ASSET SECURITIZATION AND ASYMMETRIC INFORMATION

Draft, November 2001

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Abstract

We analyse the incentives for asset securitization that flow from informational asymmetries about the value of corporate assets. Within the framework of “hidden action” asymmetries, asset securitization can strengthen each of the five principal means by which managerial agency problems are controlled: incentive compensation schemes; monitoring; the market for corporate control; reputation in the market for managerial human capital; and limitations on the free cash flow over which managers have discretion. Securitization of cash flows that are relatively insensitive to managerial effort can leave each of these incentive devices more focused on cash flows that matter and more high-powered. In addition, asset securitization exchanges a stream of future cash inflows for a lump sum cash inflow, enhancing monitoring and control of management expenditures. Within the “hidden information” framework, asset securitization can be explained by asymmetric information: (1) between insiders and outside investors as to the value of non-securitized assets; (2) between classes of outside investors as to the value of securitized assets; or (3) between insiders and outsiders as to the value of securitized assets. In all three hidden-information theories, asset securitization is driven by the tendency of the market to match claims with investors who are best informed about asset values. Where an informational asymmetry is different between two classes of assets owned by a corporation, as in the three theories, the market can achieve this efficient matching only by splitting the ownership of the two classes. Asset securitization is thus a response to the asymmetry across assets in the informational asymmetry across investors as to the asset returns.
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1. Introduction

Asset securitization is the segregation of a particular set of cash flows from a corporation’s other assets and the issuance of securities based only on these cash flows. The types of financial assets involved in asset securitization transactions are frequently receivables.\(^1\) The practice of securitization originated with the sale of securities backed by residential mortgages,\(^2\) but a wide variety of assets have been securitized, including lease, auto loan and credit card receivables,\(^3\) commercial mortgages,\(^4\) equipment leases, franchise fees,\(^5\) state lottery winnings,\(^6\) and litigation settlement payments.\(^7\) Recently, even more unconventional assets have been the subject of securitization. For example, David Bowie securitized royalties from his music catalog.\(^8\) Revenues from particular natural resource stocks, such as oil and gas reserves, have also been securitized.\(^9\)

This paper analyzes the economic incentives for asset securitization. The paper is motivated by three observations. First, the use of asset securitization as a financial tool has increased dramatically over the last twenty years. There are presently over $2.5

\(^5\) Schwarcz, Structured Finance, \textit{supra} at 7.
\(^7\) \textit{Ibid}.
trillion worth of such securities outstanding.\textsuperscript{10} At the same time, the scope of asset
securitization has broadened, with the set of assets being securitized expanding from its
original base of mortgages and receivables to other more variable cash flows such as
those mentioned above.

Second, the discussion of asset securitization among practitioners is plagued by
fallacies. For example, some commentators suggest that asset securitization is attractive
simply because it allows a medium or low quality firm to offer a high quality security, or
simply because it allows a firm to offer securities with lower costs of capital than the
firm’s general debt or equity. The theory of finance shows these explanations to be
wrong, as we shall discuss.

Finally, the academic literature on asset securitization is sparse and some of the
theories offered are problematic. For example, asset securitization has been described as
a useful judgment-proofing tool.\textsuperscript{11} But exchanging one asset (future cash flows) for
another (current cash) does not necessarily judgment proof the firm,\textsuperscript{12} although it may
assist in a judgment proofing strategy. And as an empirical matter many firms engaging
in asset securitization do not appear to be sufficiently endangered by insolvency risk for
judgment proofing to justify the transaction costs of asset securitization.

The set of incentives for asset securitization that we explore involve forces purely
internal to the contractual parties within the corporate organization. We analyse the

\begin{footnotesize}
\begin{itemize}
\item[9] Charles E. Harrell, James L. Rice III, and W. Robert Shearer, “Securitization of Oil,
Gas, and Other Natural Resource Assets: Emerging Financing Techniques” (1997) 52
Bus. Law. 885.
\item[10] Lois R. Lupica, “Revised Article 9, Securitization Transactions and the Bankruptcy
\end{itemize}
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incentives for asset securitization that flow from the informational asymmetries that lie at
the foundation of the theory of the firm. If capital markets were “perfect”, no incentive
for asset securitization would arise. Perfect capital markets are complete, that is,
available and in operation for any conceivable security, and free of transactions costs,
taxes, or informational asymmetries across investors about security returns. Under
perfect capital markets, the value attached to the total returns from a corporation would
be unaffected by a change that simply divided up the claims to these returns in a different
way, as asset securitization does.\footnote{13} In valuing a corporation, the capital market values the
total corporate returns offered to investors; how these returns are divided up into cash
flows assigned to different claimholders does not affect overall value. This result, the
Modigliani-Miller theorem, is the foundation of modern corporate finance.\footnote{14} The usual
expression of this theorem involves changing the debt-equity ratio of the corporation,
which divides up a set of total corporate investment returns into different interest and
dividend streams; the total capital market value of the firm is unaffected by the change in
capital structure since the capital market values the total returns to investors, without
attaching significance to the labels “interest” or “dividends”.

\footnotetext{13}{When asked once whether he would like his pizza sliced into four or eight pieces, Yogi
Berra allegedly requested eight slices since he was hungry that night. The humour in this
response is the essence of capital structure irrelevance: different slices of debt and equity
will affect the distribution of the firm’s proceeds among financial claimants, but will not
affect the total size of these proceeds. See R. Brealey, S. Myers and A. Marcus,
Fundamentals of Corporate Finance, 2d ed. (Toronto: Irwin-McGraw Hill, 1999) at 396.}

\footnotetext{14}{F. Modigliani and M. Miller, “The Cost of Capital, Corporation Finance and the
Theory of Investment” (1958) 48 Am. Econ. Rev. 261. A large body of literature within
the theory of corporate finance consists of analyzing the impact on optimal capital
structure of changes to the assumption of perfect capital markets.}
Asset securitization is the canonical case of dividing up the ownership to claims to cash flows from a corporation among different investors. Perfect capital markets would yield no gain in investor wealth from asset securitization since the strategy merely divides the total returns to corporate assets among different investors.

The puzzle is why the incentive for asset securitization arises in the real world, given the substantial transactions costs involved. The value of the Modigliani-Miller theorem lies not in its prediction of irrelevance of financial structure under perfect capital markets per se, but in its position as a benchmark for theories about why financial structure does matter in the real world. Specifically, the theorem tells us that explanations for instruments like asset securitization must hinge on particular capital market “imperfections”, such as taxes or asymmetries in information among investors. We develop the incentives for asset securitization that derive from informational asymmetries between corporate management and investors and among investors. Asset securitization represents a change in the organization of a firm and it is natural to base an analysis of the instrument on informational asymmetries, which provide the foundations of the theory of the firm.

Parallel to Triantis’ article “Secured Debt under Conditions of Imperfect Information”15, we categorize theories of asset securitization according to two classes of underlying informational asymmetries. One class is the set of informational differences among investors that exists at the time that securities are issued (“hidden information” in the modern parlance of economic theory). The other class is the set of informational asymmetries between managers and investors about managerial actions and uncertain

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factors that affect security payoffs and that are realized during the period between
security issue and the date of security maturity (“hidden action” or “agency” problems).16

Following an overview in section 2 of the mechanics of asset securitization and
the scope and extent of securitization, we develop the agency or hidden action
perspective on asset securitization in section 3 of this paper. The agency perspective
recognizes the differences that arise between managerial incentives and the incentives of
the owners of a corporation. Asset securitization separates cash flows that are risky but
are relatively insensitive to managerial effort from the firm’s other cash flows. This limits
the firm’s exposure to risk that is relatively insensitive to managerial effort and can
enhance the efficacy of each of four mechanisms that limit managerial agency problems:
monitoring of managerial actions by shareholders directly or through the Board of
Directors; the market for corporate control (takeovers); reputational forces in the market
for managerial human capital; and incentive compensation schemes. Aside from its value
in limiting risk and thus agency problems, section 4 shows that asset securitization can
also be useful in a fifth mechanism: controlling agency problems by limiting managerial
discretion over cash flows. Crucial to this explanation of asset securitization is the
relative ease for monitors to scrutinize the use of a large, one-time payment of cash
instead of future streams of cash.

Section 5 of the paper develops the hidden information perspective on asset
securitization. The classic hidden information problem in financial markets involves
insiders being better informed about the value of corporate assets than outside investors.

16 See A. Mas-Colell, M. Whinston and J. Green, Microeconomic Theory, (New York:
Oxford University Press, 1995) Chapter 14. The distinction between hidden action and
hidden information problems, has replaced the older classification of informational
In this case, an issue of risky claims on the assets will be rationally discounted by outside investors – a lemons market discount applies to the value of the issued securities. Asset securitization is value maximizing for the corporation where the informational asymmetry differs across assets in the corporation. Three such scenarios are important. The first is where insiders have better information than outsiders over one set of assets (“A”), but the two groups of investors have common information over the firm’s remaining assets (“B”). In this case, securitization of B yields two gains: the avoidance of a lemons-market discount on the claims issued and a signalling premium on all outstanding shares. The latter arises because the willingness of insiders to incur the additional transactions costs of asset securitization to avoid sharing claims to assets A reveals a high value of these assets. The second hidden information scenario involves a class of outside investors who are (like the inside investors) well informed as to the value of securitized assets. This class of investors, for example, specializes in valuing receivables. General investors in the firm’s equities, in this scenario, take a decision on the part of the insiders not to sell receivables to the specialized investors as a negative signal of the value of receivables. Firms are pushed towards securitization to avoid this negative valuation effect. Finally, we consider the scenario where insiders have better information than all outsiders as to the value of securitizable assets B (as opposed to the remaining assets A), but know that as part of the high-transactions-cost securitization

problems into problems of moral hazard and adverse selection.


process, the B assets will be valued and “certified” by specialized rating agencies. Firms with high quality receivables will more likely invest in obtaining this certification, and the raising of capital through securitization of the B assets again results in higher valuation by investors.

The three hidden-information explanations of asset securitization vary in their assumptions about which sets of investors have superior information and about which sets of asset returns are the subject of informational differences. But all are driven by the same economic force: the tendency of markets to allocate asset ownership to those investors who are best informed about the assets. Under all three theories, it is the difference in informational asymmetries between two classes of asset returns – the asymmetry in asymmetries– that explains asset securitization.

Section 6 relates our discussion of asset securitization to the literature concerning the use of secured debt. Section 6 further clarifies our theories, but also shows that asset securitization is distinct in important ways from secured debt. That is, section 6 confirms that our theories concern asset securitization, not secured debt. Section 6 discusses other financial techniques, such as spin-offs, that may give rise to gains similar to those that we describe from asset securitization. Section 7 concludes.

2. An Overview of Asset Securitization

A. The Structure of Securitization Transactions

Although the specific details of asset securitization transactions vary enormously, the typical transaction involves the sale by a corporation (the “originator”) of assets to a “special purpose vehicle” (SPV), which is a corporation or a trust. The SPV finances its
purchase of these assets by issuing debt securities or “equity securities with debt-like characteristics.”\textsuperscript{19} The description of equity as “debt-like” refers to the fact that the securities sold by the SPV derive their value from, and often only from, the specific financial assets the originator sells to the SPV. Since the assets in question, such as receivables from past transactions, will often have a limited maximum value, the residual claim is capped and thus even equity securities will resemble debt.

It is common for the securities to be sold in tranches that vary in seniority. If the securities are to be sold to the public, each tranche is rated by a specialized rating agency, such as Moody’s. A favourable rating may allow firms that would otherwise be unable to access capital markets directly to do so. Senior tranches are often rated as investment-grade, but lower tranches may attract low ratings. In the event of a private placement, ratings are not always necessary since sophisticated investors themselves can evaluate the securities.\textsuperscript{20}

The originator will often offer some kind of credit support for the securities (although as we will discuss, this support must be limited because of concerns about the sale of assets to the SPV not being characterized as a “true sale”). One form of support arises where the originator retains ownership of the most junior tranche of securities, thus “overcollateralizing” more senior securities. Alternatively, credit support can arise from selling the subordinated tranche to a third party.\textsuperscript{21} Other forms of third party credit support include guaranty or surety bonds, bank letters of credit, or irrevocable credit

\textsuperscript{20} Schwarcz, Alchemy, \textit{supra} at 138-39.
\textsuperscript{21} Schwarcz, Structured Finance, \textit{supra} at 13.
A rating agency “would want the third party to be at least as creditworthy as the rating on the securities.”

The originator is limited in its scope for offering credit support because of concerns about the “true sale” requirement. While the specific structure of asset securitization varies considerably, the essence of these transactions, and what distinguishes them from secured loans, is the partitioning of the cash flows away from the rest of the firm in a “true sale” for bankruptcy purposes. Indeed, any explanation of asset securitization must account for this key feature. If an issuance of securities based on a subset of cash flows does not involve a true sale, then it is a secured loan and owners of the securities issued by the SPV would have a security interest, but not ownership. This characterization will matter in important ways to the SPV’s security-holders. For example, in the event of the originator’s bankruptcy, section 362 of the U.S. Bankruptcy Code would impose a stay of all actions by the SPV seeking to obtain access to the receivables if the transaction were a secured loan; if, on the other hand, the transaction were a true sale, the SPV could continue to collect the receivables even in the event of the originator’s bankruptcy. For the securitization transaction to be just that, rather than a secured loan, it is important that the sale of assets to the SPV be a “true sale.”

Schwarcz outlines a number of factors that are relevant to the “true sale” inquiry. Most important, in his view, is the extent of the recourse the SPV has against

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22 Ibid.
23 Ibid. at 14.
24 Ibid. at 29. Unlike title-holders, secured lenders have only a contingent property interest in the collateral that grants them rights in the event of the borrower’s failure to make payments on its debt.
25 Ibid. at 28-35.
the originator with respect to the receivables. The originator therefore cannot offer extensive guarantees or promises of indemnity. Another important factor relevant to the “true sale” characterization is whether the originator has a right to realize any surplus realized on the receivables. As Schwarcz puts it, “The right of the transferee of the receivables to retain all collections of transferred receivables for its own account, even after the transferee has collected its investment plus yield, would therefore be a factor in favor of characterization of the receivables transaction as a true sale.” The “true sale” character of a securitization transaction may be jeopardized by a pricing mechanism that fluctuates depending on interest rates, or on actual rather than expected collections of receivables. Another factor is the method by which the accounts are collected. If the SPV has authority to collect the accounts, this favours true sale status. Such authority could include ownership by the SPV of all books and records relating to the receivables and the right of the SPV to appoint a collection agency. In practice the originator often collects the receivables subject to the SPV’s discretion. Better to ensure true sale status, the originator will often segregate collected funds from its own funds pending remittance to the SPV.

