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The Inverted Pyramid of Wire Transfer Law

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The Inverted Pyramid of Wire Transfer Law*

BY RAJ BHALA**

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"Few rules in our time are so well established that they may not be called upon any day to justify their existence as means adapted to an end."

*Benjamin N. Cardozo****

INTRODUCTION

New domestic and international funds transfer¹ statutes have been adopted, but there is no generally accepted understanding of the purpose of these laws even though they govern the movement of roughly two trillion dollars every day.² This Article puts forth a theory of funds transfer law, arguing that it should serve the interests of participants in domestic and international financial markets and contribute to the growth and development of internationally competitive financial centers.³ This theory is articulated through an inverted pyramid consisting of funds transfer law, funds transfer systems, clearing and settlement arrangements, and trading activity.⁴ This theory represents a departure from the traditional legal approach to financial markets, which focuses on

*** BENJAMIN N. CARDOZO, *THE NATURE OF THE JUDICIAL PROCESS* 98 (1921).

¹ "Funds transfer" means the series of transactions, beginning with the originator's payment order, made for the purpose of making payment to the beneficiary of the order." U.C.C. § 4A-104(a) (1990). All citations to the U.C.C. refer to the 1990 Official Text with Comments. The version of U.C.C. Article 4A cited to herein is the version that was approved by the American Law Institute ("ALI") and the National Conference of Commissioners on Uniform State Laws ("NCCUSL") in 1989. Information on state enactment is provided by NCCUSL.

² See *infra* note 6.

³ See *infra* notes 6-35 and accompanying text.

⁴ See *infra* Figure 1, at p. 355.

securities regulation and banking law to the exclusion of critical commercial law matters such as funds transfers.⁵

I. FINANCIAL MARKETS, FUNDS TRANSFER LAW,
AND THE INVERTED PYRAMID

This Article is about how and why big money moves in the world of high finance. It highlights a relationship between wire transfer law and financial markets that hitherto has been roundly neglected despite the fact that two trillion dollars—half of America's gross national product—is transferred by wire every day.⁶ Wire transfer law is unique in that no other law affects the movement of so much money. Remarkably, however, there is no real jurisprudence of wire transfer law.⁷ Therefore, two basic questions have yet to be addressed. What purposes should wire transfer law serve? Does wire transfer law serve its articulated purposes? This Article examines the theoretical and policy considerations that the first issue presents. The second issue, which is addressed in a companion article,⁸ involves a critical analysis of specific wire transfer rules and logically follows the development of a theory in response to the first issue.

⁵ See *infra* text accompanying notes 27-30.

⁶ Uniform Commercial Code ("U.C.C.") Article 4A, U.C.C. art. 4A (1990), governs the electronic transfer of roughly two trillion dollars of "bank credit," see *infra*, every day. ERNEST T. PATRIKIS, THOMAS C. BAXTER, JR. & RAJ K. BHALA, WIRE TRANSFERS: A GUIDE TO U.S. AND INTERNATIONAL LAWS GOVERNING FUNDS TRANSFERS 5-6 (1993) [hereinafter PATRIKIS, BAXTER & BHALA]. The United Nations' Model Law on International Credit Transfers ("U.N. Model Law"), see *infra* note 13, if enacted by national legislatures, will govern the transfer of bank credit denominated in foreign currencies that, in dollar terms, will surely be staggering. Whether the U.N. Model Law will govern dollar-denominated transfers in the United States is uncertain. Enactment of the U.N. Model Law by Congress or state legislatures seems unlikely given the recent widespread adoption of Article 4A.

The use of the term "bank credit" is deliberate, because a funds transfer is most definitely not a physical transfer of money or in any way analogous to such a transfer. See Fairfax Leary, Jr. & Patricia B. Fry, *A "Systems" Approach to Payment Modes: Moving Toward a New Payments Code*, 16 U.C.C. L.J. 283, 287 (1984).

⁷ In 1977, Professor Scott made this declaration with respect to commercial law generally. Hal S. Scott, *The Risk Fixers*, 91 HARV. L. REV. 737 (1978). This Article and *The Risk Fixers* address a similar problem: the existence of a commercial statute in a conceptual void.

⁸ See Raj Bhala, *Paying for the Deal: An Analysis of Wire Transfer Law and International Financial Market Interest Groups*, 42 KAN. L. REV. (forthcoming 1994) (on file with author).

This Article argues that the current theoretical void should be filled with an inverted pyramid that conceptualizes the relationship between wire transfer law and financial markets.⁹ This inverted pyramid approach recognizes a fundamental truth: *wire transfer law is important because of its relationship to the world of high finance*. It is time to explore this relationship and consider the issues that it raises. Perhaps the best way to understand the importance of the law is to see it through the eyes of the primary groups that it affects: in this case, the financial players on Wall Street and those in Tokyo, London, Singapore, and other dynamic financial centers.

The need for a conceptual approach is further highlighted by the fact that over forty states have adopted a new article on funds transfers¹⁰ as part of their commercial codes. Moreover, the Federal Reserve has promulgated a new funds transfer regulation,¹¹ the Clearing House Interbank Payments System ("CHIPS") of the New York Clearing House Association ("NYCHA") has adopted new funds transfer rules and administrative procedures,¹² and the United Nations has published a new Model Law on International Credit Transfers ("U.N. Model Law").¹³ Yet, the simple puzzle remains: Why and to whom is funds transfer law important?¹⁴

⁹ See *infra* Figure 1, at p. 355.

¹⁰ The term "funds transfers" is technically preferable to "wire transfers." "Funds transfers" correctly suggests that payment orders may be transmitted electronically, orally, or in writing. U.C.C. § 4A-104 cmt. 6 (1990). It is legally incorrect to think of a funds transfer as "money moving through a pipeline." A funds transfer is a transfer of bank credit from one account to another. The account holder has a non-possessory personal property interest, or chose in action, in the bank account.

¹¹ Federal Reserve Regulation J, 12 C.F.R. pt. 210, subpt. B (1993). "Fedwire" is the funds transfer network owned and operated by Federal Reserve Banks. See 12 C.F.R. § 210.26(e) (1993) (defining "Fedwire").

¹² NEW YORK CLEARING HOUSE ASS'N, RULES GOVERNING THE CLEARING HOUSE INTERBANK PAYMENTS SYSTEM (Aug. 17, 1992); NEW YORK CLEARING HOUSE ASS'N, ADMINISTRATIVE PROCEDURES: CLEARING HOUSE INTERBANK PAYMENTS SYSTEM (CHIPS) (Aug 17, 1992) [hereinafter collectively CHIPS RULES]. CHIPS is owned and operated by the New York Clearing House Association ("NYCHA"). See *id.*; NEW YORK CLEARING HOUSE ASS'N, CONSTITUTION OF THE N.Y. CLEARING HOUSE ASS'N art. I. One hundred and twenty-two financial institutions, both U.S. and foreign, are CHIPS members or "participants." PATRIKIS, BAXTER & BHALA, *supra* note 6, at 194. CHIPS and Fedwire are the nation's two principal funds transfer systems in terms of transaction number and amount and total dollar volume. See *id.* at 5-6.

¹³ MODEL LAW ON INT'L CREDIT TRANSFERS, U.N. GAOR, 47th Sess., Supp. No. 17, Annex 1, at 48, U.N. Doc. A/47/17 (1992) [hereinafter U.N. MODEL LAW].

