

**A TRANSACTION COST THEORY OF
CORPORATE FINANCE, WITH APPLICATIONS TO
SECURITY, BANKRUPTCY, AND THE NATURE
OF ECONOMIC ORGANIZATION**

by

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D. BRUCE JOHNSEN

Abstract

Over the years, scholars from several different fields, including corporate finance, transaction cost economics, and law, have challenged the famous *Modigliani & Miller Irrelevance Hypothesis*. Under what conditions, they have inquired, does the choice between debt and equity finance affect the firm's average cost of capital? Although these scholars have made substantial progress in selected areas, no unified theory of corporate finance has yet emerged. This paper proposes a new theory based on what Oliver Williamson has described as the "measurement branch" of transaction cost economics. The *valuation hypothesis*, as I characterize it, asserts that debt and equity finance reflect the value of the corporate enterprise in various alternative uses. By defining property rights -- and residual claimancy -- to these value flows, corporate financial claims provide their holders with the incentive to specialize in gathering accurate information about the value of the firm's intangible assets and thus to avoid the pricing errors that can distort *ex ante* investment. The resulting improvement in resource allocation maximizes the net value of the firm, or, what amounts to the same thing, minimizes its average cost of capital. According to the valuation hypothesis, moreover, the corporation's hierarchy of financial claims identifies an overall quasi-rent structure that serves as a real-world proxy for asset specificity that promises to operationalize the specific assets hypothesis. As thus conceived, the valuation hypothesis resolves a number of anomalies in the literature on security, bankruptcy, and corporate reorganizations, and sheds considerable light on the optimal choice of business form.

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I. INTRODUCTION

In 1958, Franco Modigliani and Merton Miller stunned the world of corporate finance by advancing what would eventually become famous as the *Modigliani & Miller Irrelevance Hypothesis*.¹ Given certain restrictive assumptions, this hypothesis leads to the astonishing conclusion that "the average cost of capital to any firm is completely independent of its capital structure," so that the choice between debt and equity finance, or between any other financial instruments, cannot affect firm value. Yet corporations routinely incur substantial expense adjusting their capital structure, say, by issuing debt and using the proceeds to retire equity, as in the recent wave of leveraged buyouts. Why incur real costs to do something that cannot affect the value of the firm? Why, contrary to the *Irrelevance Hypothesis*, is corporate financial structure relevant? No doubt due to its immense theoretical importance, the puzzle raised by the *Irrelevance Hypothesis* has generated a sustained response over the years from academic commentators attempting to resolve it. Indeed, the puzzle has proven so enduring and its implications so far-reaching that the search for a solution has been joined by scholars from at least three separate fields, corporate finance, transaction cost economics, and law. Although these scholars have made substantial progress in selected areas, the puzzle remains at least partially unsolved, and certainly no unified theory has yet emerged to join the separate fields.

¹ Franco Modigliani and Merton H. Miller, *The Cost of Capital, Corporation Finance, and the Theory of Investment*, 48 A.E.R. 261, 278 (1958).

The primary group of scholars to have addressed the puzzle are financial economists, whose response in the literature now occupies much of the field of modern corporate finance. Tax-based explanations aside, leading contributions to this literature by Jensen and Meckling and others have emphasized *agency costs* as an important factor in determining the firm's choice between debt and equity finance. By relaxing one or more of the Modigliani and Miller (M&M) assumptions, agency theory provides a credible partial solution to the puzzle.

A second group to have addressed the puzzle are economists concerned with the theory of the firm. Following Ronald Coase, they have focussed generally on how the costs of transacting affect the extent of the firm and the nature of economic organization.² Although most of this literature bears only indirectly on how the corporate firm is financed, recent contributions have focussed more directly on the puzzle. Based on what he characterizes as the "governance branch" of transaction cost economics, for example, Oliver Williamson has argued that debt and equity serve as alternative governance structures to reduce the transaction costs that arise in the presence of *specialized quasi-rents*³ and to mitigate the attendant losses from the threat of *postcontractual opportunism*.⁴ Although Williamson's governance analysis of corporate finance is promising, it leaves several important questions unanswered, most importantly why we often see several layers of debt and even equity in a given firm.

The third group of scholars to have addressed the puzzle are legal scholars, who

² Ronald H. Coase, *The Nature of the Firm*, 4 *ECONOMICA* 386 (1937).

³ Economic rents are defined as "returns in excess of the opportunity cost of the resources" used in a specific activity, while quasi-rents are defined as "returns in excess of the short-run opportunity cost of the resources" used in a specific activity. See, e.g., Michael C. Jensen, *Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers*, 76 *A.E.R.* 323 (1986), n. 2. Where quasi-rents exist, decisions about how an asset is used become discontinuous, or lumpy. Whereas in making the investment that created the asset the decision maker faces a continuous set of choices, once the specific investment is made the value of the asset in its next best use net of redeployment costs may be discretely lower than in its current use. Should the payment to the current use fall unexpectedly, the asset will be maintained in its current use until the payment it receives falls just below its net value in the next best use. That is, until all quasi-rents are eliminated. The asset's quasi-rents thus reflect any value it earns above the minimum necessary to keep it from being redeployed into its next best use.

⁴ Oliver E. Williamson, *MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS* (1975), at 26-30.

have recognized its importance to such areas as secured transactions⁵ under Article 9 of the Uniform Commercial Code and corporate reorganizations under Chapter 11 of the federal Bankruptcy Code (1978).⁶ Jackson and Kronman were perhaps the first legal scholars to point out that in an M&M world the grant of security by a debtor should have no effect on the net benefits from borrowing.⁷ The bankruptcy stay and deviations from "absolute priority" in bankruptcy should also be irrelevant. In addressing these particular applications of the puzzle legal scholars have borrowed freely from the corporate finance and transaction cost economics literatures and have used their analyses to pass on the merits of commercial and bankruptcy law.

One result of this broad-based, interdisciplinary inquiry has been a natural progression toward a unified theory of corporate financial structure. This paper adds to this progression by bringing to bear on the puzzle what Williamson has characterized as the "measurement branch" of transaction cost economics,⁸ or what Yoram Barzel has

⁵ Thomas H. Jackson and Anthony T. Kronman, *Secured Financing and Priorities Among Creditors*, 88 YALE L.J. 1143 (1979); Alan Schwartz, *Security Interests and Bankruptcy Priorities: A Review of Current Theories*, 10 J. LEGAL STUD. 1 (1981); Alan Schwartz, *The Continuing Puzzle of Secured Debt*, 37 VANDERBILT L. REV. 1051 (1984); Theodore Eisenberg, *The Undersecured Creditor in Reorganizations and the Nature of Security*, 38 VANDERBILT L. REV. 931 (1985); F.H. Buckley, *The Bankruptcy Priority Puzzle*, 72 VIRGINIA L. REV. 1393 (1986); Robert E. Scott, *A Relational Theory of Secured Financing*, 86 COLUMBIA L. REV. 901 (1986); Alan Schwartz, *A Theory of Loan Priorities*, 18 J. LEGAL STUD. 209 (1989); Paul M. Shupack, *Solving the Puzzle of Secured Transactions*, 41 RUTGERS L. REV. 1067 (1989); George G Triantis, *Secured Debt Under Conditions of Imperfect Information*, 21 J. LEGAL STUD. 225 (1992); Barry E. Adler, *An Equity-Agency Solution to the Bankruptcy Priority Puzzle*, 22 J. LEGAL STUD. 73 (1993).

⁶ Thomas H. Jackson, *Translating Assets and Liabilities to the Bankruptcy Forum*, 14 J. LEGAL STUD. 73 (1985); Douglas G. Baird, *The Uneasy Case for Corporate Reorganizations*, 15 J. LEGAL STUD. 127 (1986); Douglas G. Baird and Thomas H. Jackson, *Bargaining After the Fall and the Contours of the Absolute Priority Rule*, 55 U. CHI. L. REV. 738 (1988); Thomas H. Jackson and Robert E. Scott, *On the Nature of Bankruptcy: An Essay on Bankruptcy Sharing and the Creditors' Bargain*, 75 VA. L. REV. 155 (1989); Frank H. Easterbrook, *Is Corporate Bankruptcy Efficient*, 27 J. FIN. ECON. 411 (1990); Lynn M. LoPucki and William C. Whitford, *Bargaining Over Equity's Share in the Bankruptcy Reorganization of Large, Publicly Held Companies*, 139 U. PENN. L. REV. 125 (1990); Barry E. Adler, *Bankruptcy and Risk Allocation*, 77 CORNELL L. REV. 439 (1992).

⁷ Jackson and Kronman, *supra* note 5.

⁸ Oliver E. Williamson, *Corporate Finance and Corporate Governance*, 43 J. FIN. 567 (1988).

described simply as "the property rights approach."⁹ The property rights approach is concerned primarily with how the assignment of claims to variable, or residual, value flows serves to reduce the social costs of delineating, measuring, and enhancing stock enterprise values.¹⁰ My basic premise is that corporate financial claims reveal the net value of the enterprise in various alternative uses, with the resulting hierarchy of claims identifying the *specialized quasi-rent structure* of the firm. Since quasi-rents are defined as the payment to an asset above that which is necessary to keep it in its present use, variability in firm value within the ranges defined by its specialized quasi-rent structure will have no effect on how the corporate enterprise is used. What is more, being specialized on different dimensions, each layer of quasi-rents reflects a unique source of variability in firm value. Subject to the constraint imposed by organization and contracting costs,¹¹ corporate financial claims unbundle these unique sources of variability by assigning property rights -- and residual claimancy -- to different valuation specialists. As specialists, these claimants have a comparative advantage in measuring or forecasting the value of the associated use. Moreover, being residual claimants to the accuracy of their valuations they have the incentive to avoid the pricing errors that could otherwise distort ex ante investment. The added valuation accuracy that results lowers the cost of making informed investment decisions and minimizes the firm's average cost of capital. The equilibrium level of unbundling is determined by offsetting transaction costs -- measurement costs on the one hand and organization and contracting costs on the other.

In contrast to agency cost and corporate governance explanations for corporate

⁹ Yoram Barzel, *ECONOMIC ANALYSIS OF PROPERTY RIGHTS* (Cambridge, 1989). Following Barzel, I use the term "property rights" in the general economic sense of enforceable claims to expected value flows rather than in the narrower sense of legal rights that attach strictly to real, personal, or intellectual property.

¹⁰ See Yoram Barzel, *Measurement Costs and the Organization of Markets*, 25 J. LAW & ECON. 27 (1982).

¹¹ Throughout the paper, I use the term *contracting* in the narrow sense as the act of devoting resources to memorializing the terms of an exchange agreement to reduce the costs of enforcement under the rules of contract law. See Scott E. Masten, *A Legal Basis for the Firm*, 4 J. LAW, ECON. & ORG. 181, 184 (1988). In this sense, contracting is a subset of economic organization, which includes extra-legal methods of enforcing an exchange agreement.

financial structure, I identify my explanation as the *valuation hypothesis*.¹² It suggests that deviations from absolute priority in bankruptcy, leveraged buyouts financed by so-called "junk" bonds, the concurrent issuance of debt with the payment of dividends, and a host of more mundane capital structure transactions arise in part due to unanticipated ex post changes in the corporation's quasi-rent structure. These value changes must be met with compensating adjustments in leverage to maintain the proper assignment of residual claimancy, to ensure the accuracy of the information provided by the corporation's financial claims, and thus to minimize the firm's average cost of capital. Far from being irrelevant, corporate financial structure may be vital in identifying the intangible asset Harold Demsetz refers to as the stock of "specialized knowledge" that characterizes the firm.¹³ If so, the valuation hypothesis should have profound implications for the nature of economic organization, generally, including the optimal choice of business form between partnership, limited partnership, closely-held corporation, and publicly-held corporation.

As Milton Friedman pointed out in his classic 1953 essay on economic methodology, a positive theory ideally meets two criteria. "In part, it is a 'language' designed to promote 'systematic and organized methods of reasoning.' In part, it is a body of substantive hypotheses designed to abstract essential features of complex reality."¹⁴ To meet the first of these criteria a positive theory should consist of a logically complete, internally consistent analytical filing system that tautologically describes the relevant empirical phenomena to be explained. To meet the second criterion the theory should have the ability to "predict phenomena not yet observed."¹⁵ In this essay I strive to meet both criteria. The essay proceeds as follows. I begin in

¹² Throughout the paper I use *he* to represent the impersonal pronoun, not because I believe it is gender neutral but precisely because it reflects my own gender and therefore serves as a signal to the reader of any gender biases that might unknowingly have crept into my analysis.

¹³ Demsetz, *The Theory of the Firm Revisited*, 4 J. LAW, ECON., AND ORG. 141, 157 (1988).

¹⁴ Milton Friedman, *The Methodology of Positive Economics*, in READINGS IN MICROECONOMICS (1971), at 23, 26.

¹⁵ Friedman, *supra* note ?.

Section II by briefly examining the *Modigliani & Miller Irrelevance Hypothesis*. I then review the relevant literature from agency theory, transaction cost economics, and law. The review serves, in part, to lay a foundation for my claim that the bodies of knowledge on corporate financial structure have been converging in recent years. I describe the valuation hypothesis in detail and explain why corporate financial structure is indeed relevant in Section III. I also show that the valuation hypothesis meets Friedman's first criterion of a positive theory, it is tautological. In Section IV, I address Friedman's second criterion by demonstrating the predictive power of the valuation hypothesis and showing that it rationalizes apparent anomalies in the existing literature. I begin by discussing various applications of the hypothesis to commercial and bankruptcy law and then generate a few testable implications in the context of corporate reorganizations. The evidence, though necessarily casual at this stage, is proximately consistent with these implications. I also briefly discuss the more general implications of the valuation hypothesis for the nature of economic organization and the optimal choice of business form. Finally, I offer a few concluding comments and suggest directions for future research in Section V.

II. THREE FIELDS OF LITERATURE

The relevant literature from even one of the three fields of agency theory, transaction cost economics, or law is simply too extensive to attempt an exhaustive review. Moreover, such a review would do little to further the objectives of this essay, which are to add to our understanding of corporate financial structure, to trace the associated legal implications, and, more generally, to advance the theory of economic organization. This section therefore reviews selected and broadly representative works from each field to lay the foundation necessary to demonstrate their convergence and to understand the valuation hypothesis developed in Section III. To provide a sense of continuity as to how the literature in each field has evolved, the review follows roughly a chronological format within each subsection.

A. *The Modigliani & Miller Irrelevance Hypothesis*

Recall that the M&M Irrelevance Hypothesis holds only under certain restrictive assumptions. The most important of these include a fixed corporate investment policy (the firm's investment projects, and therefore its aggregate cash flows, are unaffected by its financing decisions), "perfect" markets (individual investors can borrow and lend at the same rate as the firm, with all prices known and competitively determined), riskless debt (all debt, both individual and corporate, earns an identical and certain stream of income equal to the riskless rate, with zero bankruptcy costs on default), perfectly loyal firm managers (managers can be presumed to act in the best interests of investors), and zero taxes. Since the return on equity, which is risky, must exceed that on riskless debt,¹⁶ it would seem that a firm could reduce its average cost of capital and thus increase firm value by leveraging itself to the hilt through debt financing. The heart of the irrelevance hypothesis lies in the ability of individual investors to duplicate any such capital structure decision made by the firm. Being able to lever their own portfolios, individual investors do not need the firm to do it for them, and any differences in firm value due to leverage cannot persist.¹⁷ In equilibrium, the average cost of capital to levered and unlevered firms will therefore be identical.

According to M&M, moreover, this result holds regardless of investors' individual attitudes toward risk. It requires only that "the price of a commodity representing a 'bundle' of two other commodities cannot be consistently different from the weighted average of the prices of the two components (the weights being equal to the proportion

¹⁶ It is a basic principle of finance theory that risk and return are positively related -- on average, investors must be promised higher returns for bearing greater risk. Richard A. Brealey and Stewart C. Myers, *PRINCIPLES OF CORPORATE FINANCE* 136-140 (1988).

¹⁷ For example, given two firms with identical expected earnings, one levered and one unlevered, if the net market value of the levered firm were to exceed that of the unlevered firm, individual investors would face a profitable arbitrage opportunity. By selling the (overpriced) shares of the levered firm and using the proceeds, together with capital borrowed on personal account at the riskless rate, to buy the (underpriced) shares of the unlevered firm, individual investors could earn added returns. They would continue selling shares in the levered firm and buying shares in the unlevered firm until the two firms' stock prices adjusted to equalize returns.

of the two commodities in the bundle).¹⁸ M&M illustrate this proposition by analogizing it to a market in which whole milk and its derivative products, butter fat and skimmed milk, sell for different prices. In their words:

Our Proposition 1 states that a firm cannot reduce the cost of capital -- *i.e.*, increase the market value of the stream it generates -- by [procuring] part of its capital through the sale of bonds, even though debt money appears to be cheaper. This assertion is equivalent to the proposition that, under perfect markets, a dairy farmer cannot in general earn more for the milk he produces by skimming some of the butter fat and selling it separately, even though butter fat per unit weight, sells for more than whole milk. The advantage from skimming the milk rather than selling whole milk would be purely illusory; for what would be gained from selling the high-priced butter fat would be lost in selling the low-priced residue of thinned milk.¹⁹

M&M were aware that the assumptions of their model are unrealistic. Their point was to demonstrate that if corporate financial structure affects firm value, which it surely does in the real world, it must be precisely because one or more of their restrictive assumptions is inconsistent with reality. Thus, their unrealistic assumptions have served as the guiding light for further research into why corporate financial structure is, after all, relevant. For the purposes of this essay the important responses in the corporate finance literature can be differentiated by those based on agency theory and those based on asymmetric information theory.

B. *Agency Theory*

¹⁸ Modigliani & Miller, *supra* note ?, at 277.

¹⁹ Modigliani & Miller, *supra* note ?, at 277.

One of the first notable agency theory responses to the irrelevance hypothesis is the seminal 1976 paper by Jensen & Meckling (J&M). These authors explicitly relax the M&M assumption that firm managers can be presumed to act in the best interests of investors.²⁰ Suppose, for example, that the entrepreneur of a wholly-owned firm perceives a profitable investment opportunity whose cost exceeds his wealth constraint. To finance the project, the entrepreneur has the choice of issuing either debt or equity to outside investors. If he chooses to issue outside equity, as his share of equity ownership declines he takes on the attributes of an agent. Because the manager-agent receives only a small share of the profits from his efforts but bears a disproportionate share of the costs, his incentive to enhance firm value will be diluted, and he will tend to devote too little effort to the task. What amounts to the same thing, he may convert some of the firm's resources to his personal use. Since outside shareholders can foresee that it will be costly to monitor the manager's behavior to prevent this kind of wealth transfer, they will demand higher nominal returns to compensate for the monitoring costs they expect subsequently to incur during the course of their investment. They will therefore pay a lower price up front for the firm's stock to ensure that the net returns (gross returns less monitoring costs) they earn are normal, and the firm's cost of capital will be higher than it would otherwise be as a result. Moreover, since it will never pay shareholders to monitor perfectly, some potential for wealth transfer is likely to persist, and in response the manager will incur bonding costs to warrant that he will live up to the terms of the agency. Being borne in part by the firm, say, in the form of higher managerial compensation, these costs will reduce nominal returns, at the margin leading to lower up-front share prices and higher capital costs. Finally, there will be potentially profitable investments that the firm will simply forgo, but which it otherwise would have made. J&M refer to these as the residual losses from agency. The sum of monitoring costs by shareholders, bonding costs by managers, and residual losses are known as the agency costs of outside equity ownership, and, all else equal, they lead to an increase in the all-equity firm's average cost of capital as the manager's share of ownership declines.

²⁰ Michael C. Jensen and William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305 (1976).

