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## WHY CORPORATIONS SHOULD (OR SHOULD NOT) PURCHASE INSURANCE

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In 1980, American corporations paid more than \$49 billion in property and liability insurance premiums. When set against the roughly \$63 billion in corporate dividend payments during the same year, these insurance purchases seem particularly significant. Yet, in spite of the magnitude of these numbers, there has been little careful analysis of the decisions leading to such large expenditures. The finance and economics literature has devoted scant attention to the topic. There is to be sure a large separate body of academic insurance literature which purports to explain the corporate demand for insurance. But, the approach of this literature, we would argue, is fundamentally flawed.

We think there are useful answers to the question of why firms purchase insurance, answers consistent with economic logic and the theory of modern finance; but these answers are less obvious than those that have been furnished by the recognized authorities on insurance. Our approach also provides explanations of some fairly recent developments in corporate insurance: the appearance of retroactive liability coverage, in which companies purchase additional coverage *after* major disasters; the use of "claims only" insurance contracts, whereby insured companies pay for the services of an insurance company while bearing themselves the risk of losses through claims; and the growing trend toward self-insurance, reflected both in the use of higher deductibles and the establishment of captive insurance companies.

But, before examining the competing arguments for corporate insurance, let's take a careful look at exactly what an insurance policy does.

The Economics of Insurance. Insurance does not eliminate risk; it is simply a contract which transfers risk from the policyholder to an insurance company. In return, the insurance company, of course, demands a premium. The real cost of insurance, called the "loading fee", is the difference between the premium and the expected payoff. As that difference increases, insurance becomes less attractive.

Let's begin by assuming that the decision to purchase insurance, whether by corporations or by individuals, is *solely* a decision to transfer risks from the policyholders to an insurance company. From the perspective of financial economics, this decision is justified only when the insurance company has a comparative advantage in bearing the risks in question. Such an advantage can derive from several sources: (1) from the reduction of risk achievable by pooling a large portfolio of risks for which the expected loss is highly predictable; (2) from superior access to capital markets; (3) from expertise gained through specialization in evaluating and monitoring certain kinds of risks.

Now, we relax our initial assumption to allow that companies might be buying insurance for reasons other than to transfer risk. The expected payoff of the policy generally contains two components: (1) the monetary indemnity the insurer pays if a loss occurs, and (2) any services provided by the insurer under the policy.<sup>1</sup> The distinction between monetary

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<sup>1</sup>Insurance companies provide a range of administrative services associated with claims management. For example, for claims resulting from property losses, claims management is frequently accomplished through a nation-wide network of independent adjusters who are employed to negotiate certain types of settlements. The decisions are then reviewed by the claims department of the insurance firm.

indemnity and service provision is important because, in types of insurance with more services provided a larger difference exists between the premium and the expected indemnity. In other words, because a significant portion of the premium paid is used to provide the services rendered in conjunction with the policy, a relatively smaller portion will be used to satisfy claims. Thus, a fourth source of insurance companies' comparative advantage would be their specialization and economies of scale in providing services associated with insurance such as claims administration and settlement.

Only the last two of these are the exclusive province of insurance companies; and thus, only they are likely to constitute the principal comparative advantage of insuring companies over the large, widely-held corporations they insure. And the fact some of the largest corporations have chosen to develop their own in-house insurance expertise--or to form their own insurance captives--suggests that, in many cases, even these two advantages are not that significant.

The Important Difference Between Individual and Corporate Insurance.

