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A Theory of Loss Allocation for Consumer Payments

Robert D. Cooter* and Edward L. Rubin**

Current legislation allocating losses in the payment system embodies several different approaches. The payment system needs general rules to guide legislation and an analytic framework to develop those rules. Professors Cooter and Rubin use economic analysis to identify three general principles of economic efficiency: loss spreading, loss reduction, and loss imposition. Applying these principles, they develop general rules for allocating payment losses between consumers and financial institutions. The authors apply these rules to fraud, forgery, and error losses that can occur when a consumer uses a payment instrument. They conclude that when an invalid instrument is paid, the consumer should be strictly liable for the loss up to a relatively low, fixed limit, with the financial institution liable for the remainder ("capped liability"); and when a valid instrument is not paid, the financial institution should be liable for a proportion of the face value of the loss, up to a fixed limit, with the consumer liable for the residual losses ("face value liability").

I. Introduction

The allocation of losses resulting from fraud, forgery, and error has traditionally been one of the basic legal issues concerning the payment system.¹ A significant portion of Uniform Commercial Code (UCC) Articles 3 and 4, which govern checks, is devoted to this issue.² Additional-
ally, the federal legislation that addresses electronic fund transfers and the payment function of credit cards focuses on loss allocation. Despite all this legal attention, we have no theory of loss allocation in the payment system. Commercial law literature contains no general rules on loss allocation from which specific statutory provisions can be derived and no accepted analytic framework that can generate those rules.

Existing legislation embodies several disparate approaches to the loss allocation issue. The UCC relies heavily on notions of negligence and presumptive negligence, whereas the Credit Card Amendments focus on consumer protection by limiting consumer liability. The Electronic Fund Transfer Act (EFTA) also displays a consumer protection orientation, although it incorporates a significant number of negligence


6. See, e.g., U.C.C. §§ 3-404 ccmment 4, -406 (1978) (negligence contributing to alteration or unauthorized signature); id. § 4-402 comment 2 (negligence liability for wrongful dishonor by drawee); id. § 4-406 (exercise of reasonable care to discover unauthorized signature or alteration).

7. The Credit Card Amendments are defined for the purposes of this Article at supra note 4.


considerations. These enactments reflect a range of political choices and compromises whose reality is undeniable, but they lack even the most rudimentary core of articulated principles.

The loss allocation issue is of immediate relevance because Articles 3 and 4 of the UCC are currently under revision. To be sure, the revision process has been proceeding in various forms for almost a decade, but a draft is now under active consideration by the UCC's sponsoring organizations. In addition, rapidly increasing fraud losses in the credit card system and a dramatically increased level of concern about the risk of loss in wholesale wire transfers have refocused attention on existing federal legislation. These immediate concerns have been underscored by the extensive structural changes that the payment system has undergone in recent years. Conceivably, the federal statutes, or at least the federal regulations implementing them, also will be seriously re-evaluated in the coming years.

10. See infra text accompanying notes 132-35.

11. Articles 3 and 4 have been under reconsideration by the ALI and the NCCUSL for some time. The process began in 1977 when the UCC Permanent Editorial Board (PEB) requested that the 3-4-8 Committee (charged generally with ongoing analysis of Articles 3, 4, and 8) determine whether the advent of electronic fund transfer systems had created a need for revisions to the UCC. After deciding that Articles 3 and 4 need to be updated and replaced, the 3-4-8 Committee proceeded to draft the Uniform New Payments Code, an attempt to develop a single set of rules for all payment instruments. By the fall of 1983, support for the project had waned. The Code was considered too complex, and many consumer protection provisions were hotly contested by the banking industry. See H. Scott, NEW PAYMENT SYSTEMS: A REPORT TO THE 3-4-8 COMMITTEE OF THE PERMANENT EDITORIAL BOARD FOR THE UNIFORM COMMERCIAL CODE 248-54 (1978). See generally Brandel & Geary, Electronic Fund Transfers and the New Payments Code, 37 BUS. LAW. 1065, 1072-78 (1982) (discussing efforts to create the New Payments Code and the proposed Code's relationship to the UCC). The 3-4-8 Committee has since rechanneled its reformation efforts into the current proposal to revise Articles 3 and 4 and to add a new Article on wholesale wire transfers. See National Conference of Comm'rs on Uniform State Laws, Amendments to Uniform Commercial Code Articles 3, 4, 4A, Current Payment Methods and Wire Transfers 1, 45-46 (n.d.) (discussion draft prepared for July 31-Aug. 7, 1987 meeting) (copy on file with the Texas Law Review) [hereinafter Articles 3 & 4 Revision]; Brandel, Payment Systems Law Moves in New Directions, BUS. LAW. UPDATE, Sept.-Oct. 1985, at 5; Mooney, Introduction to the Uniform Commercial Code Annual Survey: Some Observations on the Past, Present, and Future of the U.C.C., 41 BUS. LAW. 1343, 1354 & n.71 (1986).


14. See infra text accompanying note 59.

This Article develops an analytic framework for loss allocation in the payment system and uses that framework to identify rules for guiding legislation. The framework we employ is a modified economic analysis. No demonstration conclusively proves that this analysis represents the most desirable strategy, nor do we claim it provides a comprehensive approach to all legal issues. However, because loss allocation in the payment system is a technical and largely monetary subject, economic analysis intuitively seems to be an appropriate and promising place to start. At the very least, before attempting to draft legislation in this area, one should be aware of the insights into the loss allocation issue that economic analysis provides. The usual objection to economic analysis is that it ignores concerns of social equity. This Article will show, however, that applying economic analysis to loss allocation in the payment system leads to a set of recommended rules that are fairly close to legislation championed by consumer interests. Such a result certainly does not prove that economic analysis represents either an absolute or a consensus truth, but it abates one of the primary concerns about adopting it as an analytic framework.

Because of the topic's scope, this Article is restricted to loss allocations between consumers and financial institutions. Thus, it parallels the coverage of the Credit Card Amendments and the EFTA, but is more limited than the UCC, which also covers loss allocations among financial institutions. Furthermore, the Article deals only with losses due to fraud, forgery, and error; it does not cover credit risk, which is the


18. A consumer is most simply defined as a natural person. See 15 U.S.C. § 1693a(5) (1982) (EFTA definition of consumer). The Truth in Lending Act's definition is that a consumer transaction is one carried out "primarily for personal, family or household purposes." Id. § 1602(h). We could select either of these definitions; the question is which is preferable. For our purposes, the preferable definition is the one that better defines the area of market failure, because we assert that market failure in consumer contracts justifies legal intervention. Do natural persons who are acting in a business context (a doctor, a writer) behave more like other natural persons or more like small corporations? We do not know the answer to this question.

19. A financial institution is any entity that directly or indirectly provides payment services or holds an account from which payments can be made. Cf. 15 U.S.C. § 1693a(8) (1982) (defining "financial institution" to mean a state or national bank, a state or federal savings and loan association, a mutual savings bank, a state or federal credit union, or any other person who directly or indirectly holds an account belonging to a consumer).


22. See infra note 163.
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risk that the person issuing the payment instrument will be insolvent. These limitations can be justified by economic analysis, but the more basic reason for them is that they keep the topic within manageable proportions.

Part II of this Article presents the economic framework for analyzing loss allocation issues. It identifies three basic principles, referred to as loss spreading, loss reduction, and loss imposition. Part III derives a set of general rules from this framework and applies them to the two basic types of fraud, forgery, and error losses: false positives—the payment of invalid instruments; and false negatives—the failure to pay valid ones. Part IV then illustrates the operation of these rules with respect to some of the familiar issues in payment law, organized according to the progress of a payment instrument from its origin, through transmission and processing, to postprocessing and the possibility of countermand.

II. An Economic Framework for Loss Allocation

In economic terms, a payment instrument can be defined as a means of transferring purchasing power from one party to another. Purchasing power is typically denominated in terms of one good, called the "numeraire good" by economists and "money" by ordinary people. This good is the one whose exchange rate with other goods constitutes prices as they are usually quoted. It could be gold or cowrie shells, but for us it is the dollar.

Every payment instrument imposes a variety of costs on the parties that use it. These costs include the financial institution's costs in operating the system, which the institution will generally transfer to its customers as a direct or indirect charge; the customer's costs of using the instrument, such as the time and expense spent getting to a financial institution; and the costs imposed by fraud, forgery, and error losses, the topic of the present discussion. All these costs belong to the economic category of "transaction costs" because they are attached to an underlying transaction. This underlying transaction—typically an exchange of goods or services for value—is beneficial to both parties, but the transac-

23. See infra text accompanying notes 31-38.
26. The origin of the term "transaction costs" is uncertain, but it became the focus of much economic theory through two papers by Ronald Coase. Coase, The Nature of the Firm, 4 ECONOMICA 386, 394-95 (1937); Coase, The Problem of Social Cost, 3 J.L. & ECON. 1, 15-16 (1960).
tion costs reduce the value of the exchange, and both parties to the exchange will want to minimize them.27 One concept of economic efficiency is achieving a given end at the minimal cost.28 Thus, the statement that the transaction costs in the payment system should be minimized is equivalent to stating that the purpose of the payment system should be the efficient transfer of purchasing power.

In an operating market, private agreements between parties will generally produce economically efficient results without the need for legal intervention. Interventions becomes necessary, however, when the market fails to produce these efficient results on its own.29 Rules that are designed to achieve economic efficiency in payment law, therefore, should enforce agreements between private parties when no market failure has occurred. When market failures exist, legal rules can improve upon private agreements if they are designed with the goal of minimizing costs in mind.

Leaving the effects of market structure aside,30 market failures are commonly caused by disproportionate negotiation costs or by asymmetrical information.31 These phenomena are most likely to occur when consumers contract with financial institutions for payment services. To begin with, the cost of negotiating the loss allocation provisions of a consumer deposit agreement typically exceeds the potential benefit.32 Shop-

27. If two payment instruments are available, choosing the less costly one increases the surplus created by the exchange, a surplus that the parties can divide between themselves. For example, suppose seller owns a car that he values at $2000, and buyer would pay up to $3500 for it. A costless exchange would create a surplus of $1500, which the buyer and seller could divide in some manner. Payment by check, excluding interest considerations, will cost the buyer 35 cents and the seller nothing, leaving a surplus of $1,499.65. Payment by cashier's check, again excluding interest considerations, will cost the buyer $5 in bank charges and a certain amount of inconvenience, here worth $25, leaving a surplus of $1470. Of course, the seller may prefer the cashier's check if the buyer poses a credit risk. However, if the buyer does not, the cashier’s check transaction is inefficient because it reduces the available surplus by $29.65 more than the check transaction does.

28. In economics, there are several different concepts of efficiency. For an overview of their application to law, see Coleman, Efficiency, Exchange, and Auction: Philosphic Aspects of the Economic Approach to Law, 68 CALIF. L. REV. 221, 223-249 (1980).


30. The structure of the financial services industry may cause market failures, such as oligopolistic or monopolistic behavior, but these tend to affect pricing rather than loss allocation. See Baxter, Bank Interchange of Transactional Paper: Legal and Economic Perspectives, 26 J.L. & ECON. 541, 554-55, 586-88 (1983); Bernard, New Directions in Bankcard Competition, 30 CATH. U.L. REV. 65, 74, 81-82, 84-88 (1980); Bernard, Some Antitrust Issues Raised by Large Electronic Funds Transfer Systems, 25 CATH. U.L. REV. 749, 763, 765 (1976).

31. Asymmetric information as a rationale for regulating banks is discussed in T. CAMPBELL, FINANCIAL INSTITUTIONS, MARKETS, AND ECONOMIC ACTIVITY 369-70 (1982). Negotiation costs and markets are discussed often in the economics literature on industrial organization. An example is the classic, Coase, supra note 26.

32. Most consumers are ignorant of the probability of payment losses and the rules for their allocation. This ignorance is rational in the sense that the cost of obtaining the information exceeds its expected value for consumers. A consumer cannot expect much benefit from negotiating over the loss allocation terms in a deposit agreement.
ping for alternative sets of fixed term contracts—a more realistic scenario than bargaining for specific terms—eliminates these negotiation costs, but replaces them with search costs. Moreover, asymmetric information limits the effectiveness of consumer shopping. Consumers are unlikely to think about the liability terms of a contract when opening an account, and those that do, find their curiosity rewarded with the incomprehensible legalisms of form contracts and statute books. Even if they knew what the terms meant, consumers generally would not know how to value differences in these terms. Because of these problems of disproportionate negotiation costs and asymmetric information, the allocation of fraud, forgery, and error losses in consumer payment contracts provides a clear case of market failure.

33. Marketing surveys that assess consumer demand do not even include inquiries regarding liability terms because they are thought to be an insignificant consideration when choosing an account. See, e.g., Ericson & Johansson, The Role of Price in Multi-Attribute Product Evaluations, 12 J. CONSUMER RES. 195, 196 (1985) (study on consumer demand for automobiles includes 13 attributes, none of which relate to consumer, manufacturer, or dealer liability); Teas & Deliva, Conjoint Measurement of Consumers' Preferences for Multiatribute Financial Services, 16 J. BANK RES. 99, 103 (1985) (study analyzes consumer preferences for alternative cash management accounts without addressing liability terms).

34. How much should one pay for the financial institution's agreement to assume responsibility for negligent behavior? Apparently, no one has conducted empirical studies on consumers' awareness of the cost, credit risk, and liability aspects of different payment instruments. Studies of market failure in other areas such as consumer credit suggest that consumers' awareness of basic price and quality features is much higher than their awareness of legal liability terms. See, e.g., Brandt & Day, Information Disclosure and Consumer Behavior: An Empirical Evaluation of Truth-in-Lending, 7 U. MICH. J.L. REF. 297, 318 (1974) ("[T]he impact of [credit] disclosure information and the inclination to search for credit were...[minor compared with other shopping activities."); Davis, Protecting Consumers from Overdisclosure and Gobbledygook: An Empirical Look at the Simplification of Consumer Credit Contracts, 63 VA. L. REV. 841, 860, 866 (1977) (noting that limits on consumer awareness of contract terms result from information overload); Day & Brandt, Consumer Research and the Evaluation of Information Disclosure Requirements: The Case of Truth in Lending, 1 J. CONSUMER RES. 21, 28, 31 (1974) ("[C]redit related decisions are often decided by default once the dealer or retailer is chosen."). Research on information overload strongly suggests this same conclusion. See J. Bettman, An INFORMATION PROCESSING THEORY OF CONSUMER CHOICE 205-06 (1979); Jacoby, Speller & Berning, Brand Choice Behavior as a Function of Information Load: Replication and Extension, 1 J. CONSUMER RES. 33, 40 (1974); Payne, Task Complexity and Contingent Processing in Decision Making: An Information Search and Protocol Analysis, 16 ORGANIZATIONAL BEHAV. & HUM. PERFORMANCE 366, 384 (1976). See generally A. NEWELL & H. SIMON, HUMAN PROBLEM SOLVING 787-868 (1972) (discussing the characteristics of the information system that carries out the processes of human problem solving).

35. Market failures may exist in other aspects of the payment system as well. First, small businesses may suffer from the same disproportionate negotiation costs and asymmetric information as consumers. But most small businesses probably are conscious of the varied risks of checks and credit cards. Small businesses can purchase insurance on customers' checks, usually by phone request or by initiating an electronic signal. See generally Peasley v. Telecheck of Kansas, Inc., 6 Kan. App. 2d 990, 994, 637 P.2d 437, 439 (1981) (describing procedures of service that guarantees checks for merchant subscribers). These businesses must decide on an item by item basis whether to purchase insurance or bear the risk themselves. Second, payment contracts among the vast number of financial institutions may be hampered by negotiation costs. In the United States alone, 38,235 depository institutions were in operation in 1981, including 12,693 commercial banks and 4347 savings and loans, as well as credit unions, savings banks, and securities dealers. King, Depository Institutions: Trends Show Major Shifts, ECON. REV., FED. RESERVE BANK ATLANTA, June 1983, at
Consumer payment contracts contain elements other than loss allocation terms, but market failure is most likely to involve these technical, obscure elements of the contract, rather than the comprehensible and salient ones. Because the failure usually originates with consumers’ lack of information,\textsuperscript{36} the market operates more efficiently regarding the basic price of the service and the convenience of using it. These elements are easily grasped, and they are brought to consumers’ attention by everyday experience. The same is true for credit risk; consumers generally understand, perhaps from bitter but not uncommon experience, that a check’s value will depend upon the drawer’s financial responsibility.\textsuperscript{37} Efficient outcomes, however, are less likely in the liability terms of consumer contracts because the legal rules governing liability for losses\textsuperscript{38} are complex and technical, while the losses themselves occur only intermittently and unexpectedly.

The allocation of fraud, forgery, and error losses between consumers and financial institutions, therefore, presents the strongest case for intervention in the market. A system of legal rules governing these allocations can increase the efficiency of the payment system if those rules are properly designed. This Part identifies three major principles of economic efficiency for the design of such rules: loss spreading, loss reduction, and loss imposition.

\textit{A. The Loss Spreading Principle}

A basic characteristic of economic actors is their attitude toward risk.\textsuperscript{39} Most people are risk averse: when facing a possible loss, they will


\textsuperscript{37} Financial institutions do not extend credit to account owners merely because they have opened an account with that institution. Some financial institutions do offer overdraft protection, a revolving credit account, in conjunction with their basic demand deposit services. The application and requirements for acceptance are, however, distinct from those of the basic account, and acceptance is not guaranteed. See Muris, \textit{Credit Markets and Market Forces}, 37 Bus. Law. 1373, 1374-75 (1982).

\textsuperscript{38} See \textit{supra} notes 2-4 and accompanying text.

\textsuperscript{39} For a refined, mathematical characterization of attitudes toward risk, see K. \textit{Arrow}, \textit{Essays in the Theory of Risk Bearing} 90-120 (1974).
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pay more than the loss’s average value to eliminate the risk of it.40 In contrast, a risk neutral person places a value on risk equal to the loss’s average value.

Whenever one person can bear risk at a lower cost than another, there is an opportunity for a mutually beneficial exchange, because risk averse people will pay risk neutral people to assume the risk of loss. For example, if there is a probability of one in one thousand of suffering a forgery loss of $10,000, then a risk averse consumer will pay more than $10 for the financial institution to assume it; in contrast, if the financial institution is risk neutral, it can profitably assume the risk if it is paid any amount greater than $10, plus a charge to cover the administrative costs.

Two conditions affecting a party’s ability to achieve risk neutrality are the relative size of the loss and the party’s ability to spread it. Most decision makers are risk neutral toward losses that are small in proportion to their wealth, and risk averse toward losses that are relatively large.41 In addition, financial institutions, unlike consumers, can achieve complete risk neutrality by spreading the resulting losses across their entire group of customers. To be spread, the losses must be sufficiently small and occur frequently enough to be predictable. For example, a financial institution often cannot know whether specific payment instruments are forged, but because it engages in a large number of transactions, it can accurately predict the number of forgeries that will occur in a given year. Once the institution makes that prediction, it can pass on the cost to its customers as a charge for its service, just as it passes on the cost of paying tellers or encoding checks.

These considerations suggest the first principle of efficient payment law, which is frequently called the loss spreading principle: assign liability for a loss to the party that can achieve risk neutrality at the lowest cost. In general, the party that can achieve risk neutrality at the lowest cost is the one that has greater economic resources and is in a position to spread the loss most effectively.42 This principle, therefore, suggests that

40. The widespread use of insurance is evidence of this fact. Because the premiums necessarily exceed the expected claims for the average insurance policy, people would not buy insurance unless they were risk averse. H. DENENBERG, R. EILERS, G. HOFFMAN, C. KLINE, J. MELORE & H. SNIDER, RISK AND INSURANCE 55-59 (1964) [hereinafter H. DENENBERG]. For a detailed experimental study on risk aversion, see P. SCHOEMAKER, EXPERIMENTS ON DECISIONS UNDER RISK: THE EXPECTED UTILITY HYPOTHESIS 3-10, 66-90 (1980).