¹⁴ This is not the first time that a dearth of theory in the history of payments law has

The resolution of this puzzle rests on the understanding that *the principal importance of funds transfer law is its relationship to financial market activity*.¹⁵ Hence, the underlying aim of this Article is to address the need to identify, define, and examine this relationship.

The new narrow and technical body of statutory funds transfer law serves, or should serve, a critical macroeconomic purpose: supporting growth and development in domestic and international financial markets. The financial markets in question are those for (1) foreign exchange,¹⁶ (2) short-term money-market instruments,¹⁷ (3) corporate equity and debt securities,¹⁸ (4) derivative products,¹⁹ and (5) interbank borrowing and

existed. See, e.g., Robert Cooter & Edward Rubin, *A Theory of Loss Allocation for Consumer Payments*, 66 TEX. L. REV. 63, 64, 66 (1987) (providing a microeconomic basis for the loss allocation rules in Articles 3 and 4 of the U.C.C.). Nonetheless, other theories have been based on the U.C.C. alone. *Id.* Most commercial lawyers appreciate the larger context in which the Uniform Customs and Practice for Documentary Credits ("UCP") operates: the UCP supports the international trade of goods because letters of credit are the primary payments and credit device in such trade. See INTERNATIONAL CHAMBER OF COMMERCE PUB. NO. 400 (1983); ANDREAS F. LOWENFELD, INTERNATIONAL PRIVATE TRADE 101-44 (2d ed. 1989). A new revision of the UCP is scheduled to take effect in 1994. Similarly, federal legislation on credit cards and the recent revisions of U.C.C. Articles 3 and 4 are noteworthy because credit cards and checks are significant payments methods for consumer goods. But, even the veteran commercial lawyer is likely to pause when the issue moves to electronic funds transfers.

¹⁵ As those familiar with the format of payment orders are aware, there is no place in the format (including the third party information field) in which to specify the purpose of the funds transfer (e.g., whether it is intended to discharge an obligation arising from a financial or commercial transaction). However, various studies as well as anecdotal evidence clearly point to the critical, direct relationship between financial market activity and the use of funds transfers. See *infra* note 98 and accompanying text.

¹⁶ This is a twenty-four hour, international market for trading national currencies. See generally RUDI WEISWEILLER, HOW THE FOREIGN EXCHANGE MARKET WORKS (1990) (discussing the history and mechanics of the foreign exchange market, currency crises, and trading practices and strategies).

¹⁷ The "short-term money market" is a generic term for the interbank market in several distinct, short-term instruments, including U.S. Treasury bills (short-term debt issued at a discount and redeemed at face value), short-term government agency securities (e.g., discount notes issued by the Federal National Mortgage Association), commercial paper (promissory notes issued at a discount and redeemed at par value, or paying a fixed interest rate), and repurchase agreements or "repos" (the temporary sale of securities subject to an agreement of repurchase where the difference between the sale and repurchase prices yields a set interest rate). See FED. RESERVE BANK OF N.Y., A POCKET GUIDE TO SELECTED SHORT-TERM INSTRUMENTS OF THE MONEY MARKET (1987).

¹⁸ In other words, the markets for the equity and debt of private issuers.

¹⁹ "[A] derivative is a financial contract whose value depends on the values of one or more underlying assets or indexes of asset values." BOARD OF GOVERNORS OF THE

lending.²⁰ These are enormously significant markets in terms of size. The foreign exchange market, for example, is the world's largest financial market.²¹ These markets also have significant policy implications. For instance, interbank borrowing and lending allow depository institutions to meet Federal regulatory reserve requirements and shed excess reserves.²²

In highlighting the relationship between funds transfer law and international and domestic financial market interests, this Article rejects three alternative arguments concerning the purpose of funds transfer law: (1) the backstop argument, in which the law is viewed as a safety net for private agreements;²³ (2) the argument that the law is a response to and a cure for unfavorable common law developments;²⁴ and (3) the argument that consumer protection is the underlying aim of the law.²⁵ Each of these arguments is defective in its own right, and none of them accounts for the inextricable link between financial market deals and the use of funds transfers to settle the payment obligations generated by these deals.²⁶

FED. RESERVE SYSTEM, FEDERAL DEPOSIT INS. CORP., & OFFICE OF THE COMPTROLLER OF THE CURRENCY, DERIVATIVE PRODUCT ACTIVITIES OF COMMERCIAL BANKS 1 (Jan. 27, 1993) (joint study conducted in response to questions posed by Senator Riegle on derivative products) [hereinafter JOINT DERIVATIVES STUDY]. Derivative instruments include futures, options, and swaps. *See id.*, app. III, at 5, 8, 10.

²⁰ A principal form of interbank lending is the purchase and sale of Federal funds ("Fed funds") and repurchase agreements ("repos"). Fed funds refers to the market "in which commercial banks borrow and lend excess reserve balances held at the Federal Reserve." Charles M. Lucas et al., *Federal Funds and Repurchase Agreements*, in FINANCIAL MARKETS: INSTRUMENTS AND CONCEPTS 9-10 (John R. Brick et al. eds., 2d ed. 1986). Borrowing Fed funds is referred to as a "purchase" of Fed funds, while lending is referred to as a "sale." There is some redundancy in using the terms "short-term money market instruments" and "interbank borrowing and lending" because Fed funds and repos are short-term instruments and the subject of interbank lending.

²¹ J. ORLIN GRABBE, INTERNATIONAL FINANCIAL MARKETS 65 (2d ed. 1991).

²² These requirements are imposed under Federal Reserve Regulation D, 12 C.F.R. pt. 204 (1993).

²³ *See infra* notes 48-66 and accompanying text.

²⁴ *See infra* notes 67-91 and accompanying text.

²⁵ *See infra* notes 92-111 and accompanying text.

²⁶ Confusion sometimes exists because of the seemingly synonymous use of the terms "payment obligation" (or "payment"), "settlement obligation" (or "settlement"), and "discharge." The distinctions among these terms are not clearly drawn in either U.C.C. Article 4A or the U.N. Model Law. The payment obligation refers to the obligation of the originator to pay the beneficiary and is based on the underlying contract between those two parties—a purchase of commercial paper. When the obligation is satisfied, it is legally discharged. U.C.C. § 4A-406 (1990). In contrast, settlement obligations refer more specifically to interbank payment obligations—the obligation of a bank that sends a

The relationship between funds transfer law and financial markets has not yet received any scholarly attention. There have, however, been two parallel discussions. One discussion focuses on securities regulation, banking law, and, to a lesser extent, commodity law and explores the importance of these legal regimes to financial market development.²⁷ The second discussion focuses on funds transfer law in a vacuum. Although the literature largely explains the rules,²⁸ the principles and policies that animate the law are not related to the larger issue of financial market development.²⁹ At best, they are seen as responding to problems raised by the common law.³⁰

It is time for the two lines of thought to intersect and to explore the role that payments law, specifically funds transfer law, can play in the growth and development of internationally competitive financial markets. With financial markets rising from Shanghai to Istanbul, this issue is particularly timely. Put bluntly, when policy advisors from the International Monetary Fund and the World Bank work with Chinese leaders to establish a modern electronic payments system, they do not simply connect telex lines among banks. Rather, they connect fiber-optic cables among banks and the Shanghai and Shenzhen stock exchanges. Critical to the success of these emerging financial markets—and to the continued competitiveness of the markets in New York, Tokyo, London, and the other established financial centers—are the legal aspects of settling payment obligations generated by financial transactions.