Before proceeding further with the question of the corporate demand for insurance, we want to consider first the simplest case: the purchase of insurance by individuals. Why do individuals buy insurance? Most people are "risk averse".<sup>1</sup> Insurance contracts allow them to hedge risks,

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<sup>1</sup>In the financial economics literature risk aversion refers to an individual who prefers the average outcome, or the "expected value", of a gamble to taking a chance on the distribution of possible outcomes, some higher and some lower than the average outcome. Thus a risk averse individual would pay to get out of a risky situation. There are, of course, different degrees of risk aversion; individuals displaying greater aversion to risk than the average stockholder might prefer holding government bonds to stocks. But, as a consequence of bearing less risk, they also have a lower expected return on their investment.

reducing uncertainty, and it is not hard to see that, relative to the risk-bearing capacity of insurance companies, the ability of most individuals to self-insure against large risks is severely limited. The private assets of individuals are not protected by the "limited liability" clause which shelters the other assets of corporate stockholders. Thus, decisions by individuals to pay premiums to insure their hard assets and human capital are economically "rational" choices based primarily on insurance companies' advantages in averaging<sup>1</sup>--and thus "diversifying away"--such risks.

Private or closely-held corporations are likely to purchase insurance for the same reason--namely, their limited ability to bear certain risks relative to the risk-bearing capacity of insurance companies. The owners (who are also, of course, risk averse) of such companies often have a large proportion of their wealth invested in the firm; and, whether out of a desire to maintain control or some other motive, they do not fully diversify their own holdings. So for many closely-held and private companies, logic and experience tell us that the companies' owners will specialize in risk-bearing only in those dimensions in which they have particular expertise and, hence, their own kind of comparative advantage.

The case of large, widely-held corporations, however, presents some important differences which the standard insurance literature has failed to acknowledge. The conventional wisdom says, in effect, that because the owners of corporations (their stockholders and bondholders) are risk

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<sup>1</sup>The essence of averaging is that by holding a portfolio of a large number of approximately equal-sized, but unrelated risks, the size of the loss on the portfolio of risks is virtually guaranteed. Thus there is no uncertainty with regard to the loss on the portfolio. Risks that can be eliminated by averaging are referred to as insurable risks.

averse, a prudent financial manager should attempt to minimize his corporate owners' exposure to risk. This prescription does not necessarily mean that all risks should be insured. For example, the standard theory rightly holds that a large national car rental agency, like Hertz, should not purchase collision insurance on its automobiles. With its large fleet of cars, Hertz can eliminate its collision risk, just as an insurance company does, by pooling its risks and averaging its losses. The purchase of collision insurance by Hertz would thus not only be needless duplication, but the payment of the "loading fees" built into the premium would represent an outright loss to the company.<sup>1</sup>

But, in the case of a large corporation with a smaller fleet of more expensive vehicles, the conventional rationale for corporate insurance--which, again, holds that the underlying source of the corporate demand for insurance is risk-aversion--would argue *for* insuring those corporate assets. Because such a company does not have the ability to eliminate its collision risks by averaging, the owners are exposed to risk; such risks, so the reasoning goes, are better borne by insurance companies; and thus the corporation should purchase collision insurance.

The conventional explanation, however, is inadequate because it fails to recognize that the company's stockholders and bondholders have both the incentive and ability to diversify their own portfolios of corporate securities; and in so doing, they can and do eliminate precisely the kinds of risks that are insurable through an insurance company.

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<sup>1</sup>In insurance jargon, the insurance premium would be actuarially unfair.

Stockholders and bondholders, on average, hold a lot of different securities because they are aware of the benefits of diversification. As the owners of corporate assets, they bear risks in many dimensions: some are insurable risks and some are not. By combining many securities in a portfolio, investors can effectively eliminate most insurable corporate risks by "averaging across" many securities--just as Hertz averages its automobile collision risk. The theory of finance tells us that because stockholders and bondholders can cheaply eliminate insurable risks by diversifying their own holdings, the corporate purchase of insurance for the sole purpose of reducing investors' exposure to risk is redundant; moreover, it imposes needless costs on the company's stockholders.