The agency costs of outside equity ownership follow from three basic conditions. First, all parties maximize private wealth and therefore tend to pursue their own personal objectives, often at others' expense.²¹ Second, it is costly for a principal to monitor an agent to ensure that the agent acts strictly in the principal's interest. Past some point the principal will no longer find it worthwhile to monitor the agent more closely and will therefore tolerate some residual loss. Finally, the entrepreneur faces a wealth constraint and will find it worthwhile to seek outside equity funding in spite of the associated agency costs. One way to limit the agency costs of outside equity ownership is to finance a portion of the firm's investment with debt. Holding firm earnings and the manager's absolute dollar investment constant, the manager's *share* of equity will increase and the equity-agency problem will subside as the firm issues additional debt. Thus, debt financing mitigates the incentive dilution problem engendered by outside equity ownership.

What is more, as Grossman and Hart (G&H) argue in a well-known 1982 paper, debt can serve indirectly to reduce the agency costs of outside equity ownership even where its direct effect on managerial incentives is trivial.²² They correctly point out that in many large public corporations managers own such a small fraction of equity that even a substantial increase in firm debt is unlikely to have any significant influence on managerial incentives. Under such circumstances the increased risk of bankruptcy created by issuing additional debt guarantees manager performance. Those who devote too little attention to maximizing profits or who convert too many of the firm's resources to their own use are more likely to send their firms into the notorious state of bankruptcy and will face poorer prospects in the managerial labor market. By causing the firm to finance in part with debt, corporate managers therefore bond themselves to maximize profits, and the firm's cost of capital will be lower than it would otherwise be.

In any event, debt financing is no panacea. Instead, it carries its own agency costs,

²¹ Private wealth is defined as all future net value flows captureable by the individual discounted to the present at the appropriate interest rate. See D. Bruce Johnsen, *Wealth is Value*, 15 J. LEGAL STUD. 263 (1986).

²² Sanford Grossman and Oliver Hart, *Corporate Financial Structure and Managerial Incentive*, in J. McCall (ed.), *THE ECONOMICS OF INFORMATION AND UNCERTAINTY* (Chicago: University of Chicago Press, 1982), at 107-37.

and this, according to J&M, explains "[w]hy we don't observe large corporations individually owned with a tiny fraction of the capital supplied by the entrepreneur . . . and the rest simply borrowed."²³ One problem with debt financing arises due to what J&M refer to as the "asset substitution" problem. Since equity shareholders in an otherwise solvent firm stand to receive the entire gain from highly risky investment projects that succeed but bear less than the entire loss in the event of failure (a portion of the losses being borne by debtholders), they will have too much incentive to engage in unexpectedly risky projects. In essence, this allows them to transfer expected wealth from debtholders to themselves through their control of the firm's investment decisions.

It is important to note the role bankruptcy costs play in this reasoning. In the absence of transaction costs in bankruptcy, debt would pose no risk of wealth transfer regardless of the variance of the firm's investment projects. If it was costless to reorganize the firm on default by following routine contractual or statutory procedures, for example, asset substitution and the higher likelihood of default it carries would be a matter of indifference to debtholders. Whatever the method of working out the firm's claims, and regardless of how claims were to be reshuffled in bankruptcy, as long as the outcome was foreseeable any potential for systematic wealth transfers would be capitalized into debt and equity prices up front. Where bankruptcy is costly, however, default imposes real social losses on the parties that must be factored into the analysis when calculating the agency costs of risky debt.

A second problem with debt financing is what Stuart Myers identified in 1977 as the "underinvestment" problem.²⁴ In his model, a firm's value as a going concern depends largely on its opportunities for future discretionary investment. Within this framework, Myers distinguished between so-called "growth opportunities" and "assets in place." Growth opportunities correspond closely to the firm's "intangible real assets," which can be viewed as "call options, in the sense that their ultimate values depend, at least in part, on further

²³ Jensen & Meckling, *supra* note ?, at 107.

²⁴ Stuart C. Myers, *Determinants of Corporate Borrowing*, 5 J.F.E. 146, 147 (1977).

discretionary investment by the firm." According to Myers, "[t]he value of real options reflects the possibility of rents or quasi-rents." Assets in place, on the other hand, are those "whose ultimate value does not depend on further discretionary investment."²⁵ Myers showed that the issuance of risky debt can adversely affect the firm's choice of investment projects. Specifically, whenever bankruptcy is possible it can lead the firm to underinvest in future growth opportunities by forgoing positive net present value projects. This is because a substantial portion of the returns will accrue to debtholders rather than to equity shareholders, while it is shareholders that bear the investment costs. The optimal level of firm debt will therefore approximate the value of the firm's assets in place, assets whose value is unaffected by the firm's discretionary investment. Beyond this point, leveraging the firm's growth opportunities risks reducing firm value due to the underinvestment problem. An obvious implication of this analysis is that firms composed of relatively more assets in place will have higher debt levels than firms with relatively more growth options. And here, too, bankruptcy costs are important; the underinvestment problem arises only because the cost of contractually requiring equity shareholders to make all positive net present value projects in the face of imminent bankruptcy is excessively high.

In the generalized J&M model, optimal capital structure is determined by balancing the agency costs of outside equity ownership against the agency costs of risky debt. Holding the outside *share* of equity ownership constant, the cost of debt capital will increase as the level of debt rises and the asset substitution and underinvestment problems become more acute. Holding the manager's absolute investment constant, however, his share of equity ownership will increase as firm debt rises, thereby reducing the agency costs of outside equity ownership. The optimal level of debt will be that which minimizes the sum of the agency costs of debt and the agency costs of outside equity ownership and thereby minimizes the firm's average cost of capital.

Although the agency theory of corporate finance meets Friedman's first test of logical completeness, like all positive hypotheses it must finally be judged by its testability, that is,

²⁵ Myers, *supra*, note ?, at 154.

by "its ability to predict phenomena not yet observed." To do this, it is necessary to specify the observable implications of the theory. For example, in what observable ways might we expect the parties to corporate finance transactions to limit the joint wealth losses from agency costs? And under what observable circumstances might we expect the agency costs of outside equity to rise relative to the agency costs of debt, thereby leading to an increase in firm leverage?

In a 1979 paper, Smith and Warner (S&W) tested J&M's agency theory by examining the organizational responses to the asset substitution and underinvestment problems.²⁶ As is true in any commercial setting, the conflicts between debt and equity holders can be reduced, though not entirely eliminated, by contracting, and the nature and form of debt covenants should reflect this endeavor. To test this proposition they examined the standardized and widely used debt covenants reported in the American Bar Foundation's *Commentaries on Indentures*. They found that prominent debt covenants such as asset maintenance clauses, sinking funds, and security agreements, as well as covenants restricting 1) the scope of investment by the firm, 2) asset sales or major changes in the firm's line of business, and 3) mergers indeed serve to reduce the likelihood of asset substitution and underinvestment. Since the use of such covenants is costly, however, it will not pay the parties to totally eliminate all opportunities for wealth transfer; rather, they will continue spending resources contracting until the marginal benefit in terms of agency costs avoided is just equal to the marginal contracting cost. Any remaining "risk" of misbehavior will be capitalized into the price debtholders pay for their claims or avoided altogether through portfolio diversification.

Jensen, himself, addressed the testability of agency theory in a 1986 paper by identifying what he characterized as the agency costs of "free cash flow."²⁷ According to Jensen, "[f]ree cash flow is cash flow in excess of that required to fund all projects that have

²⁶ Clifford W. Smith, Jr., and Jerold B. Warner, *On Financial Contracting*, 7 J.F.E. 175 (1979).

²⁷ Michael C. Jensen, *Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers*, 76 A.E.R. 323 (1986).

positive net present value when discounted at the relevant cost of capital."²⁸ The problem posed by free cash flow is that managers will have a tendency to invest it "at below the cost of capital or wast[e] it on organization inefficiencies"²⁹ due to the agency costs of outside equity ownership. How, instead, can managers be motivated to disgorge the cash rather than converting it to their own use? Debt allows firm managers to bond themselves against the misuse of free cash flow by contractually agreeing to pay it out to investors in the form of periodic interest. This analysis suggests a test of agency theory because, as Jensen points out, it is possible to distinguish firms that have free cash flow from those that do not; "new activities" and "[a]ctivities generating substantial . . . quasi rents are the types of activities that generate substantial amounts of free cash flow."³⁰ The firms engaged in such activities are the ones for which monitoring by "internal control systems," such as debt or the market for corporate control, are more important than monitoring by the product or factor markets, which tend to be sufficient in mature industries and established lines of business. All else equal, Jensen predicts we will see firms that generate relatively free cash flow being more highly levered, and the evidence he gleans from leveraged buyouts and the 1970s oil industry tends to support this contention.

A recent contribution to the agency theory of corporate finance is that developed by Harris and Raviv (H&R), who emphasize the dual role of debt both in monitoring and disciplining managers and in providing investors with information about the firm's prospects.³¹ In a world characterized by positive agency costs, firm managers will be inclined to continue the firm's current operations even when liquidation has greater value to investors, that is, even when the firm's assets are worth more in their next best alternative use. Consequently, they may be reluctant to divulge this information to investors as it comes to light. Debt reduces this information asymmetry problem by allowing investors, in this

²⁸ Jensen, *supra* note ?, at 323.

²⁹ Jensen, *supra* note ?, at 323.

³⁰ Jensen, *supra* note ?, at 323.

³¹ Milton Harris and Artur Raviv, *Capital Structure and the Informational Role of Debt*, 45 J. FIN. 321 (1990).

case debtholders, the option to liquidate the firm in the event it defaults on the stated debt payments. Once default occurs, investors gather information about the firm's prospects and decide whether to liquidate or reorganize. Thus, by giving investors the contingent opportunity to investigate the firm's prospects, and to liquidate if necessary, debt constrains managers' inclination to perpetuate inefficient current operations. In this framework, accurate information about the firm's next best use and manager discipline constitute the benefits of debt, while the costs of debt consist of the resources investors must devote to the investigation in the event of default. A higher level of debt increases the probability that investors will be able to oust inefficient managers, but it also increases their expected investigation costs. The optimal level of debt in the H&R model is that which balances costs and benefits at the margin. Among other things, the H&R model predicts that firms with higher liquidation value, such as those with a high ratio of tangible to intangible assets, will have greater debt, higher yield debt, and a greater likelihood of default, but also higher market value than similar firms whose liquidation value is lower.

C. *Transaction Cost Economics*

Any transaction cost discussion of the *Irrelevance Hypothesis* would be incomplete without reference to Ronald Coase's famous 1937 article the *Nature of the Firm*.³² Writing in response to the then prevailing belief that the "[e]conomic system 'works itself,'" Coase asked why, "in view of the fact that it is usually argued that co-ordination will be done by the price mechanism, [are firms] necessary?"³³ Coase's fundamental insight was that the price mechanism does not work costlessly and that firms exist to economize on these costs. The extent of the firm is therefore determined by balancing the cost of coordinating production in the market through the price mechanism against the cost of organizing

³² Coase, *supra* note ?.

³³ Coase, *supra* note ?, at 387, 388 (1937). Like Modigliani and Miller twenty-one years later, Coase seems to have been enamored with the allusion to dairy products as a method of illustrating his theory. Quoting D. H. Robertson, he saw the existence of firms in the market as "'islands of conscious power in [an] ocean of unconscious co-operation like lumps of butter coagulating in a pail of buttermilk.'" *Id.*, at 388.

production within the firm. In the case of internal organization, the entrepreneur coordinates production by "directing" the firm's employees to execute various tasks. In the case of market exchange, prices perform the coordinating function by revealing conditions of relative scarcity. In either case, the relevant organizing costs have come to be known broadly as transaction costs, and the extent of the firm is said to be determined by the costs of transacting. An obvious implication of this theory is that the extent of the firm will shrink when the cost of using prices to transact in the market falls relative to the cost of internal organization. Where two activities were once performed by one vertically integrated firm, they will come to be performed by two firms instead.³⁴ Less obvious but far more important for this essay is Coase's insight that prices, themselves, consume real resources. In his words, one "cost of 'organizing' production through the price mechanism is that of discovering what the relevant prices are. This cost may be reduced but it will not be eliminated by the emergence of specialists who will sell this information."³⁵

In a well-known 1972 paper, Alchian and Demsetz (A&D) took issue with Coase's analysis. Although they agreed with his "penetrating insight . . . that markets do not operate costlessly,"³⁶ they questioned his distinction between internal "direction" by the entrepreneur and external coordination by market prices: "[t]elling an employee to type this letter rather than to file that document is like my telling a grocer to sell me this brand of tuna rather than that brand of bread."³⁷ In this sense, "[t]o speak of managing, directing, or assigning workers to various tasks is a deceptive way of noting that the employer continually is involved in renegotiation of contracts."³⁸ Rather than being based on direction, the firm is characterized by its reliance on "team" production and the existence

³⁴ Differences in "production" costs are ignored in this framework because they are assumed to be identical regardless of which firm or firms perform the production process.

³⁵ Coase, *supra* note ?, at 390.

³⁶ Armen A. Alchian and Harold Demsetz, *Production, Information Costs, and Economic Organization*, 62 A.E.R. 777, 783 (1972).

³⁷ Alchian & Demsetz, *supra* note ?, at 777.

³⁸ Alchian & Demsetz, *supra* note ?, at 777.

of a central, specialized agent to monitor the performance of team members to prevent "shirking" and to contractually apportion rewards according to their respective contributions. Since information is costly, it is impossible exactly to determine each team member's contribution to joint output, and it is therefore costly to perform the monitoring function. Moreover, since monitoring in this setting involves both prospecting and innovation, it would be virtually impossible for anyone effectively to monitor the monitor. As a result, the monitor is paid the variable difference between the firm's periodic revenue and the fixed compensation promised to the remaining team members (and other input owners). His compensation then varies according to the proficiency with which he performs the monitoring function. Being the so-called "residual claimant" to the firm's net performance he is regarded as the entrepreneur and owner of the firm, and there is no need to monitor his performance.

This view departs from the classical conception of income distribution, in which "productivity automatically created its own reward,"³⁹ by reversing the direction of causation: "the specific system of rewarding which is relied upon stimulates a particular productivity response."⁴⁰ In this regard, A&D distinguished their explanation of the firm from those based on the allocation of risk, in which the entrepreneur is assumed to be the least risk averse party. Instead, they "deduce[d] the system of paying the manager with a residual claim (the equity) from the desire to have efficient means to reduce shirking so as to make team production economical and not from [a general] aversion to the risks of enterprise in a dynamic economy."⁴¹ It is worth noting that A&D offered a provisional explanation for the creation of separate classes of corporate investors. In their view, stockholders and bondholders differ only in that "stockholders are more optimistic than bondholders about the enterprise prospects. . . . [S]harholders prefer to invest funds with a greater realizable return if the firm prospers as expected, but with smaller (possibly

³⁹ Alchian & Demsetz, *supra* note ?, at 778.

⁴⁰ Alchian & Demsetz, *supra* note ?, at 779.

⁴¹ Alchian & Demsetz, *supra* note ?, at 785.

negative) returns if the firm performs in a manner closer to that expected by [bondholders].⁴²

Following the foundation laid largely by Oliver Williamson,⁴³ in 1978 Klein, Crawford, and Alchian (KC&A) made a notable contribution to the theory of the firm by identifying a set of conditions under which the transaction costs of using market exchange to coordinate production are likely to rise relative to the transaction costs of organizing production within the firm.⁴⁴ These conditions include prohibitive costs in enforcing long-term contracts and the presence of specialized quasi-rents, or "asset specificity." As already noted, an asset is specific to a particular activity if the value of the asset in its current use is discretely greater than in its next best use net of the costs of redeploying it. An unexpected reduction in the payment to a specific asset within the range of its specialized quasi-rents will have no effect on how it is used, since the payment it receives can fall by this entire amount before the owner will transfer it into its next best use. According to KC&A, the problem posed by asset specificity is that the asset may fail to earn the expected payment necessary to prompt the investment in the first place due to postcontractual opportunism by one of the parties to the exchange. Opportunism arises due to what Williamson describes as "self-interest seeking with guile."⁴⁵ Long-term contracting can be used to guard against such an outcome, but enforcing contractual rights in court is costly and is therefore an imperfect solution to the problem. As an asset becomes more specific to a particular activity the problem becomes more severe, eventually leading the parties to favor internal organization over long-term contracting.

To demonstrate this situation, KC&A hypothesize a printing press operator, A, who contemplates renting printing services to B, a guileful (as it turns out) publisher. This will require A to invest in a large press for which the daily amortized fixed cost will be \$4000

⁴² Alchian & Demsetz, *supra* note ?, at 789.

⁴³ Williamson (1975), *supra* note ?, 26-30.

⁴⁴ Benjamin Klein, Robert C. Crawford, and Armen A. Alchian, *Vertical Integration, Appropriable Rents, and the Competitive Contracting Process*, 21 J. LAW & ECON. 297 (1978).

⁴⁵ Williamson (1988), *supra* note ?, at 569 (1988).

and the daily operating cost will be \$1500. Once he puts the press in place, however, A will have only two alternative uses for it. One is to rent it to a second publisher, C, who is willing to pay at most \$3500 per day for printing services, with A again incurring daily operating costs of \$1500. The other is to "salvage" it by moving it outside the locality, where it will earn a daily rental equivalent net of relocation and operating costs of \$1000. Based on B's promised rental payment of \$5500 per day, A purchases and installs the press. Due to ex ante competition, the daily rental of \$5500 is just sufficient to cover A's opportunity cost, including a normal return on his investment. Since C is willing to pay at most \$3500 per day for printing services, and since, by assumption, the cost to A of enforcing the contract in court is prohibitive, the installed press is somewhat specific to B, who can thus behave opportunistically by refusing to honor the agreement and reducing his offer price.

According to KC&A, "the quasi-rent value of the asset is the excess of its value over its salvage value, that is, its value in its next best *use* to another renter. The potentially appropriable specialized portion of the quasi-rent is that portion, if any, in excess of its value to the second highest-valuing *user*."⁴⁶ In the printing press example outlined above, the daily quasi-rent on the installed machine is \$3000 (the daily rental of \$5500, minus the daily operating cost of \$1500, minus the amortized daily net salvage value of \$1000). Only a portion of this value is appropriable by publisher B, however, since publisher C stands ready to pay \$3500 per day. It is "the daily quasi-rent from publisher B relative to the use of the machine for publisher C" of \$2000 ($\$5500 - \3500 or $\$4000 - \2000) that is appropriable by B. KC&A argue that internal organization is superior to long-term contracting in avoiding this threat. When the parties find it profitable to invest in more highly specialized assets, therefore, vertical integration is increasingly likely to replace long-term contracting as the form of organization chosen by the parties to secure the asset's services.

In a 1982 article extending A&D's analysis, Yoram Barzel identified the general importance of measurement costs to the economic theory of organization.⁴⁷ According to

⁴⁶ Klein, Crawford & Alchian, *supra* note ?, at 298.

⁴⁷ Barzel (1982), *supra* note ?

Barzel, every transaction involves valuable output on multiple dimensions, each of which is subject to variability. But outputs can be measured either directly or by proxy based on inputs. Market exchange is typically based on measured outputs, while internal organization is based on measured inputs. Since measurement is costly, the extent of the firm in any given setting will be determined in part by the relative costs of measuring inputs and outputs, and a necessary condition for production to occur within the firm is that it is less costly to use inputs as a proxy for outputs than to measure outputs directly. By suppressing market exchange, production within the firm with factor compensation based on inputs reduces the need to duplicate the measurement of output in the sequential stages of specialized production. When the benefits from conservation on measurement require production to be "performed by employed workers, 'shirking' becomes a problem and the entrepreneur is remunerated for his monitoring of inputs, which implies that he has to assume the risk of price and other fluctuations" in the market value of the firm's outputs.⁴⁸ As in A&D's analysis, the allocation of variability to the entrepreneur encourages him to organize production and apportion rewards in a way that reduces the costliness of measurement.