This is not an exhaustive list of factors relevant to the true sale inquiry, nor does one exist. The characterization will depend on a contextual analysis; there “is inevitably

26 Ibid. at 31.
27 Ibid. at 32.
28 Ibid. at 32-33.
29 Ibid. at 33.
30 Ibid. at 34.
31 For a fuller discussion, see Schwarcz, id.
a question of balance.”32 Indeed, Schwarcz reports that it is rare for all factors favouring a true sale to be met.33

Structuring the securitization deal as involving a “true sale” is important to investors (and to rating agencies) as it focuses the value of the asset-backed securities on the financial assets in question and avoids problems that may result from the originator’s bankruptcy. It is also important that the SPV be “bankruptcy-remote” itself, thus avoiding stays on the collection of receivables by the security-holders in the event of the SPV’s bankruptcy. One method of avoiding the voluntary bankruptcy of the SPV is to ensure that it is neither owned nor controlled by the originator, thus preventing the originator from causing the SPV to file a voluntary bankruptcy petition under s. 301 of the Bankruptcy Code.34 The SPV could be owned by a third party, such as a charitable institution, that would have no incentive to petition for bankruptcy voluntarily even after the originator’s bankruptcy as long as collections continue. Where the SPV is owned or controlled by the originator, steps will often be taken to limit the ability of the SPV to file voluntarily for bankruptcy protection. For example, the SPV’s charter may prohibit the voluntary filing for bankruptcy unless a certain number of independent directors (that is, independent of the originator) agree to such an action.35 Steps will also be taken to ensure that the SPV will not be petitioned involuntarily into bankruptcy by creditors that have not been paid. This can be accomplished by limiting the SPV’s access to trade credit in its charter, perhaps by limiting the business in which the SPV can engage.36

32 Ibid. at 35.
33 Ibid.
34 Ibid. at 16.
35 Ibid. at 17.
36 Ibid. at 24.
Because of the limited credit support permissible under the true sale standard, and because the assets subject to securitization transactions are risky, the securities issued in a securitization transaction can be quite risky. Clearly the tranche with lowest priority, sometimes referred to as “toxic waste,”37 faces a considerable risk of non-payment. But tranches of higher priority are exposed to risk as well. The Economist reports that American Express Financial Advisors took an $830 million charge on its portfolio of $3.5 billion of “collateralized debt obligations,” or asset-backed securities.38 And as the scope of securitization expands to include particularly volatile assets, such as timber stocks, the risk associated with these securities will increase further.

Asset securitization gives rise to higher transaction costs than other means of financing. Schwarcz notes that the securitization deal will only be attractive if the savings in financing costs resulting from securitization are greater than the difference in transaction costs relative to other financing devices.39 Other commentators have observed that the high fixed transaction costs of securitization imply that it will only be worthwhile if it is of a certain size. For example, Schwarcz reports that public offerings of securitized assets are rarely cost effective for transactions of less than $50 million and are more common for transactions worth $100 million or more.40 “Up-front” costs include legal fees, asset review costs and rating agency fees, while “ongoing” costs

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38 Ibid. Some of these losses were from American Express’ losses on junior tranches that it had retained from its own deals, but The Economist describes also the “deteriorating quality” of more senior tranches in the market generally.
39 Schwarcz, Alchemy, supra at 138.
40 Ibid. at 139.
include credit enhancement costs, administrative fees, trustee fees and issuing and paying agent fees.\textsuperscript{41} Many of these costs are idiosyncratic to asset securitization.\textsuperscript{42}

\textbf{B. Trends}

Asset securitization has grown tremendously as a financing tool in the last several years.\textsuperscript{43} There are presently over $2.5 trillion worth of such securities outstanding.\textsuperscript{44} The global market for securitization issuances grew from a value of below $200 billion in 1994 to over $600 billion in 1999.\textsuperscript{45} The Securities and Exchange Commission stated in 1992 that, “[Asset securitization is] becoming one of the dominant means of capital formation in the United States.”\textsuperscript{46} Recent years have strengthened the validity of this observation.

Not only has the total value of securitization transactions increased dramatically, but the scope of assets has broadened as well. While in the early years of securitization of the mid-1980s the strategy typically involved mortgages, a wide variety of assets have been subjects of such transactions in more recent years. The title of a 1997 article in the

\textsuperscript{42} Additional costs may arise in seeking an exemption under the Investment Company Act of 1940 15 U.S.C. §§ 80-a-1 to -64. Since an SPV only serves as a vehicle for selling securities, the securitization transaction must comply with this Act. Hill, \textit{supra} at 1082 reports that “virtually all securitization transactions are structured to meet one of the exemptions; this endeavor also is costly.”
\textsuperscript{43} Lupica, Revised Article 9, \textit{supra} at 291.
\textsuperscript{44} \textit{Ibid.} at 292.
business press makes the point succinctly: “On the Frontier of Creative Finance: How
Wall Street Can Securitize Anything.”

The rapid rise of asset securitization as a financing device has occurred despite
the higher transaction costs associated with it than with other means of financing. These
higher costs combined with such growth make the search for the explanation of asset
securitization all the more significant. Any economies from asset securitization must not
only exceed those of rival financing techniques, but must do so notwithstanding higher
transaction costs. We turn now to a brief review of existing explanations in the literature.

C. Existing Explanations of Asset Securitization.

The explosion in practice of asset securitization has not been matched by the
volume of academic writings on the subject. We will canvass the limited set of theories
of securitization here before offering our own perspective.

A common but suspect explanation of asset securitization is that since the rate of
return that must be offered by the originator in securitizing assets is less than the cost of
raising funds in other ways - less than the cost of debt capital, for example - securitizing
assets is a cost-efficient financing device. Schwarcz writes,

The separation of the selling company… from the receivables themselves can
enable the originator to raise funds at less expense, through securities issued by
the SPV, than if it raised funds through securities it issued directly. (For example,
the securities issued by the SPV, depending on the structure of the transaction,
may have a higher investment rating than securities issued directly by the
originator and, therefore, would bear a lower interest rate than the originator
might be able to obtain on its own securities, bank lines of credit or secured
borrowings.)

Anything” Fortune, Apr. 28, 1997 at 49.
Schwarcz, Structured Finance, supra at 2. In a later article, Schwarcz briefly discusses
This explanation is an example of the most common fallacy in corporate finance: that issuing securities with the lowest required rates of return minimizes the cost of capital. The Modigliani-Miller theorem reveals the fallacy. In perfect capital markets, dividing streams of income among different financial claimants, be they creditors or shareholders, does not affect the value of the firm. Any gain from selling “high quality” securities through a securitization transaction is offset exactly in perfect capital markets by losses in the quality of other securities. For example, removing the securitized assets from the firm may increase the (possibly implicit) cost of equity as investors demand a greater expected return on equity.

The Modigliani-Miller theorem depends on perfect capital markets, but the value of the theorem is not in its predictions per se but as a benchmark against which to evaluate practical explanations of finance. Since financing choices can matter only where the assumptions underlying the theorem do not hold, one must identify clearly which assumptions are not met when asserting the practical value of a particular financing strategy, such as asset securitization. Commentary that simply notes the relatively low cost of raising funds through asset securitization without considering its effect on the overall cost of capital overlooks the logic of the Modigliani-Miller theory.

One market imperfection that has been identified in the literature is the effect of regulatory requirements for financial institutions. Under the Basle Accord, financial institutions are required to maintain a certain percentage of capital relative to assets at the Modigliani-Miller theorem, and notes that although in perfect capital markets, asset securitization may not save funds, it is nevertheless cost-efficient in practice as a means of economizing on monitoring costs: see Schwarcz, Alchemy, supra at 151. We discuss Schwarcz’ explanation in Sections 3 and 5 of this paper.
risk. Asset securitization can take loans “off balance-sheet” and thus allows banks to avoid the requirement that it maintain capital for these loans. This relaxes the regulatory constraint and thus lowers the firm’s cost of capital.

Such an explanation is undoubtedly valid in many circumstances. However, it is irrelevant to the very large subset of securitization transactions in which the capital adequacy requirements do not apply.

Commentators have suggested that asset securitization results from externalities between the firm and involuntary creditors, such as tort claimants. Securitization removes the assets in question from the originator’s bankruptcy estate. LoPucki suggests that securitizing allows firms to “judgment-proof” themselves. Asset securitization offers the “virtual elimination of the risk that the courts will disregard the entity that holds the assets” and thus “asset securitization may be the silver bullet that kills liability.”

The problem with this approach is that, as Schwarcz points out, selling assets in a securitization transaction does not itself diminish the capital in the firm that is available to creditors. In such a deal, assets of one kind are simply exchanged for assets of another kind: in an arm’s length transaction, the originator will receive proceeds equal in

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50 Schwarcz, Structured Finance, supra at 3.
51 There is a similar explanation concerning the relationship between the firm and “non-adjusting creditors” such as small trade creditors. Asset securitization could transfer wealth from these creditors by helping reduce the assets available to them. See Lois R. Lupica, “Asset Securitization: The Unsecured Creditor’s Perspective” (1998) 76 Texas L. Rev. 595.
52 LoPucki, Death of Liability, supra.
53 Ibid. at 24.
54 Ibid. at 30.
value to the assets sold, thus not diminishing the value of the originator’s estate. Only if the originator disposes of the proceeds is there judgment-proofing; securitization itself is not a judgment-proofing technique.

One response to Schwarcz’ argument is that securitization, while not itself sufficient to judgment-proof a firm, is a useful component of a judgment-proofing technique: first securitize, then distribute the proceeds to claimants. LoPucki responds effectively to Schwarcz with an analogy:

To see the fallacy, consider by analogy the invention of a new tool that makes burglary easier. Neither the fact that the new tool has uses other than burglary nor the fact that burglaries could be accomplished without it would prove that the new tool was not a dangerous new threat to the security of homes. Asset securitization is under attack because it appears to be the most efficient, effective judgment-proofing tool currently available.\(^{56}\)

Adding empirical support, LoPucki notes that, “For most firms whose asset transactions have been reported in the press, th[e] plan was to pay creditors or shareholders.”\(^{57}\)

LoPucki may therefore be justified in characterizing asset securitization as a significant judgment-proofing device in particular circumstances. But the practice cannot be generally explained by his analysis because some securitizations do not result in the distribution of the proceeds to investors, and many securitizations involve solvent firms, such as General Motors, for which the gains from judgment-proofing seem remote relative to the cost of asset securitization. Moreover, White provides empirical evidence that does not indicate an upward trend in judgment-proofing to the extent LoPucki

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\(^{55}\) Schwarcz, Inherent Irrationality, supra.


\(^{57}\) Ibid. at 59.
suggests. For example, along with the growth of securitization there has been no downward trend in corporate asset-to-liability ratios or in the amount of liability insurance being purchased by corporations. While we cannot dismiss the possible use of asset securitization as a judgment-proofing technique in some cases, the explanation is not robust.

Another bankruptcy-related explanation of asset securitization is that it allows firms to avoid costs from the reorganization process if bankruptcy arises. Since the firm has fewer assets with which to reorganize following asset securitization, the firm avoids inefficiencies brought about by the reorganization process, such as excessive delay resulting from managers protecting their own interests. If the bankruptcy process is indeed inefficient, allowing creditors to opt out through asset securitization may be value-enhancing. But Schwarz’s objection to LoPucki’s judgment-proofing analysis also applies to the bankruptcy opt-out theory: asset securitization does not necessarily reduce the value of assets within the firm – it depends on how the proceeds from securitization are spent. Given LoPucki’s observation that the proceeds are often paid out to investors, White’s bankruptcy opt-out explanation may have some plausible grounding in a subset of cases. But it seems unlikely to apply to a wide range of cases where expected bankruptcy costs are not large.

The existing approaches to asset securitization that have some theoretical validity tend to rely on factors external to the firm’s claimants for their justification. Regulation, either through capital-adequacy requirements or through the bankruptcy process, may

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impose costs that asset securitization allows the firm to avoid. Alternatively, limited
liability allows the firm to use asset securitization (and subsequent dispositions of the
proceeds) to impose costs on involuntary creditors. Relatively few explanations in the
literature describe the benefits of asset securitization within the firm itself. As a
consequence, existing theories must rely on a set of circumstances that do not seem to
arise in many cases.

We will show that rather than being the result of external pressures, asset
securitization can add value even in a bankruptcy-free, regulation-free context because of
matters internal to the firm and its investors. Since many securitization transactions take
place in essentially this environment, our theories are more robust than those presently
offered in much of the literature.

3. Asset Securitization and Agency Problems

A. Agency Costs

Underlying the financial structure of a corporation is a fundamental issue: the
design of organizational arrangements that are most efficient for aligning incentives of
agents involved in the production. If contracts for production of a commodity could be
written in which the rights and obligations of each individual involved in the production,
including the individual’s effort, were completely specified and enforced at zero cost, no
incentive problems would arise. Each individual would follow the terms of the complete
contract (terms such as “in meeting with potential clients, your level of enthusiasm must

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Tul. L. Rev. 101.