One of the cardinal principles of modern finance is that, on average and over long periods of time, investors both expect and receive rewards commensurate with the risks they bear. As the bulk of the academic evidence also shows, however, average returns on investment correlate most strongly with what is known as "systematic" or "nondiversifiable" risk. The measure of this risk, known as "beta", is a measure of the sensitivity of individual stock prices to market-wide and general economic developments. Such risk cannot be reduced or eliminated by investors' diversification of their holdings. Nor, of course, is a company's "systematic" risk likely to be reduced by purchasing insurance--since insurable risks, to the extent they have no discernible correlation with broad economic cycles, are completely "diversifiable" for investors.

The capital markets, as logic would suggest, do not reward companies for eliminating "diversifiable" risks: Why should investors pay a premium for managements' reducing exposures to risk which rational investors have



already eliminated through their own diversification? By reducing or eliminating diversifiable (and thus most insurable) risks, a company does not reduce the market's perception of its required rate of return or "cost of capital". Thus, the prices of its stocks and bonds are not likely to be affected by the presence or absence of insurable risks. Consequently, just as in the Hertz case, the purchase of insurance by a corporation for the sole purpose of reducing insurable risks for the stockholders and bondholders would be redundant. It would also be a waste of stockholder funds because the premium charged for the insurance will not be actuarially fair.

For the widely-held corporation, where the owners have the incentive and the means to provide their own kind of self-insurance through diversification, the logic of modern finance says that corporations should not purchase insurance--not, at least, for the conventional reasons.

A Rationale for Corporate Insurance. At the same time, however, we believe there are important incentives that do provide for a *rational* corporate demand for insurance, incentives which have nothing to do with investors' aversion to risk. In the remainder of this article, we will argue that this demand derives from the ability of insurance contracts to provide corporations with: (1) low cost claims administration services; (2) assistance in assessing safety and maintenance projects; (3) an improvement to their incentives to undertake investments in such projects; (4) a means of transferring risk away from those of the firm's claimholders who are at a disadvantage in riskbearing; and (5) a reduction of the company's expected tax liability. We also briefly analyze the special case of regulated companies which have some additional incentives for buying insurance.

Efficiency in Claims Settlement. Examining more closely the services provided under insurance contracts can provide a partial answer to the question of why corporations purchase insurance. Most obviously, insurance companies develop a comparative advantage in processing claims, an advantage which derives from specialization and from economies of scale. Accordingly, we would expect the corporate demand for insurance to be explained, at least in part, by insurance companies' relative expertise and efficiency in providing low-cost claims administration services.

The most striking confirmation of our argument is the existence of special "claims only" insurance contracts. Under the terms of a "claims only" contract, the insurance company provides only claims management services, while the firm pays all the claims. There is no transfer of risk between the insured and the insuring company. We would expect such policies to be used by corporations experiencing a large number of claims. In such cases, a "claims only" policy not only allows the insured company to pool and average its own risks; it also reduces the average cost of settling claims by using its network of claims administrators more intensively.<sup>1</sup>

One of the problems that could arise from such an arrangement is that the insurance company would lose its incentive to negotiate the best possible settlement, because it no longer has to pay the indemnity. But when the claims are numerous, the insured corporation should be in a good

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<sup>1</sup>Claims only policies are, of course, at the end of a spectrum of policies. More frequently employed are policies which provide retrospective rating. This type of policy adjusts the premium to reflect actual claims experience over the life of the policy. Thus, in a year with high claims, the company is required to make additional payments to the insurer, while in a year with few claims, the company receives a rebate. Typically, the policy specifies a maximum on the additional payments and rebates.

position to review and evaluate the settlement record. This in turn should enable them to monitor the insurer's effectiveness in holding down the costs of claims. By contrast, in those cases where claims are relatively infrequent, it would be more difficult for the insured company to monitor the efficiency of the claims settlement procedure. In such cases, we expect to see standard policies where the insurer provides both claims administration and the indemnity.