Building on his earlier work with Alchian, in 1988 Harold Demsetz developed a view of the firm that accounts more completely for the complementary roles of specialization and information costs. In his view, "[e]ach firm is a bundle of commitments to technology, personnel, and methods, all contained and constrained by an insulating layer of information that is specific to the firm [and that] cannot be altered or imitated easily or quickly."⁴⁹ Within this framework, Demsetz retained his earlier view that the firm involves team production. To this he added the notion that each member of the team performs a unique specialty and that this leaves each member relatively ignorant of the tasks performed by his teammates. The problem that arises in this setting is how to foster cooperation between team members without requiring each one to master the others' specialties. This is made

⁴⁸ Barzel (1982), *supra* note ?, at 42.

⁴⁹ Demsetz (1988), *supra* note ?, at 148.

possible by the evolution of a body of knowledge that is common to all members of the team and that allows them to cooperate at low cost. Moreover, this body of knowledge is specialized to the team, itself; its character will vary between firms depending on the nature of the production process and the "equipment on which they rely."⁵⁰ According to Demsetz, it is this stock of "specialized knowledge" that characterizes the firm, and "the vertical boundaries of the firm are determined by the economics of conservation of expenditures on knowledge."⁵¹ Exchange occurs between separate firms "when downstream users can work with, or can consume, the 'product' without themselves being knowledgeable about its production," that is, without having to be familiar with either the firm's peculiar stock of specialized knowledge or the individual team members' specialties.⁵²

Writing at the same time as Demsetz, Oliver Williamson may have been the first to use transaction cost economics directly to address corporate financial structure.⁵³ In doing so he distinguished between the *governance* and the *measurement* branches of transaction cost economics, confining his attention to the former. Williamson began by noting the general similarities and differences between transaction cost economics and agency theory. One of the main differences is that agency theory views the firm as a collection of undifferentiated "composite capital," whereas transaction cost economics works out of a "project finance" approach that distinguishes between the investment attributes of different projects.⁵⁴ As with KC&A, the investment attribute on which Williamson focussed was asset specificity. Rather than regarding equity and debt as mere financial instruments representing claims against the firm's undifferentiated cash flow, however, he viewed them as alternative governance structures whose use depends on the degree of asset specificity.

Williamson analogized the firm's choice between debt and equity to the choice

⁵⁰ Demsetz (1988), *supra* note ?, at 157.

⁵¹ Demsetz (1988), *supra* note ?, at 157-159.

⁵² Demsetz (1988), *supra* note ?, at 158.

⁵³ Williamson (1988), *supra* note ?.

⁵⁴ Williamson (1988), *supra* note ?, at 576.

between market exchange and vertical integration. Debt, he asserted, is a market-like governance structure akin to contracting that relies primarily on discrete, easily enforced rules. Equity, on the other hand, is more akin to internal administration, allowing flexibility and discretion in the face of changing circumstances. Accordingly, debt works best where "asset specificity is slight" and the expected value of redeployment is high, largely because its simple allocation of rights and responsibilities preserves the parties' incentives and discourages "politicking" of the kind portrayed by postcontractual opportunism. Equity, on the other hand, works best for projects involving a high degree of asset specificity because of its ability to forestall opportunism and assure contemplated outcomes. Although equity is more costly to set up, in the face of asset specificity it is more likely to preserve going concern values when unanticipated changes lead to "maladaptation."

An important implication follows from Williamson's analysis. The greater the redeployment value of the firm's investment projects the greater will be the debt-equity ratio. This is because the efficient governance structure closely tracks the redeployment value of the firm's assets. According to Williamson, the goal of minimizing governance costs provides a convincing explanation for the recent wave of leveraged buyouts. Starting in equilibrium:

Suppose . . . the firm is successful and grows through retained earnings. The initial debt-equity ratio thus progressively falls. And suppose . . . that many of the assets in this now-expanded enterprise are of a kind that could have been financed by debt.

Added value, in such a firm, can be realized by substituting debt for equity. This argument applies, however, selectively. It only applies to firms where the efficient mix of debt and equity has gotten seriously out of alignment. These will be firms that combine (1) a very high ratio of equity to debt with (2) a very high ratio of redeployable to nonredeployable

assets.⁵⁵

Partially in support of this proposition, Williamson relies on the observations reported in several studies of leveraged buyouts. In particular, he quotes Colman's observation that "the lender ties all or at least part of his loan to the liquid value of the borrower's assets . . . , [and realizes protection by] taking a security interest in the assets . . . , [establishing] a lending formula on the basis of the liquid value, and . . . [obtaining] periodic information on the nature and size of those assets."⁵⁶

D. *The Legal Scholarship*

Legal scholars have used both agency theory and transaction cost economics to address two legal questions that follow from the *Irrelevance Hypothesis*. These have come to be known as the "puzzle of secured debt" and the "bankruptcy priority puzzle." The remainder of this section reviews a selection of the literature on these questions. Although they are closely related, for the sake of exposition I treat them separately. Moreover, since the primary objective of this essay is to address corporate financial structure, I routinely envision the debtor as a firm rather than as an individual.

1. *The Puzzle of Secured Debt*

A security interest in property is a lien acquired by contract to assure performance of a debt or other obligation. On default, it includes both a first-priority claim on the debtor's estate up to the market value of the specified collateral and a property interest in the collateral that allows the lender to repossess or foreclose without invoking judicial

⁵⁵ Williamson (1988), *supra* note ?, at 585.

⁵⁶ Williamson (1988), *supra* note ?. at 587.

process.⁵⁷ Debt secured by personal property consists largely of short and intermediate-term debt and is regulated by § 9 of the Uniform Commercial Code. The main purpose of § 9 is said to have been to reduce the cost of issuing security against personal property, and this appears to have been its primary effect.⁵⁸ Section 101(37) of the U.S. Bankruptcy Code (1978) includes liens created against real property in the definition of security interests.⁵⁹ The associated debt tends to be long-term in nature to correspond with the greater expected life of the assets that serve as collateral.

The puzzle of secured debt was stated quite simply by Jackson & Kronman (J&K) in 1979: "Why does the law allow a debtor to prefer some creditors over others by securing their claims, instead of requiring all creditors to share ratably in the debtor's estate?"⁶⁰ According to the *Irrelevance Hypothesis* security should add nothing to the value of the firm compared to a pro rata sharing rule. There are two basic types of responses to this question, one based on distributional considerations and the other based on efficiency considerations. Although the two are ultimately impossible to separate, I focus primarily on efficiency considerations. The early efficiency response to the security puzzle was that by providing a lender with priority over other creditors security reduced the lender's default risk and thus allowed the firm to borrow at a lower interest rate or from lenders who might otherwise be unwilling to lend.⁶¹ Without more, however, J&K noted that this explanation for security runs afoul of the *Irrelevance Hypothesis* because the decrease in risk to the secured lender will be met with a corresponding increase in risk to unsecured lenders, who will face a reduced pool of assets to satisfy their claims.⁶² Over the long run, unsecured lenders will respond to the lower priority of their claims by increasing interest rates, exactly

⁵⁷ Adler (1993), *supra* note ?, at 78; and Schwartz (1989), *supra* note ?, at 243.

⁵⁸ Schwartz (1981), *supra* note ?, at 4-5.

⁵⁹ Bankruptcy Reform Act of 1978, 11 U.S.C. 724(b)(1) [hereinafter cited as Bankruptcy Code].

⁶⁰ Jackson & Kronman (1979), *supra* note ?, at 1146.

⁶¹ See, e.g., J. Van Horne, FINANCIAL MANAGEMENT AND POLICY 536 (3rd ed 1974).

⁶² Jackson & Kronman (1979), *supra* note ?, at 1154 and n. 45.

offsetting the interest rate reduction to the secured lender and leaving the firm's average cost of capital unchanged. Thus, security appears to be irrelevant or even worse; to the extent security agreements are costly to transact, as is normally assumed, the firm's average cost of capital will actually rise to reflect these costs.

J&K sought to demonstrate the relevance of security by appealing to agency theory. Citing Jensen and Meckling, they focused on the firm's ability to increase equity value at the expense of the firm's lenders by engaging in asset substitution, a form of post-contractual opportunism. Under a pro rate sharing rule, asset substitution will increase risk for all the firm's lenders and will lead to a predictable increase in the interest rates they charge. One possible response is for each creditor to monitor to prevent asset substitution. Yet this will lead to the inefficient duplication of monitoring effort. At the same time, pro rata sharing can weaken the incentive to monitor if none of the lenders can exclude the others from free riding on the benefits of his monitoring efforts. Both the duplication and free rider problems can be overcome by assigning a given monitoring task to a single lender. To the extent this can be done at a cost that is lower than the added risk premium he would require from remaining passive, the interest rate on his loan will be lower than it would otherwise be. He will continue to substitute monitoring for passive acquiescence to firm misbehavior so long as the marginal gains in interest rate reductions exceed the marginal monitoring costs.

A security agreement enhances the parties' ability to assign monitoring tasks. By identifying a particular asset to be monitored -- and to serve as collateral on default -- the security agreement forestalls duplicate monitoring and inhibits free riding.⁶³ As J&K describe it, "[a] secured creditor can focus his attention on the continued availability of his collateral and is largely free to disregard what the debtor does with the remainder of his estate."⁶⁴ As with the simple risk reduction story, J&K note that granting a security interest

⁶³ It was apparently Levmore who first recognized that a grant of security reduces free riding by equally situated creditors on one another's monitoring efforts. See Saul Levmore, *Monitors and Free Riders in Commercial and Corporate Settings*, 92 YALE L.J. 49 (1982).

⁶⁴ Jackson & Kronman (1979), *supra* note ?, at 1153.

to one lender may result in an offsetting increase in the amount unsecured lenders must spend to monitor the firm's remaining assets or financial well being. Only when security does not generate such offsetting costs will it pay the parties to use it. In contrast to the simple risk reduction story, however, by focusing on monitoring J&K are able to articulate the conditions under which security is likely to reduce aggregate interest charges and increase the parties' joint wealth. In general, this will occur when security allows "each creditor to focus his monitoring efforts on a distinct aspect of the debtor's affairs. . . . through a simple division of labor,"⁶⁵ as, for example, when they specialize in monitoring two different assets.⁶⁶

J&K refer to his as a "reified" system of loan priorities and compare it to two alternative priority systems. The first is the pro rata system, in which there are really no priorities; all creditors share proportionately in the value of the defaulting firm's assets. The second system is based on what they describe as "horizontal" priorities. In this system, claims are ranked against the firm's entire, undivided estate, and senior creditors must be paid in full before junior claimants can receive anything. This system is evident to some extent in corporate financial structure, where unsecured creditors stand ahead of preferred stockholders, who in turn stand ahead of common stockholders, even though none of them appear to have any claim to identifiable assets. According to J&K:

In a horizontal, nonreified priority system, [senior] creditors will monitor less, and [junior] creditors more, than they would if all creditors shared equally in the debtor's estate. As compared to a pro rata priority

⁶⁵ Jackson & Kronman (1979), *supra* note ?, at 1154 n. 45.

⁶⁶ J&K mistakenly assume that security will reduce total monitoring costs only if the high-cost monitor is granted security. See Jackson & Kronman (1979), *supra* note ?, at 1154-57 and accompanying notes. To be precise, however, security will reduce total monitoring costs when it is granted to the creditor who experiences the greatest cost reduction from the grant, even if that creditor remains the high cost monitor in an absolute sense. It is the effect security has on lenders' comparative advantage, and not on their absolute advantage, that determines who is the efficient beneficiary of security. Seen in this light, J&K's analysis is therefore identical to the explanation offered by Levmore, *supra* note ?, at 50-59. Levmore claims security will be granted to the low-cost monitor, which he sees as contrary to J&K's prediction. Once we recognize that it is comparative rather than absolute advantage that determines the efficient beneficiary of security, the two explanations collapse into one.

scheme, then, horizontal stratification of claims will reduce total monitoring costs if creditors lower down in the priority chain are better monitors than those higher up. As an empirical matter, this will often be the case. . . .

A reified system, however, enjoys an advantage that neither a horizontal nor a pro rata system possesses. Because a reified system encourages creditors to focus their attention on different assets, it reduces the duplicate monitoring that both a pro rata and a horizontal system encourage, and allows creditors to take advantage of the efficiencies that come with specialization.⁶⁷

In a series of three articles beginning shortly after J&K's defense of secured debt, Alan Schwartz addressed various questions raised by the practice.⁶⁸ The first of these articles appeared in 1981. There, Schwartz responded to J&K's monitoring cost explanation for secured debt by demonstrating the inconsistency of its predictions with the observed facts. He began by reiterating J&K's finding that security will be irrelevant unless it reduces the monitoring costs incurred by secured creditors more than those incurred by unsecured creditors. In search of a plausible set of circumstances that would produce such efficiencies, he examined the different methods by which a firm can increase ex post default risk through asset substitution. One method is to literally exchange physical assets. By creating a lien that follows the asset, however, security effectively prevents this method of asset substitution. Indeed, security may reduce monitoring costs for both secured and unsecured creditors because unsecured creditors are likely to benefit from the firm's inability to engage in asset substitution. This necessarily reduces aggregate monitoring costs and the firm's average cost of capital.

Although this story seems plausible as an explanation for security interests in long- and intermediate-term debt, which are typically secured by long-lived tangible assets,

⁶⁷ Jackson & Kronman (1979), *supra* note ?, at 1157 n. 51.

⁶⁸ Schwartz (1981), (1984), and (1989), *supra* note ?.

Schwartz found that it fails to explain security interests in short-term debt. Such debt is often secured by the firm's existing stock of inventory or accounts receivable. The components that make up these accounting stocks turn over constantly; additions to the stock flow in and withdrawals from the stock flow out. In essence, this requires the firm continually to renegotiate the financing agreement.⁶⁹ In the absence of security, any firm caught increasing its ex post risk will suffer a reputational penalty that will increase the interest rate it must pay on future short-term debt. Unlike long-term financing, where recontracting takes place only at long intervals, this reputational constraint is a viable substitute for monitoring to prevent misbehavior by the firm. According to Schwartz, "[t]he monitoring cost explanation therefore predicts that firms may issue secured debt when much of their financing is long-term but will seldom do so when they primarily use short-term credit. The relatively large amount of short-term secured debt issued by retailers thus constitutes a serious counterexample to the monitoring-cost theory."⁷⁰

In 1986, Frank Buckley proposed an alternative explanation for security based on "screening" efficiencies. This explanation relies primarily differential information costs that arise due to market imperfections when the debt is issued. In a screening model, lenders devote resources to gathering information about the firm to eliminate any information asymmetry between themselves and firm managers about the attributes of the firm. Two important firm attributes of concern to potential lenders are the probability of default and the resulting value of the firm's assets in bankruptcy. Under a pro rata rule, each lender must gather information on both of these attributes and then calculate its proportionate share in bankruptcy before determining how much to pay for his claim. The grant of security to a single class of lenders in an amount that reflects the certainty-equivalent of the firm in bankruptcy reduces the aggregate costs of gathering information about these

⁶⁹ According to J&K, an "after-acquired property" clause serves to reduce the associated renegotiation costs by giving the lender a floating lien in the stock of collateral. Jackson & Kronman (1979), *supra* note ?, at 1167 and n. 77. Nevertheless, the lender is free to terminate on fairly short notice.

⁷⁰ Schwartz (1981), *supra* note ?, at 12. Schwartz misstates the strength of this argument. To be exact, all we can say is that the reputational constraint present with short-term debt will cause the firm to issue security less often than would otherwise be the case. There may be many other factors, including those that fit into the monitoring cost explanation, that affect the relative use of security with short and long-term debt.

attributes. Assuming the expected value of unsecured claims on default is zero, unsecured creditors need concern themselves with gathering information only about the value of the promised debt payments and the likelihood of bankruptcy. Secured creditors will confine themselves to gathering information about the value of the collateral that serves as security for their loans. According to Buckley, at least a portion of the gains from issuing security result from specialized screening:

Repayment and bankruptcy rights, like going concern and liquidation value, may be different in character. For example, a creditor who wishes to determine the probability of repayment may not have to consider the secondary uses to which firm equipment can be put if the firm ceases operations on a liquidation. Yet this information could be very relevant in valuing a bankruptcy claim. Thus, if there are economies of specialization in screening, screening costs will be lowered if the tasks of valuing repayment and bankruptcy rights are assigned to different groups of creditors. When [the firm's entire bankruptcy value] has been assigned to secured parties, unsecured creditors will not have to value this term and can specialize in determining the value of repayment rights, leaving to the secured parties the job of valuing bankruptcy rights.⁷¹

In this connection, Buckley makes the insightful if somewhat cryptic generalization that "if any portion of the expected dispersion . . . of firm value is in some way unique, screening costs might be reduced by assigning that portion of firm value to a particular claimant. It may be that upside possibilities are distinguished in this fashion, in which case screening considerations could explain the existence of different classes of equity securities as well."⁷²

Writing in the same year as Buckley, Robert Scott proposed an explanation for

⁷¹ Buckley, *supra* note ?, at 1425-26.

⁷² Buckley, *supra* note ?, 1425 n. 68.

secured debt based on "relational contracting," a concept derived from transaction cost economics. A relational contract is really no contract at all -- at least not in its relational attributes -- because it would be impossible to enforce in court. The parties to an ongoing trading relationship often recognize that all future contingencies cannot be specified in advance at reasonable cost. It will therefore pay to maintain flexibility to take advantage of future investment prospects but to do so within contractual parameters that avoid postcontractual opportunism and otherwise give the parties the incentive to maximize joint wealth. In this sense, Scott emphasizes, "the conventional focus on security as a method of protecting against default tends to obscure the possibility that security instead serves to enhance the many more frequent instances in which the business venture succeeds."⁷³

In Scott's view, secured debt is an especially effective form of relational contract in cases where the firm seeks to finance the kind of investment prospects Stuart Myers described as "growth opportunities." Recall that any issue of risky debt under such circumstances will dilute the firm's incentive to pursue profitable investment projects because a portion of the returns will accrue to the lender in the form of a reduced risk of bankruptcy. Myers labelled this the underinvestment problem. How does secured debt reduce this problem? Scott observed that growth opportunities are often financed with short-term debt that gives the lender the exclusive option to make all future loans. This kind of debt also tends to involve so-called "blanket" security agreements giving the lender a floating lien over the firm's entire business. On the one hand, the exclusive financing option gives the lender the incentive to share its expertise with the firm in developing and implementing new investment prospects without fear of free riding by competing lenders. On the other hand, the blanket security agreement allows the lender to withdraw future financing and even vital assets if the firm fails to cooperate in developing the prospect. In Scott's words, "[t]he leverage obtained by holding the debtor's assets hostage empowers the secured creditor to influence the debtor's business decisions, thus ensuring that new projects are properly developed. Most significantly, this relationship induces the creditor to provide

⁷³ Scott, *supra* note ?, at 925.

valuable financial coordination and control, with resulting benefits accruing to all participants in the venture."⁷⁴ The benefit to the secured lender results both from profitable additions to the loan principal and from a reduced risk of bankruptcy.

A few insightful points made by Paul Shupack in his 1989 article on the puzzle of secured transactions are worth mentioning at this point.⁷⁵ Shupack took issue with the longstanding assumption in the literature that secured debt is necessarily more costly than unsecured debt. In his view, the "[s]aved costs of information acquisition provide [a] theoretical basis for the creation of security interests."⁷⁶ In addition to the up-front screening cost advantages of security that Buckley identified, Shupack noted that some creditors may possess advantages over others in maximizing the value of the firm's bankruptcy rights *following* default. In assessing how much to pay for a secured claim against the firm, "each creditor will discount the collateral by the costs of its reacquisition and disposition. . . . To the extent that the creditor to whom the asset is assigned as collateral is the creditor who can obtain the best *net* price for the collateral after accounting for the costs of reacquisition and disposition there is an additional justification for the existence of security interests."⁷⁷

Shupack also took issue with the mechanical distinction between secured and unsecured debt, arguing that it is less clear than is often imagined. A mechanical definition of security limits it to "a specific property interest in the property of the debtor" while a functional definition requires "only creditor behavior consistent with reasonable creditor belief that there will be assets available on default."⁷⁸ George Triantis echoed this view in 1992. Citing a 1985 article by Theodore Eisenberg,⁷⁹ Triantis concluded that "the

⁷⁴ Scott, *supra* note ?, at 904.