60 Claire Hill, supra provides an exception to this observation. We will discuss her
theory of the information problems across investors in the firm that could give rise to
be 9.43 on a scale of 10”) and would have no discretion whatsoever to make decisions on the basis of his or her own interest. The theory of the firm rests on two observations. First, complete contracting is infeasible in reality because of the costs of specifying contingencies in a contract, the impossibility of even conceiving of all relevant contingencies, the costs of enforcing contractual terms when disputes arise, the asymmetries in information among the parties about when a contingency obtains and between the parties and a court or other outside enforcer of contracts, and so on.61

Contracts are necessarily incomplete. Incentive distortions in managerial decisions arise in an incomplete contract setting because the manager of a firm collects only a small share of the value of marginal output that results from an additional unit of effort or labour input. The set of managerial decisions over which incentive distortions arise include effort, which encompasses a wide range of decisions (e.g., enthusiasm, hours of input, and intensity of work while on the job), consumption of perquisites related to the job, investment in growth for its own sake rather than for profits, under-investment in assets with a horizon longer than the manager’s likely job tenure, and over-investment in risky assets (to the benefit of limited-liability shareholders, once debt has been issued, and at a cost to debtholders and to the overall value of the firm). Agency costs refer first to the loss in firm value that results from individuals within the firm following their own interests rather than the collective interest, the costs of monitoring individuals to minimize the distortions that result, and the costs of any other mechanisms to control the distortions.62

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62 M. Jensen and W. Meckling, “Managerial Behavior, Agency Costs and Ownership”

securitization in section 5.
The second observation at the basis of the theory of the firm is that in spite of these imperfections in contracting, establishing a set of contracts among agents - a firm - may be a preferable means of organizing production to the use of arms-length market transactions. The imperfections or costs of transacting through markets may be even higher.\textsuperscript{63} Various contributions to the theory of the firm and the theory of capital structure have focused on different sources of informational and contracting problems ("agency problems") and on different mechanisms to resolve or mitigate those problems.\textsuperscript{64} We review these contributions, and show that asset securitization can enhance each of the five main mechanisms that are used to limit agency costs.\textsuperscript{65}

\textbf{B. Securitization and Direct Monitoring}

Alchian and Demsetz emphasized as a source of incentive distortions the team or simultaneous-input nature of production, in which the individual productivity of each agent is difficult to determine.\textsuperscript{66} Alchian and Demsetz identified a firm as a contractual structure with one party (called the firm’s owner and the employer) common to all contracts.\textsuperscript{67} Incentive or agency problems are mitigated through monitoring in the

\textsuperscript{63} R. Coase, “The Nature of the Firm,” (1937) 4 Economica (n.s.) 386.
\textsuperscript{65} Four of the mechanisms -- monitoring, managerial reputation, takeovers and explicit incentive pay mechanisms -- are discussed in this section of the paper. The role of asset securitization in enhancing the fifth mechanism, limitations on managerial free cash flow, is different and particularly important. This role is discussed in the following section.
\textsuperscript{67} Alchian and Demsetz, supra at 794 state “The essence of the classical firm is identified here as a contractual structure with: 1) joint input production; 2) several input owners; 3) one party who is common to all the contracts of the joint inputs; 4) who has the right to
Alchian-Demsetz model, with members of a hierarchical structure responsible for monitoring employees below them in the structure. The owner has the ultimate responsibility for monitoring top management. The owner’s incentive to monitor is ensured in the corporate structure by the allocation to the owner of the residual claim to profits.

Monitoring efficiency by residual claimants can be enhanced by asset securitization. Monitoring refers to the observation of inputs of the manager in combination with inferences about managerial inputs drawn by shareholders (more realistically, by their representatives on the Board of Directors) from the output performance of the corporation. Monitoring involves interaction of signals about output and observation of inputs. Monitoring would include, for example, greater expenditure by Directors on assessing the performance of management and the value of continuing employment of current management in response to negative output signals. It is clear that the effectiveness of monitoring is enhanced by a reduction in the noise linking managerial input to profits and share value. For example, relatively intensive periods of monitoring by Directors could be undertaken contingent upon more accurate signals.

Asset securitization can enhance monitoring efficiency by reducing the “noise” in firm performance as a signal of managerial performance that results from corporate assets

renegotiate any input’s contract independently of contracts with other input owners; 5) who holds the residual claim; and 6) who has the right to sell his central contractual residual status. The central agent is called the firm’s owner and the employer.”

68 Alchian and Demsetz, ibid. at 173 elaborate: “We use the term monitor to connote several activities in addition to its disciplinary connotation. It connotes measuring output performance, apportioning rewards, observing the input behavior of inputs as a means of detecting or estimating their marginal productivity and giving assignments or instructions in what to do and how to do it. (It also includes … authority to terminate or revise contracts.)”
with cash flows that are uncertain and insensitive to managerial discretion or effort.

Consider a corporation whose assets generate two separate cash flows, A and B. Suppose that there is a difference in the extent to which managerial effort affects the two cash flows; for simplicity, cash flow A is sensitive to managerial effort and cash flow B is unaffected by changes in effort. Asset securitization of the cash flows B would leave within the firm only the cash flows that are sensitive to managerial effort.\(^6^9\) The observation by monitors of the information provided by total cash flows, and by the capital market values of the total cash flows, would then provide a more informative, or more focused, signal of managerial effort.

If monitoring by residual claimants were dependent solely on accounting data, and if the values of the two cash flows could be completely disentangled in accounting data, then asset securitization would not enhance the value of the information available to monitors. But an important mechanism that existing shareholders and their representatives on the Board of Directors rely upon in assessing managerial performance is the valuation of firm assets by the capital market.\(^7^0\) Capital market valuation of assets is a report card on managerial performance. Accounting data on cash flows cannot in themselves provide information on changes in the present value of future cash flows, and the impact of managerial decisions on this present value are more important to shareholders than the impact on current cash flows. In an efficient capital market,

\(^6^9\) The cash generated by the sale of the assets to the SPV, if not distributed to shareholders, may be invested to generate new cash flows if there are investment opportunities with positive net present value. Positive net present value investments would generally be financed with external capital were it not for securitization, so that the effect of securitization under the assumptions of our example is to eliminate noise from the relationship between managerial input and firm profits.

\(^7^0\) Frank E. Easterbrook, “Two Agency-Cost Explanations of Dividends,” (1984) 74
changes in present values of cash flows are reflected in capital market prices in a
valuation that makes full and immediate use of all information about the cash flows,
including the impact of managerial decisions.71 Capital market valuation of managerial
performance is not just a signal but also an end in itself for residual claimants. A more
focused, less noisy link between managerial effort and capital market valuation provides
not only higher quality information to monitors but enhances the incentives to monitor.
This further improves managerial incentives and reduces agency costs.

C. Securitization and Managerial Reputation as a Disciplining Device

Fama questioned the applicability of the Alchian-Demsetz model of the classical
firm to modern firms, especially the model’s central reliance on monitoring by owners to
resolve incentive problems.72 The classical notion of a single owner, employer or
entrepreneur, which the Alchian-Demsetz framework inherited from earlier theories,
especially that of Coase73, is a fiction in the modern corporation. Each shareholder has
only a limited incentive to monitor. Instead, Fama emphasized as the main source of
discipline on management the impact of corporate performance on managers’ reputation
in the managerial labour market. Holmström, in what has become the standard reference
on the incentive impact of career concerns, formalized the reputational mechanism in a
dynamic model.74 In Holmström’s model, a firm’s output in each period depends on the

American Economic Review 650-659.
73 Supra.
74 B. Holmström, “Managerial Incentive Problems: A Dynamic Perspective” in Essays in
Economics and Management in Honor of Lars Wahlbeck (Helsinki: Swedish School of
manager’s inherent talent, the manager’s effort and other random factors.

Incompleteness in contracting is taken to the extreme in this model. Because effort, talent and random factors cannot be observed, these variables cannot enter a labour contract; the manager works in each period for a wage, which a competitive labour market determines at the beginning of each period.

If workers’ inherent talents were observable, but effort remained unobservable, then there would be no rational basis for a manager to establish a reputation as hard working and career concerns would not mitigate agency costs. Holmström’s model captures a key, but subtle, incentive to establish a reputation in labour markets. Both the manager’s effort and talent affect firm profit, but the two effects cannot be disentangled in the observation by future labour demanders of the history of firm profits. A manager takes additional effort not to gain a reputation as one who works hard, but to affect future labour market perception of his or her likely inherent quality. As we illustrate in a two-period version of Holmström’s model in the appendix, the incentive to work harder in this model arises because greater output in the current period will increase the future labour market’s perception of the manager’s inherent talent -- and therefore increase the wage rate offered the manager.

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Economics, 1982).

75 With a finite career, managers would not have the incentive to work hard in the last year of their career. Knowing that the market knows this, and therefore realizing that they will not be rewarded for extra effort in the penultimate year of their career through a higher ultimate wage, managers will not work hard in the penultimate year of their career either, and so on. Any supposed incentive for reputation would “unravel” from the last period in this way, no matter how long the career.

76 We have categorized Holmström’s model as a hidden-action model, but it involves a mixture of hidden action and hidden information. Indeed, it is the hidden information (hidden characteristics) that mitigates the hidden action problem.
Holmström found that career concerns mitigate the incentive problem but generally do not resolve it. Managerial incentives are improved by career concerns but are not the first-best incentives that would obtain if each manager captured the full benefits of increased effort at the margin. Two factors limit the ability of reputation to resolve agency problems. First, the manager is rewarded by the market in the future for additional effort undertaken today, so that the reward is discounted compared to a hypothetical complete labour contract in which the reward is immediate. Second, as the manager works harder, producing more profit, he or she realizes that the future labour market will, with increasing likelihood, attribute the history of high profits to a lucky draw on random factors. The gain to marginal effort is less than fully appreciated by the future labour market because of the noise of random factors. Noise is responsible for this limitation on career concerns as a resolution of agency problems because it is the presence of noise that leads future labour markets to attribute higher output to a lucky draw. The greater the noise, the greater the limitation.

As in our discussion of the Alchian-Demsetz monitoring model, securitization of assets that simply add noise to the relationship between profit and managerial input decisions such as effort, but are not in themselves sensitive to managerial input, reduces noise. The prediction is that this should strengthen the disciplining force of reputation on managerial effort.

77 Underlying this effect are some assumptions on the distributions of the random variables in the model. For most conventional distributions, noise does diminish incentives. Mathias Dewatripont, Ian Jewitt and Jean Tirole, “The Economics of Career Concerns, Part I: Comparing Information Structures” (1999) 66 Review of Economic Studies 183-198, examines the robustness of Holmström’s analysis in an important article.

78 As noted above, the cash generated by the sale of the assets to the SPV, if not
Consider the application of the agency problem to the securitization decision itself. Do managers, to the extent that they have superior information on the efficiency benefits of securitization (in reducing agency costs) have efficient incentives to undertake securitization? Must they be masochistic to enhance discipline of themselves?79 In the monitoring theory, one might argue that managers would undertake a less than optimal degree of securitization because once their contract is set, they benefit from a reduction in monitoring. Under the reputational model, however, the incentives for eliminating noise are in the right direction. The reputational forces rely on a carrot – the greater reward in future markets for additional effort today – rather than the stick of direct monitoring and interference by residual claimants. The manager will volunteer to accept carrots but discourage the addition of sticks to the incentive environment. An additional managerial incentive for securitization, to anticipate the theory developed in section 5 of this paper, flows from the hidden-information (hidden-characteristics) aspect of Holmstrom’s model. Higher quality managers will want to be more accurately monitored in the first period of the model because of greater likelihood that these managers will be highly rewarded by accurate monitoring. Knowing this, investors will attach higher value to firms with a

distributed to shareholders, may be invested to generate new cash flows if there are investment opportunities with positive net present value. Positive net present value investments would generally be financed with external capital were it not for securitization, so that the effect of securitization is to eliminate noise from the relationship between managerial input and firm profits.

79 A stark example illustrates the point that agents may invite discipline. John McManus cites Steve Cheung for the following anecdote: on the Yangtze River in China there was a stretch of fast water over which boats were pulled upstream by workers prodded by an overseer using a whip. Upon observing this brutality, an American woman objected vigorously, but was told: “Those men own the right to draw boats over this stretch of water and they have hired the overseer and given him his duties.”: J. McManus, “The Costs of Alternative Economic Organizations” (1975) 8 Canadian Journal of Economics 334 at 341.
greater degree of securitization because the degree of securitization will signal to them that management is of higher quality and therefore that the assets of the firm have higher value.

D. Securitization and the Market for Corporate Control

Manne and Marris analyze the market for corporate control in disciplining managers and in ensuring the replacement of inefficient management.\textsuperscript{80} Competition in the market for corporate control means that inefficient management will tend to be replaced through takeovers, as existing shareholders share in the increased value associated with this replacement. This mechanism is limited by free-riding,\textsuperscript{81} and may be limited by the variety of takeover defenses as well, but nonetheless corporate raiders do exert a significant disciplining force on managers.

We discussed above the reduction in the noise of firm performance as a function of managerial performance that results from the securitization of assets that are insensitive to managerial effort. The discussion of the value of this reduction in noise in the contexts of monitoring and reputation extends to the disciplining power provided by the market for corporate control. More accurate determination of the quality of existing management is possible the greater the correlation between the firm’s value and managerial effort. Noise limits the discipline that the market for corporate control


\textsuperscript{81} Each shareholder may want to hold out for the high, post-takeover value of the shares when an acquiring firm attempts to purchase controlling interest in a poorly managed firm, without regard for the negative impact that this will have on the likelihood of a successful takeover: S. Grossman, and O. Hart, “Takeover Bids, the Free Rider Problem
imposes on agency problems for the same reason that it limits the discipline imposed by reputational concerns: the more noise there is, the more a very poor performance by a bad manager is likely to be (mistakenly) attributed by potential acquirers as an indication of poor asset quality or a bad temporary shock. Noise dampens the incentive on the part of a manager to put in an extra hour each week to reduce the probability of being taken over. Again, securitization of assets that are insensitive to managerial effort or discretion leaves this agency cost control mechanism more focused on assets that matter.

E. Securitization and Explicit Incentive Pay

Finally, Jensen and Meckling and the more formal principal-agent literature emphasize the role that managerial incentive payment schemes play in providing incentives by allocating managers a share of residual claim. 82 If a manager/agent could be allocated the entire residual claim (purchasing the firm from its owner), the manager would capture the entire marginal benefits and costs of any decision and the incentive problem would be solved, even absent the three incentive devices canvassed above. In any incentive problem, the first question to be posed is why the agent cannot or does not receive the full residual claim. Three possible answers to this question explain why such residual claimancy contracts are not observed and these answers correspond to the three

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main branches of the formal principal-agent literature: (1) the agent may be risk averse, so that even if it is feasible to allocate the full residual claim to the agent, a superior strategy is to trade off the incentive benefits of a greater managerial share of residual claim with the risk-sharing benefits of allocating some risk to the owners/principal;\(^6\) (2) the agent may be risk-neutral but have limitations on wealth that prevent the purchase of the residual claim;\(^4\) and (3) production may take place in a team, i.e. in a multilateral agency situation.\(^5\) The principal-agent literature analyses optimal contracts under each of these possibilities. Optimal incentive contracts, expressed as sharing rules over profit in the formal literature, are in practice implemented with packages of equity and stock options.\(^6\) The implementation of incentive schemes via market value-based securities is critical because the market value is not only the best summary of the value of managerial decisions, it is the bottom line for owners.