41. Thus, most insurance policies are written with a deductible. The policy does not insure for losses that fall below the deductible, but it does insure for larger losses. See H. DENENBERG, supra note 40, at 187-93; Friedman & Savage, The Utility Analysis of Choices Involving Risk, 56 J. Pol. ECON. 279, 279 (1948).

42. Commentators have discussed for years the concept of loss spreading in connection with the payment system. See, e.g., Bogert, Failed Banks, Collection Items, and Trust Preferences, 29 Mich. L. Rev. 545, 561-67 (1931) (discussing the ability of various parties to spread losses resulting from
liability for losses should fall on financial institutions rather than on individual consumers. The forgery or alteration of a single payment item, like a check, can involve a significant proportion of an individual's wealth,\textsuperscript{43} but will typically constitute an insignificant loss for a financial institution.\textsuperscript{44} Moreover, the institution can predict the total volume of its losses and spread them over a large group of consumers, whereas consumers will generally end up bearing the entire loss themselves.

Of course, consumers would not bear the payment losses allocated to them by law if they obtained insurance against such losses. An insurance policy is essentially a contract in which the policyholder pays the issuer to assume a risk, and the issuer then achieves risk neutrality by spreading the losses among the entire group of policyholders. While insurance would solve the loss spreading problem for consumers, the same factors that cause market failure in the original payment contract also exist in the market for payment insurance. Payment losses occur so seldom that most consumers do not appreciate the risk to which they are exposed. Furthermore, the bargaining costs for insuring the average consumer against fraud and forgery are likely to be large enough to render this insurance either unavailable or too expensive to possess broad appeal.\textsuperscript{45} In contrast, financial institutions are well informed about the risk


\textsuperscript{44} The total number of savings institutions in 1985 was 3180, and their total net worth was $46.8 billion. \textit{Id.} at 486 (tables 816 & 817). Thus, the average net worth of such an institution was $14.7 million.

\textsuperscript{45} Transaction costs would probably prevent the sale of insurance against payment losses unless the insurance could be attached to a larger transaction. Some credit card issuers have recently included insurance offerings when mailing bills. One may wonder if the people who buy this insurance know that federal law limits their liability for unauthorized credit card use to $50. 15 U.S.C. \textsection 1643 (1982). We know of no financial institutions offering similar insurance for checking accounts, for which the law does not impose a ceiling upon the consumer's liability for such losses.

When these ceilings are absent, insurance may suffer from an adverse selection problem. In equilibrium, a disproportionate number of the consumers who would seek such insurance may be especially prone to the risk of payment losses. Consequently, the premiums required to cover the claims would be prohibitive, and most consumers would prefer to remain uninsured. \textit{See generally K. Borch, The Mathematical Theory of Insurance} 261-85 (1974) (analyzing the theories of risk for insurance).
of loss, and the amount of insurance that they purchase as a loss spreader justifies bargaining over its terms. Therefore, it is not surprising that these institutions regularly insure against fraud, forgery, and error losses on payment instruments,\textsuperscript{46} whereas consumers almost never do.

\textbf{B. The Loss Reduction Principle}

Independent of their ability to spread payment losses, consumers and financial institutions often have the ability to reduce these losses, and one of them can often do so at less cost than the other. Efficiency requires that the legal rules create incentives for such loss reduction. The standard means for creating legal incentives is the assignment of liability, which suggests the loss reduction principle: an efficient legal system assigns liability to the party that can reduce losses at the lowest cost.

This principle is much more complex than the loss spreading principle. Loss spreading presumes that a loss already has occurred and assigns liability to the party that can more effectively spread it,\textsuperscript{47} but the loss reduction principle assigns liability for the more complex purpose of affecting human behavior. It thus raises empirical questions about the effectiveness of liability rules, adds a dynamic element because behavior changes over time, and produces a variety of moral concerns about the proper standards of behavior. In discussing these issues, this Article distinguishes four distinct elements of the principle's operation: precaution, innovation, responsiveness, and learning.

Consumers and financial institutions often can reduce payment losses by taking the precautions that are presently available to them. Consumers can do so through ordinary prudence and care in making payments, and financial institutions can reduce losses through internal measures similar to quality control in manufacturing. Precautions, however, entail costs in money, time, and effort, which discourage consumers and financial institutions from undertaking them. Legal rules that impose liability on consumers or financial institutions force them to include


\textsuperscript{47} See supra text accompanying note 42.
this potential liability in their calculus of costs, and thus weigh it against the cost of precaution. In economic terms, the liable party internalizes the social value of the precaution. To achieve internalization at the most efficient level, payment rules must assign liability to the party who, on the basis of its position in the process, is able to take precaution against the loss at the lowest cost.

This generalization encounters an immediate difficulty when more than one party can take precaution. If liability falls upon only one party, how can the liability rules motivate other parties to take precaution as well? This phenomenon is an example of the "paradox of compensation," which afflicts no-fault rules in all areas of law. Holding one party strictly liable for a loss erodes the other party's incentive to take precaution and to refrain from any action that would increase the loss. Economic analysis suggests that fault-based liability rules are a solution to this paradox. Any fault rule, including simple negligence, negligence with a contributory negligence defense, and comparative negligence, will motivate one party to satisfy the legal standard of fault in order to avoid liability, while inducing the other party to take precaution because it must bear any residual responsibility for the loss. Theoretically, if the legal standard of fault is set at the efficient level of precaution, then fault rules provide incentives for more than one party to take precaution, and will be preferable to strict liability or no liability rules in situations of bilateral precaution—situations in which more than one party can take precaution or restrain reliance at low cost.

This conclusion, which is valid when means of precaution are presently available at relatively low cost, must be tempered by dynamic considerations. Recent technological innovations, such as automated check processing, have altered the cost of precaution and will continue to do so.


49. The classic law and economics analysis focuses on these precautionary effects. See G. CALABRESI, THE COSTS OF ACCIDENTS 68-77 (1970); R. POSNER, ECONOMIC ANALYSIS OF LAW 147-65 (3d ed. 1986); Posner, A Theory of Negligence, 1 J. LEGAL STUD. 29, 32-36 (1972). For detailed analyses of the incentive effects of various tort liability rules, such as strict liability, negligence, and negligence with a contributory negligence defense, see Brown, Toward an Economic Theory of Liability, 2 J. LEGAL STUD. 323, 327-35, 337-43 (1973); Grady, A New Positive Economic Theory of Negligence, 92 YALE L.J. 799, 801-06 (1983); Shavell, Strict Liability Versus Negligence, 9 J. LEGAL STUD. 1, 1-10 (1980).


51. See id. at 6-7.

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in the future.\textsuperscript{53} The imposition of liability can create an incentive for the development of innovations that reduce both the cost of precaution and the frequency of losses. Thus, the innovation element, which interacts with the precaution element in a dynamic context, suggests payment rules that assign liability to the party most likely to develop innovative methods of precaution over time.

Liability, however, is a useful incentive, whether for precaution or innovation, only to the extent that behavior responds to it; a particular assignment of liability that does not influence behavior has no economic justification. Moreover, if it influences behavior only to a limited extent, then its effectiveness must be discounted by that limitation. In economic terms, the loss reduction principle is a useful guide for assigning liability only if the supply of precaution or innovation is elastic with respect to liability. The parties' responsiveness to liability rules depends on their knowledge of law and their ability to factor this information into a calculus of costs. Complete unresponsiveness is unlikely because some parties will always have legal knowledge and computational ability. The real question is whether the degree of responsiveness is sufficient in its aggregate effect to justify a particular assignment of liability. One cannot answer this question in the abstract because the answer often turns upon statistical evidence that is specific to each field.\textsuperscript{54}

Dynamic considerations modify the responsiveness element of loss reduction just as they modify the precaution element. In this case, the dynamic feature is learning. Over time, people tend to learn about liability laws, and their level of responsiveness will usually increase as they realize the need to conform their behavior to the law's demands and understand the means for doing so.\textsuperscript{55} The effect of learning on responsive-


\textsuperscript{55} A good deal of evidence supports the conclusion that consumers learn from experience. See, e.g., Anderson & Jolson, Technical Wording in Advertising: Implications for Market Segmentation, J. MARKETING, Winter 1980, at 57, 61-63 (defending the use of technical language in ads);
ness corresponds to the economic principle that supply is more elastic in the long run than the short run.\textsuperscript{56}

Does the loss reduction principle, like the loss spreading principle, systematically favor one class of participants in the payment system over another?\textsuperscript{57} The answer will depend upon the relative importance of the principle's four elements—precaution, innovation, responsiveness, and learning. The precaution element is unrelated to the size and nature of the party; its determining factor is the party's position in the payment transaction.\textsuperscript{58} For example, when a bank incorrectly encodes the magnetic numbers on the bottom of a check, which results in an overpayment, the bank is clearly in the best position to prevent the loss, because check encoding does not involve consumers at all. On the other hand, a consumer is in the best position to avoid the loss that results when he gives a check to an impostor, who then cashes it and absconds with the proceeds.

The innovation element, however, modifies the effect of the precaution element. Innovations such as credit cards, wire transfers, automated clearinghouses, and automated teller machines have transformed the entire payment system in recent years,\textsuperscript{59} and point of sale systems and home banking are likely to produce further changes in the coming decades.\textsuperscript{60} Concurrently, researchers are developing a variety of technolog-

\textsuperscript{56} See E. MANSFIELD, MICROECONOMICS 264-65 (4th ed. 1982).

\textsuperscript{57} The loss spreading principle suggests imposing liability on financial institutions because they are in the best position to spread the losses. \textit{See supra} text following note 41.

\textsuperscript{58} \textit{See supra} text accompanying note 49.

\textsuperscript{59} \textit{See} National Comm'n on Elec. Fund Transfers, EFT in the United States I-17 (1977) (discussing EFT systems as an alternative to the traditional cash and check payment systems); J. REVELL, BANKING AND ELECTRONIC FUND TRANSFERS 15-29 (1983) (discussing recent developments in the payment systems of Europe and North America and public response thereto); Horvitz, Payment System Development and Public Policy, in FINANCIAL SERVICES: THE CHANGING INSTITUTIONS AND GOVERNMENT POLICY 64, 74-80 (G. Benston ed. 1983) [hereinafter Financial Services] (arguing that the progress of payment system development has been affected by recent changes in the economy and society); Meckler, Bank Cash Management Services, in PAYMENTS, \textit{supra} note 53, at 27, 29-33 (discussing the role of banks in the age of electronic payment systems).

\textsuperscript{60} See Horvitz, \textit{supra} note 59, at 73-74; Taylor, Debit Cards, in PAYMENTS, \textit{supra} note 53, at 11, 12, 15; Warfel, \textit{supra} note 53, at 109-11; see also Whitehead, Firms Involved in ATM, POS, and Home Banking: A Survey, Econ. Rev., Fed. Reserve Bank Atlanta, July/Aug. 1984, at 13 (analyzing the degree to which nonbanking firms are successfully offering payment services).
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The responsiveness element of loss reduction, like the innovation element, correlates with the size and nature of the party, particularly for losses that arise infrequently\(^6\) and involve esoteric laws.\(^7\) Because individual consumers engage in a very small number of payment system transactions relative to the average financial institution, consumers who behave rationally in economic terms are often ignorant of the details of payment law, whereas ignorance is irrational for financial institutions. Financial institutions, consequently, are more likely than consumers to respond to legal incentives. Indeed, the ignorance of consumers, which creates market failure and justifies legal intervention in the first place,\(^8\) also suggests that consumers will be unresponsive to liability rules designed to remedy that market failure.

If consumers are to respond to legal rules, they must become familiar with them. Because most consumers are capable of learning, these rules may work their way into consumer consciousness over a period of time, and our legal system can teach a sharp lesson to uninformed consumers by assigning liability to them. Thus, consumers are likely to be more responsive to complex rules in the long run than in the short run. Whether this increasing responsiveness will rise to a sufficient level to make complex rules effective in influencing consumer behavior remains an open question.


\(^{62}\) See Kutler, supra note 61, at 33, col. 1 (discussing VISA’s support of the dynamic signature verification method).

\(^{63}\) One such innovation that would alter materially the current situation is the greater diffusion of small computers to homes and businesses.


\(^{65}\) See G. CALABRESI, supra note 49, at 225-26, 255-66; supra notes 33-34.

\(^{66}\) See supra text accompanying notes 30-35.
C. The Loss Imposition Principle

The loss spreading and loss reduction principles indicate the party to which payment rules can most efficiently assign liability. The third principle in establishing an efficient payment law, the loss imposition principle, concerns the enforcement of this assigned liability. The enforcement process turns the law from a set of legal rules into a series of actual monetary transfers. Liability may be enforced through civil suits, criminal trials, or administrative proceedings, as well as through the many informal devices for settling disputes. One feature that all these mechanisms share is that they are costly; they represent a deadweight loss to the participants in the payment system. To achieve efficiency, therefore, the enforcement process should be as inexpensive as possible.

The most inexpensive approach to loss imposition would be to allow the losses to fall where they may. When a dispute arises over a payment, the initial loss generally falls upon the creditor—the party that advanced money to another. Allowing liability to rest on the party that bears the initial loss completely avoids the costs of enforcement. But this approach may result in inefficient loss spreading and loss reduction because the creditor is not necessarily the best party to spread losses or to take the actions required to avoid them.

If reallocating the loss is required for increased efficiency, then the most desirable enforcement process is the one that will shift liability as cheaply as possible from the creditor to the party that should suffer the final loss. This goal can be achieved by fashioning simple, clear, and decisive liability rules. Such rules discourage people from bringing meritless lawsuits by decreasing the law's level of ambiguity. In addition, they simplify court proceedings and lower litigation costs by decreasing the number of issues, the amount of relevant evidence, the number of required court appearances, and the amount of prelitigation legal counseling. The mechanisms that will generate simple, clear, and decisive liability rules, and thus achieve these advantages, are familiar: strict liability rather than fault-based liability, single factor standards rather than multiple factor standards, objective rather than subjective tests, and statutory liquidated damages rather than damages based on individualized determinations of loss.

67. Between consumers and financial institutions, the consumer is the creditor when a check, electronic pay order, or point of sale system is used, whereas the financial institution is the creditor when the consumer uses a credit card.

68. This conventional conclusion has been reaffirmed by a recent study examining Coase's theorem. See Hoffman & Spitzer, The Coase Theorem: Some Experimental Tests, 25 J.L. & ECON. 73 (1982).
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Of course, structuring the enforcement process in this way may deprive it of the flexibility necessary for loss spreading and loss reduction, because it represents a fairly rough allocation of liability, rather than the precise allocation that these principles would recommend. The choice ultimately depends on the relative economic impact of all three principles of efficient loss allocation. In weighing the impact of these three principles, loss imposition factors will tend to be extremely significant, much more so than the precaution-oriented rules of the UCC would suggest.69 The cost of making even a single factual determination would quickly surpass all but the most catastrophic losses on a consumer account.70 To determine that a consumer negligently left a checkbook in an open desk drawer or that a financial institution negligently cashed a check for a man with a pasted-on, Fu Manchu mustache71 demands at least one deposition, one set of interrogatories, and a one-day trial. The legal bill for even this modest fact-finding procedure would probably require a consumer to write a check that is substantially larger than the one at issue in the litigation.

Not only do the costs of loss imposition represent a deadweight loss to payment system participants, but they can also distort the underlying allocation of losses, and thus impede the operation of the loss spreading and loss reduction principles. Because enforcement in payment law depends primarily on private litigation, the most significant distortion in

69. The difficulty with the present regime of double contributory negligence is that its all-or-nothing rules, embodied in § 3-406 and § 4-406, lead to arbitrary results. If the customer is at all negligent, the financial loss is shifted from the financial institution, the creditor in this situation, to the consumer. See U.C.C. §§ 3-406 comment 4, 4-406(2) (1978). But if the financial institution is negligent, the entire loss shifts back to it. See id. §§ 3-406 comment 6, 4-406(3). Comparative negligence would be a more sensible alternative, but it requires large amounts of evidence and analysis if it is to be applied correctly. With these loss imposition considerations in mind, the Reporters for the current effort to revise Articles 3 and 4 of the UCC, Professors William Warren and Robert Jordan of UCLA Law School, have proposed that when both the financial institution and the consumer have been negligent, liability should be divided equally between them. See Articles 3 & 4 Revision, supra note 11, at 23, 73. Although troublesome because of its arbitrary nature, this rule recognizes the economic realities of allocating losses in the modern payment system. Even so, it would require a threshold determination of negligence for both parties, which is still a relatively expensive factual inquiry.

70. See, e.g., B. CURRAN, THE LEGAL NEEDS OF THE PUBLIC: THE FINAL REPORT OF A NATIONAL SURVEY 207-09 (1977) (reporting that consumer cases were more likely than any other personal, nonbusiness legal matters to be rejected by attorneys or discontinued); Alces, Toward a Jurisprudence of Bank-Customer Relations, 32 WAYNE L. REV. 1279, 1285-86 (1986) (observing that the amount of the average check is not likely to justify economically the prosecution of a lawsuit by a drawer against a drawee that has paid over a stop order); Macaulay, Lawyers and Consumer Protection Laws, 14 LAW & SOC'Y REV. 115, 129-31 (1979) (noting that few consumers can afford a lawyer's time to contest a poor repair of a car, or even its repossession).

71. One such case involved a thief who appeared at a rural Georgia bank "regaled in 'mod' clothes, high-heeled shoes, wire-rimmed glasses, a 'Fu Manchu' mustache attached by tape that became visible on one occasion, and an 'unal' northern or western accent." Perini Corp. v. First Nat'l Bank, 553 F.2d 398, 402 (5th Cir. 1977).
the process arises from the costs of asserting legal rights, which often exceed the amounts in dispute.72 Potential litigants, therefore, will make the decision to sue, if they are acting rationally, by balancing the possible gain from winning the suit against the certain costs of litigating it. When the costs exceed the possible gain, they will not take action, and thus absorb the loss themselves. In that case, the loss falls upon the creditor; thus consumers are likely to underenforce their rights involving losses from checks, electronic transfers, and point of sale transactions, whereas financial institutions are likely to underenforce their rights for credit card losses.73 This underenforcement distorts the allocation of liability suggested by the other two principles, thus generating inefficiencies.

Economically rational financial institutions and consumers decide whether to assert their legal rights in the same way, but the likelihood of underenforcement is higher for consumers than financial institutions. Because individual consumers have little at stake in the resolution of the principle at issue in the dispute, or in the effect of the dispute on their general reputation, they are unlikely to derive any benefit from the suit beyond the cash value of the possible award. The interests of financial institutions, however, go beyond the award because these institutions must continue to operate in the payment system under whatever rules or lack of rules emerge from the lawsuit. Moreover, financial institutions have a continuing reputation in the business world to protect. They may want to be regarded as sensitive and generous in their dealings with consumers, but they may also seek the reputation of merciless ferocity in the assertion of their legal rights.74 Financial institutions also benefit from

72. Economic models of litigation typically recognize that litigation costs can obstruct meritorious suits. See, e.g., Gould, The Economics of Legal Conflicts, 2 J. LEGAL STUD. 279, 284-93 (1973) (stating that parties benefit economically by settling their disputes out of court). Economic models often assume that a necessary condition for the plaintiff to bring suit is that the expected judgment exceed the costs of litigation. The literature on this point is reviewed in Cooter & Rubinfeld, Economic Analysis of Courts (1987) (unpublished manuscript on file with authors).