⁷⁵ Shupack, *supra* note ?.

⁷⁶ Shupack, *supra* note ?, at 1091.

⁷⁷ Shupack, *supra* note ?, at 1092.

⁷⁸ Shupack, *supra* note ?, at 1086 n. 74.

⁷⁹ Eisenberg, *supra* note ?.

distinction between secured and unsecured debt is not as bold as it is typically portrayed in theory. Most of the effects of secured debt may be reproduced by other contractual terms in debt contracts. As a result, secured debt is usually one of several means of addressing any given informational problem."⁸⁰

Barry Adler lined up with Eisenberg, Shupack, and Triantis on the issue of whether or not security involves additional costs in a 1993 article exploring its effect on manager incentives. Like these authors, he found that security actually "reduces debt's costs [by] provid[ing] an inexpensive management bond that limits the risk level for a debtor's projects and thus reduces one source of debt's costs."⁸¹ In contrast, general creditor monitoring by unsecured creditors serves to curtail the agency costs of outside equity ownership and therefore protects both the firm's unsecured creditors and its nonmanagement equity investors from mismanagement. In comparing the different monitoring functions performed by secured and unsecured creditors, Adler observes that a "secured creditor . . . considers collateral value and variance in that value to set the terms of a loan . . . [and] considers general firm value only to the extent that there is a risk of collateral-value insufficiency."⁸² As a result, "[s]ecured creditors . . . likely will not act vigorously to oppose mismanagement except to the extent collateral is at risk. Unless collateral value is inherently unstable -- and therefore potentially unavailable to the secured creditor -- . . . secured creditor monitors are likely to be of little use to nonmanagement equity investors."⁸³ This, according to Adler, provides an answer to what he calls the "ubiquity puzzle," the same question raised by Buckley in asking why firms fail to "secure the last penny's worth of their assets?"⁸⁴

⁸⁰ Triantis, *supra* note ?, at 257.

⁸¹ Adler (1993), *supra* note ?, at 77.

⁸² Adler (1993), *supra* note ?, at 93.

⁸³ Adler (1993), *supra* note ?, at 88.

⁸⁴ Adler appears to misinterpret the implications that follow from the agency costs of outside equity ownership. If anything, these costs manifest themselves in excessive risk aversion by firm managers. Indeed, excessive risk aversion by managers is at the heart of the current management compensation debate. So-called "incentive-based" compensation is designed to give managers a greater stake in the value of the firm's equity, and is intended to negate the debt-like appearance of salaried compensation. Salary is similar to unsecured debt, and is apparently thought

2. *The Bankruptcy Priority Puzzle*

Much of the preceding discussion of secured debt touched on the issue of bankruptcy without going into detail about the nature of the bankruptcy process. There are two relevant provisions of the Bankruptcy Code. Chapter 7 generally applies to liquidations, in which the firm's assets are sold separately and the proceeds are used to pay its creditors in accordance with their state law contractual priorities. In most but by no means all liquidations, only secured creditors have any prospect of receiving full value on their claims. Chapter 11 generally applies to reorganizations, in which the firm is maintained as a going concern and its creditors compete in a judicially administered collective forum for a revised set of claims in the newly reorganized firm.⁸⁵ In most cases involving large publicly held corporations the bankruptcy process begins when the firm files a voluntary petition under the Code. Such a filing triggers the "automatic stay," which thereafter prevents any lender from enforcing its state law contractual priorities through repossession or foreclosure or from in any way seeking to "enforce any lien against the property of the estate."⁸⁶ Under Chapter 11, the firm normally has the exclusive right to propose a reorganization plan as the "debtor in possession" for the first 120 days following the filing of the petition, with this period subject to extension at the discretion of the Court.⁸⁷

to stifle the willingness of managers to take the entrepreneurial risks that an owner manager would take. In this sense, salaried compensation aligns managers' interests to some extent with those of unsecured creditors. This may be no mistake; rather, the mistake may be in thinking that salaried compensation is chosen only because the parties are too unimaginative to think of something better. And in any event it would seem anomalous on Adler's part to suggest that unsecured creditors function to prevent manager misbehavior (as opposed to equity misbehavior) at the very time when firms are moving broadly toward incentive-based compensation schemes and away from salaried compensation. Why, for example, would unsecured creditors tolerate incentive-based compensation following the wave of leverage increasing transactions that occurred during the 1980s?

⁸⁵ According to Baird, there is nothing in the Code to prevent the firm from being sold as a going concern under Ch. 7, nor is there anything to prevent the firm from being sold piecemeal under Ch. 11. Baird (1986), *supra* note ?, at 139.

⁸⁶ Bankruptcy Code, *supra* note ?, § 362(a). The stay will be lifted if a secured creditor can show that 1) the collateral would be inadequately protected, 2) the debtor has no equity interest in the collateral, or 3) the debtor does not need the collateral in the operation of the business. Bankruptcy Code §§ 362(d) and 363(d)(2)(B).

⁸⁷ LoPucki & Whitford, *supra* note ?, at 128.

What troubles many commentators about the reorganization process is that the ultimate distribution of firm value often deviates from what is known as the "absolute priority rule." This rule, established early on in the case law, prohibits any creditor from receiving value in a reorganization unless all senior creditors have been paid in full according to their state law contractual priorities.⁸⁸ In many reorganizations, however, equity, which stands at the end of the priority queue, participates in the outcome even though unsecured creditors receive less than the full value of their claims.⁸⁹ Secured creditors are said to retain considerably more protection from this kind of putative wealth transfer, at least nominally. Yet the ex post value of their claims in the reorganized firm often falls short of the amount that would make them indifferent to default even though unsecured creditors or equity receive positive amounts. Given the apparent social benefits from enforcing voluntary contracts, why does federal bankruptcy law alter the parties' state law contractual priorities? Why, as Modigliani and Miller might have put it, are bankruptcy priorities relevant?⁹⁰ As with the puzzle of secured debt, there are two basic types of responses to the bankruptcy priority puzzle, one based on distributional considerations and the other based on efficiency considerations. And as with secured debt, I prefer to focus on efficiency to the extent possible. Over the long run, however, persistent wealth transfers will have efficiency effects that cannot be ignored.⁹¹ This is especially evident in the bankruptcy forum.

The bankruptcy stay is often rationalized as a method of preventing creditors from rushing to satisfy their claims against the firm when insolvency looms.⁹² If the firm in default is worth more as a going concern than in piecemeal liquidation and the costs of

⁸⁸ Jackson & Scott, *supra* note ?, at 194 and n. 91.

⁸⁹ LoPucki & Whitford, *supra* note ?, at 142.

⁹⁰ This question is especially troublesome where the debtor is a large firm whose claims are publicly traded and which can therefore be placed in a diversified portfolio that largely eliminates, *ex ante*, the unsystematic risks that arise from the threat of bankruptcy.

⁹¹ Johnsen, *supra* note ?.

⁹² Baird & Jackson, *supra* note ?, at 31-35.

negotiating a workout up front are prohibitive, the firm's creditors may dissipate its going concern value in a race to establish first possession to satisfy their claims. By suspending the rush to first possession the stay forestalls this waste and allows decisions about the optimal use of the firm's assets to be separated from decisions over the distribution of firm value. In this way the stay is said to maximize the value of the bankruptcy estate to the benefit of all concerned. Bankruptcy reorganization is thus seen as the outcome of a hypothetical "creditors' bargain" reflecting the terms the parties would be likely to choose, *ex ante*, to maximize the expected value of the firm. According to a 1986 article by Douglas Baird, in contrast to the traditional view of bankruptcy, which "tries to ensure that a firm survives, quite apart from whether the owners want it or not, . . . [the creditors' bargain] squarely faces the possibility that all interested parties might be better off as a group if the firm's assets were put to a different use."⁹³

Baird took issue with the assumption made by some proponents of the creditors' bargain, that bankruptcy reorganization is necessarily the collective proceeding the parties would choose to deal with the prospect of default. Instead, he argued that outright sale of the firm as a going concern to a third party, as in an auction, would be likely to maximize the parties' net proceeds, among other reasons because it minimizes the losses from valuation errors. It also limits haggling over the distribution of the estate, which, being reduced to cash, can be easily distributed according to contractual priorities. The "common objection" to this alternative is that any attempt to sell the firm outright on default without some mechanism to stay creditors would hazard destroying the firm's going concern value due to delay and the costs of identifying the highest valuing third-party buyer. Baird deflected this objection by arguing that these costs are surely present in judicially administered workouts, and indeed that they may be even higher in Chapter 11 reorganization. He offered the following insight concerning the relative cost and accuracy of judicial versus third-party valuation:

⁹³ Baird (1986), *supra* note ?, at 133-34.

Valuing a firm's assets is a tricky business. One must project how much income can be derived from the assets in their current use and alternative uses and discount all these to present value. The value of assets may depend on much that is uncertain. It may also depend on information that is hard to obtain.

. . . Third-party buyers have an advantage over all others in that they bear all the consequences of guessing right or wrong. If they overvalue a firm (if they, for example, erroneously think the firm has value as a going concern), they will not enjoy the same return on their investment as other buyers. If they undervalue assets, they will lose in the bidding to other, more astute buyers.⁹⁴

In addition to arguing that outright sale of the firm would promote accurate valuation by the buyer, Baird also addressed how to determine the low-cost seller from among the various creditor classes. In parallel with Alchian and Demsetz's analysis, Baird reasoned that the firm should be sold by its residual claimants. This class, alone, "stand[s] to gain or lose when they decide whether to sell the firm in pieces or as a unit . . . or if they waste time and money trying to sell the assets for more than anyone else is willing to pay."⁹⁵ It is important to recognize, however, that in an insolvent firm equity shareholders are no longer the residual claimants. Instead, residual claimancy devolves on one or another class of creditors. Determining which of these classes constitutes the real residual claimants may be difficult, but, according to Baird, these difficulties should not be exaggerated.

While echoing Baird's endorsement of the hypothetical creditors' bargain, in 1989 Jackson and Scott (J&S) proposed a defense of bankruptcy reorganization based on risk sharing. According to them, the hypothetical bargain involves an *ex ante* agreement between creditors to share the risks of certain common disasters and thereby accounts for

⁹⁴ Baird (1986), *supra* note ?, at 136.

⁹⁵ Baird (1986), *supra* note ?, at 137.

the wealth redistributions that occur when reorganization deviates from absolute priority. Only common risks are included in the sharing agreement, however. "Common risks include those contingencies whose probabilities or effects cannot be influenced by the actions of individual parties, . . ." in contrast to the "individual or particular risks of business failure that can be attributed to a single group, such as risks arising out of incompetent or dishonest management for which the shareholders as a group are 'responsible'."⁹⁶ Analogizing to the Maritime Law of "general average contribution," J&S argue that bankruptcy reorganization assigns individual risks to the parties who are best able to avoid the associated losses while allowing the common risks to be shared. This sharing of common risks encourages the dominant secured creditor, who is likely to be very influential as the firm approaches insolvency, to make decisions that benefit the group of creditors as a whole by maximizing firm value, just as if he were the sole owner. This is because the burden of any losses falls evenly on all parties, who are thereby less prone to dispute the dominant secured creditor's decisions.

In 1990, Frank Easterbrook provided a more general defense of bankruptcy reorganization. Although he showed sympathy for Baird's belief that an auction of the entire firm by its residual claimants is cheaper than reorganization, he found that the weight of the evidence suggests otherwise. For one thing, "[w]hen creditors meet outside of bankruptcy to readjust claims, they use the same devices they are apt to employ if they meet in court. Sometimes they arrange to sell the firm as a unit, but this is uncommon."⁹⁷ Moreover, Easterbrook cited empirical evidence showing that direct bankruptcy costs run only about 3% for large publicly traded firms, which is fairly small compared to underwriting fees in the 10% range for the auction of comparable public offerings of corporate stock. Finally, he rejected Baird's claim that identifying the firm's residual claimants for conducting an auction is a workable solution. In his words, "how does a judge identify the residual claimant when there are several layers of debt? To do this the judge must know the firm's

⁹⁶ Jackson & Scott, *supra* note ?, at 164.

⁹⁷ Easterbrook (1990), *supra* note ?, at 413.

value -- yet the superiority of market over judicial processes in pricing the firm's assets is impetus for holding an auction. It is not particularly useful to have *both* a judicial and a market valuation process for the same corporation."⁹⁸ Similar uncertainty surrounds the judge's ability to determine the size and legitimacy of unliquidated claims against the firm; these questions must be answered by the court regardless of the chosen method of valuing the firm's assets. All this led Easterbrook to conclude that bankruptcy reorganization is more efficient than a system of public auctions, and indeed that it is the system creditors prefer given the availability of nonbankruptcy alternatives; "[w]hen we see creditors resort to bankruptcy, they are telling us that the legal process is superior to market methods available to them."⁹⁹

Finally, in 1992 Barry Adler argued against J&S's theory that deviations from absolute priority are designed to promote the sharing of common risks as part of a hypothetical creditors' bargain. The main problem Adler saw in this theory is that it fails to explain why creditors would hypothetically bargain to undo the very contractual provisions their explicit bargain is designed to achieve. As he put it, "the contracts, the only observable indication of creditor intent, suggest that creditors would not have bargained for bankruptcy's reallocative provisions. . . . There is a logical gap in a theory that presumes creditors would agree to an arrangement that they seem explicitly to have rejected."¹⁰⁰ Adler recognized J&S's belief that the absence of risk sharing provisions in debt contracts is due to the impossibility of distinguishing and contracting over common and individual risks. Even if this is true, however, and even if bankruptcy reorganization addresses the problem, he considered the benefits far too small to justify the direct and indirect costs of reorganization. Not only have these costs been routinely understated, but in his view the benefits have been exaggerated in light of the widespread ability of almost all corporate investors to avoid firm-and industry-specific risks through portfolio diversification. And even

⁹⁸ Easterbrook (1990), *supra* note ?, at 416.

⁹⁹ Easterbrook (1990), *supra* note ?, at 417.

¹⁰⁰ Adler (1992, *supra* note ?, at 456.

the most well orchestrated reorganization can do nothing to help investors diversify those risks that are systematic to the market as a whole. "An important consequence," Adler boldly declared, "is that there is no need for bankruptcy reorganizations."¹⁰¹

III. THE VALUATION HYPOTHESIS

The preceding section laid the foundation necessary to introduce the valuation hypothesis and to show that it completes a natural progression in the literature toward a unified theory of corporate financial structure. In this section I argue that corporate financial claims reflect the value of the corporate enterprise in various, *distinct* alternative uses. Ignoring redeployment costs, equity reflects the value of the corporate enterprise in its most specialized use as a going concern after netting out the value of all senior claims. Junior debt reflects the value of the enterprise in its next most specialized use as a going concern, again after netting out the value of all senior claims. Senior debt reflects the value of the enterprise in its least specialized use, perhaps as a going concern but with piecemeal liquidation being the limiting case. By definition, these claims identify the specialized quasi-*rent* structure of the corporate enterprise.

The valuation hypothesis departs from the *Modigliani and Miller Irrelevance Hypothesis* primarily by relaxing the assumption of perfect markets and riskless debt. I assume that individuals are risk neutral and maximize expected wealth, that measuring the net value of the enterprise in various alternative uses is costly, that organization and contracting are costly but not prohibitively so, and, following Coase, that the pricing, or valuation, function is subject to specialization. The entrepreneur has sufficient wealth to finance all positive net present value projects, although he faces increasing opportunity costs in devoting this own wealth to the enterprise. For debt financing to reduce his average cost of capital he need only be so specialized in the proposed use of the enterprise that others can measure the value of its alternative uses at lower cost. Corporate financial claims perform this

¹⁰¹ Adler (1992), *supra* note ?, at 489.

function by assigning property rights, and thus residual claimancy, over the firm's intangible assets to valuation specialists. Having a comparative advantage in valuation, they are better able to avoid the pricing errors that distort resource allocation.¹⁰² The prices at which the firm's financial claims sell provide the entrepreneur with relatively accurate information about the value of its alternative uses. This information is necessary to determine the optimal level of ex ante specialized investment and the opportunity cost of committing resources to the proposed use.

Until now, much of the literature on the theory of the firm has been concerned with the governance branch of transaction cost economics, which focusses on how economic organization serves to avoid the threat of postcontractual opportunism. The valuation hypothesis is based on the measurement branch of transaction cost economics and focusses instead on how economic organization, and especially the allocation of variability, conserves on the costs of gathering information about the valuable dimensions of exchange. Following Williamson and Klein, Crawford, and Alchian, my primary concern is with the organizational problems that arise due to asset specificity, but I argue that these problems are far more general than previously recognized and that their solution requires an understanding of the important process by which information about alternative enterprise values is produced. Even where the threat of postcontractual opportunism is absent, asset specificity has profound implications for the parties' choice of economic organization. In the following subsection I generalize the problem posed by asset specificity in the framework of costly measurement and thereby illustrate what I mean by the *specialized quasi-rent structure* of the corporate enterprise. I show in Subsection B how corporate financial claims serve to unbundle the corporation's composite cash flows into intangible specialized assets and thus to provide important information about the entrepreneur's optimal level of specialized investment. Subsection C briefly demonstrates that the valuation hypothesis meets Friedman's first test of a positive hypothesis by being tautological.

¹⁰² All else equal, they will therefore demand a lower rate of return on their investments than the entrepreneur's opportunity rate for financing the entire enterprise. This is the source of gains from specialized valuation that reduces the firm's average cost of capital.

A. *Asset Specificity Generalized*

To demonstrate the general nature of the problem posed by asset specificity, it is worth returning to the printing press example hypothesized by KC&A. Recall that once having installed the press with the intent of renting its services to publisher B, A found him unwilling to pay the promised daily rental of \$5500. Whereas in negotiating this rental price B was constrained by competition, once installed the press was somewhat specialized to him and he no longer faced immediate competition for the press's services. According to KC&A, *the* daily quasi-rent on the press was equal to the difference between the net daily rental of \$4000 necessary to prompt A to install it and the net daily rental equivalent of \$1000 per day it could earn in its next best *use* outside the locality. Only a portion of this difference was appropriable by B, however, because C stood ready to pay a net rental price of \$2000 per day.

Although this example adequately served the authors' purpose in explaining the choice between vertical integration and long-term contracting, the distinction between *the* specialized quasi-rent and the *appropriable* specialized quasi-rent is somewhat misleading. In theory, there are many possible dimensions of asset specificity and therefore many alternative measures of an asset's specialized quasi-rent. At the time the investment is made, an asset can be specific to a given user, to a given function, to a given location, and so on. Which measure is appropriate depends on which alternative states of the world are being examined. Opportunism is simply one of many contingencies that can reduce the returns to an asset in its current use and simultaneously determine the character and value of its next best use. To be precise, then, an asset's specialized quasi-rent should always be qualified relative to two alternative states of the world, as when KC&A remark that only "the daily quasi-rent from publisher B relative to the use of the machine for publisher C" is appropriable by B. It is the next best "use" of the asset in the generic sense of the next most rewarding alternative that determines the asset's specialized quasi-rent in a given state of the world. And this entire amount is subject to the risk of loss regardless of whether the use in question involves a different *user*, a different *function*, or a different *location*.

It is fairly easy to show that the general problem of assuring the payment to a specific asset depends purely on uncertainty over future states of the world that can arise regardless of the good or bad intentions of the parties to the exchange. Suppose, for example, that prior to the time A reaches an agreement with B there are two classes of publishers in the locality. The first class consists of those who, like B, publish, say, local daily newspapers, and all of whom are initially willing to pay \$5500 per day to use the press. The second class consists of those who, like C, publish, say, local weekly news magazines. Although the press is specialized to printing daily newspapers, it can be adapted at some cost to print weekly news magazines for any member of C's class, albeit at the lower daily rental price of \$3500. As before, let the amortized daily value of the press outside the locality be \$1000, net of relocation and operating costs.

