Empirical Analysis of Fiduciary Law

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Abstract and Keywords

This chapter offers an empirical analysis of fiduciary law, focusing on whether fiduciaries react to changes in fiduciary standards and which fiduciary rules maximize social welfare. Empirical studies of fiduciary law across three areas are discussed: corporate governance, fiduciary investment, and medical malpractice. The chapter considers fiduciary principles in corporate governance by looking at the duties of care and loyalty, citing empirical evidence implying that fiduciary duties in the corporate governance context influence corporate decision-making. It also examines the law of fiduciary investment, drawing on empirical evidence across three key areas: the implementation of the Prudent Investor Rule in private trusts, management of charitable trusts and prudent distributions, and the consequences of potentially conflicted advice to retirement savers. Finally, it explores the duty of care in the context of medical provider-patient relationships and the duty of loyalty in physician-client relationships.

Keywords: fiduciary law, corporate governance, fiduciary investment, medical malpractice, Prudent Investor Rule, charitable trusts, retirement savers, duty of care, duty of loyalty, physician-client relationships

I. Introduction

FIDUCIARY law reflects careful appreciation for the context of each specific fiduciary relationship, and the particulars of fiduciary duties can vary dramatically by context. It is not surprising, therefore, that fiduciary law has evolved significantly by way of both legislative innovation and court decisions. For example, in the mid-1980s, the seminal Delaware cases of *Smith v. Van Gorkom*[1] and *Revlon, Inc. v. MacAndrews & Forbes Holdings*[2] reworked the duty of care in corporate law, at least in merger contexts. In 1992, the Restatement of Trusts adopted a revised Prudent Investor Rule,[3] later adopted by statute in every state,[4] which abrogated a significant body of case law.

Significant changes in the law create natural experiments for empirical evaluation of the law's effect. Moreover, differences in fiduciary standards and fiduciary compensation schemes create additional opportunities for study, particularly in the area of financial advice and health care provision. Accordingly, across varied fiduciary fields, a rich body of empirical evidence has accumulated regarding the effects of changes to fiduciary standards and how fiduciaries react to changes in incentives.

Empirical analysis of fiduciary law asks two primary questions. First, do fiduciaries react to changes in fiduciary standards? Fiduciary law may not be important if monitoring is very weak and detection rates are wholly inadequate to achieve deterrence. In the private trust context, unsophisticated and minor beneficiaries may not be able to detect (p. 724) or pursue misconduct.[5] In the medical malpractice context, medical errors rarely result in litigation. Even if actors are sophisticated, in a Coasean world the default rules may not matter when fiduciary standards can be varied by agreement as is common in the trust and corporate contexts.

The second, and more important, question is which fiduciary rules maximize social welfare. This question cannot be fully answered empirically. However, changes in fiduciary law sometimes give the opportunity to assess whether outcomes changed ex post in a that is consistent with improved social welfare. Do heightened care standards in corporate law deter deals and chill board conduct? Or do they improve capital markets by ensuring shareholders get the best deal in a merger? Do medical malpractice liability limitations increase error or reduce costs without affecting medical error? Do trustees seem to follow modern portfolio theory under the Prudent Investor Rule, or do they merely act to take on risk regardless of beneficiary needs?

This chapter surveys empirical studies of fiduciary law across three areas: (1) corporate governance; (2) fiduciary investment; and (3) medical malpractice. Undoubtedly, there are other important areas of fiduciary law, but we focus on these three because they are of paramount social importance given the scope of economic activity and human welfare they encompass, and because legal reforms in these areas have opened up avenues for high-quality empirical work.

II. Corporate Governance

As discussed elsewhere in this volume, fiduciary principles in corporate governance can be organized under the categories of care and loyalty. Precisely defining these duties and the way they interact with other corporate principles is better left to the more institutional and theoretical chapters in this volume.[6] For our purposes, we take the duty of care to require corporate directors and officers to engage in levels of care that prudent decision makers would use in similar circumstances, and the duty of loyalty to require directors and officers to avoid conflicts of interest. Empirically, as discussed in the appendix, the effects of these legal duties are often best studied by examining what happens after courts or legislatures change the understanding of what they require, allowing for a before and

after comparison. In terms of contemporaneous comparators,[7] corporations in other jurisdictions where the legal understanding has not changed are generally used.[8]

(p. 725) This chapter does not attempt anything approximating a literature review.[9] Instead, we focus on recent studies that use high-quality research designs to examine first order issues related to fiduciary duties. In our judgment, the covered studies both credibly inform the reader about the effect of major changes in fiduciary duty law and represent examples of empirical best practices.

A. Duty of Care

As a general matter, when determining whether directors and officers have met their obligations under the duty of care, courts will invoke the business judgment rule so as not to be involved in second-guessing corporate decisions. However, in the famous Delaware cases of *Smith v. Van Gorkom* and *Revlon, Inc. v. MacAndrews & Forbes Holdings*, the court took less deferential stances with respect to actions that involved mergers or other changes in the control of the corporation. With respect to *Van Gorkom*, the court held directors liable for violating their duty of care for not informing themselves sufficiently about the relative value of a tender offer.[10] In *Revlon*, the court required directors to secure the highest value reasonably available to shareholders in a sale situation, possibly by effectively requiring an auction.[11]

Van Gorkom, "possibly the most famous corporate law case ever decided by the Delaware Supreme Court,"[12] led many officers and directors to believe there had been a substantial change in what constituted their duty of care and attendant liability risk. But practical empirical effects of the law change are unlikely given the Delaware General Assembly's quick implicit repudiation of the holding, which allowed corporations to shield directors from liability from any action arising from a breach of the duty of care if shareholders approve an exculpatory provision. Hamermesh's sample of Fortune 500 companies indicates that virtually all corporations had adopted such an exculpatory provision.[13]