Consider explicit incentive payment schemes in the most commonly analyzed case, the risk-averse agent, which highlights the tradeoff between incentives and efficient risk-sharing.\(^7\) Consider, as in our earlier discussions, a corporation with assets

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83 Shavell, *ibid* and Holmstrom, *ibid*.
84 Sappington, Limited Liability Contracts, *supra*.
87 The limited liability Principal-Agent model would generate the same argument.
generating cash flow streams A and B, in which only the first cash flow, A, is sensitive to managerial decision-making. The cash flow B is uncertain but is independent of managerial decisions. Under these circumstances, an efficient incentive payment scheme would, if possible, allow the residual claim of the agent to be focused on the cash flow A. Each percent of the residual claim of returns to asset B allocated to the manager allocates risk to the manager - instead of leaving it with shareholders where it is more easily diversified - with no benefits in greater incentives for the manager. Because managerial incentive contracts are implemented through market securities, securitization of the asset B, and its removal from the assets on which security holders have a claim, allows precisely the required focus. To the extent that the returns on asset B are uncertain, securitization thus narrows the manager’s claim to cash flows that matter. Asset securitization in this setting removes noise from the functional relationship between managerial input and total profit. Such noise always reduces efficiency in incentive contracts. As we illustrate in a simple formalization of the argument in the appendix, the optimal contract also becomes more high-powered when it can be narrowly focused, further enhancing incentives.

In sum, the securitization of assets whose values are uncertain but relatively insensitive to managerial effort or discretion, can reduce agency costs by eliminating noise in the relationship between managerial effort and firm performance in the capital market, ensuring the greatest incentive impact for each unit of risk that is imposed on the agent. Asset securitization of these types of assets enhances each of the following

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88 Again, the cash proceeds from the securitization transaction will either be paid out to investors or invested in new projects. Either possibility limits the exposure of managers to exogenous risk from incentive pay.
mechanisms used to reduce agency costs: monitoring by residual claimants, reputational or career concern forces in the market for managerial labour, the market for corporate control, and incentive payment schemes.

The condition that asset returns be outside the influence or managerial discretion, or nearly so, is satisfied for the majority of securitized assets, such as already earned receivables of all kinds. Managers have limited scope to change the value of receivables relative to their ability to affect the value of firm assets in general. The second condition, that securitized assets have some non-trivial degree of uncertainty, may not hold in securitization transactions that are structured so as to leave new investors with very low risks, but as discussed in section 2, some securitization transactions involve significant transfer of risks to new investors.

The explanations of asset securitization developed in this section apply with most force to securitizations involving the greatest transfer of risk. For example, revenues from harvesting timber vary with the price of timber. Securitizing timber proceeds would therefore limit the risk the originator would otherwise have faced from (exogenous) price fluctuations. The focus explanations seem particularly relevant to the timber and oil industry equity examples, or the toxic waste receivables example, mentioned in the second section of this paper. As we show in the next section, however, securitization of even riskless cash flows can reduce agency costs.

4. Asset Securitization and Free Cash Flow

A. The Concept of Free Cash Flow

89 See, for example, the discussion in Dewatripont et al (1999).
In an important and influential paper, Michael Jensen described the perils to which shareholders are exposed when managers have access to “free cash flow.” Free cash flow refers to the liquid assets belonging to a firm that exceed the requirements of the firm for investment in positive net present value projects. Jensen’s hypothesis is that managers will generally be reluctant to disgorge this cash to shareholders, but instead will tend to use it for investments with positive value to themselves but negative value to shareholders. These bad investments can include perquisite consumption, “empire-building” acquisitions or projects, as well as retaining cash as a cushion against bankruptcy. Jensen chronicled the generally financially disastrous uses of cash reaped by the oil industry during the oil shocks of the 1970s, including unprofitable exploration and development programs and takeovers.

Investors can limit the agency costs of free cash flow through a variety of instruments. Easterbrook posited the importance of dividend policy in committing the firm (if dividend policy is difficult to change) to disgorge cash to investors. By reducing internal capital through dividends, managers seeking to finance projects must subject themselves to the scrutiny of the external capital markets, which better ensures positive value investments.

Jensen suggested that debt is also a useful financial tool to control agency costs from free cash flow. His explanation of debt helped identify the problem of free cash flow and one of its solutions; as we will explain, asset securitization may play a similar

91 F. Easterbrook, supra.
role. Debt commits the firm to paying out cash to investors on penalty of costly bankruptcy proceedings. It therefore limits managerial access to free cash flow.

It is important to recognize, however, that unlike dividend policy, which clearly increases the net outflow of cash, issuing debt merely commits the firm to paying out cash in the future in exchange for a current infusion of cash. Agency costs of free cash flow fall from issuing debt to finance investment – rather than relying on the accumulation of internal equity – if the immediate cash inflow flowing from the debt issuance is less likely to be wasted than the more gradual future operating cash inflows that would be the source of financing with internal equity financing (retained earnings). There are several reasons why agency costs (waste) are more easily controlled on an immediate, large cash inflow than on an equivalent set of smaller cash inflows.

First, external investors willing to lend cash to the firm generally investigate the intended use of the cash before doing so. Lenders are obviously more likely to make the loan if they are satisfied that the firm has positive net present value investments, thus better ensuring that while management has access to cash following a loan, it does not have access to “free cash.”

Second, debt may be raised as part of a larger transaction that ensures that the cash infusion is quickly returned to investors. For example, significant changes in the debt-equity ratio of a firm arise during a leveraged buy-out. In an LBO, the acquirer buys a firm from current equity-holders using proceeds realized by borrowing against the firm’s future revenues. The result is that the acquirer uses the firm’s future revenues to pay current investors. This implies that future cash flows, which are now required to

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93 Jensen, Eclipse, supra.
service debt, are committed to outside investors. Because of the usefulness of LBOs in controlling the agency costs of free cash flow, LBOs may add value.\textsuperscript{94}

Finally, the internal monitoring of management’s use of cash by Boards of Directors or directly by large shareholders is easier where a large cash infusion is involved than small realizations of cash over time. Following the issuance of debt and the cash inflow associated with it, cash inflows in the future are committed (at least in part) to pay back lenders. Rather than costly and continual monitoring of the use of these relatively small inflows, debt allows monitors to focus on the use of the relatively large cash infusion following the loan: is it invested wisely? is it paid out to investors?

Monitoring of the use of cash flows in a given year is subject to economies of scale in the size of the cash flow: information acquisition or monitoring by shareholders or the Board of Directors is largely a fixed cost, unaffected by the size of the cash flow being monitored. As a consequence of economies of scale in monitoring, agency costs of free cash flow are predictably lower following a debt issue given the greater scrutiny per dollar of cash that is optimal with a large cash infusion. Put another way, if cash is realized in one large transaction, managers must present to monitors their plans for all this cash in a single annual capital budget, rather than over several years of budgeting. This reduces the cost of monitoring the use of the cash flow.

**B. Asset Securitization and Free Cash Flow**

The agency costs of free cash flow help explain asset securitization. Prior to an asset securitization transaction, the would-be collateral for the securities to be issued by

\textsuperscript{94} Ibid.
SPV consists of a cash inflow over time. Management’s use of the cash will be costly to monitor given that it will arrive in a series of relatively small amounts. The cash inflow therefore presents the potential for agency costs. By securitizing the assets, the firm sells the future cash flows to a third party, the SPV (which has already committed to pay the cash to investors), and are therefore not available to management. Indeed, better to ensure the characterization of the transaction as involving a “true sale,” the SPV will often have the authority to collect the receivables in question. Even if the originator collects them, this is subject to the SPV’s discretion and the originator will often take steps to partition the collected funds from the corporation’s cash. Thus, the future cash inflows are not subject to managerial control but rather are committed to investors in the SPV’s securities, just as future cash flows in an LBO are earmarked for lenders. Committing the future cash intake to investors in this way reduces the agency costs of free cash flow.

Limiting future agency costs through such a commitment, however, is only half the story. Asset securitization protects future cash flows from mismanagement, but also gives rise to a relatively large cash infusion for the originator. For asset securitization to control the agency costs of free cash, there must be some assurance that the proceeds from the securitization are not misspent. In the context of straight debt issuance, we outlined above three controls on managerial discretion over cash: lenders will investigate the use of the funds and demand information about this use at the time of lending; the funds realized from selling debt may be part of a transaction, such as an LBO, that

95 The cash flow explanation of asset securitization is more persuasive the longer the term of the receivables.
commits the firm to disgorge cash to investors; and large infusions of cash are easier to monitor than small inflows over time because of economies of scale in monitoring.

The first control on the use of the proceeds from an ordinary sale of debt relies on external investors investigating the firm before lending to it. There is no direct analogue in the case of asset securitization since investors in the SPV’s securities have little incentive to analyze how the proceeds from the deal are spent. Indeed, the bankruptcy-remote structure of asset securitization ensures that the SPV’s investors are virtually indifferent to the performance of the originator. Rather, the SPV’s investors will be concerned only about the health of the financial assets, the future cash flows, underlying their securities. They will not examine the originator to ensure that the proceeds from the deal are to be used wisely.

The other two mechanisms by which debt limits agency costs, however, apply to asset securitization. Securitizing assets results in the exchange of small, difficult-to-monitor inflows of cash over time for a large, one-shot and relatively easy-to-monitor cash infusion. Monitors, rather than having to examine the plans for cash collected each year, can learn of managerial intentions for the cash in one annual capital budget. Monitoring of the use of this single cash infusion will be more effective and less costly than that of future inflows. The substitution of future cash flows for a one-time cash payment adds value to the firm by facilitating monitoring and limiting the agency costs associated with that cash. In section 3 of this paper we discussed the role of asset securitization in focusing or concentrating the residual claim allocated to managers on cash flows over which the manager has relatively significant influence. The economies of scale inherent in monitoring provide an explanation of asset securitization as allowing
a focus or concentration in terms of cash flows that are vulnerable to the agency costs associated with free cash flow.

Linking the use of proceeds from asset securitization to an announced, particular investment is consistent with our explanation of asset securitization as mitigating the agency costs associated with free cash flow. In order to commit the firm not to waste free cash flow, managers when presented with a positive net present value project may – under scrutiny by monitors – choose to finance the project with securitized cash flows. This substitutes future cash, which may be free cash flow, for present cash that has a useful purpose. The reduction in agency costs creates gains for the firm.

While the manager may personally prefer to leave intact the opportunity to exert agency costs by not committing to pay out future cash inflows, the Board of Directors or large shareholders can easily monitor such a choice. Managerial decisions to mitigate agency costs through asset securitization are not themselves subject to a serious agency problem because these decisions are easily observed by the Board.

Even if there are no positive net present value investments for the firm, asset securitization may be useful. Managers - again, as a result of monitoring - may wish to commit to disgorge future cash flows, and thus commit not to waste free cash flow, by securitizing assets and promising to pay out the proceeds to investors.\(^{96}\) By combining a commitment to pay future cash flows to the SPV’s investors with a commitment to pay the proceeds of the sale of the collateral to investors, managers may increase the value of the firm by reducing the agency costs of free cash flow. Adding empirical support to this

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\(^{96}\) Managers may face pressure to make this commitment because of monitors such as large shareholders or boards of directors, because of incentive pay, or because of the market for corporate control,
possibility, LoPucki reports that is common for firms to commit to distributing the cash realized from asset securitization to security holders. Given the significant transaction costs associated with securitization, it is a puzzle why firms would sell future claims in order to pay out cash now to investors. The agency costs of free cash flow help solve this puzzle.

5. **Hidden-Information Explanations of Securitization**

A. **Asymmetric Information on General Assets Between Insiders and Outsiders**

As Hill has suggested, asset securitization may be a means of avoiding a lemons market premium on general security issues. Securitized assets are often cash flows such as receivables with risk that is more easily assessed than the risk of the general assets of the firm, such as physical assets or intangibles such as goodwill or growth opportunities within a market. Informational asymmetries may therefore arise with respect to the returns on the general assets of the firm, while investors are equally informed about the prospective returns on assets such as receivables. This means that issuing claims on the receivables avoids the lemons market premium that would be attached to an issue of claims on general assets.

To elaborate, we continue to describe the receivables as “B assets” and the rest of the firm as “A assets.” Assume that the value of B is known across investors, while the value of A is known only by insiders. When a firm issues equity or any other risky security on a firm comprising A and B, it is offering to share its residual returns in A with outside investors. Outside investors may rationally take the willingness of insiders to

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97 LoPucki, Irrefutable Logic, *supra*.
share in returns in A as an indication that these returns are likely to be low: given market prices, issuing risky securities in A and B jointly is worthwhile for only those firms with lower quality assets since the cost of sharing in future returns is lower for these firms. Accordingly, investors discount the issued security in response to the issue of a risky security by a firm. This has been a familiar story in markets with asymmetrically informed sellers since Akerlof’s pioneering paper on lemons markets. The under-valuation of new securities issued that a firm faces when it reveals its willingness to share in its future profit can be referred to as a lemons-market premium. This premium is avoided through securitization of assets, B assets in our example, that are not subject to asymmetric information.

A second benefit of securitizing the B assets, in addition to the avoidance of the lemons market premium on the capital raised by issuing general claims to A and B, is a positive impact on the price of all outstanding shares of the corporation. The essence of securitization under the informational assumptions of this theory is its use by insiders as a means of retaining ownership of a larger share of the A assets about which they are privately informed. Outside investors recognize that the insiders of high-quality firms are more willing to incur the relatively high transactions costs of securitization in exchange for the benefit of retaining ownership of the A assets. These investors therefore rationally attach a higher value to the shares of firms that have engaged in asset securitization than those who do not. We refer to this benefit as a “signalling benefit”, as

98 Hill, supra.
99 S. Myers and N. Majluf, supra.
100 Akerlof, supra.
distinct from the lemons market avoidance benefit. The two benefits are revealed as separate terms in the formal model of this theory, developed in the appendix.