Now suppose a cable television franchise enters the locality for the first time, causing the cost of quality adjusted television service to fall. If cable television is a close substitute for daily newspapers their demand will decline, as will the derived demand for daily newspaper printing services. If the demand for weekly news magazines remains stable, B can reduce the price he is willing to pay for the services of the press just so long as he is willing to outbid the other members of his class. Eventually, B may reduce this price to as low as \$3500, as in the original example. In this state of the world, as it turns out, the press is specific to the publication of daily newspapers rather than to any particular publisher, and yet the contemplated daily quasi-rent from publisher B relative to the use of the machine for publisher C (or any member of either B's or C's class) is at risk.

To carry the example one step further, suppose cable television and weekly news magazines are also close substitutes, so that the derived demand for both types of publishing services falls simultaneously. B can now further reduce his offer price to the point where A will choose to move the press outside the locality. In this state the press is specific to generalized news publishing in the locality rather than to any particular publisher or type of news publication.

In neither of the above cases was it necessary that B acted with guile in inducing A to invest in the specialized press. B simply may have misestimated the demand for daily

newspapers, and his motivation for refusing to perform once demand declined could have been perfectly innocent.¹⁰³ Perhaps he wanted to perform as agreed but doing so would have forced him into bankruptcy. The general problem posed by asset specificity therefore has little to do with a person's motivation or state of mind. Opportunism, in the sense of "self-interest seeking with guile," is only one of many contingencies that can cause a contemplated stream of quasi-rents to vanish and is simply a convenient way of illustrating the contingent nature of quasi-rents in the narrow situation where the asset is specific to a given user. The general problem arises purely as a result of uncertainty over which of many possible future states of the world will obtain and the associated risk that resources committed on any of a variety of specific dimensions will fail to earn the return whose expectation was necessary to prompt their investment in the first place.

Ex ante, when resources are being committed to the enterprise, it will therefore pay the parties to look beyond the firm's *next* best use to various intra-marginal uses. As we move within the margin each alternative use of the enterprise represents a less specialized activity. Consider the following simplified example from commercial real estate. Suppose an entrepreneur plans to erect a three-story building to house a new department store. He can choose between many costly design attributes that will make the building ideal for this use -- a large loading dock, high-capacity rest rooms on each floor, multiple freight elevators, escalators that allow patrons to scan the merchandise while moving between floors, heavy-duty plumbing fixtures suitable for use in a restaurant kitchen, a sophisticated climate control system, wide-open floor spaces free of structural impediments that block the view, etc. Each of these inputs may add to the value of the building as a department store and yet each of them may have little or no value, or perhaps even negative value, in the

¹⁰³ This point is not entirely new. As Armen Alchian and Susan Woodward put it:

Even when both parties recognize the genuine goodwill of the other, different but honest perceptions can lead to disputes that are costly to resolve. The point is important because many business arrangements interpreted as responses to 'dishonest' opportunism are equally appropriate for avoiding costly disputes between honest, ethical people who disagree about what event transpired and what adjustment would have been agreed to initially had the event been anticipated.

The Firm is Dead; Long Live the Firm, 26 J. ECON. LIT. 65, 66 (1988).

event the building should have to be converted to a nondepartment store use.

Assuming the entrepreneur has some expertise in operating department stores, he should have a fairly good idea about the value each specialized design attribute would add to the enterprise and he will continue to add attributes until the capitalized value of the expected increase in revenue they are likely to generate just equals their expected cost, all in present value terms. He will undoubtedly have a problem measuring the opportunity cost of these attributes, however, not in terms of the up-front dollar expense of installing them but in terms of how much each attribute affects the expected value of the building in its next best use. The question he should ask at the outset in selecting between various design attributes is "what can be done with the building in the event it fails as a department store?" Indeed, what does it mean for the enterprise to "fail" as a department store? Only by answering these questions can the entrepreneur determine the opportunity cost of his specialized capital investment and the amount he is truly putting at risk by selecting various department store-specific design attributes. The greater this amount the more specialized the building is to use as a department store.

Suppose the building chosen by the entrepreneur requires an initial outlay of \$10 million, and that the expected returns are just sufficient to provide him with a normal return on his investment. Suppose also that in the event the enterprise fails as a department store the next best use of the building would be to convert it into a law school,¹⁰⁴ a contingency that might arise, for example, with the unexpected construction of a nearby shopping mall that diverts shopper demand. Wide-open floor spaces are certainly suitable for the school library, although soundproof walls would have to be erected to make separate classrooms,

¹⁰⁴ Needless to say, there are many alternative uses of the building outside the specific realm of commercial retailing. By hypothesis, each of these alternatives use, as an essential input, the fungible attributes of the department store as generic, high occupancy commercial space. I simply assume that the highest valued use of this input, outside of commercial retailing, is as a law school, although it could be as apartment or office space, or as any other suitable use. Note, however, that my example is not entirely fanciful. The building that currently houses George Mason University Law School was originally designed and used as a department store. How, among all the possible alternative uses of the building, did it come to be used as a law school when it failed as a department store? Across the river from the University of Pennsylvania there is an apartment building that was originally designed and used as a garment factory. How was its use as an apartment building arrived at when it failed as a garment factory? In each case, there must have been someone with specialized knowledge about the redeployment value of the buildings with the incentive to gather and act on the relevant information.

faculty offices, and administrative suits. The sophisticated climate control system and the high-capacity rest rooms would be fairly well suited for use in a law school, and the heavy duty plumbing fixtures might be somewhat handy for a student cafeteria. Neither a large loading dock nor multiple freight elevators are particularly valuable in a law school, however, and although escalators work just fine to move students and faculty between floors their value probably would not justify installing them if the building was being designed as a law school from scratch.

In part because of redeployment costs, and in part because the local demand for generic building space suitable for use as a law school is, by hypothesis, lower than contemplated for the department store, the net value of the building if converted into a law school will be substantially less than \$10 million. Suppose the expected value of this use is \$7 million. This amount reflects the next best use of the entrepreneur's specialized investment in one possible state of the world. At the time the investment is made, then, the capitalized value of using the building as a department store rather than as a law school is expected to be \$3 million, and the enterprise will fail as a department store when it can no longer generate a net income stream whose discounted present value exceeds \$7 million. Accordingly, the expected quasi-rents from using the building as a department store rather than as a law school is \$3 million.¹⁰⁵ This amount provides one measure of the opportunity cost of the entrepreneur's specialized capital investment and reflects the amount he is truly putting at risk by making the investment should this state of the world obtain. To this extent, the building is specific to the function of showing and selling department store merchandise to retail shoppers rather than to legal scholarship and teaching.

So long as the value of the building as a law school is subject to variability, the entrepreneur continues to face a measurement problem. What can he do with the building in the event it fails as both a department store and as a law school? Although this state of the world is necessarily less likely than the state in which the building fails merely as a

¹⁰⁵ In response to uncertainty over the impending expiration of Britain's lease of Hong Kong, I have been told that a large Hong Kong banking firm recently erected a substantial bank building that is specially designed to be torn down, transported, and rebuilt elsewhere at unusually low cost.

department store, it may nevertheless be a real possibility. To answer the question, the entrepreneur would have to know the expected value of the building's third best use. Suppose this would involve operating the building as a warehouse for storing dry goods, a contingency that might arise both with the construction of a nearby shopping mall and with an unexpected and permanent decline in law school enrollments. The entrepreneur's choice of specialized design attributes will affect the value of the building if used as a warehouse as well as if used as a law school. He will no doubt have considerable difficulty measuring the expected opportunity cost of these attributes, however. Wide-open floor spaces, a large loading dock, and multiple freight elevators are quite useful in warehouses, although the escalators would probably have to be removed and the heavy duty plumbing fixtures, excess rest room capacity, and sophisticated climate control system would probably be of little value.

Suppose the net value of the building if converted into a warehouse is expected to be \$2 million. This amount reflects the value of the entrepreneur's specialized investment in another possible state of the world. At the time the investment is made, the expected quasi-rents from using the building as a law school rather than as a warehouse is \$5 million, while the expected quasi-rents from using the building as a department store rather than as a warehouse is \$8 million. The enterprise will fail as both a department store and as a law school when the building can no longer generate a net income stream whose discounted present value exceeds \$2 million. To this extent, the building is specialized to sheltering and serving large numbers of people, whether law students or retail shoppers, rather than to storing dry goods.

The above example illustrates the *specialized quasi-rent structure* of the enterprise. The \$3 million difference between the expected value of the building if used as a department store and its expected value if converted into a law school can be characterized as the *marginal specialized quasi-rent*. This amount identifies the value of the resources the entrepreneur commits specifically to building a department store and reflects his marginal risk of loss in making the investment. The \$5 million difference between the expected value of the building used as a law school and its expected value if converted into a warehouse

can be characterized as an *intra-marginal specialized quasi-rent*. This amount identifies the value of the resources the entrepreneur commits specifically to building a department store that has a viable intermediate use as a law school and reflects his intra-marginal risk of loss in making the investment. If necessary, this story could be extended to alternative uses even further within the margin. It is easy enough to imagine the building being torn down and sold for scrap to convey a complete picture of the specialized quasi-rent structure of the enterprise.

The problem faced by the entrepreneur lies in measuring the value of the enterprise in various states of the world. Given that his expertise is in department store operation, how does he know these values? How, moreover, does he know the effects of his ongoing investment decisions on these values once the enterprise is underway? Finally, in a world where all enterprise values are subject to exogenous variability, how does he know when these values have changed? The latter question is especially troublesome because the local demand for building space for use in operating a law school or warehouse may increase to the point where the building is best converted to that use, even though it is earning a normal return as a department store. Seen in this light, virtually every investment project, and surely every business enterprise, is specific on a variety of dimensions whose values will become certain only with the passage of time and the costly identification of which alternative use is most valuable in a given state of the world. It may therefore pay the entrepreneur to choose a form of organization that provides him with accurate information about the value of the enterprise in its most likely alternative uses. In the next subsection I show that corporate financial claims perform exactly this function.

B. *Unbundling the Corporation's Intangible Assets*

In framing the *Irrelevance Hypothesis*, Modigliani and Miller asked how the value of the all-equity firm can be enhanced by unbundling its aggregate cash flow into separate components. By relaxing M&M's assumptions of perfect markets and riskless debt the valuation hypothesis provides an answer to this question. Like Williamson, I depart from

the traditional finance view of the corporation as an undifferentiated collection of composite capital.¹⁰⁶ Rather than focusing on the asset specificity characteristics of each investment project in isolation, however, I focus on the contribution of each investment decision to the overall quasi-rent structure of the firm. This quasi-rent structure reflects the value of the corporate enterprise in various, distinct alternative uses and serves as the focus for the unique sources of variability in firm value. Subject to the costs of organization and contracting, the corporate entrepreneur can profitably unbundle these sources of variability and transfer the associated quasi-rent streams to valuation specialists in the form of corporate financial claims. The prices of these claims will provide the entrepreneur with information vital to maximizing firm value or, what amounts to the same thing, to minimizing the firm's average cost of capital.

As already noted, the entrepreneur is constrained by the costs of measuring the value of the enterprise in various alternative uses. At the moment he commits resources to the enterprise this information will reveal the expected opportunity cost of his specialized investments and the amount he puts at risk both at and within the margin by making it. In an all-equity corporation, the entrepreneur must either bear directly the costs of measuring the value of the firm's alternative uses or do without and accept the prospect that the firm will turn out to be worth less in a subsequent state of the world than if he had been better informed at the moment he vested resources in the enterprise. Or he could procure the

¹⁰⁶ Agency theory departs from the *Irrelevance Hypothesis* by assuming that corporate managers do not necessarily act in the interests of shareholders. Thus, following Modigliani and Miller, agency theory ostensibly maintains the assumption that the corporation is an undifferentiated collection of composite capital. Yet recent iterations on agency theory implicitly depart from this assumption and rely increasingly on the concept of quasi-rents. In his 1987 analysis of the underinvestment problem, Myers established that the firm's "assets in place" are by definition invariant to the value of its "growth options." What is more, Myers explicitly recognized that "the value of [growth] options reflects the possibility of rents or quasi-rents." Myers, *supra* note ?, at 162. In 1986 Jensen identified free cash flow as an important determinant of corporate debt and explicitly noted its close relationship to quasi-rents. Jensen, *supra* note ?, at 323. Similarly, Harris and Raviv's 1990 analysis emphasized the role of debt in providing investors with information about the value of the firm's assets in their "next best alternative use," Milton Harris and Artur Raviv, *The Theory of Capital Structure*, 46 J. FIN. 287, 302 (1991), which by definition implies that any additional going concern value is a quasi-rent. By relying on quasi-rents to explain the firm's choice of debt, each of these important works from agency theory necessarily assume the existence of differentiable assets, either tangible or intangible, whose value varies independently of the firm's aggregate cash flow. This represents a fundamental, if implicit, departure from the traditional composite capital approach and is a central feature of the valuation hypothesis.

information by entering into a long-term forward contract such as corporate debt. In either case, the associated measurement costs must be compensated by financial returns, which in equilibrium will add to the firm's average cost of capital compared to an M&M world where all prices are known. Over some range, the entrepreneur may be able to reduce these costs by relying on valuation specialists; having comparative advantage in measuring the relevant values, the added return necessary to compensate them will be lower than the entrepreneur's opportunity rate.

To demonstrate how this occurs it is important to call attention to the informational role of contracting. Scholars of contractual exchange have traditionally focussed on the role contracts play in assuring performance. Although this is surely the primary function of many contracts, it is not necessarily the only function contracts perform. Any contract that states the price at which future exchange will occur also provides information about the expected spot price on the date of performance. A buyer of cement, for example, could always wait until he needed the cement to buy it in the spot market.¹⁰⁷ But this would expose him to price variability, which is potentially costly in the face of any plan on his part to make specialized investments whose payoff depends on cement prices. A forward contract eliminates this particular source of variability for the buyer. The price offered by the seller not only provides an estimate of the expected spot price on the performance date, but by contractually binding himself to deliver cement at this price the seller guarantees the information contained in his estimate. He, rather than the buyer, bears the variability in cement prices and suffers the consequences of any pricing errors. The informational role of contracting is most obvious in organized futures markets. Actual performance of futures contracts seldom occurs, but the prices at which contracts trade are known to provide guaranteed information about future spot prices that is widely relied on by market participants in making their investment decisions.

As in Alchian and Demsetz's analysis of team monitoring by the entrepreneur, the

¹⁰⁷ This is true in theory even for goods that are entirely specialized to the buyer, although under such circumstances the seller might be incurring substantial risk of nonperformance by relying exclusively on the buyer's gratuitous promise rather than on a legally binding contract.

system of reward chosen by the parties guides production, in this case the production of accurate information about the value of future exchange. The gains from contractually guaranteed information exchange arise from the added specialization it engenders both in production and in valuation. In anticipation of binding himself to deliver cement at a stated price, the seller will specialize in measuring the factors affecting cement prices and will be better able to avoid pricing errors than the buyer.¹⁰⁸ Of course, if all pricing errors were equally distributed around a stable mean, if all buyers and sellers were risk neutral, and if all assets were fully fungible, pricing errors would be a matter of indifference to the parties to a long-term exchange. The problem of price variability arises when the buyer's investments in reliance on the future price are specialized on at least one dimension and the mean around which pricing errors are distributed is unstable. If, due to measurement costs, the buyer is unable to distinguish between exogenous pricing errors arising due to random variability around the mean from those arising due to exogenous shifts in the mean that could have been avoided by the seller, placing responsibility for price variability on the seller will reduce systematic pricing errors and the associated potential for wealth transfer. This is nothing more than the A&D analysis of residual claimancy applied to the valuation function. In addition, however, the specialized valuation prompted by contracting encourages the buyer to make additional specialized investments in production that increase the parties' joint wealth. Under competition, the agreed contract price will distribute the gains in a way that enhances both parties' individual wealth.¹⁰⁹

Although there might be a number of contractual forms through which the

¹⁰⁸ The seller's specialized advantage in forecasting future cement prices could arise because he is specialized in producing cement. If the gains from specialization are sufficiently large, of course, the production and valuation functions may be separated. Indeed, many so-called financial analysts began their careers as members of the industry about which they provide investment advice.

¹⁰⁹ This is roughly the conception of risk on which Jackson & Scott rely to explain deviations from absolute priority in bankruptcy. Jackson & Scott, *supra* note ?. They distinguish the risk of common disaster, which can profitably be shared by the parties because it is exogenous, from individual or particular risks, which are endogenous and must therefore be borne by those best able to avoid them. This situation is often described in the literature as "moral hazard." Such a pejorative term can be misleading, however. This is especially true where the valuation specialist is being called on not just to exercise due care in pricing according to the existing state of the art, but where he is being called on to act as an innovator or prospector in expanding the state of the art.

entrepreneur can procure information about alternative enterprise values from valuation specialists, corporate debt is especially effective.¹¹⁰ Take the simplest example of a newly-formed corporation that issues a class of traded equity and a class of privately held secured debt collateralized by its tangible assets. For the further sake of simplicity assume the entrepreneur retains a majority stake in the firm's equity and provides specialized valuation of the firm's proposed use. Assume, also, that the next best use of the enterprise that is distinctly different from its proposed use will be in piecemeal liquidation. In addition to a lien against the firm's tangible assets and various protective covenants like those discussed by Smith and Warner. It will also specify a stream of coupon payments for a period of years and a principal amount that must be repaid on maturity equal to the net redeployment value of the firm's tangible assets on liquidation. If the firm is expected to remain solvent and to make the scheduled payments, the expected present value of the lender's claim will equal the principal value of the loan.¹¹¹ If the firm becomes insolvent and defaults on the loan, the lender has a right to repossess and sell the collateral to satisfy his claim.¹¹² By definition, this will occur when the enterprise fails in its proposed use, that is, when it is unable to generate a stream of income whose capitalized value exceeds the net redeployment value of its tangible assets in piecemeal liquidation as forecast at the time the debt was issued.

This example is roughly equivalent to the one chosen by Buckley to illustrate the benefits from specialized screening by secured creditors. Buckley's main point was that the lender's rights on default make him a residual claimant to the accuracy with which he values the collateral. If the principal value of the loan exceeds the liquidation value of the collateral net of redeployment costs -- what Shupack describes as the costs of reacquisition

¹¹⁰ Insurance may be another form of contract designed to bring forth accurate valuation. As opposed to debt, however, the lump sum payment for transfer of control over the asset is "back-end loaded" in the insurance setting. See David Mayers and Clifford W. Smith, Jr., *On the Corporate Demand for Insurance*, 55 J. Bus. 281 (1982).

¹¹¹ For the sake of simplicity, I assume the coupon payments are exactly equal to the appropriate risk-adjusted interest rate at the time the debt is issued.

¹¹² This assumes the debt in question is nonrecourse. Unless otherwise specified, I maintain this assumption throughout the paper.

and disposition -- the lender loses the difference on default. Competition when the debt is issued assures that the principal value of the loan will be no less than the expected value of the collateral net of redeployment costs. Thus, the loan principal reflects the certainty-equivalent net value of the firm's tangible assets on default. By identifying the assets that will serve as collateral, and by providing the lender with a lien that permits low cost repossession, secured debt assures that the lender bears responsibility for valuation errors in the default state of the world.