Revlon's practical effects might be more important. In a sample covering virtually all U.S. public companies between 1965 and 2014, Cain, McKeon, and Solomon examine whether a jurisdiction's adoption of the *Revlon* standard (controlling for other laws concerning takeovers) has had any effect on whether a firm experiences a hostile takeover in any particular year. They find that adoption increases this probability by about 40 percent, and the effect is statistically significant.[14]

(p. 726) The 1991 Delaware case *Credit Lyonnais v. Pathe Communications*[15] provides another opportunity to examine the effect of changes in the duty of care on the decisions of officers and directors. Although the traditional rule indicated no duty was owed to creditors until a corporation was in bankruptcy, *Credit Lyonnais* indicated that once a corporation enters the "zone of insolvency," creditors are owed a duty of care to some extent.[16]

Becker and Stromberg use a differences-in-differences strategy to examine whether financially troubled firms incorporated in Delaware implement strategies that are more favorable to creditors after *Credit Lyonnais* than they did before, using non-Delaware firms as the counterfactual comparators. Specifically, Becker and Stromberg examine the debt overhang problem (i.e., distressed firms focusing on shareholder welfare may be reluctant to raise additional equity and make additional investments even when those investments represent positive net present value propositions because the gains from those investments will accrue to creditors) and the risk-shifting problem (i.e., distressed firms focusing on shareholder welfare may increase the riskiness of existing assets since the gains would go to shareholders while losses would hurt creditors).[17]

The authors find that since 1991, Delaware firms that are closer to default engage in more investment (capital expenditures and research and development expenditures) than they previously had, and the change is larger than the contemporaneous change observed in non-Delaware firms. The observed effect is also substantially larger as default risk increases. They also find increased equity issues for distressed firms incorporated in Delaware after 1991 relative to non-Delaware firms. With respect to risk shifting, they find that the volatility on the return on assets falls for distressed Delaware firms after 1991 compared to non-Delaware firms, whereas the opposite is true for Delaware firms that are not at risk of default. On the creditor side, the authors find that bonds are significantly less likely to have covenants in them for Delaware firms post-1991 compared to pre-1991 Delaware firms as well as the contemporaneous change in the likelihood in the debt of non-Delaware firms having covenants.

Altogether, Becker and Stromberg present compelling evidence that changes in the duty of care change the behavior of corporate decision makers.[18] Examining the same natural experiment, Aier, Chen, and Pevzner find that post-1991, distressed Delaware companies engage in more conservative accounting practices (something that is more in line with creditor welfare than shareholder welfare) than do non-Delaware companies. Further, they find that the effect is more pronounced in firms with stronger boards, strengthening the causal interpretation.[19]

(p. 727) B. Duty of Loyalty

The duty of loyalty essentially involves a requirement to avoid or disclose (and secure permission to engage in) activities that involve a conflict of interest on the part of officers and directors.[20] Unlike the duty of care, which is often severely muted due to a reluctance of courts to second-guess corporate decisions and by the capacity of firms to contract around it, the duty of loyalty has long been a mandatory and vigorously policed aspect of corporate law. Given the findings discussed earlier regarding the significant scope for even the duty of care to influence corporate decisions, we might expect to find an even greater influence of the duty of loyalty.

Donelson and Yust provide some of the most compelling evidence indicating that the duty of loyalty influences the actions of corporate fiduciaries. They exploit a somewhat surpris-

ing change in Nevada law that significantly limited the ability of shareholders to sue for loyalty breaches. Specifically, in 2001, Nevada law limited lawsuits for violations of the duty of loyalty to those instances where the officer or director engaged in intentional misconduct, fraud, or a knowing violation of law.[21] Relative to Delaware (and basically every other state), this change severely restricted the scope of using litigation to discipline corporate fiduciaries. In a differences-in-differences framework, the authors find that Nevada firms lost value after 2001 (with the effect being more pronounced in firms with higher observable agency costs), exhibit worse operating performance, and are involved in more error-based restatements.[22] Barzuza and Smith go further and suggest that firms favoring protections for insiders actually self-select into Nevada law.[23]

Rauterberg and Talley examine state laws that allow firms to contract around one of the main elements of the duty of loyalty, namely, the corporate opportunities doctrine.[24] In corporate law, opportunities that present themselves to corporate officers and directors because of roles within the company rightfully belong to the company itself. Exploiting such opportunities, without disclosing and receiving approval from a majority of disinterested directors, is a clear violation of the duty of loyalty. Further, through most of U.S. corporate law history, the corporate opportunities doctrine was a mandatory piece of corporate governance. That changed, however, when Delaware made a provision in 2000 for a waiver of this element of the duty of loyalty. A number of other states followed suit.[25]

In addition to providing a wealth of descriptive data about the firms that avail themselves of the ability to waive the corporate opportunities portion of the duty of loyalty and the scope of the waivers, Rauterberg and Talley also attempt to isolate the market's valuation of the adoption of these waivers. Using the event study methodology, they show **(p. 728)** that market returns increase for firms adopting the waivers relative to what would be expected based on general market returns and the historical relationship between the firms' returns and the markets. Although the magnitude and the statistical significance of the effect is somewhat dependent on the particular counterfactual model used, the results do uniformly suggest the waivers are associated with an increase in market value on the order of 25 to 150 basis points. Rauterberg and Talley suggest this increase could be consistent with an optimal contracting model where it may be, under certain circumstances, more efficient to allow corporate insiders to exploit opportunities than it would be for the corporation itself. In such a situation, the traditionally unwaivable duty of loyalty interferes with Coasean bargaining, leaving value unexploited. Once this impediment is removed, the parties can bargain toward a mutually advantageous outcome, which manifests in higher firm value.[26]

Although these empirical results suggest that fiduciary duties in the corporate governance context do indeed affect corporate decision-making, empirical work alone does not allow us to make welfare conclusions regarding the proper scope of fiduciary duties or the appropriate level of enforcement. Even the Rauterberg and Talley paper, which estimates an increase in firm returns when the duty of loyalty is circumscribed, does not definitively answer questions of general welfare, as financial market valuations might not be coterminous with social welfare. However, results such as those surveyed earlier surely

are necessary inputs in more complete normative evaluations of fiduciary duties in corporate law.

