PATH DEPENDENT INEFFICIENCY
IN THE CORPORATE CONTRACT:
THE UNCERTAIN CASE
WITH LESS CERTAIN IMPLICATIONS

BY FREDERICK W. LAMBERT

Abstract

The author examines path dependence as a potential "new economics" having possible general implications for the normative basis of the corporation as a nexus of contracts. He introduces the discussion by reviewing the parallel scholarship of contracts and corporate law as they utilize efficiency to reshape theory. He then addresses the concept of path dependent lock-in to suboptimal remediable results built on the phenomenon of increasing returns. The sharp deviation from neoclassical economics evinced by path dependence prompts an analysis of

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The author owes a substantial debt to several sources for this article. The ideas originated in conversations with Deborah DeMott when the author was a visiting faculty member at Duke University School of Law in 1993. She also gave helpful comments on recent drafts. The ideas were also shaped by the Symposium on Default Rules and Contractual Consent at the University of Southern California and comments during presentations at a Duke Faculty Workshop and at Hastings College of the Law. The author was seeking to develop a theory of penalty defaults for the interpretation of bondholder disputes such as arose in connection with the leveraged buyout of RJR Nabisco. After a hiatus occasioned by another project, the author came upon the emerging law and economics scholarship of path dependence in the corporate contract, principally authored by Marcel Kahan and Michael Klausner. Path dependence presented a significant potential for bringing into question the presumptions of efficiency underlying much of the scholarship of the corporation as a nexus of contracts. Accordingly, the author doubted it could be ignored in any theory of interpretation of disputes between corporate issuers and bondholders. Thus, a preliminary draft made a semi-strong case for penalty default standards of interpretation as an antidote to path dependent bond indenture inefficiency. The author's colleague, Bill Wang, made a number of thoughtful observations on this theory. His comments caused the author to alter the direction of earlier drafts toward a conclusion previously reached, quite apart from his comments, that path dependence and penalty default rules may have only marginal normative significance to the resolution of bondholder disputes. However, there still seemed to be some merit to analyzing the intersection of path dependence, contract theory, and the corporation as a nexus of contracts. In shaping the current version of the article, in addition to others previously mentioned, the author owes a substantial debt of appreciation to Ash Bhagwat, Bill Bratton, Jim Cox, Bill Dodge, Merritt Fox, Mike Klausner, Richard Painter, Roger Park, Renel Schiller, Norman Siebrasse, and Bob Thompson. The author's long-time friend, Tom Rowe, provided encouragement and sources of ideas as he has over the years. Gitanjali Mohindra, Sheryl Salmons, and Daniel Schwartz provided excellent research assistance.

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scholarly criticism suggesting the highly unlikely occurrence of remediable suboptimality. Using the critical literature as a point of departure, the author assesses the validity of path dependence to the contracting process, first generally, and then in connection with the literature that has focused specifically on the bond indenture. The article suggests that the case has not been made for the general application of path dependence to the contracting process, but unique attributes of certain contracts, such as the corporate bond indenture, may exist in a unique environment conducive to path dependent suboptimality. Evaluating the normative implications of path dependence that follow from potential contractual inefficiency, the author turns to penalty default rules of interpretation as an antidote to inefficiency. The article speculates as to whether courts should adopt a passive remedial stance — in essence a penalty default rule — to encourage ex ante adoption of optimal terms, thus conserving ex post public judicial resources. To test the vitality of penalty defaults, the author considers three prominent bondholder disputes. The analysis of the cases leads to the tentative conclusion that the effect of judicial decisions on the adoption of indenture provisions is indeterminate and at most secondary to the pricing mechanism of the bond market, which accords relatively little importance to bond covenants other than interest rate, maturity and call provisions. The author concludes that, even in an environment susceptible to adoption of inefficient indenture terms, courts will likely have a small role to play in encouraging efficiency in the development of indenture terms.
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A similar phenomenon [increasing returns] occurs even in individual learning, where again successes reinforce some courses of actions and inhibit others, thereby causing the first to be sampled more intensively, and so forth. There are in all of these models opposing tendencies, some toward achieving an optimum, some toward locking in on inefficient forms of behavior.

Kenneth J. Arrow

I. INTRODUCTION

In the era of law and economic analysis, one does not dwell on arcane linguistic interpretations of the permitted behavior of the corporate debtor as opposed to the reasonable protection of the creditor boldholder. Rather, one focuses an inquiry into whether the debenture, or more accurately, the indenture, consists of an aggregate of efficient contract terms or, conversely, whether the terms comprising the heart of the


2. A debenture is an instrument entitling the holder to be paid money that has been lent to a corporation. Debentures historically have constituted unsecured corporate obligations, while the more common term "bond" has denoted a debt obligation secured by corporate property. The distinction has lost its significance and the term "bond" is used interchangeably to refer to evidence of corporate debt obligations held by the public. Private issuances of corporate debt obligations generally are referred to as Notes. This article treats the legal issues arising from the contractual relationships with public bondholders.

3. An indenture is an agreement between the issuer of publicly-held debt and an independent entity, typically, a financial institution, which undertakes the capacity of indenture trustee. The indenture agreement contains obligations concerning the payment of the debentures the most important of which are principal, interest rate, and maturity date. The indenture agreement also contains covenants limiting the financial and business activities of the corporate borrower which covenants are designed to enhance the ability of the corporate borrower to meet its payment obligations. It also may contain provisions permitting early redemption of the bonds. In general, it confers on the indenture trustee monitoring obligations on behalf of the bondholders. Accordingly, the corporate issuer of publicly held bonds must report periodically to the indenture trustee concerning its compliance with the terms of the indenture. In the case of default, the indenture trustee is authorized and required to take action on behalf of the bondholders to enforce the debt obligations reflected in the instruments called debentures or bonds. See supra note 2.


4. The interplay between efficiency and contract doctrine is examined in Jason Scott Johnston, STRATEGIC BARGAINING AND THE ECONOMIC THEORY OF CONTRACT DEFAULT RULES, 100 YALE L.J. 615 (1990). The Kaldor-Hicks definition of efficiency is assumed throughout this article.
publicly-held debt instrument reflect inefficiency similar to that argued to exist in the QWERTY typewriter keyboard.\(^5\) The answer to these questions is important, at least in part, for the continuing vitality of the rendition of the corporation as an optimal aggregation of nexuses of contract.\(^6\) Specifically, if there exist important provisions of the basic agreement governing the corporate\(^7\) debt relationship that are merely inefficient historical relics, like the purportedly inefficient QWERTY keyboard, that are utilized by lawyers and investment bankers, then perhaps other contractual components of the corporate web\(^8\) of relationships also suffer from correctable suboptimality or "lock in." More important, if the debt contract exhibits inefficient locked-in\(^9\) provisions, then the economic phenomenon of path dependence may exist, prompting a reconsideration of normative arguments that follow from the general assumption of efficiency in the various nexuses of the corporate contract.\(^10\) Specifically,

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Is the standard typewriter keyboard, the one used every day by tens of millions of people, a cruelly inferior design that we're stuck with only because its popularity prevents people from switching to something better? . . . For economists, . . . [the question] bears on some of the critical issues of the day, such as whether free markets always make the best choices.

\(^6\)Id.


\(^7\)As should be evident, the article addresses issues arising from the relationship between public holders of corporate debt obligations as distinguished from privately placed debt and commercial lending relationships. The term "corporate debt" is thus limited throughout the discussion.


\(^9\)As discussed in greater detail, see infra Part III and accompanying note 190, the term "lock in" refers to the adoption of a term or technology that is inferior to a discoverable alternative but that nevertheless remains the choice of adopters.

\(^10\)Depending upon the ultimate empirical validation of suboptimality in the corporate contract, there may emerge a "new contractarian" approach to issues of corporate law. These are grandiose possibilities, but the power of path dependence as a "new economics" contains such potential because it questions efficiency and the basic tenets of neoclassical economics. There are, of course, differences in the degree of acceptance of the corporation as a nexus of contract. \textit{See} Lucian Arye Bebchuk, \textit{The Debate on Contractual Freedom in Corporate Law}, 89 Colum. L. Rev. 1395, 1399 (1989) (suggesting that the "debate on contractual freedom in corporate law should be viewed as two debates, not one"); Robert C. Clark, \textit{Contracts, Elites, and Traditions in the Making of Corporate Law}, 89 Colum. L. Rev. 1703, 1705-06 (1989) (discussing corporate theory). \textit{But see Easterbrook & Fischel, supra} note 6 (discussing the corporation as a
there may be new doctrinal considerations for courts faced with deciding cases involving the assertion of the breach of indenture covenants such as arose in *Metropolitan Life Insurance Co. v. RJR Nabisco, Inc.*, *Sharon Steel Corp. v. Chase Manhattan Bank, N.A.*, and *Katz v. Oak Industries, Inc.* It is the purpose of this article to trace and analyze the importation of the economics of path dependence into the corporate contract by focusing on the corporate bond indenture. The ultimate goal is to compare the usefulness of traditional doctrines of interpretation employed in resolving bondholder-issuer disputes with possible alternatives, such as penalty default rules of interpretation.

This article takes legal and economic scholarship as a point of departure and explores and amplifies the criticisms of path dependent suboptimality in the context of the corporate bond indenture. It seeks to enhance an understanding of if, when, and how these concepts may have normative significance. The analysis leads to an inquiry into the efficiency of indenture terms and whether courts' interpretive approaches may contribute to or detract from the adoption of optimal terms. Although the bond indenture is only one of the various contractual components of the corporation, it is one of the most purely contractual in nature and therefore serves as a useful reference point to test the vitality of path dependence to the corporation. Moreover, the bond indenture invokes several threads of scholarship involving law and economics, the development of which is necessary to understand the claims that path dependence may make on both normative and positive issues of indenture interpretation.

Although the debt relationship framed by the bond indenture is quite narrow and technical, there exists a considerable recent body of literature collection of efficient nexus of contract).


13691 F.2d 1039 (2d Cir. 1982). See infra notes 273-316 and accompanying text.

14508 A.2d 873 (Del. Ch. 1986).

15Those familiar with the literature of path dependence and its critics may wish, after the Introduction, to skip to Parts III.D-E and Part IV for the development of the normative implications for bondholder disputes.

on the relationship of the bondholder to the corporation. In the 1980s and early 1990s, there emerged a range of viewpoints regarding the rights and duties of issuers to the holders of debt. Much of the inquiry derived from the consequences of public takeovers when the incurrence of massive debt caused downgrades and loss of market value of public bondholders. Arguably, a leveraged buyout shifted wealth from bondholders to shareholders who were cashed out at a premium with debt that reduced the value of previously-outstanding bonds. Some of the scholarship emphasized arguments for extra-contractual protection of bondholders in a modified form of fiduciary duty somewhat similar to that due to the shareholders of the corporation. Cases such as those discussed in Part IV generally were resolved, however, by resort to the conventional contract

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17 An important focus of the literature analyzes whether or not the contract monitoring the bond/issuer relationship, the indenture, should give rise to a higher, quasi-fiduciary duty on the part of the issuing corporation or should be interpreted simply as another form of arms-length agreement between a corporation and one class of its creditors. For comments arguing the advisability of a higher duty, see, e.g., Albert H. Barkey, The Financial Articulation of a Fiduciary Duty to Bondholders with Fiduciary Duties to Stockholders of the Corporation, 20 CREIGHTON L. REV. 74-84 (1986) (arguing for a new fiduciary duty and evaluating this new duty in terms of fairness); Victor Brudney, Corporate Bondholders and Debtor Opportunism: In Bad Times and Good, 105 HARV. L. REV. 1821, 1836-39 (1992) (describing problems with existing fiduciary duty doctrine); Morey W. McDaniel, Bondholders and Corporate Governance, 41 BUS. LAW. 413, 456 (1986) [hereinafter Bondholders I] (concluding that "directors should have fiduciary duties to bondholders as well as to stockholders"); Morey W. McDaniel, Bondholders and Stockholders, 13 J. CORP. L. 205, 309 (1988) [hereinafter Bondholders II] (stating that the duty to maximize firm value should replace the duty to maximize shareholder wealth and such a "recast" of duties is consistent, inter alia, with modern finance theory); Lawrence E. Mitchell, The Fairness Rights of Corporate Bondholders, 65 N.Y.U. L. REV. 1165, 1228-29 (1990) (arguing for expanding duties to bondholders); Martin Riger, The Trust Indenture as Bargained Contract: The Persistence of Myth, 16 J. CORP. L. 211, 243 (1991) (stating that a bondholder is treated "fairly" if he or she receives what was bargained for). Sources advocating traditional neoclassical contract analysis of the bondholder relationship, see, e.g., William W. Bratton, Jr., Corporate Debt Relationships: Legal Theory in a Time of Restructuring, 1989 DUKE L.J. 92, 101 (stating that corporate debtor-creditor doctrine integrates "the traditional legal model of the corporation"); William W. Bratton, Jr., The Economics and Jurisprudence of Convertible Bonds, 1984 Wis. L. REV. 667, 672 (positing whether "the doctrinal dichotomy — corporate law for stockholders and contract law for bondholders — continues to be justified"); William W. Bratton, Jr., The Interpretation of Contracts Governing Corporate Debt Relationships, 5 CARDOZO L. REV. 371 (1984); Thomas R. Hurst & Larry J. McGuinness, The Corporation, the Bondholder and Fiduciary Duties, 10 J.L. & COM. 187, 211 (1991) (concluding that "the creation of a fiduciary duty in favor of bondholders seems both unnecessary and unwise"); Hideki Kanda, Debtholders and Equityholders, 21 J. LEGAL STUD. 431, 432 (1992) (arguing that the creation of a fiduciary duty between managers and debtholders or between managers and preferred equity holders could prove problematic). See also Kenneth Lehnh & Annette Poulsen, Contractual Resolution of Bondholder-Stockholder Conflicts in Leveraged Buyouts, 34 J.L. & ECON. 645, 671 (1991) (considering ways in which bondholders can protect themselves from losses in the event of corporate control changes).

