ANALYSIS

Trust law, sustainability, and responsible action

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Abstract

The problem of managing for sustainability is marked by the need to make decisions on behalf of others and by the uncertainties that attend such decisions. However, the economic literature on sustainability has paid scant attention to how decisions on behalf of others might differ from decisions on behalf of oneself. And, when risk has been modeled explicitly, the expected utility hypothesis has generally been used: a generation acts sustainably if the expected value of the next generation’s utility is not less than the present’s. This paper investigates how we think about responsibly acting on another’s behalf by looking to the United States law of trusts because in important respects the current generation views its responsibility to the future as a trust relationship. Trust law illuminates responsible decision making under both risk and uncertainty. Even under conditions of risk more conservative action than would be suggested by the expected utility hypothesis is warranted. Because it emphasizes preservation of trust principal and disavows profit maximization, trust doctrine indicates that special caution should be exercised in conditions of uncertainty. Finally, resource economic concepts of strong sustainability, the precautionary principle, and the safe minimum standard of conservation are interpreted according to trust principles. © 1999 Elsevier Science B.V. All rights reserved.

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1. Introduction

The economic literature on sustainability generally presumes that people care about future generations. Sustainability is defined with reference to appropriate intergenerational sharing rules, cashed out in terms of non-declining utility (Howarth, 1995), utility maintained above some minimal threshold (Chavas, 1993), or some other criterion (Woodward, 1997). Conditional on the normative goal, discussion focuses on implications. Scholars investigate whether and in what form market interventions need to be implemented (Howarth and Norgaard, 1990; Pearce and Warford, 1993), and consequences for economic growth (Solow, 1974), resource management (d’Arge and Spash, 1991), prices (Howarth
and Norgaard, 1992), and the like. Invariably, definitions of sustainability affects results (Pezzey, 1997).

Partly because different social welfare functions imply different optimal policies, the sustainability literature has been criticized for lacking intellectual grounding (Dasgupta and Maler, 1995). On what basis should one definition of sustainability be preferred to another? Indeed, Pezzey (1997) urges economists to eschew ‘normative philosophy’ and engage instead in empirical research to assess what we collectively mean by sustainability. But doing so is problematic.

Individuals often fail to fully live up to their ethical standards. This is not to say that standards do not matter; indeed, they affect behavior by providing a target at which to shoot. But it is a category mistake to view what people do as a measure of their ideal for what they should do (Marglin, 1963). Moreover, it is unclear how to aggregate psychological responses from experimental settings, as Pezzey (1997) seems to urge, to arrive at the ‘proper’ notion of sustainability. Finally, to some extent individuals seek guidance about what constitutes sustainable behavior. Observing the extent to which governments seem actually committed to sustainability, on grounds that policies of democratic governments reflect popular will (Pezzey, 1997), also suffers difficulties. Sustainability is a relatively recent concern; institutional frameworks for promoting sustainability are in their infancy, if they exist at all. And it is tempting, but probably incorrect, to view the relatively primitive state of institutional commitment as evidence that people in fact do not care. (Olson’s (1971) account of regulatory capture, for example, hinges upon such a disconnect.) Further, policy makers may wait for scientific opinion to coalesce on the need for sustainability policies. In the case of economic analysis no such hardening of opinion is possible while different definitions of sustainability are used.

So how does one assess what it is that the current generation means by sustainability? The approach taken here gets off the ground by shifting focus from sustainability as intergenerational equity—with its concomitant emphasis on sharing rules—and attends instead to sustainability as embodying a broader concern for acting responsibly towards future generations. Once one asks what it is to act responsibly on another’s behalf, one can avail oneself of a rich body of empirical data; the law of trusts.1

Examining trustee duties can shed light on at least part of what the current generation views as its responsibility towards the future. Trust law articulates a stable and well-established view of responsible action on behalf of another. Trust doctrine has evolved from common law, and so respects both legal precedent and current norms. In the United States particularly important concepts, such as the requisite standard of care for trustees, were first articulated over 100 years ago and have earned a strong degree of conformity across jurisdictions. To the extent that institutions can reflect popular understanding of right action, one might expect trust law to embody a reasonable degree of consensus regarding responsible action on behalf of another.

Viewing our obligation to the future in terms of trust principles boasts further advantages. First, trust law necessarily wrestles with real world complications of risk and uncertainty, about which many analyses of sustainability abstract. Second, a number of resource economics concepts can be seen to be consistent in spirit with the law on trusts. Rather than being cut from whole cloth by ivory tower scholars, strong sustainability (Common and Perrings, 1992; Howarth, 1997), the safe minimum standard of conservation (Ciriacy-Wantrup, 1952; Bishop, 1978; Randall and Farmer, 1995), and the precautionary principle (Perrings, 1991) re-express established principles for making responsible decisions on behalf of others.

1 Other areas of the law are also instructive. Living estates endow current beneficiaries with usufruct rights, and prevent the estate from being sold before final beneficiaries take possession. When property rights are so shared the doctrine against waste can apply: A may not squander B’s inheritance, even if A is currently using the property. These concepts articulate property rights structures that are consistent with some notions of sustainability. Neither, however, provides principles to guide responsible action on behalf of another, as does trust law.
This paper presumes that the current generation has a felt need to act responsibly towards the future, shows that this responsibility has been described as a trust relationship, and explores what trust principles require of trustee decision making. Accordingly, the paper’s first section provides evidence that the role of trustee captures much of how we view our obligation to future generations. The second describes the legal standard of care to which trustees should adhere. The standard’s implications for intergenerational trustee decisions under risk and uncertainty are explored. The paper’s final section views some economic concepts through the lens of trust law.

