099	1,294	1,099	1,099

**Significant at < 0.01 level; *significant at < 0.05 level; +significant at < 0.10 level.
NOTE: FDIC data. Standard errors in parentheses clustered by state. No trust assets are reported in three state-year observations. Dependent variable is %Δ Average Account either for the entire portfolio or just stockholdings. Columns 1 through 3 use %Δ S&P 500 from January through December. Columns 4 through 6 use %Δ S&P 500 from January to September. All results weighted by state real trust assets and control for state fixed effects and cubic time trends.

(coefficient of regression of %Δ *Average Account* on %Δ *S&P 500* was 0.53), which suggests that noise from bank mergers and jurisdictional competition have not substantially affected the state-level analysis.

Column 1 of Table 6 reports the result of a simple regression of %Δ *Average Account* on *Prudent*, %Δ *S&P 500*, and their interaction. Columns 2 and 3 repeat this specification but use %Δ *Average Account Stockholdings* as the dependent variable and with state-specific time trends added in Column 3. In all specifications, the coefficients on *Prudent* and its interaction with %Δ *S&P500* are small and not statistically significant, suggesting that after the prudent investor rule there was no change in correlations between full-year S&P 500 returns and year-end reported total trust assets or trust stockholdings.

Columns 4 through 6 of Table 6 repeat the regressions of Columns 1 through 3 but use January-to-September rather than full-year S&P 500 returns. In contrast to the full-year results, we observe a significant and positive effect of the prudent investor rule on correlations with January-to-September returns. In Column 4, which examines total trust assets, the estimate for the interaction term is 0.19 and is almost significant at the 5 percent level. Taking the point estimates at face value, the correlation between changes in reported year-end total trust assets and January-to-September S&P 500 returns increased from 0.45 (the main effect) to 0.64 (the main effect plus the interaction effect) after the reform, reflecting movement outward on the risk/return curve.

When we examine trust stockholdings in Columns 5 and 6 of Table 6, the coefficient on the interaction term is around 0.3 and is highly significant. Adding the main effect (in Column 5) of roughly 0.77 to the interaction effect of 0.31 gives us an estimate for the correlation between trust stockholdings and January-to-September S&P 500

returns of 1.08. Taking the coefficient estimates at face value, after the prudent investor rule, changes in year-end trust stockholdings became perfectly correlated with January-to-September S&P 500 returns but were no longer correlated with full-year returns. These findings are strongly consistent with rebalancing between our year-end observations of trust assets. We tested additional measures of earlier returns, such as average returns in the second and third quarters, and found a similar result.

Table 7 reports results based on Equation (4) but allowing for an asymmetric correlation of trust assets with positive versus negative market returns. In this analysis, we divided the S&P 500 variable into a variable of positive returns ($\%\Delta\ S\&P\ 500 > 0$), which is the value of a positive change in the S&P 500 and is zero otherwise, and a variable of negative returns ($\%\Delta\ S\&P\ 500 < 0$), which is the value of a negative change in the S&P 500 and is zero otherwise. Columns 1 through 3 use full-year S&P returns. Columns 4 through 6 use January-to-September S&P 500 returns. We focus mostly on the results for years in which the S&P 500 had positive returns. The effect of the reform in negative years is not well-identified because there was little variation in adoptions of the reform in those years. Almost all states had adopted the prudent investor rule by 2000, prior to which there were only two years of negative market returns in our timeframe, 1990 and 1994, both small declines.

Column 1 of Table 7 reports the basic regression without an interaction with *Prudent*. The coefficient on positive returns is 0.44 and on negative returns is 0.69. The p value on a one-tail test finds that the correlation with negative returns is higher than that of positive returns at the 0.029 level. Accordingly, changes in year-end trust assets are more strongly correlated with full-year S&P 500 returns in down markets than in up markets.

Columns 2 and 3 of Table 7 report regressions interacting the *Prudent* dummy with full-year S&P 500 positive and negative returns, which allows us to identify whether those correlations changed after adoption of the prudent investor rule. Column 2 examines total trust assets. Column 3 examines trust stockholdings only. The results show that after the reform positive full-year market returns became less correlated with changes in year-end trust assets and stockholdings. The coefficient on the interaction term $\%\Delta\ S\&P\ 500 > 0\ *\ Prudent$ is negative and strongly significant. By contrast, trust assets and trust stockholdings remained strongly correlated with negative returns after the reform (for stockholdings, the postreform correlation is one-to-one). We do not interpret the negative return results as an effect of the reform because of the limited identification prereform, as previously discussed. In short, these results are consistent with the asymmetric rebalancing hypothesis. Trustees did not buy into down markets, but they did sell into up markets.