If existing shareholders held their shares indefinitely, or for as long as the shares’ fundamental value exceeded the market value, then the signalling benefit would be of zero value. The lemons-market premium would be the only loss in wealth to existing shareholders associated with an issue of general equity (or other risky) claim to outsiders under the condition of asymmetry. The opportunity to sell their shares in the future would not lead to additional harm to shareholders since they would not avail themselves of the opportunity to trade: the lemons-market problem in the future would keep any market price of shares below the fundamental value. To the extent, however, that shareholders in the future must, for exogenous reasons, sell some shares for either personal liquidity or to finance a necessary project of known size, then shareholders incur a second cost to the initial issue of equity. The signal conveyed to the capital market from a firm’s decision to raise capital through securitization rather than a general security issue will affect the price of outstanding securities as well. In developing this hidden information model formally in the appendix, we isolate this second source of benefits from securitization as a signalling premium. It is a benefit to securitization beyond the avoidance of a lemons-market premium on new securities issued.

Selling the rights to a particular cash flow via securitization avoids the lemons market premium that would be incurred on a general security issue even if the cash flow is risky, providing that the management of the firm has no inside informational advantage over outside investors as to the future cash flow. One class of cash flows that in many
cases has low risk and therefore little asymmetry in information are the senior debt securities issued by the SPV.

The low risk character of SPV debt securities in a securitization transaction is often established only after an investment-class rating of these securities by bond-rating agencies. The lemons-market avoidance theory of asset securitization highlights the importance in practice of the bond-rating stage of securitization. Bond ratings, especially investment-class ratings, diminish the extent of informational asymmetry by providing a stamp-of-approval, or broadly recognized information assessment. The diminishment of informational asymmetry allows precisely the benefits of securitization in the form of the avoidance of the lemons-market premium.

Some commentators describe asset securitization as an instrument for accessing capital markets by small firms or risky firms that would otherwise have no access to a wide set of capital suppliers. This description of securitization appears consistent with the evidence, but is not in itself an economic explanation of asset securitization because it leaves unanswered the question of why firms would have access to capital markets through securitization but not generally. The lemons market avoidance theory provides an answer.

**B. Asymmetric Information on Securitized Assets Among Outside Investors**

A second hidden information explanation for securitized assets is the existence of informational asymmetries that differ from those just considered in two respects: the asymmetry is not just between managers or insiders and outside investors, but among different classes of outside investors; and the asymmetry is not about the returns on
general assets of the firm but about the securitized assets. Virtually all investors specialize to some degree in information about specific securities.\(^{101}\) Structured finance is sometimes associated with specialization by financial intermediaries in the valuation of the particular cash flows being offered by the originator. This is a phenomenon more often associated with factoring, which is closely related to asset securitization, but has explanatory power for asset securitization as well: asset securitization in some instances involves the private placement of the SPV securities to investors who are sufficiently well-informed about the value of the securities that the services of rating agencies are not purchased.\(^ {102}\)

When firms have the opportunity to sell assets to specialized investors, who are better informed than the general equity market about the fundamental value of the assets, then the general market will take any decision not to offer the assets to specialized investors as a signal that the assets are of relatively low quality. At a given price in the general equity market, for assets of given observable characteristics, only the higher quality firms will forgo financing through sale of shares on those assets in the general market in favour of sale to specialized investors at higher transactions costs but at the “true” price. Investors in the general market are aware of these incentives and therefore take the decision not to securitize as a signal of the poor quality of assets.\(^ {103}\)

\(^{101}\) This is evidenced by the well-documented “home bias” in portfolio choice, even regionally within a country.

\(^{102}\) See Schwarcz, Alchemy, supra at 138-39.

\(^{103}\) The impact on equityholders of an undervaluation by the market of the current equity price as two components, analogous to the previous model in subsection A: (1) the additional shares that must be offered to raise a given amount of financing; and (2) the negative effect on shareholders’ wealth that is manifest in the event of liquidity trading in the future. Note that the second benefit, like the “signalling benefit” in the model of part A, is realized even for securitization transactions that involve a pure reallocation of
A signalling model offered in the appendix formalizes this argument. In the case where the additional transactions costs from securitization vary with the extent of securitization, the prediction of this model is that firms vary along a continuum in the extent of securitization, with higher quality firms choosing a higher degree of securitization. Any signalling model or explanation hinges on an argument for a negative relationship between the underlying, unobservable quality of the agents doing the signalling and the net cost of signalling. To understand the nature of this pivotal relationship in our explanation of securitization as a signal, consider (in the context of this theory) the assets over which informational asymmetries exist among outsider investors as “securitizable assets.” Higher quality firms have higher quality securitizable assets. Assume that these assets are all correlated in quality and that when a firm chooses to securitize, outsiders can observe the proportion of securitizable assets that is securitized, but cannot observe the terms on which the securitization occurred. In the signalling equilibrium, each firm trades off at the margin the higher transactions cost of securitization with two benefits of additional securitization: 1) the valuation of the additional securitized assets at their true value rather than at the average value attached by general investors to assets that are securitizable but non-securitized; and, 2) the more ownership of equity (transactions in which the cash raised is simply distributed to shareholders or used to retire debt), rather than financing of investment.


105 If outsiders could observe the terms of the sale of the securitizable assets to expert investors (e.g., the price per dollar of receivables), and if securitized assets were perfectly correlated with one another, inexpert general investors would be able to infer directly the securitizable assets’ quality from a sale of any proportion of securitizable assets. Asset securitization of any subset of securitizable assets in such a case would serve as a
favourable expectations of general investors as to the value of the firm’s remaining
securitizable assets. The first of these benefits is always higher for higher-quality firms.
This provides the negative relationship between the quality of firms and the net cost of
signalling that is pivotal in this theory of why securitization can be a signal of quality.

C. Asymmetric Information on Securitized Assets Between Inside and Outside
Investors

The two hidden-information explanations of asset securitization that we have
outlined differ in two dimensions: the sets of investors between whom the information
asymmetry exists (insiders and outsiders versus two groups of outsiders) and the set of
assets (securitized or general) on which the returns are subject to the informational
asymmetry.\textsuperscript{106} As a final item in our delineation of hidden-information incentives for
securitization, we argue that a plausible theory of asset securitization is found in a
different combination of the two dimensions. Suppose that insider investors have better
knowledge of a stream of cash flows such as receivables than any outside investors.
Insiders know, however, that as part of a costly process of securitizing the receivables
specialized bond-rating agencies will rate the receivables. Bond rating agencies may not
provide the most accurate classification – i.e. the classification may not be based on the
full set of information held by insiders – but bond classification does provide information
to general investors. Under this assumption, originators of high quality receivables or
other securitizable assets will have the incentive to securitize more of these assets,
because they have greater confidence that the process will result in securities of higher

\textit{certification} of the quality of the securitizable assets; no signal would be necessary.
\textsuperscript{106} The second dimension, whether the incentives to securitize apply to the assets over
which the informational asymmetry exists or over the assets subject to common
rating (or equivalently that a lower degree of over-collateralization will be necessary to achieve an investment-grade rating). General investors in the market know this, and take a higher degree of securitization as a signal of greater quality of securitizable assets in general. The reward that investors provide firms which signal higher quality through greater securitization in turn magnifies the incentive to securitize. This signalling mechanism parallels closely that of the previous theory (and the formalization of the previous theory in the appendix can, with minor modifications, describe this theory as well).107

D. The General Hidden-Information Theory of Asset Securitization

The three hidden-information explanations of asset securitization vary in terms of their assumptions about which assets are characterized by informational asymmetries, and which sets of investors are differently informed about the asset returns, but all are driven by the same economic force: the tendency of security markets to allocate claims to returns to those investors who are best informed about the returns. Where the asymmetry in information differs between two classes of assets owned in common by a corporation, as it does in our three hidden-information theories, then the market forces that match claims to assets with best-informed investors require that the ownership of the two classes of assets be split. Separate ownership, which can be achieved by securitization, is

knowledge, is of course endogenous.

107 Again, in this theory, we assume that assets within the class of securitizable assets are correlated in quality but only imperfectly so, or alternatively that bond-ratings convey less information about asset values than the information held by insiders. If the assets were all of the same quality, and bond-ratings were fully informative, then the rating by a bond-rating agency of only a small subset of the asset class would provide information on the entire class. This direct provision to the market of information on the quality of all
necessary for markets to achieve different patterns of the allocation between the two sets of claims to asset returns. In short, asset securitization is explained within a hidden information framework by the asymmetry across assets of the nature and extent of informational asymmetries – the asymmetry in asymmetries.

The hidden-information structure provides a more general theory of asset securitization, or the structure of asset ownership across investors, than the three examples offered here. The nature of informational asymmetries may vary across assets in ways that we have not considered. For example, if a firm or entrepreneur wishes to sell a bundle of assets which are all subject to asymmetric information (unlike the assumptions of our three models) but the better-informed investors are different for each asset, then the entrepreneur can achieve a higher expected price for the assets by splitting them and selling each separately. Any asymmetry across assets in the nature of informational asymmetry on the asset returns leads to an incentive to split the ownership of the assets, which can be achieved via asset securitization.

6. The Relationship Between Secured Debt and Asset Securitization

There are obviously important similarities between the use of secured debt and asset securitization. Fundamentally, both involve the sale of debt that is backed by collateral. This implies that existing explanations for the use of secured debt may also be relevant in explaining asset securitization. But there are also important differences in the two financing techniques. In this section, we will review the theories of secured debt that

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securitizable assets would render redundant the information contained by any signal. 

108 This can be proved by representing the market mechanism as a (common-value) auction with privately informed purchasers.
relate to our explanations of asset securitization, pointing out similarities and differences. This exercise will not only situate our analysis within the broader literature concerning the use of secured debt, but will further illuminate our explanations of asset securitization.

**A. Focus and the Principal-Agent Problem**

Asset securitization, as discussed, is a useful tool in aligning the interests of management and shareholders in the firm. Securitizing assets can limit the risk to firm value from factors that are essentially unrelated to managerial effort. Such increased focus improves the efficacy of direct monitoring of managers, managerial labour markets, the market for corporate control and incentive contracting. This is an original view of the value of asset securitization that has no direct analogue in the secured debt literature. It is worthwhile to review why this explanation would not apply directly to secured debt generally. The key difference is that asset securitization insulates the originator’s equity from fluctuations in the value of the “collateral” (either the secured asset in a secured loan or the receivables in a securitization transaction) to a greater extent than secured debt, as we will explain.

Asset securitization transactions are typically structured as “true sales.” The originator sells its assets (for simplicity, “receivables”) to the special purpose vehicle, which in turn sells securities (typically debt securities) to third parties. The securities purchased derive their value from the receivables in question and only the receivables in question. This insulates the originator’s equity from shocks owing to risky receivables.
Generally speaking, if the receivables fluctuate in value, the SPV’s securities but not the originator’s will fluctuate in value.

If the receivables fall in value, then the originator will typically not be called on to make up a significant portion of the shortfall. In some transactions, to be sure, the originator may hold a subordinated tranche of securities and thus implicitly commit to make up some of the shortfall. But often the subordinated tranche will be sold to the public. And if the originator does commit to make up a significant shortfall, this risks losing the “true sale” characterization of the transaction.\textsuperscript{109} In some instances, third parties will commit to making up any shortfall in the receivables. Thus, the originator is insulated from some downside risk to which retaining the receivables would expose it.

On the other hand, if the receivables increase in value, then the SPV will be able to meet its debt obligations while earning a surplus. In some cases, the originator will have access to these earnings, perhaps through a “two-tiered” or FINCO structure involving the sale of the assets first to the originator’s subsidiary and then to an SPV.\textsuperscript{110} Alternatively, the surplus may accrue to a subordinated tranche of securities owned by the originator. Having access to the surplus exposes the originator to some risk. But many securitization transactions are structured such that the originator does not have recourse to a surplus, perhaps better to ensure the “true sale” status of the transaction. This insulates the manager of the originator from upside risk as well.

Thus asset securitization will generally limit upside and downside risk from the receivables for the originator. The same considerations do not arise with secured debt. Suppose receivables have an expected value of $10 and a firm issues debt secured by

\textsuperscript{109} Standard and Poor’s Structured Finance - Legal Criteria at 184.
these receivables. If the receivables turn out to be worth less than $10, the firm
nevertheless continues to owe $10.111 The value of equity will fall with the value of the
receivables. Downside risk to equity from secured debt is only limited when bankruptcy
arises, since creditors will seize the receivables and will bear any losses from a loss in
their value. Similarly, if the receivables appreciate in value, this will accrue to equity.
The debt of $10 can be paid and the surplus will increase share value. The manager is
thus exposed to upside, firm-specific risk. Securing debt does not serve to partition off
risk in the same way as asset securitization. Asset securitization is superior to secured
debt in increasing focus in order to address the principal-agent problem within the firm.

While there is no direct analogue to the focus explanation of asset securitization
in the secured debt literature, there are explanations that are related. In particular, several
commentators have suggested that secured debt addresses potential inefficiencies in the
monitoring of debtors by creditors. Creditors wish to monitor debtors for a number of
reasons that relate to controlling the agency cost of debt; that is, the tendency of
managers to seek to redistribute wealth from creditors to shareholders even at the expense
of the overall value of claims on the firm.112 Monitoring helps creditors detect
contractual violations.113 They may also seek to accelerate debt,114 or may consider

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111 Unless there is nonrecourse secured debt. Our explanations of asset securitization may
also have some force for nonrecourse secured debt.
112 This could be accomplished, *inter alia*, by engaging in excessively risky investment or
by distributing assets to shareholders. See Triantis, *supra* at 235-36.
113 Several terms in debt contracts relate to limiting the agency costs of debt: see C. Smith
114 As Saul Levmore, “Monitors and Freeriders in Commercial and Corporate Settings”
(1982) 92 Yale L.J. 49 at 52 states, “[Creditors] may even retain the right to call in a loan
on demand so that they can terminate the financing relationship when risk rises to the
point at which the negotiated interest rate is unattractive.”
extending further credit. Where there are multiple creditors of a firm, there are two concerns that arise with respect to monitoring. First, to the extent that a creditor’s decision to monitor benefits it at the expense of other creditors, there could be excessive monitoring. Competition among creditors could lead to costly monitoring even if monitoring did not increase at all the value of the firm. The second concern about monitoring is the opposite: if a creditor’s decision to monitor results in benefits for all creditors, there could be free-riding and too little monitoring.