2. Evidence for the trustee relationship

The role of ‘trustee’ (one charged with managing the affairs of another) is closely related to that of ‘steward’ (one who engages in active or careful management). Stewardship, of course, has figured prominently in many of the most popular and influential texts of the environmental movement. In Silent Spring, Carson (1962) urged that we safeguard our genetic heritage—which we receive as a gift from the past—for the benefit of future generations. In A Sand County Almanac, Leopold (1949) advocated conservation of what wilderness that remains, in large part for the future’s benefit. Nash (1967), in Wilderness and the American Mind, identifies a similar ethic as an important driver of American conservationism.

The legal foundations of trust relationships expressing concern for the future are ancient. The public trust doctrine, which originates in Roman law, holds that resources such as waterways and coastal areas lying below the high water mark are held in trust by the state. Trustees must manage such resources for the common good. Because the doctrine is concerned with ensuring continued flow of public benefits, it is intimately connected to intergenerational equity (Brady, 1990; Gray, 1996). The doctrine has been used to block private exploitation that would come at public welfare’s expense; it has been applied to city streets, municipal water supplies, prehistoric fossil beds, a state park, a national park, and wetlands (Selvin, 1980).

Statutory evidence is widespread that trust concepts capture concern for the future. At the international level Maggio (1997) reports that the Declaration of 1972 United Nations Conference of the Human Environment nearly included language that would have cast concern for future generations in terms of a trust. The Secretary General’s draft language stated:

“It is the duty of all nations to carefully husband their natural resources and to hold in trust for present and future generations the air, water, lands and communities of plants and animals on which life depends” (Maggio, 1997).

Because some countries felt that it would affect their sovereignty the ‘trust’ language was eventually excised. Nevertheless, the draft shows that the trustee concepts capture what many see as our obligation to the future. In 1992, according to its Legal Experts Report, the United Nation Commission on Sustainable Development articulated a notion of sustainability that:

“[R]eflected the view that members of the present generation hold the Earth in trust for future generations and at the same time act as beneficiaries entitled to use it for their own benefit” (Brown Weiss, 1997).

At the national level, the United States’ National Environmental Policy Act of 1969 clearly describes the current generation’s role as trustee. The Act’s preamble states:

“[I]t is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may fulfill the responsibilities of each generation as trustee of the environment for succeeding generations” [42 U.S.C. 4321, §101 (b)].

Less explicit expressions of the trustee role are in the National Forest Management Act (16 USCS §1600), the Wilderness Act (16 USCS §1131), the Wild and Scenic River Act (16 U.S.C. §1271), and the National Park Service’s enabling legislation (16 U.S.C. §1). They all assert a need to manage resources for the ‘perpetual’ or ‘unimpaired use and enjoyment’ of the future.
Numerous state statutes describe the future’s interests as protected by trust. Pennsylvania’s state constitution provides perhaps the clearest example:

“Pennsylvania’s public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people” (Constitution, Article 1, Section 27).

The Tennessee’s Natural Resources Trust Fund, which receives money from exploitation of nonrenewable resources on state lands, was established to provide for the ‘long term public interest’. Legislation declares that state-owned non-renewable resources ‘are held by the state in trust for the benefit of future generations’ (Tenn. Code Ann. §11-14-303 (1997)). State legislation creating nature preserves² or park lands (Cal Pub Resources Code §33001; Cal Pub Resources Code §33500) often describe these resources as held ‘in trust for current and future generations’. New Jersey’s Wild and Scenic river program also describes these resources as ‘a public trust’ to be protected for current and succeeding generations (N.J. Stat. §13; pp. 8–46 (1997)).

3. Care, risk and uncertainty

As trustees for the future we necessarily manage an asset portfolio on its behalf. Constitutive investments are subject to either risk or uncertainty. (Here risk refers to prospects that have an objective probability distribution; knowledge of asset performance is considerable. Investments subject to uncertainty lack such a distribution). The law of trusts provides guidance as to responsible action for both types of assets, and offers insight into a number of questions: What is permissible risk? What research should be performed before new investments are made? What kind of track record should an investment boast before it is purchased?

Before proceeding, a caveat is in order. Trusts evidence great variety. Trust law reflects this and is, accordingly, voluminous. The treatise of Bogert and Bogert (1993) on trusts contains 22 volumes, and that of Scott and Fratcher (1987) occupies 12; both run several thousand pages. No attempt is made to explore this detail. For our purposes two aspects of intergenerational trusts need to be clarified: what it is that is held in trust, and in what the trust’s main terms consist.

The notion of an intergenerational trust presupposes that future generations have an endowment. This is in line with work by Bromley (1989), Page (1997), and others, and commits one to viewing sustainability as a constraint rather than a preference. But a trust framework does not ‘solve’ the problem of sustainability because it does not specify what it is that should be held in trust. Those who define sustainability as survivability might view only critical life support services as belonging to an intergenerational trust. Those who view sustainability as equity may favor intergenerational trusts that incorporate all of the earth’s resources.

Brown (1994) argues that government should be in a trustee relationship to its citizenry, and draws on Locke’s Second Treatise of Government to flesh out specific trustee duties. In particular, he urges that as trustees we have a duty to sustainably husband the planet’s full suite of natural resources. In a similar vein, Page (1983) distinguishes between comparative intergenerational utility and intergenerational justice, and appeals to our intuitions about the latter to argue for the need to preserve the earth’s natural resources. In contrast, because I draw on trust law — which admits trusts of various composition — my main aim here is necessarily more modest: to investigate responsible management of the future’s portfolio once the trust has been specified. Because trust principles lend insight into responsible decision making whether one views the trust as encompassing the whole or only a part of the planet’s resources, for now I leave open the question of responsible determination of initial portfolio content.