As Adler recognized in his discussion of security agreements and bankruptcy priorities, the value of the collateral may be inherently unstable. Should it turn out to be worth less than the lender's implicit forecast, the lender, and not the entrepreneur, will bear the associated losses. The secured lender's implicit, up-front forecast of the value of the collateral thereby provides the entrepreneur with guaranteed information about the expected value of the enterprise in its next best use. The system of reward guides productivity; the prospect of accepting a residual claim to the value of the collateral gives the lender the incentive to specialize in providing an accurate valuation. The gains from specialization arise in part from the secured lender's cost advantage over the entrepreneur in measuring the value of the enterprise in its next best use and in part from the added specialized investment the entrepreneur will make because he can rely on a more accurate valuation. As in Jackson and Scott's analysis, the enterprise has multiple dimensions of risk that are allocated between the parties to maximize enterprise wealth. The entrepreneur bears the variability accruing to the proposed use of the enterprise, while the secured lender bears the variability accruing to its next best use. In this illustration, as in the world at large, there is no single residual claimant to the corporate enterprise. The enterprise generates value on two dimensions, and each class of corporate claim defines residual claimancy on a different dimension.¹¹³

¹¹³ The proposition that there are multiple dimensions of residual claimancy is true in virtually all contracts, and both parties will invariably bear some residual. A simple piece-rate employment contract, for example, makes the worker a residual claimant, say, to his ability to "overuse" the capital equipment supplied by the employer in expanding his measured output. An hourly wage contract makes the employee a residual claimant to his ability to consume on-the-job leisure, as, for instance, by shirking. The point is that every exchange generates value on a variety of dimensions, and no contract is sufficiently detailed or enforceable to ensure that this value is always

It is important to note that if the liquidation value of the firm's tangible assets is perfectly correlated in all states of the world with the value of the firm's proposed use there would be no gains from separate specialized valuation. The entrepreneur's specialized expertise at valuing the proposed use of the enterprise would be equally effective at valuing the firm's tangible assets in liquidation. Only when the values of the two uses are imperfectly correlated in some states of the world can the entrepreneur reduce the firm's average cost of capital by transferring residual claimancy to a separate valuation specialist. By the very nature of specialized quasi-rents this is necessarily the case; as in the department store example, there are some events that will affect the value of the enterprise as a department store while leaving its expected value as a law school unchanged. The converse is true as well.

Until now I have been concerned exclusively with the entrepreneur's problem in gathering the information necessary to make the optimal investment decisions at the moment he commits resources to the enterprise. I have argued that a secured debt contract elicits this information on a one-time basis from a valuation specialist when the debt is issued. The same information can be procured on an ongoing basis, however, if the debt is subsequently transferred. Each time this occurs the firm's tangible assets are revalued, and the price at which the transfer is made revises the information available to the entrepreneur. Assuming the entrepreneur is privy to the transfer price this can occur through private trading, but public trading is the most obvious example. These prices provide information about the effects of the entrepreneur's (or the managers') ongoing investment decisions on the liquidation value of the enterprise. It also provides ongoing information about the opportunity cost of maintaining the enterprise in its current use. This information is critical to maximizing firm value, among other reasons because the value of the firm in its current use can remain stable while its value in the next best use changes dramatically. What was expected to be the next best use of the enterprise when it was initially created may subsequently supersede its value in current use. Alternatively, the

exclusively assigned.

value of the next best use may fall, thus reducing the opportunity cost of maintaining the firm in its current use while increasing, at the margin, the quasi-rents that are at risk.

Now suppose the corporate enterprise has several distinct alternative uses. Recall Buckley's observation that if "any portion of the expected dispersion . . . of firm value is in some way unique, screening costs might be reduced by assigning that portion of firm value to a particular claimant."¹¹⁴ With more than one distinct alternative use there may be further gains from allocating the associated variability to valuation specialists. This requires that the firm have at least one distinct intermediate going concern use whose value lies somewhere between its value in liquidation and its value in the proposed use. Such a situation is fairly plausible, and indeed it appears to be implicit in both Baird's and Easterbrook's stated belief that in some cases the value of the bankruptcy estate can be maximized by auctioning the insolvent firm as a going concern rather than liquidating its tangible components; the firm in question will have failed in its proposed use as a going concern but can be redeployed in a different use as a going concern that maintains at least some of its components intact.

This situation is also consistent with Demsetz's view of the firm as a stock of specialized knowledge that reduces the costs of cooperation between a team of specialists. The highest valued use of this stock will be reflected in the current going concern value of the corporate enterprise, and yet the stock may have value in a distinctly different use as a going concern that exceeds the liquidation value of the firm's tangible components. If the value of this intermediate going concern use is imperfectly correlated with either its current use value or its liquidation value, the entrepreneur may be able to reduce the firm's average cost of capital by selling an intermediate, or junior, class of debt. Conceptually, this claim will give the lender the right on default to sell the firm as a going concern and to collect the proceeds, subject to the superior claims of senior or secured lenders.

An example from the fashion industry clearly demonstrates the possibility that a firm can have an alternative going concern value. With the untimely deaths of numerous high

¹¹⁴ Buckley, *supra* note ?, at 1425 n. 68.

fashion designers in the mid-1980's, many industry firms scrambled to institutionalize their design expertise. A case on point is Perry Ellis, a one-time industry leader in American high fashion. Apparently having anticipated his own death due to acquired immune deficiency syndrome, Perry Ellis went quietly about assembling a team of designers and a corporate structure that would survive him under the name of Perry Ellis International (PEI). In addition to designing and marketing high fashion under the guidance of Perry Ellis, one of the major functions of PEI was and is to license and monitor the manufacture and marketing of mid-range apparel and accessories under the *Portfolio* label. The licensees to the *Portfolio* label perform the design function themselves, so that PEI's licensing know-how consists largely of the value of its brandname in quality control, perhaps with the help of a little cachet spilling over from the firm's reputation in high fashion. With Perry Ellis's death, PEI's high fashion design team stumbled badly but managed to continue at a more modest level than before, while the licensing of its *Portfolio* brandname has actually expanded under management's watchful eye.¹¹⁵

All this suggests that prior to Perry Ellis's tragic death the corporate enterprise had several distinct going concern uses that reflected a specialized quasi-rent structure. The value of Perry Ellis's contribution to the firm as a high fashion designer above what his design team has since been able to generate approximately reflects the value of what was once the marginal use of the firm's stock of specialized knowledge. This return constituted the firm's marginal specialized quasi-rent. Even with Perry Ellis's death, the firm's design team and licensing know-how have apparently continued to generate a stream of quasi-rents above what the enterprise can earn in piecemeal liquidation. The value added to the enterprise by the design team above what it can generate merely as a licensing firm represents what was once an intra-marginal stream of quasi-rents accruing to the firm's stock of specialized knowledge, although this return now reflects the firm's marginal stream of specialized quasi-rents. Similarly, assuming the firm has tangible assets, the value added by the firm's licensing know-how above what it can earn in piecemeal liquidation reflects a still

¹¹⁵ See, e.g., Phyllis Furman and Linda Ross, *A Requiem for Fashion*, CRAIN'S NEW YORK BUSINESS, April 9, 1990, at 1.

less specialized stream of intra-marginal quasi-rents.

Perry Ellis's death caused the going concern value of the firm to fall substantially. His talent as a high fashion designer represented one unique source of variability in the value of the enterprise. The fortunes of the design team independent of Perry Ellis's guidance represents a second unique source of variability in the value of the enterprise, the firm's licensing know-how represents a third unique source of variability, and the liquidation value of its tangible assets a fourth. In theory, each source of variability could be profitably unbundled and reflected in the firm's financial structure.

Actually issuing debt claims against such intermediate going concern values is troublesome because unlike a firm's tangible assets its intermediate going concern values are intangible and therefore difficult to describe in a contractual lien. According to Adler, security establishes two types of interest, a priority interest in the debtor's estate and a property interest in the form of a lien against identified tangible assets. Unsecured debt also establishes a priority interest, at least against all junior claimants, although it does not establish a *clear* property interest. Nevertheless, as Shupack notes, so-called unsecured debt "establishes a reasonable creditor belief that there will be assets available on default." The cost of establishing a clear property interest against intangibles is obviously higher than for tangibles, perhaps prohibitively so in many cases. But the problem at hand is whether, by devoting sufficient effort up front to organization and contracting, "unsecured" claims to the firm's intangible enterprise values can be made sufficiently secure to bring forth further gains from specialized valuation. The valuation hypothesis suggests that under some circumstances they can. If so, the entrepreneur will have better information about the optimal level of specialized investment and the amount he is putting at risk across multiple dimensions in making the investment. Issuing an intermediate class of debt shifts the losses from variability in the firm's intermediate going concern value to a separate valuation specialist or class of specialists and thus further reduces the likelihood of pricing errors that can distort ex ante investment and lead to costly wealth transfers.

The benefits from selling claims to the value of the firm's quasi-rent streams derives from the existence of unique sources of variability in firm value as represented by its distinct

alternative uses. In theory, of course, any enterprise has an infinite number of alternative uses. For example, a department store devoted to high-quality merchandise can be transferred into use in selling low-quality merchandise. Taking the example to the absurd, even replacing one sales clerk with another can be viewed as a different use of the enterprise. But the value of these two uses will surely be too highly correlated to warrant selling separate financial claims against them given the associated costs of organization and contracting to assign exclusive claims to the relevant value flows. These transaction costs introduce lumpiness into the unbundling process and give content to the notion of *distinct* alternative uses that can be profitably reallocated to valuation specialists. In this sense, a distinct alternative use is one for which the correlation in value with the firm's current use is sufficiently low to justify the organization and contracting costs of effective unbundling.

The optimal extent of unbundling is a function of offsetting transaction costs -- measurement costs on the one hand and the costs of organization and contracting on the other. The process of selling claims to the value of the firm's alternative uses will continue until the added benefit from specialized valuation it engenders in terms of measurement costs avoided fall below the added organization and contracting costs.¹¹⁶ The capital structure that maximizes firm value, or minimizes the firm's average cost of capital, will be that which balances these offsetting transaction costs at the margin. Seen in this light, corporate finance is a manifestation of Coase's prediction that specialists will emerge to sell price information. For many publicly held corporations this will imply the existence of at least a single class of debt secured either explicitly or implicitly by the firm's tangible or intangible assets.¹¹⁷ Equity reflects the value of the firm in its current use after deducting the value of all senior claims. Junior debt reflects the net value of the firm's second best use after deducting the value of all senior claims. Senior or secured debt reflects the net

¹¹⁶ In assessing the optimal extent of unbundling, the closer we move toward the margin of specialization the more closely correlated will be the value of alternative uses, and, accordingly, the lower will be the benefits from further unbundling. Furthermore, the alternative uses become more amorphous toward the margin of specialization, so that the costs of organization and contracting to establish clear, exclusive claims to the underlying "assets" increases.

¹¹⁷ One exception to this will occur in firm's whose tangible assets are so specialized to its current use that they have virtually no alternative use.

value of the lowest valued use of the enterprise that is nevertheless worth allocating to valuation specialists.

The differences in the value of the firm's distinct alternative uses reflect its marginal and intra-marginal specialized quasi-rents. Corporate financial claims unbundle these quasi-rent streams and transfer them to valuation specialists.¹¹⁸ In doing so, they define property rights, and residual claimancy, to what can be seen as the firm's intangible assets. In the department store example, the building, itself, might be considered *the* asset. Yet its value specifically as a department store is a reflection of the stock value of the intangible attributes it embodies that make it more valuable as a department store than as a law school. These quasi-rents can be seen as a separate intangible asset owned by the firm's equity holder(s). Similarly, the stock value of the building's intangible attributes that make it more valuable as a law school than as a warehouse can be seen as a separate, less specialized, intangible asset owned by the firm's junior debtholder(s).

C. *A Tautology?*

The foregoing discussion raises the question of what is really meant in both law and economics by the term "asset." At the very least an asset is the expectation of a stream of value, with the stock value of the asset equal to the discounted present value of the stream. Although it is common to think of an asset as a tangible *thing*, it is widely recognized that an asset can be intangible, as in the case of "goodwill" or "intellectual property." Even though tangible things whose value is positive necessarily embody assets, however, the tangible matter that makes them up is surely not the asset, itself, in either an economically or a legally meaningful sense. Rather, *the* asset is the intangible form in which the tangible matter is arranged that allows it to meet specific human ends and therefore to generate a distinct stream of value. Note that this value normally comes only at a cost to humans and

¹¹⁸ A given debtholder may also be a residual claimant to variability in the value of further intra-marginal uses. The value of higher priority claims gives the next lender in line guaranteed information about the value of intra-marginal uses, so that this lender can concentrate only on measuring value at the upper end of his claim.

is thus the result of an ex ante investment.¹¹⁹ In this general framework, then, the concept we call an asset is essentially intangible, although in most cases it will be embodied in some tangible collection of matter.¹²⁰ An *asset*, then, is more than just the expectation of a flow of value, it is the expectation of a flow of specialized quasi-rents.

The same reasoning applies to the concept we call "the firm." Is the firm a single asset or a collection of separate, or at least potentially separable, assets? An essential attribute of the firm must be that it earns a stream of specialized quasi-rents as a going concern above its value in the next best distinctly different use. As the firm's aggregate cash flow varies within the range of its marginal specialized quasi-rents the use to which the enterprise is put remains stable, that is, it remains *firm*. In this sense, corporate finance is the process of unbundling the intangible but very real assets of the corporate enterprise and packaging them into financial assets. Subject to the transaction costs of contracting and organization, residual claimancy to the value of the all-equity firm's intangible assets can be profitably unbundled and reallocated through the sale of secured and unsecured debt claims. Ex ante, the resulting improvement in valuation accuracy will provide information to the entrepreneur about the opportunity cost of his fixed capital investment, the extent to which he is putting resources at risk in making the investment, and, consequently, the optimal level of specialized investment. To the extent the corporation's financial claims are subsequently

¹¹⁹ Even in the case of a valuable asset found in nature such as a gold nugget or a fine salmon fishing stream, the finder will have to devote resources to enforcing his exclusive claim to it as against interlopers. See John Umbeck, *A Theory of Contract Choice and the California Gold Rush*, 20 J. LAW & ECON. 421 (1977); and D. Bruce Johnsen, *The Formation and Protection of Property Rights among the Southern Kwakiutl Indians*, 15 J. LEGAL STUD. 41 (1986).

¹²⁰ A simple example illustrates this and other points. Is the collection of tangible matter we casually describe as a car an asset? It is commonly treated as such, but depending on the subject at hand this usage can be misleading. Some cars, for example classic cars, often turn out to be worth more in piecemeal liquidation — "parted out," as they say — than as a going concern, even though they operate adequately well as a going concern. For any car that is worth more as a going concern than in piecemeal liquidation the asset we casually describe as "the car" is really nothing more than the quasi-rent stream the enterprise is capable of earning as a going concern above what it could earn in piecemeal liquidation, or in some other distinctly different use. For immediate practical purposes, few of us would consider a collection of disassembled parts as a car because we would be unable to get in it and drive it and capture its use value for transportation. Instead, each separate part will potentially embody a separate asset in the aftermarket. Alternatively, where the value of the car intact as transportation falls sufficiently, the collection of matter is often melted down into its fungible form as molten steel, from which it can be profitably reformed.

traded, unbundling will also provide accurate information about the ongoing value of the firm's alternative uses and thus about the opportunity cost of maintaining the firm in its current use.

Is the valuation hypothesis tautological? I believe it is. Essentially, it asserts that corporate financial claims assign property rights to the firm's intangible assets. The tautology comes in recognizing that the dimensions of an *asset* are, by definition, determined by the existence of unique sources of variability in otherwise amorphous value flows. In both an economically and a legally meaningful sense, all assets are the intangible reflection of the specialized quasi-rent streams that inhere in the desirable attributes of tangible things for which only the aggregate value is easily known. The corporate finance literature has traditionally viewed the corporation as just such an amorphous collection of value -- undifferentiated "composite capital." In practice, this stock can be profitably unbundled into separate components only to the extent permitted by measurement costs on the one hand and the costs of organization and contracting on the other. In this sense, assets simply do not exist unless human beings decide it is worthwhile to incur the organization and contracting costs necessary to unbundle them from a composite whole. In some cases, of course, this is an absurdly simple process, as when one goes to a junk yard to buy aftermarket auto parts. In other cases it is quite problematic, as with the quasi-rent structure of the publicly-held corporation.

The process of unbundling accords nicely with the concept of reification discussed by J&K. Recall their distinction between reified and horizontal priorities. Reified priorities are commonly associated with the standard security agreement that identifies a distinct tangible asset to serve as collateral for a nonrecourse loan. Horizontal priorities are reflected in unsecured corporate debt and preferred and common stock. According to J&K, a reified system "encourages creditors to focus their attention on different assets . . . and allows [them] to take advantage of the efficiencies that come with specialization [by avoiding duplicate monitoring]," while a horizontal system does not. According to the valuation hypothesis it is tautological that unsecured debt evokes specialized valuation of the firm's underlying intangible assets. By this definition, J&K's horizontal priorities are actually

reified claims. We know this, not because we can look at the corporate enterprise and clearly observe separate intangible assets, but simply because the parties have found it worthwhile to unbundle a subset of the firm's value flows and to make them the object of distinct private property rights.

The valuation hypothesis thus meets Friedman's first test of a positive hypothesis; it constitutes "a 'language' designed to promote 'systematic and organized methods of reasoning.'"¹²¹ It approximates a logically complete, internally consistent analytical filing system that tautologically describes the relevant empirical phenomena to be explained. Of course, there are many potential tautologies that fit this criterion. The important question is how to select between them. The final test of a positive hypothesis, as proposed by Friedman, is whether it is useful, that is, whether it is capable of predicting "phenomena not yet observed."¹²²

IV. APPLICATIONS AND TESTABLE IMPLICATIONS

Section II raised two legal questions that any theory of corporate financial structure should be able to resolve, the puzzle of secured debt and the bankruptcy priority puzzle. In this section I examine these questions in light of the valuation hypothesis and show that it rationalizes several anomalies in the associated literature. I also generate a few testable implications in the area of corporate reorganizations and briefly discusses the broader implications of the valuation hypothesis for the theory of the firm and the choice of business form.

A. *Why Security?*

Recall that the puzzle of secured debt relies on the widespread belief that issuing

¹²¹ Friedman, *supra* note ?.

¹²² Friedman, *supra* note ?.

security is costly. This is no doubt true in a limited sense, but as Section III showed it does not lead to the conclusion that secured debt is more costly than unsecured debt. The comparison fails to hold other relevant conditions constant, most notably the level of "creditor belief that there will be assets available on default."¹²³ Once we accept the proposition that the corporate enterprise consists of both tangible and intangible assets, and that unsecured debt is implicitly backed by an expectancy interest in the firm's intangible assets, the unconditional comparison becomes meaningless. It is surely more costly to establish a given level of expectancy where the assets backing the loan are intangible than when they are tangible. The important question is not whether secured debt is more or less costly than unsecured debt, but whether the informational benefits from assigning residual claimancy to valuation specialists exceeds the associated organization and contracting costs, regardless of whether the underlying assets are tangible or intangible. In Shupack's words, "[s]ecured creditors . . . do not necessarily have the need for the same information as unsecured creditors, and therefore do not incur all of the information acquisition costs of unsecured creditors."¹²⁴

This view accords with that offered by Triantis. While discussing the role of security in overcoming the information problems that arise due to agency costs, Triantis had this to say:

[T]he distinction between secured and unsecured debt is not as bold as it is typically portrayed in theory. Most of the effects of secured debt may be reproduced by other contractual terms in debt contracts. As a result, secured debt is usually one of several means of addressing any given informational problem. The parties must choose the most cost-effective alternative in each set of circumstances.¹²⁵

¹²³ Shupack, *supra* note ?, at 1086 n. 74.

¹²⁴ Shupack, *supra* note ?, at 1088.

¹²⁵ Triantis, *supra* note ?, at 257.

The "property" interest created by the lien in a secured debt contract would be impossible to create, as such, against the firm's intangible assets because the costs of organization and contracting are prohibitive. But as Triantis pointed out, security is simply one among many methods of guaranteeing the value of a debt claim. Others include claim dilution and negative pledge clauses, default triggers based on financial ratios, insecurity clauses, demand notes,¹²⁶ and perhaps public trading. Moreover, as Eisenberg stated in analyzing the rights of undersecured creditors in bankruptcy:

Grants of security are, after all, merely additional terms in a contract. An unsecured lender has inchoate rights in a debtor's nonexempt property. Although these rights usually depend on obtaining and enforcing a judgment, they also include other property-specific attributes, such as the ability to bring fraudulent conveyance and bulk transfer challenges against certain transfers. Through financial covenants and other contractual terms, some unsecured lenders have enhanced inchoate claims to a debtor's property.