III. Fiduciary Investment

The law of fiduciary investment covers a wide variety of different fiduciary relationships, including defined benefit pension plans, defined contribution retirement plans, management of nonprofit endowments, and private trusts. This has been an area of active legal reform and differing compensation structures, both of which open up interesting avenues for empirical research. We consider the empirical evidence across three key areas: (1) the implementation of the Prudent Investor Rule in private trusts, (2) how charitable endowments and spending are managed, and (3) the consequences of potentially conflicted advice to retirement savers.

A. The Prudent Investor Rule

Rules governing fiduciary investment, dealt with in other chapters of this volume,[27] have undergone sporadic reforms. The old "prudent man rule" was relatively constraining and (p. 729) disfavored stock investments. Beginning in the late 1980s, fiduciary standards were reformed under the name of the "prudent investor rule" to emphasize modern portfolio theory's teachings regarding diversification and risk management. All categorical restrictions on investments were abolished, and the rule clearly rejected the old law's hostility to investment in stock.

However, both the Prudent Investor Rule and the old prudent man rule, at least as applied to private trusts, are default rules that can be varied to some degree. Indeed, survey evidence suggests that such opt-outs were common under the old prudent man rule, with many trust instruments explicitly authorizing investments in non-dividend-paying stocks.[28] Gordon suggested that the ability to opt out may have explained the "puzzling" persistence of such an incoherent law.[29] However, opt-outs may not be sufficient in the face of sticky default rules. In particular, courts may engage in hindsight bias or be influenced by the law's general concerns about stockholdings.[30]

Several studies have assessed the constraining impact of the old prudent man rule, and they uniformly find it to have been constraining. The studies focus attention on dividend paying stock, since the prudent man rule generally held non-dividend-paying stocks to be presumptively imprudent. Relying on institutional stockholdings reported to the Securities and Exchange Commission (SEC) prior to 1990, Del Guercio concludes that bank trust departments were the most conservative institutional investors, and that bank investment managers generally favored dividend-paying stocks relative to mutual fund managers.[31] Although Del Guercio does not exploit differences in state laws (few states adopted the new prudent-investor rule during the period of her study), she attributes bank managers' relative conservatism to the prudent man rule. Bennett et al. also examine differences in asset allocations across institutional investors and likewise found that bank trust departments invested quite conservatively.[32] Hankins et al. examine the effect

of the adoption of the Prudent Investor Rule on the preference for dividend-paying stocks among institutional investors.[33] They find that, between 1990 and 2000, institutions increased their holdings in non-dividend-paying stocks after a state's adoption of the new prudent investor law.

A challenge in interpreting this work, however, is that it lumps together several different legal contexts. The SEC data on which these studies rely do not distinguish between personal trusts and other holdings not covered by state prudent-investor rules, such as Employee Retirement Income Security Act of 1974 (ERISA) benefit funds. Nonetheless, (p. 730) the results are intuitive: fiduciary portfolios were skewed against the disfavored investment category, and it is possible that the prudent man rule affected banks' investment culture beyond their private trust holdings. Survey evidence provides additional support to these general findings. In the mid-1980s, Longstreth surveyed the fifty largest bank trust departments, college and university endowments, private foundations, and corporate pension fund sponsors.[34] Of the institutions replying, bank trust departments reported being most constrained by the legal standards governing their investment practices.

Taking a focused approach that relied on bank trust department holdings as reported in FDIC data, Schanzenbach and Sitkoff examine trust asset allocation by bank trust departments between 1986 and 1997 before and after the adoption of the Prudent Investor Rule.[35] The FDIC data only identify holdings in broad categories, such as "stock" or "government bond." Nonetheless, Schanzenbach and Sitkoff find that after a state's adoption of the Prudent Investor Rule, bank trustees held about two to four percentage points more stock than before, predominately at the expense of government bonds and other investments deemed "safe" by prior law. Moreover, this average effect grew over time. The authors conclude that the new 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. However, the authors declined to make a strong inference regarding social welfare, focusing instead on the question of whether trustees were constrained.

In a follow-on paper, Schanzenbach and Sitkoff further address the question of social welfare by testing whether after the Prudent Investor Rule's adoption trustees were sensitive to risk tolerance and engaged in rebalancing necessary to appropriate risk management.[36] They find that stockholdings did not increase among banks with smaller average trust account sizes (below the twenty-fifth percentile), and that most of the growth in stockholdings came from banks with larger trusts. Interestingly, they find little change for the very largest trust accounts, suggesting that for the most sophisticated the default rule may have mattered less. Moreover, the authors find evidence consistent with increased rebalancing, though that story is complicated.[37] Begleiter's survey of 239 banking institutions in Iowa provides some further evidence.[38] Although Begleiter (p. 731) could not undertake a formal before-and-after comparison, it appears from the survey

that banks adjusted their investment practices to conform with the Prudent Investor Rule, and they report applying modern portfolio theory.