18 Brudney, supra note 17, at 1838.
doctrine of the implied covenant of good faith and fair dealing. No attention was paid to the effect of such doctrines on the shifting of private ex ante contracting costs to the expenditure of public ex post judicial resources. Concepts of law and economics were limited to observations of the necessity for uniform understanding of bond terms in the financial markets.

The quite specialized academic literature on bonds evolved in parallel with the broader categories of law and economics scholarship addressing, first, the corporation as a nexus of contracts and, second, contract theory in general. They reflect the ascendency of law and economics as the touchstone for analyzing both corporate and contract issues. The distinct but overlapping threads of scholarship of contract and the corporate entity contain a central unifying theme: efficiency. Largely without question, this underlying notion of efficiency employed concepts of neoclassical economics. For the strong adherents of free markets, the invocation of neoclassical theory posits that private atomistic contracting will result in an equilibrium reflecting the most efficient allocation of goods and resources. And, of course, contracts similarly would tend to

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19There are at least three distinct lines of inquiry that are important to a discussion of path dependence that have developed over the past decade. First, a debate emerged as to whether the state-supplied terms governing the internal affairs of the corporation (i.e., the corporation codes) should exist merely as off-the-rack terms which promoters or existing shareholders should be free to modify without limitation. This so-called "enabling" view of the corporate contract attracted criticism from those seeing the corporate contract supplied by the state as suffused with issues of public policy concerning the protection of minority shareholders for which terms should be "mandatory" and not waivable. John C. Coffee, Jr., The Mandatory/Enabling Balance in Corporate Law: An Essay on the Judicial Role, 89 Colum. L. Rev. 1618 (1989). Second, the scholarship of pure contract addressed the advisability of reframing, at least to some degree, doctrines of breach and remedy in terms of efficiency rather than reliance and expectation. If previous decades saw the devolution of consideration into reliance, law and economics commentators suggested that contractual remedies be redirected toward encouraging relationship-specific investment with contracts for unique goods and services and risk-allocation in connection with contracts for fungible commodities. Richard Craswell, Contract Remedies, Renegotiation, and the Theory of Efficient Breach, 61 S. Cal. L. Rev. 629 (1988). Third, there appeared a body of scholarship exploring default rules and standards — applicable both to judicial interpretation of gaps in incomplete private contracts and to the proper content of public regulatory schemes such as the corporations codes. See infra note 35. These three separate strains of scholarship reflect considerable overlap because they develop concepts from law and economics applicable to contract law that readily applies in the corporate context once the corporation is seen as a creature of contract.

20Craswell, supra note 19.

21See Johnston, supra note 4.

22See Bratton, Corporate Debt Relationships, supra note 17, at 132.
evolve so as to discard inefficient terms and incorporate only those terms that were efficient.\footnote{Easterbrook & Fischel, supra note 6, at 1-39.}

The free market paradigm of the corporation as an evolving combination of contracts proceeds on several assumptions. Summarized briefly, off-the-rack terms such as the corporation code should be designed as default provisions that most parties would want.\footnote{Id.} In absence of agreement to the contrary, such terms would apply in all cases and thereby absolve the majority of users from having to incur transaction costs. These are known as majoritarian default provisions having application beyond the context of the corporation.\footnote{Ian Ayres & Robert Gertner, Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules, 99 Yale L.J. 87, 90 (1989) (quoting Frank Easterbrook and Daniel Fischel for the proposition that "corporate law should contain the [defaults] people would have negotiated, were the costs of negotiating at arms-length for every contingency sufficiently low").} For example, the remedy for incomplete contracts should reflect a similar majoritarian default, in the form of what the parties would have wanted had they bargained costlessly.\footnote{Id.} Some, however, questioned the universal application of majoritarian default provisions.\footnote{Id. at 89-90 (detailing scholarship evaluating default provisions). For an earlier article examining insightfully the issues of default provisions represented by standard form contracts, see Charles J. Goetz & Robert E. Scott, The Limits of Expanded Choice: An Analysis of the Interactions Between Express and Implied Contract Terms, 73 Cal. L. Rev. 261, 264 (1985) (suggesting that the effort to utilize default provisions "create hitherto overlooked barriers to innovative forms of contractual agreement"). For a recent article analyzing standard forms and incentives to bargain efficiently in the context of the revision of the Uniform Commercial Code, see Victor P. Goldberg, The "Battle of the Forms": Fairness, Efficiency, and the Best-Shot Rule, 76 Or. L. Rev. 155, 157 (1997).} An alternative to the majoritarian remedy would create rules designed with a punitive edge, thereby encouraging information disclosure between asymmetrically situated parties, resulting in bargaining on explicit issues.

Again, the unifying theme of conventional law and economics is to promote efficiency through free market forces that neoclassical economics postulates result in equilibrium.\footnote{Craswell, supra note 19, at 630-31.} Efficiency exists as the touchstone for every issue running from the mandatory-enabling debate in the corporate entity context to the creation of doctrines of pure contract advocating deviations from reliance-based remedies and the invocation of punitive default schemes to fill gaps in incomplete contracts.\footnote{Id. at 653-68.}
Until recently law and economics scholars encountered criticism in at least two respects. First, efficiency-based doctrines contain their own built in limitations. As Alan Schwartz points out, the remedial scheme of relationship-specific contracts suffers from real problems of verifiability\(^{30}\) of optimal investment by a fact finder. In addition, filling gaps in incomplete contracts by resort to law and economics remedies built on encouraging risk allocation fails to produce a rule or standard applicable to heterogeneous contract settings.\(^{31}\)

Second, opponents of the efficiency norm — even with the agreement of strong law and economics proponents — can make the case for contractual settings where values, norms and public goods exist on a higher level than efficiency.\(^{32}\) Adoption of children may be most efficiently administered by lottery, but politically it is not acceptable. Neither of these criticisms question the theoretical basis for law and economics-based solutions to contract law. Path dependence does raise such issues because it questions whether atomistic contracting results in the adoption of efficient terms. In short, it questions the validity of the neoclassical model of decreasing returns and single equilibrium.\(^{33}\)

Recent legal scholarship incorporates concepts of path dependence from the adoption of rapidly developing technological products into the process of framing corporate contracts.\(^{34}\) Professors Michael Klausner and Marcel Kahan have initiated a ground-breaking inquiry in recent articles


This remedy is theoretically attractive but seldom could be applied. In order to determine the socially optimal level of investment, the court would have to know the probability that the seller's costs would turn out to exceed the buyer's valuation. The court also would have to know the buyer's "production function" — the incremental profit associated with each incremental reliance investment. Such data commonly is inaccessible to courts. This is because the cost to the parties of learning and then proving the buyer's valuation, the seller's possible range of costs and the buyer's production function would exceed the amount involved in the typical breach of contract case.

\(^{31}Id.\) at 17, 22-23.

\(^{32}\)Easterbrook & Fischel, supra note 6, at 1-39; Craswell, supra note 19, at 668-70; Goldberg, supra note 27, at 157; Johnston, supra note 4, at 623-26.

\(^{33}\)See infra Part II.

focusing on the applicability of increasing returns to the corporate contract.\textsuperscript{35} Professor Klausner initiates a comprehensive inquiry into network and learning externalities found in contracts.\textsuperscript{36} He speculates about the implications for the corporate contractual paradigm by making the "central point . . . that the [contractarian] paradigm fails to take account of network externalities, a type of market failure that may be uncommon in product markets."\textsuperscript{37} He is then joined by Professor Kahan in an article studying the empirical evidence of learning and network externalities in the narrow context of event risk covenants of the bond indenture.\textsuperscript{38} Accordingly, the Klausner-Kahan work serves as the touchstone for analyzing concepts of increasing returns with respect to contracts generally and the bond indenture in particular.\textsuperscript{39}

The Klausner-Kahan examination seeks to determine the existence of suboptimal contractual terms based upon an application of the economic theory of path dependence.\textsuperscript{40} The theoretical basis for path dependence rests upon the initial uncontroversial proposition that economic success can be influenced by historically sensitive conditions.\textsuperscript{41} A product or process, arbitrarily or otherwise, enjoys a temporal head start against competitors: as the product or process gains adherents — adopters, customers, users — network benefits accrue in the form of increasing returns. Thus, simply by virtue of early adoption, subsequent users are induced to use the product because of the benefits of its general acceptance. Network benefits imply a momentum of acceptance driven by value creation external to the actual benefits of the product. Particular examples are discussed in what follows, but it is enough to state here that the theory postulates that economic decision-making can be based on matters external to the inherent beneficial qualities of a product or service. Something more, however, is involved

\textsuperscript{35}Michael Klausner, Corporations, Corporate Law, and Networks of Contracts, 81 VA. L. REV. 757 (1995); Kahan & Klausner, supra note 34; Marcel Kahan & Michael Klausner, Standardization and Innovation in Corporate Contracting (or "The Economics of Boilerplate"), 83 VA. L. REV. 713 (1997).

\textsuperscript{36}Klausner, supra note 35.

\textsuperscript{37}Id. at 771.

\textsuperscript{38}Kahan & Klausner, supra note 35. An earlier article by the authors explored event risk covenants from the standpoint of their effect on firm value and entrenchment of management. Marcel Kahan & Michael Klausner, Antitakeover Provisions in Bonds: Bondholder Protection or Management Entrenchment?, 40 UCLA L. REV. 931 (1993).

\textsuperscript{39}Id. at 936-50.

\textsuperscript{40}Kahan & Klausner, supra note 35; Klausner, supra note 35.

\textsuperscript{41}Mark J. Roe, Chaos and Evolution in Law and Economics, 109 HARV. L. REV. 641, 642 (1996) (discussing the science of chaos and its application to bankruptcy and corporate structures and stating that initial conditions of a given system determine outcome and small, often minor, changes in a system's initial conditions can lead to often highly unpredictable outcomes).
than simply fad or habit: there is an incentive to purchase or adopt based
simply on the increasing value generated by the number of previous
adopters and the prediction that the product will become an industry
standard. Finally, path dependence suggests that product selection built
on external value results in the emergence of suboptimal products. The
efficiency-based model of the corporation-as-contract comes into question
when the adoption of suboptimal products is equated with the adoption of
potentially suboptimal contract terms. Prior work has attempted to
validate the equation, thus transporting concepts of product inefficiency
into the context of contract suboptimality. In making this considerable
conceptual jump, much has been ignored in the work of economists who
defend the neoclassical model and dispute the likelihood of suboptimal
adoption of products.

Thus, it is important to test the general argument of path dependent suboptimality. The transferability of such a theory to the
abstract environment of the corporate contract thus needs consideration,
and for this test, the bond indenture serves as a good vehicle. Yet, even if
a plausible or tentative case can be made for path dependence in the bond
indenture, it is important to address the question of whether courts may
reduce the propensity for suboptimality by modifying traditional doctrines
of contract interpretation. The above issue implicates a reconsideration of
the Sharon Steel, RJR Nabisco, and Katz cases.

Part II traces the development of the economic scholarship asserting
the existence of path dependence arising from increasing returns and
network benefits. Because a wholehearted acceptance of path dependence
as an economic phenomenon flies directly in the face of generally accepted
concepts of decreasing returns and single equilibria, the author examines,
in some detail, the work of economists who skeptically view path
dependence as unproved and highly unlikely to exist except under the most

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42It is not controversial to recognize the benefits that derive from products that have
gained acceptance by virtue of historical fortuit and network benefits conferred by early
adoption. What is controversial is whether truly inferior products or services become the locked-
in choices of subsequent purchasers or adopters without regard to the efficiency of the product.

And if suboptimality from increasing returns and network benefits can be established with
product adoption, the important and controversial question arises: do path dependence,
increasing returns and network benefit have any positive or normative place in the analysis of
the corporate contract? Note that the general question does not necessarily focus on the bond
indenture. The bond indenture, however, may have attributes that make it more susceptible to
suboptimal terms. See infra Part III.

43Klausner, supra note 35, at 764-65.

44See generally Ayres & Gertner, supra note 25 (examining default rules and penalty
default rules).

45Klausner & Kahan, supra note 35, at 730 n.41.
stringent assumptions. Much depends upon which theory bears the burden of proof. The author concludes that some degree of path dependence, particularly in the context of rapidly developing and changing technology, almost certainly exists. This by no means, however, results in the wholesale rejection of neoclassical economic principles, which remain descriptively valid.

Part III examines the transferability of path dependence theory from product technology to the contracting process. After a general analysis, Part III focuses specifically on the bond indenture as a component of the corporation as a nexus of contracts. This necessarily entails a critical examination and evaluation of recent theoretical and empirical literature. Professors Michael Klausner and Marcel Kahan tentatively validate remediable suboptimality in the narrow context of event risk covenants of the bond indenture. The author analyzes this work and concludes that their empirical validation of learning externalities and network benefits may not be valid in general. This conclusion rests in part on essential differences between the process of contract creation, on the one hand, and the rapid development of technology, on the other, where path dependence finds its most compelling empirical foundation. The author also concludes that the case may be strong for an environment of path dependence with respect to certain specialized contracts that (1) do not involve typical bilateral negotiation, (2) are repetitive, and (3) draw upon highly developed standard provisions. This constitutes a limited recognition of the potential for path dependent suboptimality in the corporate debt relationship. Specifically, because the corporate bond indenture reflects each of these unique elements of standardization and repetition, it therefore is susceptible to being framed with suboptimal provisions where better provisions exist or could be created.