As to trust terms the approach here, as with most trusts, is to assume that current-day beneficiaries are entitled to trust income while principal is held for future beneficiaries. This is consistent with the literature on Hicksian income (Repetto et al., 1989; El Serafy, 1991; Pearce and Atkinson, 1995). Because the role of trustee requires attending to the interests of all beneficiaries, the fact that the current generation is both beneficiary and trustee does not entail schizophrenic conflict: as committed trustees we simply reject the temptation to steal.

3.1. The trustee standard of care

A few states provide statutory lists to guide investment decisions (Bogert, 1987). However, lists have generally given way to the ‘prudent investor rule’ because the rule’s flexibility enables it to better reflect what constitutes a reasonable investment given changing conditions. As the Massachusetts Supreme Court has stated, the rule:

“[I]s comprehensive and remains fixed. It is not bound to particular classifications of securities, but continues as a safe guide under changed financial institutions and business customs, usages and investment combinations”. (Springfield Safe Deposit and Trust Company vs. First Unitarian Society, 293 Mass. 480; 200 N.E. 541; Mass. 545).

The rule for trustee investments is the same as the ‘standard of care’ for determining whether trustee acts more generally have responsibly been performed. While trust law varies between states, the standard of care is uniform. Both statute and case law require trustees to:

“Manifest the care, skill, prudence, and diligence of an ordinary prudent man engaged in similar business affairs” (Bogert and Bogert, 1993; §541; p.167).

In what follows we unpack the law’s meaning of the two key phrases ‘ordinary prudent man’ and ‘similar business affairs’.

3.1.1. ‘Ordinary prudent man’

In referencing ‘ordinary’ prudent men the standard of care invokes the degree of skill exercised by a community of ‘prudent men’. The standard is thus objective. Courts do not look to what a particular trustee would consider to be prudent (Litchfield vs. White, 1852,7 N.Y. 438, 443, 57 Am. Dec. 534). It is not enough for a trustee to show that he used the same skill and prudence in managing the trust as he employs in his own business (Bogert, 1987; §93; p. 335). Nor can a trustee be excused for negligent actions simply because he personally lacked skill to do better (Ashley vs. Winkley, 1911, 95 N.W. 932,209 Mass. 509; Newman vs. Shreve, 1910, 78 A. 79 229 Pa. 200), or because he was otherwise well intentioned (Bogert and Bogert, 1993; p. 177).3

Increasingly, the ‘ordinary prudent man’ standard functions as a floor for responsible trustee actions (Bogert and Bogert, 1993; §541; p. 180). Fiduciaries with greater knowledge or skill have a duty to use it (Bogert, 1987; p. 335). The Minnesota legislature has determined that:

“If the trustee has special skills or expertise or if the trustee holds itself out as having special skills or expertise, the trustee is under a duty to use those skills or expertise” (Minn. S.A. §501.125 Subd. 1).

Similar laws have been passed in many other states;4 the Uniform Probate Code (§7-302) expresses a comparable standard.5 Courts, too, have held that trustees with greater skill have a duty to use it.6 The Kentucky Supreme Court explains that:

3 The standard would thus discount arguments of private properly owners who complained that environmental regulations—which prima facie reflect community standards of care—are more stringent than what they would wish for to protect their own children.


5 Bogert (1987) reports that Alaska, Arizona, Florida, Maine, Michigan, Nebraska, New Mexico, North and South Dakota, and Utah have adopted the Uniform Probate Code.

6 Hawaii: Steiner vs. Hawaiian Trust Co., 393 p 2d 96, 47 Hawaii 548; New Jersey: Liberty Title and Trust Co. vs. Plews, 60 A.2d 630, 142 N.J. Eq. 493, opinion supplemented 61 A.2d 297, 142 N.J. Eq. 632, modified on other grounds, 70 A.2d 784, 6 N.J. Super. 196, affirmed except as to counsel fees 77 A.2d 219, 6 N.J. 28.
“[I]f the trustee has greater skill than that of a man of ordinary prudence, he is under a duty to exercise such skill as he has.” (Germania Safety Vault and Trust vs. Driskill, Ky., 66 S. W. 610, 23 Ky. Law Rep. 2050).

Failure to do so exposes the skilled fiduciary to liability for loss. In re Estate of Lychos (470 A.2d 136, 323 Pa. Super. 74), co-trustees were there held to different standards for not insuring a building against fire because one was a bank (with greater expertise) while the other the son of the testator (merely an ‘ordinary’ prudent person).

Trustees, both skilled and ordinary, must both solicit expert advice and use reasonable care to ensure that the advice is sound (Bogert and Bogert, 1993; §541; p. 171). Kentucky’s Supreme Court, for example, has stated that trustees need to conscientiously solicit advice:

“The Trust Company cannot rely upon the general reputation of the solvency of the corporation or the worth of its securities as a good investment because it had the means at hand coupled with the duty to ascertain its actual value” (Germania Safety Vault and Trust Co. vs. Driskell, 66 S. W. 610, 612, 23 Ky. Law Rep. 2050).

Alabama’s Court ruled a professional trustee liable for losses because investments had been insufficiently researched (First Alabama Bank of Montgomery, N.A. vs. Martin, Ala. 1982, 425 So.2d 415, certiorari denied 1983, 103 S.Ct. 2109, 461 U.S. 938, 77 L.Ed.2d 313). The need to do research also pertains to investments currently held. A trustee cannot assume that investments he has received will continue to be proper (Bogert, 1987; p. 391); rather, trustees must regularly monitor investments (John vs. Herbert, 2 App.D.C. 485).

