Error and fraud in wholesale funds transfers: U.C.C. article 4A and the UNCITRAL harmonization process

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TRANSFERS: U.C.C. ARTICLE 4A AND THE
UNCITRAL HARMONIZATION PROCESS

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I. Introduction

Both in this country and in the international banking and legal communities, the second half of the 1980s has been marked by a vigorous trend toward codifying the law of wholesale funds transfers. These transfers, performed without negotiable instruments by financial institutions on their own behalf or on behalf of their corporate customers, are generally characterized by their large amounts, their high speed, and their low cost. In 1989, the National Conference of Commissioners on Uniform State Laws ("NCCUSL") and the American Law Institute ("ALI") added an Article 4A, Funds Transfers, to the Uniform Commercial Code and submitted it to the states for adoption.¹ The United Nations Commission on International Trade Law ("UNCITRAL") may soon complete the drafting of its Model Law on International Credit Transfers, a model act which, if enacted by an adequate number of countries, would substantially unify the legal regime of international funds transfers.²

Why would bankers and their counsels, who usually favor contractual solutions to legislative solutions, concur with their

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¹ See infra text accompanying notes 19-46.
² See infra text accompanying notes 47-70.
corporate clients in supporting the codification of “the web of laws that has traditionally governed the conduct of parties to international payments”\textsuperscript{3} The absence of a well-defined body of law applicable specifically to paperless funds transfers, both in Common Law and in several Civil Law countries,\textsuperscript{5} has created much uncertainty, especially with regard to the finality and revocability of a payment order, and the allocation of losses in case of fraud, error and insolvency.\textsuperscript{6} These uncertainties became a major concern to banks experiencing the lack of a statutory “safety net” as soon as some of their largest clients refused to accept disputed contractual provisions allocating losses.\textsuperscript{7}

In the United States, the unlevel playing field between FedWire, the electronic funds transfer network operated by the Federal Reserve System,\textsuperscript{8} and private funds transfer systems such

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3. Banks’ corporate clients were represented in the drafting process of U.C.C. Article 4A through officers of major corporations (General Motors, Exxon, etc.) and a delegate of the National Corporate Cash Management Association. See U.C.C. art. 4A (1989) (list of advisors and additional participants).


7. Consequential damages were at the center of the controversy after a decision of the Seventh Circuit confirmed that a bank may be held liable under the circumstances though it denied compensation in the case under review. Evra Corp. v. Swiss Bank Corp., 673 F.2d 951 (7th Cir.), rev’d 522 F. Supp. 820 (N.D. Ill. 1981), cert. denied, 459 U.S. 1017 (1982). See infra text accompanying notes 209-17.

8. 54 Banking Rep. (BNA) 329 (1990). FedWire is the successor to the private Morse, and then Teletype, network linking the Federal Reserve Banks since 1918. It took its present shape in 1973 and was upgraded in 1980. Id. In 1988, it processed 66 million transfers between Federal Reserve banks, depository institutions and government agencies totalling $253 trillion. This number represents an average 240,000 transactions each day with an average value of $3.1 million. Id. FedWire’s operations are governed by Regulation J (Collection of Checks and Other Items and Wire Transfers of Funds by Federal Reserve Banks), 12 C.F.R. pt. 210 (1990). See D. Baker & R. Brandel, supra note 4, at ¶ 11.02; Effros, supra note 6, at 514-16; Geva, FedWire Transfer of Funds, 104 Banking L.J. 412
as CHIPS, as and especially BankWire and CashWire, which both ceased operations in 1986, may have contributed to the perception of such a need. On the international level, one single funds transfer may involve financial institutions located in such different legal environments as Anglo-American common law jurisdictions, historically cheque-oriented; European countries, where giro systems are usually predominant; Japan, with its first foreign-based clearing of overseas payments in dollars, or Islamic nations with their virtual prohibition of interest. It is therefore important that some uniformity of national laws allow equitable and predictable solutions to problems arising out of such funds transfers.

Payment is central to almost any national or international transaction. Thus, it comes as no surprise that payment law was the first part of the law merchant to be codified. The first uniform code to be presented for adoption in this country was the Negotiable Instruments Law, which was promulgated by the NCCUSL in


10. D. BAKER & R. BRANDEL, supra note 4, at ¶ 11.05.

11. This issue was not resolved since U.C.C. Article 4A, as state law, does not preemt federal statutes and regulations such as Regulation J (Collection of Checks and Other Items and Wire Transfers of Funds by Federal Reserve Banks), 12 C.F.R. pt. 210 (1990), which governs the operations of FedWire.

12. Giro systems handle the bulk of consumer and small-amount corporate payments at a low cost without the use of checks or other negotiable instruments. They are usually run by postal administrations, however in some countries they are run also by banks. See D. BAKER & R. BRANDEL, supra note 4, at ¶ 5.09; Vergari, Electronic GIRO for the United States, 2 COMPUTER L.J. 101 (1980).

1896, and implemented by most of the major commercial jurisdictions within a decade.\textsuperscript{14} Within 35 years, various international conventions were signed in Geneva which unified both the substantive and the choice of law rules of negotiable instruments among more than twenty countries of the Civil Law tradition\textsuperscript{15} and influenced several other statutory enactments.\textsuperscript{16} While Common Law countries did not join in this unification process, the United Nations Convention on International Bills of Exchange and International Promissory Notes, which was approved by the General Assembly in 1988,\textsuperscript{17} might well succeed where previous efforts have failed.

This Article addresses the topic of apportioning losses resulting from error and fraud in domestic and international funds transfers. In so doing, it will examine substantial portions of both U.C.C. Article 4A and the UNCITRAL Draft Model Law Allocating losses among the participants in a funds transfer is a central issue which has resulted in heated debate.\textsuperscript{18} This Article briefly outlines the history behind U.C.C. Article 4A (Part II), and the ongoing efforts within the UNCITRAL (Part III). It includes a discussion of the respective scope of both codifications (Part IV), and will then identify three principles derived from the economic analysis of law (Part V) to be used in comparing the respective


\textsuperscript{15} Convention Providing a Uniform Law for Bills of Exchange and Promissory Notes (Geneva, 1930); Convention Providing a Uniform Law for Cheques (Geneva, 1931). They are supplemented by topical conventions on conflict of laws and exemption of stamp duties.

\textsuperscript{16} See Bergsten, \textit{supra} note 5, at 655 n.15.


\textsuperscript{18} At least two more areas are worth the same kind of analysis: finality of payment and insolvency risk. Both questions are indeed interrelated. Insolvency is a risk for individual institutions as shown by the consequences of the 1974 bankruptcy of the Herstatt bank. \textit{Compare} Delbrueck & Co. v. Manufacturers Hanover Trust Co., 464 F Supp. 969 (S.D.N.Y.), aff'd, 609 F.2d 1047 (2d Cir. 1979) (bank was not held liable for negligent transfer where it did not have sufficient notice of the failure of a party to the transfer) \textit{with} Momm v. Barclays Bank Intl Ltd., 1977 Q.B. 790 (payment made by a defendant bank was held complete notwithstanding that the bank was unaware of the transferee's impending liquidation). Furthermore, it creates a major risk for the financial system because the failure of one institution may trigger a chain reaction affecting many others. This systemic credit risk is at the crossroads of contractual rules (the center of the codifications considered in this paper), and institutional framework. I shall not deal with it here. \textit{See} Toyama, \textit{supra} note 13; \textit{see also} infra note 99.
allocation of losses generated by errors (Part VI) and by fraud (Part VII).

II. ELABORATION AND ADOPTION OF U.C.C. ARTICLE 4A

The United States was first among the industrialized countries to adopt legislation covering electronic payment systems in retail banking such as automated teller machines, point-of-sale transactions, and preauthorized debits and credits, to name just a few. Though the consumer movement had already peaked, the Electronic Fund Transfer Act of 1978 established extensive protections for individual customers of banks. The Act mandated extensive disclosure and documentation, capped the consumers' liability for transfers they had not authorized, held the financial institutions liable for their failures and for many technical malfunctions, and provided strong incentives for diligent enforcement of these

19. See D. Baker & R. Brandel supra note 4, at ¶¶ 4.01, 5.01, 6.01, 7.01 (a brief description of those systems); see also excerpt from Prof. Scott's report, infra note 29, reprinted in 3 ALI-ABA Course Materials J. at 6-8, 123-27 (1978).


provisions by making available class action suits and liquidated damages.\textsuperscript{27}

The same year, a committee of the Permanent Editorial Board for the Uniform Commercial Code\textsuperscript{28} considered a report it had commissioned\textsuperscript{29} which recommended that the U.C.C. be thoroughly revised. This revision would consist of a "New Payments Code" that would cover both paper-based transactions such as checks and credit cards,\textsuperscript{30} and fully electronic transactions such as those from automated clearing houses and automated teller machines. Its author, Professor Hal S. Scott of Harvard University, advocated a homogeneous treatment of the issues common to all payment systems,\textsuperscript{31} whether wholesale (corporate and interbank) or retail (consumer) oriented, thereby providing for different rules only where technological constraints or the nature of the transaction would not permit otherwise. Therefore, parties could choose among payment systems based upon the respective efficiencies and costs of those systems rather than the differences between their legal regimes.\textsuperscript{32}

Although Professor Scott seemed confident that this result could be achieved with few substantive changes,\textsuperscript{33} it was soon ap-

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28. Established in 1974, the 3-4-8 Committee was mandated to consider whether the U.C.C. should be revised to take into account electronic data processing. Its first efforts were devoted to Article 8 (Investment Securities) and led rapidly to its revision. It moved to Articles 3 (Commercial Paper) and 4 (Bank Deposits and Collections) in 1977. See D. Baker & R. Brandel, supra note 4, at ¶ 12.02(5); Haydock, The 3-4-8 Committee—An Interim Report, 2 Computer L.J. 27 (1980).
30. See infra notes 32, 34-35. Due to considerations of cost and speed, paper-based mass transactions are increasingly truncated at an early stage of their collection process. The distinction between paper-based and paperless transactions is thus losing its relevance. See Vergari, supra note 12, at 108-13; see also supra note 19.
31. Issues common to all payment systems include recordkeeping, allocation of risks of fraud, allocation of risks of mistake, provisions on stop payment and claims and defenses, treatment of the timeliness of items, and provisions of authorization, control of payment and settlement. See H. Scott, supra note 29, at 252.
33. See Haydock, supra note 28, at 28-29.
\end{flushright}
parent in ensuing drafts of this Uniform New Payments Code ("UNPC") that the committee was paving the way for radical change. The inclusion of extensive consumer protection provisions in a uniform code yielded fierce debates and the proposal proved unrealistic politically. Opponents also argued that the complete remodeling of the Uniform Commercial Code that was necessary to forge such different systems as wire transfers, credit cards, and checks into a single legal framework would be too costly and risky to implement.37

Finally, this academically inspired opus magnum, deprived of the support of those who would put it into practice, was put to rest in 1985 by its sponsors, the NCCUSL and the ALI. Consequently, this failed effort split into two distinct projects: the revision of Articles 3 and 4 that would retain their present scope, and the drafting of a new Article 4A that would encompass funds


transfers operated without such instruments. Professors Robert L. Jordan and William D. Warren, of the University of California at Los Angeles, were retained as reporters for the whole process.

Fueled by wide recognition of the need for a comprehensive body of law governing "wholesale wire transfers," Article 4A was adopted only four years after it was first considered as an area unto itself. Since then, it has been strongly endorsed by the American Bankers Association, which is an important and noteworthy step on the way to its adoption throughout the United States. U.C.C. Article 4A is currently before the states awaiting adoption. It has already been enacted by at least twelve legislatures and is expected to be passed by the others in the near future without major opposition or changes.

40. See infra text accompanying notes 71-96. Its actual scope is outlined infra in Part IV


42. Miller, supra note 34, 40 BUS. L. at 1140; Patrikis, UNICITRAL Payment Efforts, 15 BROOKLYN J. INT'L L. 45, 57 (1989).


44. On December 8, 1989, the ABA Board of Directors urged the States to adopt Article 4A "in an expeditious manner." 53 Banking Rep. (BNA) 944 (1989).

45. As of July 1990, U.C.C. Article 4A was enacted by the following states: California, Colorado, Connecticut, Illinois, Kansas, Louisiana, Minnesota, New York, Oklahoma, Utah, Virginia, West Virginia. Telephone interview with Ms. K. Robinson, NCCUSL (October 25, 1990).

46. Since most funds transfers are interstate if not international, insolvency would be best dealt with at the federal level, and the interplay of wire transfer statutes would be best accommodated by federal legislation. This would also level the competition between Fedwire and private funds transfer systems since they would be governed by the same statute. A federal enactment of Article 4A was thus advocated, but rejected, at the National Conference on Uniform State Laws. See D. Goldstein, Proposed Article 4A: Funds Transfers, Federal Versus State Adoption of Article 4A (memorandum dated Aug. 8, 1989, circulated at the American Bar Association Annual Meeting); Banking Daily (BNA), Aug. 11, 1989.
III. THE UNCITRAL DRAFT MODEL LAW FOR INTERNATIONAL CREDIT TRANSFERS: INTERNATIONAL HARMONIZATION IN PROGRESS

"Contrary to the impression of many in this country, the international codification process is almost one hundred years old."

It began in the last decade of the nineteenth century with the unification of topical rules on the conflict of laws under the aegis of the Hague Conference on Private International Law and of the Organization of American States ("OAS"). Substantive and procedural laws were soon to be affected as well. Many conventions were adopted under the auspices of the OAS, the Hague Conference, other permanent international forums such as the International Institute for the Unification of Private Law ("UNIDROIT") in Rome and the Council of Europe in Strasbourg, and specialized conferences. These efforts dealt with such areas as family law, sales of goods, traffic accidents, international transportation, financial leasing, factoring, wills and estates, judiciary assistance, authentication of legal documents, international arbitration, and intellectual property.

Traditionally, the United States did not demonstrate much concern over the international unification or harmonization of private law. However, in recent years, it has shown an increasing interest in the process, as evidenced by its ratification of several conventions, while several others are pending with the Senate or considered by the State Department in conjunction with experts from the private legal sector. This activity denotes a stronger commitment to harmonizing the legal framework for international private relationships.

48. See id. at 7-8.
49. See id. (provides an overview of the covered areas); Hague Conference on Private International Law, Collection of Conventions 1951-1988 (1988); Council of Europe, Chart Showing Signatures and Ratifications of Conventions and Agreements Concluded Within the Council of Europe (1988); Pfund, supra note 47, at 10. The United States did not become actively involved in the International Codification project until the 1960s.
The United States has been a member of the United Nations Commission on International Trade Law since the Commission was established in 1966. The UNCITRAL identified international payments as one of its four priority topics. UNCITRAL devoted its first efforts in this area to negotiable instruments. In 1978, it listed international electronic funds transfers on its agenda. In 1982, it requested that its Secretariat identify important legal issues in cooperation with the UNCITRAL Study Group on International Payment. Governments and national bankers associations were consulted. In 1986, the Commission authorized the publication of the UNCITRAL Legal Guide on Electronic Funds Transfers. Without formulating any rule, the Legal Guide describes the technological, procedural and contractual aspects of electronic funds transfer systems and exposes in comprehensive terms the questions raised by error, fraud and finality of payments. It lists forty-one legal issues to be considered by national legislators and private lawyers setting up legal or contractual rules for funds transfer systems.

That same year, UNCITRAL resolved to undertake the drafting of model rules and entrusted this task to the Working Group


54. See Patrikis, supra note 42, at 51-53. This coincides with Prof. Hal Scott's report on new payment systems to the Permanent Editorial Board for the Uniform Commercial Code, see supra text accompanying note 29.

55. Patrikis, supra note 42, at 52.


57. Patrikis, supra note 42, at 52.

on International Payments. This effort is a continuing one. After the Working Group identified the legal issues it wanted to address, it considered a draft submitted by the Secretariat that has since been changed extensively. An international convention is not considered a possibility in the near future, because its adoption would require great support which presently seems unlikely. Nevertheless, a model statute is more flexible for the countries who may choose those parts they find useful and adapt others to their needs and particular traditions. The current text is entitled

59. The Working Group comprises the 36 member states of UNCITRAL. Its semiannual sessions are now attended by delegates of some 20 nonmember states and by representatives of various organizations such as the International Monetary Fund, the Bank for International Settlements, the Commission of the European Communities, the International Chamber of Commerce, the Hague Conference on Private International Law, UNIDROIT, the Banking Federation of the European Community, the Latin American Federation of Banks, and the Society for Worldwide Interbank Financial Telecommunication (SWIFT).