Part IV explores the normative implications of Parts II and III. It seeks to answer the question of whether courts can mitigate the potential for indenture suboptimality. The author considers the law and economics literature of contract theory addressing penalty default rules which seeks to focus resources on ex ante contracting. Penalty defaults have been presented as an alternative to neoclassical majoritarian default rules that seek to fill gaps in incomplete contracts by inquiring as to what parties to

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46ARTHUR, supra note 1, at 1-32.
47See generally Kahan & Klausner, supra note 34 (concluding in part that even if an alternative term would be superior to another, it is possible that another contract term will be more widely adopted); Kahan & Klausner, supra note 35 (investigating event risk covenants with an empirical analysis).
a contract would have agreed to if they had addressed the contractual gap.\textsuperscript{48} In contrast, penalty default theory recommends a background rule of what the parties would not have wanted.\textsuperscript{49} Employing the penalty default theory, one response to contract incompleteness is judicial passivity or nonenforcement, thus leaving the parties where they stand. Penalty default theory seeks to deter contracting parties from the shifting \textit{ex ante} private contracting costs to \textit{ex post} judicial resources.\textsuperscript{50} The environment of path dependence in the bond indenture posited in Part III introduces this question: would adoption by courts of a penalty default doctrine result in more efficient \textit{ex ante} indenture drafting? To answer this question, the author analyzes three prominent bond-dispute cases applying existing doctrines and asks whether a modified penalty default approach would minimize the potential for suboptimality confirmed in Parts II and III. The author concludes that judicial doctrines play a minor role in the shifting of costs from \textit{ex ante} contracting to the arguably less efficient \textit{ex post} expenditure of public goods by courts.

Part V concludes that path dependence has limited theoretical potential for the theory of the corporation as a nexus of contracts. Although it raises fundamental questions about assumptions of efficiency in the context of product development and particularly that of high technology, nevertheless, the applicability and provability of this new economic theory to contracts generally and to the corporate contract, and even the corporate bond indenture specifically, remain uncertain. Furthermore, the normative implications for courts addressing bond disputes are limited and do not justify dramatic revision.

II. PATH DEPENDENCE

Two roads diverged in a yellow wood,
And sorry I could not travel both
And be one traveler, long I stood
And looked down one as far as I could
To where it bent in the undergrowth;

Then took the other, as just as fair,

\textsuperscript{48}Ayres \& Gertner, \textit{supra} note 25, at 91.
\textsuperscript{49}\textit{Id.}
\textsuperscript{50}\textit{Id.}; Ian Ayres, \textit{Preliminary Thoughts on Optimal Tailoring of Contractual Rules}, 3 S. CAL. INTERDISC. L.J. 1 (1993).
And having perhaps the better claim,  
Because it was grassy and wanted wear;  

* * *

And that has made all the difference.51

A. Anecdotal Path Dependence52

The existence of a generalized and familiar form of anecdotal path dependence is readily observable and permeates everyday activity. We are creatures of both habit and conditioning. For example, we style our hair, drive our cars, walk among certain destinations at home and work, undertake tasks in certain repetitive order such as readying ourselves for work or play, and engage in ritual, patterned communication governed by politeness and social convention. The origins of these habits and customs, paths of behavior, including language itself, frequently originate in distant and sometimes isolated historical events or learning. When the surrounding environment changes, frequently we pursue without much thought our previous paths and patterns of behavior. A new stairway is added to the house, yet we still take the long way around until we realize the efficiency of the new physical configuration. A computer technology allows us to pay our bills by computer or trade stocks, yet we still use paper checks or calls to a broker each at a higher cost.53 We update forms of memoranda containing institutional directives even though the bureaucratic setting sometimes operates largely by reference to alternative independent patterns of behavior. In addition, there are path dependent attitudes toward legal institutions such as law firms. In the past, they have been described as if they were families with traditions largely irrelevant to money.54 Economic forces, however, operate beneath the surface,

51ROBERT FROST, The Road Not Taken, in ROBERT FROST'S POEMS 223 (1971) (emphasis added).
52 Those familiar with the work of W. Brian Arthur and the criticisms of it by S. J. Liebowitz and Stephen Margolis may wish to skip to Part III, which focuses upon path dependence in the corporate contract.
53 The learning costs of switching to new forms of more efficient behavior should not be ignored. These costs may take the form not only of money and time but also of psychological resistance to change.
54Frederick W. Lambert, Preliminary Inquiry into the Transcendence of Value Creation, 74 ORE. L. REV. 121, 124 (1995); infra note 55.
reflecting a thinly-capitalized entity heavily dependent on positive cash flow with enormous consequences to the lawyer participants.\textsuperscript{55}

We do respond to change. Competitive forces jar our notions of tradition, and we are forced to abandon illusions or just recognize smarter, cheaper, or more generally efficient ways of functioning. But some paths of habit, conditioning, and convention survive from seemingly insignificant historical events or happenstance. They remain unchanged because of the costs, both economic and psychological, of altering developed patterns of behavior.\textsuperscript{56} Mark Roe's vivid example of the influence of early trappers' routes on our present highway system comes to mind,\textsuperscript{57} but there are myriad examples of a more personal nature if we just look carefully at what we do and how we came to do it.

These forms of path dependence may be termed anecdotal. They stand as examples of conduct based upon distant and sometimes insignificant historical events; standing alone, however, except, perhaps, for the highway example,\textsuperscript{58} they do not exhibit all of the elements of path dependence that comprise the newly framed economic theory that commentators assert has relevance to legal doctrine.\textsuperscript{59} The anecdotal examples generally lack the element of increasing returns, discussed in Part II.C. This concept is introduced by a discussion of conventional neoclassical economics, the foundation of much of the theory of law and economics.\textsuperscript{60}

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\textsuperscript{56} See supra note 53 and accompanying text.

\textsuperscript{57} Roe, supra note 41, at 643-44. Professor Roe develops the concepts of weak, semi-strong, and strong forms of path dependence that correspond to the Liebowitz-Margolis critique of path dependence as portrayed by Brian Arthur. See infra Part II.D.

\textsuperscript{58} Roe, supra note 41, at 651. Professor Roe notes that a situation in which it would be cost-effective to tear up and rebuild the highway, but the decision to rebuild is not made, constitutes strong-form path dependence. \textit{Id.} This is not, of course, anecdotal path dependence but rather the equivalent of third-degree path dependence that Liebowitz and Margolis assert is highly unlikely. See infra Part II.D.

\textsuperscript{59} The repeated use of form contracts may represent another form of reliance on habit. It represents only anecdotal path dependence unless such forms are out of date and inconsistent with the legal objectives of the parties using them.

\textsuperscript{60} See, e.g., Easterbrook & Fischel, supra note 6, at 8-15.
B. Neoclassical Economic Theory Based Upon Decreasing Returns

Neoclassical economic theory holds that in a competitive economy increasing production will generate decreasing returns by virtue of the twin effects of increasing costs of production and competitive development of less expensive alternative resources and products.\(^{61}\) One example is competition between hydroelectric power and coal-fired production of electricity.\(^{62}\) Under the hypothesis, hydroelectric power initially produces a cheap form of electric power and gains market share.\(^{63}\) As the number of attractive sites for dams declines and new sites are exploited at greater expense, however, coal as an alternative source of power generation becomes more cost-attractive and eventually takes up some of the market share.\(^{64}\) The increasing demand and consequent increased cost of coal diminishes the marginal attractiveness of coal-fired electricity and hydroelectric power gains market share, and so on, in a process that results in efficient equilibrium.\(^{65}\)

Neoclassical theory argues that competition results in decreasing returns to the market participants.\(^{66}\) The decreasing returns brought about by competitive forces and resource allocation tend toward a single efficient equilibrium.\(^{67}\) These functional relationships may be plotted graphically and quantified numerically. They exhibit linear properties. Their mathematical relationships reduce to visual properties in the form of lines, areas, and volumes. Under the neoclassical paradigm, decreasing returns describe a reality in which countervailing and reinforcing economic elements may be represented, mapped, and reduced to mathematical models. Thus, neoclassical economics posits predictable sequences of competitive events leading to a static result or narrow range of results.\(^{68}\)

The structure and rationality of the neoclassical model relies on certain assumptions and premises that the literature of path dependence questions.\(^{69}\) One premise that dominates neoclassical economics articulates

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\(^{61}\) ARTHUR, supra note 1, evaluates neoclassical theory and provides relevant examples.

\(^{62}\) See ARTHUR, supra note 1, at 2.

\(^{63}\) Id.

\(^{64}\) Id.

\(^{65}\) See id.

\(^{66}\) ARTHUR, supra note 1, at 1.

\(^{67}\) Id.

\(^{68}\) Id. at 2-5.

\(^{69}\) See generally S.J. Liebowitz & Stephen E. Margolis, Path Dependence, Lock-In, and History, 11 J.J. ECON. & ORG. 205 (1995) (examining path dependence, providing three different forms of path dependence, and analyzing the terms as applied to market error and lock-in).
the existence of a single equilibrium to which all economic conduct tends to approach. According to the renowned economist Joseph A. Schumpeter:

"Multiple equilibria" are not necessarily useless, but from the standpoint of any exact science the existence of a uniquely determined equilibrium is, of course, of the utmost importance, even if proof has to be purchased at the price of very restrictive assumptions; without any possibility of proving the existence of [a] uniquely determined equilibrium — or at all events, of a small number of possible equilibria — at however high a level of abstraction, a field of phenomena is really a chaos that is not under analytical control.70

The tenet of neoclassical economics that decreasing returns cause economic activity to approach a determinable equilibrium approximating an efficient result constitutes the bedrock of conventional theory.71 Thus, when it is asserted that some economic conduct exhibits increasing returns and value creation that is determined apart from the competitive merits of a product, the underpinnings of the single equilibrium model come under direct attack. Stated a little differently, if the case can be made that some forms of economic conduct depend on random historical events that generate increasing returns and result in locked-in adoption of inefficient products, then some of the explanatory power and normative conclusions of neoclassical economics invite serious reconsideration.72 This is precisely the argument that is asserted with respect to the QWERTY configuration of the standard typewriter keyboard.73 It is reasserted currently in the attack on Microsoft by its opponents who say, "Microsoft's head start and market penetration allowed its MS-DOS operating system to become the . . . standard despite . . . the superiority of Apple Computer

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70ARTHUR, supra note 1, at 4 (quoting Joseph A. Schumpeter).
71Id. at 1.
72There are, of course, exceptions to neoclassical theory. It reserves special treatment for at least two obvious deviations from decreasing returns. Those are the cases of monopoly and returns based upon economies of scale. Here, market power allows the extraction of increasing returns. The monopoly exception in neoclassical theory from decreasing returns should not concern us because the claims of path dependent theorists assert that neoclassical theory fails to explain a range of conduct far beyond monopoly. Economies of scale may raise different issues from the case of monopoly. Industries with high barriers of entry may generate increasing returns after initial investment and product development. It is unlikely that issues involving economies of scale bear on the central issue of this article, which seeks to analyze the vitality of path dependence to the corporate contract. See infra Part III.
73Gomes, supra note 5, at B1.
Inc.'s Macintosh system. These arguments and counter arguments contain important implications and raise topical questions for proponents of a law and economics analysis of the corporation.

The application of economic principles to legal phenomenon, particularly the contractual nexuses of the corporation is built on neoclassical principles. Thus, a significant part of the foundation of the normative and descriptive power of the theories articulated in The Economic Structure of Corporate Law by Easterbrook and Fischel rests on the foregoing principles. Terms of corporate charters and indentures, for example, compete in a marketplace of users and legislators of corporate codes and result in an efficient equilibrium. Following from the strong form of the contractarian description of the corporation, norms of noninterference—schemes enabling free contracting—emerge as the basis for optimally efficient business relationships. What is important to understand here is the general underlying neoclassical basis for the law and economics argument. With these fundamentals in mind, the claims of path dependence and the implications for its theoretical assumptions and conclusions are better understood as are the extensions of path dependence into the realm of the corporate contract. Specifically, an analysis can be made of the relevance of path dependence to specific subjects such as the efficiency of the provisions of the corporate bond indenture, which is the goal of Parts III and IV. First, however, path dependence as a general description of economic reality must be set forth.

C. A Theory of Path Dependence Based Upon Increasing Returns

For roughly the past fifteen years, theorists, principally W. Brian Arthur, have built on observations dating back to the turn of the century and earlier of evidence of increasing returns as an economic phenomenon at odds with the neoclassical model. The theory of increasing returns questions the fundamental tenet of neoclassical economics that competitive economies produce an ultimate singular equilibrium. There are several

74 Id.
75 EASTERBROOK & FISCHEL, supra note 6, at 1-39.
76 Coffee, supra note 19, at 1619.
distinct elements to the theory. It postulates that historically sensitive conditions create initial advantages to competitors and products.\textsuperscript{78} It further suggests that positive network externalities exogenous to the product arise as the result of early and continued adoption by purchasers of a product.\textsuperscript{79} Thus, random historical advantage followed by rapid consumer adoption creates network benefits that enhance the value of the product to future adopters and make it attractive for reasons that transcend the merits and efficiency of its direct competitors.\textsuperscript{80} This results in the potential for \textit{lock-in} to inefficient products and processes.

Brian Arthur's work questions the reality of decreasing returns as follows:

The problems in economics that interested me . . . involved competition among objects whose "market success" was \textit{cumulative or self-reinforcing}. I discovered that wherever I found such problems, they tended to have similar properties. There was typically more than one long-run equilibrium outcome. The one arrived at was not predictable in advance; it tended to get locked in; it was not necessarily the most efficient; and its "selection" tended to be subject to historical events. If the problem was symmetrical in formulation, the outcome was typically asymmetrical.

In individual problems, some of these properties (especially the possibility of nonefficiency) had been noticed before. But there did not seem to be an awareness that they were generic to increasing returns problems and that they might form a framework for discussion and dissection of such problems. Further, it seemed that these properties had counterparts in condensed-matter physics. What I was calling multiple equilibria, nonpredictability, lock-in, inefficiency, historical dependence, and asymmetry, physicists were calling multiple metastable states, nonpredictability, phase or mode locking, high energy ground states, nonergodicity, and symmetry breaking.