This indicates that the present generation may be obliged to regularly update its information regarding threats to the future’s endowment. Research money to permit regular review of the stock of natural capital, and threats to it, may need to be allocated (Brown Weiss, 1989; p. 68). Such research would be easily married with the duty of trustees to keep good records and proper account of trust property (Estate of McCabe, 87 Cal. App. 2d 430; Benbow vs. Benbow, 117 Fla. 37, 157 So. 512). As explained by Wisconsin’s Supreme Court: “A trustee is not handling his own funds but funds of others and he must always be able to make a full accounting of his stewardship” (estate of Martin vs. Barry, 39 Wis. 2d 437; 159 N.W.2d 660).

Hence, agents of the intergenerational trust should draw on the skill and prudence available within the collective. While democratic imperatives preclude turning resource management decisions over to ‘experts’, special consideration may need to be given to those with special skill. At minimum, the greater responsibility of those with expert skills suggests an extra measure of caution when making decisions that affect the future.

The duty to prudently apply expertise suggests also that intergenerational trustees cannot use scientific dissent as an excuse to avoid action when a reasonable degree of scientific consensus has been achieved. Given the skeptical nature of scientific enquiry, there will always be those who remain unconvinced. However, intergenerational trustees have a duty to exercise the judgment of a reasonable person in evaluating the soundness of scientific opinions proffered.

3.1.2. ‘Engaged in similar affairs’

The standard of care for trustees is benchmarked not just to the conduct of ‘ordinary prudent men’. Prudence, rather, is to be measured against the community of people ‘engaged in similar affairs’ as the trustee (Scott and Fratcher, 1987; Bogert and Bogert, 1993). This is not as circular as it sounds: being a trustee involves making decisions on behalf of others.

“The duty of a trustee is not to take such care only as a prudent man would take if he had only himself to consider; the duty rather is to take such care as an ordinary prudent man would take if he were minded to make an investment for the benefit of other people for whom he felt morally bound to provide” (In re Whiteley, 1875, 33 Ch. Div. 347, 355).

This standard is widely sited (e.g. Reiley vs. Healey, 122 Conn. 64, 187 A. 661). The Uniform Probate Code similarly asserts that “The trustee shall observe the standards in dealing with the trust assets that would be observed by a prudent
man dealing with the property of another” (Unif. Prob. Code §7-302). Other states have adopted a similar standard by statute.7 But, from the perspective of care, what does it mean to make decisions for others?

Trust principles suggest that decisions on behalf of others require a greater degree of risk aversion than employed when conducting one’s own affairs. Bogert and Bogert (1993) explain that “A trustee . . . would not satisfy the court by showing merely that prudence which a business man would exercise in trade or speculation” (§541; p. 174). The New Hampshire Supreme Court held that trustees must be particularly cautious in their investments, saying that trustees:

“[M]ust use the caution of one who has primarily in view the preservation of the estate entrusted to him, a caution which may be greater than that of a prudent man who is dealing with his own property . . . The trustor must exercise the care and skill of a prudent person in conserving the property, rather than the care and skill of a person of ordinary prudence”. (Miller vs. Pender, 1943, 34, A.2d. 663, 665, 93 N.H. 1, 150 A.L.R. 798).

Pennsylvania’s Supreme Court put it even more succinctly: “The primary duty of a trustee is the preservation of the assets of the trust and the safety of the trust principal” [in re Flagg’s Estate, 365 Pa. 82, 91, 73 A.2d 411, 416 (1950)]. Similar language can be found in statute in the vast majority of states (Bogert, 1987; § 106; p. 386).

3.2. Investments under risk

The foregoing brings us to one of this paper’s central points: trustees have no obligation to maximize the expected value of trust assets (Bogert, 1987; §106; p. 387). Given the duty to preserve trust principal, trustees must indeed refrain from maximizing expected utility. This stands in stark contrast to the approach usually found in formal models that address sustainability under conditions of risk (Asheim and Brekke, 1993; Howarth, 1995; Woodward, 1997). In such models, a generation acts sustainably if it manages affairs so that the next generation’s expected value (or expected consumption, or expected utility) is not less than the present’s.

The problem with expected utility models arises not simply because intergenerational decision making involves uncertainty (where at best only subjective probabilities can be assigned) rather than risk (where agents possess an objective probability distribution over outcomes and an objective expectation can be taken).8 Rather, the expected utility framework importantly fails to capture how we actually think about responsibly acting towards others. Trust principles suggest that, if this generation has an ethical responsibility to the next, then decisions that rely on central tendencies will not adequately discharge moral duties. Decisions on behalf of others warrant more conservative action; ‘average’ outcomes are not good enough. Trustees must use more caution than were they to act simply for their own benefit (where they presumably would try to maximize expected utility).

Both courts and statutes have given specific advice about what constitutes prudent safeguarding of trust principal. United States bonds and other obligations guaranteed by the federal government are generally considered the safest investments that one can make and are invariably approved as legal trust investments (Bogert, 1987; §104; p. 374). State and municipal bonds are also very highly considered, unless there has been a recent default. Because land values are generally fairly stable first mortgages are usually considered highly, so long as the debt secured does not exceed too high a fraction of the mortgaged land’s worth (Bogert, 1987; §104; p. 374). Bonds of public utilities and industrial corporations are

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8 Many have criticised the expected utility hypothesis on grounds that managing for sustainability involves uncertainty rather than risk, see Faber et al., 1992; Faucheux and Froger, 1995; Howarth, 1997. While such criticisms are apt, nevertheless, formal modeling can provide insight. (Against this claim see Bromley (1998)). Further, sustainability modeling that addresses risk is an advance over the deterministic efforts that make up the larger part of the neoclassical sustainability literature.
also commonly found on legal lists (Bogert, 1987; §104; p. 375). Common stocks, too, can be prudent so long as they are viewed as safe, and possess sufficient track record to justify such judgement. The Massachusetts State Supreme Court has determined that stocks will be considered prudent when:

“[C]orporations have acquired by reason of the amount of their property, and the prudent management of their affairs, such a reputation that cautious and intelligent persons commonly invest their own money in such stocks and bonds as permanent investments” (Dickinson, 152 Mass. 184, 25 N.W. 99, 9 L.R.A. 279).