In contrast to our full-year S&P 500 results in Columns 1 through 3 of Table 7, in Columns 4 through 6 we find no evidence of asymmetry in the correlations between January-to-September S&P 500 returns and changes in year-end trust assets or stockholdings. Indeed, in Column 6 we find an increase in the correlation between positive January-to-September returns and changes in year-end stockholdings after the reform.[36]

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[36]The magnitude of the correlation is large (0.49), but the estimate is somewhat imprecise (p value is 0.058).

Table 7: Relationship Between %Δ Average Account Assets, Positive and Negative S&P 500 Returns, and the Prudent Investor Rule

	%Δ Average Account Assets Dependent Variable, %Δ S&P Measured Jan–Dec			*%Δ Average Account Assets Dependent Variable, %Δ S&P Measured Jan–Sep*		
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
%ΔS&P 500 > 0	0.444**	0.675**	0.957**	0.427**	0.523**	0.809**
	(0.067)	(0.048)	(0.061)	(0.12)	(0.107)	(0.099)
%ΔS&P 500 < 0	0.691**	−0.396	−0.008	0.741**	0.094	0.611**
	(0.100)	(0.263)	(0.352)	(0.130)	(0.187)	(0.210)
Prudent		8.78**	8.14*		4.23	−0.63
		(2.75)	(3.92)		(3.00)	(2.92)
%ΔS&P 500 > 0 * Prudent		−0.366**	−0.192*		0.104	0.490+
		(0.111)	(0.100)		(0.253)	(0.276)
%ΔS&P 500 < 0 * Prudent		1.16**	1.09**		0.750**	0.334
		(0.260)	(0.35)		(0.237)	(0.281)
Stockholdings only			x			x
N	1,294	1,294	1,099	1,294	1,294	1,099

**Significant at < 0.01 level; *significant at < 0.05 level; +significant at < 0.10 level.

NOTE: FDIC data. The variable %ΔS&P 500 < 0 is 0 when S&P 500 annual returns are positive and the actual return when S&P returns are negative. The variable %ΔS&P 500 > 0 is 0 when S&P 500 annual returns are negative and the actual return when S&P returns are positive. Standard errors in parentheses clustered by state. No trust assets are reported in three state-year observations. Dependent variable is %Δ Average Account either for the entire portfolio or just stockholdings. Columns 1 through 3 use %Δ S&P 500 from January through December. Columns 4 through 6 use %Δ S&P 500 from January to September. All results weighted by state real trust assets and control for state fixed effects and cubic time trends.

Thus, positive January-to-September S&P 500 returns are more correlated with changes in trust stockholdings after the reform, whereas, per Column 3, positive full-year returns are less correlated. We interpret these results as consistent with rebalancing by trustees between our year-end observations of trust assets. That is, positive partial-year returns prompt trustees to rebalance within the year, hence changes in trust stockholdings are strongly correlated with partial-year returns but less correlated with full-year returns.

3. Discussion

We find evidence of increased portfolio rebalancing after the prudent investor rule. First, after the rule, year-end trust assets did not become more correlated with full-year S&P 500 returns but did become more correlated with January-to-September returns. Because rebalancing may occur periodically across the year, but we observe trust assets only at year end, this result is consistent with rebalancing activity between our year-end observations. Second, after the rule, the correlation between trust assets and full-year market returns (but not January-to-September returns) decreases in positive markets. This finding implies an increase in rebalancing across the year in up markets. By contrast, we observe no change after the rule in the correlation between trust assets and negative markets. This finding implies that after the rule trustees were no more or less

likely to acquire additional stockholdings in down markets than they were before the rule.

Our finding of asymmetric rebalancing, in which trustees did not buy into down markets after the prudent investor rule, is consistent with prudent trust investment practice. As discussed previously, because trusts typically require periodic distributions, there may be a liquidity constraint on reallocation to stock in a down market. Indeed, as Figure 6 demonstrates, in the bear market of 2008, trusts became much smaller, with trust corpus declining by almost 25 percent. Moreover, given the magnitude of the market declines in 2001, 2002, and 2008, the personal wealth of the beneficiaries may well have declined in those years, resulting in further diminishment of trust risk tolerance. The observed asymmetry in rebalancing could also reflect a behavioral attitude against stock investment in a down market, as has been suggested in the management of university endowments (Brown et al. 2014).