The argument of this Article is premised on an “interest-group approach” to funds transfer law. Understanding why the law matters initially requires an identification of whom the law affects and an evaluation of the relationship between the aims of the affected parties and the

payment order to pay the receiving bank for that order. *Id.* § 4A-402.

²⁷ The focus on securities regulation and banking law is understandable because these bodies of law bear an obvious relation to financial markets. Ironically, though, much of the writing along this line is by bankers and economists, not lawyers. *See, e.g.,* HERVÉ DE CARMOY, *GLOBAL BANKING STRATEGY: FINANCIAL MARKETS AND INDUSTRIAL DECAY* 58-92 (1990); ROY C. SMITH, *THE GLOBAL BANKERS* 191-222, 247-53, 351-80 (1989); RICHARD O'BRIEN, *GLOBAL FINANCIAL INTEGRATION: THE END OF GEOGRAPHY* 17-28 (1992).

²⁸ *See generally* PATRIKIS, BAXTER & BHALA, *supra* note 6 (discussing laws that govern funds transfers).

²⁹ There has been some work on the relationship of funds transfer law to other bodies of law. *See, for example,* Thomas Baxter & Raj Bhala, *The Interrelationship of Article 4A with Other Law*, 45 *BUS. LAW.* 1485 (1990).

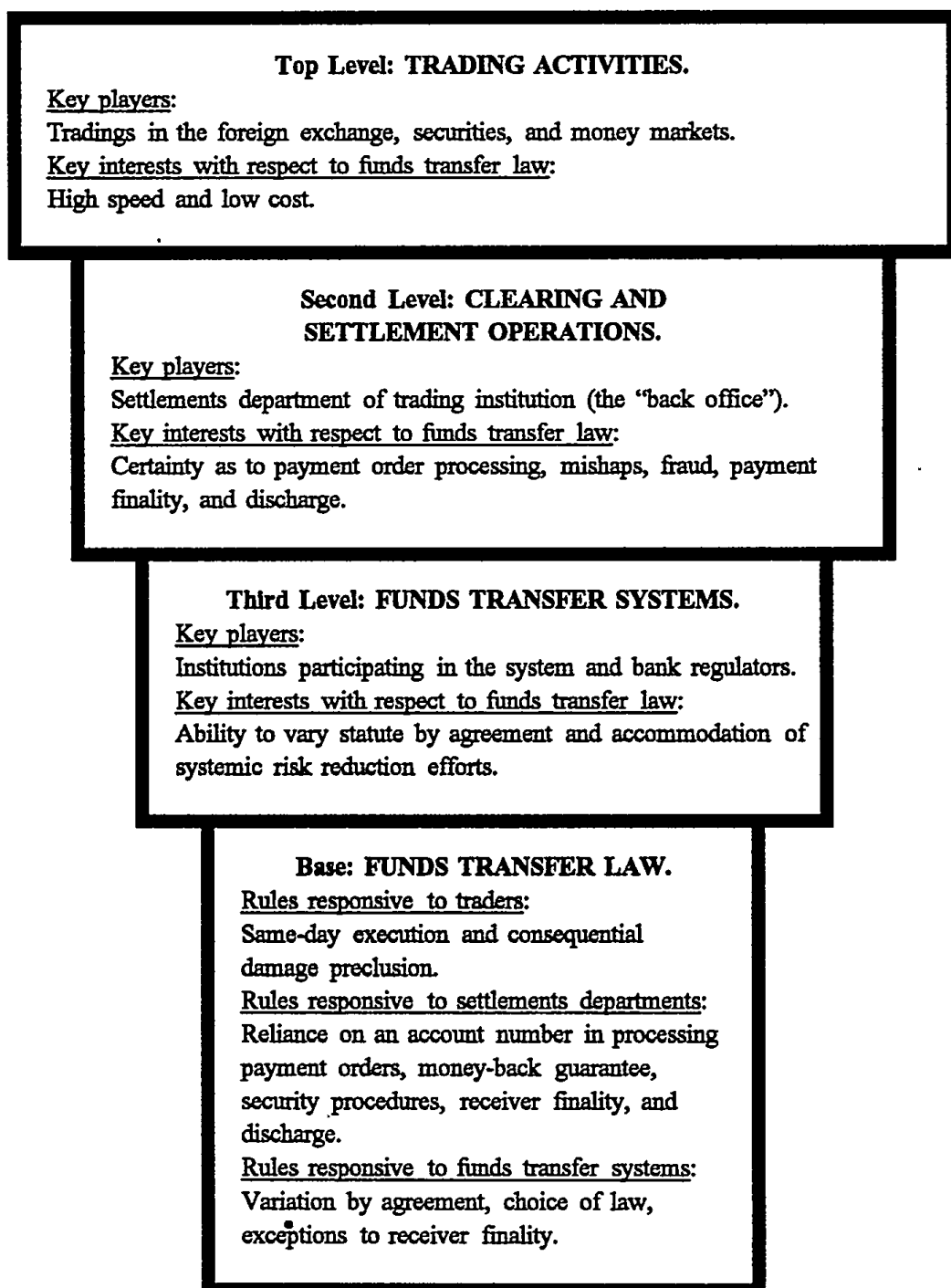
³⁰ *See infra* notes 48-111 and accompanying text.

operation of the law. Within the community of commercial and investment banks that dominate the markets for foreign exchange, short-term instruments, corporate securities, derivative products, and interbank lending, three specific interest groups must be recognized: (1) traders, (2) settlements departments in the financial institutions, and (3) funds transfer systems employed by these institutions.³¹ Funds transfer law must be seen primarily through the eyes of the traders who monitor Reuters screens for movements in exchange rates, interest rates, and securities prices. The split-second decisions of these traders to buy and sell foreign currencies, short-term money market instruments, equity and debt securities, and derivative instruments give rise to the payment obligations that are candidates for settlement through funds transfers. The traders' settlements departments, or back offices, must then execute their payment instructions. If a funds transfer is the vehicle to transfer bank credit, then a funds transfer system must be used by the back offices. Funds transfer law will better serve its macroeconomic purpose if it meets the interests of these three parties.

The four-level inverted pyramid presented in Figure 1 is the conceptual device for addressing the relationship between funds transfer law and financial markets.³² This is done by identifying relevant groups, delineating their interests with respect to funds transfer law, and placing the interest groups in a relational context. Funds transfer law is the base of the inverted pyramid that should support funds transfer systems, clearing and settlement operations, and, ultimately, financial market transactions.

³¹ Those concerned about the role of commercial banks in this scheme should immediately recognize that they populate each of the three interest groups. Traders and settlements clerks are employed by commercial banks, and commercial banks participate in funds transfer systems.

³² See *infra* notes 112-209 and accompanying text (discussing Figure 1 in detail). One might question why the metaphor of an inverted pyramid, as opposed to a conventional upright pyramid, is appropriate, especially given that the narrow base of an inverted pyramid is less stable than the broad base of an upright pyramid! However, the narrow base and the increasingly broad body of an inverted pyramid serve an important conceptual purpose by illustrating that funds transfer law—a rather narrow and technical body of commercial law—supports a vast array of trading activities, clearing and settlement operations, and funds transfer systems. The use of an inverted pyramid further highlights an important and potential source of instability in the system: changes in certain provisions of funds transfer law could have deleterious effects on the financial markets.