In sum, the empirical evidence suggests that trustees take risk tolerance into account and actively engage in risk management following the Prudent Investor Rule's adoption, and were constrained by the old prudent man rule. Nonetheless, social welfare conclusions about the Prudent Investor Rule's effect still rely on contestable assumptions about market risk and appropriate diversification.

B. Charitable Trusts and Prudent Distributions

The distribution function of a trust is an important element of trust administration and is governed by the general standard of prudence. It is of course difficult to study the distributions of private trusts for whether they are made in accord with donor intent and beneficiary needs. However, charitable endowment distributions have been studied, and the available evidence suggests significant deviations from sound practice.

Most models of charitable spending suggest that endowments should be used to engage in consumption smoothing.[39] Charities usually have internal guidelines that permit a historic spending rule based on a multiyear moving average of endowment value as enabled by the Uniform Prudent Management of Institutional Funds Act (2006). The Act provides that "[s]ubject to the intent of a donor expressed in the gift instrument … an institution may appropriate for expenditure or accumulate so much of an endowment fund as the institution determines is prudent for the uses, benefits, purposes, and duration for which the endowment fund is established."[40]

Brown et al. study how university endowments respond to financial shocks, and conclude that universities do not engage in consumption smoothing to the degree suggested by theory.[41] In particular, it appears that universities pull back more in years of negative returns than suggested by their own internal spending formulas. The authors refer to this as "endowment hoarding" and further find that the "results are driven primarily by endowments whose current value is close to the historical value when the current president's tenure began."[42] In other words, universities may be endowment maximizers, and the anchor may be the president's tenure.

It is unclear whether to categorize this result as imprudence or as a conflict of interest. Moreover, some of the hoarding observed could result from increased uncertainty after the bursting of the tech bubble in 2000 and the financial crisis of 2008, and therefore defended as prudent. However, the concentration of the observed effects by presidential (p. 732) tenure is most consistent with an agency story wherein the agent focuses on an easily observable metric. Further supporting this picture is a separate finding by Core et al. that nonprofits with excess endowments spend relatively less on programs and more on salaries.[43] The possibility of increasing salary by increasing endowment raises clear, if hard to police, conflicts of interest. The extent to which donors can control for these factors in a gift agreement or trust instrument is possibly limited. However, Fisman and

Hubbard provide some suggestive evidence that donors are more willing to give in states that have stronger oversight rules.[44]

C. Fiduciary Investment and the Duty of Loyalty

Today, a majority of retirement savings are in self-directed accounts such as IRAs and 401(k)s. A concern about self-directed savings is that individuals are prone to make significant financial errors, including not diversifying and taking on an inappropriate level of risk. The lack of sophistication can be ameliorated if individuals seek out professional financial advice. However, due to the compensation schemes permitted some financial advisers, such advice for many individual investors is potentially conflicted because adviser compensation is affected by choice of investments.[45] The incentive is thus to push advisees toward higher-fee, actively managed funds.

Several studies strongly suggest that this conflict of interest impacts investment performance. Del Guercio and Reuter[46] and Bergstresser et al.[47] both find that funds sold through intermediaries posted lower returns than funds sold directly to individual investors. The underpeformance is large, between 77 and 115 basis points. Indeed, Del Guercio and Reuter assert that the widely noted underperformance of actively managed mutual funds can be attributed entirely to those sold through conflicted advice. A study of Oregon state employees found that once access to conflicted advisers was removed, workers relied more on default menu options and did significantly better as a result.[48] International evidence is in accord with the finding that conflicted advice reduces investment returns.[49]

The empirical evidence just described has clearly impacted policy. The Department of Labor (DOL) under President Barack Obama promulgated a rule that permitted (p. 733) conflicted compensation only if an adviser agreed to be governed by a “best interest” standard, essentially applying the standards of trust fiduciary law to investment advisers in retirement accounts. The rule was struck down by the Fifth Circuit,[50] and it faces hostility from the Donald Trump administration, hence its viability remains uncertain as this chapter goes to press.

The response to the DOL’s attempted fiduciary rule by some in the financial advice industry has raised the potential that liability created by the imposition of fiduciary standards would push advisers either into a flat fee arrangement or out of the small investor market altogether.[51] Given the potential for liability and the relatively small fees charged, concerns about overdeterrence have some merit. As the rule has not yet been implemented, new empirical work is needed to evaluate whether these concerns will likely come to fruition, how the industry may change, and what the consequences of less investment advice would be. Indeed, it is possible that investors will not even be worse off without advice, as the aforementioned Oregon state employee study concluded.

D. Conclusion

In the case of fiduciary investment, there is strong evidence that fiduciaries are sensitive to care standards. When care standards were changed to reflect the teachings of modern portfolio theory, trustees of private trusts invested more in stock and engaged in more risk management. Regarding loyalty issues, there is evidence, beyond any reasonable doubt, that fiduciaries are also sensitive to their compensation structure. Improving investment returns and portfolio content could produce large benefits for beneficiaries. However, the sensitivity of trustees to fiduciary standards suggests that overdeterrence remains a legitimate worry.

IV. Medical Provider-Patient Relationships

Malpractice, though usually placed in traditional tort law, can also be construed of as a creature of fiduciary law,[52] at least under certain commonly arising fact patterns in which professional advice is sought and relied upon.[53] Indeed, the parallels between the (p. 734) duty of care and malpractice are rather obvious, with the care standard in health care being set by reference to a professional standard. The duty of loyalty, by contrast, is less well developed in the context of medical provider-patient relationships. However, conflicts of interest abound in medical care and have been the subject of significant recent empirical study.