Liability insurance provides another example of claims settlement services provided by the insurance companies. A liability insurance policy not only will indemnify the policyholder if a valid liability claim is presented, it will also provide legal representation when the insured is faced with a suit. If the suit is for less than the policy limit--as is the case in most suits--the policyholder has little incentive to engage quality legal services. We suspect that it is largely because of these incentives, as well as insurance companies' greater familiarity with claims negotiations and settlements, that providing legal representation has become a standard part of liability insurance contracts.

In the unusual case where the suit greatly exceeds the limit on coverage, the roles--and thus the incentives--are reversed. Since the insurance company's liability is limited under the policy, it has less incentive to negotiate an efficient settlement. Consider, for example, the following case reported in the Wall Street Journal:<sup>1</sup>

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<sup>1</sup>Tim Metz, "Why Insurers and Insured Like the Idea of Covering Disasters After They Happen," Wall Street Journal, May 12, 1981.

When the fire hit the MGM Grand Hotel in Las Vegas last November 21, killing 85 persons, the hotel's owner had \$30 million in liability insurance. Since then the hotel company has increased its liability coverage to nearly \$200 million. Significantly, the new insurance is backdated to November 1, or 20 days *before* the catastrophic blaze. . . .

We believe that the incentives described above help to explain the purchase of retroactive liability coverage by MGM Grand. By retroactively increasing the coverage limit, MGM effectively restores the normal structure of incentives, so that the insurance company's lawyers have a stronger interest in negotiating an efficient settlement.

Efficiencies in Project Evaluation. Insurance firms also develop a comparative advantage in evaluating safety projects. To offer a simple illustration, insurance companies that sell boiler insurance also--as would be expected--provide inspection services. These inspections require a highly specialized engineer to inspect the boiler and its component parts. Although the company could obtain these services through an independent consultant, we believe insurance firms are generally better suited for the task. And, by agreeing to indemnify the firm for any losses, the insurance company, in effect, guarantees the quality of the inspection. This combining of insurance and inspection services provides a strong incentive for the inspector to do a careful job.

In order to minimize property and casualty losses, insurance companies also generally prescribe safety projects. Such projects, of course, impose additional costs on the insured company. But, a competitive market for insurance should restrain insurers from over-prescribing safety projects. At the same time, of course, those insurance companies which systematically under-prescribe such projects will not long be able to withstand the effects

of continuing higher indemnity payments. In short, a competitive market provides insurance companies with the incentive to prescribe what should be the optimal level (based on expectations, of course, and not hindsight) of safety and maintenance investment for the insured and insurer alike.

Besides maintaining a comparative advantage in prescribing the proper level of loss prevention measures, insurance contracts also simplify the insured company's project choice decisions by quoting a schedule of premiums associated with various levels of loss prevention. With insurance, the insured company simply asks if the cost of a safety project is less than the present value of the reduction in insurance premiums. If so, it should be undertaken.

Improvement in Investment Incentives. Corporations often enter into contracts requiring the maintenance of insurance coverage. Bond covenants, for example, frequently require companies to purchase insurance. The conventional explanation of such requirements is either that bondholders will not invest without such a provision.

We have a different explanation, however: namely, that in buying an insurance policy, the company provides a different kind of assurance for lenders--one which effectively guarantees or "bonds" a set of investment decisions by the corporation which gives the bondholders more protection. Such an assurance in turn lowers the borrowing costs to the company, while also providing the best possible incentives for the company's investment in maintenance and safety projects.

Before elaborating this point, let's take a closer look at the relationship between bondholder and stockholder interests. In the case of profitable companies, with abundant cash flows, the interests of these

two classes of the company's owners would appear to be fairly consonant. What's good for the one is, for the most part, good for the other.