64. See Eighteenth Session, supra note 60, at para. 12.

65. Unless otherwise specified, references are made to the text of the Draft Model Law as it was last amended at the 20th session of the Working Group (December 1989). Report of the Working Group on International Payments on the Work of its Twentieth Session,
Draft Model Law, emphasizing the fact that it is aimed at national legislators for adoption as a statute and not at private lawyers drafting contractual agreements.68

Though two officers of the Federal Reserve Board of New York67 have taken part in both efforts, the drafting of the UNCI-TRAL Model Law seems to have been less influential on the development and adoption of Article 4A than the opposite.68 To ensure agreement between the two model codes, it was proposed that the finalization of Article 4A be suspended until the UNCI-TRAL could complete its work. However, the drafters of Article 4A feared that such a delay would dissipate the momentum gained in the drafting process and the support of all interested groups. Furthermore, the drafters assumed that the United States should lead the way rather than follow a consensus reached in an international forum.69 Now that a United States codification has been completed, the American delegation at the December 1989 session of the UNCITRAL Working Group stated that it was concerned that the differences between Article 4A and the Model Law "made it virtually inconceivable that the United States would adopt both."70 If the Model Law could not be made more compatible with the United States' new legal framework, it might disregard any adaptation of its national law, thus creating a considerable loophole in the international legal harmonization of funds transfers. Such a result would be most unfortunate; it is this Article's ambition to contribute to a solution by clarifying policy issues as to the allocation of error and fraud losses.


67. Mr. Ernest T. Patriks, General Counsel and Executive Vice President, and Mr. Thomas C. Baxter, Assistant General Counsel.

68. See Patriks, supra note 42, at 55-57; Schneider, supra note 5, at 287.

69. Patriks, supra note 42, at 55.

70. Draft Model Law, supra note 65, at paras. 195-98.
IV Scopes of the Codifications

Both the Draft Model Law and U.C.C. Article 4A do not apply where money is transferred through a negotiable instrument such as a check, a promissory note, or a bill of exchange. Even though the truncation of those instruments may result in an electronic collection process, such transactions are still excluded from their coverage. The following paragraph includes terminology needed to describe the various actors who may appear in a funds transfer and their respective messages.

Usually, a funds transfer will originate with the payor who gives a payment order to her bank by instructing it to transmit a specified amount of money to the beneficiary’s account. If this account is with the same bank, the payor’s bank will execute the order by crediting the beneficiary’s account and debiting the payor’s account in the specified amount. Since the beneficiary’s account is seldom with the same bank, the payor’s bank will execute the order by issuing a second payment order to the beneficiary’s bank, instructing it to credit the beneficiary’s account for the same amount. The beneficiary’s bank will act upon this second order by crediting the beneficiary’s account or by otherwise making those funds available to him. Furthermore, it will record the payment by either debiting the payor’s bank account itself, or by obtaining a credit on its own account with a third bank or on its reserve ac-

71. Generally, the beneficiary does not want to obtain cash immediately. By designating a bank account where the money may be transferred, the beneficiary discharges the payor’s debt by obtaining a liquidated and immediately payable claim against his own bank. This form of scriptural money relies on the sole credit of the beneficiary’s bank and is not strictly equivalent to cash. Only a claim against the central bank of a country, such as a claim in dollars against a Federal Reserve Bank, is as good as cash because it is backed by the full faith and credit of that country. A Federal Reserve Note is nothing more than such a claim. See U.C.C. § 4A-406 comment 1 (1989); Geva, The Concept of Payment Mechanism, 24 Osgoode Hall L.J. 1, 3-5 (1986); Patrikis, supra note 42, at 47; E. Rubin & R. Cooter, supra note 20, at 774, 778. Art. 2(i) of the Draft Model Law states that “[f]unds or 'money' includes credit in an account kept by a bank.” Draft Model Law, supra note 65, art. 2(i); see U.C.C. § 4A-403 (1989); cf. A/S Awilco v. Fulvia S.p.A. Di Navigazione (The “Chikuma”), [1981] 1 Lloyd’s Rep. 373, 375-77.


73. Both the Draft Model Law and the U.C.C. refer to an “originator” because they consider only credit transfers. Draft Model Law, supra note 65, art. 2(c); U.C.C. § 4A-104(c) (1989). The originator of a funds transfer is the payor. See infra text accompanying notes 79-82. In order to clarify the difference, this authority adopts the general terms of “payor” and “beneficiary.”
count with a Federal Reserve Bank. This process is called "settlement." If a settlement is not possible between the payor's bank and the beneficiary's bank, the transfer may require the use of one or several intermediary banks, each executing the payment order it receives from the preceding bank by issuing a payment order to the next bank in the funds transfer chain. Frequently this is the case when handling international funds transfers, where banks cannot maintain correspondence relationships with all other banks. In addition, every intermediary bank will generate a new payment order and a new settlement. The resulting movement of money between the payor and the beneficiary is a *funds transfer*, and more precisely a *credit transfer*.

Alternately, a funds transfer may be initiated by the beneficiary under a general or special authorization of the payor. This process is a *debit transfer*. The beneficiary originates the transfer by issuing a debit (called a draw, as opposed to a pay) order to his bank, instructing it to collect a certain amount of money. This order would then be transmitted in the reverse order of a credit transfer to the payor's bank. If the payor has authorized her bank to honor the order, and if her account has sufficient funds, the payor's bank will settle the order. This payment will then be transmitted back to the beneficiary's account. In the United States electronic debit transfers are processed through automated clearing houses which usually accommodate recurring payments such as mortgage interest and repayment or insurance premiums. It is crucial to bear in mind that both the Draft Model Law and Article 4A apply to credit transfers only; debit transfers were deliberately


75. Draft Model Law, supra note 65, art. 2(a).

76. While in credit transfers the funds are "pushed" from the payor's to the beneficiary's accounts, they are "pulled" from the latter in debit transfers. See Leary & Pitcarn, supra note 35, at 916-22.

77. See generally U.C.C. art. 4A prefatory note (1989) (debit transfers); Legal Guide, supra note 56, at 7, 14, 29-32, 75-76; D. Baker & R. Brandel, supra note 4, at ¶ 3.02[2][b], 4.02-05; E. Rubin & R. Cooter, supra note 20, at 736-37.

78. Payments operated by the means of a credit card, a check or a bill of exchange are also debit transfers. The sales draft or the instrument, signed by the payor, embodies his authorization to be debited by his own bank. The debit instruction itself is given by the beneficiary to her bank which transmits over a correspondent, a network or a switch to the beneficiary's bank.
excluded from their scope, as most debit transfers are consumer oriented and usually limited to national boundaries. Still, one can expect that they may grow both in volume and value. It is possible that in the near future American shipowners may collect the monthly hire for their vessels from Italian or Saudi charterers through a debit transfer originating with an American bank and transmitted over an international network. While debit transfers may need different provisions because of processing peculiarities, their exclusion from the Draft Model Law and from U.C.C. Article 4A significantly impairs the comprehensiveness of these codifications, and this should be questioned.

Article 4A and the Draft Model Law were originally intended to apply to paperless funds transfers processed by electronic means. However, the scope of both model codes was expanded due to both an absence of law applicable to other kinds of credit transfers and the substantial similarity between the various types of credit transfers. Presently, the Draft Model Law and Article 4A cover all credit transfers, whether they are transmitted over computer networks, telex, telephone, or simple mail, as long as they do not employ the use of a negotiable instrument.

79. Draft Model Law, supra note 65, arts. 1(1), 2(a); U.C.C. §§ 4A-103(a)(1), -104(a) (1989). The UNCITRAL Working Group decided to concentrate on credit transfers but to draft provisions such that they may be adapted to debit transfers if it would later seem desirable. See Sixteenth Session, supra note 60, at paras. 18-19; Seventeenth Session, supra note 60, at para. 17.


81. E.g., the right to stop and reversibility of payment; time schedule; obligation of the payor's bank to give notice of dishonor.

82. Felsenfeld, supra note 41, at 238; Leary & Pitcairn, supra note 35, at 922-27 (convincingly demonstrating that credit and debit transfers are not structurally different and should be substantially governed by the same rules).

83. See Draft Model Law, supra note 65; U.C.C. §§ 4A-103(a)(1), -104(a) (1989). Though the thrust of the statute should be to govern the transfer of funds by payment orders transmitted electronically, it was soon recognized by the U.C.C. Drafting Committee that orders transmitted by telex or telephone are not different in substance or in procedure, except that they do not benefit from the settlement provided by electronic funds transfer systems such as FedWire or CHIPS. Warren & Jordan, Wholesale Wire Transfer Memorandum 5 (March 25, 1986) (unpublished); see Sixteenth Session, supra note 60, at para. 17;
These two model codes, however, differ radically in their coverage of consumer transactions. In the United States, the adoption of the Electronic Fund Transfers Act of 1978 established a precise legal framework for extensive consumer protection which encompassed electronic credit and debit transfers involving the account of a natural person.\(^{84}\) The need for Article 4A stemmed from the absence of a corresponding codification for funds transfers among corporations and banks. When the effort to draft the Uniform New Payments Code failed, the NCCUSL and the ALI restricted the scope of the new Article 4A to nonconsumer, wholesale transactions.\(^{85}\) Therefore, the drafters of Article 4A made clear that it "does not apply to a funds transfer any part of which is governed by the Electronic Fund Transfer Act of 1978."\(^{86}\)

On the other hand, the UNCITRAL codification process should provide a uniform model law to be adopted by as many jurisdictions as possible, whether or not their national law already contains specific consumer provisions. Few nations have adopted such statutes (Denmark,\(^{87}\) Israel\(^{88}\)) or codes of conduct (European Communities,\(^{89}\) Australia\(^{90}\)). While there is opposition within the Working Group, the Draft Model Law embraces both nonconsumer and consumer funds transfers. Nevertheless, consumer transactions governed by the Model Laws remain "subject to any [national] leg-

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\(^{84}\) See supra text accompanying notes 21-27.

\(^{85}\) Had they not restricted the scope of the new Article 4A, the EFTA, as federal law, would have preempted inconsistent provisions of the U.C.C., except upon determination by the Federal Reserve Board that the U.C.C. provides greater protection to the consumers. See 15 U.S.C. § 1693q (1988).


\(^{87}\) Statute of June 6, 1984 on the payment by card.

\(^{88}\) Debit Cards Law, 5746-1986 (July 1, 1986); English translation in Conseil National du Crédit [France], 2 Aspects européens et internationaux des cartes de paiement 331-42 (1988).


islation dealing with the rights and obligations of consumers."
This is only a reminder since countries who plan to adopt the
Model Law as part of their national legislation would remain free
to displace or amend any of its provisions.

The two model codes differ substantially in their spheres of
application. The purpose of UNCITRAL is to furnish a model for
new legislation, and thereby harmonize national laws that apply to
international funds transfers. Accordingly, the current Draft
Model Law addresses funds transfers where the payor's and the
beneficiary's banks are located in two different countries. Article
4A, however, applies to funds transfers whether or not they possess
any international character. Yet, as Parts VI and VII of this arti-
cle will address, the substantive issues in domestic and
international payments do not differ significantly. The manner in
which losses are apportioned is often similar, although the mecha-
nisms to enforce allocation of risk require greater attention in
international situations where parties in distant countries face in-
creased costs and difficulties in settlement negotiations or
litigation.

V Economic Efficiency: A Tool for Comparison

A payment system is a means for transferring purchasing
power from one person to another, whether it involves the circula-
tion of cash, negotiable instruments, or the electronic processing of

91. Draft Model Law, supra note 65, art. 1 n.1; see Sixteenth Session, supra note 60,
at paras. 21-23; Eighteenth Session, supra note 60, at paras. 30-33; A/CN.9/WG.IV/WP.44,
supra note 63, at paras. 13-14.

92. By definition a Model Law is a noncompulsory instrument for countries who ac-
cept it. National legislators remain free to adapt it to their particular jurisdictions.
Obviously this flexibility should not affect the core contents of the Model Law because it
might threaten the whole purpose of the effort, i.e., the uniform action of national law.

93. Seventeenth Session, supra note 60, at para. 11. While the current draft deals only
with international payments, the Working Group has kept open the possibility to extend the
Model Law to domestic funds transfers. Such an extension will be made only if domestic
transfers can be handled in substantially the same manner as international transfers, and
only if extension to domestic transfers would not prevent national lawmakers from adopting

94. Draft Model Law, supra note 65, art. 1(1). For the purpose of this provision,
branches of the same bank located in different countries are deemed to be two banks. Id.
art. 1(2).


96. See infra text accompanying notes 170-72.
paperless payment orders. Payment system costs burden the transactions it facilitates, thereby reducing their value for the parties.97 Since the payment process is only an ancillary aspect of any transaction, a general concern is to reduce its costs. Thus, any piece of legislation addressing funds transfers is likely to have economic efficiency98 as one of its central policies. However, there are other policies to be considered. When dealing with financial services, legislatures generally will give much thought to the stability and soundness of banks based on the assumption that society will suffer more harm from major disruptions in this sector of the economy than many others.99 Furthermore, lawmakers are often motivated by an interest in social justice, particularly when the statute in question contributes to an equitable distribution of resources among all citizens.100 Nevertheless, it is reasonable to assume that payment mechanisms should remain a neutral means of transferring wealth. An efficient payment system should be inex-


98. The notion used here is called productive efficiency, meaning the production of any given quantity of payment services by consuming the least resources. See R. Cooter & T. Ulen, Law and Economics 17 (1988); A. Okun, Equality and Efficiency. The Big Tradeoff 2 (1975). There are other aspects to efficiency, like allocative efficiency (or Pareto equilibrium), i.e., the optimal allocation of resources in the economy so that the greatest value is produced and consumed, see A.M. Polinsky, An Introduction to Law and Economics 7 (2d ed. 1989); R. Posner, Economic Analysis of Law 12 (3d ed. 1986); J. Revell, supra note 97, at 4.


pensive, convenient and safe. This safety concern largely overlaps with the concern of operational reliability requirement which is central to the soundness of the banking system. 101

The allocation of losses is, in turn, central to the efficiency and reliability of payment services. The costs of funds transfers to customers include the prices charged by the suppliers of these services, and the expenses incurred by the payor and the beneficiary. Yet, it is much more difficult for the users of those services to access the third element of costs: the potential losses they face. Individual and corporate customers are generally aware that an error in punching an order, a delay in its transmission, the fraudulent issuance of an unauthorized payment order, or the insolvency of a financial institution will cause losses. Therefore, the desire to reduce losses and allocate them efficiently is a major impetus in the codification of funds transfers. 102 This comparison of Article 4A of the Uniform Commercial Code with the UNCITRAL Draft Model Law will thus focus on efficiency issues.

From an efficiency perspective, three principles should govern the allocation of losses in payment systems: 1) losses should be borne by whomever may best avoid or reduce the related risk and/or 2) by whomever may best absorb them, and 3) this allocation should be enforced in the least expensive manner. Professors Cooter and Rubin have convincingly demonstrated that these loss avoidance, loss spreading and loss imposition principles, though not tailor-made for funds transfers, can be applied to the retail side and lead to a set of recommended rules that are fairly close to legislation championed by consumer interests. 103 This Article asserts that these same principles can be used to describe, compare, and criticize the codifications of wholesale funds transfers. A word of caution, however, is that these principles must be weighed differently when applied to wholesale funds transfers because corporate customers have a different aversion to risk and a different

101. Rubin, Policies and Issues in the Proposed Revision of Articles 3 and 4 of the UCC, 43 BUS. LAW, 621, 631 (1989) (mentions that "operational reliability" is the main policy underlying the revision of the law of negotiable instruments and checks collection, but also remarks that it overlaps to a large extent with social equity and economic efficiency).


103. Cooter & Rubin, supra note 97, at 66.
capacity to absorb losses than their consumer counterparts. While the loss spreading principle is given a predominant weight for regulating consumer payments, loss avoidance takes precedence in corporate and interbank funds transfers.

A. Loss Avoidance

The size and frequency of losses vary greatly with the precautions taken by the participants of funds transfers. Some precautions are less costly when adopted by the payor and may entail nothing more than securing access to a computer room or double-checking payment orders before their release. Other precautions, such as offering effective coding and encryption procedures or choosing which funds transfer system best suits a particular class of order, are cheaper if taken by her bank. Still others can best be taken by the beneficiary's bank, like checking that the name and account numbers of the beneficiary described in a payment order match. Efficiency requires that legal rules create incentives for the cheapest loss-avoider to take appropriate precautions. Therefore, the party who can avoid or reduce losses at the lowest cost should be liable for them. However, the situation is more complex when precautions are in the hands of several parties. Fault-based liability rules, or alternatively, the enumeration of respective duties, are two answers to this "[p]aradox of [c]ompensation," but each requires a difficult legislative determinations.