The possible benefit of improved care and loyalty in the provision of medical services is potentially enormous. The harm from substandard care is staggering, and the cost of unnecessary care, perhaps motivated by conflicts of interest, is enormous. Medical errors are well known to be expensive and common, affecting 1.5 million persons annually and causing over 100,000 premature deaths.[54] The Institute of Medicine (IOM) issued a report estimating that unnecessary medical services cost $210 billion dollars a year, some of which is provided due to physician compensation arrangements.[55] Thus, the traditional fiduciary pillars of care and loyalty are present in health care provision. However, those skeptical of the potential for liability to improve this dreadful situation raise a point commonly found in fiduciary law: the potential for overdeterrence and judicial error. The goal of this section is to highlight the empirical findings in this debate for those who study fiduciary law.

A. Duty of Care in Provider-Patient Relationships

In the medical context, what scholars of fiduciary law would classify as a duty of care violation usually concerns negligent treatment.[56] A well-functioning system of private law that enforces a duty of care could create tremendous benefits from improved health outcomes. Moreover, private law has advantages over regulatory frameworks by providing flexibility through an organic, bottom-up approach accounting for local variance and patient-specific factors. In order for this positive story to be realized, however, it must be the case that (1) physicians pay attention to the standard of care and (2) the standard of

care is set appropriately. On the flipside, medical malpractice litigation may be costly, ineffective, and overdeterring, increasing health costs and reducing social welfare. Various studies have tried to sort through these different possibilities.

Are physicians sensitive to liability pressures? There is some reason to think that medical malpractice liability may not be hugely relevant to medical practice. First, litigation is rare relative to the universe of possible claims. The National Practitioner Data Base reports an average of between 10,000 and 15,000 positive payouts in medical malpractice cases (trials and settlements) per year over the last twenty years, which is a tiny fraction (p. 735) relative to the universe of possible claims if the 1.5 million injuries/100,000 deaths figures cited are correct. Studdert et al. examined two hospitals and audited the medical records of patients, and found that only 2.5 percent of negligent injuries resulted in malpractice litigation.[57] Moreover, in practice, most physicians are fully insured against malpractice claims because they carry insurance, and damages rarely exceed insurance limits.[58]

Despite overwhelming evidence of underclaiming, survey evidence suggests that physicians are sensitive to malpractice liability. One survey found that 93 percent of Pennsylvania doctors admitted that they sometimes or often engage in defensive medicine practices.[59] Certain professions are particularly susceptible to medical malpractice litigation, in particular obstetrics, neurosurgeons, and cardiac care,[60] and one would consequently expect to see greater response to liability limitations among these practitioners.

More important, perhaps, is the finding that providers change behavior in accordance with changes in the standard of care. Many states have or recently had a “local” standard of care that references local practice as the comparison point for establishing negligence, whereas others have set the standard of care according to a national measure, with many providers relying on clinical practice guidelines issued by national bodies. Frakes exploits changes from a local to a national standard of care over time.[61] He finds that when states move to a national standard, local practices converge to that standard. In states that had intense treatment regimes relative to the national standard, treatment intensity declines. By contrast, in states with less intensive treatment, treatment intensity increases following a move to a national standard. Overall, Frakes finds that a move to national standards also reduces the overall gap in treatment by 30 to 45 percent without any measurable impact on patient outcomes.

This is an important finding. First, practice standards are sensitive to legal regime. Second, if practice standards can be set appropriately, liability can induce better care. Thus, if the appropriate standard of care can be identified externally, the findings here suggest that there will be a strong response through the tort system, even in light of the limited enforcement available. In this vein, future work, qualitative or quantitative, could helpfully focus on the reasons why compliance with standards of care is fairly good (e.g., via hospital risk management practices).

Evidence of provider sensitivity to liability standards, however, raises the specter of overdeterrence. There is some evidence of overdeterrence or "defensive medicine," but it mostly concludes that defensive medicine is either small or not very responsive to tort reform. One set of studies uses Medicare data and finds little effect. Baicker et al. find that a 10 percent increase in average malpractice liability payments per physician within (p. 736) a state is associated with a 1 percent increase in Medicare payments for total physician services and a 2.2 percent increase in the imaging component of these services.[62] Likewise, studying the 2003 Texas noneconomic damage cap, Paik et al. conclude that Medicare spending did not decline as a result of reform.[63]

However, there are large problems with relying on the Medicare population. Those aged 65 and older make up around 10 percent of all damage payouts for medical malpractice[64] and are far less likely to sue[65] even though per capita health care spending on those 65 and older is 4.5 times that of those under 65.[66] Second, almost one-quarter of Medicare spending is done during end-of-life care, usually in the course of a terminal illness and repeated hospitalizations.[67]

Studies of non-Medicare populations have found more sensitivity of health spending to tort reform. Using a proprietary insurance premium database with highly detailed plan information, Avraham et al. find that some tort reforms, primarily caps on noneconomic damages, reduce health insurance premiums by up to 2 percent.[68] Moreover, the reduction appears to come entirely from health insurance plans that are not managed care plans. The authors interpret the price decline as evidence of reduced treatment intensity, and conclude that more tightly controlled plans reduce defensive medicine even in the absence of tort reform. Avraham and Schanzenbach, using the Current Population Survey, find that caps on noneconomic damages increase health insurance coverage for price-sensitive groups.[69] The authors interpret their findings as evidence that tort reform reduces health care costs, which are ultimately reflected in health insurance prices. Cotet uses county-level data on procedures and admissions and finds that caps on noneconomic damages lead to a 3.5 percent decrease in surgeries, a 2.5 percent decrease in admissions, and a 4.5 percent decrease in outpatient visits but no significant effect on emergency room visits.[70] Cotet suggests that the decision to visit the emergency room is largely made by the patient, and consequently, the finding that emergency visits are not responsive to liability pressure makes sense.