73. See supra note 67 and accompanying text.

74. Cf. S. MACAULAY, LAW AND THE BALANCE OF POWER 5-21 (1966) (analyzing the legal relationship between car manufacturers and dealers in which the manufacturers dominate the dealers); H. Ross, SETTLED OUT OF COURT: THE SOCIAL PROCESS OF INSURANCE CLAIMS ADJUSTMENTS 1-23 (1970) (analyzing the settlement of car injury claims against insurance companies, which have an initial tendency to deny the claims); Macaulay, supra note 70, at 120-51 (stating that although businesses wish to appease customers, they tend to litigate disputes quite aggressively). The difference between the litigious behavior of individuals and of organizations has been described as the difference between “one-shotters” and repeat players. Galanter, Why the “Haves” Come Out Ahead: Speculations on the Limits of Legal Change, 9 LAW & Soc’y REV. 95, 97-114 (1974). Although most of the data seem to indicate that this inequality works to the disadvantage of the individual, this is not an inevitable conclusion. In certain settings, merchants or other commercial parties may be sufficiently concerned about their reputation to be more conciliatory than a “one-shooter” would be. See, e.g., Karikas & Rosenwasser, Department Store Complaint Management, in NO ACcEss TO LAW 283, 283-84 (L. Nader ed. 1980) (merchants often absorb losses and solve complaints arising out of face-to-face confrontations with consumers); Ross & Littlefield, Complaint
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economies of scale in obtaining legal services. The staff attorneys in a financial institution provide an extremely convenient source of counsel, and their repeated contacts with officers of the financial institution eliminate the burdensome start-up costs that consumers generally incur in lawyer-client relationships. Because of consumers' lesser stake in the outcome of a lawsuit and relatively higher costs in pursuing one, even consumers who are distrustful and litigious, as economic rationality demands, may be reluctant to assert their legal rights in a payment dispute.

Consumers who are ignorant of their rights or that are socially disadvantaged are still less likely to take action. These consumers may not know that they have legal remedies for some of their misfortunes, particularly in the payment area, in which the typical injury is not caused by a brick falling on one's head, but by a mistaken entry on a balance sheet. Even consumers who recognize the loss and perceive the corresponding legal remedy may be intimidated by aspects of the legal process such as hiring a lawyer, collecting documentary evidence, or appearing in a courtroom.

In recent years, the legal system has developed a variety of devices to increase consumers' willingness and ability to enforce their rights. Class actions or punitive damage awards enable many consumers to

as a Problem-Solving Mechanism, 12 LAW & SOC'Y REV. 199, 211-16 (1978) (stating that consumers secure more through complaints than through legal recourse).


76. Whether the number of claims for perceived grievances varies from one type of grievance to another is unsettled. A recent study concludes that, apart from discrimination claims, the answer is no. Miller & Sarat, Grievances, Claims, and Disputes: Assessing the Adversary Culture, 15 LAW & SOC'Y REV. 525, 539-40 (1981). Whether consumers perceive all grievances at the same rate is a more important question. Intuition suggests that actual wrongs—actions for which a legal remedy exists—are more difficult to perceive in the payments area. This hypothesis is certainly difficult to test. Miller and Sarat do report lower perceived grievance rates in the debt area than in any other category they studied. Id. at 536-39. See generally Lempert, Mobilizing Private Law: An Introductory Essay, 11 LAW & SOC'Y REV. 173, 173-86 (1976) (discussing proposed research on the delivery of legal services and the difficulty of conducting this kind of research).

77. Class actions are widely regarded as an effective tool for those with small claims and limited resources. See, e.g., Cappelletti, Vindicating the Public Interest Through the Courts: A Comparativist's Contribution, 25 BUFFALO L. REV. 643, 643-50 (1976); Dam, Class Actions: Efficiency, Compensation, Deterrence, and Conflict of Interest, 4 J. LEGAL STUD. 47, 54-56 (1975); Miller, Of Frankenstein Monsters and Shining Knights: Myth, Reality, and the "Class Action Problem," 92 HARV. L. REV. 664, 669-76 (1979). Others have attacked class actions as ineffective, see Berry, Ending Substance's Indenture to Procedure: The Imperative for Comprehensive Revision of the Class Damage Action, 80 COLUM. L. REV. 299, 302-20 (1980), and counterproductive, see Handler, The Shift from Substantive to Procedural Innovations in Antitrust Suits—The Twenty-Third Annual Anti-
overcome the problem of litigating small losses. Allowing suits in small claims courts, where attorneys are not needed, can reduce the high costs of litigation and neutralize the opponent's ability to hire superior counsel. By these devices, the number of consumer lawsuits can be substantially increased, but whether this increase is sufficient, or indeed too great, is a difficult empirical question that cannot be answered properly without statistical research.

trust Review, 71 COLUM. L. REV. 1, 5-12 (1971); Kirkham, Complex Civil Litigation—Have Good Intentions Gone Awry?, 70 F.R.D. 199, 203 (1976). For an unusually balanced account of the effectiveness of class actions, see Coffee, Understanding the Plaintiff's Attorney: The Implications of Economic Theory for Private Enforcement of Law Through Class and Derivative Actions, 86 COLUM. L. REV. 669 (1986). The particularized and often idiosyncratic nature of loss allocation suits limits the utility of the class action device. A class action is much more likely to be effective in cases of repetitive financial institution activity. See, e.g., Perdue v. Crocker Nat'l Bank, 38 Cal. 3d 913, 924-29, 702 P.2d 303, 310-14, 216 Cal. Rptr. 345, 352-56 (1985) (holding that the plaintiff's class action alleging unconscionable checking account charges is a valid action), appeal dismissed, 475 U.S. 1001 (1986); cf. Ratner v. Chemical Bank N.Y. Trust Co., 54 F.R.D. 412, 414 (S.D.N.Y. 1972) (denying class action certification for an alleged TILA violation on the ground that recovery of the statutory minimum by each plaintiff would lead to excessive damages for minor violations).


80. Studies of small claims courts indicate that they sometimes reduce, but virtually never eliminate, the intrinsic disadvantages that individuals confront in a private litigation system. See, e.g., NATIONAL INST. FOR CONSUMER JUSTICE, STAFF REPORT ON THE SMALL CLAIMS COURTS 278-74 (1972) (discussing the ineffectiveness of small claims courts in helping consumers who do not realize their rights); Moulton, The Persecution and Intimidation of the Low Income Litigant As Performed by the Small Claims Court in California, 21 STAN. L. REV. 1657, 1659-69 (1969) (stating that the real beneficiaries of small claims court are business interests and governmental agencies that use it as a collection device); Note, The Ohio Small Claims Court: An Empirical Study, 42 U. CIN. L. REV. 469, 483-85 (1973) (discussing the difficulty plaintiffs face in collecting a judgment).

81. There may be both too many and too few lawsuits: too many recoveries in one area, too few in another. In this situation, the effects of over- and underenforcement do not cancel out each other, but aggregate and cause additional inefficiencies. For example, if wrongful dishonors generate excessive punitive damage awards, but ordinary billing errors do not generate any punitive damage
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These difficulties arise in the private litigation system, but this system is not the only way in which consumers can enforce their claims. The main alternative is administrative enforcement.\(^8\) Existing federal and state bank regulatory agencies are readily available for this purpose, and if they seem unsatisfactory, special consumer protection agencies could be created. The use of administrative agencies, however, would confront most of the loss imposition issues enumerated above. Fact-finding, though conceivably less expensive in an administrative context, would continue to entail costs that frequently will exceed the amount at issue.\(^8\) Consumer underenforcement is likely to continue because consumers still must perceive the existence of a problem and still might be intimidated by the administrative procedures needed to resolve it.

Moreover, enforcement by administrative agencies suffers from an additional disadvantage. Because administrative agencies react slowly and uncertainly, they are notoriously ineffective when required to operate at the individual complaint level or to retrieve relatively small sums of money.\(^8\) While new administrative techniques are possible, most of them move in the direction of modified adjudicative procedures, rather than true substitutes for those procedures. Even the Credit Card Amendments\(^8\) and the EFTA,\(^8\) which were drafted against a regulatory background foreign to the UCC,\(^8\) rely primarily on private rights of ac-

awards, the financial institution will not take the efficient level of precaution in either area. Instead, it will be overly cautious with dishonors, and continue to be careless with ordinary billing.

\(^82\) Another option is privately-run mediation. See, e.g., A. Best, supra note 75, at 147-54 (assessing the role of third parties in the handling of complaints, including services such as the Better Business Bureau, newspaper and broadcast action lines, local and state consumer affairs departments, and voluntary assistance agencies); Hannigan, The Newspaper Ombudsman and Consumer Complaints: An Empirical Assessment, 11 LAW & SOC'Y REV. 679, 681-82 (1977) (describing the newspaper ombudsman, a feature of many daily newspapers that facilitates communication between consumers and corporate organizations). Under the Magnuson-Moss Warranty Act, private companies are encouraged to set up their own dispute resolution mechanisms. 15 U.S.C. § 2310(a) (1982).

\(^83\) See supra text accompanying notes 72-73. The amount in controversy for a payment loss is often relatively small. See Alces, supra note 70, at 1285. Though not as costly as judicial proceedings, administrative hearing costs are not insignificant. Bayer, The Trouble with Arbitration, LITIGATION, Winter 1985, at 30, 31 ("Costs of preparing and trying an arbitration are not significantly less than an ordinary trial on the same issues."); Gelpe, Exhaustion of Administrative Remedies: Lessons from Environmental Cases, 53 GEO. WASH. L. REV. 1, 12 (1985) (stating that administrative proceedings may be somewhat less costly than judicial resolution, but the savings evaporates when the cost of ultimate judicial review is considered).


\(^85\) See supra note 4.


\(^87\) Both statutes assign general administrative responsibility, including rule making, to various federal agencies. See id. §§ 1607, 1693o. There is no administrative enforcement mechanism in the UCC.

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tion to assign payment losses. Thus, because the regulatory agency approach seems inadvisable when the goal is efficient recovery of monetary losses suffered by private persons, payment law must continue to struggle with the difficulties of private enforcement.

III. A System of Efficient Loss Allocation Rules

A. The Interaction of the Principles

The loss spreading, loss reduction, and loss imposition principles identify the major considerations for framing legal rules to allocate losses in an efficient manner. When the principles converge, the best rule is obvious, but when they diverge, their relative economic effects must be compared to determine which legal rule minimizes their combined effect. In many cases, comparing these effects requires empirical data, which is costly to obtain, with the unfortunate result that public policy proceeds by guesswork. Careful examination of the relationship among the three principles, however, can identify the data needed to choose the best rule, and in the absence of data, improves our ability to guess what that rule should be.

The loss spreading principle unambiguously assigns liability for payment losses to financial institutions, because an enterprise can spread losses among its customers. In contrast, the loss reduction principle’s assignment of liability depends upon which of its various elements predominate. If technological innovation is the cheapest way to eliminate a particular type of loss, liability should be assigned to the financial institution. Similarly, if consumer responsiveness to liability rules is low, the financial institution should once again be liable. However, if existing precautions provide the cheapest mechanism to reduce losses, and if both parties are responsive to liability rules, then the principle either assigns liability to whichever party can more cheaply take precaution to prevent the loss, or divides liability according to each party’s capacity for precaution. This consideration is generally neutral between financial institutions and consumers; the outcome depends upon the type of payment loss at issue.

The third principle, loss imposition, suggests that the rules allocating losses should be designed to avoid costly litigation and to overcome underenforcement, especially for small losses by consumers. Thus, this

89. See infra text following note 95.
90. See supra text accompanying notes 57-58.
principle favors rules that are simple and unambiguous, such as a rule of strict liability for a fixed amount. The loss reduction principle favors a fault-based liability rule that can provide incentives for efficient precaution by several parties at once. But the loss imposition principle virtually precludes such a solution in the payment system; determinations of fault or negligence are likely to be so complex, and thus so expensive, that the overall cost of imposing fault-based rules invariably will exceed the advantage gained in loss reduction.

When the principles conflict, economically efficient rules to allocate losses cannot be derived by counting the number of principles on each side. The three principles are not citizens with equal votes in the economic realm. Rather, the purpose of the principles is simply to identify the considerations that affect the total cost of bearing, preventing, and adjudicating payment losses. Because an efficient rule will minimize the total cost of payment losses, the real issue is the relative magnitude of each principle's effects.

The principles, however, do suggest some generalizations in allocating payment losses. Because the loss spreading principle favors assigning liability to financial institutions, and the loss imposition principle suggests a rule of either strict liability or no liability, the loss reduction principle is often pivotal in formulating an efficient rule. Within that principle, innovation and responsiveness factors always favor liability for the financial institution, and learning always is subsidiary to responsiveness, so the variable factor is precaution. When the financial institution is the only party that can take precaution against the loss, all four elements of the loss reduction principle, and thus all three economic principles, unequivocally favor the institution's liability. But when consumers, or more typically consumers and institutions jointly, can take the least costly precautions, crafting a rule requires a more complex approach than simply assigning all liability to the financial institution. This complex approach will be required in allocating the great majority of payment losses.

Although precaution is often the determinative element, it never operates independently of other considerations. Within the loss reduction principle, innovation, responsiveness, and learning may be countervailing elements. Moreover, loss reduction is only one aspect of efficiency; any chosen rule should also reflect considerations of loss spreading and loss imposition. Much of the economic analysis of law has emphasized precaution to the exclusion of these other considerations, and the common
law,91 together with its statutory progeny such as the UCC,92 displays similar predilections. But a full analysis requires one to consider all the relevant factors, and to acknowledge and explore the conflicts that arise between them.

B. The Derivation of Legal Rules Based on the Principles

To derive general legal rules for loss allocation from the interaction of the three economic principles, we must consider the different types of losses. For these purposes, the most important distinction is between two kinds of errors that can be called "false positives" and "false negatives."93 A false positive is a payment that was made even though it should not have been, such as honoring a forged check. A false negative is a payment that was not made or not made on time even though it should have been, such as a check lost by a financial institution or a payment that was not made within the statutory or contractual time period. In terms of the financial institution's behavior, the distinction is usually the difference between paying an invalid instrument (false positive) and failing to pay a valid one (false negative). This distinction is important because false positives and false negatives produce different patterns of losses, and the economic analysis of them produces different payment rules.

Although analytically distinct, these two types of payment errors may conjoin in fact because false positives often cause false negatives. For example, when a thief wrongfully withdraws funds from a checking account (false positive), which lowers the balance, a financial institution

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91. See Cooter, supra note 50, at 3-29.
92. See McDonnell, Bank Liability for Fraudulent Checks: The Clash of the Utilitarian and Paternalist Creeds Under the Uniform Commercial Code, 73 Geo. L.J. 1399, 1427-30 (1985); Phillips, The Commercial Culpability Scale, 92 Yale L.J. 228, 255-61 (1982). Professors McDonnell and Phillips emphasize both the moral basis of the UCC rules and the efficiency of precaution as a device for avoiding loss. In fact, the two are closely related because being careful in one's business relations is an element of our morality. Professor Phillips argues that this relationship is perfect, that is, an emphasis on morality also will produce efficiency. He thus believes that the UCC regime fulfills our economic goals and satisfies our normative inclinations. Unfortunately, the situation does not work out quite so conveniently. Precaution is an element of efficiency, but responsiveness and innovation considerations also affect loss reduction, and loss reduction is not necessarily more important, in economic terms, than loss spreading or loss imposition. These other elements conflict with ordinary morality. We do not consider it moral to assign a loss to one party just because that party is larger, or because a real determination of fault is too expensive. But it is efficient to do so.
93. The terms "false positive" and "false negative" are borrowed from statistics. In statistical decision theory, a false positive consists of accepting an untrue hypothesis, and a false negative consists of rejecting a true one. These terms are routinely used in applications of the statistician's concept of Type I and Type II errors to medical diagnoses. See B. Brown & M. Hollander, Statistics: A Biomedical Introduction 25, 97 (1977); see also T. Yamane, Statistics, An Introductory Analysis 223-26 (3d ed. 1973) (describing statistician's use of Type I and Type II error analysis).
may subsequently dishonor a series of valid checks because of insufficient funds (false negatives). Also, when the thief fraudulently diverts a legitimate payment from an intended recipient (false positive), the financial institution then may fail to pay the intended recipient (false negative). Even though false positives can cause false negatives, the effect of the two errors can be treated separately for analytical purposes.

To complete this taxonomy, we can describe the remaining payment events as "valid positives" and "valid negatives." A valid positive is a payment in which the financial institution pays a valid instrument, and there is no loss to allocate. A valid negative is a payment in which the financial institution does not pay an invalid instrument, a cheerful example being a forged check that is discovered in time and properly dishonored. The more common variety of valid negative is a check dishonored because of insufficient funds. This may produce a loss if the drawer never makes payment, but the loss results from a credit risk, which is not within the category of fraud, forgery, or error. Because these losses are adequately dealt with by the market, there is no persuasive need for legal intervention.94

1. False Positives.—A false positive occurs when a sum of money from a consumer’s account finds its way into the hands of an unintended recipient—that person may be either a thief who initiates the false instrument or an otherwise innocent individual who cannot resist the siren song of serendipity. The immediate loss from this error will be the money drawn out of the account, which is usually equal to the face value of the instrument. Thus, with false positives, the amount of the loss is readily ascertainable, and the problem is to decide how to allocate that known loss.

In some cases, the financial institution may be the only party that can realistically take precaution. For example, assume that a thief, through an accomplice at an institution, obtains credit card numbers for existing accounts, manufactures a counterfeit card, and goes on a one-

94. Another type of valid negative occurs when there is a competing claim to money in a checking account, and that claim is deemed superior to an incoming payment instrument. The classic examples are claims against a checking account balance by a judgment creditor, a bankruptcy trustee, or the financial institution exercising its power of setoff. While these claims—called “legals” in bankers’ parlance—represent losses to an account owner, they arise from policy decisions in other areas of law, not from fraud, forgery, or error. See Ellis, Preferential Payments by Check: At What Point Is Payment Made?, 16 U.C.C. L.J. 46, 48-53 (1983). U.C.C. § 4-303 (1978) governs the proper timing of these claims. Of course, if a financial institution makes a mistake under § 4-303 by honoring a “legal” that in fact arrived too late, and therefore dishonors the incoming check, it has created a false negative.
week spending spree. Because only the financial institution can take precaution to prevent the loss, the loss reduction principle suggests a rule that assigns liability to it. Thus, all the economic principles point to imposing the loss on the institution, and, in accordance with the loss imposition principle, a rule of strict liability is most efficient.

For other false positives, the consumer may be the only party who can take precaution. One obvious example occurs when a consumer knowingly issues an invalid instrument. Such a consumer is a wrongdoer, probably a criminal, and should be liable without limit for the entire amount of the loss. In economic terms, wrongdoers create involuntary transfers to themselves, and involuntary transfers lack the efficiency properties of markets.96

Consumer precaution is also dominant when the loss results from an abuse of the consumer's authorization to use an access device. Debit card users, for example, are protected against use of a lost card by issuance of a personal identification number (PIN). This number, which does not appear on the card, must be manually entered into an automated teller machine (ATM) before the machine will dispense funds from the consumer's account.97 Suppose, however, that a consumer gives the card and the PIN to another person with an instruction to use the card only to a limited extent, and then the other person exceeds that limit.98 This is equivalent to giving someone the proverbial blank check. The precaution needed for the consumer to prevent the loss is virtually costless, just as it is in the case of an intentional wrongdoer. On the other hand, precaution is difficult for the financial institution because the consumer voluntarily has enabled the malefactor to circumvent the very protections that the institution has developed. Technological innovations are possible, of course, but this type of consumer behavior limits their efficacy as well. Because the action involved is conscious and voluntary,

95. This type of fraud actually has become fairly common as a result of organized crime. In June 1985 law enforcement officials raided a major counterfeiting operation in the Bronx and confiscated 40,000 counterfeit cards. The counterfeiters had printed blank cards using sophisticated photo offset and laminating equipment. They then sold the cards for $25-30 each to distributors, who embossed account numbers on the cards. These numbers came from the discarded carbons of credit card receipts—either through accomplices in retail stores or through "dumpster divers," who found them in the garbage. An embossed card has a "street value" of about $75-150, and a skillful user can obtain as much as $5000 worth of goods or services before the card is cancelled. Interview with John Friedman, Assistant Deputy Att'y Gen., N.Y. (Apr. 18, 1985).