Figure 1: The Inverted Pyramid

The inverted pyramid places the players in a relational context relative to each other and to funds transfer law and identifies their interests. The reason for identifying the interests of the key players at the

top three levels is that these interests must be met by a funds transfer statute if the law is to serve its macroeconomic purpose. The jurisprudence of funds transfer law is grounded on identifying and satisfying the interests of the financial traders, settlements departments, and funds transfer systems. One qualification that should be made at the outset is that some of the interests of the players and the funds transfer rules responsive to them may be complimentary. For example, the inverted pyramid indicates that traders are interested in high speed and low cost and that the same-day execution rule and the consequential damage preclusion help satisfy these interests. This identification of the traders' interests does not imply that the settlements department lacks any interest in high speed or low cost or that it does not benefit from these rules—indeed, the contrary is quite likely the case. Rather, the point is to theorize about the primary interests and most salient responsive rules with respect to each group.

The remainder of this Article argues that a wire transfer law must satisfy the interests it is designed to serve. Through a hypothetical transaction, Part II briefly explains that paper-based methods of payment are ill-suited to the modern financial marketplace and thereby emphasizes the importance of funds transfers to the settlement of financial transactions.³³ Part III critically analyzes and rejects three theoretical positions that are potential alternatives to the argument of this Article.³⁴ Part IV explores in detail the relationship between funds transfer law and financial market activity through the inverted pyramid.³⁵

II. CHECKS WON'T WORK

The transactions at the top of the inverted pyramid could not occur or would be significantly impeded without high speed, low cost, and high security funds transfers. The typical user of funds transfer services differs markedly from the average drawer of a check. Funds transfers users are likely to be large financial institutions and corporations engaging in sophisticated financial deals. Their interests are distinct from those of the individual who draws a check to pay for a retail or small business transaction. In turn, the principles and policies that inform funds transfer law are different from those that pertain to retail payments.

³³ See *infra* notes 36-44 and accompanying text.

³⁴ See *infra* notes 45-111 and accompanying text.

³⁵ See *infra* notes 112-209 and accompanying text.

Consider a spot U.S. dollar-Malaysian ringgit³⁶ foreign exchange deal in which a trader at Citibank ("Citi") in New York sells ten million dollars to a trader at Hongkong Shanghai Bank ("HKSB") in Kuala Lumpur in return for the appropriate amount of ringgit, as determined by the prevailing market exchange rate. Assume the Citi trader pays for the ringgit by mailing a check for ten million dollars drawn on Chemical Bank ("Chemical") in New York, the payor bank.³⁷ A security risk exists in this situation because the check could be lost or stolen in the mails. Suppose that after approximately ten days, the HKSB trader receives and deposits the check in a depositary bank,³⁸ Bank Bumiputra ("Bank Bumi") in Kuala Lumpur. Bank Bumi does not give the HKSB trader a final credit of ten million dollars, because Chemical, the paying bank, might dishonor the check upon presentment.³⁹ Instead, Bank Bumi forwards the check for collection to its correspondent, perhaps the Bank of America's office in Kuala Lumpur ("BA"), which acts as a collecting bank.⁴⁰ This adds still a few more days to the process. When Chemical finally receives the check from BA, it examines the amount of the check relative to the funds available in Citi's correspondent account and will dishonor the draft if there are insufficient funds in Citi's correspondent account (or if Chemical is unwilling to grant Citi an overdraft).⁴¹ If Chemical honors the check, then Bank Bumi will give a final credit to the HKSB trader's account.⁴² Any provisional credit given by Chemical to BA or by BA to Bank Bumi generates float, thus allowing the bank with the credit (but not the HKSB trader) to earn interest on the ten million dollars. As the days go by and float accumulates, the HKSB trader may miss profitable investment opportunities because of the lack of a final credit of ten million dollars.

³⁶ A "ringgit" is a Malaysian currency. A spot foreign exchange contract involves a commitment by one party to deliver a specified quantity of one currency against the other party's delivery of a specified quantity of a second currency, generally within two business days of the date of the contract.

³⁷ U.C.C. § 4-105(3) (1990).

³⁸ Assuming that the U.C.C. is applicable to the events in Kuala Lumpur, U.C.C. § 4-105(1) (1990) defines the term "bank." Bank Bumi also is a "collecting bank." *Id.* § 4-105(5).

³⁹ *Id.* § 3-501(a), (b)(1).

⁴⁰ *Id.* § 4-105(5).

⁴¹ More technically, Chemical determines whether the check is "properly payable." *Id.* § 4-401(a).

⁴² Assuming that the U.C.C. applies, the final credit to HKSB's account would result when provisional credits in the check collection chain firm up and become final. *Id.* §§ 4-301, 4-302.

The laborious and risky process associated with collecting cross-border, paper-based payment instruments is equally apparent if the transaction is changed from a spot foreign exchange deal to a purchase of stock. Suppose that the Merrill Lynch Dragon Fund ("Dragon Fund"), a mutual fund dedicated to investing in Far East equities, elects to purchase shares of the Tiger Beer Company ("Tiger"), a Malaysian brewery whose stock is listed on the Kuala Lumpur Stock Exchange.⁴³ Assume that Dragon Fund purchases the stock through a broker employed by Kim Eng Securities ("KES") in Kuala Lumpur. Dragon Fund pays the broker in Malaysian ringgit (the currency in which the Tiger shares are quoted on the Kuala Lumpur Stock Exchange) with an international bank draft.⁴⁴ Accordingly, Dragon Fund asks its bank, Chemical Bank ("Chemical"), to draw a draft in ringgit. Chemical draws the draft on a bank in Kuala Lumpur at which Chemical maintains a correspondent account denominated in ringgit. Dragon Fund purchases the draft from Chemical and mails it to the KES broker. The broker then deposits the check in its bank for collection against Chemical. When the broker obtains a final credit depends upon the time required for collection. As in the first hypothetical, this process takes several days and entails a security problem associated with the mails.

A funds transfer cures these difficulties and makes transactions such as those above far more feasible than would be the case if payment obligations were settled by check or international bank draft. With a funds transfer system, the Citi trader wires ten million dollars to the HKSB trader, resulting in a final credit within one or two business days. Similarly, using a Malaysian wire transfer system, the Dragon Fund wires ringgit to the KES broker, leading to a quick and final payment. The features of certainty and celerity are inherent in a funds transfer but not in a check or international bank draft. In turn, payment obligations from the dollar/ringgit deal and the Tiger stock purchase are impractical, if not impossible, to settle if a cross-border paper instrument entailing physical collection is used. In the language of the economist, when otherwise profitable transactions are inhibited, wealth is not generated and there is a dead weight loss. In the world of high finance, time and certainty mean money. This is not to say that financial markets would not function

⁴³ The market capitalization of the Kuala Lumpur Stock Exchange—a measure of the exchange's significance—now rivals that of Singapore and is approaching that of Hong Kong.

⁴⁴ An international bank draft utilizes the deposits of a domestic bank denominated in a foreign currency and held in a foreign bank. JOHN DOLAN, *UNIFORM COMMERCIAL CODE: TERMS AND TRANSACTIONS IN COMMERCIAL LAW* § 27.2 (1991).

without funds transfer law; clearly, they did for centuries. However, the twenty-four-hour global financial markets for foreign exchange, money market instruments, interbank lending, corporate securities, and derivative products demand more than that which paper-based payment mechanisms can provide.