In the case of financially distressed companies--or even those with relatively higher probabilities of someday facing financial distress--the interests of bondholders and stockholders can diverge sharply. In such cases, financial managers intent on maximizing stockholder wealth can have incentives to take actions which reduce the value of the bonds while increasing the value of the stock. Actions that increase the variability of the firm's cash flows, e.g., undertaking riskier investments or taking on increased financial leverage, will tend to have this effect. By so increasing the variability of the company's future cash flows, management will have, of course, increased the probabilities of both large gains and large losses. The effect of the increase in the probability of large gains benefits only the stockholders (since the bondholder's is a fixed-income claim) and the effect of the increase in the probability of large losses falls mainly on the bondholders (since stockholders are protected by limited liability).

Consider the case of a company with a large amount of debt outstanding. Assume further that the covenants on its existing debt have not required the purchase of insurance. How do these two conditions together influence the company's decision to invest in safety projects such as, say, a sprinkler system? Our theory says that a company carrying a large enough burden of debt would actually have a rational incentive to pass up good investments--like safety projects--which reduce the expected variability of cash flows. The company's failure to undertake such investments will decrease the value of its bonds by increasing the *expected* variability of

cash flows. Our theory further tells us that, in reasonably sophisticated markets, potential bondholders will anticipate such actions by management; and without the stipulation of insurance by the covenants, they will place a lower value on the bonds when they are originally sold.<sup>1</sup>

By purchasing insurance, the company hedges any losses the bondholders would suffer if it did not purchase the sprinkler system, thus eliminating the bondholders' problem. But also, and perhaps more important, the stockholders' incentives are changed by the insurance contract. Having committed itself to carry insurance, the company now will choose to undertake any investment in safety and maintenance projects that is justified by the reduction in its insurance premiums. And lenders, provided with this assurance, will require a lower rate of interest from the company. By allowing mandatory insurance to be included in the indentures, companies are securing a reduction in their borrowing costs that is greater than the cost of the insurance "loading fees". For this reason, then, it may be in the best interest of the company and its stockholders to include some kinds of insurance coverage in its debt covenants.

Because the potential conflict of interest between bondholders and stockholders is greater the riskier the bonds, the use of a debt covenant requiring insurance should be more valuable in riskier debt issues. For this reason, we would expect the covenants in private placements to contain more restrictive insurance provisions than those on public issues. Insurance provisions should also be employed more frequently in privately-

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<sup>1</sup>If, at the time the bonds were offered, the company had another means of convincing potential bondholders that it would purchase the sprinkler system (even in the absence of insurance), the proceeds from the bond sale would be higher.

placed than public issues because with only a small number of parties involved, it is cheaper to administer and enforce more detailed insurance requirements.

Insurance covenants are also regularly included in other corporate contracts. For example, subcontracting agreements between corporations generally include provisions requiring the subcontractor to maintain an acceptable level of insurance coverage. In the event that an independent subcontractor were sued for a liability claim, the subcontractor might renege on the contract and declare bankruptcy. The subcontractor's failure to complete the project could impose large costs on the company, as well as increasing its own potential liability. The purchase of insurance by the subcontractor effectively bonds the promise that the subcontractor makes not to default on the performance of his job.

In each of the above examples--claims administration, the improvement of investment incentives, the evaluation of safety projects, and guarantees--the insured company is paying primarily for a set of services which the insurance company offers at a lower cost than can be obtained elsewhere. The pure insurance aspect of the contract, the transference of risk, is secondary if not completely irrelevant.

Riskshifting within the Corporation. For large corporations with diffuse ownership, risk aversion of the stockholders--as we argued earlier-- does not provide a rational justification for the corporate purchase of insurance. Stockholders are equally capable of diversifying the kinds of risks that insurance companies are able to minimize by pooling. In the case of the closely-held company, as we also suggested, the owner's risk aversion and limited ability to achieve full diversification can provide an incentive for insurance purchases.



Up to this point, we have viewed the corporation only from the perspective of its investors and owners, the bondholders and stockholders. In reality, of course, the corporation is a vast network of contracts among various parties which have conflicting as well as common interests in the company. In addition to bondholders and stockholders, managers, employees, suppliers, and even customers all have a vested claim, a form of investment (whether of physical or human capital) in the company's continuation as a viable economic entity. Management and labor are likely to have a substantial investment of human capital in the company. The profitability of suppliers depends on the fortunes of the companies buying its products. And even the buying decisions of customers, both actual and potential, can be influenced by their perceptions of the company's prospects.