96. See generally R. COOTER & T. ULEN, supra note 29, at 506-84 (discussing the economic analysis of criminal law); R. POSNER, supra note 49, at 201-05 (same).

97. See NATIONAL COMM'N ON ELEC. FUND TRANSFERS, supra note 59, at 56-57; Greguras & Sykes, supra note 61, at 84-85.

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the consumer is likely to be responsive to liability rules. Thus, the loss reduction principle favors allocating the loss to the consumer. This result, however, directly conflicts with the loss spreading principle, which continues to favor institution liability.

Most cases are likely to be much less stark than the foregoing examples because they will involve situations in which both the financial institution and the consumer can take precaution. In the debit card context for example, consumers can reduce losses from lost cards simply by being careful with them, while financial institutions can reduce such losses through technological innovations in card design. Financial institutions urge, and common sense dictates, that the consumer not write the PIN on the card or on any other object regularly carried with the card. While consumers cannot always avoid losing the cards, they certainly can avoid attaching the PIN to them. Therefore, consumers are arguably the cheapest loss avoiders for debit cards with individual identification numbers because all they need to do is learn some antidote for absent-mindedness other than carrying the number with the card.

This argument, however, overlooks technological innovations and their consequences. The PIN is the beginning, not the end, of technological innovations that can reduce losses from credit cards and debit cards. Researchers are currently developing a variety of novel identification devices, some of which already have reached the point of being manufactured and sold. A number of these devices rely upon biological metrics for identification, including finger length, signature speed and pressure, palm creases, and voice prints, while others rely upon improved coding systems similar to the PIN. Despite the questions of feasibility, cost, and privacy raised by the use of these devices, there seems to be little doubt that further progress will be made, thus enabling financial institutions to avoid the same losses that consumers can avoid by more precaution.

Lost debit card situations, therefore, exemplify bilateral precaution; both the consumer and the financial institution are in a position to avoid most losses, and each can often avoid some group of losses at the least expense. Bilateral precaution characterizes most false positive situations. Consumers can almost always take some precautions, and generally will be at least partially responsive to liability rules that induce those precau-

99. Indeed, financial institutions developed the PIN device well before a federal statute allocated liability to them. See National Comm’n on Elec. Fund Transfers, supra note 59, at 56-57. Financial institutions had established PINs as a safety device by the time researchers had conducted the preliminary studies leading to 15 U.S.C. § 1693h (1982).
100. See Kutler, supra note 61, at 33. col. 1.
101. See Greguras & Sykes, supra note 61, at 75-86; Sykes, supra note 61, at 179-86.
tions. But financial institutions usually can take other precautions and they can develop technological innovations that will yield further loss reduction. An efficient law for false positives, therefore, will impose enough liability on each party to induce it to take cost-effective precautions—those precautions that produce the greatest decrease in losses per unit of expense. In addition, this law must effectively spread the losses that cannot be avoided, and it must establish simple rules that minimize the expenses of loss imposition.

One starting point for constructing such rules is that they should provide some incentive for consumers to avoid losses when they can. But the responsiveness element suggests that there will be a point at which liability ceases to produce major increases in loss avoidance behavior. Above this point, financial institutions should absorb all losses because they can spread the losses and develop new technology to counteract their own carelessness, as well as that of the consumer. The loss imposition principle suggests that the limit be set at a fixed amount, and that both consumers and financial institutions be strictly liable for their assigned portion of the loss. Thus, for false positive situations in which bilateral precaution is possible, the economically efficient rule is one of limited consumer liability, with the consumer strictly liable below the limit and the financial institution strictly liable above it. In fact, this type of rule is established by both the Credit Card Amendments and the EFTA. We will refer to such a rule as "capped consumer liability."  

Of course, even this type of rule requires a fact-finding inquiry to determine whether a particular dispute involves bilateral precaution, in which case the cap on liability would apply, or unilateral precaution, in which case the financial institution or the consumer would be liable without limit. Because this is a relatively simple determination that often can be made on the basis of judicial pleadings, however, the resulting rules should be sufficiently definite to eliminate the need for litigation in most loss instances. Consumer underenforcement in the remaining instances could be reduced, although not eliminated, by granting attorneys' fees to a prevailing consumer plaintiff.

In the great majority of cases, the bilateral precaution rule of capped consumer liability will apply. Setting the liability limit at the efficient level presents the major problem in formulating such a legal rule. The various limits that appear in the federal legislation apparently were se-

103. See id. § 1693g.
104. For a symbolic representation of the comparative advantages of this rule, see Appendix.
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lected by pure guesswork and political necromancy.\textsuperscript{105} A more methodical approach would require market data, or empirical data of the sort a market would produce. If the empirical evidence suggested that consumer precaution is totally unresponsive, or inelastic, with respect to the liability, then economic principles would favor strict liability for financial institutions; if the empirical evidence suggested the contrary, it would be necessary to confront the difficult task of determining precisely where the liability limit should be set.

Because this data is not presently available, we can only speculate about some possible alternatives.\textsuperscript{106} Perhaps consumers are totally unresponsive to the law's allocation of payment losses. This proposition is not as odd as it might appear; consumers may indeed be unaware of liability rules, but may take precautions for reasons other than a desire to avoid liability. For example, false positives impose costs on consumers that are separate from any loss occasioned by liability. Consumers who lose their ATM card must still complete the paperwork necessary to document the loss and receive a new card. They also lose the use of an ATM until a new card is issued, may lose access to a substantial sum of money for some time, and might suffer cancellation of their card by the issuer. In addition, most consumers would probably wish to avoid the costs and

\textsuperscript{105} Concerning the choice of the liability limits in the EFTA, see S. REP. NO. 915, 95th Cong., 2d Sess. 5-6, reprinted in 1978 U.S. CODE CONG. & ADMIN. NEWS 9403, 9407-08 (speculating about an optimal liability limit on the basis of data that a $50 limit for credit cards worked well); NATIONAL COMM'N ON ELEC. FUND TRANSFERS, supra note 59, at 55-59 (same); Taffer, The Making of the Electronic Funds Transfer Act: A Look at Consumer Liability and Error Resolution, 13 U.S.F. L. REV. 231, 235-41 (1979) (choice of liability limit was a result of political compromise). With respect to the Credit Card Amendments, see Unsolicited Credit Cards: Hearings on S. 721 Before the Subcomm. on Financial Institutions of the Senate Comm. on Banking and Currency, 91st Cong., 1st Sess. 18-19 (1969) (statement of Andrew Brimmer, Board of Governors of the Federal Reserve System) (finding any liability limit to be sufficient because the majority of banks do not charge consumers for fraud losses); id. at 106 (statement of Thomas L. Bailey, on behalf of the Am. Bankers Ass'n) (summarily advocating an increase in the $50 limit to $100 to ensure "reasonable responsibility" by cardholder); H.R. CONF. REP. NO. 1587, 91st Cong., 2d Sess. 13-15, summarized in 1970 U.S. CODE CONG. & ADMIN. NEWS 4411, 4414 (stating without offering any rationale the provisions of a Senate bill limiting criminal penalties for unauthorized credit card use to cases involving amounts of $5000 or more).

\textsuperscript{106} While we lack the data to determine the elasticity of consumer precaution with respect to liability, the relationship is measurable. If consumer precaution increased with liability, one would expect that the existing law, with its differential treatment of checks, credit cards, and electronic fund transfers, would induce different levels of precaution for different payment instruments. Specifically, because consumers have the least liability on credit cards and the most on checks, they would be more careless with their credit cards than with their debit cards, and more careless with debit cards than with their checks. Besides the legal allocation of liability, however, there are many other factors influencing consumer precaution, such as the amount of effort required and the extent of the risk as determined by the credit limit on a credit card and the amount of money in a checking account. Other factors also affect precaution besides the amount at risk, such as the added effort required to take the precaution. Separating the influence of the liability rules from the other confoundable factors would be a difficult, but not impossible, statistical exercise. Success would depend upon the assembly of a data set of high quality with ample diversity in the variables.

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hassles associated with a potential lawsuit, even if the stakes were nominal. Given their desire to avoid these costs, consumers might not adopt any additional precautions in response to liability rules. The possibility that consumers are entirely unresponsive to such rules suggests that financial institutions should be strictly liable for all false positive losses, or that the legal limit on consumer liability should be set at a purely nominal amount.\textsuperscript{107}

Alternatively, consumer precaution may be partially elastic with respect to liability. To be responsive, consumers must know that the law assigns liability to them for certain payment losses, and they must not grossly underestimate the probability that such losses will occur. If these conditions exist, then raising the liability limit above a nominal level would significantly reduce losses by enhancing consumer precaution. Consumer precaution, however, is likely to increase at a decreasing rate in response to further liability. Thus, ever larger consumer liability will produce ever smaller increases in consumer precaution, while the burden of losses not spread becomes increasingly oppressive to consumers. In these circumstances, the best liability rule would cap consumer liability at a significant, but not excessive amount. This rule mimics the form of most private insurance contracts\textsuperscript{108} because the consumer is strictly liable for the initial loss up to a cap corresponding to the deductible in an insurance policy, while the financial institution is strictly liable for losses exceeding the cap. One possible liability cap would be the median amount of cash withdrawn by consumers when they go to their bank, which is currently about eighty dollars.\textsuperscript{109}

2. False Negatives.—False negatives present a different set of considerations. Failure to pay a valid instrument, or failure to pay it within a designated time, does not cause an immediate loss of the instrument’s face value because no money has been removed from the consumer’s account. The problem is that people to whom the consumer conceded owed money did not receive an expected payment. These frustrated payees may subject the hapless consumer to cancellation of valuable contracts, lowered credit ratings, face-to-face denunciation, or various other

\textsuperscript{107} If the \textit{in terrorem} effect of a lawsuit proved to be an influence on consumer behavior, but the actual amount at issue was not, then the limit on liability should be set at a nominal amount. If there was no \textit{in terrorem} effect, and no effect from liability in general, the limit should be set at zero. In both cases, consumer precaution is inelastic with respect to liability, but in the latter case, it is totally inelastic.

\textsuperscript{108} See supra note 41.

\textsuperscript{109} See The Use of Cash and Transaction Accounts by American Families, 72 FED. RESERVE BULL. 87, 99-100 (1986) [hereinafter Cash Survey].
unpleasantries. The resulting losses generally are described in legal parlance as consequential damages.

In contrast to false positives, there is no initial uncertainty about which party is in the best position to avoid false negatives. Because a false negative constitutes a financial institution's failure to pay a valid instrument, the consumer has necessarily acted correctly in generating the instrument. The financial institution has made the error, and only that institution could have taken any realistic precautions to avoid making it. Nevertheless, the financial institution can predict neither the amount of the loss, nor the chain of events that produces it. As a result of this uncertainty, the bilateral precaution problem reasserts itself. Although a financial institution is certainly in the best position initially to prevent the loss, it is not in the best position to avoid the potentially far-reaching consequential damages that flow from the initial error. In many cases, it is the consumer who can more likely avoid these losses, because only the consumer knows whether the thousand dollar check a financial institution receives for payment is a gift from mother or a deposit needed to secure a multimillion dollar deal. The financial institution lacks the information necessary to determine which instruments, of the thousands it processes every day, should receive greater care.

False negatives, like false positives, provide an opportunity for bilat-

110. For the classic case, see Loucks v. Albuquerque Nat'l Bank, 76 N.M. 735, 746, 418 P.2d 191, 198 (1966):

There was evidence that ten checks [written by the partnership] were dishonored, that one parts dealer thereafter refused to accept a partnership check and. Mr. Loucks was required to go to the bank, cash the check, and then take the cash to the parts dealer in order to get the parts; that some persons who had previously accepted the partnership checks now refused to accept them; that other places of business denied the partnership credit after the dishonors; and that a salesman, who had sold the partnership a map and for which he was paid by one of the dishonored checks, came to the partnership's place of business, and ripped the map off the wall because he had been given "a bad check for it."


112. See, e.g., Evra Corp. v. Swiss Bank Corp., 673 F.2d 951, 952-56 (7th Cir.) (defendant bank lost telex payment of $27,000 deposit for ship charter, compelling recharter at a price more than two million dollars higher), cert. denied, 459 U.S. 1017 (1982)

113. See, e.g., id. at 955-59 (applying foreseeability doctrine of Hadley v. Baxendale, 156 Eng. Rep. 145 (1854), to conclude that the customer, not the bank, should have taken precaution against loss). The Evra decision, written by Judge Posner, uses an informal economic analysis based on precaution considerations. Id. at 958. It ignores loss spreading and responsiveness considerations, although this omission may be justified because Evra is not a consumer case. See id. at 957 (describing plaintiff as "a sophisticated business enterprise"). More problematically, the decision fails to recognize that the situation involved bilateral precaution—the bank was in a better position to avoid losing the telex, and the customer was in a better position to avoid the unusual consequences of the loss. Exempting the bank from all liability fails to take account of this. See Budnitz, The Finicky Computer, The Paperless Telex and the Fallible Swiss: Bank Technology and the Law, 25 B.C.L. REV. 259, 294 (1984) (arguing that imposing no liability or all liability on the bank oversimplifies the Evra situation).
eral precaution, and efficient loss allocation rules again will require divided liability. Financial institutions should be at least partially liable for every loss resulting from a false negative, and totally liable for those losses that consumers cannot efficiently prevent.

As in the case of false positives, imposing liability on consumers makes sense only if consumer behavior is responsive to the liability rules. In general, legal rules should not encourage consumers to take precautions against false negatives when the payment is an ordinary one. In making ordinary payments, consumers probably do not consider the possibility that a financial institution will not make the payment. A consumer who does so cannot efficiently confirm ordinary payments or use redundant systems to ensure that such payments are made, without incurring great inconvenience and undue cost. However, for payments that have unusual importance to a particular consumer, such as a deposit for a home purchase, the consumer may be able to take precaution more efficiently than the financial institution. With these payments, consumers are much more likely to take precautions, such as sending payments by certified or registered mail, and it seems plausible that they would be responsive to a legal rule that imposed liability upon them above a specified limit. Were the financial institution to take precaution against extraordinary consequential damages in these cases, it would burden ordinary transactions with confirmations and redundant systems that are appropriate only for extraordinary ones. Thus, the most efficient rule holds financial institutions liable for all losses up to a specified limit, but holds consumers liable for the extraordinary losses that extend beyond that limit.

This rule, which relies heavily on loss reduction considerations, cannot be fully reconciled with the loss spreading principle because it imposes significant losses on consumers. The increased consumer responsiveness to liability for extraordinary losses, however, may be sufficient to minimize the chance that such losses will occur. The loss spreading principle does suggest that the liability limit for financial institutions should be set at a relatively high level, and technological considerations support the same conclusion. In both cases, a financial institution has capabilities that a consumer cannot match.\(^\text{114}\) Additionally, the loss imposition principle suggests that the limit be set at a fixed amount that can be determined without a factual hearing. The resulting rule is essentially the reverse of the rule for false positives, in which a

\(^{114}\) See supra text following notes 41 & 45.
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consumer is strictly liable for losses below a low liability limit and the residual loss falls on a financial institution.

Setting the liability limit is not as critical a problem for false negatives as it is for false positives. The goal for false negatives is to eliminate exceptionally high claims that would impose an excessive burden on the system, and any reasonable limit would achieve that goal. Determining the amount of damages allowable presents a more significant problem. Damages arising from false positives generally are equal to the amount of the instrument, a determination that rarely will require a factual hearing. The consequential damages that result from false negatives, however, are notoriously difficult both to measure and to prove. Proving a loss when a thousand dollars has been fraudulently withdrawn from a consumer's checking account is easy, but demonstrating that wrongfully dishonored checks have caused damages to a consumer's business relations is quite difficult. A factual hearing on this issue creates high loss imposition costs, which would largely vitiate the advantage of a fixed liability limit.

In addition to the costs that it imposes, the complexity of proving consequential damages may distort the pattern of loss imposition. Because losses resulting from financial institutions' failure to pay initially fall on consumers, they must assert a right to compensation and prove the extent of the loss if they wish to recover. If the loss imposition costs are likely to be greater than the actual amount of the consequential damages or the upper limit of liability, consumers will have little or no incentive to enforce their rights. Thus, the consumer's inevitable burden of going forward, combined with the complexity of proving damages for false negatives, may lead to the underenforcement of consumer rights.

One possible approach to these loss imposition problems would be to set a fixed minimum amount of damages for each type of false negative—an amount a consumer could obtain in the absence of proof. But this amount would provide unnecessary overcompensation in many cases and inadequate compensation in others. A preferable approach, therefore, would vary the liability in proportion to an unpaid instrument's face value, and place the burden of going forward, but not the burden of proof, upon the consumer. A limit that varies in relation to the value of an instrument corresponds, albeit very roughly, to the potential risk to which a consumer is exposed, and also indicates the financial institution's total exposure in an unambiguous way. Setting the actual proportion is, again, an empirical question; presumably some multiple or fraction of the instrument's face value would achieve the most efficient result.115 Thus,

115. From the perspective of loss imposition costs, the formula can be as complex as one wishes
an efficient rule for allocating losses from false negatives would hold financial institutions strictly liable for a proportion of the instrument’s face value, up to a reasonable statutory limit, and consumers liable for any residual losses. We will refer to this as a rule of “face value liability.”

To obtain this statutory damage award, a consumer must come forward with a claim and demonstrate consequential damages, but would not need to prove either the fact of a loss or its exact amount. Requiring consumers to sustain this burden of going forward should be sufficient to prevent unjust enrichment of consumers who have suffered no losses. Possible consumer underenforcement may be overcome by allowing consumers to recover attorneys’ fees in litigated disputes. Such a remedy structure for false negatives parallels the remedy structure for false positives, which is probably preferable to establishing a separate system for each type of payment, as is the case with present law.

Loss allocation rules for false negatives must also resolve the issue of delayed payment. In certain types of payment systems, such as wire transfers, delay can cause as much loss as an outright failure to pay. Again, however, a financial institution has no way to know the extent of a potential loss from the face of an instrument. One solution would establish a statutory time limit for payment, corresponding to the time in which consumers expected the transfer to be completed, with a certain amount of leeway for financial institutions. If a financial institution were to exceed this time limit, the rule would treat it as having failed to pay. But if the institution were to complete the transfer within the specified period, it would be exempt from any liability. Consumers who need

as long as it is based on an instrument’s face amount. The computation costs themselves will always be minimal. What is prohibitively expensive is any damage determination that involves fact-finding, which moves the disposition of the case beyond a judgment on the pleadings to some sort of evidentiary hearing.

From the perspective of loss reduction, the effect of a complex formula is unclear. Complexity presumably would have no effect on the behavior of institutions. The effect on consumers would be limited to those consumers who bothered to find out the formula, but then could not understand it. If that group were too large, an inefficiently high level of precaution might result.

116. For a symbolic representation of the comparative advantages of this rule, see Appendix.

117. Liability under present law depends on the type of instrument used in the transaction, as well as on which party bore the initial loss. See, e.g., 15 U.S.C. § 1643 (1982) (liability of holder of credit card); id. § 1693g (consumer liability for unauthorized electronic funds transfer); id. § 1693h (liability of financial institution for failure to make an electronic funds transfer in accordance with the terms of a consumer’s account); U.C.C. § 4-403 (1978) (liability of a bank to a customer for wrongful dishonor of an item).


119. Cf. U.C.C. §§ 4-202, -302 (1978) (financial institution subject to liability for failing to take proper action within the proper time period).
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quicker payment would be required to communicate this fact to financial institutions and make appropriate contractual arrangements. Because the need for a particularly rapid funds transfer will be exceptional, consumers can be expected to be aware of this need and to communicate it to the financial institution at the time they initiate the payment.