The lesson is that safe investments are the hallmark of prudent fiduciary efforts.

Of course, acting as fiduciary does not prevent the current generation from making investments that carry some degree of risk. Indeed, trustees have a duty not to be so risk averse that assets are allowed to lose value. Trustees can be held liable for holding investments that yield little or no income, or whose value has significantly and steadily declined (Dickerson vs. Camden Trust Co., 1 N.J. 459, 64 A.2d 214). In consequence, trustees generally have implied power and duty to review and change investments (Spencer vs. Weber, 163 N.Y. 493, 57 N.E. 753); they do not have a duty to maintain the exact composition of a trust portfolio.

A mean-variance utility framework can lend insight. In mean-variance schemes \( U'(wealth) > 0,\ U'(variance) < 0,\ U'(wealth) < 0 \) and \( U'(variance) < 0 \). Agents will be indifferent between portfolios with low average yields and low variance and portfolios with higher yields and larger variance. Part of the difference between investment decisions made by a trustee acting on her own behalf, and acting on behalf of trust beneficiaries, is that for any mean return the trust investment has a lower degree of acceptable variance (Fig. 1).

But a trustee’s objective function is distinguished by more than greater risk aversion. The Michigan Supreme Court reminds us that trustees:

“[M]ust always bear in mind that the primary object of the creation of the trust is not, ordinarily, accumulation but the preservation and perpetuity of the fund until the time for its distribution arrives” (In re Buhl’s Estate, 211 Mich. 124, 178 N.W. 651, 12 A.L.R. 569).

Alabama’s Supreme Court also defines prudent behavior in terms of safeguarding trust principal:

“[O]ne who buys common stocks with the idea of selling them on the market for higher prices is speculating. One who is making a prudent investment examines the stocks’ intrinsic values and purchases them for a long-term investment” (First Alabama Bank of Montgomery, N.A. vs. Martin, Ala. 1982, 425 So.2d 415, certiorari denied 1983, 103 S.Ct. 2109, 461 U.S. 938, 77 L.Ed.2d 313).

Thus, the purpose for which assets are purchased is different than that suggested by a mean-variance framework. While gains are welcome, trustees should not view gains and losses to the trust in symmetric fashion, as traditional economic theory would suggest. Such asymmetry is reminiscent of prospect theory (Kahneman and Tversky, 1979).

The special attention given to the preservation of trust principal is echoed in trust law’s requirements for profit reinvestment. When a normal investor makes a profit, the fraction taken in current consumption reflects the investor’s personal discount rate and estimate of future capital productivity. However, the full portion of profits realized from converting trust assets must be reinvested; current beneficiaries are entitled only to dividends (In Stewart vs. Phelps, 71 App. Div. 91, 75 N. Y. Supp. 526; In the Matter of Gerry, 103 N.Y. 445, 9 N. E. 235). This reinvestment require-
ment reflects the weight given to protecting trust principal. For intergenerational trusts it suggests also that the current generation must not ‘cash in’ natural capital and assume that future investments will generate enough profit to leave the future better off. Profits from asset liquidation must be fully reinvested.

To insist that intergenerational trustees have a duty to invest more conservatively on behalf of the future is not to say that the next generation will have a greater degree of risk aversion than does our own. The lower curve of Fig. 1 is not an indifference curve; it describes ‘acceptable investments’. Instead, trust law holds that decisions for others need to be made with greater risk aversion than those that we make for ourselves. This suggests, as discussed by Sen (1977, 1997), that choices are sometimes judged not only by the outcomes that they generate but also by the choice act itself. Who does the choosing can matter a great deal.

When fiduciary in nature, well-meaning people often make decisions that are quite different from those that they would otherwise make—even in deterministic cases. A stylized example from Frisch (1971) is reported in Sen (1997) and paraphrased as follows:

A husband and wife are eating dinner together. Two cakes have been purchased for dessert. They are very different, but both known to be excellent. The wife hands the husband the tray and asks him to help himself. The husband knows which cake he would select for himself were he alone in a bakery shop, but for him the relevant question is: which of the two cakes would his wife prefer? If he knows, he selects for himself the other cake; his own preferences are completely irrelevant to the choice.

No doubt we have all been in similar situations, and made choices based on similar concerns. Making choices in this manner need not open one to charges of irrationality. It is simply to assert that the relevant description (and hence utility) of a prospect may involve not just its ‘monetary’ payoff, but also who is making the choice. Indeed, neoclassical theory lacks normative grounds for asserting that chooser dependence should not enter one’s utility function (Sen, 1982). Similar arguments have been made for including potential regret or rejoicing into evaluation of the utility of acts over uncertain prospects (Loomes and Sugden, 1984, 1987).