Security agreements, though they theoretically confer rights in specific property, are merely another version of enhanced rights.¹²⁷

All else equal, then, even if security adds to the cost of contracting up front, it probably reduces measurement costs and surely reduces enforcement costs on the back end by eliminating any requirement on the lender's part to invoke judicial process to satisfy its claims.¹²⁸

Evidence to support the proposition that unsecured corporate debt is implicitly backed by the firm's intangible assets is fairly easy to find. For example, Scott noted that

¹²⁶ Buckley, *supra* note ?, at 1433.

¹²⁷ Eisenberg, *supra* note ?, at 961.

¹²⁸ For an excellent early analysis of the role of security in reducing enforcement costs, see Daniel K. Benjamin, *The Use of Collateral to Enforce Debt Contracts*, 16 *ECON. INQUIRY* 333 (1978). See also Clifford W. Smith, Jr., and Jerold B. Warner, *Bankruptcy, Secured Debt, and Optimal Capital Structure: Comment*, 34 *J. FIN.* 247 (1979).

the rise of unsecured lending following the turn of the century was preceded by the evolution of "sophisticated financial analysis." As he described it:

[I]n the early 20th century, as business incomes became more stable and accounting procedures and financial reporting were improved and regularized, unsecured loans became more prevalent. Perhaps the most important factor contributing to the growth of unsecured lending by commercial banks was the evolution of sophisticated financial analysis. By study and comparison of past financial statements, financial accountants could, with reasonable accuracy, evaluate the financial structures and liquidity of a borrower. Furthermore, these techniques produced reliable projections of the continued solvency and income-generating ability of the borrower.

...

... [Today] the initial specialization of the activities between secured and unsecured components remains. Lenders retain the distinction between the reliance on sound financial analysis for unsecured loans and reliance on sound 'collateral administration' for secured loans. What remains . . . are lenders holding a financial portfolio of both unsecured and secured loans premised on the existence of an inverse relationship between a borrower's balance sheet strength and the benefits of collateral control.¹²⁹

The evolution of sophisticated financial analysis appears to have reduced the costs of measuring the value of the corporation's underlying intangible assets and led to the increasing reification of these assets as manifested by the widespread issuance of "unsecured" debt. Crucial to this process, as Scott makes clear, is that the value of secured and unsecured loans -- and the tangible and intangible assets that back them -- vary

¹²⁹ Scott, *supra* note ?, at 943-44.

independently.¹³⁰

Further support for the valuation hypothesis must come from its consistency with, or its ability to predict, the contours of commercial lending and the law that governs it. Any kind of exhaustive treatment of this subject is well beyond the scope of this paper, but two anomalies that have been repeatedly addressed in the legal literature hint at the explanatory power of the valuation hypothesis. These anomalies consist of the "purchase money mortgage" exception to the "first-in-time" rule of loan priorities and the observation that a substantial amount of corporate secured debt is issued on a short-term basis.¹³¹

The first-in-time priority rule is one of the important general rules regulating commercial loan priorities. It holds that early secured lenders have priority over subsequent secured lenders to the debtor's existing assets. A routine response to the first-in-time rule by secured lenders is the insistence on an "after-acquired property" clause, which extends their priority interest to property the debtor acquires after the initial loan, including that financed by subsequent lenders. A recognized legal exception to an after-acquired property clause is the purchase money mortgage rule. This rule gives a subsequent secured lender, often the seller of property, a priority interest over previous secured lenders in the property purchased with the new loan, provided the loan can be traced to distinct, identifiable assets.¹³² As Schwartz explains the typical purchase money security interest:

Initial lenders commonly extend large sums to enable debtors to pursue major projects. These loans are made after extensive investigations of the debtor's business, and each of them is, at least to some extent, custom-made. . . . [But] some assets are sufficiently specialized that sellers have a comparative

¹³⁰ Although some lenders may hold diversified portfolios, the valuation hypothesis requires that for any given class of financial claim at least one owner specializes in providing valuation.

¹³¹ My assumption throughout this paper, that all debt is nonrecourse, represents a third anomaly worth explaining. I am unable to provide a satisfactory explanation for why some debt provides for full recourse. To the best of my knowledge, however, no one has given a satisfactory explanation to this question.

¹³² The purchase money priority is codified in UCC § 9-107. For general discussions of this rule see Jackson & Kronman (1979), *supra* note ?, at 1165; and Schwartz (1989), *supra* note ?, at 242-43.

advantage over general-purpose lenders at maximizing the proceeds from resale after repossession. When this advantage exists, purchase-money loans have a higher expected value when made by sellers or specialized lenders than when made by banks.¹³³

As Schwartz's explanation allows, the tracing requirement of the purchase money mortgage rule promotes specialized valuation of the new assets net redeployment value. By imposing the constraint that this asset be identifiable, the tracing requirement confines the application of the purchase money priority to assets whose value is likely to vary independently of the value of existing assets and which are therefore subject to gains from specialized valuation.

Based on the relative frequency of short-term secured debt, Schwartz did a fairly convincing job of casting doubt on the hypothesis that security serves to reduce the monitoring costs that arise due to the threat of asset substitution. Since short-term secured debt must be renewed regularly, a firm that has substantial amounts of such debt outstanding faces a relatively powerful reputational penalty if it is found to have engaged in asset substitution. Compared to long-term debt, this threat serves as a viable alternative to specialized monitoring, and we should therefore see security used less frequently with short-term debt, all else equal. Yet a relatively large proportion of secured debt is issued by retailers to trade creditors on a short-term basis against inventory or accounts receivable. This, according to Schwartz, "constitutes a serious counter example to the monitoring-cost theory."¹³⁴

The observation that a substantial proportion of secured debt is issued on a short-term basis poses no such problem for the valuation hypothesis. Quite the contrary. Another example from the fashion industry illustrates why. A recent *Wall Street Journal* story reports that Martha Inc., a long-standing paragon among Manhattan's high fashion salons, has filed for Chapter 11 bankruptcy protection. Martha's two largest creditors are couture designers

¹³³ Schwartz (1989), *supra* note ?, at 242-43.

¹³⁴ Schwartz (1981), *supra* note ?, at 12.

Chanel and James Galanos. Why are these fashion design firms the most efficient holders of Martha's debt? Given their expertise in fashion design, it is hard to imagine that they have any special ability to monitor Martha's general retailing operations to prevent asset substitution. Rather, their expertise is as design houses that sell high fashion to retailers around the world. This gives them a comparative advantage in measuring the value of Martha's inventory in its next best use, net of the cost of redeploying it to an alternative retailer. Moreover, they can most efficiently bear the losses that arise due to variability in this value, among other reasons because they are in a superior position to avoid the losses that arise due to the creation of an unpopular line of clothing. Similarly, Martha, being a specialist in fashion retailing to high society, is in a superior position to avoid the losses that arise due to poor performance of its retailing specialty. In both cases the parties' respective specialties give them a comparative advantage in valuing the associated assets. By giving security to trade creditors, the arrangement assures that the parties capture these efficiencies. Why, to carry the illustration a step further, did Martha give Chanel and James Galanos security interests in their own merchandise rather than an indiscriminate pro rata interest in the salon's entire inventory? The question almost answers itself. Surely Chanel can assess the redeployment value of its own merchandise better than James Galanos and vice-versa.

B. *Corporate Reorganizations*

Before examining the bankruptcy puzzle, it is useful to derive implications for corporate reorganizations, generally. I start with the unremarkable but seldom recognized implication that, holding other factors constant, an unanticipated change in the value of the firm's underlying assets will lead to a one-time adjustment in the price of the associated debt.¹³⁵ The important point is that debt prices can change unexpectedly even though the

¹³⁵ This implication holds true only so long as there is some possibility that the value of the enterprise in its current use will fall below its value in the use represented by debt. Moreover, it should also hold true even if the principal value of the loan is not exactly equal to the certainty equivalent of the enterprise on default. Whatever factors other than redeployment value affect the principal value of the loan, holding these factors constant an

firm appears to be performing as expected and there have been no obvious changes in risk, interest rates, or the market. In general, moreover, the valuation hypothesis implies that equity will be more highly correlated with the price of the firm's junior debt than with its senior debt. This is because the events that affect the most specialized use of the enterprise are more likely to have a similar effect on intermediate specialized uses than on the most fungible use represented by senior or secured debt.

The valuation hypothesis also has implications for the concentration of ownership of debt and equity claims. Public trading has the advantage that it requires financial claims to be divided into multiple shares of an undivided stream of quasi-rents. The dispersion of ownership provides competition between valuation specialists, both actual and potential, and seems more likely to bring forth relevant information from widely diverse sources about the best possible use of the firm's underlying assets. I would therefore expect traded equity, which represents a claim to the most specialized use of the enterprise, to be subject to the most dispersed ownership of all the firm's financial claims.¹³⁶ At the margin, there are many competing specialized uses of the enterprise that are mutually incompatible and too indistinct to warrant the creation of separate financial claims. For example, a department store can be devoted to high-end merchandise, to low-end merchandise, to trendy merchandise, or to traditional merchandise, and various product lines can be added or discontinued, etc. Each of these uses is likely to be subject to specialized valuation from a separate source. The least specialized use of the department store as blank warehouse space is fairly fungible, however, and *as such* is subject to fewer indistinct alternative uses. Accordingly, it will be subject to fewer separate sources of specialized valuation. Indeed, for such fungible uses as blank warehouse space, information may be best procured from private sources. This seems consistent with observations that the ownership concentration of corporate claims is negatively related to their seniority, with senior secured debt often

unanticipated change in redeployment value will cause a change in the price at which the debt trades.

¹³⁶ *But see* Franklin Allen, *Stock Markets and Resource Allocation*, in *CAPITAL MARKETS AND FINANCIAL INTERMEDIATION*, Colin Mayer and Xavier Vives, eds. (Cambridge, 1993), who derives similar implications for the dispersion of equity based on the degree of concentration and technical innovation.

being privately held,¹³⁷ and that many large public corporations issue little secured debt against their durable tangible assets.¹³⁸

Next, consider Williamson's observation that a substantial change in the redeployment value of the firm's assets will lead to gains from voluntary reorganization.¹³⁹ Under the valuation hypothesis, which posits an overall quasi-rent structure for the firm, this misalignment can occur at any of several different levels. An unanticipated change in the value of one or more of the firm's alternative uses creates nonexclusive rents that are subject to capture by the parties. When the firm's financial structure becomes misaligned in this way, the parties will normally find it in their interest to realign their claims to reflect the underlying asset values to avert the costly dissipation of wealth that might otherwise occur. Doing so reduces the firm's average cost of capital and improves internal resource allocation by reducing the measurement costs involved in gathering information about the firm's quasi-rent structure. Although the distribution of wealth will depend largely on the contractual terms and legal rules governing the parties' relationship, it is likely that those responsible for mispricing will bear much of the associated losses.¹⁴⁰

Again consider the department store to envision how the process of realignment works. Recall that at the time the investment was made the expected value of the building as a department store was \$10 million, while its expected value as a law school, net of redeployment costs, was \$7 million. Ignoring the third best use of the building as a

¹³⁷ Adler (1993), *supra* note ?, at ?; Picker ???

¹³⁸ Adler (1993), *supra* note ?, at ???.

¹³⁹ Having chosen to investigate the function of debt and equity as governance devices for avoiding post-contractual opportunism, Williamson largely ignored the process by which information about alternative enterprise values is produced in the real world. This is exactly the focus of the valuation hypothesis, which further adds to Williamson's analysis the possibility that an asset, and indeed the entire corporate enterprise as a going concern, may have multiple redeployment values that reflect an overall quasi-rent structure. I should note that the valuation hypothesis appears largely consistent with Williamson's corporate governance analysis, although I believe my focus on measurement holds out a greater promise of testability. In any event, both hypotheses predict a close relationship between corporate debt and the redeployment value(s) of the enterprise, but the valuation hypothesis is capable of explaining why many firms carry multiple classes of debt and even equity.

¹⁴⁰ Under many situations, conversion rights established by the parties *ex ante* will reduce the costs involved in arriving at a mutually agreeable reorganization.

warehouse, these amounts identify the quasi-rent structure of the enterprise. Assuming the costs of organization and contracting are tolerably low, the valuation hypothesis asserts that the department store entrepreneur can minimize his average cost of capital by issuing \$3 million in equity and \$7 million in debt. The \$3 million difference between the value of the building's current use and the value of its next best use reflects the expected value of the intangible attributes it embodies that are specialized to its use as a department store. These quasi-rents identify the resources the department store entrepreneur puts at risk in designing the building specifically for use as a department store. Equityholders bear this risk, while debtholders bear the risk accruing to those resources devoted specifically to the value of the building if used as a law school. This capital structure brings forth accurate information about the underlying asset values and the effects of day-to-day operating and investment decisions on these values. Recall that in equilibrium the valuation specialists who supply this information (on behalf of both equity and debt) must be compensated for their measurement costs by financial returns. It is the parties' returns net of measurement costs, however, that determine the benefit they receive from holding their claims. Should these costs change, prices and observed returns will change accordingly.

Once the building is put in place and begins operating as a department store, suppose the demand for law school education declines substantially, so that the value of the building if used as a law school falls unexpectedly to \$5 million. Prior to the change, the equity valuation specialist had only to be concerned with measuring the likelihood of those states in which the department store would earn more than \$7 million dollars. He was indifferent to information concerning any payoff below this amount because such an event would lead to a transfer of ownership to debt claimants. Similarly, so long as the value of the building as a law school was stable the debt valuation specialist was indifferent to the riskiness of the investment decisions made by equityholders.¹⁴¹ With the change, the \$2 million difference

¹⁴¹ According to agency theory, debt creates a conflict between the firm's equity owners and its lenders that offsets its function in disciplining managers. This leads to the asset substitution problem identified by J&M and to the underinvestment problem identified by Myers. Both of these problems are special cases under the valuation hypothesis that correspond roughly to the narrow case of post-contractual opportunism. If the face value of debt is equal to the net value of the firm in its next best use, and this redeployment value is perfectly stable, however, both asset substitution and underinvestment are a matter of indifference to the firm's lenders. Once we recognize

between the face value of the debt and the value of the building if used as a law school constitutes nonexclusive rents. Nominally, debtholders have a claim to these rents, but they are subject to capture by equity because debtholders' threat to take control of the firm's assets on default is substantially less credible than before. If the value of the building as a department store were to fall, for example, to \$6 million and debtholders were to enforce their lien they would get only \$5 million absent the cooperation of equity. On the other hand, the \$1 million difference could be preserved if equity were promised a stake in the reorganized firm.

Unless the parties can enforce their rights at zero cost, the measurement costs to both the equity and the debt valuation specialists will rise when the value of the building as a law school falls unexpectedly. Even holding the riskiness of the department store operation constant, the equity valuation specialist will now find it worthwhile to gather information about the likelihood that the value of the department store will fall into the range of nonexclusive rents. These costs will rise further if equity decides to increase the riskiness of the department store operation. The debt specialist will also be concerned with this likelihood. He will increase his level of scrutiny over the operations of the department store -- which are outside the range of his specialty -- and he is also likely to incur costs preparing to assert his legal rights at the slightest sign that equity has violated the terms of the debt contract or existing law. For both classes of claimants, financial returns must rise relative to what they would otherwise be, either to reflect the higher measurement costs

that the firm's debt is backed by either tangible or intangible assets, the notion of "risky" debt takes on a new, and more robust, meaning that depends, in part, on the variability in the value of these assets, as opposed solely to the value of the firm's current use. In either case equity bears the entire cost of its decision to increase risk or refrain from investing in positive net present value projects. If a department store owner decides to increase the firm's risk by undertaking a dramatic new advertising campaign, for example, the value of the department store building as a law school is unlikely to suffer. Only if the net value of the building in its next best use differs from the face value of debt -- either because of an ex ante valuation error by the lender or because of an ex post unanticipated reduction in the net redeployment value of the enterprise -- will asset substitution or underinvestment be a concern to lenders. The change in redeployment value creates nonexclusive rents that are subject to "opportunistic" capture through asset substitution or outright dissipation through underinvestment. One especially troublesome example of asset substitution occurs when the riskier use of the department store has a negative effect on the value of the building as a law school, as where the department store entrepreneur actually makes structural changes in the building that materially alters its redeployment value as a law school. This is exactly the kind of asset substitution against which bond covenants should be an especially effective deterrent, but it is not the only kind.

involved in gathering information in the face of nonexclusive rents or as compensation for the greater risk they must bear if they choose to ignore the situation.

Under these circumstances, the parties can potentially avert the costly dissipation of rents and increase their joint wealth by issuing roughly \$2 million in new equity and using the proceeds to retire roughly \$2 million in debt. Following the reorganization, they will once again be free to concentrate largely on their respective valuation specialties, and the associated measurement costs will fall. This leads to an important testable implication. All else equal, the gross steady state returns to both equity and debt should fall with the exchange; that is, gross returns for some stable period prior to the reorganization should be higher than those for some stable period following the reorganization. This is because the gross financial returns necessary to compensate the valuation specialists for their measurement costs will fall. Presumably, the valuation specialists must be made better off by the reorganization, so we can infer that *net* returns must rise and that gross returns must fall by less than the reduction in measurement costs.¹⁴²

If this was all there was to the story, the reorganization should be accompanied by a rise in equity prices in a narrow window surrounding the reorganization, an implication that is inconsistent with the observed facts. For example, Clifford Smith reports negative

¹⁴² To the best of my knowledge, few scholars have either recognized or accounted for the effects of the costs of buying or holding securities on security returns of the measurement costs involved in buying or holding them. *But see* Richard L. Smith and Vaughn S. Armstrong, J.D., *Misperceptions About Private Placement Discounts: Why Market Reaction to Rule 144A Has Been Lukewarm*, in *MODERNIZING U.S. SECURITIES REGULATION* (Kenneth Lehn and Robert Kamphuis, eds.), at 153. Indeed, failure to recognize this important point has led to considerable mischief. For example, in 1964 George Stigler attempted to assess whether the regulation of the market for new issues of corporate securities under the Securities Act (1933) had improved investor welfare by providing them with important information about Initial Public Offerings (IPOs). He reasoned that if the act had succeeded in providing the touted information the observed returns on IPOs over a ten-year window surrounding passage of the Act should have risen. He found little or no effect, however, and thus concluded that the Securities Act had done little to help investors. George J. Stigler, *Public Regulation of the Securities Market*, 37 *J. BUS.* 117 (1964). This prompted a vitriolic reply from Irwin Friend and Edward Herman, who claimed that Stigler's empirical methodology was faulty and that investor returns had indeed risen over the period. Irwin Friend and Edward S. Herman, *The S.E.C. Through a Glass Darkly*, 37 *J. BUS.* 382 (1964). According to the valuation hypothesis, both Stigler and Irwin and Friend had the economic logic backwards. If the Securities Act had indeed provided investors with the touted information, the cost they incurred gathering it themselves would have fallen. Along with it, observed security returns would have fallen as well. They would *not* have risen, as Stigler predicted. In spite of this error, Stigler's finding that the Act had no effect on investor welfare may nevertheless have been on target.

One implication of the notion that security returns reflect the cost to valuation specialists of measuring the underlying asset values is that higher valued uses, being closer to the margin of specialization, may carry higher returns because the added costs of gathering information about them rather than purely because they are more risky.

abnormal returns of 4.2% in the two-day window around transactions in which the proceeds of an equity sale are used to retire debt.¹⁴³ It is quite possible, however, that the negative returns are due to confounding events such as the elimination of any expectation on equity's part of being able to transfer wealth from debtholders. Only the final consummation of the reorganization can completely eliminate this possibility. In any event, it is beyond the scope of this paper to disentangle all the possible effects of corporate reorganizations. My point at this stage is simply to identify the direction of effects that should arise due to specialized valuation.