105. The party who can take appropriate precautions at the least cost.


mination in setting a standard of diligence or in delineating the preventive measures each side must take.

Efficiency does not demand unlimited precautions. From an economic perspective, it is only rational to take additional precautions as long as the marginal cost is lower than the additional gain in safety, that is, the losses thus avoided. For example, the cost of cross-checking names and account numbers on the payment orders might exceed the losses caused by occasional errors.

Usually, lawmakers do not have enough data necessary to make an economically accurate decision. It is difficult to determine at which point the marginal cost of precautions equals the marginal gain in safety. Moreover, technological innovations modify the parameters of the problem since they tend to make security devices less expensive. This changing technological environment compounded with the limited experience accumulated so far with funds transfer systems does not enable lawmakers to add to a statute the detailed procedures that should be adopted by banks and their clients. Lawmakers can only create incentives for the participants in these payment systems to make the best choices considering the global benefits and costs of safety.

In order to foster effective precautions, lawmakers should consider the various aspects involved in the payment transfer systems. An important consideration that should be examined is the parties' ability to respond to legal incentives. This factor is less problematic with wholesale funds transfers since, unlike consumers, financial institutions and most corporations are usually able to realize the effect of legal rules and accordingly adapt their organization and procedures.¹⁰⁸

B. Loss Spreading

Most economic actors are risk averse. When they face a potential loss, they are ready to pay more than the value of the average loss to protect against that loss.¹⁰⁹ Contrary to popular belief, both

¹⁰⁸. Cooter & Rubin, supra note 97, at 75-77.
individuals and corporations may be risk averse,110 though to different degrees. Their respective willingness to purchase insurance demonstrates this fact.111 Different degrees of aversion to risk imply that certain parties can bear losses at a lower cost than others. It is therefore most efficient to shift losses to the ones who can do so more cheaply.112

However, the party which must bear the losses is unlikely to absorb this additional cost without seeking reimbursement through the mechanism of prices. If, for the sake of argument, banks were found to be less averse to risks than their customers and thus expected to bear the related losses, they would increase the price of payment services accordingly. As a result, customers would collectively pay the losses that they would not bear individually. In aggregate terms, customers would not pay less, but the losses would be averaged among them. Conversely, if customers were obligated to bear individually all risks of loss caused by fraud and were able to estimate them, they would not accept a price unless it was discounted by the value of their average estimated loss. Deciding which allocation is most desirable depends on which party is best able to absorb and spread the loss, and particularly on the ability to gather the information necessary to estimate and price this exposure to risk.

One party’s aversion to risk is usually proportional to the size of the perceived loss measured against its financial resources. This formula alone does not give useful guidance to corporate or interbank funds transfers, since the relative size of financial institutions and their corporate customers does not follow a general pattern; there are very small financial institutions and very large customers. Regardless, the suppliers of funds transfer services are usually in a better position to absorb certain losses since they can more easily estimate their exposure. However, some risks have grown too large to be taken by financial institutions individually and are likely to be pooled voluntarily over contracts, a

110. E. MALINVAUD, supra note 109, at 339.
112. Cooter & Rubin, supra note 97, at 70-73; Lngi, supra note 9, at 632 n.58.
mechanism that is possible among members of funds transfer systems. Some risks are even so considerable that they are assumed by the society at large. For example, up to $2 trillion can be transferred in a single day\(^{113}\) over FedWire and CHIPS,\(^ {114}\) the two major dollar funds transfer systems. The risk of a collective crisis of liquidity due to one single institution's failure to meet its payments is so potentially devastating to the whole financial system that the loss, if necessary, can be absorbed by the Federal Reserve System intervening as lender of last resort and backed by the full faith and credit of the United States.\(^ {115}\)

\section*{C. Loss Imposition}

The best designed loss allocation rules would still be inefficient if their enforcement were too costly. An efficient imposition of losses requires careful design at two levels.

First, the facts on which loss allocation rules are based should not be so complicated that they are difficult to identify and prove. To some extent, electronic data processing facilitates their tracing, since computers can routinely and inexpensively record every stage of the processing of a transaction. However, computers can potentially be accessed and tampered with anonymously, making the collection of evidence a very difficult and costly task. Therefore, when deciding which facts should be considered for the purpose of loss allocation, one should take into account that, in some instances, the burden of proof is extremely difficult to meet, and that it would entail almost automatically the burden of the loss. One should also remember that the evidence commanding the outcome of a case may be more often in the hands of the bank who operates the computer and telecommercial facilities used to process funds transfers than in the hands of the customer.

\begin{itemize}
\item\(^ {113}\) Figure cited by J. Kevin French, an advisor to the U.C.C. Drafting Committee, before the NCCUSL (Honolulu, August 1989). See 53 Banking Rep. (BNA) 275 (1989).
\item\(^ {114}\) See supra notes 8-9.
\item\(^ {115}\) Because of its computer's program failure, the Bank of New York once faced a $23.6 billion end-of-day overdraft on its reserve account. See Effros, supra note 6, at 539-40; Toyama, supra note 13, at 136. Though perfectly solvent, its illiquidity might have triggered a chain reaction among other financial institutions if the problem could not have been externalized by the use of the discount window. \textit{Id.}
\end{itemize}
Equally important to loss imposition is the clarity of the rules and the predictability of their application.\textsuperscript{116} When law is uncertain, parties are more likely to bring their disputes into court. Statutory ambiguity may allow for opportunistic behaviors, where bargaining power, risk preference and procedural advantages such as those enjoyed by a defendant situated in another jurisdiction may weigh heavier than the facts.

Designing efficient rules of loss allocation thus requires a delicate balance between the aforementioned principles—loss avoidance, loss spreading and loss imposition. These loss principles must be weighed according to the circumstances of each hypothetical. Not surprisingly, the Draft Model Law and U.C.C. Article 4A frequently differ in their respective solutions.

VI. Operational Risk

Within the UNCITRAL Working Group it was said that errors or technical malfunctions in international electronic funds transfers are frequent because of the large number of transactions that take place, but are usually easily solved.\textsuperscript{117} Indeed, it appears that total losses have remained “mercifully low.”\textsuperscript{118} However, no consistent statistical data is available, especially on wholesale funds transfers.\textsuperscript{119} Although infrequent, losses due to human errors or technical malfunction may be substantial since large amounts are involved.\textsuperscript{120} A recent report of the General Accounting Office\textsuperscript{121} highlighted significant points of vulnerability in the procedures,\textsuperscript{122}

\begin{itemize}
\item \textsuperscript{116} Sixthteenth Session, supra note 60, at para. 78.
\item \textsuperscript{117} Id.
\item \textsuperscript{118} E. Rubin & R. Cooter, supra note 20, at 823.
\item \textsuperscript{120} Compare infra notes 136-39 (citing cases showing losses ranging from $10,000 to $2.1 million) with supra notes 8-9 (citing cases where transfers processed by FedWire and CHIPS averaged $3.1 million and $7.2 million, respectively, in 1988).
\item \textsuperscript{122} E.g., lack of independent auditing in practically all three systems; insufficient physical security and overly broad access rights to computers and sensitive areas; contingen-
\end{itemize}
equipment, and programs of FedWire, CHIPS, and SWIFT, three major funds transfer systems. For its part, the Switzerland-based Bank for International Settlements has been working for more than fifteen years on the safety and reliability of electronic payment systems and has developed elaborate security assessment methods.

It is unlikely that the use of highly sophisticated electronic networks for funds transfers has increased operational risks. Yet, these elaborate networks have changed the likely causes and consequences of error in funds transfers. The need to reconsider the allocation of losses in this changing environment and to ensure rapid disposition in cases of error was widely recognized inside the banking community, as indicated by the drafting of private guidelines which began prior to the drafting of official codifications.

In the early 1980s, the United States banking industry adopted rules allocating losses caused by erroneous, duplicate, or

123. E.g., operation near full capacity, especially for SWIFT (where the next generation system, SWIFT II, is three years overdue); lack of alternate back-up electrical power at the Federal Reserve Bank of Dallas.

124. E.g., insufficient testing of security software.

125. See supra notes 8-9 (describing FedWire and CHIPS).

126. SWIFT is the system operated by the Society for Worldwide Interbank Financial Telecommunication, a cooperative incorporated in Belgium. Since 1977, it has been operating an international message-switching network without clearing or settlement facilities, though this question is now considered. In 1988, it extended its membership to non-depository institutions of the securities market such as brokers, exchanges and settlement institutions. That year, SWIFT linked more than 2500 members worldwide and transmitted 255 million messages, including payment orders in many currencies. See generally D. Baker & R. Brandel, supra note 4, at ¶ 11.04; W Loh, Das SWIFT-System (Frankfurt A.R. 1983); Effros, supra note 6, at 518-19; Jueterbock, SWIFT II für die 90er Jahre, [1988] Die Bank 329; Jueterbock, Zehn Jahre SWIFT-Network, [1988] Die Bank 269; Karl, International Electronic Funds Transfer System: SWIFT and Its Interface with the New Payment Code, 2 Dickinson Int'l L. Ann. 185 (1983); Lengl, supra note 9, passim (with a wealth of factual information); Toyama, supra note 13, at 130-34 (payment orders format); Note, New SWIFT Rules on the Liability of Financial Institutions for Interest Losses Caused by Delay in International Fund Transfers, 13 Cornell Int'l L. 311 (1980) [hereinafter Note, New SWIFT]; Note, S.W.I.F.T.: A Fast Method To Facilitate International Financial Transactions, 17 J. World Trade L. 458 (1983).


129. See infra text accompanying notes 132-43.
late payments, and payment to an incorrect beneficiary.\footnote{130} The
Paris-based International Chamber of Commerce undertook the
drafting of \textit{Guidelines on International Interbank Funds Transfer
and Compensation} but decided not to promulgate them because
widespread adoption would be unlikely considering the codification
undertaken by the UNCITRAL as well as in the United States.\footnote{131}
The time has come for such a statutory framework.

\section{A. Of Human Mistakes and Technical Malfunctions: The Error Concept}

Human errors may occur at various moments before or during
the transfer process and are evident in many different ways. Often
such errors cannot be easily distinguished from purely technical
failures. They may be clerical, affecting the handling of an individu-
al order.\footnote{132} However, orders are presently processed mostly by
computers. Therefore, human errors may affect the design and the
implementation of funds transfer procedures. For example, the his-
torical overdraft of the Bank of New York on its account with the
Federal Reserve Bank of New York on November 21, 1985, demon-
strates the unpredictable consequences of a situation unforeseen at
the time a system was designed.\footnote{133} Bank of New York's computer
program provided for the maximum clearing of 32,000 securities
issues. When this number was reached on a peak day, data were
damaged and the system was unable to handle the sale of securi-
ties while their purchase still went through. This led to an
unprecedented use of the discount window resulting in a reserve
account overdraft of \$23.6 billion.\footnote{134}

Unlike software misconceptions, hardware failures may be
more difficult to attribute to a human error. Computer breakdowns
can be entirely unpredictable or the result of inappropriate or
delayed maintenance. It may be theoretically possible to dis-
tinguish human actions and omissions from purely technical failures,
but the cost and difficulty of so doing are likely to exceed the ad-

\footnotesize{130. Effros, \textit{supra} note 6, at 521; Lungl, \textit{supra} note 9, at 639 n.103.}
\footnotesize{131. The last draft to be circulated before the effort was interrupted is dated July 8, 1988.}
\footnotesize{132. See cases cited \textit{infra} in notes 138-39.}
\footnotesize{133. Effros, \textit{supra} note 6, at 539-40; Toyama, \textit{supra} note 13, at 136.}
\footnotesize{134. Effros, \textit{supra} note 6, at 539-40; Toyama, \textit{supra} note 13, at 136.}
vantages. This problem calls for a comprehensive notion of error, which should embrace the whole spectrum of operational risk.

Independent of their human or technical origin, both codifications address as errors those situations where, in the absence of a fraudulent human interference, a funds transfer is not performed in compliance with the payor's original order, appropriately, consistently, and in due time. Thus, error comprises delay, nonperformance, as well as the duplication or the alteration of payment orders. However, it does not include a bank's refusal to execute a payment order which it is not obligated by agreement to accept or the disregarding of instructions it is not bound to follow. Article 4A adopts this broad definition of error when it speaks of "erroneous payment orders" and "erroneous execution of payment orders," as does the Draft Model Law by assigning similar meaning to "failed, erroneous or delayed credit transfers."

B. The Payor's Error

1. In the Payor-Beneficiary Relationship.—The effects of a late, improper, or missing payment on the underlying obligations between the payor and the beneficiary are governed by the law applying to these obligations, and not by the law of electronic funds

135. See Draft Model Law, supra note 65, arts. 6(3) to 6(7), 8(2) to 8(6), 11, 12, 13; U.C.C. §§ 4A-205 to -208, 4A-303 to -305 (1989).


141. Draft Model Law, supra note 65, art. 6(6); U.C.C. § 4A-302(b) (1989).


transfer.\textsuperscript{144} Whether delay by the charterer of a ship in paying the monthly rent will benignly result in his duty to compensate the shipowner for the loss of interest or whether it will entitle the owner to withdraw the vessel is governed by the charter-party and by maritime law.\textsuperscript{145} Neither the Draft Model Law nor U.C.C. Article 4A address these questions. They only determine when and to what extent an obligation to pay is discharged by a funds transfer.\textsuperscript{146}

2. \textit{In the Payor-Banks Relationship}.—The Draft Model Law and the Uniform Commercial Code allocate losses between the payor, her bank, the intermediary and the beneficiary’s banks. This allocation includes losses incurred by the payor as the result of her obligation to compensate the beneficiary’s damages.\textsuperscript{147} Essentially, the payor bears the losses caused by her own errors. It is her responsibility to describe exactly the beneficiary or the beneficiary’s bank, to mention a smaller or larger amount than her debt, or to delay the issuance of her payment order. If her instructions are inaccurate, she bears the risk of loss. While the model codes do not expressly mandate this result, it occurs because of the absence of provisions shifting those losses onto another participant in the funds transfer.\textsuperscript{148} The result seems intuitively correct since the payor is in the best position to avoid the losses caused by such mistakes.

However, certain errors originated by the payor may be recognizable to her bank or an intermediate or receiving bank in the transfer chain. This is the case when the payor’s order identifies

\textsuperscript{144} Neither Article 4A nor the Draft Model Law purport to govern the (generally contractual) relationship between the payor and the beneficiary. They only state when and to what extent the obligation to pay that motivated the funds transfer is satisfied by the funds transfer. \textit{See Draft Model Law, supra} note 65, art. 14; U.C.C. § 4A-406 (1989).


\textsuperscript{146} \textit{Draft Model Law, supra} note 65, art. 14; U.C.C. § 4A-406 (1989). These provisions also provide for the case where fees and other bank charges have been deducted from the principal sum credited to the beneficiary’s account.

\textsuperscript{147} Unlike the Draft Model Law, the Uniform Commercial Code provides for a direct compensation of the beneficiary’s loss of interest by the bank responsible for the delay. U.C.C. § 4A-305(a) (1989).