3.3. Investments under uncertainty

Trustees must make investments in which risks are well understood, such that a prudent person who invests for the permanent disposition of funds would make them. While investing in corporate stock is often prudent, ‘seasoned issues will naturally be preferred to securities of new enterprises’ (Bogert, 1987; p. 388; citing Aydelott vs. Breeding, 111 Ky. 847, 64 S.W. 916). The Michigan State Supreme Court has defined when common stocks might be considered prudent:

“A reasonable investment in dividend-paying stocks. . . of a private business corporation may be permitted when the corporation has acquired, by reason of the amount of its property and the prudent management of its affairs for a considerable period of time, such a reputation for permanence and stability as to command universal confidence, and so that careful and intelligent persons, familiar with such corporations and the manner in which their business should be conducted, commonly invest their own money in them as a permanent investment” (in re Buhl’s Estate, 211 Mich. 124, 178 N.W. 651, 12 A.L.R. 569).

In contrast, an investment in penny stocks would not be considered prudent (Sartore vs. Buder, Colo. App. 1988, 759 P.2d 785, decision affirmed 1989, 774 P.2d 1383). This suggests that trustees may acceptably invest in appropriate risky assets (i.e. assets for which a probability distribution over outcomes is available, and for which risks are not too great). However, investments for which losses are plausible and probabilities over outcomes are unknown (e.g. penny stocks) should be avoided. With regard to sustainability trusts, the current generation should try to ensure that the new investments made on behalf of future generations command ‘universal confidence’.

In particular, if a given stock of renewable natural capital is part of the intergenerational trust, then the current generation as trustee
should perhaps avoid converting such an asset into other forms of capital. (Again, I avoid the question of the preferred constituents of an inter-generational trust; the discussion here focuses on responsible trustee action given a portfolio). We do not know the potential gains and losses associated with ecosystem conversion. Indeed, we generally do not have good information about the value of current day benefits generated by natural capital. Further, we cannot convincingly assign probabilities to possible outcomes of converting natural capital; benefits (and their continued flow) generated by ecosystem liquidation depends on many contingencies. However, with proper protection ecosystems are very likely to continue to provide the goods and services that they now generate. Given that trustees have no obligation to maximize the welfare of future generations, a case can be made for conserving what natural capital is initially part of the trust.

For example, as trustees the current generation might well be advised to take swift action to curtail greenhouse gas emissions. The current climate might well be viewed as an asset that is held in trust; economic and social systems have been optimized around current climate parameters. Existing (let alone increasing) emissions of greenhouse gasses have potential to put that asset at risk, and there is not consensus among knowledgeable and prudent people as to the likely effects of a significantly warmer climate. Thus, benefits for future generations of pursuing ‘business as usual’ appear speculative, while costs of emissions reductions (and concomitant benefits of preserving the current climate) are comparatively well understood.

Trust principles do not suggest that natural systems that comprise part of the future’s initial endowment should never be altered or converted. The history of trust investment in equities is instructive. Over a 100 years ago, the stock market was considered insufficiently tested and viewed as an unreliable repository for trust investments (Bogert, 1987). High Courts (e.g. Tucker vs. State, 72 Ind. 242; Kimball vs. Reding, 31 N.H. 352, 64 Am.Dec.333; King vs. Talbot, 40 N.Y. 76) and some statutes (e.g. Ala. Constitution, Art. 4, §74) forbade prudent trustees from investing in common stocks. As experience with the stock market was gained, and as equity markets became less speculative, prohibitions were relaxed. Stocks became ‘prudent’ once they had developed a sufficient track record to enjoy considerable confidence. Today roughly half of all trust investments managed by corporate fiduciaries are placed in common or preferred equity.9 The upshot is that as more knowledge of natural systems is gained so too does the possible latitude for making new trust investments that require converting natural capital.

The foregoing addresses how responsible trustees should make new investments, assuming that the future’s initial endowment consists of a certain amount of natural capital. No assumption is made about the substitutability of natural for human-produced capital. Rather, the point is to suggest what constitutes responsible decision making given uncertainty about substitutability. Of course, nothing prevents us from prudently maintaining the future’s natural capital stock only to leave the future with assets that it turns out to not very much want. We may well make mistakes; as responsible trustees, however, we want to make morally excusable ones.

4. Trust law and economic concepts

We now have sufficient background to re-interpret economic concepts that are also concerned with decision making under uncertainty: so-called ‘strong sustainability’ (Common and Perrings, 1992; Howarth, 1997), the precautionary principle (Perrings, 1991), and the safe minimum standard of conservation (Ciriacy-Wantrup, 1952; Bishop, 1978; Randall and Farmer, 1995). In what follows, these notions are shown to be largely consistent with trustee duties.

9 Of investment over which trustee discretion was permitted, in 1996 50.3% was in common and preferred stock; 19.7% in government bonds; 15.6% in money market and other short-term investment funds; 6.7% in interest-bearing bank deposits. Other notes and bonds, real estate, and miscellaneous assets made up the rest. Data from the Federal Deposit Insurance Corporation; see http://www.fdic.gov/consumer/structur/trust/index.html.
4.1. Strong sustainability: structured endowments and portfolio diversity

Proponents of ‘strong sustainability’ urge that the total stock of natural capital be nondeclining (Daly and Cobb, 1989). This view is motivated by uncertainty about how ecosystems function and the possibility of non-linear breakpoints and irreversibilities. In the present context, proponents of strong sustainability can be seen as advocating a particular make up of the intergenerational trust, viz. a structured endowment consisting (in part) of no less than the extant quantity of natural capital (Norton, 1995; Howarth, 1997). While strong sustainability has been attacked on efficiency grounds, trust doctrine offers some support.