Secured debt can address these potential inefficiencies. For example, Triantis outlines how asset-specific monitoring is encouraged by granting a security interest: the secured lender now has an incentive to monitor the use of that asset that others do not, which resolves the problems of free-riding and competitive monitoring. The secured lender will monitor the collateral, while other creditors will monitor the firm’s other assets.

Such a theory is related to our focus explanation of asset securitization, but there are differences. One difference in our approach is that, rather than facilitating monitoring by creditors, asset securitization can help shareholders monitor. A more significant difference is that asset securitization does not simply assign monitoring tasks, thus

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116 Levmore, supra.

117 Ibid.

118 Triantis, supra at 245. See also, Levmore, supra.

119 Levmore, supra at 69-70 points out that creditor monitoring can assist shareholders, perhaps by providing signals about the financial stability of the firm through a decision to accelerate debt. Given the misalignment of the interests of equity and debt, however, it is not clear how important these positive externalities will be.
overcoming free-riding or competitive concerns. Rather, by partitioning the collateral, asset securitization increases firm focus and makes monitoring easier.

A more distant analogue to our theory arises from a second way in which security may address free-riding and competition. If a secured creditor is oversecured, that is, if the collateral is clearly more valuable than the loan or if there is a substantial equity cushion, it will have little incentive to monitor.\textsuperscript{120} This implies that other creditors will not rely on, or fear competition from, monitoring by the secured creditor, better ensuring optimal monitoring. Where there are oversecured creditors, the unsecured creditors must monitor both the collateralized asset and other assets; the secured debtor does not monitor at all. In contrast, we suggest that by partitioning the collateral off from the rest of the firm, asset securitization limits monitoring by shareholders to the non-collateralized assets. This facilitates monitoring by reducing noise unrelated to managerial performance.

In summary, by partitioning off the collateral, asset securitization not only helps assign monitoring tasks, but by reducing volatility in value that is essentially unrelated to managerial effort, it also eases monitoring.

\section*{B. Free Cash Flow, Secured Debt and Asset Securitization}

We outlined above the role that asset securitization plays in limiting management’s access to cash, which in turn may limit managerial misbehaviour with respect to that cash. It is useful to compare the cash flow explanation of asset securitization with similar explanations of secured debt. Building on Jensen’s work,

\textsuperscript{120} Triantis, \textit{supra} at 245; Jackson and Kronman, \textit{supra}. 
Triantis suggests that many actions by managers that redistribute wealth to themselves from equity-holders, or to equity-holders from creditors, are facilitated by managerial discretion over cash (which may or may not be “free cash” in the Jensen sense of the expression). Indulgence in perquisites and overinvestment in risky assets, for example, may use cash to transfer wealth from shareholders to managers and from debtholders to shareholders respectively. Debt commits the managers to distribute cash and thus helps address the agency costs of cash, as explained. But the use of secured debt may independently limit managerial access to cash. Triantis identifies two key sources of the power of security interests to limit this access. First, secured lenders have a contingent property right in the secured asset. Second, secured lenders have priority over other lenders. Both the “property” and “priority” aspects of secured debt can limit agency costs of free cash flow.

Generally speaking, the secured creditor’s contingent property interest in the collateral attaches to the asset in question even following a sale. This property right limits the ability of managers to exchange assets for cash by selling the asset. Security interests also make it more difficult to raise cash through subsequent borrowing because of the priority rights assigned to secured lenders. Subsequent lenders know that they will not be paid until senior creditors are paid.

As Triantis points out, raising cash through the issuance of new debt is not intrinsically undesirable for existing claimants on the firm; it depends on what is done

122 Jensen, Free Cash Flow, supra. See also, Jensen, Eclipse, supra.
123 Triantis, Free Cash, supra.
His explanation of secured debt in part relies on existing creditors having decision rights over whether the debtor may transform assets into cash or raise cash by issuing new debt. On some occasions, creditors may find it in their own interests to allow the borrower to issue debt of a higher priority, but generally, the priority assigned to first-in-time lenders will hinder the raising of future cash, if only because of the additional transaction costs involved. Hideki and Kanda and Triantis suggest that the law of secured transactions attempts to strike an appropriate balance between the hindrance of wasteful future investment and the allowance of value-adding investment.

Our cash management explanation of asset securitization differs from Triantis’ approach to secured debt in with respect to both the property and priority aspects of security. With respect to the property aspect, Triantis suggests that since secured debt brings with it a contingent property interest in collateral that typically continues after its sale, the borrower is hindered in converting the secured asset to cash. But given that in an asset securitization transaction the collateral in question typically is cash, there is obviously no way to ensure that the secured property is not transformed into cash; the collateral is cash.

A contingent property interest in cash-based collateral held by ordinary secured lenders would not give rise to the same commitment not to mismanage cash as

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125 Triantis, Free Cash, supra at 2162.
128 For example, as a legal matter, there are some exceptions to “first-in-time” priority that allow the borrower to raise cash. A purchase money security interest, for instance, allows later-in-time priority over collateral acquired with the additional funds. U.C.C. §§
securitization of that collateral. Security in receivables, for example, generally does not limit managerial access to cash realized from those receivables. Only when the firm defaults on its debt does the creditor have the right to seize the proceeds from receivables; until then, the cash is freely available to managers and lenders’ contingent property interest is insufficient to intervene. Managers may misuse the cash in the interim. Securitizing the cash-based assets, on the other hand, removes the cash from managerial discretion altogether and thus is a stronger form of commitment against agency costs via cash management.

Asset securitization is also more effective in addressing the agency costs of free cash where a contingent property interest in non-cash collateral, which interest would hinder the transformation of the collateral into cash, would be impractical. Security interests will not restrict the sale of collateral where the debtor’s business turns on the periodic sale of the collateral. As Triantis states, “Although the sale of inventory collateral for cash raises the same concern about managerial discretion over cash proceeds, this sale is fundamentally necessary to enable the debtor to pay the principal and interest owed to its creditors. Therefore, the sale of inventory may proceed without impediment.”129 This implies that some assets may be freely converted to cash notwithstanding security interests.

Asset securitization avoids this shortcoming of secured debt. The collateral in an asset securitization transaction, the future cash flows, is no longer the property of the originator and thus the originator’s managers cannot misuse it. Indeed, some asset securitization transactions seem to address the impracticality of restricting the sale of

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9-107, 9-312(3),(4).
collateral and thus the failure of secured debt alone to prevent the conversion of assets into cash. For example, in 1993 Pacific Lumber Co. sold 179,000 acres of timberland to an SPV, which then offered timber-collateralized notes to the public. The notes received investment grade ratings from both the major rating agencies (Baa2 from Moody’s, BBB by S&P). Securitization has since become an important financing tool for other resource companies such as owners of oil and gas assets. Rather than relying on a security interest in timber or other resources, which would not restrict the conversion of these assets into cash because of the nature of the business, asset securitization commits the originator to use the cash from the resources in a particular, non-problematic way: that is, to disgorge it to buyers of the SPV’s securities.

Turning to the priority question, and a disadvantage of securitizing relative to secured debt, there are no exceptions to the priority of the security-holders in a securitization transaction over the collateral. By engaging in a “true sale” through asset securitization, property rights in the future cash flows in question belong to the SPV, subject to a security interest held by its creditors, not the originator. Asset securitization thus irrevocably commits the firm to convert future cash into current cash. This brings potential disadvantages. For example, it may be that post-securitization, the firm discovers a valuable investment opportunity for which the securitized cash flows would have provided a relatively inexpensive form of finance. Given the likely difficulty in

129 Triantis, Free Cash, supra at 2160.
130 S & P Structured Finance, 6-7, 50-53 (May 1993)
131 Harrell, Rice and Shearer, supra.
132 G. Triantis, Financial Slack, supra argues that many rules in Article 9 are designed to strike a compromise between the concerns over agency costs and that of access to relatively cheap internal capital.
renegotiating terms of such debt,\textsuperscript{133} the SPV’s creditors will in practice not exercise any discretion over whether to allow the originator to raise cash by ceding priority over the cash flows to a subsequent creditor. Moreover, the ceding of priority over the cash flows through exceptions to the first-in-time, first-in-right approach to priority, such as through a purchase money security interest, cannot occur. Future investment using the securitized assets will be forgone.

In summary, our cash management explanation of asset securitization can be seen as a complement to existing cash-related explanations of secured debt. Secured debt has two important shortcomings as a means of controlling managerial discretion over cash. First, the issuance of secured debt with cash-based collateral will not prevent managers from having access to that cash unless the firm has defaulted on its debt. Second, the cash management explanation of secured debt in part relies on the contingent property interest of the lender to deter the transformation of the collateral into cash. For some collateral like inventory, such a property interest will not be practical and there will not be a restriction on the disposition of the collateral.

Asset securitization may address both these shortcomings. By involving a “true sale” of the cash-based collateral, asset securitization eliminates any managerial discretion over the cash. And by irrevocably committing the firm to paying cash flows to investors in the SPV, asset securitization does not rely on contingent property rights, which sometimes will not be practical, to hinder managerial access to cash. Where collateral is cash-based, or where the collateral must be disposed in the course of

business, asset securitization may play a role that secured debt cannot in controlling managers’ access to cash.

On the other hand, asset securitization, by involving a true sale, leaves no room for a nuanced approach to priority that commentators have suggested the laws of secured transactions creates.\(^\text{134}\) This could result in the failure of the firm to make valuable investments. Balancing these cash management advantages and disadvantages of secured debt and asset securitization will call for different approaches in different circumstances.

C. Valuation

A theory of secured debt that relates to our valuation explanation of asset securitization is that it reduces screening costs incurred by lenders valuing debt. Buckley suggests two reasons why secured debt accomplishes this.\(^\text{135}\) First, secured lending diminishes uncertainty about the value of bankruptcy claims. If a firm does not grant security, each creditor must evaluate the value of the firm and the value of competing claims on the firm at the time of bankruptcy. In contrast, secured lenders need not evaluate competing claims because of their priority over future claims. And where there is secured debt, unsecured lenders need not evaluate the value of competing claims since, Buckley suggests, they can generally assume that their claims are not worth anything in bankruptcy.\(^\text{136}\)

\(^\text{134}\) See Triantis, Financial Slack, supra and Kanda and Levmore, supra.


\(^\text{136}\) Ibid. at 1424.
This explanation of secured debt is problematic. Most importantly, as Triantis points out, unsecured creditors often do receive partial compensation in bankruptcy, which suggests that they will invest in determining the value of these claims.\textsuperscript{137}

Moreover, it is not apparent that secured lenders are insulated from the existence of other debts. When bankruptcy intervenes, a stay on collecting collateral is issued.\textsuperscript{138} In the event of liquidation, the rule of absolute priority applies: no junior creditors are paid until senior creditors are paid in full. A secured creditor must realize the value of its debt before proceeds from the sale of collateral are distributed to other creditors. But if the corporation is reorganized, courts must determine whether the secured creditor has received the value of its collateral; however, valuation criteria are not specified in the Bankruptcy Act. As Schwartz states, “Because the bankruptcy court’s discretion is so unconfined, the value of the ‘protection’ to a secured party during the unspecified period in which foreclosure is stayed is hard to predict ex ante.”\textsuperscript{139} Moreover,

If a reorganization is attempted, secured parties commonly are offered stock or debt in the new enterprise. The value of this property when securities is taken is also hard to predict…\textsuperscript{140}

Schwartz concludes,

Creditors of such firms as large concerns…, which are likely to be reorganized on default, are thus apt to have difficulty, when they take secured debt, in knowing what their security will ultimately be worth. The return from a secured loan may be as difficult to calculate ex ante as the return from a unsecured loan.\textsuperscript{141}

\textsuperscript{137} Triantis, Imperfect Information, \textit{supra} at 251.
\textsuperscript{138} See A. Schwartz, “Review of Current Theories”, \textit{supra} at 25.
\textsuperscript{139} \textit{Ibid.} at 26.
\textsuperscript{140} \textit{Ibid.} As Schwartz further points out, dissenting from a reorganization plan also subjects the creditor to the court’s valuation of its collateral.
\textsuperscript{141} \textit{Ibid.}
Buckley offers another reason why secured debt lowers screening costs. He suggests that it “allows the parties to take advantage of any economies of specialization associated with the screening function.”\textsuperscript{142} Screening by lenders with specialized skills in valuing particular collateral, such as a machine’s use in secondary markets, can lower overall screening costs. Triantis elaborates on this point, suggesting that secured lenders value the firm’s collateral, while unsecured creditors will focus their screening efforts on unencumbered collateral.\textsuperscript{143}

The specialization explanation of lower screening costs has merit but there are two problems with it. First, the relationship between the collateral and the proceeds realized by a secured debtor on a reorganization may be difficult to predict, as Schwartz argues. This reduces the gains from specialization. Second, specialization skills in valuation may not be important if there is overcollateralization. That is, the firm may borrow an amount that is less than the value of the collateral. Even if the creditor seized the collateral to pay the debt, any residual value would accrue to the debtor; it does not lose from having overcollateralized. This tendency helps explain why there often will be value for unsecured claims in bankruptcy.\textsuperscript{144} This in turn implies that there may be little gained at the margin from a more accurate valuation of the security. As long as it is clearly greater than the debt in question, the gains from an accurate valuation will be small.\textsuperscript{145}

\textsuperscript{142} Buckley, \textit{supra} at 1425.
\textsuperscript{143} Triantis, Imperfect Information, \textit{supra} at 251.
\textsuperscript{144} See Triantis, Imperfect Information, \textit{supra}.
\textsuperscript{145} The combination of a significant down-payment and a right to sell the house to cover proceeds helps explain why banks will not value houses when lending on first mortgages. There is overcollateralization. Second mortgages, on the other hand, will involve greater valuation efforts.
The problems with the specialized screening explanation of secured debt do not arise with asset securitization. First, asset securitization is a more precise tool than secured debt for segregating the particular secured assets from the originator’s other assets.\textsuperscript{146} Selling the collateral to the SPV before issuing claims implies that the debtholders can value their claims on the basis of the collateral and the collateral alone. Given that asset securitization transactions are generally designed to be “true sales” for bankruptcy purposes, the problems that may occur on a reorganization in valuing the secured creditor’s claim do not arise.\textsuperscript{147} This in turn implies that firms would seek to securitize undervalued assets and realize the benefits of a more accurate valuation, as described above.