Like the owners of private or closely-held companies, the corporation's managers, employees, suppliers, and customers may not be able to diversify away insurable risks; and such risks, if not insured against, can affect the future payoffs under their respective contracts. Our theory says that these risk averse individuals will require extra compensation to bear any risk not assumed by the owners or transferred to an insurance company. Employees, for example, will demand higher wages from a company where the probability of layoff is greater. Managers, by the same token, will demand higher salaries (or perhaps even an equity stake in the company) where the risks of failure, insolvency, and even financial embarrassment are great. Suppliers will be more reluctant to enter into long-term contracts with companies whose prospects are uncertain, thus making the terms more unfavorable. And customers themselves, concerned about the company's ability

to fulfill warranty obligations or service their products in the future, may be reluctant to buy those products.

Because of the limited liability clause, the amount of risk that can be allocated to the stockholders is limited by the capital stock of the company. Companies in service industries, for example, are often thinly capitalized. And for such companies, where the claims--and thus the risks--of managers and employees are likely to be very large relative to the claims of investors, there may be substantial benefits from shifting those risks to an insurance company. To the extent that the purchase of insurance reduces the possibility of layoffs, plant closings, or even bankruptcy, such corporations could--by transferring such risks to an insurance company--be providing themselves with significant reductions in required wages and salaries. To provide a simple illustration, the purchase of business interruption insurance covering the company's ordinary payroll would reduce the risk borne by employees that, say, a fire will cause a plant to shut down. The justification for the purchase of insurance, in this case, is that the cost of the insurance is more than covered by the reduction in employees' extra compensation required for otherwise bearing such risks themselves.

The Tax Advantage. One of the alleged benefits of corporate insurance is that insurance premiums are tax-deductible expenses, while reserves set aside for losses by self-insuring companies are not. And though casualty losses sustained by companies which self-insure *are* tax-deductible, the conventional argument for a tax advantage from buying insurance rests on the premise that the guaranteed annual tax shield provided by premium payments is more valuable than the random tax shield provided by unforeseen

future losses. This premise, in turn, seems to be based on the notion that the company can somehow exploit the time value of money by getting its tax deductions "up front" instead of in the uncertain future.

In some cases, such a strategy will result in a tax advantage; that is, the losses will take place far enough in the future that the tax savings to the insuring company--compounded at the interest rate reflecting the opportunity cost of those savings--will turn out to be significantly greater than the time-adjusted value of the tax shield created by uninsured losses. It is important to recognize, however, that decisions are made in the present, and on the basis of expected future probabilities. And on this basis, there is no obvious reason to prefer the tax effects of insurance to those of self-insurance. Remember that an insurance premium incorporates an insurance company's estimate of the expected level of future losses. And thus, ignoring the effect of "loading fees" (and assuming that a company's marginal tax rate would not be reduced by a large casualty loss), the *expected* tax shields from buying insurance and self-insurance are identical.

As an example of the confusion which surrounds this tax issue, let's return to the case of MGM Grand's purchase of retroactive liability coverage. According to the Wall Street Journal article, cited earlier:

. . . MGM Grand, meanwhile, gets a tax break by insuring, rather than assembling a big cash reserve against losses. Premiums are tax deductible as a business expense right now while casualty reserve losses can't be written off until claims are paid. In MGM Grand's case, that could be years from now. . . .