Our interpretation of the results as implying increased rebalancing after the prudent investor rule reconciles the observed increase in stockholdings, and so movement outward on the risk/return curve, with our finding of no increase in correlation between changes in year-end trust assets and full-year market returns. We conclude that the increased exposure to market risk that follows from additional stockholdings was managed in accordance with the rule's imposition of an "ongoing duty to monitor investments and to make portfolio adjustments if and as appropriate" (Restatement [Third], § 90, comment e[1]).

An alternative, but not mutually exclusive, explanation for our findings is that although stockholdings increased after the prudent investor rule, those holdings were better diversified in a broader range of stocks than those that comprise the S&P 500. Given the limits of our data, we cannot assess directly whether diversification increased, but increased diversification is consistent with prudent risk management and is not inconsistent with our finding of increased rebalancing. To put the point otherwise, we find strong evidence of increased rebalancing after the rule, which may have coincided with increased diversification. However, increased diversification alone cannot explain the increased correlation between trust assets and January-to-September returns found in Table 6 or the asymmetric response found in Table 7.

V. Conclusion

Using data from reports of bank trust holdings and fiduciary income tax returns, we evaluated the effect of the prudent investor rule on trustee management of market risk. There are two core conclusions. First, the observed increase in stockholdings after the reform traces to banks with average trust account sizes above the 25th percentile. Stockholdings did not increase among banks with smaller average trust account sizes. We therefore conclude that trust asset allocation has been sensitive to trust risk tolerance as proxied by trust account size.

Second, we find evidence that trustees managed the additional exposure to market risk associated with increased stockholdings by increased portfolio rebalancing. We

base our rebalancing conclusion on our findings that: (1) the correlation between changes in year-end reported trust assets and full-year S&P 500 returns did not change after the reform, but changes in year-end trust assets did become more correlated with January-to-September S&P 500 returns; and (2) changes in year-end trust assets became less correlated with positive full-year S&P 500 returns, but remained strongly correlated with negative full-year returns. Interpreted against the legal-institutional context of an investment policy statement that prescribes a target asset allocation range, these results are suggestive of periodic rebalancing in up markets between our year-end observations of trust assets.

Although we cannot pass judgment on whether our findings suggest optimality in investment practice under the prudent investor rule, the results paint a clear picture of how trustees responded to the reform. After enactment of the rule, trustees increased stockholdings in the relatively more risk-tolerant trusts and also increased rebalancing to manage the resulting increase in exposure to market risk. For those who believe that modern portfolio theory is an appropriate benchmark for trust investment management, these findings are comforting. The assumption of failed risk management by trustees that motivates recent calls for repeal or reform of the rule is inconsistent with the evidence on trust practice examined in this study.

References

Ascher, Mark L. (2011) "The Grantor Trust Rules Should be Repealed," 96 *Iowa Law Rev.* 885.

Begleiter, Martin D. (1999) "Does the Prudent Investor Need the Uniform Prudent Investor Act—An Empirical Study of Trust Investment Practices," 51 *Maine Law Rev.* 27.

Brown, Jeffrey R., Stephen G. Dimmock, Jun-Koo Kang, & Scott J. Weisbenner (2014) "How University Endowments Respond to Financial Market Shocks: Evidence and Implications," 104 *American Economic Rev.* 931.

Campbell, John Y. (2006) "Household Finance," 61 *J. of Finance* 1553.

Canner, Niko, N. Gregory Mankiw, & David N. Weil (1997) "An Asset Allocation Puzzle," 87 *American Economic Rev.* 181.

Code of Federal Regulations (2004) "Definition of Income: Treas. Reg."

Comptroller of the Currency (2001) *Investment Management Services: Comptroller's Handbook.*

Cooter, Robert, & Bradley J. Freedman (1991) "The Fiduciary Relationship: Its Economic Character and Legal Consequences," 66 *New York Univ. Law Rev.* 1045.

Dagan, Hanoch, & Sharon Hannes (2014) "Managing Our Money: The Law of Financial Fiduciaries as a Private Law Institution," in A. S. Gold & P. B. Miller, eds., *Philosophical Foundations of Fiduciary Law*, pp. 91–121. Oxford: Oxford Univ. Press.