\textsuperscript{78}\textit{ARTHUR, supra} note 1, at 1-32.
\textsuperscript{79}\textit{Id.}
\textsuperscript{80}\textit{Id.}
I became convinced that the key obstacle for economics in dealing with increasing returns was the indeterminacy introduced by the possibility of multiple equilibria.\(^8\)

Arthur's vision of increasing returns rejects the sequential linear neoclassical model that utilizes graphic properties of lines and areas. Rather, Arthur embraces a stochastic paradigm that emphasizes the importance of random events that become self-reinforcing.\(^9\) Probability theory, therefore, replaces conventional graphical techniques, revealing the existence of multiple equilibria. Instead of a sequence of competitive actions and reactions, increasing returns and path dependency theory reflect a world in which historical conditions and network effects exogenous to the inherent value of a product influence, but do not necessarily determine, an outcome.\(^10\)

Thus, in place of the orderly dynamics associated with the neoclassical model, there exists an unpredictable, indeterminate series of possible outcomes depending on the operation of chance variables and random effects of self-reinforced increasing value that do not reflect inherent product worth.\(^11\) This, however, is not the "chaos" that Schumpeter feared in the absence of single equilibria.\(^12\) Rather it is an economic environment influenced by randomness and reinforcement that tends toward a result explainable by mathematical probability theory.\(^13\)

The mathematical model suggested as representative of path dependent conditions draws on the probability theory of George Polya.\(^14\) The model is best explained by reference to a concrete experiment. Consider an urn of infinite capacity.\(^15\) Let the starting condition exist with the urn containing one red ball and one white ball.\(^16\) A ball is randomly

\(\text{\textsuperscript{8}}\)\textsc{Arthur, supra} note 1, at xiv-xv (emphasis added). The existence of more than one "long run equilibrium" would not seem to be either controversial or directly relevant to establishing the case for increasing returns. If one defines a long enough period, economic development could proceed through several interim periods of singular equilibrium and still exhibit properties entirely consistent with decreasing returns posited by the traditional neoclassical model.

\(\text{\textsuperscript{9}}\)\textit{Id.} at 185-201.

\(\text{\textsuperscript{10}}\)\textit{Id.} at 1-32.

\(\text{\textsuperscript{11}}\)\textsc{Roe, supra} note 41, at 663.

\(\text{\textsuperscript{12}}\)\textsc{Arthur, supra} note 1, at 4 (quoting Joseph A. Schumpeter).

\(\text{\textsuperscript{13}}\)\textit{Id.} at 36-45.

\(\text{\textsuperscript{14}}\)\textit{Id.}

\(\text{\textsuperscript{15}}\)\textit{Id.} at 36.

\(\text{\textsuperscript{16}}\)\textsc{Arthur, supra} note 1, at 36.
drawn from the urn.\textsuperscript{90} If the drawn ball is white, a white ball is added to the urn and the urn now contains two whites and one red.\textsuperscript{91} Continue the process infinitely to the nth iteration. What is the proportion of the red and white balls at the nth iteration of the process? Is it fixed? Polya proved that the proportion of red balls, or white balls, after infinite drawing and replacing approached a fixed proportion, call it X.\textsuperscript{92} X represents a fixed proportion, which in the infinite drawing has a probability of 1.\textsuperscript{93} At some point the numerosity of the balls in the urn reaches a stable proportion so that the probability of drawing a red or white ball and replacing it does not result in a material change in the proportion of red to white balls in the urn.\textsuperscript{94} Stated another way, after an infinite number of transactions with the balls in the urn, there is a probability of 1 of drawing according to some fixed proportion of red to white balls, X, that has been reached during the series of drawing and replacing transactions. The process of drawing and replacing results in a settling down to a proportion that becomes fixed and does not deviate subsequently. The actual proportion, X, however, is not predictable.\textsuperscript{95} It depends on the random events of early selection and replacement of the red and white balls. Polya established the mathematical proof that "X is a random variable [distributed evenly] between 0 and 1"; X in the sequence of drawings becomes fixed at some point, say 36.578 or 78.213.\textsuperscript{96} The actual proportion, however, cannot be prospectively known. The sequence of early drawing and replacing of balls results in a fixed and unpredictable limit proportion that undeviatingly follows the time line. This is a highly abstract example of increasing returns.

Arthur asserts that this model, with its built in feedback system, more accurately describes the economic reality of increasing returns and sensitivity to random historical events and sequence.\textsuperscript{97} At some point the proportion of red to white balls becomes fixed, locked in, through the momentum of the earlier events.

Arthur summarizes the implications of the mathematical model to the unique role of history in the economic theory of increasing returns as follows:

\textsuperscript{90}Id. Note the element of self-reinforcement, analogous to increasing returns.
\textsuperscript{91}Id.
\textsuperscript{92}Id.
\textsuperscript{93}\textbf{ARTHUR, supra} note 1, at 38-40 (representing the results of the urn experiment graphically).
\textsuperscript{94}Id. at 38.
\textsuperscript{95}Id. at 36.
\textsuperscript{96}Id.
\textsuperscript{97}\textbf{ARTHUR, supra} note 1, at 33-48.
The argument...suggests that the interpretation of economic history should be different. Under constant and diminishing returns, the evolution of the market is **ergodic** — ultimate market shares are built *a priori* to the endowments, preferences, and transformation possibilities that describe the economy and small events cannot sway the outcome. Here the dynamics of the market reveal the superior choice. But while this is comforting, it reduces history to the status of mere carrier — the deliverer of the inevitable. Under increasing returns, by contrast, the process becomes path-dependent. It is **nonergodic** — many outcomes are possible, and heterogeneities, small indivisibilities, or chance meetings become magnified by positive feedbacks to "tip" the system into the actual outcome "selected." History becomes all-important. ¹⁸

Arthur cites two examples of historical sensitivity to initial conditions leading to increasing returns from early adoption and subsequent market dominance of an inefficient product. ⁹⁹ The universal acceptance of the QWERTY typewriter keyboard configuration and the ultimate dominance of VHS over Beta videocassette technology each recur as examples of locked-in inefficiency. ¹⁰⁰ The Dvorak keyboard arguably represents a more efficient, easily-learnable, alternative to the traditional QWERTY configuration, according to the path dependence advocates. ¹⁰¹ Despite this advantage, QWERTY remains the standard because of the externalized network benefits that arose through early adoption. ¹⁰² Brian Arthur recites the random sequence of innovation and adoption of VHS as the principal cause of its displacement of Beta Videocassettes. ¹⁰³ Widespread customer adoption occurred through a momentum based upon customer prediction of the system that would ultimately prevail, not the perceived actual benefits of Beta versus VHS. Thus, unrelated to product attributes and in spite of perceivable better features in the Beta device, VHS prevailed, according the thesis advanced by Arthur. ¹⁰⁴ As the critics point out, however, one must speculate about whether the switching costs

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¹⁸ [Id. at 27.]
⁹⁹ [Id. at 2, 24-25.]
¹⁰⁰ [Id. at 2, 24-25.]
¹⁰¹ [ARTHUR, supra note 1, at 25.]
¹⁰² [See generally Gomes, supra note 5 (mentioning briefly the history of QWERTY).]
¹⁰³ [ARTHUR, supra note 1, at 2.]
¹⁰⁴ [Id.]
in either example exceeded the benefits to be derived from the alternative product.\textsuperscript{105} If such costs did exceed the benefits, then the argument disappears that an efficient alternative exists.

Both the theoretical analysis and the asserted forgoing examples of path dependent outcomes provoked the critique of traditional neoclassical scholars.\textsuperscript{106} Nevertheless, even as strong of an advocate as Brian Arthur does not argue for path dependence as a theory of universal application.\textsuperscript{107} His work emphasizes positive feedback, increasing returns and lock-in the context of knowledge-based parts of the economy involving rapid innovation of technologies. Arthur, however, recognizes the validity of neoclassical decreasing returns theory to important segments of the economy as follows:

I would update [Alfred] Marshall's insight [of limited application of special instances of increasing returns] by observing that the parts of the economy that are resource-based (agriculture, bulk-goods production, mining) are still for the most part subject to diminishing returns. Here conventional economics rightly holds sway. The parts of the economy that are knowledge-based, on the other hand, are largely subject to increasing returns. Products such as computers, pharmaceuticals, missiles, aircraft, automobiles, software, telecommunications equipment, or fiber optics are complicated to design and to manufacture.

Not only do the costs of producing high-technology products fall as a company makes more of them, but the benefits of using them increase. Many items such as computers or telecommunications equipment work in networks that require compatibility; when one brand gains a significant market share, people have a strong incentive to buy more of the same product so as to be able to exchange information with those using it already.\textsuperscript{108}

\textsuperscript{105}See infra Part II.D.
\textsuperscript{106}See id.
\textsuperscript{107}Arthur states that "[w]e should not conclude that every case of competing technology shows tendencies toward dynamic lock-in." Arthur, supra note 1, at 25.
\textsuperscript{108}Id. at 3-4 (emphasis added). The second paragraph recognizes the phenomenon of economies of scale as an exception to decreasing returns as a component of neoclassical theory.
Accordingly, we observe a conscious limitation, even on the part of an outspoken advocate of path dependence, with respect to the scope of applicability of path dependence as reflective of a "new economics" and an exception to neoclassical decreasing returns theory.

One may, however, ask whether the claims for path dependence have vitality even in the limited realm in which they are asserted to apply. If they do, is the theory transportable into the arena of corporate contracting? If certain components of the corporate contract, such as the corporate bond indenture, are susceptible to locked-in inefficiency, what implications arise with respect to the prevailing doctrines of contract interpretation? Broadly speaking, if applicable in the context of the corporate contract, path dependence should cause a reconsideration of some of the conclusions of law and economics scholarship of the corporation, particularly those based upon free market principles.109

The legal scholarship addressing path dependence has accepted without much analysis the underlying tenets of path dependence and inefficient lock-in. Professors Kahan and Klausner adopt a definition of suboptimality that is identical to that of two economists that question whether path dependence exists at all.110 Accordingly, Part D considers the work of those economists who have expressed skepticism about the power of path dependence theory.

D. Criticisms of Path Dependence — Knowledge, Temporality, and Remediability

The fundamental conflict of path dependence with market efficiency not surprisingly evokes skepticism from neoclassical economic scholars. They do not, however, attack the existence or influence of historically sensitive conditions on economic behavior; indeed, they recognize the existence of a generalized form of path dependence.111 Rather, they question the claim that path dependence built on increasing returns inexorably results in market failure.112 Reminiscent of defenders of the

109Easterbrook & Fischel, supra note 6, at 1-39. The claim of path dependence that externalities unrelated to the inherent value of a contractual term nevertheless influence its adoption undermines the claim of competition and resulting efficiency of the corporate contract.
110Kahan & Klausner, supra note 35; Klausner, supra note 35.
111Liebowitz & Margolis, supra note 69.
112Id. at 212.
efficient capital market hypothesis, S.J. Liebowitz and Stephen Margolis posit that path dependence must be dissected into subcategories or degrees. They then subject each degree to further analysis from the standpoint of efficiency. They state:

In this article we identify three distinct forms of path dependence. Two of these forms — which we define as first-degree and second-degree path dependence — are commonplace, and they offer little in the way of an objection to the neoclassical paradigm. Only the third and strongest form of path dependence significantly challenges the neoclassical paradigm, and as we show, the theoretical arguments for this form require important restrictions on prices, institutions, or foresight.

The error [of conflating the various degrees of path dependence] lies in transferring the plausibility of the empirical and logical support for the two weaker forms of path dependence (first- and second-degree) to the strongest implications of third-degree path dependence. In fact, although it is fairly easy to identify allocations, technologies, or institutions that are path dependent in some form, it is very difficult to establish the theoretical case or empirical grounding for path dependent inefficiency.

Liebowitz and Margolis differentiate among their three classifications of path dependence based upon the existence of the properties of (1) ex ante knowledge, (2) intertemporal effects leading to error and suboptimality, and (3) ex post remediability, the existence of a cost-efficient alternative. Thus, first degree path dependence arises

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114 Liebowitz & Margolis, supra note 69, at 207-08.
115 Id. at 206 (emphasis added).
116 Id. at 206-07.
117 Id. at 207.
118 Liebowitz & Margolis, supra note 69, at 207.
from a historically insignificant choice, such as parting one's hair, or other personal behavior that has no ultimate material economic influence on efficiency. Indeed, some of the examples of what have been termed anecdotal path dependence in Part II.A seem to fall into this category. The first degree category also applies to more conventional economic activity: a choice of machinery, manufacturing process, location of production, or marketing plan. These initial choices may influence profoundly the development of a business over time, but they are known to the actor and taken fully into account. First degree path dependence, therefore, simply reflects the influence of ex ante decisions and the limitations they place on future economic conduct.

Second degree path dependence introduces the concept of "regrettable choice." A decision is made with imperfect ex ante knowledge that has influence over time and results in an ex post undesirable result that is costly to change. Because the ultimate inferiority of the decision cannot be known at the initial point the decision is made, however, and because the "switching costs" exceed the benefit from the change, the result is not inefficient. It is, of course, suboptimal in hindsight; a wrong decision has been made owing to imperfect information. One is reminded of the business judgment rule in corporate law absolving directors from liability for wrong business decisions. The rule may be seen as an efficient means of maximizing the wealth of the business entity by creating incentives for a director to exercise prospective judgment without the fear of being held liable in hindsight. A board of directors decision could exhibit the elements of historical sensitivity to initial conditions, increasing returns, and lock-in to an undesirable result. Yet this would consist only of second degree path dependence if the costs to modify the results of the decision exceeded the benefits. The critics would conclude that remediable suboptimality, third degree path dependence, does not result unless a cost justifiable alternative is available and not chosen.