It is true that by buying the retroactive insurance, MGM did get a large tax deduction; and that the tax deduction is more valuable the earlier it is used. But what this argument fails to recognize is that if MGM had

chosen to self-insure, it could have earned a normal rate of return on its capital prior to the date of any settlement. There will be no reason to prefer getting the tax savings "up front" to retaining and investing the so called "reserves".<sup>1</sup>

There are provisions in the tax code which, by reducing the expected tax shield from self-insurance, could favor the purchase of insurance. There is a three year carry-back and a seven year carry-forward provision. If an uninsured loss exceeds the sum of the most recent four years' earnings, the additional loss must be carried forward; and if the loss exceeds the earnings over the eleven-year period, the excess casualty loss is lost. Furthermore, when a company employs the carry-back provisions, the current year's tax must be totally offset before any of the previous year's taxes can be used.<sup>2</sup> Finally, if the uninsured loss forces the company into bankruptcy and liquidation, any loss carry-forward will be lost.

Thus if MGM did not expect claims losses in any single year to be large enough to push the company into a lower marginal tax bracket (thus reducing the value of the random tax shield from deducting claims losses), then the *expected* values of the tax shields from insurance and self-insurance should be equal. If, however, the company did expect very large losses to fall within a given year, then there would have been a tax advantage from buying the insurance.

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<sup>1</sup>Not only are self-insurance reserves not deductible as a business expense; FASBS prohibits adjusting reported earnings for self-insurance reserves (the maximum required disclosure is a footnote to the accounting statement). Moreover, neither Generally Accepted Accounting Procedures nor the IRS requires that any "reserves" for uninsured losses be funded.

<sup>2</sup>This is offset by the fact that the IRS pays interest on the tax refund.

To the extent, then, that the magnitude of potential losses is large relative to the company's expected annual taxable earnings, the expected value of the tax shield from insurance can be greater than the random tax shield provided by uninsured losses. This conclusion would suggest that the tax advantage of buying insurance is likely to be most significant for smaller companies with less diversified operations. For large companies with geographically dispersed operations, the tax benefits of insurance should not be important. (We would not expect Hertz to purchase collision insurance for tax purposes either.) Finally, because uninsured losses do provide a (random) tax shield, companies which have other tax shields (e.g., investments tax credits, high interest expense) would be expected to buy more insurance because of the reduced value of the expected tax deductions from self-insurance.

Regulated Companies: A Special Case. The prices of the products or services of regulated companies are established by regulatory commissions with the intention of allowing those companies to earn a "fair" rate of return for their stockholders. At the risk of oversimplifying the rate regulation process, regulators set prices which are expected to generate revenues covering the sum of expected costs, taxes, depreciation, plus a normal rate of return on the rate base. Insurance premiums are allowed as part of expected costs. If a regulated company does not insure against a particular hazard, in order for it to earn a "fair" rate of return for its stockholders, the rate commission (or the company itself) must include an expected loss estimate in computing expected costs; and this expected cost figure used in establishing allowed revenues and prices must accurately reflect the probability and magnitude of potential

uninsured losses. As the rate-setting is currently administered, however, such expected costs from uninsured losses are not allowed.

Also, because uninsured casualty or liability losses are insurable risks, the regulators--like the stock market itself--would not compensate an uninsured, regulated company for bearing such risks by allowing them a higher return on its equity base.<sup>1</sup>

This regulatory process provides incentives for regulated companies to buy insurance. First, because regulated companies are allowed revenues to cover the cost of expected losses *only* if they insure, they have a strong incentive to insure against all insurable risks. Second, the "loading fees" (the insurance company's expected profit after paying indemnities and providing associated services) reflected in the premiums are costs which are shifted by the regulatory process from the firm's owners to its customers. In an unregulated, competitive industry, where output prices and revenues are determined in the market--regardless of whether an individual company insures--insurance loading fees cannot be passed on to the consumer.<sup>2</sup> Third, because of its specialization, an insurance company is expected to have a comparative advantage in assessing the amount of expected losses. Regulators, in effect, "subcontract" this assessment by having the insurance company reflect its assessment of expected losses in the insurance premium. For all of the above reasons, we would expect a regulated company to buy significantly more insurance than a comparable, but unregulated company.