Del Guercio, Diane (1996) "The Distorting Effect of the Prudent-Man Laws on Institutional Equity Investments," 40 *J. of Financial Economics* 31.

Dukeminier, Jesse, & Robert H. Sitkoff (2013) *Wills, Trusts, and Estates*, 9th ed. New York: Aspen Publishers.

Easterbrook, Frank H., & Daniel R. Fischel (1993) "Contract and Fiduciary Duty," 36 *J. of Law & Economics* 425.

Employee Retirement Income Security Act (1974).

Federal Register (Forthcoming) "Definition of the Term 'Fiduciary'; Conflict of Interest Rule—Retirement Investment Advice," *Federal Register.*

fi360 (2013) *Prudent Practices for Investment Advisors: Defining a Global Fiduciary Standard of Excellence*, U.S. ed.

Fishman, James J. (2014) "What Went Wrong: Prudent Management of Endowment Funds and Imprudent Endowment Investing Policies," 40(2) *J. of College & Univ. Law* 199.

Getzler, Joshua (2009) "Fiduciary Investment in the Shadow of Financial Crisis: Was Lord Eldon Right?" 3 *J. of Equity* 219.

Goodwin, Iris J. (2010) "How the Rich Stay Rich: Using a Family Trust Company to Secure a Family Fortune," 40 *Seton Hall Law Rev.* 467.

Gordon, Jeffrey N. (1987) "The Puzzling Persistence of the Constrained Prudent Man Rule," 62 *New York Univ. Law Rev.* 52.

Hankins, Kristine Watson, Mark J. Flannery, & M. Nimalendran (2008) "The Effect of Fiduciary Standards on Institutions' Preference for Dividend-Paying Stocks," 37(4) *Financial Management* 647.

Hofri-Winogradow, Adam S. (2014) "The Stripping of the Trust: From Evolutionary Scripts to Distributive Results," 75 *Ohio State Law J.* 529.

—— (2015) "The Stripping of the Trust: A Study in Legal Evolution," 65 *Univ. of Toronto Law J.* 1.

Kiziah, Trent S. (2011) "Remaining Heterogeneity in Trust Investment Law After Twenty-Five Years of Reform," 37 *ACTEC Law J.* 317.

Langbein, John H. (1995) "The Contractarian Basis of the Law of Trusts," 105 *Yale Law J.* 625.

—— (1996) "The Uniform Prudent Investor Act and the Future of Trust Investing," 81 *Iowa Law Rev.* 641.

Langbein, John H., & Richard A. Posner (1976) "Market Funds and Trust-Investment Law," 1(1) *American Bar Foundation Research J.* 1.

—— (1977) "Market Funds and Trust-Investment Law: II," 2(1) *American Bar Foundation Research J.* 1.

Longstreth, Bevis (1986) *Modern Investment Management and the Prudent Man Rule*. New York: Oxford Univ. Press.

McLaughlin, Susan (1995) "The Impact of Interstate Banking and Branching Reform: Evidence from the States," 1(2) *Federal Reserve Bank of New York, Current Issues in Economics & Finance* 1.

Rachlinski, Jeffrey J. (2000) "Heuristics and Biases in the Courts: Ignorance or Adaptation?" 79 *Oregon Law Rev.* 61.

Restatement (Second) of Trusts (1959) Minneapolis, MN: American Law Institute.

Restatement (Third) of Trusts (1992, 2003, 2007, 2012) Minneapolis, MN: American Law Institute.

Schanzenbach, Max M., & Robert H. Sitkoff (2007) "Did Reform of Prudent Trust Investment Laws Change Trust Portfolio Allocation?" 50 *J. of Law & Economics* 681.

Scoles, Eugene F. (2002) "Choice of Law in Trusts: Uniform Trust Code, Sections 107 and 403," 67(2) *Missouri Law Rev.* 213.

Shattuck, Mayo A. (1951) "The Development of the Prudent Man Rule for Fiduciary Investment in the United States in the Twentieth Century," 12 *Ohio State Law J.* 491.

Sherman, Jeffrey G. (1998) "All You Really Need to Know About Subchapter J You Learned from This Article," 63(1) *Missouri Law Rev.* 1.

Sitkoff, Robert H. (2004) "An Agency Costs Theory of Trust Law," 89(3) *Cornell Law Rev.* 621.

—— (2011) "The Economic Structure of Fiduciary Law," 91 *Boston Univ. Law Rev.* 1039.