119 Id.
120 Id.
121 Id.

122 Compare Kamin v. American Express Co., 383 N.Y.S.2d 807, 812 (N.Y. App. Div.) ("That they may be mistaken, that other courses of action might have differing consequences, or that their action might benefit some shareholders more than others presents no basis for the superimposition of judicial judgment . . . ."), aff'd, 387 N.Y.S.2d 993 (N.Y. 1976) with Smith v. Van Gorkom, 488 A.2d 858, 874 (Del. 1985) (holding that the decision to accept tender offer at more than $55 per share above market price for share constituted gross negligence because of failure to comply with duty of careful decision making).
The critique isolates third-degree path dependence as the only possible valid deviation from decreasing returns and the single equilibrium model in neoclassical economics.\textsuperscript{123} The commentators suggest that "[i]n third-degree path dependence, sensitive dependence on initial conditions leads to an outcome that is inefficient — but in this case the outcome is also remediable."\textsuperscript{124} In short, to qualify as a genuine form of path dependence there must have been a decision (1) at a point of historical sensitivity that (2) was influenced by intertemporal events, possibly including random events, such as increasing returns and network externalities and that (3) resulted in an inefficient but remediable result.\textsuperscript{125} The critique would in each case place upon the proponent of third degree path dependence the burden of establishing the existence a feasible cost-efficient alternative to locked-in suboptimality.\textsuperscript{126} Of course, if the effect of increasing returns from network externalities has extinguished competitors, there may be no feasible alternative. A proponent of third degree path dependence, however, according to the critics, must still establish that at some time during the adoption of the competing products there was a feasible efficient alternative that was rejected.\textsuperscript{127} They assert that the proof of this is highly unlikely.\textsuperscript{128}

Liebowitz and Margolis discuss a hypothetical competition between two technologies, A and B.\textsuperscript{129} A develops an early lead in the competition, but B creates a better product.\textsuperscript{130} Yet, the momentum of widespread adoption creates a network effect in the form of anticipated acceptance by present adopters, which is a source of value not directly related to the

\begin{footnotes}
\footnote{123}{Liebowitz & Margolis, supra note 69, at 207.}
\footnote{124}{Id. (footnote omitted).}
\footnote{125}{Id. at 206-07.}
\footnote{126}{Id. at 207.}
\footnote{127}{Liebowitz & Margolis, supra note 69, at 208-09. The authors analyze the example of competition between Beta and VHS video recorders. They contrast second and third degree path dependence as follows: That is to say, during the time that VHS came to dominate the market it was not known that Beta would be better in the future. After the fact, it may appear that choosing VHS was a mistake, although it was not a mistake given the information that was available at the time. This is second-degree path dependence. . . . Alternatively, if it were widely understood today that switching to Beta has a benefit greater than the cost, but we remain mired in the VHS standard, we would have another instance of third-degree path dependence.}
\footnote{128}{Id. at 207-08.}
\footnote{129}{Id. at 214. The discussion is based on an earlier example described by Brian Arthur. ARTHUR, supra note 1, at 19-24.}
\footnote{130}{Liebowitz & Margolis, supra note 69, at 215.}
\end{footnotes}
qualities of technology A. In short, consumers adopt technology A because they believe others will in the future and A will become the industry standard; indeed, this occurs. A becomes the industry standard to the exclusion of B, the putatively better product. This appears to be third degree path dependence because at least at some points in the competition B existed as a feasible, efficient alternative to A. Increasing returns in the form of widespread adoption of A, however, drove B from the market for reasons unrelated to the relative merits of the A and B technologies.

Liebowitz and Margolis attack this apparent case of third-degree path dependence by analyzing the assumed knowledge of the adopters of the respective technologies. Recall the asserted distinction between second- and third-degree path dependence. In the former, the actor with imperfect information makes a choice that turns out to be suboptimal but irremediable. In the latter case, a choice is made which, either when made or at some later point, is suboptimal but a feasible alternative exists. Remediable lock-in thus requires that someone knows of the superiority of the losing technology B and still chooses A. This strikes Liebowitz and Margolis as highly unlikely to occur for the following reasons:

Remediable lock-in to the wrong technology, or third-degree path dependence, requires that some agent(s) in the economy have, or could obtain, the information required to make a correct choice. And even where that occurs, third-degree lock-in is not assured, since the knowledgeable party(ies) might coordinate the choice of technology, especially since it should be profitable to do so. One likely strategy for such a party would be to acquire the technology at a price that reflects the prevailing expectations and appropriate some of the gain from such coordination.

Thus, in order for third-degree lock-in to occur, there must be agents who know enough to make correct choices but who fail to take advantage of the implied profit opportunities,
and at the same time, adopters who generally know nothing more than the payoff going to the next adopter. *These are very restrictive conditions.*

The critique of path dependence places considerable reliance on the availability and completeness of information. It also assumes the capability of market participants to translate such information into conclusions about feasible alternatives. These are fairly significant limiting assumptions. The critique leaves undisputed the potential dependence of economic outcomes on the fortuity of historical condition. It does not attack the dynamic stochastic elements postulated by the mathematical models that suggest a picture of reality at odds with the decreasing returns theory of the neoclassical model.

Thus, the Liebowitz-Margolis critique boils down to the following: they simply cannot accept the proposition that superior products will not be exploited by those with knowledge of such superiority. If such knowledge does not exist and adopters make decisions on the basis of anticipated adoption that results in acceptance of an inferior product, then this simply manifests second-degree path dependence — regrettable error, but not evidence of inefficiency.

In short, the assumptions underlying remediability, the knowledge of the existence of an efficient alternative, cause Liebowitz and Margolis to be skeptical that markets will fail to induce profitable exploitation of efficient alternatives. By relying on this narrow point in defending neoclassical economics, the authors leave uncontroversed much of the Arthurian description of reality based upon historical sensitivity to condition and probability theory. As will be seen in Part III, this has considerable importance when concepts of path dependence are transported into the realm of the corporate contract.

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138 Liebowitz & Margolis, *supra* note 69, at 216 (emphasis added).
139 *Id.* at 223; Roe, *supra* note 41, at 647-52.
140 See generally Liebowitz & Margolis, *supra* note 69 (questioning various forms of path dependency).
141 *Id.* at 224.
142 *See* ARTHUR, *supra* note 1, at 1-29.
143 *See infra* Part III.
E. Observations and Tentative Conclusions

Which is it? Does the bulk of economic reality reflect a series of historical events that become self-reinforcing thus resulting in unpredictable Polya-like multiple equilibria that may or may not be efficient economic phenomena? What about the existence of remediable suboptimality — an inefficient product that attracts customers in spite of a cost-effective alternative? Does this state require such a restrictive set of assumptions about knowledge of rational actors that third-degree path dependence may be treated as an infrequent mutation that does not refute the conventional view that competition results in efficient equilibrium driven by free market interaction? In short, are the adoptions of QWERTY and the VHS videocassette systems quirks? There are several problems with wholehearted acceptance or rejection of path dependence and the implications of the mathematical models from which it draws a considerable part of its explanatory power.

First, to prove that path dependence results in inefficient lock-in, one frequently must prove the unknowable.144 Take the case of automobile development. At the turn of the century, the gas powered car was chosen over the steam and electric-powered alternatives.145 To hypothesize that the steam or electric vehicles would have resulted in a more efficient mode of transportation, as some have done, one must establish the unknowable — the development of superior technologies through the investment of resources that would have resulted in better batteries or steam propulsion systems.146

Second, a contrasting burden of proof issue for the neoclassicists: those embracing the Liebowitz-Margolis critique must prove that knowledge of a superior product by even a small number of market participants will always lead to opportunistic profit-driven coordination to exploit the perceived advantages of a less popular, but arguably, more efficient product.147 Economies of scale and early historical advantage, however, may so dominate a market for a product that even those with concrete information about a superior alternative will be discouraged from investing or coordinating investment. In addition, the time frame for competitive development may be short and they may be risk averse. Furthermore, their profit motives may lie elsewhere in realms of perceived

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144 Liebowitz & Margolis, supra note 69, at 211 n.10 (using the phrase "knowing the unknowable").
145 Id.
146 Id.
147 Id. at 224.
higher net present value; or their investment sources may be intimidated by the uncertainty of overcoming momentum acceptance of the apparently less efficient product. Much depends upon the perception of cost and risk, which may not be quantifiable. In short, if the burden is on the neoclassical adherents, it is difficult if not impossible, as a theoretical matter, for them to separate mere irremediable suboptimality resulting from historical sensitivity to condition (second-degree path dependence) from truly remediable inefficient economic outcomes.

Third, both the proponents of path dependence, in the Arthur mode, and the defenders of the neoclassical paradigm are plagued by problems similar to those facing law and economic scholars when they address the normative issues of contract. We are told by the path dependence theorists that inferior technology may be adopted by the increasing returns generated by externalities such as network, learning, and otherwise. How does one, however, quantify or verify lock-in to inefficient results? The possibility usually exists that even demonstrated inefficiency may only reflect merely a transitory state evolving toward an efficient equilibrium. The neoclassicists face an equally daunting task of verifying the difference between the concepts of regrettable error as distinguished from third-degree path dependence.

Fourth, and finally, whether one accepts the "new economics" of path dependence or the linear concepts built upon the neoclassical paradigm, it is impossible to avoid the conclusion that economic activity constitutes an ongoing process that at one time may exhibit properties of either system. What is lock-in today to a perceived, but unverifiable, state of inefficiency may simply be a temporary anomaly. It may exist as simply an interim stage exhibiting the incomplete resolution of economic forces to be reordered by the next innovation thus moving product development and resource allocation to a new neoclassical equilibrium. The conflicting realities of increasing returns and neoclassical economics depend for their veracity upon the bearer of the burden of proof of the underlying assumptions of each.

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148 The law and economics contract theorists invoke the norm of efficiency. Contract rules that encourage optimal investment and risk allocation constitute a superior remedial scheme than common law neoclassical contract doctrines invoking fairness. As Alan Schwartz has demonstrated, however, the problem of translating those economic-based rules into doctrine falters in the face of the inherent unverifiability before a neutral fact finder of such quantitative issues as over-investment. Schwartz, supra note 30, at 14-15.

In summary, much like the mandatory-enabling debate\textsuperscript{159} seen through the metaphor of Professor Coffee as a glass half full or half empty,\textsuperscript{151} the power of path dependence (or its weakness) depends upon the context of the inquiry. In the context of rapidly changing computer technology, one can intuitively perceive interim adoptions of seemingly inferior products simply by the force of the momentum of adoption by others: a classic case of network externality. Microsoft's network browser may exhibit the power of a product driven by network benefits in the form of rapid adoption through early promotion.\textsuperscript{152} A better browser may exist. Yet, even if one assumes the superiority of the Netscape competitor, does this establish path dependence as a valid analytical scheme supplanting neoclassical theory? The answer would seem to be no.

Market failure in itself does not refute neoclassical theory. Recall that Brian Arthur recognizes the continuing validity of the neoclassical paradigm to resource-based industries.\textsuperscript{153} Moreover, the economic concept of increasing returns to scale does not in itself refute the neoclassical paradigm.\textsuperscript{154} If there is no convincing winner in the debate between conventional economists and the advocates of path dependence, there may still be important applications of path dependent theory if its validity can be established generally or in specific elements of the corporate contract. If analogues of the QWERTY keyboard may be found in, for example, the corporate bond indenture, then perhaps there are doctrinal implications for courts that address disputes between corporate issuers and bondholders.

\textsuperscript{159}Supra note 19 (setting forth articles describing the various views).

\textsuperscript{151}Coffee, supra note 19, at 1618-19. Coffee compares the structure of American corporate law to the description of a half-filled glass of water as either half-empty or half-full. Id. Depending on the viewpoint of the commentator, American corporate law can be viewed as either mandatory or enabling. Id. at 1618.

\textsuperscript{152}David Bank, Why Software and Antitrust Law Make an Uneasy Mix, WALL ST. J., Oct. 22, 1997 at B1 ("A new discipline called 'increasing return' economics argues that the value of creating a technology standard is so great that companies can afford to give away some products indefinitely. A corollary is that customers will encourage monopolies if they provide standards.").

\textsuperscript{153}ARTHUR, supra note 1, at 3.

\textsuperscript{154}See supra note 10 and accompanying text.
III. PATH DEPENDENCE AND THE CORPORATE CONTRACT

A. Increasing Returns and the Corporate Contract:
   Three Propositions

Both the descriptive and normative power of the contractarian paradigm of the corporation build on a foundation of efficiency in the contracting process and the resulting components constituting the business entity. Accordingly, in order to sustain the theoretical vitality of a free market approach to normative issues, law and economics scholars defending the contractual paradigm must address any theory that asserts the existence of locked-in suboptimal contractual terms if better terms are adoptable without associated costs that outweigh the benefits of adoption.

Increasing returns and path dependence raise questions about the efficiency of the corporate contract, even if they find their genesis in tangible products developed in the context of rapid technological innovation. The concession of Brian Arthur, that neoclassical concepts of singular equilibrium, rather than increasing returns, retain descriptive power in resource-based industries, has little relevance to the analysis of the corporate contract. The intangible nature of contract terminology falls more into the category of the knowledge-based industries for which increasing returns arguably have applicability.

Two related issues arise: does path dependence have application at all in the context of the corporation as contractual nexus? If the answer is affirmative, then the question arises whether the analysis of Liebowitz and Margolis applies to limit the scope of path dependence to its lesser degrees, thus arguably preserving the contractarian paradigm. Stating the question differently, may it be argued persuasively that third-degree path dependence, as described in Part II.D, exists so marginally that the efficiency-based explanation of the corporation still validly describes the vast majority of primary economic activity?