Moreover, unlike the valuation situation concerning secured debt, there are strong incentives for the originator to have the value of the securities sold by the SPV match the value of the collateral in question. It is more likely that an asset securitization transaction will qualify as a true sale and bankruptcy-remote if the originator has a non-existent or limited right to realize any surplus from the collection of collateral.\textsuperscript{148} Moreover, this characterization is also more likely if the originator does not guarantee any shortfall from the realization of the collateral.\textsuperscript{149} Thus, the originator will often have little access to a surplus and will not bear the costs of any significant shortfall in the collateral. These factors together imply that it is important for the firm to realize an accurate price for the collateral in the transaction: the originator will not want to sell assets for less than they

\textsuperscript{147} Ibid.
\textsuperscript{148} Schwarcz, \textit{Structured Finance, supra} at 32.
\textsuperscript{149} Standard and Poor’s Structured Finance - Legal Criteria at 184.
are worth if it cannot realize the surplus, while the buyer of the SPV’s securities will not pay for the securities if they are worth less than the collateral if the originator does not make up the shortfall.\footnote{If a third party agrees to make up the shortfall, which occasionally occurs, the originator must effectively pay for this \textit{ex ante} by compensating the third party for acting as an “insurer.” There is no gain to the originator from an inaccurate valuation of the collateral.} While there may be overcollateralization in the sense that the face value of the collateral exceeds the value of the loans made against it, the expected value of the loans should be as close to the value of the collateral as possible. Any overcollateralization would exist because of the possibility of default on the realization of the collateral. For these reasons, the specialized valuation explanation of asset securitization is more powerful than the analogous explanation of secured debt.

\textbf{D. Other Financial Devices and Asset Securitization}

While there are important differences in the structure of, and our explanation of, asset securitization from those of secured debt, there are close parallels between asset securitization and other financial tools. In particular, the advantages to the firm from securitizing resemble advantages from the use of equity carve-outs, spin-offs and tracking stock in conglomerates.

\textit{Increasing Focus}

An equity carve-out occurs when a parent corporation initially offers to sell shares in a subsidiary to the public. A spin-off occurs when a parent corporation distributes stock in a subsidiary to the parent’s shareholders. Both of these financing mechanisms bring advantages in increasing focus similar to those brought by asset securitization.\footnote{There is a large literature assessing the gains from corporate focus. See, \textit{e.g.} R.}
Prior to an equity carve-out or spin-off, the value of the parent’s equity will depend on the performance of the parent and that of the subsidiary. This complicates the principal-agent problem at the subsidiary. For example, managers at the subsidiary who are rewarded with the parent’s shares are exposed to the risk of the parent’s performance. This exposes managers to risk that they are unable to control, which in turn implies lower-powered incentives because of managerial risk-aversion. Following a carve-out or a spin-off, on the other hand, the equity of the subsidiary will be traded in its own right. Awarding managers shares of the subsidiary gives them better incentives through compensation more closely related to their performance. For example, Amoco spun off Cyprus Minerals in 1985 and money-losing Cyprus quickly became profitable. Its CEO, Kenneth Barr, explained,

Our managers felt Amoco was a great company, but the day we were separated there was a surge of enthusiasm. They realized we would no longer be buried in a bid oil company and had a chance to show what they could do.

The 1970 Annual Report of Studebaker-Worthington explained the creation of a series of “satellite” corporations through a series of equity carve-outs in the following way:

We believe we are able to attract better top people by offering key positions in ‘satellite’ companies…Options in the shares of the satellite offer strong


inducement since the incentive is tied more directly to the individual performance of the manager and his team.\textsuperscript{154}

Tracking stock, also known as targeted stock, letter stock or alphabet stock, gives its owner an interest in the earnings of one division of a diversified firm.\textsuperscript{155} As a legal matter, the division remains part of the conglomerate, but the value of the tracking stock varies with the performance only of the division. Typically the tracking stock’s dividends will vary with the division’s income. This allows managers of a division to be rewarded on their performance through the use of tracking stock. As D’Souza and Jacob state,

The earliest use of the concept of targeted stocks was General Motor’s introduction of an independently traded stock for Electronic Data Systems, in conjunction with GM’s acquisition of EDS in 1984. EDS’s previous owner, Ross Perot, had expressed concern that the performance of EDS managers would have little impact on undivided GM stock. The introduction of a separate tracking stock for EDS helped convince Perot to sell the firm…\textsuperscript{156}

Having found that the issuance of tracking stock increases value, they conclude that “investors expect the organizational change to provide informational advantages, to result in better monitoring or motivation for divisional managers, or to reduce suboptimal divisional cross-subsidization.” (Emphasis added.)\textsuperscript{157}

The monitoring advantages of equity carve-outs, spin-offs and tracking stock are similar to those from asset securitization. By segregating the collateral from the rest of the firm, asset securitization strengthens the correlation between the manager’s performance and the performance of equity. Fluctuations in the value of assets such as

\begin{flushright}
\textsuperscript{154} Quoted in Schipper and Smith, \textit{supra} at 176-77.
\textsuperscript{156} \textit{Ibid.} at 460-61.
\textsuperscript{157} \textit{Ibid} at 481.
\end{flushright}
receivables that have little to do with current management’s efforts no longer affect equity values, just as the subsidiary’s equity or a division’s tracking stock are insulated from fluctuations in the value of the parent’s business. This facilitates monitoring and adds value. Asset securitization on this analysis can be seen as the mirror image of equity carve-outs, spin-offs and tracking stock: securitizing assets increases focus at the originator, while carve-outs and the like increase focus relating to the segregated assets.

*Valuation*

Equity carve-outs could also act like asset securitization in allowing firms with undervalued assets to realize their true value. If, for example, a wholly-owned subsidiary were difficult to value because of its relationship with the parent, an equity carve-out may be attractive for the parent. More specifically, if investors cannot directly infer the quality of the subsidiary, they will assign it an average value for a subsidiary of that type. Firms with subsidiaries of above average value may then have an incentive to engage in carve-out. When selling in an IPO, various financial intermediaries, such as underwriters, work to value the issue in question. If these intermediaries can more precisely value the subsidiary than the marginal investor in a pre-carve-out world, then managers of undervalued subsidiaries seeking to maximize the current value of the parent’s equity will engage in a carve-out (as long as transaction costs are not prohibitive). This is similar to our description of asset securitization and valuation. If assets are undervalued by the marginal investor, but intermediaries like rating agencies are capable of more precise valuations, then securitizing assets may increase the current value of the firm.
It is not clear that tracking stock and spin-offs are as useful in addressing the undervaluation problem. A spin-off does not involve any external financing and thus will not engage expert intermediaries to value the shares. Moreover, the spin-off does not entail a sale to investors expert in valuing the subsidiary. After the spin-off there will be two share prices, for the parent and the subsidiary, but the marginal investor has not been given any additional signals from an expert intermediary as to their value. Similarly for tracking stock: there is no external financing involved and therefore no need for intermediaries.\textsuperscript{158} Equity carve-outs, though, present an apt parallel to our explanation of asset securitization.

7. Conclusion

The essence of asset securitization is the partitioning of future cash flows from the rest of the firm. Any explanation of asset securitization must account for this fundamental feature. The theories that we offer all satisfy this requirement, although the reason for the partitioning varies. The focus explanations of asset securitization depend on the separation of cash flows that are risky but relatively insensitive to managerial effort from other cash flows. Partitioning in this case helps control agency problems by reducing the risk to the firm from factors beyond managers’ control. The cash flow theory of asset securitization also depends on the separation of cash flows from the rest of the firm in order to reduce agency costs, but for different reasons. Partitioning off these flows in an asset securitization transaction exchanges a series of small, difficult-to-

\textsuperscript{158} Moreover, D’Souza and Jacob, \textit{supra} did not find an increase in analyst coverage of a division following the issue of tracking stock.
monitor cash flows for a single, relatively-easy-to-monitor cash infusion, thus reducing the agency costs of free cash flow.

Turning to the hidden information cases, where there is uncertainty about the value of the non-securitized assets, the partitioning of the collateral in a securitization transaction from the rest of the firm allows the sale of securities that are not subject to a lemons problem. This allows the firm avoid a lemons discount and helps it signal the high quality of its remaining general equity; only higher quality firms would incur the relatively high transaction costs of securitization in order to avoid the lemons discount. On the other hand, where there is uncertainty about the collateral, securitization allows expert investors or rating agencies to value the collateral independent of the rest of the firm. Partitioning is crucial to this theory also.

While the theories all depend on the importance of the separation of the collateral from the firm, they address different circumstances. With respect to the hidden action theories, the focus explanation is more likely to apply in cases where the collateral is risky. If the securitized assets are risky but largely independent of managerial influence, securitizing will increase focus and reduce agency costs. On the other hand, even if the collateral in question were entirely riskless, the cash flow explanation of securitization would continue to apply. By exchanging small, perhaps certain cash flows for a single large infusion, the agency costs of free cash flow are reduced.

The hidden information theories of securitization depend on the relative ability of insiders and outsiders to value the collateral and other firm assets and the degree of specialization in valuation by specific outside investors. Where insiders are relatively well-informed about the assets other than the collateral, securitizing can avoid a lemons
problem and can signal the non-collateral assets’ quality. Where some expert investors are relatively well-informed about the collateral, securitizing can allocate the residual claim on collateral to these expert investors, and can as well rely on intermediaries such as rating agencies to reduce the asymmetry of information about the collateral’s quality. The applicability of the hidden information theories will vary with the asymmetry across assets in the degree and nature of informational asymmetry about asset returns. The theory can explain why small and risky firms might use asset securitization as a means of directly accessing capital markets where the issuance of general risky assets would involve substantial information-related discounts.

Asset securitization can, depending on the circumstances, address the problems of hidden action and hidden information. Moreover, there are important differences between asset securitization and secured debt that leave the former important as a unique financing device. Securing debt does not insulate the firm from risky collateral to the same extent as securitizing, so the focus explanations do not apply as well to secured debt. Secured transactions cannot limit managerial access to cash as directly as securitization, particularly where the collateral in question is cash or where restrictions on the sale of the collateral are impractical. Finally, secured debt transactions entail less incentive to value the collateral precisely, given that shortfalls and excess returns will generally be covered or realized by the borrower itself.

Other financial devices, such as tracking stock, spin-offs and carve-outs resemble asset securitization more closely. These devices, however, depend on the partitioning of a particular line of business from the rest of the firm. Asset securitization is more general
and allows the partitioning of cash flows from a variety of sources, not simply a line of business.

In sum, the uniqueness of asset securitization and its effectiveness in addressing information problems help explain its recent explosion in popularity.
APPENDIX

1. Asset Securitization and Managerial Reputation

The first model in this appendix formalizes the impact of asset securitization on the power that reputation concerns have to reduce agency costs, by outlining a two-period version of Holmstrom’s model that is described by Dewatripont, Jewitt and Tirole.\(^{159}\) In each period of this model, the profits (\(y\)) earned by a manager on behalf of shareholders depend are the sum of talent (\(\theta\)), current effort (\(a\)), and noise (\(\varepsilon\)):

\[
y_t = \theta + a_t + \varepsilon_t
\]

in each period \(t = 1,2\). The terms \(\varepsilon_t\) are independent between periods and normally distributed with mean zero and variance \(\sigma^2\); the distribution of talent is normally distributed with mean \(\bar{\theta}\) and variance \(\sigma^2\).

The manager faces a competitive market in each period for her input and discounts the second period wage at a rate \(\delta\). Talent is unknown to everybody, whereas effort is known only to the manager. The cost of effort is \(c(a)\), a convex function. Performance, or profits, are observed by everyone at the end of a period, but are not describable \textit{ex ante} in a formal compensation contract. As a result, the manager is paid a wage \(w_1\) in the first period. In this simple two-period model, the manager has no incentive to exert any effort in the second period; hence \(a_2\) is zero. The wage in the second period, \(w_2\), is therefore the market’s expectation of manager’s talent, conditional upon the history of output, \(y_1\). The focus is on the incentives to exert effort in the first

\(^{159}\) \textit{Ibid}. 

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period so as to induce high market expectations of talent (a reputation) in the second
period.

An equilibrium effort level in the first period is a level $a^*$ such that if the market
anticipates $a^*$ from the manager, then it is in fact in the manager’s interest to exert $a^*$.
Given that the market rationally anticipates $a_2 = 0$ in the second period, the second period
wage will be the manager’s expected talent level conditional upon $a^*$ and $y_1$: $E(\theta | y_1, a^*)$.
The manager chooses $a$ to maximize $E[E(\theta | y_1, a^*)] - c(a)$ where the inner expectation is
with respect to talent and the outer expectation is with respect to performance. The first-
order condition characterizing the equilibrium effort level is

$$c'(a^*) = \delta \frac{\sigma_\theta^2}{\sigma_\theta^2 + \sigma_\epsilon^2}$$

where $c'(a^*)$ is the marginal cost of effort evaluated at $a^*$. Standard comparative
statics on this equation show that $d(a^*) / d \sigma_\epsilon^2 < 0$; in other words, greater noise in the
relationship between effort, talent and output leads to a reduction in effort and
 correspondingly greater agency costs. Following the discussion in the text, a corporation
generating cash flows A and B, where A and B are normally distributed, independent and
where only A depends on managerial effort can use securitization of the asset B to reduce
the noise in the relationship between effort and performance. From the comparative static
result outlined here, this securitization would improve the effort of the manager and
reduce agency costs.

Unlike the case of explicit incentive schemes, to be discussed next, the result that
reduced noise yields greater incentives in implicit or reputational incentive schemes,
while valid for the case of normal distribution and additivity is not completely general.
Dewatripont et al derive general sufficiency conditions for this result, with “reduced noise” being generalized to improve information in several different senses.