\textsuperscript{148} \textit{See} U.C.C. § 4A-205 comment 1 (1989).
the beneficiary by a name and an account number that do not match.\textsuperscript{149} a discrepancy the beneficiary’s bank is able to recognize. Furthermore, the payor’s bank may detect certain errors committed by its customer when both the customer and the bank use a security procedure. Such procedures were first introduced to guarantee that an order was issued by its purported sender and therefore authorized,\textsuperscript{150} but most of them also provide for the detection of certain errors and inconsistencies.\textsuperscript{151}

Under the Draft Model Law, the beneficiary’s bank must check the consistency of the beneficiary’s designation by name and account number and, in case of discrepancy, suspend the transfer and seek instructions.\textsuperscript{152} Any bank incurs a similar obligation when it can recognize that a payment order it receives was misdirected, or when the words and the figures stating the amount were inconsistent.\textsuperscript{153} However, the consequences of not complying with these obligations are not expressly stated.\textsuperscript{154}

On the contrary, U.C.C. Article 4A gives special significance to the security procedure used in relation to payment orders, amendments and cancellation notices. U.C.C. section 4A-205 applies to payment orders between any sender—be it the payor, her bank or an intermediary bank—and its own receiving bank, provided they

\begin{itemize}
\item[150.] Cf. Draft Model Law, supra note 65, art. 2(j) (authentication); U.C.C. § 4A-201(i) (1989) (security procedure).
\item[151.] See U.C.C. § 4A-201(ii) (1989). The UNCITRAL Working Group has refused to extend the Draft Model Law definition of authentication to cover procedures capable of detecting errors, see Draft Model Law, supra note 65, art. 2(j); Twentieth Session, supra note 60, at paras. 75-77.
\item[152.] Draft Model Law, supra note 65, art. 2(5); see A/CN.9/WG.IV/WP.44, supra note 63, at 27; cf. U.C.C. § 4A-207(a), (b)(2) (1989) (no such duty is placed on the beneficiary’s bank, except where the name or the account number refers to a nonexistent or unidentifiable person or when the bank is aware of their inconsistency).
\item[153.] Draft Model Law, supra note 65, arts. 6(3) to 6(5), 8(2) to 8(4); cf. U.C.C. § 4A-208 (1989).
\item[154.] See Draft Model Law, supra note 65, art. 12(3). Apparently, the bank failing to detect such inconsistencies has no liability other than refunding the principal sum under article 11(b) since the loss does not result from a situation in which “the payment order received by the beneficiary’s bank is not consistent with the payment order received by this intermediary bank.” Id. The only case where a bank explicitly incurs any liability (here: lost interest) for not complying with its obligation to check the consistency of an order is stated at art. 12(6) for misdirected orders. See id. art. 12(6).
\end{itemize}
have agreed on using a security procedure. If the content of the sender's order is erroneous, yet she complied with the agreed security procedure, the resulting losses are shifted onto her bank if the latter would have detected the error had it complied with the procedure.\textsuperscript{155} This shift relies on a "last-clear-chance" theory.\textsuperscript{156} However, the sender must still exercise ordinary care in discovering and reporting the error on the basis of the information available to her. If not, she retains the loss up to the amount of the principal sum.\textsuperscript{157}

The UNCITRAL Working Group has not yet accepted the aforementioned concept.\textsuperscript{158} This is unfortunate since such a provision is well-supported by policy, both from an efficiency as well as from an equitable perspective. Though first implemented to detect fraud, well-designed security procedures are also used to ensure the accuracy and integrity of orders transmitted through network systems. They help reduce the aggregate social costs of losses caused by errors, but they are only effective when all parties comply with them. The sender of the order has an incentive to comply since it helps her reduce losses generated by her own errors she would otherwise have to bear. On the other hand, the receiving bank lacks such incentive to comply with the procedures agreed upon with the customers when the corresponding losses fall upon the payor. Thus, there is a strong loss-avoidance argument which advocates sanctions for noncompliance with the security procedure and a corresponding shift of those losses.

Equity also supports the enforcement of security procedures in this manner. The payor generally uses a security procedure she has not proposed but accepted on the advice of her bank. She should be allowed to rely on the bank's compliance with its contractual duties. The lack of sanctions for noncompliance contradicts the payor's reasonable expectation that the bank can be taken at its word. Thus, U.C.C. section 4A-205 expresses a principle that should find its place in the UNCITRAL Draft Model Law

\textsuperscript{155} U.C.C. § 4A-205(a) (1989).
\textsuperscript{157} U.C.C. § 4A-205(b) (1989).
\textsuperscript{158} See Twentieth Session, supra note 60, at paras. 78-79. The one exception arises out of the bank's duty to compensate for lost interest when it failed to notify the sender of a misdirected payment order. Draft Model Law, supra note 65, art. 12(6).
C. A Bank’s Error

In order to understand how assignment of the losses resulting from a bank’s error is made, one should keep in mind that neither the Draft Model Law nor the Uniform Commercial Code requires a bank to accept a payment order received from a customer or a correspondent bank.\textsuperscript{159} If a receiving bank rejects a payment order, it must notify its sender\textsuperscript{160} and return the funds it may already have received.\textsuperscript{161} If the funds transfer cannot be completed through another bank, the transfer will not take place and the money must be refunded to the payor.\textsuperscript{162} The bank which rejects a payment order incurs no liability except when it was obligated by agreement to accept it;\textsuperscript{163} but this is not a case of error, and I shall not examine it here.

Conversely, if the receiving bank accepts the payment order, it is obliged to execute it in a correct and timely manner.\textsuperscript{164} As an intermediary bank, it must issue a payment order consistent with that received.\textsuperscript{165} If it is the beneficiary’s bank, it must make the funds available to its client and give him notice.\textsuperscript{166} In certain cir-

159. See Draft Model Law, supra note 65, arts. 5(2) to 5(3), 7, construed in A/CN.9/WG.IV/WP.41, supra note 63, art. 5(1)(a), (b); U.C.C. §§ 4A-212, -302 comment 1 (1989).

160. See U.C.C. § 4A-210 (1989); Draft Model Law, supra note 65, arts. 5(3), 7(2); Twentieth Session, supra note 60, at paras. 123, 175.

161. Draft Model Law, supra note 65, art. 11(b); U.C.C. § 4A-402(d) (1989).

162. The Draft Model Law holds any bank liable towards its own sender and towards the payor for the failure of a subsequent bank to accept and execute a payment order complying with the payor’s instruction. Draft Model Law, supra note 65, art. 12(3). This liability is not based on any error, but on an implied warranty. Id. A similar responsibility was considered in early drafts of U.C.C. Article 4A, but later abandoned. Geva, supra note 41, at 221.

163. U.C.C. §§ 4A-212, -305(d) (1989); Draft Model Law, supra note 65, arts. 5(1), 7(1) (by negative implication).

164. Both statutes differ in terminology. Articles 5 and 7 of the Draft Model Law speak of “acceptance” in regard to any bank deciding to act upon a payment order, without implying the creation of a (new) contract between the sender and the accepting bank. Draft Model Law, supra note 65, arts. 5, 7. Compare Nineteenth Session, supra note 60, at paras. 35-52 and Twentieth Session, supra note 60, at paras. 112-14 and A/CN.9/WG.IV/WP.42, supra note 63, at paras. 2-42 with Schneider, supra note 5, at 289. The Uniform Commercial Code speaks of “execution” when a receiving bank can act upon a payment order, U.C.C. § 4A-301(a) (1989), by issuing its own payment order. In contrast, the beneficiary’s bank may only “accept” a payment order. See U.C.C. § 4A-209 (1989).


166. Draft Model Law, supra note 65, arts. 8(1), (6); U.C.C. § 4A-404(b) (1989).
cumstances, a receiving bank's silence may be deemed an acceptance of the payment order.\textsuperscript{167}

In substance, both codifications allocate to any bank which accepts a payment order the risks and losses of its own errors in processing it. Under the Uniform Commercial Code, when a security procedure for the transmission of payment orders is agreed upon, the failure of the receiving bank to detect errors in compliance with that procedure shifts the loss to the receiving bank,\textsuperscript{168} unless the sender fails to exercise ordinary care in discovering and reporting the erroneous execution.\textsuperscript{169} As discussed above, this allocation of risk relies on loss-avoidance and on the general principle that one who incurs an obligation should be held liable for its nonperformance.

Enforcement of this principle differs fundamentally between the Draft Model Law and Article 4A because the UNCITRAL Draft contemplates international funds transfers and places greater emphasis on the imposition of losses. If an error results in the return of funds,\textsuperscript{170} each receiving bank other than the beneficiary's bank is obligated "to refund to its sender any funds received from its sender" while it "is entitled to the return of any funds it has paid to its receiving bank."\textsuperscript{171} Furthermore, it is often the case that other losses must be compensated; therefore, each receiving bank in the transfer chain before the bank where the error occurred is liable to its own sender and the payor.\textsuperscript{172} In both cases, the debtor is relieved of responsibility and the payor may hold her own bank liable, which will in turn shift the loss to the next bank in the chain until it is finally borne by the bank responsible for the error. Conversely, under the Uniform Commercial Code, the party who suffers a loss and the one who ultimately ab-

\begin{itemize}
\item \textsuperscript{167} See Draft Model Law, supra note 65, art. 7(1)(a), (b); U.C.C. § 4A-209(b) (1989) (acceptance of an order by the beneficiary's bank through the lapse of time); Draft Model Law, supra note 65, art. 5(2)(a), (b) (by any other bank). But cf. U.C.C. §§ 4A-209(a), 211(d) (1989) (receiving bank, other than beneficiary's bank, has no duty to accept a payment order unless the bank makes an agreement, either before or after issuance of the payment order).
\item \textsuperscript{168} U.C.C. § 4A-205(a) (1989).
\item \textsuperscript{169} Id. § 4A-205(b).
\item \textsuperscript{170} The same applies to all situations where the funds transfer has not been completed, such as when a bank has rejected a payment order.
\item \textsuperscript{171} Draft Model Law, supra note 65, art. 11(b).
\item \textsuperscript{172} Id. art. 12(2), (3).
\end{itemize}
sorbs it must deal directly with one another since there is no "cascade mechanism" to impose the loss.

In short, U.C.C. Article 4A and the UNCITRAL Draft Model Law both allocate losses according to the *loss-avoidance principle* on a no-fault basis and do not provide for any *loss-spreading*. However they do so to a different extent, in part because the Uniform Commercial Code places greater emphasis on the duty to detect and correct an error in compliance with a security procedure. The codifications differ in the *imposition of the losses* since the Draft Model Law simplifies recovery by authorizing any participant to shift the loss onto its proximate neighbor, with whom it shares some relationship, until the loss finally reaches the party liable for it.

The operation of these mechanisms must be examined in relation to each of the three kinds of losses contemplated by both statutes: the principal sum (section 1); the losses directly and proximately caused by the error (section 2); and all other (indirect, including consequential) damages (section 3).

1. Loss of the Principal Sum.—U.C.C. Article 4A and the Draft Model Law provide for restitution of funds to the payor\(^1\) which are not credited to the beneficiary's account in compliance with the payor's original order, whether the transfer is not completed, reached a wrong beneficiary, or funds were paid in excess. This restitution is performed by what is called a "money-back guarantee,"\(^2\) without regard to any fault nor with any exemption. Yet, "restoring the status quo ante is somewhat more complicated than the slip that created the problem."\(^3\) As long as all participants remain solvent, there may be delay, but no loss of the funds, though their unavailability to the beneficiary or the payor may cause other damages (interest lost, consequential damages, etc.) as we shall examine later. The point here at issue, however, is who bears the risk of not getting the refund of the principal sum when it must be returned to the payor.

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173. *See Draft Model Law, supra* note 65, art. 11 (it is unclear whether the Draft Model Law states that obligation in respect to the beneficiary); U.C.C. § 4A-204(a) (1989).

174. The expression was used for both codifications. *See Nineteenth Session, supra* note 60, at paras. 54-58; U.C.C. prefatory note (1989).

(i) U.C.C. Article 4A allocates the risk to the bank that caused the error by excusing the payor and any bank prior to the bank that caused the error from paying the funds.\textsuperscript{176} If the settlement took place before the error was discovered, funds must be returned to their sender.\textsuperscript{177} However, the bank responsible for the error is not excused from providing funds if a funds transfer was completed in compliance with the (erroneous) order it issued: it is bound by the contents of its own order to the receiving bank, must settle the order, and may only seek recovery from the beneficiary under the law of restitution and mistake.\textsuperscript{178} Thus, the bank responsible for the error bears the risk of losing the funds that were paid in error.\textsuperscript{179} This rule is based on loss-avoidance and does not embody any element of loss-spreading. It may not be varied by private agreement.\textsuperscript{180}

(ii) The Draft Model Law addresses the same problem in a different way Article 11(b) of the Draft implements the "money back guarantee,"\textsuperscript{181} by providing that each receiving bank must return any funds received from its sender, while it is itself entitled to a refund from its own receiving bank.\textsuperscript{182} This solution allows any participant in the funds transfer to deal only with parties with which it has a relationship; it avoids the need for a transaction between two nonconsecutive parties in the transfer chain which are likely to be in distant countries. Although desirable in its principle,

\textsuperscript{176} In case of overpayment to the purported beneficiary, the excuse extends only to the amount overpaid. U.C.C. § 4A-303(a) (1989).

\textsuperscript{177} See id. §§ 4A-205(a)(1), (3), -207(c)(2), -303(c), -402(c), (d), (e).

\textsuperscript{178} Id. § 4A-303(a), (c); see id. §§ 4A-207, -208.

\textsuperscript{179} Each bank prior to the mistaken bank which is entitled to the return of its cover from its own receiver keeps the risk of the latter becoming insolvent, unless it followed instructions in choosing that bank. Id. § 4A-402(e).

\textsuperscript{180} Id. § 4A-402(f).

\textsuperscript{181} See Sixteenth Session, supra note 60, at paras. 5-60; Nineteenth Session, supra note 60, at paras. 54-58, 66-74 (discussing the policy that a bank stands, \textit{vis-a-vis} its sender, for the proper execution of a transfer by all subsequent banks in the chain).

\textsuperscript{182} The Draft Model Law reads as follows:

A receiving bank other than the beneficiary's bank that accepts a payment order is obligated under that order wherever a payment order consistent with the contents of the order issued by the originator and containing instructions necessary to implement the credit transfer in an appropriate manner is not issued to or accepted by the beneficiary's bank—to refund to its sender any funds received from its sender, and the receiving bank is entitled to the return of any funds it has paid to its receiving bank.

\textit{Draft Model Law, supra} note 65, art. 11.
this mechanism entertains, at least in its present wording, two significant loopholes.

First, while the (actual) recipient’s bank must reimburse its sender, it is not entitled by the Model Law to restitution from its customer.\textsuperscript{183} It may be that the national law applicable to the account relationship between the recipient of the funds and his bank does not authorize a reversal of the credit entry in the recipient’s account, yet the Model Law does not excuse the recipient’s bank from returning the funds to its sender.\textsuperscript{184} This potential inconsistency between both sets of rules is inequitable and unjustifiable. A provision in the Model Law should explicitly allow for the reversal of the credit entry Secondly, no bank along the funds transfer chain is excused from refunding payment to its sender even if it is unable to recover payment from its own receiving bank (or the beneficiary) that meanwhile becomes insolvent.\textsuperscript{185} This shifts the loss of the principal sum from the bank where the error occurred to the one in the chain immediately prior to the insolvent bank\textsuperscript{186} or to the bank of the insolvent recipient of the funds.\textsuperscript{187} Herein lies a conflict between two objectives: the prevention of errors and the

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\textsuperscript{183} The Draft Model Law entitles any receiving bank to a refund from its “receiving bank,” but not from a customer. \textit{Draft Model Law, supra} note 65, art. 11(b). The same problem may arise when the intended beneficiary received too great an amount. A previous version of the Draft Model Law allowed the beneficiary bank to reverse a credit entry “to the extent that the credit was in excess of the amount in the originator’s [payor’s] payment order, was the result of a duplicate credit arising out of the same payment order by the originator or was entered to an account other than the account specified by the originator.” \textit{See Eighteenth Session, supra} note 60, art. 8(7). The Working Group deleted this provision because it might be inconsistent with the national law governing the account relationship between the beneficiary and his bank. \textit{See Nineteenth Session, supra} note 60, at paras. 104-06. Absent such a provision, this author thinks that the inconsistency between the national law governing the account and the Draft Model Law governing the funds transfer may cause more severe problems. Reinstating the deleted provision would not prevent national lawmakers from adapting it to their own legal system, and it would at least draw their attention to the problem. \textit{Cf. U.C.C. §§ 4A-205(a)(2), (3), -207(d), -209(d), -211(c)(2), -303(a) & (c)} (1989).

\textsuperscript{184} \textit{See Draft Model Law, supra} note 65, art. 11(b).

\textsuperscript{185} Id.

\textsuperscript{186} The Draft Model Law does not contain a rule similar to the Uniform Commercial Code rule that shifts the loss from the sender to the party who has given instructions to use the insolvent bank, but it does allow a bank to depart from a sender’s instructions to use an intermediary bank if it determines in good faith that the proper and timely completion would be hindered. \textit{Compare Draft Model Law, supra} note 65, art. 6(6) with U.C.C. § 4A-402(e) (1989).

\textsuperscript{187} \textit{See Nineteenth Session, supra} note 60, at paras. 54-58 (this shift of loss was a deliberate choice of the Working Group).
prevention of insolvency. Arguably, a bank choosing an insolvent intermediary bank should absorb the loss caused by its correspondent’s insolvency in the performance of the payment order in order to give proper incentive to choose an adequate intermediary. However, this reasoning is not persuasive when the insolvency occurs days or weeks later and the loss is suffered only as the result of the “money back guarantee” triggered by another bank’s error. This rationale is even less justifiable when it would place the risk of loss of the funds on the recipient’s bank or on the prior bank, since neither had discretion as to whom the funds should be transmitted.

In my opinion, the special loss imposition mechanism devised by the UNCITRAL Working Group to facilitate the imposition of the loss on the party who caused it should not modify its allocation, even though a subsequent insolvency may hinder its proper implementation. Article 11(b) of the Draft Model Law should excuse any bank under a duty to refund the principal sum to the extent that its own receiving bank’s (or the beneficiary’s) obligation to refund is waived, modified, or affected as the result of an insolvency subsequent to the execution of the erroneous payment order. This exemption does not apply to banks situated before the one responsible for the error according to the idea that they stand for the proper performance of the transfer by all subsequent intermediaries. Excluding the aforementioned adjustments, the “money back guarantee” as designed in the Draft Model Law is a significant improvement over the corresponding mechanism of U.C.C. Article 4A.