IV. The Application of the Loss Allocation Rules

Applying the three economic principles of loss spreading, loss reduction, and loss imposition to the problem of allocating payment losses between consumers and financial institutions leads to several recommendations. If only the financial institution can prevent the loss, the institution should be strictly liable. If both parties, or only the consumer, can take precautions against the loss, the rules should divide liability except in cases of outright consumer fraud. For false positives, consumers should be strictly liable for losses up to a relatively low, fixed limit and financial institutions should be liable for the remaining losses (capped consumer liability). For false negatives, financial institutions should be strictly liable for losses up to a fixed limit, which is set by statute as a proportion of the instrument’s face value, and consumers should be liable for the remainder (face value liability).

These loss allocation rules will increase efficiency, without producing any injury to social equity, which is often regarded as a countervailing concern. The rules impose only limited liability on consumers, significantly less liability than most current rules impose with the exception of the Credit Card Amendments. Nor will the increased liability for financial institutions limit their willingness to make services available to consumers, which is an area of current controversy. Financial insti-

120. *See supra* text accompanying notes 102-04
121. *See supra* text accompanying notes 115-16
122. *See supra* note 16 and accompanying text.
124. Concerns about the availability of services are the motivating force behind the current drive to establish "lifeline" banking (a minimum level of banking services that should be available to all, regardless of income) as a matter of law. *See, e.g.*, H.R. 2661, 99th Cong., 1st Sess. § 203 (1985) (requiring all depository institutions to offer basic checking accounts with fixed, low fees for minimal services); Leymaster, *Electronic Banking and the Poor: On the Short End of an Expensive Stick*, 14 *Clearinghouse Rev.* 721, 728 (1980) (noting the lack of electronic fund transfer services to the poor); Kutler, *The Lifeline Issue: Can the Consumerists Stop the Deregulators?*, Am. Banker, Mar. 13, 1985, at 4, col. 1 (stating that consumer advocates desire a minimum level of banking services that would be available to all regardless of income or ability to pay); Public Advocates, Inc., Petty Larceny: Excessive Bank Charges Produce Banking Crisis for the Poor 35-40 (Aug. 7, 1984) (unpublished manuscript) (copy on file with the *Texas Law Review*) (seeking legislative reform to require lifeline banking services in California).
stitutions will limit the availability of services in response to increased liability only if they can segment the market to eliminate loss-prone consumers. But given the relatively low levels of losses in the checking system, probably no category of customers could be profitably eliminated on loss reduction grounds. Financial institutions might exclude specific customers, but an individual's history of loss claims is probably an unreliable guide to future losses, and the law could prohibit financial institutions from using it if they demonstrated a tendency to do so.\footnote{Current federal law forbids financial institutions from using race or sex related criteria in extending credit. \textit{Equal Credit Opportunity Act}, 15 U.S.C. § 1691-1691f (1982 & Supp. III 1985). For examples of forbidden criteria, see \textit{United States v. American Future Sys.}, 743 F.2d 169, 180 (3d Cir. 1984) (use of certain kinds of demographic data); \textit{Miller v. American Express Co.}, 688 F.2d 1235, 1240 (9th Cir. 1982) (automatic cancellation of account on death of spouse); \textit{Anderson United France Co.}, 666 F.2d 1274, 1276 (9th Cir. 1982) (requirement of spouse's signature).}

Segmentation of payment markets usually focuses on credit risk,\footnote{See Peterson, \textit{Consumer Finance}, in \textit{FINANCIAL SERVICES}, supra note 59, at 185, 205.} not vulnerability to loss.\footnote{See \textit{Cash Survey}, supra note 109, at 93-95 (availability of credit cards, where bank is exposed to credit risk, strongly correlated with socioeconomic status, but availability of checks, where bank does not take this risk, shows no such correlation). On the general techniques of market segmentation for credit, see generally R. COLE, \textit{CONSUMER AND COMMERCE CREDIT MANAGEMENT} (5th ed. 1976).} Of course, credit risk may affect a financial institution's exposure because the institution must attempt to collect the amount of the losses that the rules allocate to consumers. But this concern applies only to false positives, and the capped liability rule necessarily limits consumer losses to amounts a consumer can readily pay.

The recommended rules can be applied to the typical losses in payment law by tracing the path of a payment. Regardless of a payment's form, it will follow the same basic stages, and losses can occur at any of them. In the case of a check, the loss can occur at the very beginning when the check is written, during transmission from the drawer to the payee, during transmission from the payee to the depositary bank, or during processing as the check moves from the depositary bank to the drawee bank. Moreover, if the law allows the check to be countermanded or stopped, a loss can occur if the bank pays the check over a valid stop order. With credit cards and electronic fund transfers, the possibilities for loss are virtually identical, although the paradigmatic thief will be an organized crime operative or a computer programmer, rather than a forger or an errant bookkeeper. This division of the payment instrument's path has no particular significance; it is simply a means of organizing the discussion. As will be seen, our recommended loss allocation rules operate quite uniformly in all payment contexts.
A. The Point of Origin

The starting point in the odyssey of a payment instrument occurs when a consumer initiates a payment either by giving an instruction directly to a financial institution, as in the case of an electronic fund transfer, or by giving the instrument to a third party, as in the case of a check or credit card. As explained, when only the financial institution can avoid the loss, the most efficient rule would impose strict liability upon that institution. In other situations in which a loss occurs at the point of origin, both the financial institution and the consumer can take precaution, and the consumer may be able to do so at the lowest cost.

Current laws hold consumers strictly liable for the first fifty dollars of a loss resulting from unauthorized use of a credit card and, in general, fully liable for check fraud losses when the loss is caused solely by the consumer’s own negligence. The credit card rule tracks our recommendation for capped consumer liability, and economic principles suggest that this type of loss allocation rule should be applied to checks as well. Although such a rule may seem alien for checks, there is no

128. An instruction given directly to a financial institution is usually called a pay order, or order, and an instrument given to a third party is usually called a draft. The third-party instrument is called a draft because it ultimately draws funds from the account of the person who initiated the instrument. The British term is bill of exchange, but draft is the modern usage. See U.C.C. § 3-104(2)(a) (1978); Regulation J, 12 C.F.R. § 210.2(c) (1987). A check is simply a draft drawn on a bank. See U.C.C. § 3-104(2)(b); 12 C.F.R. § 212.1(f). The term pay order, here shortened to order, came into general usage in connection with the New Payments Code. See Scott, supra note 13, at 1679-80.


130. See U.C.C. §§ 3-405, -406, 4-406 (1978). Section 3-406 is a general negligence provision, and §§ 3-405 and 4-406 essentially are presumptive negligence provisions—one for certain kinds of frauds and the other for failure to monitor one’s account statement. Sections 3-406 and 4-406, but not 3-405, explicitly give the consumer a contributory negligence defense: liability shifts back to the financial institution if it fails to follow “reasonable commercial standards,” § 3-406, or exercise “ordinary care,” § 4-406(3). For a judicial discussion of per se and contributory negligence under these UCC sections, see Merrill Lynch, Pierce, Fenner & Smith, Inc. v. Chemical Bank, 57 N.Y.2d 439, 444-48, 442 N.E.2d 1253, 1256-58, 456 N.Y.S.2d 742, 745-47 (1982) (holding that § 3-405 liability is not limited by contributory negligence defense). Several commentators have discussed these UCC provisions. See, e.g., McDonnell, supra note 92, at 1407 (arguing that §§ 3-405 and 4-406 allocate the loss to the drawer instead of the bank when the drawer could have prevented the fraud with the least cost); Whaley, Negligence and Negotiable Instruments, 53 N.C.L. Rev. 1, 10-14 (1974) (arguing that under § 3-405 the consumer is strictly liable for issuing an instrument made out to an impostor, regardless of subsequent negligence by other parties, and under § 4-406 the prior negligence of the consumer is excused on a showing that the bank failed to use ordinary care, good faith, or reasonable behavior); Note, Section 3-405 of the Uniform Commercial Code: Time for a Negligence Standard?, 37 Ala. L. Rev. 199, 209-13 (1985) (analyzing the conflicting legal approaches to § 3-405 impostor cases and advocating adoption of a negligence standard with a presumption against the drawer); Note, U.C.C. Section 3-405: Of Imposters, Fictitious Payees, and Padded Payrolls, 47 Fordham L. Rev. 1083, 1105-10 (1979) (discussing UCC exceptions to the general rule that drawee bank absorbs losses for payments induced by unauthorized indorsements); Note, Allocation of Losses from Check Forgeries Under the Law of Negotiable Instruments and the Uniform Commercial Code, 62 Yale L.J. 417 (1953) (describing various methods of allocating losses from forged checks).

131. The proposed rule would displace UCC § 3-406, which bases liability on negligence, and
reason, apart from the caprice of history, for different laws to cover these methods of payment.

One possible exception to a low liability limit for consumers involves the consumer's failure to report the loss of an access device that a financial institution has supplied: the credit card, the debit card, or the check. Under the UCC, such a failure simply blends into the general category of consumer negligence that can preclude recovery.\textsuperscript{1} The EFTA, however, imposes a separate liability limit for this failure;\textsuperscript{133} it provides for consumer liability up to $500 for failing to report the loss of the access device within two business days after learning of the loss.\textsuperscript{134} In such situations, imposing a higher liability limit on consumers might be efficient because prompt reporting of lost access devices is a cost-effective precaution that liability rules could conceivably encourage.\textsuperscript{135} In essence the rule would treat failure to report as gross negligence, while initially losing the access device would constitute ordinary negligence and thereby fall within the capped liability rule. A gross negligence rule, § 3-405, which declares that certain types of actions leading to losses are negligent as a matter of law. Thus, a consumer would be liable for any loss, but only to a limited extent. This rule would avoid catastrophic loss, but would give consumers an incentive to be careful with their checks. Several commentators have noted the desirability of such an incentive. See Farnsworth & Leary, \textit{U.C.C. Brief No. 10: Forgery and Alteration of Checks}, PRAC. LAW., Mar. 1968, at 75, 76-77; Murray, \textit{Price v. Neal in the Electronic Age: An Empirical Survey}, 87 BANKING L.J. 686, 721-22 (1970).

The current discussions for revision of the UCC contain two major changes in the negligence provisions: an expansion of employer liability, and divided liability when both parties are negligent. But the basic structure of the provisions probably will remain unchanged. See Articles 3 & 4 Revision, \textit{supra} note 11, at 22-24.

\textsuperscript{132} See, e.g., U.C.C. § 3-406 (1978) (prohibiting a consumer, whose negligence contributed to alteration or forgery of check, from bringing an action against a bona fide holder in due course of that check).

\textsuperscript{133} See Vergari, \textit{Articles 3 and 4 of the Uniform Commercial Code in an Electronic Fund Transfer Environment}, 17 SAN DIEGO L. REV. 287, 296-297 (1980).

\textsuperscript{134} 15 U.S.C. § 1693g(a) (1982).

\textsuperscript{135} Higher limits on liability are not appropriate, however, in the more common case of the faithless agent. See, e.g., Hutzler v. Hertz Corp., 39 N.Y.2d 209, 211-12, 347 N.E.2d 627, 628-29, 383 N.Y.S.2d 266, 267 (1976) (attorney forged plaintiff's settlement check and absconded with proceeds). Choosing a faithless agent may be negligent, but it is generally not a known risk, and therefore should come under the lower liability limit.

There are a vast number of cases in which faithless employees have improperly initiated checks. See, e.g., Sun 'N Sand, Inc. v. United Cal. Bank, 21 Cal. 3d 671, 678, 582 P.2d 920, 925, 148 Cal. Rptr. 329, 334 (1978); Snug Harbor Realty Co. v. First Nat'l Bank, 105 N.J. Super. 572, 573-74, 253 A.2d 581, 582 (Super. Ct. App. Div.), \textit{aff'd per curiam}, 54 N.J. 95, 253 A.2d 545 (1969); Danje Fabrics Div. v. Morgan Guar. Trust Co., 96 Misc. 2d 746, 747-48, 409 N.Y.S.2d 565, 565-66 (Sup. Ct. 1978); Medford Irrigation Dist. v. Western Bank, 66 Or. App. 589, 591, 676 P.2d 329, 331 (1984). But these cases generally involve businesses, not consumers, and therefore lack the indicia of market failure that justify government regulation. As a presumptive matter, the loss might be imposed on the merchant based on general notions of enterprise liability. This rule is currently under discussion in the proposed revision of Article 3. See Articles 3 & 4 Revision, \textit{supra} note 11, at 29. But to achieve efficiency in these circumstances, any legal rule should allow the parties to contract out of those rules and reach their own agreement. See, e.g., Perini Corp. v. First Nat'l Bank, 553 F.2d 398, 400 (5th Cir. 1977) (agreement that bank may charge any check signed by company's facsimile signature machine against the company's account).
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however, presents two problems. First, the empirical question of consumer responsiveness to gradations of liability for infrequent losses remains unanswered. Second, the introduction of a gross negligence standard would invite fact-finding trials for a large number of payments cases. Adding this standard to the rules would result in increased loss imposition costs that would probably exceed any savings from increased precaution.

The foregoing analysis concerns unintentional losses only. As previously stated, a person who knowingly generates an invalid instrument is a wrongdoer, and should be liable for the entire amount of the loss. The distinction between intentional wrongdoing and mistake, however, is not always clear. This is true when the loss results from an abuse of a consumer's authorization. The consumer is typically in a far better position than the institution to avoid this type of loss, so the loss spreading and loss reduction principles directly conflict. Without empirical data, this conflict is difficult to resolve. We could assimilate this situation into outright wrongdoing, in which case the consumer will be liable for the entire loss, or gross negligence, in which case there would be a limit on liability that may be higher than the general limit. Everyone familiar with the payment system will have views about which solution is the proper one, but in the absence of data, these views can only be grounded on pre-empirical intuitions.

False negatives at the point of origin have been a minor issue with checks because most payees are within their legal rights when they refuse to accept payment by check. Banks, however, have a duty to cash a valid


137. Because the higher level of consumer liability for use of an instrument beyond the authorized limit is based on a consumer's greater ability to take precaution and be responsive, care must be taken to ensure that the use is actually authorized, as opposed to constructively authorized. A possible example of the latter is Walker Bank & Trust Co. v. Jones, 672 P.2d 73 (Utah 1983). In Walker, the court held that a credit card issuer could require cardholders to return their cards in order to effectively revoke an authorization to use the card. The cardholders were trying to revoke the authorization given to their estranged spouses. In addition, the cardholders refused to surrender their own cards. The Walker court did not indicate whether this refusal was determinative; the omission is a major defect in the opinion.

According to the analysis presented in this Article, refusal to surrender one's own card is gross negligence or egregious behavior that might trigger the higher liability level. Even so, the issuer has the power to render the card useless by placing the card number on its proscribed list. On the other hand, if the cardholder does notify the issuer that he or she is canceling an authorization, and does return the card (or is not able to do so, as was apparently the case in Walker), the low liability limit should apply because the issuing bank is in the best position to avoid the loss. This result was reached, but on the basis of marital law, in Society Nat'l. Bank v. Kienzle, 11 Ohio App. 3d 178, 182, 463 N.E.2d 1261, 1265 (1983) (finding the husband not answerable for wife's actions).
check that their customers present for payment, and failure to do so is presumably a wrongful dishonor under the UCC.138

In contrast to the relative paucity of check cases on this issue, courts have decided a spate of recent cases in which credit cards were seized at the point of origin. In the typical case, a merchant calls for authorization of a consumer's credit card purchase, and the bank instructs the merchant to seize the card, relying on a contractual provision that allows it to cancel the consumer's credit without notice. As may be expected, consumers subjected to this treatment tend to be discomforted, and some have filed suit alleging consequential damages ranging from embarrassment139 to heart attack.140 Because a market failure almost certainly exists for credit card cancellation provisions, a legal rule should govern the disposition of these cases, rather than the contractual provision allowing cancellation without notice.141

To devise a rule for these situations, one must acknowledge that the consumer has been damaged. Even assuming that the seizure affects only his card, and not his heart, it often causes inconvenience and embarrassment. Although this seemingly minor damage cannot be readily expressed in monetary terms, convenience and perhaps a certain sense of status are among the reasons for obtaining a credit card in the first place.

138. See Joler v. Depositors Trust Co., 309 A.2d 871 (Me. 1973); Wallick v. First State Bank, 532 S.W.2d 520 (Mo. Ct. App. 1976). In Joler, the court held that the bank’s refusal to honor a withdrawal slip against a savings account, when there were sufficient funds in the account to do so, stated a cause of action under § 4-402. 309 A.2d at 877. Obviously, the court would be prepared to make the same ruling with respect to a check. In Wallick, the depositor attempted to withdraw funds from his account by an instrument not described in the opinion. When the bank refused (because it wanted to preserve a possible claim against the account by a company whose president was also the bank’s president), Wallick wrote a check to his wife, who then presented it to a bank officer. The officer refused to countersign, although he was contractually obligated to do so. 532 S.W.2d at 522. Wallick sued and won under § 4-402. The case could have been decided as a traditional wrongful dishonor of a third-party check. Nothing indicates Wallick’s stratagem was the decisive factor; the court spoke in terms of the bank’s obligation to permit Wallick’s withdrawal. Id. at 523-24.

A financial institution’s refusal to honor a valid check presented by a payee is a different matter. The payee has no remedy against the bank, but must look to the drawer. The UCC achieves this result by declaring that a check is not an assignment of the drawer’s funds. See U.C.C. § 3-409 (1978); Morris Plan Co. v. Broadway Nat’l Bank, 598 S.W.2d 557, 558 (Mo. Ct. App. 1980); cf. Sabin Meyer Regional Sales Corp. v. Citizens Bank, 502 F. Supp. 557, 559-60 (N.D. Ga. 1980) (stating that an oral promise does not constitute legal acceptance by bank). If the drawer’s account has insufficient funds, the dishonor is entirely valid and simply a reflection of the payee’s credit risk. If the dishonor is invalid, however, the financial institution has created a genuine false negative, which causes inconvenience to the payee. The law’s refusal to provide a remedy in this case because of the nonassignment theory is simply conceptualism. A policy of economic efficiency suggests the opposite result. It would provide compensation for the consumer’s inconvenience in going all the way to the bank only to have a valid check rejected, and sometimes the more serious inconvenience of being denied access to the deposited funds.

140. Wood v. Holiday Inns, 508 F.2d 167, 170 (5th Cir. 1975).
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A financial institution is entitled to cancel a consumer's card, but in the absence of fraud, it should exercise its contractual right by advance notice, rather than waiting until the moment of purchase. When the merchant who was offered the card communicates with the issuing financial institution, and the institution wrongfully rejects it, the face value liability rule would allow the consumer to sue the institution for some proportion of the amount of the attempted charge, up to a specified limit. At least one case distinguishes credit card seizures according to the financial institution’s reason for seizing the card. The seizure can be either accidental, resulting from a faulty computer response, or it can be intentional, if the institution takes this occasion to cancel the consumer’s card. The issue is whether the damage multiple should be larger for intentional seizures than accidental ones. The advantage of a higher multiple for intentional seizures is that it would induce financial institutions to take greater precaution in certain situations when precaution is particularly easy to accomplish. Its disadvantage is that it leads to additional loss imposition cost, because an evidentiary hearing often would be required to establish the distinction. These considerations are analogous to those raised previously in discussing a gross negligence standard for consumers. Once again, a definitive response requires empirical data that is presently unavailable.

B. Transmission

After a consumer initiates a payment, the payment must be transmitted from the point of origin to a financial institution. Transmission losses occur when a thief intercepts a payment and diverts or alters it before it reaches its intended destination. This can be accomplished by forging an indorsement on a check or by scrambling the transmission so that the payment is diverted into the thief’s account. In the simplest situation, typical of electronic payments such as wire transfers, a consumer communicates directly with a financial institution, and bilateral precaution is possible. The financial institution can take precaution by designing safeguards into computer software and hardware, such as secret codes for identifying the transmitter, while consumers can take


143. See Clarke, The Bank-Customer Relationship in an Electronic Credit Transfer System, 2 RUTGERS J. COMPUTERS & L. 1, 4-6 (1971).