(p. 737) Even if tort reform does not reduce *overall* health care costs much, it can still reduce health care costs in some contexts. Certain practice areas face very high liability pressures, and two have been studied extensively in this regard: cardiac and obstetric care.[71] In addition to the intensity of liability pressure faced by these specialties, they have been the focus of study for three additional reasons. First, they involve common procedures that consume a significant amount of medical expenditures. Cardiac care has historically accounted for as much as one-seventh of all health care spending.[72] Births in the United States are dramatically more expensive than in many other countries, and the United States has a high rate of cesarean sections.[73] The second reason these procedures have been studied is the degree to which outcomes can be assessed. Infant and maternal

mortality are well recorded and, due to the well-known APGAR scores, there are validated measures of birth outcomes. Heart treatment success can be measured at least partially by complication and mortality rates. Finally, there is the possibility of substitution between procedures in both cases, a fact that helps researchers identify the motivation behind treatment choices. In the case of acute myocardial infarction (AMI), medical management, Percutaneous Transluminal Coronary Angioplasty (PTCA), and Coronary-Artery Bypass Graft (CABG) are available treatment options. In the case of births, the choice between vaginal births and cesarean section has been the topic of much debate and concern, with evidence of widely varying practices and increasing rates over time.[74]

In a widely cited study, Kessler and McClellan examined Medicare beneficiaries treated for serious heart disease in 1984, 1987, and 1990 and found that malpractice reforms that directly reduce provider liability pressure lead to reductions of 5 to 9 percent in medical expenditures without substantial effects on mortality or medical complications.[75] As a result, they conclude that liability reforms can reduce defensive medical practices for patients with heart diseases. In a later study, Kessler and McClellan controlled for costs containment achieved by managed care, and their results were reduced by half.[76] Clouding the picture, however, is a 2004 study by the Congressional Budget Office that could not replicate the Kessler and McClellan results.[77] Moreover, earlier papers on obstetric practice also failed to reach a consensus on defensive medicine.[78]

(p. 738) B. Duty of Loyalty in Physician-Client Relationships

“Induced demand,” under which a health provider pursues more remunerative treatments instead of choosing better, cheaper options for his or her patients, is believed to be a widespread problem in health care. In a recent review of the evidence, Chandra et al. conclude that providers’ compensation schemes are important determinants of treatment choices.[79] Studies on the effect of reimbursement schemes, for example, have found that moves away from fee-for service can reduce costs without harming patient care.[80]

When different procedures are available and context permits physician discretion, as in birth delivery method or cardiac care, procedure choice appears sensitive to reimbursement schemes.[81] Perhaps the most widely cited paper in this literature is that of Currie and MacLeod.[82] The authors find that caps on noneconomic damages increase unnecessary cesarean sections and led to worse outcomes for mothers. They attribute these effects to reduced caretaking and increased aggressive treatments related treatment resulting from limitations on liability. Cesarean sections have higher complication rates for mothers relative to vaginal births when not medically indicated, but are much more remunerative than vaginal births. The authors take this as evidence that caps on noneconomic damages can raise medical costs and damage outcomes not through less caretaking, but rather through the “induced demand” of higher-risk procedures. Indeed, there is prior evidence of induced demand in the cesarean context.[83] Again, the picture is not consistent. Frakes fails to find any measureable impact of caps on noneconomic damages for joint and several liability reform on cesarean section rates using a longer time frame (1979–

2005). He attributes the differing results to the fact that only four caps on noneconomic damages were enacted within the Currie and MacLeod study.

Shurtz, using Texas data and examining the 2003 Texas cap on noneconomic damages, provides a possible avenue toward reconciling some of the differing results on tort (p. 739) reform and obstetric practice.[84] Shurtz considered the financial incentives providers faced postreform for privately insured mothers versus mothers insured by Medicaid, which reimbursed at lower rates for cesarean sections. Cesarean rates increased for those with private insurance, but appeared to decrease for those with Medicaid coverage. The net effect of reform on cesarean sections was quite small, but the net effect masked underlying changes that depended upon doctors' financial incentives stemming from the patients' level of insurance.

C. Conclusion

The sensitivity of physicians to care standards and reimbursement schemes is, in our view, well established empirically. However, the potential for reforms to standards of care and loyalty to improve the provision of health care in the United States remains only a tantalizing possibility. Unfortunately, the medical malpractice literature fails to yield consistent findings on the effects of standards. Do standards of care induce defensive medicine, or do they cost effectively prevent harm? Our view is that this question is far from fully answered.

V. Conclusion

The three areas we address encompass a great deal of the modern economy and affect the formation of human and physical capital: business organizations, fiduciary investment, and health care. We can confidently conclude that fiduciaries are sensitive to fiduciary standards, even in cases in which such fiduciary duties are nominally default rules (trust) and in cases where we have good reason to believe that enforcement is quite weak (corporations, medical malpractice). Moreover, we can identify a pattern of loyalty violations caused by conflicted compensation in both the medical malpractice and fiduciary investment contexts.

Whether the changes in fiduciary law that we have covered here were a change for the better from a social perspective is a much more challenging question to answer. For example, if one believes that trust law was too constraining and modern portfolio theory is basically sound, the increase in stockholdings after the adoption of the Prudent Investor Rule was probably a good thing. If one believes that the U.S. health system overtreats, moving to a standard of care that is less aggressive is also a good thing. Attempts to measure care outcomes in health care or portfolio optimality in fiduciary investment will necessarily be fraught. Moreover, we have not empirically measured the effect of a vigorous policing of loyalty issues in the medical malpractice or fiduciary investment (p. 740) con-

text. However, the potency of fiduciary standards suggests that those seeking normative innovations could beneficially make use of fiduciary standards.