2. Direct Losses.—A second category of losses comprises those which are directly and proximately caused by a bank’s failure to execute a payment order or its late or improper execution. U.C.C. section 4A-305 lists these losses as 1) loss of interest, 2) expenses in the funds transfer, 3) incidental expenses and, under

188. Compare Draft Model Law, supra note 65, art. 11(b) with U.C.C. § 4A-402(e) (1989) (instituting a similar safeguard).

189. “The failure of bank to transfer funds as requested can result in direct damages (e.g. the loss of the funds themselves, the interest thereon and any fees paid for the failed transfer); or consequential or special damages, here the extra expense incurred in hiring a substitute ship.” Compania Anonima Venezolana de Navegacion v. American Express Int’l Banking Corp., No. 84-2047, July 12, 1985 WL 1898 at 7 (S.D.N.Y.).

190. Other sections of Article 4A may impose the payment of interest. See U.C.C. §§ 4A-210(b), -304, -402(d) (1989).
certain circumstances, 4) reasonable attorney's fees. Article 12(5) of the Draft Model Law mentions 1) loss of interest, 2) the expenses for a new payment order and 3) the loss due to variation in the exchange rates.\footnote{191} Compared to the principal sum, direct losses usually are not a large amount. However, they are the almost unavoidable consequence of any error, and most often are not dependent upon the personal circumstances of either side.

Both statutes assign these losses on a no-fault basis to the bank accountable for the error.\footnote{192} The accountable party is the bank where the error occurred, or under U.C.C. section 4A-205, the receiving bank which should have detected the error by complying with the agreed upon security procedures.\footnote{193}

In this case, the Draft Model Law provides certain exceptions in a different manner and authorizes banks to vary their liability with other banks, but not with their customers.\footnote{194} Furthermore, it simplifies the recovery of losses by allowing recovery directly from her bank. If the payor's bank is not the bank that must ultimately bear the loss, it may seek compensation from its own receiving bank,\footnote{195} and so on until the loss is finally imposed on the bank.

\footnote{191. Whether exchange losses are directly caused by a failure in the transfer of the funds is debatable. No payment starts in one currency and ends in another. The exchange loss only arises because the currency transferred must be exchanged or is the payment for a transaction in another currency. One might consider that this exchange risk is not inherent with the payment process but with the underlying contract. However, the same can be said of the date on which a payment is due, although the principle of interest-loss compensation is not challenged. While international electronic funds transfers are meant to meet the need of multi-currency transactions, it is not unreasonable to consider that system design should internalize the exchange costs of untimely transfers. See Nineteenth Session, supra note 60, at paras. 133-36 (ongoing discussion among the UNCITRAL Working Group); Twentieth Session, supra note 60, at para. 188.}

\footnote{192. U.C.C. § 4A-305 (1989); Draft Model Law, supra note 65, art. 12.}

\footnote{193. See U.C.C. § 4A-304 (1989) (failure of sender to report an error); cf. Draft Model Law, supra note 65, art. 12(6) (providing for liability of the bank when it fails to notify the sender of a misdirected payment order).}

\footnote{194. Draft Model Law, supra note 65, arts. 12(7), 13; see U.C.C. § 4A-305(c), (d), (e) (1989).}

\footnote{195. This result comes from the combination of article 12(2) and 12(3) of the Draft Model Law, which makes any bank prior to the one where the error occurred liable to its own sender and to the payor. See Draft Model Law, supra note 65, art. 12(2), 12(3). If the payor so wishes (e.g., if one bank in the whole chain has failed), the payor may also seek compensation directly from the bank ultimately responsible for the error. Yet, this mechanism is vulnerable to the second loophole already discussed in connection with the “money-back guarantee” of article 11(b). Id. art. 11(b); see supra text accompanying notes 185-87. A bank that should not ultimately bear the loss, but is still obliged to compensate under article 12(2), may not be able to shift the loss to the next one in the chain if the latter is}
responsible for it. Conversely, Article 4A only imposes on the responsible bank an obligation to compensate the payor for the expenses of the funds transfers\textsuperscript{196} or the beneficiary for interest lost.\textsuperscript{197}

The interesting question here is whether, and under what circumstances, the bank responsible for the error should be exempted from liability. U.C.C. Article 4A contained a provision to this effect until an advanced stage of the drafting process.\textsuperscript{198} The drafting committee finally dropped the provision because damages resulting from an improperly executed order are restitutionary in nature and force majeure should play no role.\textsuperscript{199} Such exemptions are generally very specific to each legal system: the unification of international funds transfers sought by the Draft Model Law would not be effective if it were left up to national jurisdictions. Thus, the Draft Model Law illuminatively lists the remedies\textsuperscript{200} and, in sometimes vague terms, enumerates several circumstances that exempt a party from liability.\textsuperscript{201} Among these exemptions are the “interruption of communication facilities or equipment failure.”\textsuperscript{202} These exemptions are unreasonably overbroad.

Interruption of communications and equipment failures are typical operational risks. They may result from an Act of God, such as a power failure caused by a thunderstorm, an act of war, or from circumstances more closely linked with a participant to the

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\textsuperscript{196} U.C.C. § 4A-305(b) (1989).

\textsuperscript{197} U.C.C. § 4A-305(a) (1989).

\textsuperscript{198} See, e.g., U.C.C. § 4A-306 (tent. draft of June 1, 1988):


\textsuperscript{200} Draft Model Law, supra note 65, art. 12(8).

\textsuperscript{201} Id. arts. 12(8), 13.

\textsuperscript{202} Id. art. 13; see U.C.C. § 4A-306 (tent. draft of June 1, 1988), reprinted supra at note 198 (excusing failure or delay in execution if caused by communication facilities or equipment failure).
funds transfer such as a strike, or a downtime of the in-house power distribution system or the bank's computer facilities. They may also result from human error, such as an erroneous cut-off initiated one hour too early by a system engineer.\(^{203}\) When yesterday's data is lost in a power failure because it has mistakenly not been backed up on schedule, it is unclear whether the loss is attributable to human error or to technological failure. Arguably, human error may be the cause of many large-system mishaps, as there may be an intricate web of human oversights in designing, monitoring, and operating, concurring with a technical, unpredictable and uncontrollable incident. Allowing a factual discussion on which circumstances actually caused a failure to perform a given funds transfer, the Draft Model Law requires lengthy and costly fact discovery while the purpose for such exemptions is far from clear. Besides, failures may be avoided by installing duplicative computer and telecommunication facilities.

Which court or what lawmaker should decide the appropriate safeguards a bank should have taken? A major failure can result from an earlier decision to design a program for a limited number of transactions: the flaw appears the very day this level is reached and proper operation is needed more than in the average computer because of the strain on the system.\(^{204}\) Again, which court or lawmaker should determine which level was appropriate?

From a loss-avoidance viewpoint, the banks which design, operate, and supervise the transfer system can best determine the efficient level of precautions at which the marginal cost of any improvement exceeds the marginal gain in reduced losses. These banks can do so with flexibility since article 12(7) of the Draft Model Law, unlike U.C.C. Article 4A,\(^{205}\) authorizes banks to reallocate direct losses among themselves, although not with their

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203. Mr. Sangster, reporting on the operations of the London-based Clearing House Automated Payment System, wrote:

There have, of course, been a couple of occasions when things did not go quite right.
In one instance, an engineer misread the clock and switched off one of the principal computers before the payments' deadline. Another embarrassing event was when
British Telecom's Packet Switched Network forgot that 1984 was a leap year.

204. See supra text accompanying note 134 (discussing the $23.6 billion overdraft of
the Bank of New York on its reserve account because of its computer failure).

205. See U.C.C. § 4A-305 (1989) (authorizing contractual provisions only in regard to
consequential damages and on the liability of a receiving bank failing to accept an order it
was contractually obliged to accept).
clients.\textsuperscript{206} Exempting banks from losses caused by certain operational mishaps keeps those events out of the optimization process. The failure to internalize their cost leads to a sub-optimal level of precaution.\textsuperscript{207} Economic efficiency requires restrictive exemptions under article 13 of the Draft Model Law, backed by a strong equity argument that banks should be accountable for their equipment malfunctions to the same extent that, as employers, they are liable for employee error.\textsuperscript{208}

3. Consequential Damages.—The allocation of consequential (or indirect) losses is certainly the most controversial error-related issue. The common law after Evra Corp. v. Swiss Bank Corp.,\textsuperscript{209} and later cases\textsuperscript{210} is considered both uncertain and unsatisfactory\textsuperscript{211} A short summary of Evra will explain the reason. The defendant, Swiss Bank Corporation ("Swiss Bank"), was an intermediary bank in a funds transfer originated by Evra. Though Swiss Bank had received a payment order from Evra’s bank on its telex machine, it never processed this message either because it was not printed as the telex machine had run out of paper or because the message was lost within the bank. Swiss Bank’s failure to execute the $27,000 order caused the cancellation of a valuable ship charter which, in turn, cost Evra $2.1 million in lost profit, which the trial court awarded as damages. However, the Seventh Circuit reversed, applying the 130-year-old rule of Hadley v. Bax-

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\textsuperscript{206} Draft Model Law, supra note 65, art. 12(7).
\textsuperscript{207} See Lingl, supra note 9, at 637.
\textsuperscript{208} Seventeenth Session, supra note 60, at para. 152.
endale which states "that consequential damages will not be awarded unless the defendant was put on notice of the special circumstances giving rise to them." Therefore, Swiss Bank was not held liable for consequential damages since it was ignorant of the special circumstances from which they might arise.

As one can see from this example, a failed or delayed funds transfer of even a relatively small sum by corporate standards may cause extraordinary damages in lost profits or additional costs. However, payors could protect themselves against such varying, unpredictable losses, by giving their banks notice of "special circumstances" to pass along to intermediary banks and to the beneficiary's bank in the wire transfer. Yet, if that were the case, banks at every step of a wire transfer would be required to assess individually the particular circumstances surrounding each special transfer, not only to ensure the safety of the processing but also to measure their exposure in order to price the additional risks they would incur. Such a case-by-case treatment of payment orders would jeopardize the speed and relatively low cost of electronic funds transfers, which are their main advantages. Moreover, such a system ignores the reality that the payor is in the best position to evaluate her own risks and protect against loss by allowing for ample time for the transfer and then ensuring that the beneficiary received the funds. Indeed, such precautions are often the most effective and the least expensive.

212. 156 Eng. Rep. 145 (1854); see Kerr S.S. Co. v. Radio Corp., 245 N.Y. 284, 157 N.E. 140, cert. denied, 275 U.S. 557 (1927) (the applicability of Hadley to the liability under a contract for the transmission of messages has always raised problems); see also Danzig, Hadley v. Baxendale: A Study in the Industrialization of the Law, 4 J. LEC. STUD. 249 (1975).

213. Eura, 673 F.2d at 955-56 (citing Hadley).

214. Eura, 522 F. Supp. at 835 ($2.1 million lost profits for a payment of $27,000); see Central Coordinates, Inc., 129 Misc. 2d at 87, 494 N.Y.S.2d at 604 ($458,500 lost profits for a $91,500 payment order); Lloyds Bank v. Lynch, 702 F. Supp. 157, 158 (N.D. Ohio 1988) (alleged loss in excess of $100 million for a $100,000 funds transfer).


216. The Article 4A drafters noted that:

   A banking industry amicus brief in Eura stated: "Whether banks can continue to make EFT services available on a widespread basis, by charging reasonable rates, depends on whether they can do so without incurring unlimited consequential risks. Certainly, no bank would handle for $3.25 a transaction entailing potential liability in the millions of dollars."

The mutual ability of both payors and banks to avoid losses, the conflicting goals of allowing full compensation in the event of losses and the providing of transfer services at nominal cost, and the need to reduce the present uncertainties of the law led the drafters of each model code to almost opposite conclusions.\footnote{217}

(i) U.C.C. section 4A-305(c) adopts what may be called an insurance approach. Indirect damages (which include consequential damages) may only be recovered if and to the extent previously agreed upon by the parties in an express written agreement.\footnote{218} This solution was proposed at a very early stage of the codification process\footnote{219} and was discussed at length before being adopted. It promotes, but does not mandate, a two-tier system of funds transfer services. The first tier could be categorized informally as "mass traffic" transfers provided at a nominal price. Speed and reliability of these transfers would not be affected, but only direct losses may be recovered in case of delayed or failed payment. Alternately, payors may choose to pay more to obtain insurance for additional damages, thus creating a second tier of transfers. This "guaranteed service" is likely to be priced proportionally to the insurance coverage required and is dependent upon the existence of a "written agreement of the receiving bank." However, the payor is supposed to seek recovery directly from the bank responsible for the error,\footnote{220} with which she probably has no previous contractual agreement, unless it is her own bank.

The meaning of a "written agreement of the receiving bank" under subsection (C) and whether it may consist of a "funds transfer system rule," as defined in section 4A-501(b)\footnote{221} is unclear and may cause problems in the implementation of the principle. Certainly, a mere written agreement by the payor's bank does not bind any subsequent bank in the funds transfer chain per se. However, the payor's bank may agree to pay consequential damages caused by another bank's error pursuant to either an insurance agreement or in accordance with a funds transfer system rule man-

\footnote{218} U.C.C. § 4A-305(c) (1989).  
\footnote{219} See Warren & Jordan, supra note 83, at 14-16.  
\footnote{220} See U.C.C. § 4A-305(a), (b) (1989).  
\footnote{221} Id. § 4A-501(b).
dating shared losses among all participants along with corresponding shared premiums.

(ii) The policy relied upon by the UNCITRAL Working Group still seems unsettled. A first proposal by the Secretariat extended the no-fault allocation of direct losses to indirect damages caused by error, but limited recovery to the amount of the original payment order.222 This approach was rejected in favor of a proposal which conditioned liability upon willful or reckless action or omission of a bank.223 This tentative provision,224 modeled after the U.N. Convention on the Carriage of Goods by Sea of 1978 (Hamburg Rules),225 is still being debated ardently226 The exemption clause already discussed would apply227 Variations by agreement would not be allowed either among banks or with their clients.228 However, the imposition of loss would not follow the pattern for principal sum and direct losses229 since the payor may only recover from the bank whose willful or reckless behavior caused the damage. This bank could be located in a distant jurisdiction thereby further frustrating recovery.

Moreover, the proof of a bank's reckless or willful action or omission entails great uncertainty which could also affect the outcome of litigation. When compounded with the high costs of litigation in another country, the uncertainty surrounding recovery may dissuade the payor from enforcing her rights when the loss at stake amounts to a few thousand or tens of thousands of dollars. Additionally, if the defending bank was not the payor's bank there would be no previous contractual relationship. This opens the floodgates for opportunistic procedural behaviors which are generally more characteristic of torts claims: settlements are likely to be extracted based more on comparative procedural advantages and uncertainties surrounding the evidence in the case rather than on

223. Seventeenth Session, supra note 60, at paras. 115-18.
224. Draft Model Law, supra note 65, art. 12(5)(d).
226. At the December 1989 session of the Working Group, an attempt to reach a consensus among a four-member subcommittee failed. See Twentieth Session, supra note 60, at para. 188.
228. Draft Model Law, supra note 65, art. 12(7).
229. See supra text accompanying notes 170-71.
an objective assessment of the legal situation which theoretically should determine liability

What is needed is a simplified procedure for recovery directly from the payor’s bank, as opposed to the bank where the error occurred, based upon a contractual agreement setting forth recoverable damages and amounts, instead of the current suggestions which rely on problematic qualifications of the subjective error. In other words, a more practical, efficient solution would be a “guaranteed funds transfer service,” priced as such. My proposal would combine the efficient allocation of indirect losses of U.C.C. section 4A-305(c) with the efficient imposition principle adopted by the Draft Model Law for the capital sum and direct losses. Recovery of consequential damages as limited by contractual agreement should be obtained from the payor’s bank. This solution would require the payor to assess her own risks and potential damages. Her contract with the bank could either provide for automatic coverage in a predetermined or proportional amount or for an amount to be established for each individual payment order. If customers demanded such a guaranteed service, banks would likely supply it for a price proportional to the risk and required coverage. Banks could provide such insurance themselves, contract individually with an insurance company, obtain insurance through the funds transfer system or spread premiums and claims among all banks in a system.