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<sup>1</sup>Recall from earlier the capital market compensates only for uninsurable ("nondiversifiable") risks, not insurable ("diversifiable") risks.

<sup>2</sup>One exception to this rule is where insurance makes warranties or product guarantees more valuable. Recall our discussion of riskshifting, above.

Compulsory Insurance Laws. Some forms of corporate insurance coverage are required by law. Workmen's compensation laws have been enacted in every state in the U.S. These laws essentially impose on employers the responsibility of providing no-fault insurance to their workers for job-related accidents. Although self-insurance is allowed in all but five states, to qualify for self-insurance under the law, the firm must demonstrate that it has sufficient size and diversification of risks. Some states (Massachusetts, New York and North Carolina) have adopted compulsory liability insurance statutes which require some companies to purchase insurance policies. Such regulation also has the effect of increasing the likelihood that other companies will buy insurance to protect themselves against the specific hazards addressed in those regulations.

Conclusion. Our purpose in this article has been to identify and analyze a set of incentives which justify the purchase of insurance by corporations. In so doing, we have provided a theory which attempts to explain, first, why large, widely-held companies should *not* insure against some risks; and second, why they *should* insure against others.

We believe the majority of corporations are probably making the right insurance decisions; but perhaps, in many cases, for the wrong reasons. By asking the right questions, by focusing on the important issues, corporate managers can make fewer and less expensive mistakes.

The value of any theory lies, of course, in the strength of its correspondence with events we can observe in the "real world"; that is, in its ability to explain why things are being done as they are, and to predict how they will be done in the future. We think that our theory,

besides being more consistent internally, does a better job of explaining recent developments in the insurance industry than the rationale for corporate insurance that has prevailed in the insurance literature.

Industry observers have noted a pronounced tendency toward corporate self-insurance. This trend has taken several forms: the increasing use of "claims only" policies, the creation of captive insurance companies, and the use of higher deductibles. In each of these developments, corporations are not using insurance to transfer risk from their investors to the insurer--as the conventional explanation holds--but for other reasons: for special insurance services like claims administration; for tax benefits (as in the formation of offshore insurance captives); and to provide assurances (in the case of "stop loss" contracts with higher deductibles) not so much to investors as to employees, managers, and suppliers--that very large property and casualty losses will not threaten the solvency of the company, or the continuity of its operations.

Part of this corporate trend toward self-insurance can be attributed to companies' increasing awareness of their ability to pool their own risks and average expected losses. And this, as we said earlier, is consistent with the conventional explanation of the corporate demand for insurance. We suspect, however, that another part of this movement reflects decisions, using an increasingly sophisticated framework for risk management, to allow companies' investors to bear insurable corporate risks themselves. In making such decisions on the correct basis (that is, except in special cases, from the point of view of well-diversified stockholders and bondholders), risk managers will be conserving corporate cash which can be put to better uses.



How can we summarize the implications of our theory for corporate risk management? All risks should not be insured, even though the owners of the company, the stockholders and bondholders, are individually risk averse. The fact that investors have access to capital markets and the ability and incentive to diversify their portfolio holdings can make the corporate purchase of insurance a waste of stockholder funds. Insurance companies, as we have seen, may have an advantage in providing certain kinds of claims services. There also may be tax benefits, though these may have been exaggerated because of a failure to focus on companies' *expected* tax liabilities.

In deciding whether to purchase insurance, it may also be important to focus on the set of contracts through which stockholders, bondholders, customers, suppliers, managers, employees and insurers interact. Some insurance contracts may help remedy a possible conflict of interest--especially in the case of companies with higher-risk investments and highly-levered capital structures--between bondholders and stockholders. Others may be valuable to the company by transferring risks away from managers, employees, and suppliers--groups which are at a relative disadvantage in bearing some insurable corporate risks. These solutions cannot, of course, be used indiscriminately, but must be applied carefully to specific corporate situations.