First, one can apply the reasoning from the previous section—on decision making under uncertainty— to the current concern of endowment specification. We know that current welfare depends in some measure on natural capital. Assuming that future generations can get by with less (or none) is comparatively speculative, as the assumption depends on unrestricted substitutability between natural and human-made capital—a substitutability that is subject to considerable uncertainty. Hence, because uncertainty surrounds the level of natural capital that is necessary to maintain even basic life support services, a conservative approach to structuring the endowment of future generations seems warranted.

Second, the prudent investor rule tends to apply to a trustee’s portfolio as a whole. The Massachusetts Supreme Court has held that a fiduciary should minimize risk to trust principal by diversifying investments, if trust terms will so allow:

“In the absence of authority or direction in the will to retain investments made by the testator, it is ordinarily prudent for a trustee to diversify his investments, following the proverbial injunction not to put all one’s eggs in one basket.” (Kimball vs. Whitney, 233 Mass. 321, 331, 332, 123 N.E. 665).

And the Hawaii Supreme Court has urged that:

“Under the broad duty to act as a ‘reasonably prudent businessman’ it is the specific investment duty of a trustee to diversify trust investments unless absolved from so doing by express direction in the trust instrument” (Steiner vs. Hawaiian Trust, 393 P. 2d 96, 47 Hawaii 548, (1964)).

Duty to diversify investments is especially applicable for trustees making new investments; lack of diversity in investments received from the trust settlor tend to be less critically viewed by the courts (Central Hanover Bank and Trust vs. Clark et al., 81 N.Y.S.2d 883).

Trust doctrine tends to value portfolio diversity as a bulwark against risk and uncertainty. The ‘rivet popping’ fable of Ehrlich and Ehrlich (1981) suggests that in continuing to convert natural into human-made capital, the portfolio held in trust gradually loses diversity and becomes vulnerable to catastrophe. In constituting the intergenerational trust, then, proponents of so-called ‘strong sustainability’ can be viewed as arguing for a diverse portfolio structure.

4.2. The precautionary principle

The precautionary principle has been offered as a way to reasonably contend with problems in which the environmental cost of economic activity is highly uncertain, potentially catastrophic, widespread, and possibly irreversible (Perrings, 1991). Global warming is an illustrative example. The precautionary principle “requires the commitment of resources now to safeguard against the potentially catastrophic future effects of current activity” (Perrings, 1991; p. 160). Policies are evaluated with reference to worst-case extremes, rather than by a probabilistic weighting of such events, because decision makers lack reasonable grounds for assigning probabilities. Although the parallels

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are imperfect, the legal regime on trusts can be seen as providing support for the precautionary principle in several ways.

First, the precautionary principle and the law of trusts take a similar view of the asymmetric importance of gains and losses. The precautionary principle applies when decisions are importantly guided by a societal objective function where losses with respect to uncertain outcomes should be minimized. Similarly, fiduciaries are charged with making decisions that safeguard trust principal. As such, they make decisions first with an eye towards preventing capital loss. Both trust law and the precautionary principle are therefore concerned not with maximizing welfare but with protecting against bad outcomes.

Second, the precautionary principle and trust law similarly treat responsible handling of ‘worst case’ scenarios. The ‘worst case’ effects considered by the precautionary principle are determined not by what one can conceive, but rather by the degree of surprise or disbelief associated with possible outcomes. Catastrophic but scarcely believable outcomes are ignored in precautionary principle decisions, while very unlikely Chernobyl-style accidents can become the focus of decisions because they are believable (Perrings, 1991; p. 161).

Such bounding of the state space may at first appear ad hoc but accords with criteria used by prudent fiduciaries. Liability for failing to safeguard trust assets can be found only for events that are sufficiently ‘believable’, where ‘believability’ is determined by a community of reasonable people. Connecticut’s Supreme Court explained: “It is today a general custom among prudent business men to insure buildings in their charge against loss by fire; and ordinarily it is the duty of trustees holding property... to see that such provision is made” (Willis vs. Hendry, 127 Conn. 653, 20 A.2d 375). Once care has been exercised in selecting an insurer, a trustee cannot be held liable for the scarcely foreseeable loss caused by simultaneous occurrence of both fire and insurance company failure (Getting vs. Scudder, 71 Ill. 86).

Finally, the precautionary principle and trust law handle information about uncertain (as opposed to risky) events in much the same way. The precautionary principle adopts a minimax criteria (minimizing maximum loss) only with regard to uncertain events. As conditions of uncertainty gradually become conditions of risk, policy evaluation shifts from a minimax framework to one where expected losses are calculated. The prudent investor rule reflects much the same distinction. The history of common equity investments in the stock market reflects this. Once-eschewed investments can take on the patina of ‘prudence’ as experience is gained.

4.3. The safe minimum standard of conservation

The safe minimum standard (SMS) suggests that policy makers avoid exploiting natural resources to levels below which economically irreversible degradation takes place (Ciriacy-Wantrup, 1952; Bishop, 1978; Randall and Farmer, 1995). The concern is that irreparable natural resources—either singly or in network—may later prove highly valuable. The SMS is often thought relevant to unique natural assets such as species, undisturbed ecosystems, and the like. While seeking to avoid large future losses, the SMS is not completely inflexible. If current-day costs of avoiding critical levels of exploitation are ‘intolerably high’, then the SMS suggests that exploitation should proceed (Randall and Farmer, 1995; p. 34).

Like the precautionary principle, the SMS concerns situations marked by uncertainty rather than risk. However, the SMS appears to have somewhat wider applicability than does the precautionary principle; as it is not directed only towards avoiding ‘catastrophic’ loss. And, rather than assuming that human capital can substitute for natural capital, as the precautionary principle seems to do, the SMS suggests protecting the endangered resource itself.