This proposal shifts to the payor the burden to decide whether to obtain coverage and, if so, how much coverage is needed. And the payor is the only party to the transaction that is truly qualified to make such decisions accurately. Furthermore, this proposal shifts to the payor’s bank the responsibility to set appropriate prices for necessary coverage. Likewise, the payor’s bank, which has all the necessary data, and can share the risk and premium with other banks or insurance companies, would be in the best position to determine such costs.

There is a reason why direct and indirect losses are not and should not be subject to the same rules. As previously argued, because banks control the technology and the procedures of funds transfers, they control the most important factors affecting the

230. Legal Guide, supra note 56, at 69; Bergsten, supra note 5, at 660.
231. See supra text accompanying notes 198-208.
safety of such transfers. Banks alone have the data necessary to make informed decisions regarding the implementation and monitoring of necessary precautions. Yet, unlike the loss of the principal sum, interest, and expenses, which are largely determined by the face value of the transfer, indirect losses vary in amount (if not in frequency) and depend upon factors and circumstances beyond the knowledge and control of the banks. While banks generally control the frequency of errors, the extent of consequential damages depends almost entirely on circumstances peculiar to the payor, the beneficiary, and their transaction. Banks cannot investigate those circumstances, and it is impractical and unreasonable to expect or require that they do so. The avoidance or reduction of those losses is predominantly within the control of the payor. It is the payor's responsibility to allow sufficient time for the transfer to occur, and she alone is in the position to contact the beneficiary and ascertain whether the funds have arrived. Furthermore, the payor is in the best position to make an early request that delayed payments be traced, when necessary. Finally, it is less expensive and generally more effective to require the payor to take necessary precautions. In sum, for indirect losses, the balance of loss avoidance tips toward the customers.

Shifting losses of unpredictable amounts from the payor to the bank under the proof of willful or reckless behavior, as is presently contemplated by the UNCITRAL Working Group, is not likely to lower the frequency or the extent of the risks. Any reliance upon the provisions of the U.N. Convention on the Carriage of Goods by Sea of 1978 is misplaced and inappropriate. The captain or the charterer of a ship may take unconscionable risks or otherwise recklessly endanger the cargo, the ship and its crew. In this circumstance, the perils experienced are the direct result of the decisions, actions and omissions of very few individuals.

Banks, however, are entities characterized by anonymity. In supplying a mass service such as funds transfers, they do not usually behave recklessly. Their clerks or their officers may do so, but these employees are unlikely to be deterred by the threat of liability for damages their employer alone can absorb. In most cases, the investigation of human or material failures will show small lapses

232. Seventeenth Session, supra note 60, at paras. 115-18; Twentieth Session, supra note 60, at para. 188.
or mysterious loopholes, often as unlikely as a Swiss bank losing a telex message.\footnote{Evra Corp. v. Swiss Bank Corp., 522 F Supp. 820 (N.D. Ill. 1981), rev'd, 673 F.2d 951 (7th Cir.), cert. denied, 459 U.S. 1017 (1982).} Sanctioning hypothetical reckless behavior by imposing damages in amounts determined solely by circumstances lying within the customer's control is not supported by reason, and will not likely remedy whatever problems currently exist.

On the other hand, banks are in the best position to spread indirect losses over all transactions. But they can do so, and price their services accordingly, only if they can foresee and measure the potential losses. And the potential losses are best determined by customers because losses depend on circumstances particular to the customers' situations. If corporate customers wish to limit those losses, they can best do so by purchasing appropriate insurance coverage. Once payors evaluate the amount of coverage necessary to protect against loss, banks can easily offer or broker this guaranteed service because their experience and data would enable a calculation of the risk.

\section*{D Funds Transfer Systems Error}

The most striking feature of today's high-speed, high-volume, inexpensive funds transfers is that most are transmitted over networks usually called funds transfer systems.\footnote{FedWire is the network linking the Federal Reserve Banks of the United States. See supra note 8.} These systems are operated by banks as joint ventures or even by a nation's central bank.\footnote{See, e.g., Evra, 673 F.2d at 953.} Payment orders are processed by sophisticated, efficient and reliable computers and are transmitted over proprietary or leased telecommunication facilities. While some orders may still be sent over the public telex network,\footnote{See, e.g., Compania Anonima Venezolana de Navegacion v. American Express Int'l Banking Corp., No. 84-2047, July 12, 1985 WL 1898 (S.D.N.Y.).} or even by air or first class mail,\footnote{See supra note 8.} the bulk of the traffic, and particularly that involving large

\footnote{A fund transfer system is defined by the Uniform Commercial Code as "a wire transfer network, automated clearing house, or other communication system of a clearing house or other association of banks through which a payment order by a bank may be transmitted to the bank to which the order is addressed." U.C.C. § 4A-105(a)(5) (1989). Funds transfer systems are not defined but are only mentioned once by the Draft Model Law. See Draft Model Law, supra note 65, art. 6(6).}
dollar figures, is transmitted through systems such as SWIFT, CHIPS or FedWire.

In spite of the efficiency and convenience they bring, funds transfer systems ("FTS") remain vulnerable to operational failures.\textsuperscript{238} Model codes and statutes may consider and govern FTS in one of three different ways. First, the use of a FTS may not be explicitly addressed at all, which is similar to the treatment of the use of public access telecommunication systems such as the telephone, telex, telegraph, and fax. In this circumstance, the laws and regulations applying in a jurisdiction to public telecommunication facilities may implicitly decide the risk of communication failure for payment orders transmitted over FTS. Traditionally, whether operated by administrative agencies (as in most European countries) or by regulated companies (as in the United States, Canada, Great Britain, and Spain), the telecommunication carriers have largely been exempt from liability. The absence of recourse against telecommunication carriers often justifies such exemption for transmission error.\textsuperscript{239}

Secondly, unless bound by some instruction,\textsuperscript{240} a bank usually chooses the FTS or the telecommunication network over which it transmits a payment order. Accordingly, the FTS may be deemed the sending bank's agent, substitute or auxiliary, for which the bank would be vicariously liable. Whether the sending bank would have recourse against the FTS may be codified or it may be dependent upon the contract between the bank and the FTS. Finally, FTS may be considered a special class of participants in funds transfers, with their specific obligations and liabilities.

1. The \textit{UNCITRAL Draft Model Law}.—The Draft Model Law does not consider FTS as such a special class of participants in their own rights. It mentions them only once: article 6(6) states that a bank is not obligated to follow an instruction requiring "an intermediary bank, funds transfer systems or means of transmission to be used" when, in good faith, the bank determines it is not

\textsuperscript{238} See supra note 121 and accompanying text (recent reports of the General Accounting Office).

\textsuperscript{239} \textit{Legal Guide}, supra note 56, at 48, 61-62. The Draft Model Law seems to operate under the assumption that telecommunication carriers are exempt from liability. \textit{See Draft Model Law}, supra note 65, art. 13.

\textsuperscript{240} Compare \textit{Draft Model Law}, supra note 65, art. 6(6) with U.C.C. § 4A-302(b) (1989).
feasible or suitable. No obligations and no liability are imposed on FTS. Losses are allocated between the sender and the receiving bank, regardless of the means of communication used. Moreover, recourse against the telecommunication carrier or the FTS is governed by the relevant contracts and by the applicable substantive law. The sending bank must "issue" a payment order consistent with the order it has received. Thus, the risk of loss upon transmission is not specifically identified. Yet, if the intended receiving bank does not receive an order because it has been misdirected or deleted, it is not a "receiving bank" under the statute and does not have any obligation or liability. If the receiving bank receives an order that has been altered during the transmission process, and this alteration is not recognizable, the receiving bank must execute the payment order as received; it is discharged from any duties or obligations when the payment reaches the beneficiary without further alteration or delay.

As a result, the sending bank bears the risk of FTS failures as if they were its own. Its duties to assist in the full execution of the transfer or, if it is not completed, to return the funds it may have received, remain unchanged. However, the sending bank is not liable for direct or indirect damages if it can prove that the failure was due to "interruption of communication facilities or equipment failure." Whether this exemption from liability applies to FTS failures is unclear. A FTS certainly encompasses more than a "communication facility," particularly when it offers clearing services. It is uncertain, however, whether the FTS equipment failure is a defense for the sending bank. Article 13 is not exhaus-

241. Draft Model Law, supra note 65, art. 6(6).
242. Id. art. 6(2).
243. Id. art. 2(g) (defines receiving bank as a bank that receives a payment order).
244. A bank that receives an apparently misdirected order must notify the sender when the sender can be traced and return any funds received, but the receiving bank incurs no further obligations except possibly the duty to pay interest if the notification is delayed. See id. arts. 6(3), 8(2), 12(6); cf. U.C.C. § 4A-208 (1989).
245. See Draft Model Law, supra note 65, arts. 6(4), (5), 8(2), (3) (addressing possible inconsistencies caused by an alteration of the payment order).
246. Id. art. 6(2).
247. Id. art. 12(3). This is subject to all other obligations incurred by the receiving bank regarding an unaltered payment order. See id. arts. 5-11.
248. Id. art. 11.
249. Id. art. 12(5).
250. Id. art. 13.
tive, but includes "other circumstances that the bank could not reasonably be expected to have taken into account at the time of the credit transfer or if the bank proves that it could not reasonably have avoided the event or overcome it or its consequences." FTS failures are therefore likely to be included in this exemption.

I have already argued against such broad exemptions. More specifically, I think that the Draft Model Law does not give proper weight to the peculiarities of dedicated closed-user funds transfer systems, set up and operated by banks to provide safe, reliable and closely monitored funds transfers, as opposed to public, open-ended and multi-purpose telecommunication services.

These public telecommunication networks generally disclaim any responsibility for transmission failures. The exemption for such systems presently adopted by the Draft Model Law may be understandable in this context, though loss-avoidance considerations may justify placing the risk of loss on the sender where a more reliable closed-user network could have been used. Furthermore, the immunity of telecommunication carriers has come under strong criticism, particularly now that these carriers offer sophisticated value-added services at higher prices such as closed-user specialized communication networks like packet-switching data transmission.

Funds transfer systems like SWIFT or CHIPS have been set up by banks precisely for financial transactions. They provide high speed and increased reliability. Senders may trace any message and verify that it has been received. The lenient standard apparently embodied in the Draft Model Law fails to acknowledge this situation and does not match the capabilities of FTS. As has been noted, "[it] cannot be argued that the banking system as a whole should not be held responsible to its customers for the failures of a clearing-house, as it could in the case of a telecommunications carrier."

251. Id. art. 13; see Sixteenth Session, supra note 60, at para. 60 (discussion within the Working Group to provide an exemption to the receiving bank where the error was not the bank's); Seventeenth Session, supra note 60, at paras. 151-56 (same).
252. See supra text accompanying notes 198-208.
254. Id. at 66.
The efficiency argument\textsuperscript{255} applies with equal force to FTS, which are nothing more than joint ventures among banks pooling their human, technical, and financial resources in order to offer a specialized service. FTS administrations are in the best position to monitor the risks, take efficient preventive measures and determine the insurance necessary to cover residual losses.\textsuperscript{256} FTS charters, by-laws, and contracts may spread losses over all participants.\textsuperscript{257} Loss-reduction and loss-spreading policies demand the rejection of excessively broad liability exemption to the extent networks are used by or available to sending banks.

This does not necessarily imply that the liability of FTS to member banks should be determined by the Draft Model Law. Statutory apportionment of losses between the sending and the receiving banks in the generic transfer is necessary because the banks may not have committed the time and expenses required to execute agreements on these matters. However, when they have done so by adhering to a FTS, their contracts may modify or even displace the statutory rules. Such contracts should be fully recognized and enforced so long as the rights of third parties are not affected.\textsuperscript{258}

2. \textit{U.C.C. Article 4A.}—Article 4A relies on the principle that “a funds transfer system or other third-party communication system” is an agent of the sender.\textsuperscript{259} This principle, derived from the law of agency,\textsuperscript{260} is affirmed in connection with the alteration of a payment order during its transmission and processing by FTS.\textsuperscript{261} Though not expressly mentioned, it applies also to delay and deviation of an order.\textsuperscript{262} Unlike the Draft Model Law, Article 4A

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\textsuperscript{255} See supra text accompanying notes 205-08.

\textsuperscript{256} Sixteenth Session, supra note 60, at para. 60 (insurance has been contemplated by the Working Group).

\textsuperscript{257} The Draft Model Law authorizes such provisions as long as the bank’s liability to the payor is reduced. See Draft Model Law, supra note 65, art. 12(7). For example, two years after its inauguration, SWIFT’s Board of Directors introduced rules shifting interest losses caused by SWIFT’s failures to be compensated up to a yearly maximum “contingency item.” This is merely spreading among all members of the cooperative society the losses suffered by one member as the result of the system’s operations. See Lngl, supra note 9, at 634-35; Note, New SWIFT supra note 126, at 321-22.

\textsuperscript{258} See Draft Model Law, supra note 65, art. 12(7).

\textsuperscript{259} U.C.C. § 4A-206 (1989).

\textsuperscript{260} Id. § 4A-206 comment 1.

\textsuperscript{261} Id. § 4A-206.

\textsuperscript{262} Id. § 4A-305 (covers liability for delay, deviation, and alteration of an order).
does not exempt the sending bank from liability resulting from telecommunication failures or downtime.\textsuperscript{263} The risk of loss in the event of a transmission failure by FTS may only be shifted from the sending to the receiving bank by the adoption of a security procedure.\textsuperscript{264}

However, funds transfer systems and clearing houses operated by Federal Reserve Banks are excepted from treatment as an agent.\textsuperscript{265} This exception is motivated by the fact that such systems are not governed by state laws, such as U.C.C. Article 4A, but are governed by Regulation J of the Board of Governors of the Federal Reserve System.\textsuperscript{266} The main reason for this regulation and its effect is that FedWire, the only system currently run by the Federal Reserve System, is more than a message switching and clearing facility: it receives a payment order, debits the sending bank, credits the account of the receiving bank and finally gives notice to the receiving bank.\textsuperscript{267} FedWire offers services similar to those of an intermediary bank\textsuperscript{268} with one additional advantage. Any balance in a reserve account is the same as a banknote, since it is backed by the full faith and credit of the United States.\textsuperscript{269} Considering FedWire as an intermediary bank, as opposed to a simple message switching and clearing center, is appropriate.

VII. FRAUD

Neither the Draft Model Law nor U.C.C. Article 4A uses the word “fraud.” Rather, each addresses the question whether a payment order is binding upon its purported sender (or, stated differently, under what circumstances the receiving bank may act upon an unauthorized payment order as if it were authorized by its customer and debit her account accordingly).\textsuperscript{270} At first glance, the

\begin{footnotes}
\footnote{263. See supra text accompanying notes 192-97.}
\footnote{264. U.C.C. § 4A-205 comment 1 (1989); see supra text accompanying notes 155-58.}
\footnote{265. U.C.C. § 4A-206(a) (1989).}
\footnote{266. See Regulation J (Collection of Checks and Other Items and Wire Transfers of Funds by Federal Reserve Banks), 12 C.F.R. pt. 210 (1990).}
\footnote{267. Draft Model Law, supra note 65, art. 4; U.C.C. §§ 4A-202, -204 (1989).}
\footnote{268. See U.C.C. § 4A-206 comment 2 (1989); Bergsten, supra note 5, at 659.}
\footnote{269. See supra note 71.}
\footnote{270. Draft Model Law, supra note 65, art. 4 (Obligations of Sender); U.C.C. § 4A-202 (1989) (Authorized and Verified Payment Orders); id. § 4A-203 (Unenforceability of Certain Payment Orders); id. § 4A-204 (Refund of Payment and Duty of Customer to Report with Respect to Unauthorized Payment Order).}
\end{footnotes}
relevant provisions in each codification do not seem to distinguish between the ways in which an order could be inconsistent with its purported sender’s intention.\textsuperscript{271} Apparently, like the Uniform New Payments Code,\textsuperscript{272} neither codification distinguishes between error and fraud. However, the official comment to Article 4A discusses error and fraud separately, and acknowledges that sections 4A-202 through 4A-204 focus on fraud.\textsuperscript{273} Similarly, the UNCITRAL Working Group implicitly recognized a distinction between error and fraud in article 4 of the Draft Model Law by refusing to extend the definition of “authentication” to situations where “there has been an error in [the payment order’s] transmission or in its content.”\textsuperscript{274} Therefore, one can conclude, in both instances, that the statutory language is broader than its implicit scope.