Professors Klausner and Kahan have initiated a ground-breaking inquiry in recent articles focusing on the applicability of increasing returns

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155EASTERBROOK & FISCHEL, supra note 6, at 1-39.
156Kahan & Klausner, supra note 35, at 727-29.
157See ARTHUR, supra note 1, at 3.
158See supra note 114-29 and accompanying text.
159Those familiar with the work of Professors Klausner and Kahan may wish to skip to Part III.B.
to the corporate contract. Professor Klausner first explores network and learning externalities found in contracts. He speculates about the implications for the corporate contractual paradigm by making the "central point . . . that the [contractarian] paradigm fails to take account of network externalities, a type of market failure that may be uncommon in product markets." He is then joined by Professor Kahan in an article studying empirical evidence of learning and network externalities in the narrow context of event risk covenants of the bond indenture. Accordingly, the Klausner-Kahan work serves as the touchstone for analyzing concepts of increasing returns with respect to contracts generally and the bond indenture in particular.

The assumptions underlying the Klausner-Kahan work, much like those of Brian Arthur, lead to progressively stronger claims of suboptimality of the corporate contractual paradigm. It is important to test these assumptions, which may be broken down into three basic propositions that advance increasingly stronger arguments for increasing returns and suboptimality in the corporate contract. Each proposition is followed by an analysis of its validity.

Proposition One. Although not a technology or product, the components of the corporate contract create networks reflecting increasing returns from externalities. Value may be generated exogenously beyond the inherent value of the contract terms adopted by the atomistically contracting parties. The network externalities consist of learning benefits and network benefits, each with different properties. Learning benefits derive from past events, experience, and judicial decisions that flow to the present user of a contract term. Network benefits add value external to the inherent worth of the contract term based upon the frequency of use in

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160Klausner, supra note 35; Kahan & Klausner, supra note 34; Kahan & Klausner, supra note 35.
161Klausner, supra note 35.
162Id. at 771.
163Kahan & Klausner, supra note 35. An earlier article by the authors explored event risk covenants from the standpoint of their effect on firm value and entrenchment of management. Kahan & Klausner, supra note 38.
164See supra notes 160-63 and accompanying text.
165It should be noted, however, that they expressly leave open the question of the propriety of mandatory state-imposed solutions. Kahan & Klausner, supra note 35, at 730 n.41.
166Kahan & Klausner, supra note 34, at 350; Kahan & Klausner, supra note 35, at 718.
167See generally Kahan & Klausner, supra note 35 (discussing network externalities and learning and network benefits).
168Id. at 719-20.
past and perceived frequency of adoption in the future. Much like the manner in which adoption of a technology creates increasing returns external to the product, so too does the use of contractual provisions influence future use and thus create benefits for past users. The analysis of perceived payoffs may be different because of the nature of the contractual relationship. The binding effect of a long-term contract precludes adoption of alternative terms by the original contracting parties without mutual consent. They are bound by the provisions of the contract whether or not the term adopted is optimal. For the original parties to a contract, there is less freedom to choose alternative terms than the adopters of products. This, however, does not negate the existence of externalities at the point of contracting. Nor does it necessarily weaken the argument for increasing returns in the adoption of contract terms; it may indeed strengthen it.

Proposition Two. The existence of learning and network externalities may result in the adoption of suboptimal contract terms. This claim constitutes a semi-strong challenge to the efficiency of the corporate contract. First, learning based upon judicial precedents and prior usage may induce adoption of terms that are no longer optimal. This somewhat distorts the concept of learning "benefits" because the external effect of prior usage induces the use of a suboptimal, indeed, less beneficial, term. This, of course, is consistent with the theory of increasing returns as a phenomenon that creates perceived value not inherent in a product or contractual provision. Second, perceived network benefits induce adoption of terms that may not be optimal based upon the perception of future adoption. Klausner and Kahan point out that innovations, such as changes in event risk covenants of the late 1990s in bond indentures, may be adopted based principally upon predicted future adoption by others. They may not, however, be the best terms.

Proposition Three. The concluding and strongest claim invokes remediable inefficiency in the contracting process. The Klausner-Kahan definition of suboptimality specifically adopts the definition of third-

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169 Id. at 725-26.
170 Id. at 736.
171 Kahan & Klausner, supra note 35, at 730-33.
172 Id. at 734.
173 Id. at 743-46.
174 Id. at 730 n.41.
175 Kahan & Klausner, supra note 35, at 730 n.41. In footnote 41, the authors set forth their definition of optimality. A contractual term is optimal if no reformulation of the term (presumably adoption of an alternative term) would yield an increase in social wealth by increasing the aggregate value of the firm. Id. Optimality is evaluated prospectively. One cannot rewrite the contract. Id. The question becomes: What is the best term for a given
degree, remediable path dependence in the Liebowitz-Margolis model. Recall that the Liebowitz-Margolis critique asserts that the assumptions of knowledge of suboptimality necessary for third-degree path dependence are so restrictive as to make its existence highly unlikely.\footnote{See supra text accompanying note 138.}

Each of the foregoing propositions constitutes a necessary part of the foundation of a general theory of possible suboptimality with respect to the contractual nexuses of the corporation. The argument posits that the adoption of standardized terms may create suboptimal uniformity among heterogeneous firms.\footnote{Kahan & Klausner, supra note 35, at 730.} Conversely, learning externalities may induce suboptimal diversity of terms where standardization would be optimal.\footnote{Id.}

Bond covenants are the focus of the empirical work supporting the theory. Specifically, event risk\footnote{Id.} covenants in the bond indenture exhibit evidence of the learning externalities, network externalities, and switching costs that led to suboptimal contracts.\footnote{An event risk covenant creates in the holder of a bond or debenture the right to compel the issuing corporation to redeem the debt obligation at its face value plus accrued interest upon the happening of certain events. Id. at 741-42. Event risk covenants came into being in the late 1980s as a means of protecting bondholders from the effects of leveraged buyouts that included substantial decreases in the market value corporate debt caused by the incurrence of new debt that financed the transactions. Id. at 740. Leveraged buyouts gave rise to several cases in which bondholders argued that corporate issuers had violated the terms of indentures covering the debt outstanding prior to the transactions. Id. at 740-41. The case resulting from the leveraged buyout of RJR Nabisco is discussed infra Part IV.} According to Klausner and Kahan:

Where increasing returns are present, atomistic contracting may lead to the adoption of suboptimal corporate contracts in the following ways: (a) a suboptimal term may become widely adopted and may inhibit innovation; (b) contract terms may be too standardized; or (c) contract terms may be insufficiently standardized. To be sure, the problems resulting from atomistic contracting can, in theory, be
overcome through proper coordination and cross-subsidy. There is, however, no reason to believe that market forces will produce an optimal system of coordination and cross-subsidies. In short, when increasing returns are present, survival over time does not imply optimality.1

Professors Kahan and Klausner thus import the theory of increasing returns from which path dependence derives into the realm of the corporate contract. They study the emergence of event risk covenants to conclude that network and learning effects result in suboptimal terms in the corporate indenture.12

Two preliminary observations are in order about the remarkably innovative application of increasing returns to the economic analysis of corporate law. Professors Klausner and Kahan state a qualified case for suboptimality of contractual terms.13 They stop short of concluding that market failure necessarily results from the existence of learning and network externalities. In addition, they forthrightly admit that definitive proof of corporate contractual suboptimality involves considerable subjectivity and intuition.14 Nevertheless, Professor Klausner's sophisticated graphic and mathematical models state the case for more than just isolated instances of possible market failure of the corporate contractual paradigm.

Each of the foregoing propositions is addressed to test the progressively stronger claims for increasing return in the context of corporate contracting. This serves to introduce an inquiry into the potential usefulness of increasing returns for reshaping contractual doctrines utilized by courts in resolving disputes between bondholders and corporate issuers of publicly-held bonds.

B. Proposition One: Contracts, Products, and Increasing Returns

Both the proponents and the critics of path dependent lock-in to remediable suboptimality agree that industries and products may exhibit

1Id. at 761 (emphasis added).
12Id. at 740-60.
13Id. at 750; Klausner, supra note 35, at 814, 816. Yet, in contrast, an earlier passage makes a fairly strong claim for the pervasiveness of suboptimality in contract terms. Id. at 771. This is ascribed to the introductory context of the statement.
14Klausner, supra note 35, at 814.
15Id. at 799-811.
increasing returns.185 There is little dispute that the universal adoption of QWERTY and VHS was influenced by historical, perhaps even random, events.187 Accordingly, the existence of network and learning externalities, the existence of benefits beyond the inherent value of the product, seems hard to deny. Do the components of Brian Arthur’s general theoretical arguments for increasing returns, however, have application outside of technology and, specifically, in the realm of the corporate contract?

Several observations may be made about corporate contracting in general and the framing of corporate debt relationships specifically. First, the adoption of a technology involves unilateral self-interested decision making. The decision may have many different individual and institutional inputs. It may be a corporate decision with the advice and consent of divisions, committees, etc., but it is essentially the outcome of the consideration of competing qualities of products in the context of self-interested unitary objectives. Network and learning externalities may have considerable influence on the overall decision.

The contracting process, however, differs significantly from product purchase or technology adoption. Contracting generally involves bilateral or multi-lateral negotiation; a contractor does not choose a contractual provision in the same sense that a purchaser expends money for the perceived utility of a product. Substantive terms of a contract generally emerge from a bipartisan exchange of bargaining points.188 The adoption of contractual terms takes place in the context of bargaining for alternative semantic formulations of mutual promises.189 The representatives of the opposing parties lack the latitude of choice that exists in unilateral product selection. For example, the lawyer on one side may prefer a general term to advance her client’s interests; the opposing side may want specificity. Drafting results in compromise; substantive terms of a transaction and the language reflecting it result from the interaction of the parties to the exchange and their representatives.

Lawyers and other professionals may bring to bear the influence of learning externalities and network benefits, but they are largely captive of the supervening economic forces of the transaction. The more limited power of choice, i.e., the adoption of a contract term, frequently results from a linguistic compromise among a competing menu of terms, which

185See supra Part II.
186Gomes, supra note 5, at B1; Liebowitz & Margolis, supra note 69, at 213.
187See.RESTATEMENT (SECOND) OF CONTRACTS § 17 (1992) (stating that “the formation of a contract requires a bargain in which there is a manifestation of mutual assent to the exchange”).
188Id.
reflects the multiple economic objectives of the contractors. Accordingly, contracting parties are less directly influenced by learning and network externalities that underlie the theory of increasing returns and path dependence. Externalities play a subordinate role.

Undeniably, however, learning benefits and, to a lesser extent, network externalities exist in the backdrop of the negotiated transaction and they will influence\textsuperscript{190} even if they do not determine the actual adoption of contractual provisions. This is so because the collective learning externalities and benefits derived from past transactions and future expected value of terms exist as the basis on which the professional adds value to the transaction.

Professor Gilson has amply demonstrated this generally in the context of business acquisitions.\textsuperscript{191} There are other examples. The provisions of a complex corporate Delaware charter document with multiple series of preferred stocks draws upon the learning benefits of past transactions, knowledge of the Delaware Corporation Code and the anticipation of trends in judicial decision-making related to the law of corporate finance. As another example, the planning for a hostile takeover will bring to bear the collective historical learning of the professional advisors who will advocate the adoption of contractual terms based upon the usefulness of the particular menu of terms, but also upon the external benefits (learning and network) perceived from their past incidence of use and expected future use and judicial interpretation. Thus, if the power of increasing returns is less determinative of the adoption of contract terms than product adoption, it is undeniably present at least to some extent. This does not seem particularly important because there are no necessary implications about the effect of these externalities on the adoption of suboptimal contract terms.

\footnote{Kahan and Klausner conclude that their empirical findings moderately support the hypothesis that learning and/or network externalities are present in contract terms. Kahan & Klausner, \textit{supra} note 35, at 743. They admit, however, that alternative explanations may exist for the patterns that lead to this conclusion. \textit{Id.} But, at the very least, learning or network externalities influence the adoption of contract terms. \textit{Id.}}

\footnote{Ronald J. Gilson, \textit{Value Creation by Business Lawyers: Legal Skills and Asset Pricing}, 94 \textit{Yale L.J.} 239 (1984).}
C. Proposition Two: Evidence of Suboptimality from Learning and Network Influences

Recognition of the validity of Proposition One neither confirms nor refutes the effects of learning and network externalities on the adoption of suboptimal contractual terms. There exists the hypothetical situation in which both sides of a negotiated contract could be induced by such externalities to frame a contract consisting of suboptimal terms. For example, the representatives of both parties might each simply refer to a menu of outdated terms. This seems highly unlikely but possible.192 Professors Kahan and Klausner admit that their study of event risk covenants requires intuition and subjectivity to augment empirical data when it comes to establishing suboptimality.193 If the burden of proof of suboptimality falls on the proponent of path dependence, empirical verifiability of the suboptimality of bilateral negotiated contracts as a general proposition seems difficult. Any attempt to establish efficiency would be difficult as well.194

The problem of proving suboptimality generally does not necessarily result in the conclusion that Proposition Two is invalid. There may be classes of contracts the characteristics of which heighten the possibility for adoption of suboptimal terms. For example, certain species of contracts that do not arise from typical multilateral adversary bargaining may be more likely to reflect suboptimal terms influenced by externalities. Contracts of adhesion such as those created in the insurance industry contain terms that do not arise from the tensions of bargaining and are, therefore, subject to the adoption of path dependent, suboptimal terms.

For example, insurance companies used standard terms governing general and comprehensive liability policies even when there was evidence of financial exposure to environmental liability. Presumably this was a reflection of learning benefits and the perceived network benefits of continued adoption of standard terms by other insurers. Apparently there was a period of inattention to the exposure of the insurers to massive cleanup costs that would be asserted by the insured corporations. This has

192 It could, for example, result from instructions from clients to lawyers to sharply limit costs. It could also result from time constraints. These are, however, marginal cases.

193 Kahan & Klausner, supra note 35, at 750. This, of course, is not to state that their exhaustive empirical study event risk covenants in bond indentures rests entirely upon subjective notions. It simply reflects that the intangible nature of a contract is harder to evaluate from the standpoint of efficiency.