—— (2014a) "An Economic Theory of Fiduciary Law," in A. S. Gold & P. B. Miller, eds., *Philosophical Foundations of Fiduciary Law*, pp. 197–208. New York: Oxford Univ. Press.

—— (2014b) "The Fiduciary Obligations of Financial Advisors Under the Law of Agency," 27(2) *J. of Financial Planning* 42.

Sitkoff, Robert H., & Max M. Schanzenbach (2005) "Jurisdictional Competition for Trust Funds: An Empirical Analysis of Perpetuities and Taxes," 115(2) *Yale Law J.* 356.

Sterk, Stewart E. (2003) "Jurisdictional Competition to Abolish the Rule Against Perpetuities: R.I.P. for the R.A.P.," 24 *Cardozo Law Rev.* 2097.

—— (2010) "Rethinking Trust Law Reform: How Prudent is Modern Prudent Investor Doctrine?" 95 *Cornell Law Rev.* 851.

Twain, Mark (1899) *Pudd'nhead Wilson and Those Extraordinary Twins.* New York/London: Harper & Brothers.

Uniform Prudent Investor Act (1994) Uniform Law Commission.

Uniform Prudent Management of Institutional Funds Act (2006) Uniform Law Commission.

Wolff, Edward N., & Maury Gittleman (2014) "Inheritances and the Distribution of Wealth or Whatever Happened to the Great Inheritance Boom?" 12 *J. of Economic Inequality* 439.

Appendix[37]

	Prudent Investor Rule	*Principal-and-Income Reform*
Alabama	5/16/1989	1/1/2001
Alaska	5/23/1998	9/1/2003
Arizona	7/20/1996	1/1/2002
Arkansas	8/1/1997	1/1/2000
California	7/1/1987	1/1/2000
Colorado	7/1/1995	7/1/2001
Connecticut	10/1/1997	1/1/2000
Delaware	7/3/1986	6/21/2001
Florida	10/1/1993	1/1/2003
Georgia	3/31/1988	7/1/2005
Hawaii	4/14/1997	7/1/2000
Idaho	7/1/1997	7/1/2001
Illinois	7/1/1992	8/22/2002
Indiana	7/1/1999	1/1/2003
Iowa	7/1/1991	4/5/2002
Kansas	7/1/1993	7/1/2000
Kentucky	7/15/1996[38]	1/1/2005
Louisiana	8/15/2001	1/1/2002[39]
Maine	1/1/1997	1/1/2003
Maryland	10/1/1994[40]	10/1/2002
Massachusetts	3/4/1999	1/1/2006
Michigan	4/1/2000	9/1/2004
Minnesota	8/1/1986	8/1/2001
Mississippi	7/1/2006	1/1/2013

(Continued)

[37]Current through year-end 2014.

[38]This date was for institutional trustees only. Other trustees were permitted to opt into the reform effective Jan. 1, 2005.

[39]This date was for new trusts or existing trusts that opted for early application of the reform (otherwise the reform was effective for existing trusts on Jan. 1, 2004).

[40]This date was for all institutional trustees and other trustees who opted in to the reform.

Appendix (Continued)

Missouri	8/28/1996	8/28/2001
Montana	9/30/1989	10/1/2003
Nebraska	9/13/1997	9/1/2001
Nevada	4/17/1989	10/1/2003
New Hampshire	1/1/1999	8/19/2006
New Jersey	6/5/1997	1/1/2002
New Mexico	7/1/1995	7/1/2001
New York	1/1/1995	1/1/2002
North Carolina	1/1/2000	1/1/2004
North Dakota	8/1/1997	—
Ohio	3/22/1999	1/1/2003
Oklahoma	11/1/1995	11/1/1998
Oregon	9/9/1995	1/1/2004
Pennsylvania	12/25/1999	7/15/2002
Rhode Island	8/6/1996	6/23/2006
South Carolina	6/5/1990	7/18/2001
South Dakota	7/1/1995	2/27/2002
Tennessee	7/1/1989	7/1/2000
Texas	6/16/1991	1/1/2004
Utah	7/1/1995	5/3/2004
Vermont	7/1/1998	7/1/2009
Virginia	7/1/1992	1/1/2000
Washington	1/1/1985	1/1/2003
West Virginia	7/1/1996	7/1/2000
Wisconsin	4/30/2004	5/17/2005
Wyoming	7/1/1999	7/1/2001