An interesting analogy is the theft of cash or checks from night depository boxes. See, e.g., Valley Nat'l Bank v. Tang, 18 Ariz. App. 40, 41-43, 499 P.2d 991, 992-94 (1972); Hy-Grade Oil Co. 103
precaution by following the institution's instructions and by protecting their access device. Again, economic principles suggest that consumers should be strictly liable for the loss up to a low limit, and financial institutions should be liable for the remainder.144

In long-range electronic transmissions, the communications company, rather than the financial institution, may cause the loss. But it would be highly inefficient to impose the cost of making this determination on consumers. Because there is no market failure between communication companies and financial institutions, reallocation of losses among them should be left to the market.145 Thus, any loss that should ultimately be borne by the communications company can be effectively assigned to the financial institution.

The situation becomes more complicated when a consumer transfers the payment instrument to a third party, instead of communicating directly with a financial institution. In this two-step transmission process, losses can occur when the instrument is sent to the third party, or when the third party introduces it into the collection system. When the payment instrument is a check, one of the most venerable rules in commer-

v. New Jersey Bank, 138 N.J. Super. 112, 117-19, 350 A.2d 279, 282-83 (Super. Ct. App. Div. 1975), certification denied, 70 N.J. 518, 316 A.2d 532 (1976); Kolt v. Cleveland Trust Co., 156 Ohio St. 26, 29-31, 99 N.E.2d 902, 903-04 (1951); Irish & Swartz Stores v. First Nat'l Bank, 220 Or. 362, 371-74, 349 P.2d 814, 819-20 (1960) (overruled by Real Good Food Store v. First Nat'l Bank Oregon, 276 Or. 1057, 557 P.2d 654 (1976)). In these cases, a business would place its daily receipts in a bag and drop the bag into the bank's night deposit chute. Instead of falling into the basement vault, however, the ill-fated bag would catch inside the chute only to be discovered and stolen by a nefarious third party. The courts struggled with the liability issue and generally resolved it by trying to determine which party was more at fault. Economic considerations suggest that "fault" resides in the design of the night deposit chute as much as in its use. Therefore, imposing liability on the financial institution that chooses the design for the chute would produce more of a response than imposing it on the depositor. 144. See Lingl, Risk Allocation in International Interbank Electronic Fund Transfers: CHIPS & SWIFT, 22 HARV. INT'L L.J. 621, 641-43 (1973); Scott, supra note 13, at 1699-1702.

145. Reallocation has not been left to the market when the federal government owns the carrier. Both the Post Office and the Federal Reserve Bank have erected legal barriers against their own liability. Insurance Co. of N. Am. v. United States Postal Serv., 675 F.2d 756, 758 (5th Cir. 1982); see also Federal Tort Claims Act, 28 U.S.C. § 2680(b) (1982) (imposing no liability for "loss, miscarriage or negligent transmission of letters or postal matter"), incorporated in Postal Service Code, 39 U.S.C. § 409(c) (1982); 12 C.F.R. § 210.6(a)(1) (1987) (stating the rule that the Federal Reserve Bank is liable only to its immediate transferor). The Federal Reserve's policy is currently under reconsideration. See 50 Fed. Reg. 12310 (1985) (to be codified at 12 C.F.R. § 210) (proposed Mar. 28, 1983) (proposed rule to impose same liability on Federal Reserve Bank as the UCC imposes on collecting bank, but limiting this liability to two-year period). The proposal emerged from a general effort to place the Federal Reserve Bank in the same position as private competitors in the payment market. See generally The Role of the Federal Reserve in Check Clearing and the Nation's Payments System: Joint Hearings Before Subcomm. on Commerce, Consumer, and Monetary Affairs of the House Comm. on Government Operations and the House Comm. on Banking, Finance and Urban Affairs, 98th Cong., 1st Sess. 3 (1983) (opening statement of Douglas Barnard, Jr.., Chairman of the Commerce, Consumer, and Monetary Affairs Subcomm.) (stating that Congress must review periodically the role of the Federal Reserve in check clearing and other payment services).
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cial law, named after the case of *Price v. Neal*¹⁴⁶ and now codified in the
UCC,¹⁴⁷ distinguishes between forged drawers’ signatures and forged in-
dorsements. In the event of either forgery, the check is not properly pay-
able,¹⁴⁸ so a bank that pays it may not charge it against the customer’s
account,¹⁴⁹ at least when the consumer has not been negligent.¹⁵⁰ If the
check bears a valid signature of the account owner, but a forged in-dorse-
ment, then whoever pays the check can sue and recover its value from a
previous indorser.¹⁵¹ Thus, liability for a forged indorsement typically
will revert to the first taker from the forger, who will generally be left
with a worthless cause of action against the malefactor. But if the check
bears a forged drawer’s signature, rather than a forged indorsement, then
a bank that pays the check cannot pass the loss back to a prior trans-
feror.¹⁵² As a result, liability for forged drawers’ signatures rests with
the drawee bank.

The traditional reason given for this differential treatment of forged
drawers’ signatures and forged indorsements is essentially a precau-
tion rationale.¹⁵³ The drawee bank is assigned the loss from a forged drawer’s
signature because it has the consumer’s signature on file and can deter-
mine whether the signature on the instrument is genuine. But the bank
does not have the indorser’s signature,¹⁵⁴ so another party, the first taker

¹⁴⁶. 3 Burr. 1354, 97 Eng. Rep. 871 (K.B. 1762) (Mansfield, J.). The case held that the drawee
had no cause of action against the drawer when the drawee paid on a forged indorsement. *See
the doctrine rests on the principle that parties to a business transaction must fix a point when they
can consider the transaction closed).

¹⁴⁷. § 3-418 (1978).

¹⁴⁸. Section 3-401 provides the general rule that no person is liable on an instrument without
having signed it. Under § 3-404, an unauthorized signature is wholly inoperative for the person
whose name is signed. *See* U.C.C. § 1-201(43) (1978).

¹⁴⁹. *See id.* § 4-401.

¹⁵⁰. Consumers whose “negligence substantially contributes” to the forgery are precluded from
asserting the forgery as a defense. *Id.* § 3-406. Consumers who are negligent in discovering forgeries
and reporting them after receiving a statement that indicates the forged items may be liable for
subsequent forgeries under § 4-406.

¹⁵¹. Section 3-417(1)(a) provides the cause of action against prior transferors. Comment 3 to
§ 3-417 explains that a party who pays on an instrument “does not ‘admit’ the genuineness of in-
dorsements and may recover from the person presenting the instrument when they turn out to be
forged.” *Id.* § 3-417 comment 3.

¹⁵². Clearly, the drawee institution may not charge the drawer for the forged check. *Id.* § 4-
401. The rule that the drawee institution may not sue its transferor arises by negative implication
from § 3-417 and § 4-207, which exclude any warranty by the transferor to the payor that the
drawer’s signature is valid, and also from § 3-418, which declares that payment is final “in favor of a
holder in due course, or a person who has in good faith changed his position in reliance on the
payment.” The comments to each section refer explicitly to *Price v. Neal*. *See id.* §§ 3-417 comment
4, 4-401 comments 1 & 2, 4-207 comment 4.

misfortune which has happened without the [purported drawer’s] fault or neglect. . . . [I]f there was
any fault or negligence in any one, it certainly was in the [payor]”).

from the forger, is purportedly in a better position to detect the forged indorsement. *Price v. Neal* has been criticized as outmoded in the modern era because financial institutions do not visually examine each signature on the forty billion or so checks that they process annually.155 This criticism, however, ignores the innovation element of loss reduction. If the financial institution is subject to liability, it will be motivated to develop new technology, such as signature reading machines. Whether such devices prove to be economically feasible is a decision that financial institutions must make, but it is precisely this ability to balance the cost of new technology against its benefits that makes them the most efficient bearers of the loss.156

From an efficiency perspective, however, the problem of allocating forgery losses among the various parties is less significant than its long history suggests. Neither checks nor other payment instruments now pass from one person to another the way they did in eighteenth century mercantile practice.157 They are not even cashed by merchants as often as they used to be.158 Moreover, the proliferation of ATMs, home banking terminals, and similar devices will amplify this trend by making financial services more readily available. The result is that the first taker of a check with a forged indorsement is almost always a merchant or a bank, and with increasing frequency it is a bank. Between the merchant, the depositary bank, and the drawee bank, the allocation of liability can be left to the market, at least on a presumptive basis, because no market failure exists. Except in the rare situations in which a consumer is the first taker from a forger, there is little need for a separate forged indorsement rule in consumer cases. Thus, the general rule of capped consumer liability can be applied to all forged checks with no further allocation of the remaining liability among merchants and financial institutions. The

155. See Perini v. First Nat'l Bank, 553 F.2d 398, 405-06 (5th Cir. 1977); E. Peters, A Negotiable Instruments Primer 58 (2d ed. 1974); J. White & R. Summers, Uniform Commercial Code § 16-2 (2d ed. 1980); Murray, supra note 131, at 721-22; see also U.C.C. § 3-418 comment 1 (1978) (referring to traditional justification as "fictional").


158. The Federal Reserve Board reports that between 4% and 11% of various demographic groups cash some checks at a store. Use of this method increases with income and education. We do not know what proportion of their cash they obtain in this way, but those in the high income and education categories are also the ones that use proportionately smaller amounts of cash. Therefore, the gross amount of cash obtained from stores is probably less than the proportion of people who received some cash in that manner. See Cash Survey, supra note 109, at 98-103.
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rule of *Price v. Neal* need only be retained as a presumptive allocation among merchants and financial institutions.\(^\text{159}\)

To implement a uniform rule of capped consumer liability in situations involving three-party payments such as checks, we must determine whom a consumer can sue for losses in excess of the consumer’s liability limit. Credit card losses do not present this issue because the issuing institution extends credit to the consumer and, therefore, bears the initial loss; if there is a dispute, it obviously will be between that institution and the consumer who allegedly owes it money. The check collection system, however, is more complex because at least two financial institutions are primarily involved in check transmission cases: the depositary bank and the drawee bank. These inherent complexities have been deepened by the statutory complexity of the UCC approach. For forged drawee’s signatures, a consumer’s own bank, the drawee, is clearly liable for the loss.\(^\text{160}\) For forged indorsements, however, the UCC creates two different categories, depending upon whether the loss initially falls on the payee or the drawer.

In the typical example of the first category, in which the loss initially falls on the payee, several buyers from a single seller pay by check. The seller’s bookkeeper then steals the checks, forges the necessary indorsements, pastes on his Fu Manchu mustache, cashes the checks at the seller’s bank, and disappears.\(^\text{161}\) In this situation, the UCC authorizes the seller (payee) to sue the various buyers’ banks, the drawees, for honoring invalid checks.\(^\text{162}\) Each drawee bank can then sue the seller’s bank,

159. Some empirical data supports the notion that *Price v. Neal* is efficient, at least as a presumptive allocation among merchants and financial institutions. First, in recent deliberations on the revision of UCC Articles 3 and 4, the major commercial banks have not been anxious to reverse the *Price v. Neal* rule that the drawee is liable for a forged drawer’s signature, with no recourse against prior indorsers. Although this rule leaves banks with liability that could be transferred back to merchants if the rule were changed, the banks apparently feel that the existing rule is satisfactory. Second, the internal rules of the Visa and MasterCard organizations, both bank cooperatives, provide that the card company will assume the bulk of the losses resulting from counterfeit cards, and the financial institution issuing the cards will bear the remainder. MasterCard International, Inc., ByLaws and Rules (regularly updated), rules 14.02-.04; Visa U.S.A., Inc., By-Laws, Operating Regulations, Bulletins (regularly updated), operating regulations 15.1-.5. Merchants are not liable at all unless they violate one of the definitive rules established by the company, such as failing to check the regularly published “restricted list” before accepting the card. MasterCard International, Inc., *supra*, rules 6.01-.09, 7.01-.04, 8.01-.06, 9.04; Visa U.S.A., Inc., *supra*, operating regulations 3.1-.5, 5.1-.3, 6.5-.8. Thus, financial institutions voluntarily assume counterfeit card losses, perhaps because they are best able to develop technological innovations to reduce the losses, and they do not impose these losses on merchants unless the merchant is, in effect, grossly negligent.

160. This is the rule of *Price v. Neal*. See *supra* text accompanying notes 153-55.


162. U.C.C. § 3-419(1)(c) (1978). The more reasonable interpretation of this provision’s language is that the depositary bank is not liable for conversion if it acted in good faith and followed
where the checks were first deposited. The legal rationale is that the payee, being the owner of the check, may sue the drawee for conversion of its property, and the drawee can then sue the depositary bank under the forged indorsement rule.

Although the loss ultimately rests with the depositary bank, the initial suit by the seller for any losses must be brought against the buyers’ various drawee banks. This chain of suits can be very difficult for the seller, because the drawee banks are often numerous and are typically located near the buyers’ residences, not near the seller’s place of business. Consequently, most sellers would prefer to sue the depositary bank, a single, conveniently located defendant, and their inability to do so may virtually preclude the suit. Courts generally understand this and have displayed extraordinary creativity in eviscerating the conversion rule and allowing payees to proceed against the depositary bank.

In the second category of forged indorsement cases, the loss initially falls on the drawer rather than the payee. Most typically, an employee or family member steals a check after the drawer has written it, forges the payee’s indorsement, and cashes it. The drawer’s right of action, which is for improper payment, lies against the drawee, as in the previous example. But unlike that example, the consumer in this case will be...

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"reasonable commercial standards," unless the proceeds of the check remain with it (i.e., for some reason the forger does not take the money and run). \textit{Id.} § 3-419(3).

163. The drawee bank—a "payor bank" as defined in § 4-105(b)—has a cause of action against the depositary bank for breaching its § 4-207(1)(a) warranty of "good title."


165. \textit{See, e.g., Cooper v. Union Bank, 9 Cal. 3d 371, 376-77, 507 P.2d 609, 613, 107 Cal. Rptr. 1, 5-6 (1973) (finding that money paid out by depositary bank on forged indorsements was bank's own money because it was improperly paid, and thus proceeds of checks remained in bank); Grieshaber v. Michigan Nat'l Bank, 18 U.C.C. Rep. Serv. (Callaghan) 1248, 1256 (Mich. C.P. 1976) (concluding that § 3-419(3) reflects imprecise draftsman ship and cannot possibly mean what it appears to say); Salsman v. National Community Bank, 102 N.J. Super. 482, 494, 246 A.2d 162, 168-69 (Super. Ct. Law Div. 1968) (concluding that depositary bank did not act in accordance with reasonable commercial standards); Ervin v. Dauphin Deposit Trust Co., 84 Dauph. 280, 286-87, 38 Pa. D. & C.2d 473, 482-83 (C.P. 1965) (depositary bank not included in § 3-419(3) protection of "a representative, including a depositary or collecting bank"). Recently, the courts seem to have repented, with several significant decisions giving § 3-419(3) a more accurate reading. \textit{See} Jackson Vitrified China Co. v. People's Am. Nat'l Bank, 388 So. 2d 1059, 1062 (Fla. Dist. Ct. App. 1980); Knesz v. Central Jersey Bank & Trust Co., 97 N.J. 1, 18, 477 A.2d 806, 816 (1984). In each case, however, the court has bemoaned its own conclusion. \textit{Jackson}, 388 So. 2d at 1063; \textit{Knesz}, 97 N.J. at 21, 477 A.2d at 816.


suing his own bank, and while it is convenient to sue one's own bank, certain practical problems can arise. Financial institutions tend to become irritated when they are sued, and the drawer's bank can express its irritation by cancelling the drawer's accounts, or accelerating any outstanding loans.\footnote{168} As a result, the drawer may prefer to sue the depositary bank. Such a suit avoids circuity because the depositary bank will ultimately bear the loss if the drawer has not been negligent.\footnote{169} On the other hand, as several courts and commentators have pointed out, defenses based on the drawer's negligence are most logically asserted by the drawee bank, not the depositary bank.\footnote{170} But neither of these points is significant, given modern rules of discovery, long arm jurisdiction, and the ability of the drawer or the depositary bank to obtain an assignment of the drawee's rights.\footnote{171}

The pending revision of UCC Articles 3 and 4 addresses the problem of whom to sue by giving the payee a cause of action in conversion against the depositary bank.\footnote{172} This cause of action eliminates the need for multiple suits against the various drawee banks. But the revision precludes a suit by the drawer against the depositary bank, apparently on the ground that a suit against a distant party should not be authorized just to satisfy the drawer's commercial sensibilities.\footnote{173} These revised rules would solve most of the difficulties, but economic analysis suggests a more comprehensive revision: a consumer, either payee or drawer, should be allowed to sue any financial institution that has handled the check. Consumers can be expected to select the most convenient defendant, and financial institutions can be expected to allocate the loss among themselves in an efficient manner. Moreover, the loss allocation rules we propose would yield a much simpler lawsuit. A consumer, as drawer or payee, would be strictly liable for a fixed amount, and the financial insti-

\footnote{168} Banks may terminate a depositor's account after giving reasonable notice. See 5A Michie on Banks and Banking ch. 9, § 9, at 35 (1973). A bank may enforce acceleration clauses when its security has been impaired. See F. Beutel, Bank Officer's Handbook of Commercial Banking Law § 13-10 (1974).

\footnote{169} Under UCC § 3-417 and § 4-207, the depositary bank has a cause of action against the thief, but it generally will be unavailing.


\footnote{171} A drawer who does not want to sue his own bank can obtain an assignment of that bank's warranty rights under UCC § 3-417 and § 4-207, and then proceed against the depositary bank on the basis of the warranty. Similarly, if a depositary bank could be sued by the drawer, it might obtain an assignment of the drawee bank's defenses based on drawer negligence.

\footnote{172} See Articles 3 & 4 Revision, supra note 11, at 30.

\footnote{173} Id. at 30-31.
stitution sued would be liable for the remainder. All those complex issues about depositary bank negligence, drawer negligence, reasonable commercial standards, impostors, and fictitious payees would be eliminated.

This solution may seem odd because it allows suit against any bank handling a check with a forged indorsement, regardless of its role in causing the loss. The basis on which the proposed rules are being constructed, however, is economic efficiency, not moral culpability. The goal is to minimize the costs associated with payment losses, rather than to invest resources in identifying the party that is most at fault. From this perspective, the law must determine the most efficient loss allocation between consumers and financial institutions because the market will not do so. But it need not be concerned with the allocation among financial institutions, except as a presumptive matter, because those institutions are likely to provide the most efficient rule for themselves. Financial institutions can decide by private agreement whether to allow the loss from a forged indorsement to remain with the financial institution that a consumer chooses to sue, or whether to reallocate the loss to a particular financial institution in the collection chain, such as the depositary bank. Bank associations, clearinghouses, and contracts among correspondent banks can provide the institutional mechanism for accomplishing this end.174

C. Processing

Once the consumer's financial institution receives the payment instrument, that institution will process it or transfer it to another institution for processing. The purpose of processing is to transfer funds from a consumer to a payee, and this requires the transfer of written or electronic information. Because processing is always carried out within the

174. An indication of such interinstitutional arrangements is provided by bank practice regarding forged indorsements prior to the UCC. At that time, a bank that paid a check with a forged indorsement could not sue its prior transferor, but had to sue the depositary bank or the payee. This rule was inefficient because it frequently required suits against distant parties. Consequently, banks voluntarily began stamping the words "prior endorsements guaranteed" (or "P.E.G.") on all the checks they processed, which made them liable to their transferees. See B. CLARK, supra note 165, ¶ 4.5. They did so not out of an excess of virtue, but because it was economically efficient; each bank served as both payor and intermediary for different payments, and the P.E.G. stamp reduced aggregate costs.