I should note that the agency cost explanation for the observed negative abnormal returns reported by Smith appears incomplete. Agency theorists believe these negative returns result from the increased problem of manager misbehavior that attends a reduction in leverage. They are at a loss to explain why managers are suddenly free to take advantage of shareholders in this way, however. Moreover, any reduction in leverage in an agency cost model must be met by an offsetting increase in firm value due to the lower likelihood of asset substitution. Over the course of time, the natural tendency is to make adjustments that reduce the wealth losses that arise due to agency problems rather than to increase them. Agency theorists have yet to explain such a reduction in leverage as a move from one equilibrium to another. The valuation hypothesis holds promise in this regard because it posits an exogenous change in the value of the firm's underlying assets that is potentially observable.

An unanticipated reduction in the value of firm's next best use is only one of many possible states of the world, especially where the firm has a complex quasi-rent structure that is reflected in multiple classes of debt and equity. The implications of the valuation hypothesis should generalize to each possible state and allow us to predict the nature of any resulting reorganization. For example, where the value of the second best use of the enterprise creeps upward at a modest pace while the value of its current use remains constant we might expect the firm to issue new units of an existing class of junior debt, even

¹⁴³ Clifford W. Smith, Jr., *Investment Banking and the Capital Acquisition Process*, 15 J. FIN. ECON. 3, 12 (1986).

while paying dividends to shareholders.¹⁴⁴ In an extreme case, the value of the second best use might supersede the value of the current use, even where the current use is earning an adequate return on historical capital. The reorganization following such a change would turn old debtholders into equityholders and vice-versa, thus retaining each valuation specialist's residual claim over the use that represents his specialty.

The valuation hypothesis also suggests a likely pattern for the evolution of the firm. Over time in a firm whose quasi-rent structure is stable we should expect a gradual reduction in the costs of organization and contracting necessary to further unbundle the firm's marginal specialized quasi-rents into separate intangible assets.¹⁴⁵ This occurs due to the inevitable tendency to institutionalize internal procedures that foster cooperative specialized production. For example, the firm's intangible stock of knowledge may initially be highly specialized to the individual team members. Over time, the internal procedures that allow team members to cooperate effectively may become fairly routine and subject to duplication at low cost in the event a new member is added to the team or an existing member departs. Eventually, the team, though still specialized to the firm's other assets, may become largely unspecialized to any particular team member. At this point old team members can depart and new team members can be added with very little loss in the value of the stock. This value, exclusive of the marginal returns to the entrepreneur-monitor, can be profitably allocated to a valuation specialist through a new class of financial claims whose priority lies below the existing class of junior debt but above the class of equity that emerges from the transaction.

The evolution of the market for so-called "junk bonds" may be a dramatic example of this process. At the start of the 1980s, the conceptually distinct alternative uses at the margin of many corporate enterprises were no doubt aggregated into a single class of equity because they were too amorphous to warrant the organization and contracting costs

¹⁴⁴ For an agency cost explanation for this practice see Frank H. Easterbrook, *Two Agency-Cost Explanations of Dividends*, 74 AM. ECON. REV. 650 (1984).

¹⁴⁵ This implication is simply an application of the second law of supply: supply, in this case the supply of organizational inputs, is more elastic over time.

effectively to reify and unbundle them. The evolution of a market in high-yield bonds appears to have been an organizational innovation that reduced the costs of unbundling. This explains why leverage increasing transactions such as leveraged buyouts (LBOs) swept through large sectors of the economy, affecting numerous firms simultaneously. In some cases, LBO's may have been profitable because intra-marginal uses that were previously too amorphous to permit unbundling were suddenly subject to effective reification. A second possibility, and one consistent with the logic of the first, is that many firms suddenly found it worthwhile to specialize further at the margin. In the latter case, what was previously the highest valued use of the enterprise thereafter became its second best use. Assuming a firm could always return to the earlier use if the new marginal use fails, the value of its earlier use could be profitably unbundled and allocated to a valuation specialist through the issuance of debt.¹⁴⁶ The quasi-rent stream accruing to the firm's new, more highly specialized use would then be represented by the new class of equity.¹⁴⁷

C. *Why Bankruptcy?*

¹⁴⁶ A recent story appearing in the *Wall Street Journal* tells of a Chicago nightclub that had struggled along for years by specializing in rap music. The club recently switched to the new wave of "banda" music, and met with tremendous success. Presumably, the nightclub can always go back to specializing in rap music should the popularity of banda music suddenly decline. In theory, the admittedly meager quasi-rent stream accruing to the club's intra-marginal use in rap above what it could earn in its third best use can be financed by a separate class of debt, while the returns created by specializing in banda music above what the club can earn specializing in rap will constitute its equity. *Wall Street Journal*, 4 October 1992, at B1.

¹⁴⁷ Much of the equity return in such cases may have arisen due to the effects of the increase in concentration of ownership in management's hands in reducing the equity-agency problem. Even in a firm whose managers' interests are perfectly aligned with shareholders' interests, however, information about the value of the enterprise in alternative uses is critical to maximizing firm value. Contrary to Harris and Raviv's analysis, as specialists in maximizing the value of the firm's current use, corporate managers are in a poor position to assess the value of the firm's alternative uses. According to the valuation hypothesis, corporate debt overcomes this information asymmetry. What has been interpreted as manager misbehavior under agency theory can be seen under the valuation hypothesis as the innocent manifestation of ignorance arising from specialization. In any event, debt may well perform both the disciplinary and informational functions simultaneously, so that the two hypotheses are not necessarily incompatible. Whatever the informational benefits of debt might be, its benefit in disciplining recalcitrant managers might lead the firm to issue more debt at the margin than would otherwise be the case. Whereas the informational benefits of debt might not justify incurring the organization and contracting costs to unbundle some especially amorphous intangible asset whose value is at risk of being dissipated by the firm's managers, the added benefits of manager discipline may justify the expense.

Considerable time and attention has been devoted by legal scholars either to attacking or defending the efficiency of Chapter 11 bankruptcy reorganizations.¹⁴⁸ As Easterbrook pointed out, however, defaulting firms often adjust claims voluntarily outside the bankruptcy forum. We can therefore assume, given the state of existing law, that they choose bankruptcy reorganization only when doing so maximizes collective gains net of the associated transaction costs. This does not allow us to infer, of course, that the state of existing law is the most efficient of all possible states, but Easterbrook's observation that firms making voluntarily adjustments follow procedures similar to those followed in Chapter 11 supports such an inference. Moreover, to some extent the parties can adopt organizational arrangements, *ex ante*, that reduce or altogether avoid the negative consequences of Chapter 11. Rather than taking a security interest, for example, an equipment seller can lease an asset to the firm, in some cases avoiding the prospect of being involved in any subsequent Chapter 11 reorganization. What is more, firms that issue multiple classes of debt totalling a given aggregate amount could instead issue just a single class in the same aggregate amount, thus avoiding the conflicts between various classes of debtholders in the bankruptcy forum and reducing the cost of squeezing equityholders out of the process if doing so was truly in debtholders' collective interest.

In any event, my point is not to pass on the merits of any given system for resolving the disputes that arise when a firm defaults, but to determine whether the valuation hypothesis is capable of rationalizing or predicting observed patterns of reorganization. One of the most striking anomalies in the bankruptcy setting is the deviation from the state law contractual priorities. Lynn LoPucki and William Whitford report that in a substantial

¹⁴⁸ In addition to the works already discussed in Section II/C, see Thomas M. Jackson, *Bankruptcy, Non-Bankruptcy Entitlements, and the Creditors' Bargain*, 9 YALE L.J. 857 (1982); Elizabeth Warren, *Bankruptcy Policy*, 54 U. CHI. L. REV. 775 (1987); Douglas G. Baird, *Loss Distribution, Forum Shopping, and Bankruptcy: A Reply to Warren* 54 U. CHI. L. REV. 815 (1987); James W. Bowers, *Groping and Coping in the Shadow of Murphy's Law: Bankruptcy Theory and the Elementary Economics of Failure*, 88 MICH. L. REV. 2097 (1990); James W. Bowers, *Whither What Hits the Fan?: Murphy's Law, Bankruptcy Theory, and the Elementary Economics of Loss Distribution*, 26 GA. L. REV. 27 (1991); Michael Bradley and Michael Rosenzweig, *The Untenable Case for Chapter 11* 101 YALE L.J. 1043 (1992); Lynn M. LoPucki, *Strange Visions in a Strange World: A Reply to Professors Bradley and Rosenzweig*, 91 MICH. L. REV. 79 (1992); Elizabeth Warren, *The Untenable Case for Repeal of Chapter 11*, 102 YALE L.J. 437 (1992); James W. Bowers, *The Fantastic Wisconsin Zero-Bureaucratic-Cost School of Bankruptcy Theory: A Comment*, 91 MICH. L. REV. 1773 (1993).

number Chapter 11 reorganizations of large, publicly held corporations that occurred between 1979 and 1988 equity received a positive claim to the post-bankruptcy estate while unsecured creditors, in spite of their contractual priority, received less than full value.¹⁴⁹ This result is unsurprising under the valuation hypothesis, which asserts that corporate financial claims create property rights in the firm's intangible assets as reflected in its specialized quasi-rent structure. Retaining these property rights intact in the face of unexpected changes in the value of the firm's underlying assets may require deviations from state law contractual priorities. Only in this way can valuation specialists retain residual claimancy to the accuracy of their price forecasts.

Going back to the department store example, suppose that once the building is in place its value as a department store falls below the face value of its debt, say to \$6 million, while its value as a law school falls to \$4 million. This could occur, for example, if the locality suffered sustained urban decay that reduced the value of all commercial uses simultaneously. As department store revenues fell, the firm would eventually default on its debt, but its highest valued use would remain as a department store. No doubt default would be met with some form of financial restructuring, but ideally it would be one that maintained the building in use as a department store. If the department store valuation specialists knows that contractual priorities will be strictly followed, and that the value of his equity claim will be zero, as the firm approaches default his incentive to accurately value the quasi-rent stream that accrues specifically to the use of the building as a department store vanishes. Presumably, this would lead to a substantial increase in the costs of gathering information about the optimal restructuring. It should therefore be clear that in terms of giving the department store valuation specialist the incentive to provide accurate valuation as default looms he must be accorded contingent property rights over the quasi-rent stream accruing specifically to the use of the building as a department store. Only by retaining property rights to this intangible asset intact can the informational benefits of residual claimancy be assured. Quite possibly the restructuring can be done voluntarily, but

¹⁴⁹ LoPucki & Whitford, *supra* note ?, at 142.

in some cases the underlying change in asset values may increase transaction costs -- both measurement costs and organization and contracting costs -- substantially. Assuring that the firm emerges as the most highly valued going concern may in some cases require a judicially administered valuation that retains some power to mandate an involuntary workout.¹⁵⁰

The valuation hypothesis implies that equity will receive a share of the bankruptcy estate so long as the specialized use that was valued most highly before default remains the most highly valued thereafter, even where this leads to a deviation from contractual priorities. Although this appears to violate the initial allocation of property rights agreed on by the parties, it actually maintains the continuity of property rights in the firm's intangible assets, quite possibly to the benefit of all claimants. Why not set up the original contracts in a way that performed this function directly? The answer must hinge on transaction costs. Harold Demsetz anticipated this result in general terms as early as 1966, when he made the following prescient observations while discussing the role of property rights in valuation and realignment costs:

The efficiency with which property rights are used depends on whether their value in the use to which they are put is sufficient to cover the cost of foregoing alternative uses.

...

... Even if uncertainty in the valuation of resource[s] in alternative employments is taken as given, it will be efficient to assign new property rights in a way that is expected to minimize the cost of transacting that will be required subsequently.

...

... [S]ome degree of involuntary reassignment of property rights is desirable if most persons agree to a reassignment that, because of high police

¹⁵⁰ Note that the reorganization may require price discovery by the participants that amount to what could be termed "prospecting" as they flounder to identify and value the relevant assets. Such prospecting must be rewarded if it is to be forthcoming.

or exchange costs, cannot easily take place in the market.¹⁵¹

Seen in this light, state law contractual priorities serve as the bench mark for restructuring, either through private workouts or through the bankruptcy forum. There is little doubt that even in bankruptcy these claims serve as the foundation from which the various parties bargain. For small or routine deviations from the parties' original asset valuations, the optimal reorganization may require close adherence to contractual priorities. For large deviations, however, the process may break down in some cases, leaving judicially administered reorganization as the optimal solution. Clearly, much of the bankruptcy process is concerned with establishing the value of the firm's underlying assets, either in terms of the liquidation value of its tangible components or in terms of its alternative going concern values. Exactly how this occurs with any degree of accuracy is an unresolved issue, but by identifying the firm's underlying intangible assets as the object of the process the valuation hypothesis shows promise in generating testable implications about bankruptcy reorganization. Only after considerable progress has been made in developing a positive theory of bankruptcy reorganization can we hope intelligently to assess the merits of the process in its entirety. As a scientific matter, it is simply too early for sweeping generalizations about the overall efficiency or inefficiency of Chapter 11.

D. *The Choice of Business Form*

The valuation hypothesis implies that the firm, by its very nature, earns a marginal stream of specialized quasi-rents. As a result, rather than being broken apart as its fortunes change over time the firm is retained intact as a going concern. In some cases, the firm may actually be subject to several distinct alternative uses that reflect a complex quasi-rent structure. Through the process Jackson and Kronman describe as reification, the financial claims issued by large, publicly held corporations provide information about its underlying

¹⁵¹ Harold Demsetz, *Some Aspects of Property Rights*, 9 J. LAW & ECON. 61, 64-67 (1966).

intangible assets that is critical to efficient investment decisions. This process also appears to be at work in other forms of business organization such as partnerships and closely held corporations. The question that arises under the valuation hypothesis is how these business forms function to preserve or enhance the intangible assets that must necessarily exist for the firm to have greater value as a highly specialized going concern than as some less specialized going concern or as a separate collection of assets under piecemeal liquidation.

At the margin, the relevant intangible asset is the firm's specialized stock of knowledge. The stock allows its team of specialists to cooperate at low cost. Surely one of the important factors affecting the choice between partnerships and corporations is the durability of this stock. As we saw in the case of Perry Ellis International, the ability of a firm's team of specialists to continue as a going concern absent the participation of one or more of its members is problematic. To a limited extent, Perry Ellis succeeded in overcoming the problem by institutionalizing his design expertise. Without these organizational inputs, PEI could not have survived his death purely as a high fashion design firm. With Perry Ellis's death, the going concern value of PEI fell substantially, but it did not vanish altogether. So long as the proper internal procedures and other organizational constraints are in place, the PEI design team may be able to continue as a going concern indefinitely. In this respect, it is critical that the value of the team as a going concern is not specialized to any single team member. This requires that existing members can leave the team and that new members can be trained to effectively replace them at an acceptably low cost.

Incurring the organization costs necessary to institutionalize the firm's specialized stock of knowledge is fundamentally at odds with the partnership form of organization because partnerships terminate with the death or withdrawal of a partner. Although the business can be reformed as a new partnership by the remaining participants, doing so is often troublesome because of the costs involved in transacting. Without the present or future ability to transform itself into a corporation, a partnership therefore may be wasting its resources in any attempt to institutionalize its stock of knowledge. Alternatively, one of the benefits of unlimited corporate life is the ability to take full advantage of a durable

stock of knowledge. All else equal, we should expect firms in which the stock of knowledge is highly institutionalized and thus highly durable to be more frequently incorporated.

The valuation hypothesis tells a similar story about "enterprise development." In most cases, the emerging enterprise constitutes an extremely speculative investment whose entire expected return is a single, indivisible stream of specialized quasi-rents. If the enterprise succeeds, the tendency over time where possible is to reduce its internal procedures to routine operations through the process of institutionalization. This, in turn, allows the firm's quasi-rent streams to be further reified and unbundled and thus to attain many of the normal incidents of property, including hypothecation, leasing, and outright transfer. Moreover, this often leads to the vertical disintegration of the valuation function, whose most stylized manifestation is public trading. Whether privately or publicly held, debt absolves the entrepreneur from the task of gathering information about the firm's alternative uses, and leaves him free to specialize on valuing and enhancing the marginal use of the enterprise. In this regard, I would predict that a relatively large proportion of the loans made to finance partnership ventures -- especially so-called unsecured loans -- are made by the partners, themselves. Those business forms that are more institutionally evolved will be more amenable to allowing the function of valuing alternative uses to be vertically disintegrated from equity ownership.¹⁵²

V. CONCLUDING REMARKS

The valuation hypothesis constitutes a tautology and thus meets Friedman's first test of a positive theory. Out of the universe of hypotheses that meet this criteria, what benefits does this particular tautology provide in helping us understand the world of corporate finance? First, if nothing else it implies that corporate financial structure provides a real-world proxy for asset specificity. One of the most damaging criticisms of the specific assets

¹⁵² Relatively little attention has been devoted in either the transaction cost literature or the finance literature on explaining the choice of business form. *But see* Eugene F. Fama and Michael C. Jensen, *Agency Problems and Residual Claims*, 26 J. LAW & ECON. 327 (1983) for an agency cost approach to the problem and Oliver Hart and John Moore, *Property Rights and the Nature of the Firm*, 98 J.P.E. 1119 (1990) for a property rights approach.

hypothesis has been that quasi-rents are largely unobservable to researchers on an a priori basis, and that the hypothesis is therefore impossible to refute. Though considerable progress has been made in generating testable implications about asset specificity on an ad hoc basis, the discovery of an independent, market generated measure is quite promising. If I am correct, researchers will eventually be able to compare the financial structure of otherwise similar firms to generate testable implications based on asset specificity about both their internal and external organization. The converse is also true.

Second, by providing a unified framework through which to view corporate financial structure, the valuation hypothesis should yield further refinements in finance theory. Given the definitional circularity of the valuation hypothesis, it currently constitutes only an ad hoc explanation of corporate financial structure. Given that the valuation hypothesis is capable of generating implications about observable attributes of corporate financial structure, however, with time and attention it stands to evolve into a more general theory. Among other things, it suggests that valuation, or measurement, costs will be reflected in security returns in a systematic way and that they therefore provide the basis for testable implications. What has been routinely regarded by financial economists as abnormally large asset returns to compensate for higher risk may in some cases be compensation for the costs of gathering accurate information about the value of the underlying intangible assets. According to the equi-marginal principal, the last dollar spent on measurement to avoid an increment of risk will yield exactly one dollar's worth of risk reduction. Thus, to the extent measurement costs are observable they allow us indirectly to observe the amount the parties are willing to pay to avoid risk, an otherwise unobservable variable.

The valuation hypothesis also bears on the interdependent notions of specialization and entrepreneurship. Specialization can be profitably viewed a any investment of resources made in expectation of a stream of specific quasi-rents.¹⁵³ All else equal, the larger the marginal stream of specific quasi-rents the greater the extent of specialization. Under this view, the only apparent distinction between specialization and asset specificity is that the

¹⁵³ And, tautologically, investment can be viewed as the act of *vesting* resources in specific undertaking.

expected quasi-rent stream may sometimes be too indefinite to qualify as an *asset* in any practical sense. Although this distinction may seem somewhat pedantic, it suggests the importance of economic organization in defining property rights to intangible and otherwise amorphous sources of value. That the associated value flows sometimes fail to materialize is perhaps less surprising than that they are often sufficiently well defined to qualify as assets to which the normal incidents of property ownership attach and over which the assignment of residual claims effectively occurs.

According to this view, moreover, entrepreneurship occurs at the margin of specialization, where the associated quasi-rent flow is too amorphous to be unbundled and contracted away. It will thus be left as the undifferentiated and uncontractible residual return earned all or in part by the entrepreneur as equity. Under such circumstances, the entrepreneur then bears only the risk accruing to his marginal specialized investment in the enterprise, leaving the risk accruing to intra-marginal uses of the enterprise to others. Corporate financial structure is simply one clear example of the inevitable process by which responsibility for preserving or enhancing asset values is allocated to those who are in the best position to perform these functions.

Unfortunately, formal testing of the valuation hypothesis is beyond the scope of this essay. Much work remains to be done. My hope and belief is that the present analysis provides sufficient foundation to provide a fruitful basis for further inquiry.