The SMS has been attacked on efficiency grounds: why should uncertain future benefits trump certain costs? Trust law offers two responses. First, the current generation has an obligation to protect the value of beneficiary principal; there is no duty to maximize beneficiary benefits. Thus, efficiency arguments—which are based on the notion of maximizing expected
benefits—do not hold sway in the context of a trust relationship. The second point derives from the first: trustees should not speculate with trust principal. Given the self-sustaining nature of biological populations and ecosystems, SMS proponents could argue that converting natural to human-created capital without leaving opportunities to rebuild natural stocks is speculative.

Others protest that the SMS fails to provide criteria for determining when preservation costs are ‘intolerably high’. Trust principles offer some defence. For intergenerational trusts that do not subsume the planet’s entire resource base, one might distinguish whether ‘unacceptable’ costs are to be borne by current or by future generations. With regard to the former, trustees are not required to impoverish themselves to preserve trust assets (Kile vs. Forman, 113 W. Va. 313, 167 S.E. 744; McClure vs. Middletown Trust Company, 95 Conn. 148, 110 A. 838; Halstead’s Executors vs. Ingram, 163 Va. 223; 175 S.E. 898). That is, from the perspective of trust law, the SMS need not require that the current generation dip into its own endowment to preserve the future’s natural capital. From this perspective, therefore, the SMS might impose ‘unacceptably high’ costs if those costs are to be paid out of the current generation’s endowment.

The relevant question regarding ‘intolerably high’ costs would then concern whether costs are unacceptably high for future generations themselves. That is, costs would be ‘unacceptable’ if the SMS would require trustees to expend an unreasonable portion of future generation principal to maintain another component of that principal. Such a standard is similar in spirit to calls for efficient sustainability (Woodward and Bishop, 1995).

Suppose, however, that the costs of maintaining the endowment of future generations imposes serious suffering on the present—a problem relevant to trusts that encompass either the whole or only a part of the planet’s resources. The SMS notion of ‘intolerable costs’ seems to have been intended to cover such situations, and accordingly would still appear vulnerable. But the law of trusts offers some support here also. It is hard to imagine a situation in which the current generation would be subject to intolerable suffering that would not—if unalleviated—threaten trust principal. In such circumstances, the law of trusts imposes a duty to expend trust funds to protect trust property (Scott and Fratcher, 1987; §176); thus, courts may authorize a trustee to sell part of the trust estate to raise funds to pay a mortgage and prevent foreclosure (Rothwell vs. Rothwell, 283 Mass. 563, 186 N.W. 662). In the intergenerational context, how much trust principal would need to be liquidated would be a matter of prudent judgement. The law on trusts does not provide rules for determining prudence because such rules would invariably bump against unforeseen contingencies. The SMS relies on similar community standards of reasonableness.

5. Conclusion

Why is it that we often think of our responsibility to future generations in terms of an intergenerational trust? Part of the attraction may be that trusts provide a mechanism to ensure adequate consideration of our children’s interests. Trusts offer institutional support to prevent us from unthinkingly ‘eating’ more than our share of the earth’s resources. Further, trust law provides a degree of practical guidance in real-world decision making. The notion of optimal intergenerational allocations requires a set of heroic assumptions: the preferences of future generations, the rate of technological change, the responses of ecosystems to as yet unknown disturbances. While insight has been gained from models that evidence such heroism, such exercises suffer a degree of unreality. In contrast, those who set up trusts make no pretence of optimality; they try merely to act responsibly towards trust beneficiaries.

\textsuperscript{11} Such cases are, of course, conceivable. It is here that the analogy between trust law and sustainability perhaps breaks down. The SMS’s notion of ‘unacceptable’ implies an act of moral balancing. While legal institutions often employ balancing tests (and rely on community standards of reasonableness to do so), the law of trusts does not seem to offer precedent for raiding one beneficiary’s benefit stream simply because another beneficiary is in ‘dire need’. The practical reasons for this are clear.
For intragenerational trusts an abuse of trustee discretion (according to ‘ordinary prudent man’ standards) would allow the beneficiary to successfully sue for damages. Such remedies are clearly not available in an intergenerational setting. To the extent that our responsibility to the future is captured by a trustee relationship, a premium must be placed on designing institutions that produce management decisions that conform to the ‘ordinary prudent man’ standard. There is need for mechanisms to ensure that natural resource agency administrators, for example, do not make decisions that violate trust principles.

Current natural resource agencies in the United States are probably not up to the task. Courts currently serve as a venue for citizens to complain about agency decisions. However, courts will overturn a management decision only if it can be shown that the agency’s choice is ‘arbitrary and capricious’. This is a very narrow standard. In contrast, aggrieved trust beneficiaries need only show that trustees had failed to act as would an ‘ordinary prudent man’. Institutional innovation may be required to resolve such problems if we are to treat our responsibility to future generations in terms of a trusteeship. Simple extensions of current agency duties may not suffice.

For the current generation to discharge its fiduciary obligation it cannot rely on the expectation that a series of risky short-term investments will generate enough profit to leave future generations as well off as is the current generation. And, in contrast to those who urge that the current generation is likely to most benefit the future by maximizing its own utility, trust principles suggest that—even were this the case—attending to likelihoods is irrelevant. As fiduciary the current generation has a duty first to husband the capital that the future will inherit.

Real-world problems of sustainability are characterized by making decisions on behalf of others, and by great uncertainty as to the consequences of those decisions. Strikingly, much of the economic literature on sustainability has addressed neither concern. As it turns out, the law on trusts necessarily wrestles with them both and provides a ready springboard for inquiry.

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