On the spelling of "indorsement" in "prior endorsement guaranteed," the discussion in Perini Corp. v. First Nat’l Bank, 553 F.2d 398, 401 n.1 (5th Cir. 1977), merits full quotation:

While the Uniform Commercial Code, as will be seen, frequently fails to provide clear answers to questions in the area of negotiable instruments, it is unequivocal in its insistence that indorsement is to be spelled with the letter "i". Bankers, who claim to know much of such weighty matters, may insist on beginning with "e", but this practice could be attributed to the bankers' understandable reluctance to stamp "Pay any Bank PIG" on the backs of the checks they handle.
system of financial institutions, the principles of economic efficiency suggest that institutions, as a group, should be strictly liable for the losses that occur. In this situation, loss spreading, loss reduction, and loss imposition considerations all lead to the same result. No liability should be imposed on consumers because they can take no realistic precautions.

The current law governing false positives that occur during processing is generally consistent with this rule. If a financial institution pays the wrong person through a processing error, and that person keeps it, the financial institution will be liable.175 One modern processing error, which can cause either false positives or false negatives, occurs when a depositary bank encodes the wrong amount in the magnetic numbers on the bottom of a check. Because the drawee bank’s computer reads only these magnetic numbers, such errors can result in overpayment or underpayment of the payee. Clearly, the financial institution should be liable initially,176 although it will have an action against the payee when there is an overpayment,177 and against the drawer when there is an underpayment.178

Current law governing false negatives during processing is less efficient. Surprisingly, the UCC and the EFTA employ essentially equivalent solutions in this case. For the wrongful dishonor of a check, or the failure to make an electronic fund transfer, a financial institution is liable to a consumer for damages proximately caused and actually proved.179 Thus, the law requires a consumer to prove the amount of actual damages, and to establish the causal link between those damages and the financial institution’s wrongful dishonor. If the failure is inten-

175. Sabatino v. Curtiss Nat’l Bank, 446 F.2d 1046, 1056 (5th Cir. 1971); see also 15 U.S.C. § 1693f (1982) (requiring financial institutions to correct errors); U.C.C. § 4-401 (1978) (suggesting, by negative implication, that a financial institution may charge a consumer’s account only for properly payable items).

176. When payments involve a complicated collection chain, a question may arise about which institution was responsible. Nonetheless, it would be inefficient to require a consumer to sort out the complex system of interbank relationships in the collection process; the cost would be too high, and the potential for underenforcement too great. If the payee sues the drawer, then the drawer, who is liable for the check’s actual amount, should be able to sue either financial institution for the statutory multiple or fraction of the instrument’s face value. This remedy would compensate the drawer for the disruption in business or personal relations resulting from the institution’s mistake. If the payee makes the claim against its own financial institution, that institution should be liable for the check’s actual amount because it received a valid check in this amount and coded it incorrectly. It might then be able to charge the drawee institution, and the drawee would presumably charge its customer, the drawer. But the drawer should again be able to counterclaim against either financial institution for the same multiple or fraction of the face value, because the error has disrupted its relations with the payee.


tional, however, a consumer may be relieved of the obligation to prove damages, and will receive per se damages instead.\textsuperscript{180}

Economic considerations reveal the inefficiencies of this legal regime. The cost of litigating complex factual matters, such as the amount and causation of damages, is likely to deter all claims but those for the most disastrous injuries or the most extravagant amounts. As a result, liability for proximately caused damages systematically undercompensates consumers and provides inadequate loss-avoiding incentives for financial institutions. The preferable rule for false negatives is to set damages at a fixed amount, corresponding to some multiple or fraction of the instrument’s face value.\textsuperscript{181} This simple rule will eliminate the great bulk of loss imposition costs and will satisfy precaution concerns more effectively than the rule of proximate cause.

The distinction in existing law between mistaken and intentional dishonor may or may not be economically justifiable. But if an intentional dishonor does justify additional liability for the financial institution, an efficient set of legal rules would not be able to impose this higher level of

\textsuperscript{180} The Electronic Fund Transfer Act explicitly states this rule. 15 U.S.C. § 1693h(a), (c). As usual, the UCC is more complex. Section 4-402 limits bank liability to actual damages proved “[w]hen the dishonor occurs through mistake.” U.C.C. § 4-402. Nothing is said, however, about the measure of liability when the dishonor is intentional. The pre-Code law in many jurisdictions included the “trader rule,” which allowed merchants, but not consumers, to obtain per se damages for wrongful dishonor without specific proof of loss. See Daniels, Bank Liability for Wrongful Dishonor: UCC Section 4-402—Is Revision Needed?, 8 IND. L. REV. 802, 806-10 (1975); Davenport, Wrongful Dishonor: UCC Section 4-402 and the Trader Rule, 56 N.Y.U. L. REV. 1117, 1122-29 (1981); Dow, Damages and Proof in Cases of Wrongful Dishonor: The Unsettled Issues Under U.C.C. Section 4-402, 63 WASH. U.L.Q. 237, 244-46 (1985). To determine the magnitude of the per se damages, the merchant could submit evidence about its size, its prospects, its need for credit, and its standing in the community. See McFall v. First Nat't Bank, 138 Ark. 370, 376-77, 211 S.W. 919, 922 (1919).

The UCC explicitly abolished the trader rule in mistaken dishonor cases, U.C.C. § 4-402 comment 3 (1978), but the negative implication that the rule remained in force for intentional dishonors somehow eluded the bank lobby’s watchful eyes. The courts, which have generally found the one-sided quality of Article 4 offensive, were quick to recognize this implication and revive the trader rule when dishonor was intentional. See, e.g., Elizarraras v. Bank of El Paso, 631 F.2d 366, 375-77 (5th Cir. 1980); American Fletcher Nat’l Bank & Trust Co. v. Flick, 146 Ind. App. 122, 132-33, 252 N.E.2d 839, 845-46 (1969); cf. Yacht Club Sales & Serv., Inc. v. First Nat’l Bank, 101 Idaho 852, 861-62, 623 P.2d 464, 474-75 (1980) (declaring trader rule abolished, but allowing recovery without proof of actual damages if the plaintiff proves injury); Northshore Bank v. Palmer, 525 S.W.2d 718, 720-21 (Texas Civ. App.—Houston [14th Dist.] 1975, writ ref’d n.r.e.) (allowing exemplary damages when dishonor was intentional); see also Holland, An Analysis of the Legal Problems Resulting from Wrongful Dishonors, 42 MO. L. REV. 507, 516-36 (1977) (crucial factor in the determination of presumed damages from wrongful dishonor is whether the dishonor was intentional or the result of a mistake). See generally Sabbath, Drawee Bank’s Liability for Wrongful Dishonor: A Proposed Checkholder Cause of Action, 58 ST. JOHN’S L. REV. 318, 318-53 (1984) (proposing that a bank should be held liable to the payee, a third party who is foreseeably injured when the bank wrongfully dishonors the check); Comment, Wrongful Dishonor of a Check: Payor Bank’s Liability Under Section 4-402, 11 B.C. INDUS. & COM. L. REV. 116, 116-27 (1969) (calling for state legislation to clarify the type of damages allowed for wrongful dishonor in light of UCC § 4-402’s lack of specificity).

\textsuperscript{181} See supra text accompanying notes 116-17.
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liability by simply eliminating the requirement that damages be proved and establishing a per se negligence rule. Regardless of intent, the requirement to prove damages should be eliminated. Rather, enhanced liability for intentional acts should be imposed by setting a higher multiple for the statutorily determined damages.

Another economically inefficient aspect of current law is its complete elimination of the financial institution’s liability for what is known in the somewhat primordial parlance of the common law as an Act of God. Today, the most common Act of God is a breakdown in a financial institution’s computer system. When such a catastrophe occurs, the UCC, the Federal Reserve Board’s Regulation J, and the EFTA all shield the financial institution from liability. Perhaps this result is based upon the institution’s lack of fault, although it may be derived from the independent social policy of safeguarding the stability of financial institutions. Whatever its origin, the rule is inefficient. Although the financial institution is presumably not at fault, neither are the consumers who bear the loss. The institution is certainly in a better position to avert a computer breakdown. If the law held financial institutions strictly liable for losses arising from delayed payments, these institutions would internalize the risk that only they can control, and they could spread any losses over their entire customer base.

The concern for the stability of the financial system is a serious one, but the law is being overly solicitous of financial institutions in exempting them from liability. Suppose that a financial institution’s computer fails and causes a delay of sufficient length to generate false negatives. Although many consumers will suffer no consequential damages other than a relatively minor loss of interest, other consumers may suffer extensive consequential damages. If consumers are required to prove these damages on a case by case basis, courts might wish to block recovery; the loss imposition costs would be formidable, and the potential lia-

182. See, e.g., Port City State Bank v. American Nat’l Bank, 486 F.2d 196, 199 (10th Cir. 1973) (holding that a computer “malfunction constituted both an emergency condition and a circumstance beyond the control of the bank”). But cf. Blake v. Woodford Bank & Trust Co., 555 S.W.2d 589, 595-97 (Ky. App. 1977) (holding that breakdown of posting machines and heavy volume due to holidays did not cause a delay beyond the control of the bank).


186. A three-day delay in crediting a $10,000 check to an account paying 7% interest would cause a loss of $6 to the depositor. No economic rationale supports shifting these interest losses to the financial institution because they are already spread quite evenly across all the institution’s customers. An efficient rule, therefore, appropriately may exempt financial institutions from liability for interest losses that result from delay, and impose liability for consequential damages of other kinds.
bility could be ominous. If instead, an instrument's face value determined damages, then this problem would be significantly ameliorated; consumers who could demonstrate some loss as a result of the delay simply would be compensated according to the established formula. This approach would significantly reduce loss imposition costs, and would limit the financial institution's liability to some multiple or fraction of the instrument's face value.

D. Postprocessing Losses

The progress of a payment instrument from its initiation, through its transmission, to its processing within a financial institution does not complete the opportunities for loss prevention. After the payment is complete, the financial institution typically reports the transaction to the consumer. The consumer's review of the account statement often presents the first opportunity to detect an unauthorized withdrawal that, if undetected, may be repeated by a persistent thief using the same technique.

The UCC, ever faithful to precaution considerations, raises the consumer's opportunity to monitor account statements to the level of an obligation. A consumer who receives an account statement is required to examine that statement for unauthorized payments, and then report any mistakes to the financial institution. Failure to do so may shift liability for certain losses from the financial institution to the consumer, most notably liability for repeated acts of fraud or theft. The EFTA, which requires that an institution provide a monthly statement of transac-

188. Id. This section contains two types of limits on consumers' ability to recover amounts that have been wrongfully charged to their accounts. The first type is a form of per se negligence. "[T]he customer must exercise reasonable care and promptness to examine the statement and items to discover his unauthorized signature or any alteration on an item and must notify the bank promptly after discovery thereof." Id. § 4-406(1). When successive frauds by the same wrongdoer are involved, reasonable care is defined as notification of the bank within 14 calendar days. Id. § 4-406(2) & comment 3. See, e.g., K & K Mfg. v. Union Bank, 129 Ariz. 7, 10-12, 628 P.2d 44, 47-49 (1981); Winkler v. Commercial Nat'l Bank, 42 Mich. App. 740, 742-46, 202 N.W.2d 468, 470-71 (1972); Vending Chattanooga, Inc. v. American Nat'l Bank & Trust Co., 730 S.W.2d 624, 627-28 (Tenn. 1987); cf. Transamerica Ins. Co. v. Standard Oil Co., 325 N.W.2d 210, 215 (N.D. 1982) (court applied the rule of § 4-406(1) by analogy to a corporate credit card account).

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tions, also allows an institution to shift losses, but grants a consumer a somewhat more generous schedule. In essence, it provides that consumers who fail to notify financial institutions of erroneous charges within sixty days after transmittal of their statement are liable without limitation. For credit cards, consumer liability is capped at fifty dollars even if a consumer fails to discover unauthorized charges on the account statement.

The three principles of efficient loss allocation provide a means of evaluating the consumer's obligation to examine account statements and report unauthorized charges. Loss spreading and the innovation element of loss reduction almost always favor imposing liability on the financial institution. The problematic question is whether consumers are responsive to their obligation to report unauthorized payments that appear in their account statements. Economically rational consumers will balance the costs of not examining their account statements against the benefits of doing so. The principal elements of cost are the acquisition of bookkeeping skills and the time expended in reviewing the statements while the principal benefit is the ability to avoid liability for unauthorized charges, a benefit whose magnitude depends upon the amount at risk, and thus upon the scope and extent of the liability rule. Adjusting the legal liability will change the balance of considerations, and economically rational consumers will respond by altering the care with which they monitor their statements.

But consumers' real motivation for scrutinizing their account statements may not be their desire to avoid potential liability. In all likelihood, they examine their statements to keep their accounts in order, or to check for financial institution errors, for which the institution is clearly liable. As in other situations, the effects of liability rules on consumer behavior remain open to question. There is no available empirical data, although a study to obtain such data is theoretically possible. Evi-

189. 15 U.S.C. § 1693d(a), (c) (1982). The Act also imposes liability on financial institutions for failing to provide required disclosures, independent of actual damage to consumers. Id. § 1693m(a).

190. Id. § 1693g(a); see Vergari, supra note 133, at 297.

191. 15 U.S.C. § 1643(a)(1) (1982). The financial institution also has an obligation to provide an account statement for credit cards. This obligation can be divided into two components: the institution is required to provide a statement of the account charges for each billing cycle, id. § 1637(b)(1)-(3); and it is required to disclose the finance charges, id. § 1637(b)(3)-(7), a feature unique to credit accounts. The latter obligation is amplified by the vast apparatus of the Truth in Lending Act. 15 U.S.C. §§ 1601-1646 (1982 & Supp. III 1985).


193. The study might begin by analyzing the differences in the legal consequences of failing to scrutinize different kinds of payment accounts. This analysis could indicate whether the wide differ-
dence indicating that consumers are unresponsive to liability would favor a rule of no liability for consumers; the opposite result would favor a rule of strict, but limited, liability. In no case, however, would economically based rules produce the unlimited consumer liability that the UCC and the EFTA currently impose.

The other major question in the postprocessing period concerns the burden of going forward in the event of a dispute. When the parties disagree, one party will physically possess the disputed assets, and the other will have to sue or succumb. For a deposit account, a financial institution possesses the disputed assets; it decides whether to remove the charge and restore the balance, or refuse to remove it on the ground that the loss is properly allocated to the consumer. Thus, the consumer has the burden of going forward with a lawsuit. For a credit account in which the financial institution advances money to the consumer, the consumer can withhold the payment, which places the burden of going forward on the institution. An important policy question is whether the burden of going forward should rest where it naturally falls, or whether the law should shift it. This issue is of greatest concern when that burden rests upon consumers. For a variety of reasons discussed above, consumers may tend not to press their claims against financial institutions, so that the burden of going forward will lead to the underenforcement of consumer rights.194

This potential for underenforcement provides a rationale for some aspects of the current federal laws regarding billing disputes about credit cards and electronic fund transfers. These laws require a financial institution to respond to consumer complaints, and correct the bill or provide an explanation for its refusal to do so.195 Federal law could be further strengthened, and the UCC could be entirely transformed, if the institution were required to reverse a charge whenever a consumer asserted that it was erroneous.196 Alternatively, consumers’ underenforcement of rights could be overcome by enhanced damages—either a statutory minimum or treble damages197—or by granting parallel enforcement powers.

194. See supra text accompanying notes 73-83.
195. See 15 U.S.C. §§ 1666, 1693f (1982). The two provisions establish, in effect, an obligatory dialogue between a consumer and the financial institution. Consumers who think the institution has made a billing error are required to notify the institution, and provide the information necessary for the institution to investigate their claim. The financial institution is then obligated to respond, either by making a correction or explaining why no correction is required.
196. Specifically, if the consumer’s complaint were renewed in the face of the financial institution’s explanation, the institution could be required to reverse the charge. The burden of initiating lawsuits, in cases that otherwise could not be resolved, would thus rest with the financial institution.
197. Current federal law provides for a minimum remedy, plus attorneys’ fees, in consumer suits.
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to a governmental agency. The purpose of such remedies would be to tip the balance of costs and benefits so that consumers regularly assert their legal rights.

Legislation to overcome underenforcement shifts losses to financial institutions, and these losses would then be spread among all consumers. The question that arises is whether the consumer’s enhanced ability to shift losses to financial institutions is worth higher charges for consumers in general. The difficulty in answering this question is that we simply do not know how often consumers would make erroneous claims if institutions were required to reverse charges, or how often institutions refuse to act on valid claims. One might opt for financial institution liability because institutions can assert their rights at lower cost than consumers, and their interest in the future condition of the law gives them a stronger incentive to do so. But, unlike consumers, these institutions have a deep pocket and an enduring reputation, so it is easier to get them into court and collect judgments against them. In the absence of empirical data, the relative effects of these various factors can be only a matter of speculation.

involving credit cards and electronic fund transfers. 15 U.S.C. §§ 1640(a)(2)-(3), 1693m(a)(2)-(3) (1982). In addition, federal law allows treble damages when a financial institution knowingly fails to correct an error in an electronically accessed account. Id. § 1693f(e). In contrast, the furthest the UCC goes in compensating for wrongful dishonor, at least for consumers, is to allow recovery for all proximately caused damages. U.C.C. § 4-402 (1978).

Oddly enough, however, one section of the UCC, § 4-207(3), apparently allows banks to recover attorneys’ fees. It grants a drawee bank damages for breach of warranty by a collecting bank, and then states that these damages can include “expenses related to the item, if any.” Id. § 4-207(3). Comment 5 states that the “expenses referred to in this phrase may be ordinary collecting expenses and in appropriate cases could also include such expenses as attorneys fees.” Id. § 4-207 comment 5. Several courts have denied attorneys’ fees, however, on the ground that comment 5 simply could not mean what it says. See, e.g., Riedel v. First Nat’l Bank, 287 Or. 285, 291, 598 P.2d 302, 305 (1979). The general trend, however, is to accept the language as written. See, e.g., First Va. Bank-Colonial v. Provident State Bank, 582 F. Supp. 850, 852 (D. Md. 1984); Guaranty Bank & Trust Co. v. Federal Reserve Bank, 454 F. Supp. 488, 492 (W.D. Okla. 1977); Security Bank & Trust Co. v. National Bank of Commerce, 8 U.C.C. Rep. Serv. (Callaghan) 1086, 1092 (Okla. Ct. App. 1971). The policy basis for this exception to the American rule is difficult to discern. In general, attorneys’ fees provisions make sense for consumer suits, but are probably not a crucial element in other cases.

198. Federal law currently provides for administrative enforcement of the provisions regarding credit cards and electronic fund transfers. 15 U.S.C. §§ 1607, 1693o (1982 & Supp. III 1985). After dividing up the administrative enforcement among the relevant agencies, the basic provision states that “a violation of any requirement imposed under this subchapter shall be deemed to be a violation of a requirement imposed under [the agency’s organizing] Act.” Id. §§ 1607(b), 1693o(b). The UCC, however, does not provide for administrative enforcement. Check collection constitutes a small island of unregulated activity in the highly regulated field of financial institution activities. If such enforcement were deemed appropriate, the responsibility could easily be given to the relevant regulatory agencies, as is done for credit cards and electronic fund transfers in § 1607 and § 1693o.

199. In the credit card system, a financial institution has the burden of initiating lawsuits. When a dispute arises, a consumer may simply refuse to pay. The institution, being the debtor, has no funds in the credit card account against which it can act unilaterally, and it is forbidden by law to setoff the amount it claims against other deposits of the cardholder. Id. § 1666h. Useful insights could be provided by discovering how often consumers refuse to pay a disputed credit card amount
E. Countermands

A final type of false positive is an order that a drawer properly countermands, but a financial institution nonetheless pays. Because the financial institution causes the loss and is the only party that can take precaution against it, economic analysis favors institutional liability for the amount of the instrument. Financial institutions, which are fully conscious of their imperfections, would prefer to decrease their opportunities for error by banning countermands entirely, at least for checks. Thus, the real question concerning countermands is to what extent financial institutions should be legally required to permit them. If the market works, an institution will weigh its desire to ban countermands against consumers’ desire to preserve them, and the alternative that provides the greater net value will prevail. If the market fails, the consumer’s ability to countermand, if deemed socially desirable, must be protected by law.