2. Asset Securitization and Incentive Compensation

This section of the appendix outlines the simplest principal-agent model and uses it to illustrate that the reduction in noise in the relationship between managerial effort input and profits results in greater managerial incentives directly as well the adoption of a higher-powered incentive scheme. The model involves additivity and normal distributions, as the previous model. The agent (manager) chooses effort $a$, at a cost of $C(a)$, which we take to be a quadratic function. Benefits, e.g. profits or share value, $B(a)$ flow to the principal (shareholders). The relationship between effort and benefits is:

$$B(a) = a + e$$

where $e$ is normally distributed, $N(0, \sigma^2)$. The manager maximizes expected utility and her preferences can be described by a utility function with constant absolute risk aversion, which means that preferences over risky assets are independent of initial wealth. Such preferences are represented by only one class of utility functions:

$$U(w) = K - e^{-rw}$$

where $K$ is an arbitrary constant and $r$ is the measure of absolute risk aversion. The contract struck between the principal and agents is $(\alpha, w, a)$ where $\alpha$ is share of profits to the agent (manager), $w$ is a fixed wage and $a$ is the agreed-upon effort level.162

160 See Dewatripont et al., supra for a derivation of this equation.
161 This model is a special case of the multi-task agency model of Holmstrom and Milgrom, supra.
162 The effort level is unobservable, but following the standard methodology we represent the contract as including both effort and compensation, and select the optimal contract.
It is easy to verify that with the exponential utility function and normally distributed wealth, the certainty-equivalent equivalent wage of the manager, under the contract, can be written as

\[ CE = \alpha a + w - C(a) - \frac{1}{2} r \alpha^2 \sigma^2 \]

This certainty-equivalent is the agent’s payoff in dollars, i.e. the dollar value of certain income that would generate the same utility as the uncertain income and effort extended under the contract \((\alpha, w, a)\). The principal (shareholders) is risk-neutral and derives benefit \((1 - \alpha) a - w\).

The efficient contract must maximize the sum of the dollar benefits to both parties (however these are split between the two) subject to the incentive-compatibility constraint:

\[
\max \ a - C(a) - \frac{1}{2} r \alpha^2 \sigma^2 \\
\text{subject to: } a \text{ solves } \max_\tau \alpha \tau - C(\tau)
\]

The incentive compatibility constraint can be re-written as \(\alpha = dC(a)/da\). Re-writing the problem in this way and solving the first-order conditions yields the following:

\[
\alpha = \frac{1}{1 + r\sigma^2 C''(a)}
\]

Our assumption that \(C(a)\) is quadratic means that this optimal sharing rule is independent of contracted effort, \(a\). It is immediate from this characterization that a reduction in noise in the relationship between effort and profit leads to a higher-powered incentive contract, i.e. an increase in \(\alpha\). Moreover, the reduction in noise must increase efficiency, since

under the “incentive-compatibility constraint” that the effort in the contract be privately optimal for the agent given the rest of the contract. The linearity assumed in the model is in fact optimal under the other stated assumptions (B. Holmstrom and P. Milgrom, “Aggregation and Linearity in the Provision of Intertemporal Incentives” (1987) 55 Econometrica 303-328.)
leaving the sharing rule unchanged in response to the reduction would leave effort unchanged (the re-written incentive compatibility constraint is independent of \( \sigma^2 \)), resulting in an increase in total benefits \( \alpha a + w - C(a) - \frac{1}{2} r \alpha^2 \sigma^2 \); and the adjustment of the optimal sharing rule to the reduction in noise can only increase total benefits further. The reduction in noise is achieved by asset securitization when the value of only some assets is sensitive to managerial effort, as explained in the text.

3. Asset Securitization and Asymmetric Information about General Asset Values

The model in this section considers the incentives for securitizing assets of known value, i.e. value over which all investors are symmetrically informed, when the alternative is to issue claims on general assets that are subject to asymmetric information. The asymmetry takes the form of superior insider / manager information relative to the information available to outside investors. The securitization of assets involves administrative costs greater than those of issuing general securities.

Consider a firm that needs to raise an amount of capital \( I \) to invest in a project that will yield a net present value of \( v \). The firm’s assets consist of some assets over which all investors have full information about future returns; and some investments over which insiders including managers, who act on behalf of insiders, have superior information. We suppose that there are sufficient assets of known returns that some of these could be securitized to finance the project cost, \( I \). The securitized assets we will label as “B”, and the remaining assets we will label as “A”. The assets “A” have an uncertain return: with probability \( \theta \) these assets return a value of 1 dollar in the future and with probability \( 1 - \theta \)
these assets return a value of 0 dollars.\textsuperscript{163} The quality $\theta$ of the assets is known only to insiders; outside investors form expectations as to the quality based only on the financing strategy of the firm. The distribution of qualities is denoted as $F$.

In the simplest version of this model, we assume that the insiders either securitize assets $B$ and then keep the equity of the firm until the payoff of returns, or issue a general claim on some share of equity that is sufficient to finance the project, and then keep the remaining equity until the payoff. If the firm finances through securitization, an administrative cost $k$ is incurred. The expected payoff to insiders who choose securitization consists of the expected payoff of assets $A$ plus the net value of the project $v$ minus the administrative costs of securitization:

$$\theta + v - k$$

In the event that the firm issues sufficient general equity to finance the project, let $p_0$ represent the market valuation (or price) of the assets $A$ and let $\lambda$ represent the share of the equity that the firm must sell to finance the project. The variables $\lambda$ and $p_0$ must satisfy the financing constraint:

$$\lambda (p_0 + I + v) = I$$

where the left hand side of this constraint represents $\lambda$ times the market valuation of the existing assets $A$, the assets $B$ (valued at $I$) and the net present value of the new project. The set of firms deciding to issue general equity can be shown to be a set $[0, \hat{\theta}]$. The price $p_0$ must satisfy rational expectations:

\textsuperscript{163} The normalization of possible return values to 0 and 1 has no impact on the results,
This equation and the financing constraint (2) can be solved to give the share of equity that must be offered to the market to finance the project:

\[
\lambda = \frac{1}{[E(\theta | \theta \leq \hat{\theta}) + 1 + v]}
\]

and the payoff to a firm of quality \( \theta \) that chooses to finance the project with the necessary issue of general equity is therefore

\[
[1 - \frac{I}{E(\theta | \theta \leq \hat{\theta}) + I + v}] (\theta + I + v)
\]

Finally, equating the payoffs (1) and (4) determines the marginal type \( \hat{\theta} \).

For a firm of type \( \theta > \hat{\theta} \), the gain from securitization equals (1) minus (4), which can be written as

\[
\text{Gain} = \left[ \frac{\theta + I + v}{E(\theta | \theta \leq \hat{\theta}) + I + v} \right] I - k
\]

The first term of this equation we could term the \textit{lemons market avoidance} benefit, i.e. the decrease in the cost of raising \( I \) when assets \( A \) are valued at their correct quality rather than at the average quality of those firms choosing the strategy of general equity issuance. The entire gain must net out the administrative cost of securitization, \( k \).

**Extension to liquidity trading:** In the simple model outlined above, the price of the firm’s equity after a decision to securitize assets is irrelevant. The existing equityholders retain ownership of the equity until the final payoff of assets; there is no trading of equity but simplifies notation.
after the securitization decision and no scope in the model for identifying an impact of securitization on the price of equity. Moreover, a post-investment opportunity for equityholders to sell shares in and of itself would not provide this scope, since a market for equity in which current owners have superior information about the value of their shares would generate no trade because of the lemons problem. It is unrealistic, however, to suppose that in reality the future price of post-investment price of equity is irrelevant (and certainly the prediction of no trade is unrealistic). We build post-investment trade into the model by incorporating exogenous liquidity trading, or noise trading. Noise trading is a common component of financial economic models.

Suppose, then, that after the investment decision has been made, an exogenous proportion, \( g \), of equity will be sold by inside equityholders after the investment has been undertaken.\(^{164}\) We now let \( p_1 \) represent the market valuation of assets \( A \) after a decision to securitize has been taken; \( p_0 \) continues to represent the market valuation of these assets after a decision to raise general equity. This revision to the model affects the payoffs from each method of financing, to incorporate the gains to insiders from selling a fraction, \( g \), of equity at the market prices (\( p_0 \) or \( p_1 \)) rather than retaining ownership of the entire amount of equity held just after the financing decision. It is straightforward to show that in this extended model, the gains to securitization can be expressed as follows:

\[
Gain = \frac{\theta + I + v}{E(\theta \mid \theta \leq \hat{\theta}) + I + v} I + g(p_1 - p_0) - k
\]

\[
= \frac{\theta + I + v}{E(\theta \mid \theta \leq \hat{\theta}) + I + v} I + g\left[ E(\theta \mid \theta > \hat{\theta}) - E(\theta \mid \theta \leq \hat{\theta}) \right] - k
\]

\(^{164}\) It would be more realistic, but less succinct algebraically, to assume that an exogenous
The first term in this equation again represents the lemons market avoidance benefit. The second term represents an additional gain from securitization, a *signalling benefit*, which captures the increase in value of shares sold that reflects the value to being associated with the high quality group of firms choosing to securitize rather than the lower quality group choosing to issue general equity.

4. Asset Securitization and Asymmetric Information about Securitized Asset Values

In the final model, we investigate the incentives for asset securitization when the capital market participants include a group of investors with specific knowledge of the quality of securitized assets, reflecting specialization in the valuation of these assets. The group of specialized investors is large enough to represent a competitive source of capital, but has limited funds, and is therefore not in the market for general assets.

Consider a firm with two assets, A and B, as in the previous model. The asset A (which will again represent general, non-securitized assets in the equilibrium of the model) is known by all outside investors to have value A, and it is now the asset B that is subject to asymmetric information. The payoff from asset B is 1 with probability $\theta$ and 0 with probability $1-\theta$. Specialized investors are aware of $\theta$; general investors are not.

We consider an entrepreneur who owns in the single firm both sets of assets. The entrepreneur wishes to sell the entire firm rather than wait for the realization of payoffs to the assets. (This takes the assumption of liquidity trading to the extreme.) The entrepreneur can sell some proportion $s$ of the claims on asset B to specialized investors,
which we interpret as asset securitization and sells the remaining proportion of assets, 1-s, to the general equity market. While general investors are unaware of the quality $\theta$ of the asset B, these investors can observe s and condition their expectations on this variable.

Consider first the case where administrative costs to securitization are entirely fixed. In this case, it is straightforward to show that in any equilibrium, the values of s are 0 or 1, depending on $\theta$. That is, if it is worthwhile securitizing some of asset B, it is worthwhile securitizing all of asset B. As in our first hidden-information model, the decision to securitize assets involves a tradeoff between the transactions cost of doing so and the benefits of being identified by investors as having a higher quality set of assets. General investors know that those firms choosing not to securitize asset B with specialized investors have lower quality assets, and price the equity of these firms accordingly. All firms with quality greater than a marginal type, $\hat{\theta}$, securitize asset B.

It is most plausible that the transactions costs associated with securitization are not entirely fixed, but instead increase with the size of the securitization transaction. In this case, the market outcome will not be of the variety just described, in which many different quality types choose the same action, but will instead be a separating equilibrium in which each quality type chooses to securitize a different proportion of asset B. To illustrate this, suppose that the costs of securitization are entirely variable: if

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165 Suppose that there were an equilibrium in which a set H of some types chose s < 1. Then either the top quality $\theta^*$ in H is pooled with other types in H in its choice of s, or is identified in equilibrium as $\theta^*$. In the former case, the type $\theta^*$ does better by choosing s = 1 (where its payoff is the same as if it is fully identified); in the latter case, any type in H would profit by mimicking $\theta^*$. This contradicts the supposition.
a proportion $s$ of the (divisible) asset $B$ is securitized, then the entrepreneur incurs an administrative cost, $k_s$.

A separating equilibrium consists of (i) a mapping $\phi$ from observed $s$ to expected quality on the part of general investors; $\phi(s)$ is the quality that investors expect from a firm that has securitized an amount $s$; (ii) a function $S(\theta)$ giving the decision $s = S(\theta)$ on the part of each quality $\theta$; such that (1) given the entire function $\phi(s)$, the firm of each quality $\theta$ maximizes its payoff by choosing $s = S(\theta)$; and (2) for all $\theta$, $\phi(S(\theta)) = \theta$, i.e. $\phi = S^{-1}$. The first condition recognizes that each firm in changing its decision $s$ will affect investors’ expectations as to its quality; the second condition is that investors’ expectations are, in equilibrium, correct.

The payoff to an entrepreneur of quality $\theta$ from choosing $s$, facing market expectations $\phi(s)$, is,

$$A + s \theta + (1-s)\phi(s) - k_s$$

which describes the payoff from selling asset $A$, selling the fraction $s$ of asset $B$ to specialized investors at its true value, $\theta$, and selling the remaining fraction of $B$, $(1-s)$, to investors whose perception of the value, $\phi(s)$, depends on the choice of $s$. The entrepreneur’s first-order condition for maximizing this payoff (condition (1) of equilibrium) is

$$\theta + (1-s)\frac{\partial \phi}{\partial s} - \phi(s) - k = 0$$

(5)
From the rational expectations condition $\phi = S^{-1}$ we have $\frac{\partial \phi}{\partial S} = \left(1 / \frac{\partial S}{\partial \theta}\right)$. Substituting this into equation (5), evaluating equation (5) at $s = S(\theta)$, and then substituting the equilibrium condition $\phi(S(\theta)) = \theta$ yields

$$1 - S(\theta) - k \frac{\partial S}{\partial \theta} = 0 \tag{6}$$

Equation (6) is a linear differential equation with a solution

$$S(\theta) = 1 - e^{-\theta/k}$$

The equilibrium pattern of asset securitization thus starts with $S(0) = 0$ (the lowest quality firm is identified as such in equilibrium and gains nothing from securitization) and increasing monotonically in quality. Each firm trades off at the margin the benefits of securitization that flow from being identified as a higher-quality firm, and the higher transactions costs incurred. The equilibrium choice of a particular type $\theta$ is illustrated in Figure 1. A firm with (securitizable) assets of any quality recognizes the graph of $\phi(s)$ as the set of pairs $\{s, \text{perceived quality}\}$ among which it can choose. The firm of particular quality $\theta$ has the indifference curves as drawn in Figure 1, which capture the benefit and costs described above; the indifference curves are flatter for higher quality types, since these types bear a smaller net marginal cost of securitizing (the higher quality types are able to sell the securitizable assets to specialized investors at a higher price). In equilibrium, the indifference curves of type $\theta$ are tangent to the graph of $\phi(s)$ at the optimal choice of $s$, $s(\theta)$. This choice rationalizes the market expectations, conditional upon $s$. 
Figure 1: Signalling Model of Securitization

$s$: proportion of assets securitized
$\phi(s)$: market expectation of asset quality upon observing $s$
$\theta$: a particular quality level