III. ALTERNATIVE EXPLANATIONS OF FUNDS TRANSFER LAW

There are primarily three explanations of funds transfer law. Funds transfer law could be conceived of as a “backstop” to private agreements.⁴⁵ However, this highlights a tension between the interests in (1) uniformity among commercial rules and (2) encouraging parties to reach their own solutions and thereby facilitate competitive variation among these rules. Funds transfer law could also be seen as providing comprehensive, consistent rules in lieu of varied and uncertain case law.⁴⁶ However, this is an ad hoc explanation that misses the critical role that funds transfer law plays in financial marketplaces. Consumer protection is a third possible explanation for the importance of funds transfer law and has been the focus of many of the drafters of the U.N. Model Law.⁴⁷ Yet, focusing on consumer protection neglects the size and sophistication of the principal users of funds transfer services—large financial institutions and corporations. These three alternative arguments, considered in summary fashion below, are insufficient explanations for the purpose of funds transfer law. Still, the argument presented herein is considerate of them and they should not be seen as wholly deficient.

A. *Backstop to Private Agreements*

The prefatory note to Article 4A intimates the backstop approach. In a section entitled “Why is Article 4A needed?,” the NCCUSL and ALI indicate that “[t]here is no comprehensive body of law that defines the rights and obligations that arise from wire transfers. . . . Article 4A is intended to provide the comprehensive body of law that we do not have today.”⁴⁸ Private agreements, including the funds transfer system rules of Fedwire and CHIPS, provide some but not all of the necessary governing regime. A funds transfer statute will supplement these agreements and govern the entire funds transfer chain.

⁴⁵ See *infra* notes 48-66 and accompanying text.

⁴⁶ See *infra* notes 67-91 and accompanying text.

⁴⁷ See *infra* notes 92-111 and accompanying text.

⁴⁸ U.C.C. art. 4A Prefatory Note, at iii (1990) [hereinafter Prefatory Note].

The NCCUSL/ALI explanation is not a rigorous answer to the question posed in the rubric "Why is Article 4A needed?" Comprehensiveness, though desirable because the statute will apply from originator⁴⁹ to beneficiary,⁵⁰ is neither a guiding principle for drafters nor an underlying explanation for scholars. To what end, then, should the critical provisions of the systematic statute be directed? The statute must be explored for a primary purpose.⁵¹

The NCCUSL/ALI explanation of the need for Article 4A is suspect for three reasons. First, even the numerous provisions of Article 4A that are variable by party agreement⁵² are likely to be more than backstops because the cost of contracting out of them may exceed the benefits.⁵³ The parties might be unable to negotiate a reallocation of their initial legal entitlements because of prohibitively high bargaining costs. Under the Coase Theorem, the removal of impediments to bargaining is a necessary requirement for a mutually beneficial transaction.⁵⁴ The Coase

⁴⁹ U.C.C. § 4A-104(c) (1990) defines "originator" as "the sender of the first payment order in a funds transfer."

⁵⁰ A "beneficiary" is "the person to be paid by the beneficiary's bank." *Id.* § 4A-103(a)(2). The "beneficiary's bank," in turn, is "the bank identified in a payment order in which an account of the beneficiary is to be credited pursuant to the order or which otherwise is to make payment to the beneficiary if the order does not provide for payment to an account." *Id.* § 4A-103(a)(3).

⁵¹ Professor Scott grappled with this problem in the context of check collection law, and he rightly refused to accept that law as nothing more than a codification of the law merchant:

My thesis is that *the need to backstop private contract or to provide "rational" ordering is not a sufficient explanation for statutory development.* Statutory commercial law rules are instead to be understood as largely regulatory in import. Some rules deal with cases where private contract actually fails to structure risk allocation or fails to structure it efficiently. Other rules are enacted to rid merchants and financial institutions of common law restraints on contract or to eliminate the competition accompanying contractual freedom. Still others may be enacted at the insistence of consumers to limit the contractual freedom of merchants. In any case, statutory rules are principally designed to alter rather than to "codify" the existing legal regime. *They reflect concern with the ability of various transactors, whether merchants or consumers, to protect themselves in the marketplace, and they are ultimately distributional in character.*

Scott, *supra* note 7, at 738-39 (emphasis added).

⁵² U.C.C. § 4A-501(a) (1990) (providing a general authorization for variation by agreement).

⁵³ Scott, *supra* note 7, at 741; *see infra* notes 184-209 and accompanying text.

⁵⁴ The critical assumptions of the Coase Theorem are that the parties have substantial, relevant information and act rationally, and that there are no transaction costs. The Coase Theorem states that allocative efficiency (the maximum productive use of

Theorem is applicable in that because of these impediments, a financial transaction may not occur. Funds transfers are potentially cheaper means of settling payment obligations than paper-based systems and, accordingly, the Coase Theorem would suggest that, other factors being equal, mutually beneficial financial transactions will occur where funds transfers are used. At the same time, insofar as parties rely on the backstop rules, they cease to fashion their own creative solutions. Thus, the rules preclude competitive variation in risk allocation.⁵⁵

Second, there is a tension between supplementing private agreements and achieving uniformity. A funds transfer statute that serves as a backstop to private funds transfer system agreements must contain optional provisions or else the statute will intervene in too many issues rather than simply supplement the agreements.⁵⁶ Optional provisions, however, are at odds with the goal of achieving uniformity. Moreover, they impede the achievement of economies of scale⁵⁷ in risk allocation rules.

resources) depends not on the initial assignment of legal rights, which is only the starting point from which negotiations begin, but rather on market values of resources. The parties will negotiate and trade their legal entitlements based on the marginal benefit and marginal cost of their respective resources. There is "bargaining room" whenever the marginal benefit exceeds the marginal cost. Hence, party A (a farmer) who is initially assigned a legal right (to prohibit cattle raising on adjacent property) will trade it away to party B (a rancher next door) if the value of party B's resource (the marginal benefit from raising a cow) exceeds the value of party A's resource (the marginal cost of crop damaged by the cow). Where negotiations cease, resources are allocated efficiently. Jules Coleman, *Efficiency, Exchange, and Auction: Philosophic Aspects of the Economic Approach to Law*, 68 CAL. L. REV. 221, 223-25, 236 (1980).

Whether the Coase Theorem applies to complex cases and large bargaining groups is an open issue. See generally Elizabeth Hoffman & Matthew Spitzer, *Experimental Tests of the Coase Theorem with Large Bargaining Groups*, 15 J. LEGAL STUD. 149 (1986) (describing the limited applicability of the Coase Theorem to bargaining situations involving many parties).

⁵⁵ Scott, *supra* note 7, at 776, 792.

⁵⁶ *Id.* at 776.

⁵⁷ Traditionally, "economies of scale" means that the cost per unit, or average cost, of production declines as the total amount of output increases. Eric Rasmussen & Todd Zenser, *Diseconomies of Scale in Employment Contracts*, 6 J.L., ECON. & ORG. 65, 65 (1990). If financial market players governed by a funds transfer statute exercise their right to opt out of certain provisions, then they must negotiate alternative rules and, therefore, incur transaction costs. The cost per funds transfer rises because of such transactions costs; thus, the long-run average cost curve does not decrease as dramatically or become as flat as would be the case if the parties did not opt out of the statute. This implies that it takes a larger number of funds transfers to achieve an economy of scale.