The ability to countermand a check stems from the practical circumstance that there is a delay, generally of at least a few days, between the time a payee is given the check and the time the check is paid by a financial institution. During this period, the check can be stopped. Once the financial institution pays the check, the money belongs to the payee, and the drawer must use the legal system to obtain redress. An ele-...
tronic fund transfer at the point of sale or a pay order issued to a financial institution is technologically difficult to countermand in this way because it is so quickly completed. We need not treat even such immediate payments as final because the law can provide for them to be reversed. Thus, the scope for countermanding electronic fund transfers does not depend upon technology, but upon the rules governing the reversal of payments.\textsuperscript{203}

Countermand rights for credit cards are unnecessary because a consumer's funds are not used at the time of purchase. Consumers are generally required to pay only after a relatively long time, such as thirty days, has elapsed.\textsuperscript{204} This time period gives consumers a sufficient opportunity to re-evaluate their purchases. The crucial issue, however, is whether the consumer will be permitted to assert defenses on the underlying transaction against the credit card company. If assertion of defenses is forbidden, consumers have only a limited self-help option, because they are legally obligated to pay the entire balance due regardless of the quality of the product. If the assertion of defenses is permitted, as it is under current law,\textsuperscript{205} consumers have a right that is equivalent to stopping payment on a check; they would retain the funds in question and litigate the contract damages if they are sued. In that case, the market generally will arrange for the financial institution to pass the loss on to the merchant who is the source of the complaint.

In evaluating the desirability of countermands, we must distinguish countermands designed to stop an instrument that is defective because of fraud or forgery from other types of countermands. When an instrument is defective, a countermand, typically in the form of a simple notice to the financial institution, is the only way for a consumer who has discov-
ered the error to reduce the risk of loss. In addition, the acceptance of the countermand imposes no direct costs on financial institutions other than the relatively minor one of processing the instruction. It is obviously efficient for the financial institution to respond to such a countermand and difficult to see why it would ever want to do otherwise. Nevertheless, when a consumer countermands in time to avoid a fraud or forgery loss, the UCC allows banks to "forget" the countermand and preserve their right to shift the loss back to the consumer. The credit card and electronic fund transfer statutes hold financial institutions liable for such absent-mindedness. This rule is economically preferable because a timely countermand gives a financial institution the last clear chance to avoid a loss, and it is thus consistent with the loss reduction principle to hold the institution liable.

Countermands of otherwise valid instruments inspire the most debate. Unlike countermands to stop defective instruments, these countermands do not reduce losses in the payment system, but serve some

206. Liability for the loss provides the best incentive to respond to a countermand. Even if a consumer were liable, however, an institution probably would be motivated to obey such countermands because: (1) if the consumer were judgment proof, the institution nonetheless would suffer the loss; (2) if the consumer were not judgment proof, the institution would want to maintain good relations; and (3) bankers are typically people with middle class values who prefer depositors to thieves. The risk incurred by countermanding the instrument presents a countervailing consideration. The UCC, however, expressly eliminates this risk for authorized stop orders by providing that a payee has no cause of action against a drawee institution for dishonor. U.C.C. § 3-409(1) (1978); see Sabin Meyer Regional Sales Corp. v. Citizens Bank, 502 F. Supp. 557, 558-59 (N.D. Ga. 1980). Currently, the Electronic Fund Transfer Act has no countermand provision.

207. U.C.C. § 1-201(25) comment 25 (1978). In the notorious case of Graham v. White-Phillips Co., 296 U.S. 27, 32 (1935), the court, construing the Illinois Negotiable Instrument Act, held that a good faith purchaser of a stolen negotiable bond may be a holder in due course even though that purchaser had previous notice of the theft, if, through negligence or forgetfulness, the purchaser did not have the theft in mind when he bought the stolen bond.

208. A cardholder is liable for unauthorized use only if that use occurs before an issuer has been notified, and notification occurs when the cardholder takes reasonable action to notify the issuer "whether or not any particular officer, employee, or agent of the card issuer does in fact receive such information." 15 U.S.C. § 1643(a)(2) (1982); see id. § 1693g(a)(2) (equivalent provision for electronic fund transfers). In addition, the credit card provisions require the institution to implement and describe a procedure for consumers to notify it of loss as a precondition to imposing the $50 liability. Id. § 1643(a)(1)(D).

external purpose. The classic countermand is a stop payment order on a check, which consists of a consumer's instruction to a drawee bank to return a check unpaid. The payee, typically a merchant, must then sue the drawer (consumer) for the money represented by the check, rather than remain in possession of the money and wait for the drawer to sue for the alleged breach in the underlying transaction. The effect of a stop order, therefore, is to shift the burden of going forward with legal action from the drawer to the payee, or in other words, from the consumer to the merchant.

The basic purpose of shifting the burden is to cure enforcement problems in consumer litigation. These enforcement difficulties will not be scrutinized carefully here because they are better examined as aspects of sales law, not payment law. But generally, the right to countermand may give the consumer additional confidence when purchasing goods or services of unknown quality. For example, a person who pays for a refrigerator upon delivery with a check has several days in which to countermand the check if the appliance malfunctions. This power could conceivably represent an efficient allocation of risk for consumer goods. The right to countermand, however, decreases the currency of the payment instrument by creating an additional risk that the payee will not receive the expected funds. The additional cost of this risk falls upon everyone who uses the instrument, not just upon the parties that exercise the countermand. Furthermore, countermands burden funds availability. When a depository institution gives a payee immediate credit for a deposit, the risk of a countermand shifts from the payee to the institution. To avoid this transfer of risk, the institution can delay the availability of credit until the consumer's right to countermand expires. Thus,


212. In all likelihood, the stop payment right does not affect the currency of checks as much as the possibility that the check will be returned because of insufficient funds. Credit cards, which virtually eliminate the insufficient funds danger for a merchant, but retain at least a limited countermand feature, have much greater currency than checks. On the other hand, cardholders may not be familiar with their right to assert defenses. Obviously, empirical research is needed to determine the effect of various legal features on the currency of a payment instrument.

213. The Expedited Funds Availability Act, Pub. L. 100-86, 101 Stat. 552 (1987), limits financial institutions' ability to protect themselves against fraud losses, countermands, and not sufficient funds (NSF) checks by delaying the availability of credit to the payee. Presumably, the institutions will accelerate the check collection process, which the legislation clearly contemplates. This acceleration may avoid fraud and NSF losses. Acceleration would also decrease countermands if they are restricted to the period before final payment of the check. Thus, the Expedited Funds Availability Act may limit a consumer's ability to stop payment on checks under existing laws. However, if separate
the right to countermand creates an incentive to extend the float on payment instruments.\textsuperscript{214}

These considerations require a trade-off between protecting consumers against defective merchandise and burdening payment instruments with costs created by the right to countermand. The market could solve the problem by producing a sufficient variety of payment instruments. For example, if financial institutions offer consumers a choice between a payment instrument that they can countermand, such as a credit card, and a similar instrument that they cannot, such as a debit card, the market should price the countermand feature, and an individual consumer could then decide whether to pay the additional amount for the right to countermand. Various payment instruments with different countermand features currently exist, but these instruments differ in so many other respects that countermand rights are seldom controlling in the choice of a payment instrument.\textsuperscript{215}

Consumers' lack of awareness about countermand rights suggests that the right to countermand, if deemed desirable on general consumer protection grounds, should be secured by law. It also indicates the economic invalidity of the UCC rule, which gives the consumer the burden of proving damages when the financial institution pays over a valid stop order.\textsuperscript{216} The basic rationale for stop orders is that consumer rights will

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\textsuperscript{214} Whether there is an increase in the float depends on the type of instrument. This problem is potentially significant with checks. But with credit cards, the problem is avoided by the contractual agreement between the merchant and the financial institution that buys credit card paper from the merchant. This agreement allocates losses between the merchant and the institution as the parties see fit and no problem of inefficient float results. Significantly, point of sale systems more closely resemble credit cards than checks in this respect because they require a pre-existing contractual relationship between the merchant and the financial institution.

\textsuperscript{215} Another possible solution is to develop alternatives to the countermand that accomplish the same end, such as consumer warranties, or (thinking in great terms) a system for resolving consumer disputes that is so convenient and cheap that consumers do not need a countermand right.

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be underenforced if consumers have the burden of going forward. To reimpose that burden when a financial institution makes a unilateral error seems pointless. The same is true for the UCC's closely related subrogation rules. Of course, the bank should be subrogated to any claim the drawer has against the payee. If a merchant-payee delivered a defective refrigerator, he should not receive full payment simply because the financial institution mistakenly paid the check. On the other hand, subrogating the financial institution to the payee's claims against the consumer, and requiring the consumer to overcome that claim to receive compensation for a mistaken payment, completely vitiates the original purpose of the countermand, which is to reduce underenforcement of consumer rights. Instead, the rules should treat payment over a valid countermand like any other false positive against which only the financial institution can take precaution; the institution should be liable for the face amount of the instrument.

V. Conclusion

The approach taken in this Article is predominantly an instrumental one. The payment system had a certain romance when its standard instrument could be stolen by pirates, placed in a wooden chest, and buried, but our contemporary commercial culture has made the subject much more mundane. In place of romance, we now have ideology. Modern discussions of the payment system are overshadowed by the clash between proconsumer and probusiness positions, and the subject is difficult to discuss without these ideological trappings. Our strategy has been to adopt an approach that seems naturally suggested by the subject, and then to apply it in a neutral manner.

The result is a focus on economic efficiency—choosing loss alloca-
tion rules that minimize the cost of making payments. Between financial institutions and consumers, the existence of a market failure requires that the law prescribe the allocation of certain losses. We identify three principles of economic efficiency for doing so: loss spreading, loss reduction, and loss imposition. When an invalid instrument is paid (false positive), the principles favor strict liability for the financial institution if it alone can reduce the loss. But if both parties can take precaution, and thus reduce the loss, the principles suggest strict and divided liability, with a relatively low limit on the consumer portion. When a valid instrument is not paid (false negative), the principles suggest that consequential damages should be set at a fraction or multiple of an instrument's face value, with a relatively high limit on a financial institution's total liability and the consumer liable for any remaining loss above this limit.

Our discussion of these rules is replete with gaps and guesses because the determinations made often depend on empirical data that is not presently available. Lacking the definitive guidance of a symbolic system, we can only go so far as social science methodology will take us. The methodology relevant to our inquiry is economics, which takes one a considerable distance. But the final answers ultimately depend upon the real world, and most of our definitive assertions are achieved with admitted, although hopefully well-guided, guesswork.
Appendix: Justifications for Loss Allocation Rules

The justification for adopting the rules of capped consumer liability for false positives and face value liability for false negatives can be restated and clarified by using mathematical notation to represent the economic considerations involved. Let \( L \) denote the total dollar value of payment losses, and let \( r \) denote a multiple by which the dollar loss \( L \) must be multiplied in order to measure the cost of risk aversion, \( rL \). The social cost of the loss \( L \), including risk aversion, thus equals \( L + rL \). If the loss is borne by risk-neutral financial institutions, \( r \) equals zero, and the social cost of the loss equals its dollar value \( L \). If, however, some or all of this loss falls upon risk-averse consumers, \( r \) exceeds zero, and therefore the social cost will be greater than \( L \). The social cost \( L + rL \) thus equals or exceeds the dollar loss \( L \) depending upon the risk aversion of the parties absorbing the losses.

\( L + rL \) is the direct social cost of payment losses. Indirect social costs include the cost of precaution and loss imposition. Let \( X_f \) denote the cost of precaution by financial institutions and let \( X_c \) denote the cost of precaution by consumers. Finally, let \( I \) denote the cost of imposing liability, including enforcement and litigation costs. In sum, the following equation represents the aggregate direct and indirect social cost:  
\[
\text{social cost} = X_c + X_f + I + L + rL.
\]
Each of the elements in this equation changes according to the rules adopted for allocating payment losses.

A. False Positives

According to our argument, a rule of capped consumer liability minimizes the social cost of false positives in the payment system. Table 1 represents this judgment by showing the comparison between capped liability and other types of loss allocation rules. The cost elements for capped liability are indicated simply by the letter designations in the preceding equation. The risk aversion factor, \( r \), can be set at zero because capped liability imposes only small losses on risk-averse consumers. Our claim is that each of the alternative rules causes at least one of the cost elements to increase, without being offset by sufficiently large decreases in other elements. For the alternative rules, the cost of each element relative to capped consumer liability is indicated by \( \Delta \) for “difference,” where \( \Delta \geq 0 \).

I. Strict Consumer Liability.—A change from capped consumer liability rules to rules assigning all losses to consumers (strict consumer liability) will shift large losses from financial institutions to consumers;
<table>
<thead>
<tr>
<th>Alternative Rules</th>
<th>Indirect Cost</th>
<th>Direct Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Consumer</td>
<td>Institution</td>
<td>Loss</td>
</tr>
<tr>
<td></td>
<td>Precaution</td>
<td>Precaution</td>
<td>Imposition</td>
</tr>
<tr>
<td>Capped Consumer Liability</td>
<td>$X_c$</td>
<td>$X_f$</td>
<td>$I$</td>
</tr>
<tr>
<td>Strict Consumer Liability</td>
<td>$\Delta_c$</td>
<td>$-\Delta_f$</td>
<td>$-$</td>
</tr>
<tr>
<td>Negligent Consumer Liability</td>
<td>$\Delta_c$</td>
<td>$-\Delta_f$</td>
<td>$\Delta_I$</td>
</tr>
<tr>
<td>Strict Institution Liability</td>
<td>$-\Delta_c$</td>
<td>$\Delta_f$</td>
<td>$-$</td>
</tr>
</tbody>
</table>

Table 1
Costs of Alternative Loss Allocation Rules for False Positives
therefore, institutions will take less precaution and $X_f$ will fall as indicated by $-\Delta_r$. Given the limits on consumer responsiveness, it is an open question whether the change in rules will cause consumers to take more precaution, or whether consumer precaution will remain approximately the same. This effect is represented by $\Delta_c$, where $\Delta_c$ is zero or positive. In either case, we assume that consumer responsiveness and the resulting rise in precaution will not offset the fall in institutional precaution; thus, overall losses ($L$) will increase as indicated by $\Delta_L$. Loss imposition costs ($I$) remain the same because strict liability, like capped liability, requires only limited fact-finding. Finally, the risk aversion cost increases significantly, as indicated by $\Delta_r$, because this rule imposes all losses on risk-averse consumers. The change in total costs is $\Delta_c + \Delta_r + (\Delta_L - \Delta_r)$. Because financial institutions presumably take cost-effective precautions when they are liable for losses under capped consumer liability, the decrease in the financial institution's precaution costs ($-\Delta_r$) under consumer strict liability is more than offset by the resulting increase in losses ($\Delta_L$). Consequently, the term in parenthesis is positive, and the total social cost, consisting of the sum of these elements, increases.

2. Negligent Consumer Liability.—A rule providing that financial institutions bear payment losses unless they are caused by consumer negligence is roughly what the UCC provides for losses from fraud or mistake. A change from capped consumer liability to this negligence rule shifts certain large losses from banks to consumers. Consumers will either fail to respond or take more precaution as indicated by $\Delta_c$. Financial institutions, however, will respond by taking less precaution as indicated by $-\Delta_r$. Because the institution will be more responsive to the change than the consumer, losses will increase as indicated by $\Delta_L$. Furthermore, loss imposition costs are substantially higher, indicated by $\Delta_I$, because of litigation and other costs inherent in enforcing negligence rules. The risk aversion costs also increase, as indicated by $\Delta_r$, because consumers suffer more large losses under negligence rules. The change in total costs is thus shown by $\Delta_c + \Delta_r + \Delta_I + (\Delta_L - \Delta_I)$. Again, the decrease in institution precaution costs ($-\Delta_I$) under consumer strict liability is more than offset by the resulting increase in losses ($\Delta_L$). Thus, the term in parenthesis is positive, and the total change in social cost is also positive.

3. Strict Financial Institution Liability.—If we replace capped consumer liability with a rule that assigns liability for all losses to institutions, the liability being shifted by this change from consumers to financial institutions is small relative to the liability already borne by institutions under capped consumer liability. This small shift in liability
may cause consumers to reduce precaution and produce a corresponding increase in precaution by institutions. If the consumer precaution induced by small amounts of liability is effective, then $\Delta_L - \Delta_c$ will be positive. Loss imposition costs ($I$) and risk aversion costs ($r$) remain the same under the strict liability system. If, however, consumers do not respond to their loss of incentives, little or no change in the total cost of precaution and in losses will result. In that case, strict financial institution liability is just as efficient as capped consumer liability. This result is equivalent to setting consumer liability at zero under the capped consumer liability rule.

**B. False Negatives**

We can illustrate the advantages of the face value liability rule for false negatives by a similar procedure. In Table 2, the social cost function is again $X_c + X_f + I + L + rL$, and the values of each cost element for alternative rules are designated relative to the rule of face value liability. In this case, however, $L$ denotes the losses, including consequential damages, from failing to pay valid instruments.

1. **Strict Consumer Liability.**—The first alternative to face value liability is to impose strict liability on consumers. A change from face value liability to strict consumer liability will shift losses from financial institutions to consumers; thus risk aversion will increase as indicated by $\Delta_r$. Consumers may or may not respond to this increased liability by increasing precaution, indicated by $\Delta_c$, which is positive or zero. Loss imposition costs are very low under either rule. The main effect of a change to strict consumer liability would be a decrease in financial institution precaution ($-\Delta_f$). But this decrease will not offset the increase in losses $\Delta_L$. Consequently, the change in total costs, $\Delta_c + \Delta_r + (\Delta_L - \Delta_f)$, must be positive because the term in parenthesis is positive.

2. **Bank Liability for Actual Damages.**—The second alternative to face value liability is to hold financial institutions liable for actual damages. These damages may be limited to damages actually proved, or extended to include presumed damages. In the vast majority of payments, a false negative does not result in large consequential damages. However, for a small proportion of payments, which may be identified only by consumers, false negatives will cause large consequential damages. Face value liability gives financial institutions the incentive to take appropriate levels of care on ordinary payments. Consumers retain the incentive to take special care in those unusual cases in which a payment loss may include large consequential damages. The change from face value liabil-
### Table 2

*Costs of Alternative Loss Allocation Rules for False Negatives*

<table>
<thead>
<tr>
<th>Alternative Rules</th>
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<th>Total</th>
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<tbody>
<tr>
<td></td>
<td>Consumer Precaution</td>
<td>Institution Precaution</td>
<td>Loss Imposition</td>
</tr>
<tr>
<td>Face Value Liability</td>
<td>$X_c$</td>
<td>$X_r$</td>
<td>I</td>
</tr>
<tr>
<td>Strict Consumer Liability</td>
<td>$\Delta_c$</td>
<td>$-\Delta_r$</td>
<td>$-$</td>
</tr>
<tr>
<td>Institution Liability for Actual Damages</td>
<td>$-\Delta_c$</td>
<td>$\Delta_r$</td>
<td>$\Delta_I$</td>
</tr>
</tbody>
</table>
ity to financial institution liability for actual damages will cause institutions to take more precaution, but consumers to take less. In this situation consumer precaution probably is cost effective; therefore, the increase in losses ($\Delta_L$) more than offsets the net change in institution’s and consumer’s precaution and ($\Delta_L + \Delta_f - \Delta_c$) is positive. The risk aversion factor decreases because liability for large losses shifts from consumers to financial institutions. This decrease, however, is probably not large because under face value liability consumers can avoid large consequential losses that the law allocates to them by taking special precautions with high-risk payments. Furthermore, the loss imposition costs increase by a large amount because consumers must prove actual damages in an evidentiary hearing. Thus, $[\Delta_l - \Delta_r]$ is most likely positive. The change in total costs, denoted $[\Delta_l - \Delta_r] + (\Delta_r + \Delta_f - \Delta_c)$, would then be positive because the term in brackets and the term in parenthesis are both positive.