VI. Appendix: Empirical Primer

Although empirical work has become more common in recent years,[85] most legal scholars have limited familiarity with empirical methods. This short primer[86] is meant to provide a basic understanding of how empirical work can improve our understanding of the effects of legal changes, as well as to provide a rudimentary vocabulary of empirical terms.

As a blunt categorization, most empirical work in law is either descriptive in nature, or it is an attempt to identify a causal relationship of a legal change on the behavior of some actor, whether it be an individual, a firm, or some other entity.

Descriptive work summarizes data on outcomes or characteristics of legally interesting phenomena by providing the means, medians, and perhaps some measure of volatility (such as variance or standard deviation) of the data. These summary statistics provide context for the phenomena being studied, giving the reader a generalized snapshot of the outcomes and control variables being studied.

Work that focuses on making empirical judgments about how a legal change causally affects some outcome is increasingly common in legal scholarship. Outside of experimental work, most examples of this kind of legal scholarship make use of regression techniques where the outcome of interest is modeled as a linear function of the legal variable being studied. In the case where the legal variable is binary (say law = 0 in jurisdictions and periods where the law is not in effect and law = 1 in jurisdictions and periods where it is in effect), a naïve approach to determining the effect of the law would be to compare the average outcome in jurisdiction periods where the law is in effect with the average outcome in jurisdiction periods where the law is not in effect. In a cross-sectional dataset (i.e., a dataset where the variables are available for many jurisdictions at a given point in time), this approach would be problematic if there are nonlaw differences across the jurisdictions that might affect the outcome variable. In a time series dataset (i.e., a dataset where the variables are available for a given jurisdiction over many time periods), this approach (comparing the average outcome before the law went to effect to the average outcome after the law was in effect) would be problematic if the jurisdiction’s non-law-related characteristics were changing over time or if general background trends were independently leading to changes in the outcome over time.

(p. 741) In both cross-sectional and time series datasets, regression techniques allow the researcher to account for differences among jurisdictions (in cross-sectional studies) as well as differences over time (in time series studies) that may confound the estimation of the causal effect of the legal variable of interest. If all of these differences are accounted for in the regression, the resulting coefficient estimate for the law variable represents the causal effect of the law on the studied outcome (i.e., the so-called treatment effect).

However, if there are unobserved differences (either because the data are unavailable or because the differences are not able to be quantified) across jurisdictions or if there are uncontrolled for background trends in the time series, and those unaccounted for effects are correlated with the adoption of the law, the estimated coefficient for the law variable will suffer from omitted variable bias. This bias, which goes by many names including endogeneity, simultaneity, reverse causality, self-selection, and a host of other terms, effectively means that the estimated law effect will generally not equal the causal effect of the law on the studied outcome. Intuitively, the estimated effect will be some mélange of the causal effect and partial effects of the omitted variables. For example, if a study examined the effect of a change in a state court's interpretation of fiduciary duties on firm value, but the researcher didn't account for, say, an unrelated but contemporaneous change in federal SEC regulations, any estimated effect will be some weighted average of the effect of the state and federal changes.

Experimental researchers sidestep this problem by randomly assigning the law variable to some subjects but not to others. Although random assignment does not allow the researcher to control for omitted variables, assigning the law treatment randomly ensures that there is no correlation between the law variable and any of the omitted variables. This leaves the estimated treatment effect free of any contagion from the omitted variables. Despite this benefit of experimental random assignment, it is often not a practical solution for many research questions. First, random assignment may be prohibited or at least extremely costly from a legal standpoint, as it may undercut democratic processes or even constitutional constraints on equal treatment. Second, even if implemented, knowledge that the experiment is taking place may itself affect the behavior of subjects. Last, if the experiment takes place in an artificial environment (e.g., to avoid the feasibility objections raised in this chapter, or to somehow blind the subjects to the legal manipulation occurring), there may be significant external validity concerns as subjects may act differently in non-artificial settings.

To overcome these problems, many researchers focus on "natural experiments" to isolate causal effects of legal interventions. In corporate governance studies, one common empirical approach is the event study. In an event study, the researcher uses data on an asset's return before an event (e.g., a law change) occurs to estimate the relationship between the asset's return and financial market variables. Then the researcher uses that model to predict the asset's return on the day of the event. The difference between the actual return and the predicted return (referred to as the abnormal or excess return) represents the market's evaluation of the effect of the legal change. To protect against the possibility that the observed event effect is actually due to omitted variables, the researcher **(p. 742)** often performs the event study analysis on the returns of similar assets that should be unaffected by the legal change.[87] If the event effect shows up there too, the inference about the causal effect of the event is falsified, whereas if the effect is not observed among these comparator assets, confidence in the causal inference is improved.[88]

A similar natural experiment design is the so-called “differences-in-differences” approach that uses panel (sometimes called longitudinal) data to approximate the more traditional experimental approach. In this set of designs, the researcher compares the change in the outcome variable among the entities subject to the law (calculated by comparing the average outcome after the law went into effect in the adopting jurisdictions, minus the average outcome in those jurisdictions before the law is adopted, and averaging these differences over all of the adopting jurisdictions) with the change in the outcomes (calculated similarly) in nonadopting jurisdictions at the time the laws go into effect in the adopting jurisdictions. Mechanically, this is comparable to allowing for separate baseline intercept (i.e., the constant term in a regression) terms for every jurisdiction, as well as separate baseline intercept terms for every time period, and comparing the average residual (i.e., net of the jurisdiction and time period intercepts) outcome before and after the law goes into effect. Control variables can also be used in this setup, although they should not much affect the estimate effect of the law. If they do, it is a sign that the legal adoption does not well approximate a randomized experiment.