194 This problem of verifiability permeates the law and economics literature. See generally SCHWARTZ, supra note 30 (examining efficiency vis-à-vis law and economics literature).
spawned massive litigation between corporations facing cleanup costs that assert insurance coverage. It has resulted in the adoption of specific exclusions in newer policies.195

In the realm of the corporate nexus of contracts, the bond indenture has unique attributes that differ from typical multilateral contracting. The indenture agreement protecting the bondholder from financial conduct inimical to the payment of principal and interest does not arise from direct bargaining between the purchasers of bonds and the issuing corporation.196 Bond offerings are packaged by underwriters who summarize the terms of the indenture and look to lawyers for technical drafting and advisory skills.197 The underwriters technically act on behalf of the bond-issuing corporation, but their role is multifaceted. They undertake to sell the bonds, so they are deeply interested in the provisions that the market will find acceptable. There is no formal negotiation with the ultimate bondholder. This is quite unlike typical multilateral contracting.

Bonds are priced by reference to three principal terms: interest rate, maturity, and call provisions allowing early redemption or requiring sinking funds payments.198 These central terms respond directly to market forces.199 They reflect creditworthiness of the issuer and payment terms in similar intermediate and long term corporate bonds. While the terms of payment of interest and principal simply reflect rates and dates, the detailed and densely worded indenture contains a vast array of substantive terms governing the financial conduct of the issuer. Some of the terms recur in virtually every indenture; they are called boilerplate.200 Other covenants

197 The suboptimal result hypothesized by the example would be problematic for economists such as Liebowitz & Margolis, supra note 69. They would likely characterize this form of suboptimality as second-degree path dependence because it is based upon regrettable error and does not involve suboptimality where an efficient alternative is ignored.

198 For a comprehensive description of unique characteristics of the issuance of bonds, see Marcel Kahan, The Qualified Case Against Mandatory Terms in Bonds, 89 NW. U. L. Rev. 565, 571-601 (1995). The author analyzes the contractual terminology for bonds from the standpoint of the mandatory-enabling debate. See supra note 19. As the title indicates, he concludes that the case has not been made for state-imposed terms in bonds. In Kahan & Klausner, supra note 35, at 730 n.41, the question is left open as to whether suboptimality in the corporate contract should be remedied by state intervention.

199 The author provides his own definitions and discussion on bonds, debentures, and indentures in the note that precedes footnote one. One may also refer to Kahan's work as cited in the previous note. See generally Kahan, supra note 196 (providing an in-depth survey regarding bonds and the unique characteristics of issuance).

198 Id. (discussing pricing of bonds).

199 Id.

200 Boilerplate is defined as "language which is used commonly in documents having a definite meaning in the same context without variation." BLACK'S LAW DICTIONARY 175 (6th ed. 1990).
Uniformity of capability to indenture covenants Bondholders in not from exhibits. Indeed, Indenture, terms. Uniformity and standardization are important to the marketplace where bonds are bought by initial purchasers not involved in the framing of the indenture. Thus, the bond indenture comes into being under the influence of external forces that have greater influence than those exerted in typical contract creation. From this it can be inferred that there is a higher potential for the retention of obsolete terms, particularly when the market places primary importance on credit rating, interest rate and maturity. Empirical results are consistent with the validity of Proposition Two in the limited context of the bond indenture. Furthermore, many investors

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201Kahan & Klausner, supra note 35, at 718-27. The authors discuss standardized provisions, learning and network benefits. The discussion suggests the unique attributes of environments conducive to adoption of suboptimal terms.

Another contextual factor adds to an environment encouraging adoption of suboptimal terms. The existence of voluminous standardized provisions in the Commentaries on the Indenture, which was published in 1967 and remains with one exception unmodified, invites adherence to standardized contractual terminology without regard to changed conditions. Indeed, the modifications embodied in the Simplified Model Indenture do not address some of the contemporary issues of financing. The availability of historically determined terminology exhibits learning and network externalities that inhibit the adoption of innovative deviations from standardized terms. While there is some evidence of coordination among underwriters (but not law firms) in connection with event risk covenants, this may be aberrational in terms of the pattern of adoption of indenture terms. Evidence from a case to be discussed infra Part IV points in this direction with respect to the adoption of debt limitation covenants.

202See generally Kahan, supra note 196 (describing various characteristics of bonds).

203Id. at 575 (explaining Leland Crabbe, Event Risk: An Analysis of Losses to Bondholders and "Super Poison Put" Bond Covenants, 46 J. Fin. 689 (1991)). Certain event risk covenants were valued by the market as reducing the price of bonds by .24%, less than one quarter of one cent of the interest rate. Id.

204Kahan & Klausner, supra note 35, at 742.

205There are general attributes of the long-term contract in general and the bond indenture in particular that contribute to the validation of Proposition Two. The terms of most extended binding relationships (other than index and requirements contracts) and of a bond indenture must be chosen to anticipate an ever-changing financial and economic environment over a period of many years. There exists inherent uncertainty about the future, but a necessity to choose binding limitations on the financial conduct of a bond issuer that will protect payment capability on behalf of the bondholders. Yet those terms must not unduly restrict the flexibility of the issuer to generate revenue and profit. This, of course, enhances the probability that the
create diversified portfolios of bonds to lessen the risk of default or opportunistic conduct by any single issuer. Because the incidence of default and bondholder-issuer disputes is quite infrequent, individual investors and even institutions may accord less importance to covenant protection for industry-wide risks such as leveraged buyouts.

D. Proposition Three: The Elusiveness of Remediable Suboptimality

The validation of Propositions One and Two, limited to the indenture as a species of corporate contract susceptible to suboptimality, constitutes only the less controversial form of second-degree path dependence observed by Liebowitz and Margolis. To establish the case for Proposition Three, one must make the case that suboptimal bond provisions are adopted when at the same time the existence of better alternatives are known and ignored. This would establish third-degree path dependence in the bond indenture, an important component of the corporation as a nexus of contracts. Kahan and Klausner present empirical evidence that event risk covenants exhibit third-degree path dependence caused by learning and network externalities.

There are two reasons to doubt that the argument, even if made out in the limited context of event risk covenants, has application to the choice of indenture terms in hindsight may be deemed erroneous. In the Liebowitz-Margolis critique, this simply constitutes a regrettable ex post condition attributable to lack of omniscience. See supra text accompanying note 119. This is second degree path dependence; there is no efficient remediable alternative available. But the context of choice points to reliance both on history (learning effects of past adoption) and anticipation of increasing returns by future adoption (network externalities). See supra text accompanying notes 166-69. The rating agencies may encourage undue uniformity and adoption of standardized terms even when coordination among underwriters reflects the need for innovation. Issuers, too, may favor historical boilerplate if they believe that it may present more room to avoid restriction on novel financial transactions that favor the equity holders over the holders of debt. Accordingly, what may result is the adoption of terms that increase the agency costs of debt and lower the overall value of the firm.

Professor Roe terms this semi-strong path dependence. Interestingly, he points to the QWERTY typewriter keyboard as an example because it caused the typing of common letters with the generally weaker hand, thus slowing the typist and avoiding the jamming of the closely-placed mechanical arms that struck the letters onto the page. What was deemed an advantage then is a disadvantage now. Because switching costs now exceed benefits, this has not resulted in remediable suboptimality, his strong-form path dependence. Arthur would disagree. Compare Roe, supra note 41, at 648 (commenting that "we wish things were different but it is inefficient to do anything major about it now") with Arthur, supra note 1, at 118-19 (discussing how an economic system that is locked into an inferior local equilibrium can "exit" or escape into a superior one).

Kahan & Klausner, supra note 35, at 742-47.
indenture generally. First, the detailed empirical study relies, as noted earlier, to a considerable extent on the authors' subjective judgment as to the optimality of the formulation of terms. Kahan and Klausner remark:

Our data provide some support for the hypothesis that learning or network externalities led to suboptimal standardization. Modesty demands that we preface this claim with a caveat. We have no choice but to rely on our own judgment in arguing that a particular formulation of the event risk covenant is suboptimal, and that judgment will appear by its nature to be inconsistent with the judgment of those who adopted the covenants.

This is not in itself fatal to the validity of Proposition Three. A second challenge exists in studies establishing the general efficiency of the pricing of bonds initially offered to the public. These studies, however, do not isolate specifically whether the legal provisions of bonds are priced accurately or whether some of the terms are priced at all.

How then does one make or break the argument for Proposition Three and its claims of remediable suboptimalities? There is evidence that even in the face of changes in economic climate and innovations in financial transactions, such as leveraged buyouts, underwriters and lawyers are slow to respond in creating contractual provisions addressing changed conditions. Klausner and Kahan make the case for suboptimality in the evolution of event risk covenants, but perhaps a stronger, more generalized

\[203^{Id.}\text{ at }750.\]
\[204^{Id.}\]
\[205^{Id.}\text{(emphasis added) (footnote omitted).}\]
\[206^{Id.}\text{The studies and conclusion are set forth in Kahan, supra note 196, at 579 (stating that "[The few studies that have examined the pricing of legal terms contain features that may make it inappropriate to generalize their results"). See, e.g., Louis H. Ederington, The Yield Spread on New Issues of Corporate Bonds, 29 J. Fin. 1531 (1974) (examining the reasons for the yield spread of corporate bonds and fluctuations over time); W.K.H. Fung & Andrew Rudd, Pricing New Corporate Bond Issues: An Analysis of Issue Cost and Seasoning Effects, 41 J. Fin. 633 (1986) (focusing on the seasoning effects and cost of underwriting with respect to pricing of new corporate bond issues); John R. Lindvall, New Issue Corporate Bonds, Seasoned Market Efficiency and Yield Spreads, 32 J. Fin. 1057, 1065 (1977) (applying statistics to ultimately find that "seasoned yields adjust to the yields of new issues"); Mark I. Weinstein, The Seasoning Process of New Corporate Bond Issues, 33 J. Fin. 1343 (1978) (ultimately finding some underpricing to be somewhat inconsistent with the efficient market hypothesis). The studies do not confirm pricing efficiency in the secondary bond market or in the initial issuance of common stock. Kahan, supra note 196, at 579; Weinstein, supra, at 1354.}\]
\[207^{Kahan, supra note 196, at 579 (suggesting the potential for generalized and inaccurate results).}\]
case can be made from the absence of the adoption of protections for bondholders during the early and mid 1980s.\textsuperscript{213}

In fact, the brief appearance of event risk covenants occurred near the end of the takeover period previous to which there was early general knowledge of the potential for bondholder harm from leveraged acquisitions. This delay in the adoption of protective covenants suggests that bonds were issued for a considerable period of time when the risk of takeovers and associated diminution in the market value of bonds was known to a largely sophisticated community of purchasers consisting of insurance companies and mutual funds. Although data does not appear to be available for this period, and the data for the period commencing with the introduction of event risk covenants concludes that the presence of such protection reduced the interest rate by between twenty-four and thirty-two basis points.\textsuperscript{214} Arguably, bond buyers before the inception of the event risk covenants were under-compensated for the risk of takeovers that would depress the prices of their bonds.\textsuperscript{215} The obvious difficulty of isolating and quantifying the pricing variable points out the inherent difficulty of either proving or disproving remediable suboptimality, thus establishing third-degree path dependence. The availability of protective covenants was known, but the failure to adopt them until late in the decade of the 1980s does not establish conclusively the existence of inefficiency in the bond indenture.\textsuperscript{216} Again, the tendency of investors, particularly the institutions that dominate the bond market, to diversify portfolios minimizes the attention to covenants governing such events as leveraged acquisitions.\textsuperscript{217}

\textsuperscript{213}See infra Part IV.

\textsuperscript{214}Kahan, supra note 196, at 575-76 (citing Crabbe, supra note 203). The Crabbe study covers event risk covenants in bonds issued between November 1988 and December 1989. Id. at 575. This was immediately after the RJR Nabisco transaction dramatized the potential harm to bondholder from leveraged buy outs. See infra Part IV.

\textsuperscript{215}See infra Part IV.

\textsuperscript{216}Infra Part IV discusses the similarly elusive effect of judicial decisions on the adoption of optimal indenture covenants. Briefly stated, there is an argument that the doctrine reflected in one of the cases discussed creates incentives to adopt inefficient indenture terms. Specifically, when courts invoke a default standard of "what the parties would have wanted," they entertain an \textit{ex post} inquiry into what, with \textit{ex ante} knowledge, the parties would have wanted if they had bargained without transaction costs. See, e.g., Ayres & Gertner, supra note 25, at 90 (using term "would have wanted"). The learning effects generated by this approach to resolving bondholder disputes contributes to an environment of adoption of suboptimal indenture provisions. If courts are likely to inquire \textit{ex post} as to the most efficient term that the parties would have adopted, the result is a shifting of \textit{ex ante} contracting costs to arguably less efficient and costly \textit{ex post} judicial inquiry. Specifically, indenture terms may be adopted that insufficiently address contingencies that could have been resolved by covenant protection for bondholders. See infra Part IV.

\textsuperscript{217}Id.
E. Summary and Conclusion

Is the case made for pervasive third degree path dependence in the general realm of contracts and specifically with respect to the corporate contractual paradigm? For the vast array of contracts where multilateral negotiation results in agreed-upon exchange, the nature of the contracting process seems sufficiently different from tangible product development to suggest a negative answer. Nevertheless, there are species of noncorporate contracts, such as insurance, and unique corporate contracts, such as the indenture, where strong evidence exists for an environment conducive to the adoption of suboptimal terms where efficient alternatives could be developed. Empirical proof of third-degree path dependence in the indenture, however, is hampered by the necessity to make subjective judgments about the relative optimality of terms. In each case, one must look back to determine at the time the indenture was framed not only (a) whether a better known term existed, but also (b) whether the arguably less efficient term adopted was, nevertheless, efficiently priced by the bond market.