\section{A. An Approach to the Problem}

Essentially, a fraudulent payment order is the result of interference of some sort at one of three different moments:\textsuperscript{276} (1) before or when an order was issued, as in the situation where a bank receives an order in the name of a customer but the order was actually sent by a person who had no authority to act for the apparent sender; (2) during the transmission process of an authentic payment order, as in the situation where a wire transfer was altered fraudulently before it was received by a bank; and (3) after receipt by the bank, as in the circumstance where an authentic payment order was sent and received unchanged, but it was then fraudulently altered within the receiving bank before its execution.\textsuperscript{276}

\begin{itemize}
\item \textsuperscript{271} Draft Model Law, supra note 65, art. 4; U.C.C. §§ 4A-202, -204 (1989).
\item \textsuperscript{272} See H. Scorr, supra note 29, at 1698 (the Uniform New Payments Code already distinguished between authorized and unauthorized orders, the latter category comprising erroneous and fraudulent orders).
\item \textsuperscript{273} See U.C.C. art. 4A prefatory note (1989); id. § 4A-203 comment 2.
\item \textsuperscript{274} Draft Model Law, supra note 65, art. 2(j); see Twentieth Session, supra note 60, at paras. 75-77; A/CN.9/WG.IV/WP.44, supra note 63, art. 2 comment 23 (containing a proposed definition of “authentication”); see also supra text accompanying notes 155-58.
\item \textsuperscript{275} U.C.C. § 4A-203 comment 2 (1989).
\item \textsuperscript{276} The beneficiary’s bank executes the order by giving notice to the beneficiary that funds are available. See Draft Model Law, supra note 65, art. 8(1), 8(6); U.C.C. §§ 4A-301(a), -404 (1989) (“acceptance”). Any other bank in the funds transfer process “executes” an order by issuing a new payment order either to an intermediary or to the beneficiary’s bank. See Draft Model Law, supra note 65, art. 6(1); U.C.C. § 4A-301(a) (1989).
\end{itemize}
Indeed, fraudulent interferences can occur at any stage of a funds transfer. However, published cases demonstrate that in most instances the fraud is perpetrated at stage (1) above, probably because it is the most vulnerable point in the whole process.\textsuperscript{277} Nevertheless, any comprehensive effort attempting to allocate the risk of loss in the event of fraud must examine and provide for all potential instances in which it could occur. Thus, both codifications contemplate a fraud perpetrated at any level of the funds transfer between a generic customer who appears as the purported sender of a fraudulent order (an order she has not authorized in the first place or which was subsequently modified without authority) and the receiving bank of that order.\textsuperscript{278}

Error and fraud are likely to result in different losses. When an error is discovered, the funds can usually be recovered from the receiving party unless a subsequent insolvency frustrates this restitution. Most instances of fraud, however, seek to misappropriate the transferred funds altogether. If successful, the fraud usually results in the loss of the principal sum. Therefore, under any statute assigning risk of loss in the event of fraud the principal question is, “When may the receiving bank properly debit the purported sender’s account?” If the bank cannot debit this account, it is likely to bear the loss of the principal sum. Other losses such as interest or damages for wrongful dishonor may result from the unavailability of the funds because the bank was not allowed to debit the purported sender’s account in the amount of the fraudulent transfer and should therefore honor subsequent legitimate orders. However, these remain secondary to the main loss—that of the principal sum.\textsuperscript{279}


\textsuperscript{278} See supra note 270.

\textsuperscript{279} If the receiving bank failed to execute the original, unaltered payment order of the sender or improperly debited her account, its liability is governed by the Draft Model Law. \textit{Draft Model Law, supra note 65, art. 12; U.C.C. § 4A-305} (1989); \textit{see supra} Part VI (discussion of Draft Model Law and Uniform Commercial Code).
B. The Basic Scheme: Authorized vs. Verified Payment Orders

In the absence of statutory or contractual rules specific to funds transfers, the enforceability of any payment order against its purported sender would be decided by the law of agency 280. In fraud cases, the receiving bank that relied on an order apparently authorized by the purported sender would be protected by such doctrines as implied authority, apparent authority and authority by estoppel. 281 In order to prove a case under these doctrines, however, a party would need evidence of such authority.

The funds transfers contemplated by Article 4A and the Draft Model Law are mostly paperless: payment orders are transmitted as electric signals over telecommunication networks or as magnetic information on tapes or disks. Their immaterial nature makes them vulnerable to duplication, alteration, or imitation without leaving a clue. Fraud is difficult to detect at first glance. There are no peculiarities resulting from the personality of the sender, such as the shape of handwriting, a signature, the use of a letterhead or of an individualized preprinted form, available to determine the authenticity of the payment order. The authenticity of an electronic order or message can only be tested according to some procedure agreed to between the sender and the receiving bank. 282

Reliability of the testing procedure depends primarily on the inability of an intruder to identify and reproduce the procedure and on the secrecy of this procedure. Since the identification of the actual sender of a payment order is a tantamount concern, authentication (also called security) procedures have been developed and adopted by the banking industry. Both statutes recognize


281. See Restatement (Second) of Agency § 7 comment c (1957) (Express and Implied Authority); id. § 8 (Apparent Authority); id. § 8B (Estoppel—Change of Position).

282. When the sender gives her orders at a terminal (such as an automated teller machine) controlled by the bank, besides giving her personal identification number, she may be identified by some physical characteristics. Technologies such as signature dynamics, finger, retina or palm prints, hand geometry or voice recognition are under development and some are already used to protect access to sensitive areas, though not yet—to my knowledge—for payment orders’ authentication. See D. Baker & R. Brandel, supra note 4, at ¶ 18.05[3][a]; Greguras & Syke, Authentication in EFT—The Legal Standard and the Operational Reality, 2 Computer L.J. 67, 75-82 (1980). On the contrary, if the sender issues her orders over her own terminal and communication line, passwords, codes, encryption, checks, and similar paperless procedures are needed.
the importance of these procedures and use them as the cornerstone of fraud prevention. 283

The legal significance of an authentication procedure may be construed in two different ways. First, it could be analogized to the verification of the signatures on a check. The authentication procedure may help the banks to distinguish between authorized and unauthorized orders. But since an order would only bind a sender if it was issued or modified with authority under the law of agency, banks would nevertheless bear the risk of honoring unauthorized orders unless the sender was negligent and contributed to the loss. While precautions would reduce the risk of honoring some counterfeited orders, the risk of loss itself would remain on the bank. 284 Yet, the banking practice of funds transfers, followed so far by the lawmakers, adopted a second construction.

An order authorized according to the law of agency is always binding upon the purported sender, regardless of any test for authenticity 285 However, if an order is placed which the bank executes after complying with an established authentication procedure (following Article 4A, I shall call it a “verified order”), the bank is protected because the order is equally binding upon the purported sender, whether it was actually authorized or not, 286 except in exhaustively enumerated circumstances. 287

Why would the law depart from these well-established principles of agency? Why is the test for authenticity of funds transfers

283. “Authentication” is presently defined in the Draft Model Law as “a procedure established by agreement to determine whether all or part of a payment order is issued by the purported sender.” Draft Model Law, supra note 65, art. 2(j). The Uniform Commercial Code defines the purpose of a “security procedure” as “(i) verifying that a payment order or communication amending or cancelling a payment order is that of the customer, or (ii) detecting error in the transmission or the content of the payment order or communication.” U.C.C. § 4A-201 (1989).

284. “A bank is under an implied contractual obligation to pay out its customer’s money only according to the customer’s order. The general rule is that, if a bank charges its customer’s account for an item that is not properly payable, it must recredit the account.” Gatoil (U.S.A.), Inc. v. Forest Hill State Bank, 1 U.C.C. Rep. Serv. 2d (Callaghan) 171, 177 (D. Md. 1986), aff’d, 822 F.2d 555 (4th Cir. 1987). First discussed in Price v. Neal, 97 Eng. Rep. 871 (K.B. 1762), this principle was codified, though not with utmost clarity, in the Uniform Commercial Code. See U.C.C. §§ 3-401(1), 3-417, 3-418, 4-207 (1989). Negligent behavior of other parties modifies this allocation. See id. §§ 3-405, 3-406, 4-406; see generally J. White & R. Summers, Uniform Commercial Code § 15-3 (3d ed. 1988).

285. See U.C.C. § 4A-202(a), (d) (1989); Draft Model Law, supra note 65, art. 4(1).
286. See U.C.C. § 4A-202(b), (d) (1989); Draft Model Law, supra note 65, art. 4(2).
287. See U.C.C. § 4A-203 (1989); Draft Model Law, supra note 65, art. 4(3).
treated differently from signatures on negotiable instruments, or on any other deed or contract? The issue is apparently so obvious that it is almost never discussed in preparatory documents.\textsuperscript{288} The technology by which payment orders and all related messages such as amendments and cancellations\textsuperscript{289} are dispatched over electronic devices suppresses the natural relation between a message and the natural person who issues it. Like the use of a facsimile signature machine,\textsuperscript{290} the identification of the person who actually caused the machine to create and send the message is lost. The sender must take responsibility for the use of the machine, thus ensuring it was operated by an authorized person in compliance with her instructions.

Technology calls for shifting the decision on a message’s genuineness from its material characteristics to a logical, formal test of its content. Any other solution would be too costly and inefficient. A test allowing a rebuttable presumption would be impractical. What evidence would the purported sender bring to rebut the presumption that the machine was used without authorization? The law of agency was developed in a world of oral and written messages that could be traced to their source. A machine, however, “speaks” because it is operated by a person it cannot yet positively identify by recognizing her unique human features. Someone must take the risk that it is used by an unauthorized intruder. And who can best avoid the risk of unauthorized use of the machine than its possessor?\textsuperscript{291}

Both model statutes follow the same pattern. First they confirm that a payment order binds its purported sender, whether that sender be an individual customer, a corporation or a financial institution, if it was issued by her or with her authority.\textsuperscript{292} Alternately, they provide that a bank which has executed a payment order after verifying it in compliance with a commercially reasonable authentication procedure agreed with the purported sender is allowed to debit her account, regardless of the lack of authorization.\textsuperscript{293} This provision is based on two policies—certainty in

\textsuperscript{288} But see Legal Guide, supra note 56, at 52-53.
\textsuperscript{289} Compare Draft Model Law, supra note 65, art. 2(j) with U.C.C. § 4A-201 (1989).
\textsuperscript{290} See Perm Corp. v. First Nat'l Bank, 553 F.2d 398 (5th Cir. 1977).
\textsuperscript{291} U.C.C. § 4A-202(a) (1989); Draft Model Law, supra note 65, art. 4(1).
\textsuperscript{292} U.C.C. § 4A-202(c) (1989); Draft Model Law, supra note 65, art. 4(2)(a).
\textsuperscript{293} U.C.C. § 4A-202(b) (1989); Draft Model Law, supra note 65, art. 4(2).
commercial transactions ("finality") and efficiency. Since speed and low cost are principal advantages of electronic funds transfers, banks must be able to reach a quick and reliable decision regarding whether to execute any single payment order. This decision should be final if it is supported by a "commercially reasonable" security procedure.\textsuperscript{294} Secondly, the provision assumes as a matter of fact that, so long as banks comply with such procedures, their clients are in the best position to avoid fraud, and it is much less expensive for the clients to take additional precautions. However, both statutes restrict the enforcement of unauthorized but verified payment orders under certain circumstances. Before turning to these exceptions, the general principle should be examined more closely.

C. Authentication Procedure

Neither codification displaces the law of agency in its affirmative aspects.\textsuperscript{295} A payment order genuinely issued by a sender or by her authorized agent is binding and may be debited from her account; no other condition must be met.\textsuperscript{296} The issues concerning "when" and "how" an order is authorized are not explained by the law of funds transfers. In the United States common law rules will apply. The Draft Model Law does not address the possible conflict of agency laws in international funds transfers, since this issue should soon be governed by the Hague Convention on the Law Applicable to Agency of 1978.\textsuperscript{297} The practical importance of agency principles in electronic funds transfers should remain very limited since a bank is unlikely to execute a payment order that cannot be verified against the agreed authentication procedure, while a written and signed confirmation by authorized agents of the sender would be overly time-consuming. Thus, the main thrust of both model codes is the authentication procedure.\textsuperscript{298}

\textsuperscript{294} Finality of payment is a major rationale in allocating the losses for fraudulent checks. See Bradford Trust Co. v. Texas Am. Bank-Houston, 790 F.2d 407, 410-11 (5th Cir. 1986); Perini Corp., 553 F.2d at 405-06.

\textsuperscript{295} U.C.C. § 4A-202(a) (1989); Draft Model Law, supra note 65, art. 4(1).

\textsuperscript{296} U.C.C. § 4A-202(a) (1989); Draft Model Law, supra note 65, art. 4(1).


\textsuperscript{298} The Draft Model Law considers authentication narrowly as a procedure designed to test the identity of the issuer. See supra text accompanying note 158. Conversely, the Uniform Commercial Code also addresses security procedures capable of detecting errors.
An unauthorized payment order can be validated,\textsuperscript{299} if the authentication procedure can satisfy certain requirements. Principally, it must be "a commercially reasonable method of providing security against unauthorized payment orders."\textsuperscript{300} Unlike the Draft Model Law, the Uniform Commercial Code provides some guidance as to the standard to be applied, as a matter of law.\textsuperscript{301} The procedure must be appropriate considering the wishes of the customer expressed to the bank, the circumstances of the customer known to the bank, including the size, type, and frequency of payment orders normally issued by the customer to the bank, alternative security procedures offered to the customer, and security procedures in general use by customers and receiving banks similarly situated.\textsuperscript{302}

Therein lies the principal means of preventing fraud. The drafters of Article 4A assumed that banks would design and implement the authentication procedures.\textsuperscript{303} Therefore, the banks carry the primary responsibility for proposing safeguards which are adequate for the personal circumstances of each customer. A customer who agrees to use such procedures, assumes the risk that unauthorized but verified orders might be executed by the bank and debited to her account.

Setting forth a pass-or-fail test based on commercially reasonable procedures, the drafters demonstrate that the law is solely concerned with loss-avoidance.\textsuperscript{304} It neither mandates nor prohibits loss-spreading among participants.\textsuperscript{305} The sender and the receiving

\textsuperscript{299} U.C.C. § 4A-201 (1989). Here we only consider their authentication aspect, and therefore adopt the terminology of the Draft Model Law.

\textsuperscript{300} See U.C.C. § 4A-202(b) (1989); Draft Model Law, supra note 65, art. 4(2).

\textsuperscript{301} U.C.C. § 4A-202(c) (1989).

\textsuperscript{302} Id. (stating the circumstances under which a customer may decide not to choose the commercially reasonable procedure proposed by the bank, but choose to be bound by verified payment orders complying with a procedure that would not have been adequate according to the standards of the law). But see Eighteenth Session, supra note 60, at para. 75 (the UNCITRAL Working Group decided that the parties may not agree on a lower standard).

\textsuperscript{303} See A/CN.9/WG.IV/WP.44, supra note 63, art. 4 comment 5; U.C.C. § 4A-203 comment 3 (1989).

\textsuperscript{304} See, e.g., U.C.C. § 4A-203 comment 3 (1989).

\textsuperscript{305} "The purpose is to encourage banks to institute reasonable safeguards against fraud but not to make them insurers against fraud." U.C.C. § 4A-203 comment 4 (1989).
bank may agree on a provision shifting all or part of the losses caused by unauthorized but verified orders onto the bank or a funds transfer system.\textsuperscript{306} However, the emphasis of the two model acts on the soundness of the authentication procedure differs in one important respect. Article 4A allows the adoption of a procedure that does not meet the test of commercial reasonableness if the customer was first offered a reasonable one and expressly preferred the convenience and risks of a less reliable one.\textsuperscript{307}

As described in section 4A-202(c), "commercial reasonableness" does not refer to any technology currently available.\textsuperscript{308} The standard seems less responsive to technological improvements. Implementing new, more secure technology is not fostered since the factors considered under the test are all particular to the individual customer, except for a reference to the general practice of the banking industry.\textsuperscript{309} Although banks are provided certain incentives to improve the safety of funds transfers,\textsuperscript{310} this aspect should be considered by the courts investigating whether a given procedure satisfies the legal requirements.

In addition to the authentication procedure, both statutes allow the parties to implement other security mechanisms. By agreement, a customer may cap the amount of each order, limit possible beneficiaries, or restrict debiting to certain accounts.\textsuperscript{311} She also may restrict acceptance of her orders by unilateral instructions, for example while a technical failure or a suspicion of

\textsuperscript{306} They are not permitted by law to shift back to the customer losses suffered by the bank because it executed a payment order without complying with the security procedure. See U.C.C. § 4A-203(a)(1) (1989). The Draft Model Law is silent on this question. A provision to this effect would be welcome, since the Working Group decided to address the admissibility of contractual variations of the legal provisions in connection with each of them. See Eighteenth Session, supra note 60, at para. 34.

\textsuperscript{307} See supra note 302.