Third, Professor Scott's skepticism toward arguments supporting uniform law is equally applicable to arguments in favor of a comprehensive funds transfer statute: "One must be wary, however, of the argument for uniform law. Often it is nothing more than a political ploy to protect a statutory outcome."⁵⁸ Banks sought to reallocate judicially-allocated risks in drafting both the American Bankers' Association Bank Collection Code of 1929⁵⁹ and Article 4A.⁶⁰ Much of the commentary from commercial banks during the Article 4A drafting process concerned limiting the liability of these banks. This typifies their interest in reallocating risks to originators and beneficiaries.⁶¹

The backstop explanation is essentially a microeconomic argument. Under this law and economics approach, a legitimate question is why transactors in the funds transfer marketplace cannot be relied upon to devise a set of efficient governing rules. Indeed, if indicia of efficiency such as high speed, low cost, and certainty are important to the players in the inverted pyramid,⁶² then absent a showing of market failure,

⁵⁸ Scott, *supra* note 7, at 775.

⁵⁹ *Id.* at 761-62.

⁶⁰ The final draft of Article 4A was approved by the NCCUSL and ALI in June 1989, and drafting began at least as early as 1987. U.C.C. § 4A-102 cmt. (1990) (presenting a general drafting history of Article 4A).

⁶¹ See, e.g., Letter from Thomas B. Montgomery, Vice President and Assistant General Counsel, Bank of America, to William B. Davenport, Counsel, First National Bank of Chicago (Sept. 2, 1987) (on file with author) (suggesting that the exception to the limitation on damages recoverable against a receiving bank for "malicious disregard of the rights of the injured party" is too vague); Letter and Accompanying Major Issues List from Richard M. Gottlieb, Vice President and Associate General Counsel, Manufacturers Hanover Trust Company, to Robert Ballen, Esq., Morrison & Forester (Sept. 1, 1987) (on file with author) (advocating, for instance, (1) that the entire loss from an unauthorized transfer shift to the customer unless the customer notifies the receiving bank of the loss within fifteen days because the burden on the receiver to prove that the customer's delay resulted in the loss is otherwise too difficult and (2) that consequential damage liability be limited to instances where a bank acted in "bad faith" or "malicious disregard"); Letter from John C. Warren, Vice President and Counsel, Wachovia Corporation, to Roland E. Brandel, Chairman, American Bar Association Ad Hoc Committee on Payment Systems (Aug. 7, 1987) (on file with author) (criticizing the use of a comparative fault standard in cases of unauthorized transfer orders and advocating (1) that a customer who fails to meet notifications requirements should be liable for loss and (2) the right of a destination bank to charge back a beneficiary's account in a failed bank case regardless of whether such revocation is authorized in an agreement with the beneficiary).

⁶² See *infra* notes 112-209 and accompanying text.

intervention from an external official body such as NCCUSL, the ALI, or the Federal Reserve is unlikely to lead to efficient outcomes.⁶³

There are at least two microeconomic responses to the backstop explanation. The first concerns the transaction costs of collective action: "[B]argaining is not costless."⁶⁴ Although a number of commercial banks that provide funds transfer services (as well as the Federal Reserve and some corporations that use funds transfer services) participated in the drafting of U.C.C. Article 4A,⁶⁵ many financial institutions that were affected by the new statute, such as securities firms, were not involved. Moreover, the U.N. Model Law was drafted by official delegates representing countries, not commercial parties. In reality, because of economic and political barriers, not every interested party is willing or able to represent itself at negotiation and drafting sessions.

Second, there is a matter of forecasting who the interested parties are likely to be. The thesis that funds transfer law should serve the interests of the financial marketplace is dynamic because that marketplace changes at a dizzying rate. Not every financial instrument that is currently traded is settled by funds transfer, but undoubtedly those involved in the trading of such instruments may in the future seek to use funds transfers as a means of settlement.⁶⁶ The difficulty is in identifying *a priori* which parties in which markets will most likely want to consider funds transfer settlements. The problem is compounded by the fact that potentially affected parties are unlikely to identify themselves at the time when the hard work of negotiating and drafting a law must be done. Such parties may have given the matter little thought as yet or may simply be preoccupied with short-term trading matters. There is, in sum, imperfect information about potential future repercussions of funds transfer law. It falls upon the shoulders of the drafters to anticipate financial innovations and to ensure that their product accommodates these innovations. A law and economics approach might suggest that the task of drafting be left to the market, specifically, to the financial players that currently rely on funds transfers. However, the task of anticipating developments regarding future applications of funds transfer settlement is aided by the intervention of additional parties that sit in a "bird's eye" position. The Federal

⁶³ For an overview of classical rationales for regulatory intervention, see STEPHEN BREYER, *REGULATION AND ITS REFORM* 15-35 (1982); RICHARD POSNER, *ECONOMIC ANALYSIS OF LAW* 367-70 (1992).

⁶⁴ BREYER, *supra* note 63, at 24.

⁶⁵ See *supra* note 60.

⁶⁶ See, e.g., *infra* note 146 (discussing the same-day funds settlement proposal of the National Securities Clearing Corporation and the Depository Trust Company).

Reserve, legal scholars, and others can at least ensure that funds transfer law is not drafted with only narrow, short-term interests in mind.

B. Responding to the Common Law

The prefatory note to Article 4A of the U.C.C. also suggests a second explanation of the need for Article 4A: Article 4A is needed to respond to uneven or unwelcome common law developments. Courts are uncertain as to whether analogies to other payments mechanisms such as negotiable instruments are appropriate in determining the outcome of a funds transfer case. "The result is a great deal of uncertainty. There is no consensus about the judicial nature of a wire transfer and consequently of the rights and obligations that are created."⁶⁷

Although the pre-Article 4A common law of electronic funds transfers highlighted issues for resolution by statute,⁶⁸ the reliance of the NCCUSL/ALI on the existence of these common law problems as an explanation of the need for Article 4A is inductive and haphazard. The broad import of Article 4A should not be inferred from narrow problems posed by a few, pre-Article 4A cases. Such an inference forecloses the opportunity to interpret the statutory response from the viewpoint of the key interest groups in the inverted pyramid: the trader, her settlements department, and the funds transfer system used by that department.

The draftpersons of Article 4A took issue with leading cases such as *Evra Corporation v. Swiss Bank Corporation*,⁶⁹ in which the Seventh Circuit held that consequential damages could be awarded if a bank with notice of particular circumstances giving rise to damages refuses to execute a payment order.⁷⁰ They manifest their disagreement with the *Evra* result in the statutory provisions that bar consequential damages unless a receiving bank expressly agrees in writing to assume such

⁶⁷ Prefatory Note, *supra* note 48, at iii.

⁶⁸ See *supra* text accompanying note 67; *infra* text accompanying notes 69, 73-74.

⁶⁹ 673 F.2d 951 (7th Cir.), *cert. denied*, 459 U.S. 1017 (1982) (overruled by U.C.C. § 4A-305 (1990)). In *Evra*, the intermediary bank, see *infra* note 104, failed to execute a payment order in the amount of \$27,000. The intended beneficiary of the order cancelled the originator's ship charter and the originator was forced to obtain a new ship charter at a far higher cost. *Id.* at 952-53. Applying the common law test in *Hadley v. Baxendale*, 9 Ex. 341, 156 Eng. Rep. 145 (1854), that consequential damages are not available unless the defendant is notified of special circumstances that might give rise to them, the court found that the originator could not recover \$2.1 million in lost profits from the intermediary bank. *Evra Corp.*, 673 F.2d at 955-56.

⁷⁰ U.C.C. § 4A-305 cmt. 2 (1990).

liability.⁷¹ The case posed two dangers. First, other jurisdictions would reach the same or substantially similar results, leading to the imposition of "crushing" liability on banks, which, in turn, would harm the funds transfer service industry.⁷² Alternatively, other jurisdictions would reach different results, leading to a patchwork of rules about liability that would be unworkable for any interstate or international funds transfer. Clearly, however, there is no need for an entirely new U.C.C. article just to handle a limitation of damages problem.