In all of these designs, the primary goal is to isolate the most reliable counterfactual comparisons. That is, identifying causal relationships involves comparing the outcome of an entity affected by the variable of interest with the outcome that would have occurred had the entity not been affected by the variable, similar to the but-for causation approach used in tort law. Because it is not possible to observe the entity simultaneously being affected and not being affected, some proxy comparator is required. Each of the general approaches laid out here is an attempt to construct that proxy comparator.

In the context of fiduciary law, these designs are implemented to examine the effect of changes in the strength or the scope (or, in some cases, the existence) of fiduciary duties on the behavior of individuals subject to these duties. The outcomes of interest may be financial valuations of the entities under these individuals’ control (e.g., a firm or a fund), or they may be the intermediate decisions of the individuals (e.g., how many acquisitions are made or the asset mix chosen for a fund). These research findings are interesting from a positive perspective in terms of our understanding of how laws change behavior and allowing us to make predictions about the effects of similar laws in the future. The findings also provide the inputs for normative evaluations regarding whether the legal (p. 743) changes were good or bad, and they may inform policy choices going forward. Because there is no guarantee that any empirical approach has uncovered a true, universal causal relationship, empirical analyses need to be combined with theory and institutional knowledge to draw reliable conclusions about the effects of and the normative desirability of a particular policy choice.[89]

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Notes:

([1]) Smith v. van Gorkom, 488 A.2d 858, 873 (Del. 1985).

([2]) Revlon, Inc. v. MacAndrews & Forbes Holdings, Inc., 506 A.2d 173 (Del. 1986).

([3]) Restatement (Third) of Trusts, § 90(a)–(b) (Am. Law Inst. 2007).

([4]) For a detailed discussion of the rule's adoption, see Max M. Schanzenbach & Robert H. Sitkoff, Did Reform of Prudent Trust Investment Laws Change Trust Portfolio Allocation?, 50 J.L. & Econ. 681, 681 688 (2007).

([5]) See Robert H. Sitkoff, Fiduciary Principles in Trust Law, this volume.

([6]) See Julian Velasco, Fiduciary Principles in Corporate Law, this volume; Lawrence A. Hamermesh & Leo E. Strine, Jr., Delaware Corporate Fiduciary Law: Searching for the Optimal Balance, this volume.

([7]) Comparators are necessary to account for background trends that may exist independently of the legal changes.

([8]) The large and presumably nonrandom share of Delaware in the market for incorporation may sometimes limit confidence in such studies if one believes there are systematic differences between firms incorporated in Delaware and firms incorporated elsewhere.

([9]) The empirical corporate governance literature, including analyses of fiduciary duties, is large and continues to grow at a fast pace. For an overview of this literature, as well as an assessment of its value, see Michael Klausner, Empirical Studies of Corporate Law and Governance: Some Steps Forward and Some Steps Not, in The Oxford Handbook of Corporate Law and Governance 184 (Jeffrey N. Gorden & Wolf-George Ringe eds., 2017).

([10]) Smith v. van Gorkom, 488 A.2d 858, 878 (Del. 1985).

([11]) Revlon, Inc. v. MacAndrews & Forbes Holdings, Inc., 506 A.2d 173, 184 (Del. 1986).

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([15]) Credit Lyonnais Bank Nederland, N.V. v. Pathe Communications Corp., 1991 WL 277613 at 34 (Del. Ch. 1991).

([16]) For discussion of current law governing fiduciary duties in the zone of insolvency, see Velasco, supra note 6; John A. E. Pottow, Fiduciary Principles in Bankruptcy and Insolvency, this volume.

([17]) Bo Becker & Per Stromberg, Fiduciary Duties and Equity-Debtholder Conflicts, 25 R. Fin. Stud. 1931 (2012).

([18]) Becker & Stromberg, supra note 17.

([19]) Jagadison K. Aier, Long Chen & Mikhail Pevzner, Debtholders Demand for Conservatism: Evidence from Changes in Directors' Fiduciary Duties, 52 J. Acct. Res. 993 (2014).

([20]) See Andrew S. Gold, The Fiduciary Duty of Loyalty, this volume.

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([22]) Dain C. Donelson & Christopher G. Yust, Litigation Risk and Agency Costs: Evidence from Nevada Corporate Law, 57 J.L. & Econ. 747 (2014).

([23]) Michal Barzuza & David C. Smith, What Happens in Nevada? Self-Selecting into Lax Law, 27 Rev. Fin. Stud., 3593 (2014).

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([25]) Kansas, Maryland, Missouri, Nevada, New Jersey, Oklahoma, Texas, and Washington.

([26]) Rauterberg & Talley, supra note 24.

([27]) See Sitkoff, supra note 5; Dana M. Muir, Fiduciary Principles in Pension Law, this volume; Arthur B. Laby, Fiduciary Principles in Investment Advice, this volume; Lloyd Hitoshi Mayer, Fiduciary Principles in Charities and Other Nonprofits, this volume.

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([36]) Max M. Schanzenbach & Robert H. Sitkoff, The Prudent Investor Rule and Market Risk: An Empirical Analysis, 14 J. Emp. Leg. Stud. 129 (2017).

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([42]) Id. at 955–956.

([43]) J. E. Core et al., Agency Problems of Excess Endowment Holdings in Not-for-Profit Firms, 41 J. Acct. & Econ. 307 (2006).

([44]) Fisman & Hubbard, supra note 39.

([45]) For a detailed discussion, see Laby, supra note 27; see also Muir, supra note 27.

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([89]) On this issue generally, see Joshua B. Fischman, Reuniting “Is” and “Ought” in Empirical Legal Scholarship, 162 U. Pa. L. Rev. 117 (2013).

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