\textsuperscript{308} U.C.C. section 4A-202(c) reads, in pertinent part:

Commercial reasonableness of a security procedure is a question of law to be determined by considering the wishes of the customer expressed to the bank, the circumstances of the customer known to the bank, including the size, type, and frequency of payment orders normally issued by the customer to the bank, alternative security procedures offered to the customer, and security procedures in general use by customers and receiving banks similarly situated.


\textsuperscript{309} See id.

\textsuperscript{310} Banks retain certain risks of fraud losses. See infra text and accompanying notes in subsection D.

\textsuperscript{311} See U.C.C. §§ 4A-105(a)(1), -202(b)(ii); -203 comment 3 (1989).
fraud is being investigated. The Draft Model Law, on the other hand, does not allow the bank to honor payment orders not "covered by a withdrawable credit balance or authorized overdraft" of the purported sender unless there is an agreement to the contrary. Therefore, a customer may limit her risk by varying her credit with the receiving bank. These provisions are but opportunities for issuers of payment orders to take additional precautions against fraud and error, and must be implemented for their full protection to be enjoyed.

D. A Controversial Exception: The "Mysterious Interloper"

The single most controversial issue in drafting U.C.C. Article 4A was the central exception to the enforceability of verified payment orders. This issue has not yet been settled by the UNCITRAL Working Group. It arises out of the possibility that intruders might gain access to computers or telecommunication networks used for funds transfers.

For years now, though not chiefly in banking systems, "hackers" have used their ingenuity to prove that no computer cannot be "broken into." There is no telecommunication network that can filter intruders with one hundred percent reliability. Hackers detect "back doors" long forgotten since the system was designed. They spy over legitimate telecommunications and identify passwords, protocols and encryption procedures for later "masquerading" an authorized message; or they intercept a genuine message, alter and then forward it ("piggybacking"). They may even do some "social engineering" to obtain access to the system.

313. Draft Model Law, supra note 65, art. 4(2)(b); see Eighteenth Session, supra note 60, at paras. 85-86; Twentieth Session, supra note 60, at paras. 100-02. Such agreements underlie funds transfer systems with clearing or settlement facilities, since the sending and the receiving banks need not have an account with each other. The provision of cover over a corresponding bank is another agreement of this kind.
314. E. RUBIN & R. COOTER, supra note 20, at 864. See infra notes 324-29 and accompanying text.
315. Article 4(3) of the Draft Model Law still exists in two variants. See Draft Model Law, supra note 65, art. 4(3). A decision could not be reached at the Twentieth Session (December 1989). See Twentieth Session, supra note 60, at paras. 103-08; Eighteenth Session, supra note 60, at paras. 75-93.
by deceit or persuasion.\footnote{317} One way or the other, they are potentially able to gain access to confidential information. The danger exists that the hackers may initiate unauthorized transactions or fraudulently alter legitimate payment orders.

The need to alleviate the rigor of the purported sender's liability for any verified order when technology fails to prevent fraudulent interference in computer and telecommunication systems designed and operated by the banks is not contested per se. What is still hotly debated, however, is the scope of the necessary exceptions. Banks are no more infallible than their customers. They, too, need incentives to keep their security procedures secret and to protect their telecommunication and computer facilities. More importantly, they need an incentive to update safety measures in pace with technological change and thieves' ingenuity. In addition to this efficiency argument, equity would not be satisfied if banks were allowed to enforce orders issued or tampered with by or with the complicity of their officers. Finally, internal audit and criminal investigations of a fraud may often give clues to how it occurred.\footnote{318} But this is by no means systematic, and the party who carries the burden of proving how the fraud took place may often be the one who bears the loss.\footnote{319} Loss-imposition thus requires special attention.

Four situations must be distinguished, of which only two are controversial.

(i) The fraud can be traced back to the "purported sender's sphere:" one of her (unauthorized) employees issued the fraudulent order or tipped an outsider with the necessary information. It also may happen that an outsider had unauthorized access to confidential information or to telecommunication or computer facilities. Unquestionably, this situation provides no exception to the enforceability of a payment order, but illustrates the basic risk that authentication procedures are meant to shift onto the purported sender. She is in the best position to avoid such losses by taking precautions, like hiring reliable agents, controlling access to

\footnote{317} See "A Hacker's Lexicon" in Forum, supra note 316, at 48; D. Baker & R. Brandel, supra note 4, ¶ 18.05(2).

\footnote{318} United States bank regulations require both a criminal investigation as well as an internal investigation to determine the likely cause for a breach of security. See U.C.C. § 4A-203 comment 5 (1989).

\footnote{319} Legal Guide, supra note 56, at 53.
sensitive information and areas, and monitoring their use. No persuasive loss-spreading argument can be made since the risk varies mainly with circumstances linked to the purported sender. If the losses were mandatorily shifted to the banks, the banks would price this sort of insurance just as insurers do, by collecting statistical data and fixing premiums according to the customer’s own risk profile. This is also consistent with the common sense of equity: a corporation should bear the losses suffered because of its officers or through some organizational failure.

(ii) The exact opposite situation is no more controversial. When the fraud originates from within the bank, the same considerations require that the bank absorb the loss. This exception to the enforceability of verified orders raises some difficulties, however, since the selection may be defined in a broader or in a more narrow way, while the burden of proof assumes a decisive importance.

(iii) I call the situation in which sophisticated intruders “crack” the security procedures from the outside and use the information for fraudulent purposes, “the identified outsider case.”

(iv) Finally, despite a criminal investigation or an internal audit, it may happen that the fraud’s origins remain unknown or cannot be proved in courts. This “mysterious interloper case” raises the hottest debate, though the previous issue is actually no less controversial.

1. The Solution of U.C.C. Article 4A.—The difficulties encountered in reaching a solution are reflected in the Uniform Commercial Code’s drafting history, during which no less than seven different versions were produced. The trend was clearly toward limiting the enforceability of fraudulent payment orders. Since the principle demands that a verified payment order should

320. The situation is quite similar to the unauthorized use of a facsimile signature machine on checks. See Perini Corp. v. First Nat’l Bank, 553 F.2d 398 (5th Cir. 1977).
322. Compare the successive drafts of the relevant provision in U.C.C. Article 4A, infra note 324.
be enforced without the bank having to prove that it was authorized, any exception requires the purported sender to allege and prove—at least to a certain extent—the facts to the contrary. It is therefore what must be proved that lies at the center of the controversy.

The relevant provision of the first draft was very narrow and was limited to orders initiated by an employee, a former employee or with information obtained from an employee of the receiving bank. The section was intended to cover only those entrusted with or who had access to the sensitive information.\textsuperscript{325} The exception was then progressively extended, first to other “agents” of the bank or to an independent contractor of the bank,\textsuperscript{326} and, later, to persons obtaining confidential information as a result of the bank’s failure to exercise ordinary care in security procedures.\textsuperscript{327} It was subsequently extended to the information obtained from a source controlled by the bank, regardless of fault.\textsuperscript{328} Finally, the exception was reversed; the purported sender was not bound by an unauthorized verified payment order if she could prove that it was not issued by or with the help of a person “entrusted at any time with duties to act for the customer with respect to payment orders” or who obtained some information from a source controlled by the purported sender.\textsuperscript{329}

This evolution is significant because the purported sender is not required to trace the fraudulent order to an officer of the receiving bank who handles funds transfers. She must prove that the order was not originated by or with the help of a person on the purported sender’s side who handled or oversaw funds transfers and that no information obtained from the purported sender’s side helped in the execution of the fraud. Yet, negative facts are usually difficult to prove. The customer may find it easier to positively trace the fraud back to the perpetrator than to prove the noninvolvement of all her employees. Theoretically, mysterious interlopers act at the receiving bank’s risk. But if they truly remain

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mysterious, the purported sender may be fatally hindered in gathering sufficient evidence to shift the loss onto the receiving bank.

2. The Open Debate in the UNCITRAL Working Group.—The same issue was left undecided at the last session (July 1990) of the UNCITRAL Working Group. The first draft circulated by the Secretariat did not contain any exception to the verified-order principle. While it was under consideration for the second time, a consensus gathered around the idea that the purported sender should not be bound by the order if the fraud originated from within the receiving bank. From there, two variations were proposed. Variant A is quite similar to the current text of U.C.C. section 4A-203(2) in that a purported sender is not bound by an order if she can prove that the fraudulent order cannot be attributed to her employees and that access to the information was gained without her fault. Cases (ii), (iii) and (iv) thus burden the receiving bank. Case (i) is restricted in that the purported sender is vicariously liable for her employees, but does not suffer the loss if the information came from her premises through robbery or illicit connections to her terminals without her fault. Conversely, Variant B puts losses onto the purported sender in cases (i), (iii) and (iv). Though a third variant is being attempted, no agreement has yet been reached.

330. See Seventeenth Session, supra note 60, at para. 69.
331. Eighteenth Session, supra note 60, at para. 80.
332. Draft Model Law, supra note 65, art. 4(3), variant A:
   A purported sender [that is not a bank] is, however, not bound by a payment order if (a) the actual sender was a person other than a present or former employee of the purported sender, and (b) the actual sender had gained access to the authentication procedure without fault on the part of the purported sender.

(The text in brackets is a sub-variant considered by the Working Group.) The wording under (a) is probably too narrow since the purported sender's employee might not be the principal author but might have given the necessary information or concurred in its perpetration.

333. Draft Model Law, supra note 65, art. 4(3), variant B:
   No sender may become bound if the sender proves that the payment order was executed by (a) a present or former employee or agent of the receiving bank, or (b) a person acting in concert with a person described in (a), or (c) any other person who, without the sender's authorization, obtained confidential information about the authentication from a source controlled by the receiving bank, regardless of fault.

Id. Although the variant has different terms, the substance is similar to the June 1, 1988 draft of the Uniform Commercial Code. U.C.C. § 4A-202(2) (Tent. Draft June 1, 1988).

334. Twentieth Session, supra note 60, at paras. 103-08.
Intuition does not help much in deciding who should bear the loss caused by an “identified outsider” (case iii) or by a “mysterious interloper” (case iv). When a sophisticated wrongdoer fraudulently interferes in the communication process between the purported sender and her bank there is no clear equitable solution. In the absence of any fault, why should one party bear the risk of loss if her communication with another is spied upon? It is said that the purported sender chooses which channel she uses to transmit her payment order and that she should, therefore, assume all advantages and costs associated with it.\textsuperscript{335} It is equally true that electronic funds transfers were proposed and developed by banks because those value-added services, unlike costly check collection, can be more easily priced with some benefit.\textsuperscript{336} At the same time they reduce the bank’s risk caused by manual data entry and cut their too heavy overheads.\textsuperscript{337} The bank not only decides which form of transmission it will offer but also controls its design and thus its reliability \textsuperscript{338}

Persuasive arguments can be found in support of the solution adopted by the Uniform Commercial Code, which is primarily concerned with efficiency policy. Both loss avoidance and loss spreading principles support the shifting of outsiders’ fraud losses to the bank, at least in a bank-customer relationship. Technology is the crucial node in telecommunication fraud. The customer can only choose a security procedure that her bank offers, and she must then adapt her technical devices and procedures to the one set up by the bank. Deciding which safe and cost-effective procedures to propose, is exclusively the choice of either the bank or, possibly, the funds transfer system. This choice is best made when losses that cannot be influenced by the customers are internalized by those who select it. It also creates an incentive to implement improved technologies as soon as they are economically rational. There is no doubt that, whatever the future technological improvements, some losses are as unavoidable as fraud is congenial to

\textsuperscript{335} Eighteenth Session, supra note 60, at para. 90.
\textsuperscript{337} Legal Guide, supra note 56, at 54-55.
\textsuperscript{338} Eighteenth Session, supra note 60, at para. 89.
human ingenuity. Since corporations are usually averse to risk, unavoidable losses are best spread over all participants in proportion to their use of funds transfer services through their internalization and the correlative effect on pricing. Third-party insurance would be more costly to the customer than to the banks, since only the banks can feasibly gather information about the extent and frequency of fraud.

In summary, since the losses caused by proven or presumptive outsiders are essentially determined by the bank’s choice of technology and procedures of funds transfers, the banks are in the best position to account for them in the economic calculation and find the optimal trade-off between incremental costs and residual losses. They are also in the best position to spread those residual losses over all participants in funds transfers. Such a provision could be varied by agreements among banks, but not with their customers.

VIII. Conclusion

Born in the tide of a worldwide expansion of large-amount, high-speed, and often paperless funds transfers, U.C.C. Article 4A and the UNCITRAL Draft Model Law attempt to bring more certainty to this brave new world. Wisely, neither statute restricts its ambit to the new generation technology. Both try to set a foundation for all payments accomplished without negotiable instruments, whether they are paper-based or paperless. Unfortunately, both codifications leave out debit transfers originated by the creditor-beneficiary under an authorization of the debtor-payor. Although still rare in corporate, interbank, and international payments, the exclusion of debit transfers may soon become a significant loophole in both statutes. A revision of the Uniform Commercial Code may be necessary to accommodate them, while the UNCITRAL Working Group still can consider their inclusion in the scope of its Model Law.

Though quite dissimilar in their legislative technique, in their level of details, and in the homogeneity of the commercial reality.

339. E. Malinvaud, supra note 109, at 339.
340. But see Draft Model Law, supra note 65, art. 12(7) (governing error, not fraud cases).
they address, the two codifications are clearly based upon the same fundamental principles. As far as the risks discussed in this Article, fraud and error, are concerned, efficiency is the central issue. Both statutes show a great care in the delicate balancing of the three components of cost-effectiveness: cheapness, convenience, and safety. A strong emphasis on safety is also grounded in a policy of institutional reliability and bank soundness. These similarities between U.C.C. Article 4A, applicable to both domestic and international transfers, and the Draft Model Law show that the latter could be enacted by interested national legislatures to govern domestic as well as international situations.

Both efforts were initiated in a swiftly changing technological and commercial environment. Unlike negotiable instruments, whose procedures were refined over centuries of business practices thereby gradually shaping the law merchant before any country attempted their codification, “wire transfers” are recent phenomena in check-oriented countries like the United States and most jurisdictions of the common law tradition. The highly evolutive technological and commercial context makes it impossible to record detailed procedures into statute books. Lawmakers must rely on creative incentives for the proper parties to develop, adopt, and enforce the most cost-effective and safest techniques, devices, and procedures in any given state of the technology. As for fraud and error, the above comparison of the two legislative works shows similar lines of thought. Yet, substantial differences remain. Article 11(b) of the Draft Model Law creates an ingenious and efficient mechanism to ensure the return of the funds to the payor whenever, as the result of an error, they could not be credited to the beneficiary in compliance with the payor’s order. Every bank involved in the transfer is obliged to assist in the refund process. In the present draft, however, this “money back guarantee” may shift the potential loss of the funds from the bank responsible for the error to the one dealing directly with an insolvent party, whether it be a bank or a customer.

Secondly, the Working Group decided not to address the account relationship between the beneficiary and his bank. Thus, the latter may have to take a loss if it is obliged under the Draft Model Law to refund for a reason not recognized by its national law as a valid cause for reversal of the credit on the beneficiary’s account.
Those two unsatisfactory results could be avoided by the addition of adequate provisions.

As shown by numerous cases litigated before the courts of various jurisdictions, the erroneous execution of a payment order by a bank may cause substantial consequential damages to the payor. Article 12(5)(d) of the Draft Model Law provides for compensation only against the bank that committed the error willfully or recklessly I have argued against this provision, inspired by the Hamburg Rules on the international transportation by sea, because it is unrealistic in its factual assumptions, not suited to the peculiarities of funds transfers and too costly in its implementation. I have suggested that the payor should only have to recover from her bank. In addition, I support the adoption of the idea, written into U.C.C. section 4A-305(c), that consequential damages should be recovered from the payor’s bank to the extent provided by agreement, a provision functionally equivalent to a no-fault insurance policy I have also criticized the overly broad exemptions from liability listed in article 13 of the Draft Model Law, which apply not only to consequential damages, but also to direct losses (interest, exchange rates, expenses).

Turning to fraud, this Article addresses the debate, still unresolved in the UNCITRAL Working Group, as to who should bear the losses caused by presumptive or proven interlopers without any connection to the bank nor to the purported sender of the fraudulent payment order. In accordance with the consensual solution reached during the drafting of U.C.C. section 4A-203(a)(2), I think losses should be allocated to the banks as they can best balance safety and costs while spreading residual losses among all participants.

Wholesale funds transfers are unique in that there is widespread support for the two related policies, efficiency and institutional reliability, which should animate the legislators. Three principles—loss avoidance, loss spreading, and loss imposition—were derived from the economic analysis of law and first developed to study the allocation of losses in consumer transactions. Applied in this Article to corporate and interbank (wholesale) transactions, these principles have been helpful in comparing two statutes of quite dissimilar structure and technique, in discussing their substantial issues, and in formulating recommendations.