The case of *Delbrueck & Co. v. Manufacturers Hanover Trust Co.*⁷³ posed a different challenge for the draftspersons, but it also fails to shed light on the underlying purpose of the statute. The case grew out of the celebrated failure of a German bank, Bankhaus I.D. Herstatt, K.G.a.A. ("Herstatt"), which had entered into three foreign exchange contracts with Delbrueck & Company ("Delbrueck"). At issue was whether an originator (Delbrueck) of \$12.5 million worth of future value CHIPS payments messages could revoke the messages after learning that German banking regulators had closed the intended beneficiary (Herstatt) of the funds transfers.⁷⁴ The related rules on the revocation and amendment of

⁷¹ *Id.* § 4A-305 & cmt. 2. Consequential damages are available in one instance under Article 4A: a beneficiary's bank accepts a payment order on behalf of a beneficiary, refuses to pay the beneficiary, and has no reasonable doubt about the right of the beneficiary to the funds. *Id.* § 4A-404(a) & cmt. 2.

A "receiving bank" is a bank to which the instruction of a sender is addressed, the sender being the person giving the instruction. U.C.C. § 4A-103(a)(4)-(5) (1990).

⁷² Of course, unless precluded by statute, banks are free to limit their liability for consequential damages. Problems of characterizing "consequential damages" in the funds transfer context do not seem severe. Banks could, for example, disclaim liability for damages other than the principal amount of the transfer, interest for the applicable period, and the cost of the transfer.

⁷³ 609 F.2d 1047 (2d Cir. 1979).

⁷⁴ *Id.* at 1049-50. A future value payment order is one whose execution date is after the date of receipt by the receiving bank. Delbrueck issued two payment orders (or, in CHIPS parlance, "payments messages") to the originator's bank, Manufacturers Hanover Trust Company ("MHT"): (1) on June 25, 1974, calling for a \$12.5 million transfer on June 26 to the Chase Manhattan Bank ("Chase"), the beneficiary's bank, for Herstatt's account; and (2) on June 26, 1974, calling for a \$10 million transfer on June 27 to Chase for Herstatt's account. Herstatt was closed on June 26 at 10:30 a.m. eastern standard time. The opinion indicates that Delbrueck's second payment message was sent "early on the morning of June 26" but does not make clear whether this was before or after 10:30 a.m. *Id.* at 1050. In any event, on June 26 Delbrueck issued revocation orders to MHT at 11:30 a.m., 12:00 noon, and later in the afternoon. While the \$10 million funds transfer due on June 27 was stopped, the \$12.5 million transfer due on June 26 was completed. On June 26, MHT executed the \$12.5 million payment message at 11:36 a.m. (by issuing a message to Chase for \$10 million) and 11:37 a.m. (by issuing a message to Chase for

payment orders and receiver finality set forth in Article 4A are important features of the statute, but they are insufficient evidence on which to base an inference as to the broader import of Article 4A.⁷⁵ Nonetheless, commentators have sought to predicate the purpose of Article 4A on the problems posed by the case.⁷⁶

Still another challenge posed by pre-Article 4A case law concerned the responsibility of a beneficiary's bank with respect to a payment order in which the name and account number of the beneficiary do not match.⁷⁷ Must the bank examine each payment order received for mismatches and, if so, what must it do with a payment order that contains inconsistencies?⁷⁸

While this brief review of some leading pre-Article 4A cases suggests a stimulus-response relationship between pre-Article 4A common law and certain Article 4A rules, it must be remembered that a statute has a life beyond the facts of particular cases that arguably spawned the statute.

\$2.5 million). Chase credited Herstatt's account at 9:00 p.m. on June 26. Delbrueck argued that the \$12.5 million transfer was revocable until 9:00 p.m. and that MHT had acted negligently by failing to act on the revocation orders. Looking to banking custom and practice regarding revocability of CHIPS transfers, a modification of the CHIPS finality rules made after the Herstatt failure, and the common law of assignment of choses in action, the court held that the transfer was irrevocable. *Id.* at 1050-51.

⁷⁵ U.C.C. § 4A-211 (1990) (amendment of payment orders); *id.* § 4A-405 (receiver finality). Interestingly, the facts of *Delbrueck* could not be repeated if the funds transfer had been conducted through Fedwire instead of CHIPS. See 12 C.F.R. § 210.30(c) (1992). Under the current version of Regulation J, a Federal Reserve Bank will not accept a payment order that calls for execution on a funds-transfer business day later than the day of receipt. Thus, if Delbrueck had had access to Fedwire and had issued the June 25 payment order to a Reserve Bank, the order would have been rejected. Note, however, that an exception to the same-day execution rule may be made for future-value transfers from foreign central bank accounts maintained at the Federal Reserve Bank of New York. PATRIKIS, BAXTER & BHALA, *supra* note 6, at 72.

⁷⁶ See, e.g., Roger Cowie, Note, *Cancellation of Wire Transfers Under Article 4A of the Uniform Commercial Code: Delbrueck & Co. v. Manufacturers Hanover Trust Co. Revisited*, 70 TEX. L. REV. 739, 740 (1992).

⁷⁷ See generally *Bradford Trust Co. v. Texas Am. Bank-Houston*, 790 F.2d 407 (5th Cir. 1986) (holding a trust company liable for a forged wire transfer despite the fact that the transferee was negligent in failing to notice the discrepancy); *Securities Fund Servs., Inc. v. American Nat'l Bank & Trust Co.*, 542 F. Supp. 323 (N.D. Ill. 1982) (holding that where a collecting bank failed to notice a discrepancy, the wire transfer contemplated a credit to the account rather than a safekeeping arrangement).

⁷⁸ The statutory solution to the problem is to allow the beneficiary's bank to rely solely on the account number. U.C.C. § 4A-207 & cmt. 2 (1990). Interestingly, the illustrative hypothetical case in the official comment involves a wire transfer of proceeds from the redemption of mutual fund shares—in other words, a funds transfer generated by a financial market transaction. *Id.*

Many statutes would become obsolete very quickly if their *raison d'être* was based on early case law. The vitality of Article 4A, and funds transfer law generally, is and will continue to be derived from the use of funds transfers to settle payment obligations arising from domestic and international financial transactions. Indeed, this proposition is suggested by cases in which the facts arose before the enactment of Article 4A but which were adjudicated thereafter.⁷⁹

The aforementioned cases should be seen from this financial market perspective. For instance, the *Evra* court's statement that "[e]lectronic funds transfers are not so unusual as to automatically place a bank on notice of extraordinary consequences if such a transfer goes awry"⁸⁰ should be re-evaluated in light of the fact that large-dollar financial deals are settled by funds transfer, and several such deals are often linked in purpose.⁸¹ Every receiving bank⁸² should know that the payment order it receives, accepts, and executes is likely to represent settlement of a major transaction in foreign exchange, securities, or money market instruments. Conversely, imposing consequential damage liability on receiving banks could raise transaction costs associated with these deals. Receiving banks will factor the expected cost of consequential damage liability into their funds transfer service fees, thereby insuring against the risk that such liability will be imposed, but raising costs for senders.