Studies suggesting efficiency of the market for the initial offering of bonds do not specifically address the pricing of legal terms in the indenture. Third-degree path dependence, in tandem with the normative issues arising from the corporation as a nexus of contracts, remains unproved. But neither is it disproved. Moreover, the collective work of Professors Kahan and Klausner, and their empirical study of event risk covenants, strongly suggest the potentiality for adoption of inefficient contract terms influenced by the same externalities influencing adoption of suboptimal technologies. The authors suggest an agenda for further research, which includes "the role of judicial interpretation [which] should be to promote the functions of standard terms ... while allowing firms to opt out of those standards and customize their own terms." This is the subject of Part IV.

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218 Kahan & Klausner, supra note 35, at 749-50.
219 Fung & Rudd, supra note 211, at 643-44.
220 Kahan & Klausner, supra note 35, at 760.
221 Id.
222 Id. at 764-765.
IV. THE UNCERTAIN IMPLICATIONS OF PATH DEPENDENCE TO THE RESOLUTION OF BONDHOLDER DISPUTES

The foregoing discussion concludes that the case for path dependent suboptimality in the vast majority of contractual settings has not been made by commentators who have sought to import increasing returns from technological product development. Nevertheless, unique characteristics of the bond indenture invite the adoption and replication of terms that may reflect learning and network externalities that result in inefficient uniform provisions or the absence of tailored provisions governing specific potential problems in the corporate debt relationship. One of the questions raised by the susceptibility of the bond indenture to inefficient drafting relates to the manner in which courts adjudicate disputes that arise between bondholders and corporate issuers. Specifically, do doctrines employed by courts enhance or minimize incentives for the creation of optimal indenture terms? The question implicates the judicial approach to gap-filling in the situation where contracts are incomplete either by design or inadvertence. Presumably, indenture ambiguity or incompleteness may be traceable to the influence on drafters of learning externalities of which judicial decisions may be an important part. It is important, therefore, to explore the effects of judicial decision-making to determine whether a normative argument exists for altering existing doctrine. This is best accomplished in the context of specific transactions that have given rise to prominent court decisions.

Subpart A describes the leveraged buyout as a unique transactional innovation of the 1980s giving rise to lawsuits between bondholders and issuing corporations. The absence of indenture protections for bondholders in leveraged buyouts is an arguable instance of inefficient corporate contracting influenced at least in part by a variant of path dependence that Professors Klausner and Kahan established with respect to event risk covenants. The question framed by the susceptibility of indentures to suboptimality is whether traditional interpretive doctrine sufficiently takes into account the need to create incentives toward more complete contracting. This implicates a discussion of the law and economics

\footnote{See \textit{Restatement (Second) of Contracts} § 204 (1992) (setting forth that "[w]hen the parties to a bargain sufficiently defined to be a contract have not agreed with respect to a term which is essential to a determination of their rights and duties, a term which is reasonable in the circumstances supplied by the court") (emphasis added).}

\footnote{See infra Part IV.B.}

\footnote{Kahan \& Klausner, \textit{supra} note 35, at 740-49.}
literature advocating theories of penalty default rules and standards as means of addressing contractual incompleteness. This, in turn, lays the groundwork for a discussion of specific cases in Subpart B, which speculates on whether the existing doctrine could be improved to minimize the resort to courts as ex post public resources for curing contractual inefficiency.

A. Contractual Incompleteness and Default Rules

1. The Problem of Corporate Opportunism and Indenture Incompleteness

In general, bondholders allege that corporate issuers undertake transactions that result in benefits to equity participants at the expense of bondholders in the form of decreased market values for the bonds. The simplest example is the leveraged buyout or takeover, which uses the security of the assets and creditworthiness of the target company as a means of borrowing money to finance the acquisition. This sounds counterintuitive. How does the buyer use the assets of the target to borrow money to buy the target? It is a novel transaction where the acquiring

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226 The perceived vulnerability of bondholders to the strategic activities of management on behalf of shareholders caused some commentators to argue for heightened duties to bondholders from corporate issuers. Bondholders I, supra note 17, at 442-50; Bondholders II, supra note 17, at 206; see generally Brudney, supra note 17 (suggesting throughout the article a heightened need to protect bondholders). Others such as Brudney view the relationship as purely contractual. Id.

227 There are several steps in the transaction and they are important in order to understand the novelty of the acquisition and how bondholders of the target suffer a decline in the value of their bonds. The buyer makes a public tender offer through a wholly-owned shell corporation that has borrowed the money and pledged the target stock as security until the second stage of the transaction. The buyer, having acquired a supermajority of the stock of the target, causes the target to merge with the wholly-owned shell corporation. In the merger, all the stock of the target is canceled and the remaining minority shareholders are cashed out at the same price as the public tender offer. The merger burdens the target with debt incurred by the buyers through the shell corporation. The surviving corporation is in all respects the same as the target from a financial and operational standpoint, except that it now has much more debt. The former equity holders of the target are gone, having tendered their stock or having been cashed out in the merger. The former creditors of the target company, however, remain, including the bondholders. The bondholders typically suffer a decline in the market price for their bonds reflecting the added debt burden and lessened creditworthiness of the leveraged entity. See infra note 228.
party borrows money in a shell entity and then merges it into the target, which then is liable for the debt.\footnote{See Bondholders I, supra note 17, at 452-55; Bondholders II, supra note 17, at 304-07; Brudney, supra note 17, at 1876-68.}

This essentially is the story of the RJR Nabisco takeover and the factual scenario giving rise to one of the cases analyzed in Part IV.B. Of course, the transaction is not possible if the bondholders' indentures contain a simple limitation on incurring additional debt. Nevertheless, the bondholders as bystanders absorbing the reduction in market value of their bonds assert that the intent of the bond indenture had been violated such that a court should step in to supply a contractual term that the parties would have asked for if they had thought about it. In the case of the leveraged buyout, the term to be supplied is a limitation on additional indebtedness, unless there is prior consent or redemption at par of the pre-existing bondholders. There are other patterns, but each has a common element: the assertion of opportunistic conduct by the issuing corporation against its bondholders and the assertion of incompleteness in the indenture instrument.

There are several possible approaches a court may take in resolving this kind of dispute.\footnote{Incomplete contracts are said to have "gaps" that arise from incomplete contracting by the parties, which may derive from the avoidance of costs or strategic conduct thought at the time of the contract to be beneficial to a party leaving a material issue unaddressed. RESTATEMENT (SECOND) OF CONTRACTS § 208 (1992) (suggesting language of unconscionability). The RESTATEMENT (SECOND) OF CONTRACTS § 204 (1992) adopts a standard requiring the gap to be filled by a "term which is reasonable in the circumstances."} First, it may find the indenture to be a complete statement of the terms of the corporate debt relationship and reject both the claims of opportunism and the incompleteness. This was the holding of the court that adjudicated the RJR Nabisco litigation.\footnote{The court that adjudicated RJR Nabisco was the United States District Court for the Southern District of New York.} Second, although the court may find that the indenture is a complete statement of the intended relationship, the conduct of the issuing corporation constitutes fraudulent conduct. There are very few such cases.\footnote{In Harff v. Kerkorian, 324 A.2d 215 (Del. Ch. 1974), rev'd 347 A.2d 133 (Del. 1975), the court addressed the legality of an extraordinary dividend that was not prohibited by the indenture which contained no limitations on distributions to shareholders. Both the trial court and the Supreme Court rejected the existence of a fiduciary duty to bondholders, but the Delaware Supreme Court holding permitted the ease to go forward on the theory of fraudulent conduct of the issuer in spite of the clarity of the indenture provisions. Harff, 347 A.2d at 134.}

A third possibility reflects the approach of courts in many of the bond dispute cases.\footnote{See infra Part IV.B (discussing judicial interpretation in an environment of network externality).} The alleged wrongful conduct of the bond issuer is
not specifically prohibited by the indenture. Yet, the court still undertakes an analysis of whether the express terms of the indenture raise an inference that the parties would have agreed to proscribe the conduct if they had focused on it.\textsuperscript{233} Frequently the analysis of alleged opportunistic conduct by the bond issuer proceeds under the doctrinal rubric of whether there has been a breach of the implied covenant of good faith and fair dealing.\textsuperscript{234} The traditional concept of good faith and fair dealing has a parallel in the literature analyzing how courts fill gaps in contracts.\textsuperscript{235} In the academic literature, this inquiry invokes the theory of default rules and standards,\textsuperscript{236} which encompass the broad subject of legislative and judicial mandates that apply in absence of contrary agreement by parties.\textsuperscript{237} With incomplete contracts, default rules provide a background set of principles to assist a court in ordering or withholding relief when a dispute arises about an issue not addressed by the formal agreement of the parties.\textsuperscript{238} Default theory, on the one hand, and the doctrine of implied covenant of good faith and fair dealing, on the other, seek, respectively, (a) to reduce contracting costs and (b) enforce the spirit of an otherwise complete contract. Tied closely, the application of each is the question of whether the parties intended to omit the provision that one party asserts should be supplied by the court.

\textsuperscript{233}Id.
\textsuperscript{234}Id.\textsuperscript{235}Good faith is read into contracts. RESTATEMENT (SECOND) OF CONTRACTS § 205 (1992).
\textsuperscript{236}See generally Steven J. Burton, Default Principles, Legitimacy, and the Authority of Contract, 3 So. Calif. Interdisciplinary L.J. 115, 130 (1993) (discussing, inter alia, implications for default principles). The scholarship is wide-ranging. One commentator disputes the validity of the concept. W. David Slawson, The Futile Search for Principles for Default Rules, 3 S. Calif. Interdisciplinary L.J. 29, 29 (1993) (stating that "[d]efault rule analysts have contributed nothing new to the subject except the new word they have coined for it"). Another commentator approaches the issue of default rules from a philosophical standpoint and argues that default rules lack legitimacy. Burton, supra, at 117 (stating that "I argue, default rules based on efficiency principles, communitarian values, and relational contract norms either lack a legitimating basis or fail to respect the authority of the contract"). Ian Ayres extends his earlier work with Robert Gertner to consider "tailored" default rules that draws on concepts of rules versus standards. Ian Ayres, Preliminary Thoughts on Optimal Tailoring of Contractual Rules, 3 So. Calif. Interdisciplinary L.J. 1, 2 (1994) (stating that "[t]he rather minimal thesis of this paper is that the ability of private parties to contract around rules or standards affects their optimal level of precision").
\textsuperscript{238}See generally RESTATEMENT (SECOND) OF CONTRACTS § 204 (1992) (discussing omitted terms supplied by courts).
2. Majoritarian Default Rules

Until the late 1980s, the law and economics literature was virtually unanimous in advocating an overall theory of default rules based upon what the parties to a given contract would have bargained for in a costless setting. Thus, in framing corporate codes containing general provisions, the legislature should reduce transaction costs by providing applicable off-the-rack provisions that parties usually would choose. These provisions, of course, would be optional and could be modified in any given circumstance. According to the law and economics proponents of enabling systems of corporate governance, default rules should have two characteristics. They should be (1) majoritarian, reflecting what most contracting parties would want, and they should be (2) mutable, that is, tailorable to the specific needs of specific situations.Mutable, majoritarian default theory seeks to reduce the costs of contracting and thus promote optimality in the various components of the corporate contract through the operation of free market forces. Easterbrook and Fischel observe:

The normative thesis of the book is that corporate law should contain the terms people would have negotiated, were the costs of negotiating at arm's length for every contingency sufficiently low. The positive thesis is that corporate law almost always conforms to this model. It is enabling rather than directive.

All the terms in corporate governance are contractual in the sense that they are fully priced in transactions among the

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239 RICHARD POSNER, ECONOMIC ANALYSIS OF LAW 81 (3d ed. 1986); Douglas G. Baird & Thomas H. Jackson, Fraudulent Conveyance Law and Its Proper Domain, 38 VAND. L. REV. 829, 835-36 (1985) (stating that default rule in debtor-creditor relationship should provide parties with "the type of contract that they would have agreed . . . [upon] if they had had the time and money to bargain over all aspects of their deal"); Charles J. Goetz & Robert E. Scott, The Mitigation Principle: Toward a General Theory of Contractual Obligation, 69 VA. L. REV. 967, 971 (1983) (writing that "[i]deally, the preformulated rules supplied by the state should mimic the agreements contracting parties would reach were they costlessly to bargain out each detail of the transaction").

240 See Goetz & Scott, supra note 239, at 971 (providing standardized, off-the-rack provisions would eliminate the cost of negotiating every detail of the proposed arrangements).

241 Id. (remaining free to bargain for customized provisions).

242 Ayres & Gertner, supra note 25, at 91.
interested parties. They are thereafter tested for desirable properties; the firms that pick the wrong terms will fail in competition with other firms competing for capital. *It is unimportant that they may not be "negotiated"; the pricing and testing mechanisms are all that matter*, as long as there are no effects on third parties. This should come as no shock to anyone familiar with the Coase Theorem.\(^2\)

Accordingly, the shorthand term "what the parties would have wanted"\(^2\) describes the general approach of law and economics to both filling gaps in incomplete contracts and legislatively framing the off-the-rack terms that create the nexus of contracts of the corporation unless parties otherwise agree. Recent contract scholarship, however, introduces the concept that default rules may promote optimality in contracting by consisting of legislative provisions and rules *contrary* to what the parties would have wanted.\(^2\) These are called penalty defaults.\(^2\)

They have potential significance to path dependence in the corporate indenture because they are designed to cause parties to expend *ex ante* resources to avoid contractual incompleteness and thus minimize the potential for expenditure of *ex post* judicial resources. Stated a little differently, if bond indentures contain inefficient terms or inefficiently omit terms, a penalty default regime might plausibly operate to grant or withhold relief so as to create an *ex ante* incentive to allocate risk with specificity.

3. Penalty Defaults

In promoting the discussion of penalty defaults, commentators have suggested a novel deviation from the majoritarian default regime. They seek to avoid the *ex post* costs of judicial inquiry into what contracting parties would have bargained for costlessly. Ayres and Gertner describe the basis for penalty defaults as follows:

We suggest that efficient defaults would take a variety of forms that at times would diverge from the *"what the parties*