⁷⁹ See, e.g., *Banque Worms v. BankAmerica Int'l*, 570 N.E.2d 189 (N.Y. 1991) (involving a revolving credit agreement); see also *In re Koreag, Controle et Revision S.A.*, 961 F.2d 341, 344-45 (2d Cir. 1992) (involving transactions in foreign currency and the application of U.C.C. Article 2, though not discussing payment obligations from such transactions); *Manufacturers Hanover Trust Co. v. Chemical Bank*, 559 N.Y.S.2d 704 (App. Div. 1990) (involving a mistaken transfer to a Merrill Lynch account), *appeal denied*, 569 N.E.2d 874 (N.Y. 1991). The ability to rely on opinions for this point is limited because they tend to spend little, if any, time on the underlying transactions. Data and reports published by central banks and the Bank for International Settlements, such as those cited *supra* notes 17 and 19, *infra* notes 84, 98, 112, 114, 116, 146, and 164, are more helpful in this regard.

⁸⁰ *Evra Corp. v. Swiss Bank Corp.*, 673 F.2d 951, 956 (7th Cir.), *cert. denied*, 459 U.S. 1017 (1982).

⁸¹ Consider a U.S. dollar-Singapore dollar spot foreign exchange contract where delivery of two million Singapore dollars against one million U.S. dollars is delayed. The purchaser of the Singapore dollars is an equity broker from the Far East who is buying shares on behalf of the broker's client, a U.S. mutual fund, in an initial public offering on the Singapore Stock Exchange. Because of the delayed credit of Singapore dollars to the broker's account, the purchase of the stock may also be delayed. The broker is forced to buy the shares at a higher price later in the secondary market. The broker must, therefore, either absorb the cost of the delayed execution or pass it on to the mutual fund.

⁸² See *supra* note 71.

The *Delbrueck* decision suggests that funds transfer law can mitigate, but not wholly resolve, credit risk issues. Delbrueck chose to engage in foreign exchange deals with a counterparty that failed, and faced what became known as the "Herstatt risk" problem,⁸³ which is one of delivering one currency to the trading counterparty but not receiving the amount of foreign exchange bargained for in return.⁸⁴ Statutory rules on revocation and amendment of payment orders⁸⁵ and receiver finality⁸⁶ help define the period of credit risk exposure: Delbrueck is at risk from the moment that its payment message becomes irrevocable until the moment that Herstatt's payment is final. The rules, however, cannot substitute for credit risk analysis and the establishment of position limits for trading foreign exchange with certain counterparties. Moreover, Herstatt risk can be reduced by structuring settlement arrangements with a counterparty of dubious credit worthiness in a conservative fashion through use of an escrow account.⁸⁷

The U.C.C. Section 4A-207 rule that a beneficiary's bank has no duty to check for a name/number mismatch in a payment order⁸⁸ facilitates rapid, non-human processing. The high speed characteristic of a funds transfer makes it particularly desirable for foreign exchange, securities, and money market dealers who seek rapid settlement of payment obligations.⁸⁹ The statutory responses to *Securities Fund Services*⁹⁰ and

⁸³ The "Herstatt risk" problem is named after the failed bank with whom Delbrueck had foreign exchange contracts. See *Delbrueck & Co. v. Manufacturers Hanover Trust Co.*, 609 F.2d 1047, 1049-50 (2d Cir. 1979).

⁸⁴ See BANK FOR INT'L SETTLEMENTS (BASLE, SWITZERLAND), REPORT OF THE COMMITTEE ON INTERBANK NETTING SCHEMES OF THE CENTRAL BANKS OF THE GROUP OF TEN COUNTRIES ¶ 2.16 (Nov. 1990) [hereinafter LAMFALUSSY REPORT, after the Chairman of the Committee on Interbank Netting Schemes, M. A. Lamfalussy].

⁸⁵ U.C.C. § 4A-211 (1990); U.N. MODEL LAW art. 12 (1992).

⁸⁶ U.C.C. § 4A-405(c).

⁸⁷ The aim is to prevent one party from simultaneously having both the foreign exchange and the U.S. dollars to pay for the foreign exchange. Accordingly, the U.S. dollars can be transferred to an escrow account and released when the foreign currency is delivered to the escrow agent.

⁸⁸ U.C.C. § 4A-207 (1990); U.N. MODEL LAW art. 10(4) (a comparable provision, stating that when a beneficiary bank detects a discrepancy, it must give notice to the sender, if identifiable).

⁸⁹ See, e.g., RICHARD B. MILLER, CITICORP: THE STORY OF A BANK IN CRISIS 129 (1993) ("With the awesome power and speed of electronic transfers, the scope of foreign-exchange trading is constantly increasing.").

⁹⁰ *Securities Fund Servs., Inc. v. American Nat'l Bank & Trust Co.*, 542 F. Supp. 323 (N.D. Ill. 1982).

*Bradford Trust*⁹¹ altered the common law landscape in a way that protects this characteristic.

C. Consumer Protection

Consumer protection is a third candidate to compete with the argument that the primary standard for evaluating funds transfer law is the extent to which it meets the needs of financial market players. As indicated by the impractical provision on assistance⁹² and the controversial provision on deemed acceptance,⁹³ a number of the delegates of the United Nations Commission on International Trade Law ("UNCITRAL") sought to draft a U.N. Model Law that would be oriented to the needs and protection of consumers. A concern for consumer protection might also explain the potentially draconian liabilities facing a receiving bank that fails to execute or improperly executes a payment order.⁹⁴ However, consumer protection is not the basic thrust of the U.N. Model Law, which

⁹¹ *Bradford Trust Co. v. Texas Am. Bank-Houston*, 790 F.2d 407 (5th Cir. 1986).

⁹² Under U.N. MODEL LAW art. 13, "each receiving bank is requested to assist the originator and each subsequent sending bank, and to seek the assistance of the next receiving bank" to ensure that the credit transfer is complete. It may be good business practice for a receiving bank to provide such assistance, but there should be no hint of an obligation for the bank to investigate mishaps up and down a funds transfer chain, as this will add to delays and costs in processing payment orders. Further, because there is no remedy for failure to provide such assistance, a court may potentially fashion a remedy on the ground that the provision is otherwise meaningless; and these resulting judicial remedies may be non-uniform. Cf. U.C.C. § 1-203 (imposing obligation of good faith); *id.* § 4A-105(a)(6) (defining good faith).

⁹³ Under U.N. MODEL LAW art. 7(2)(e), a receiving bank other than the beneficiary's bank is deemed to have accepted a payment order when the time for giving notice of rejection has expired. U.N. MODEL LAW art. 9(1)(h) states the same rule for a beneficiary's bank. The U.C.C. Article 4A approach is to place a five-day time limit on the life of a payment order, U.C.C. § 4A-210(b), and limit a receiving bank's liability for failure to give notice of rejection to interest for this period. *Id.* § 4A-211(d). Passive acceptance without liability limits fails to account for the fact that in the high-volume world of payment order processing, a receiving bank may be sent thousands of payment orders in a few hours. While banks with sophisticated systems should be able to accommodate this volume, new entrants to the funds transfer service business may be slower in rejecting orders. (For example, banks in certain countries take days to provide notices of rejection.) Imposing a larger penalty may force new entrants to bring high-speed payment order processing systems on line quickly; on the other hand, it may discourage them from providing funds transfer services at all.

⁹⁴ U.N. MODEL LAW art. 18 suggests that remedies, other than those identified in Article 17, may be available for intentional or reckless failure to execute a payment order properly if there is actual knowledge that loss would be likely to result.

states that "[t]his law does not deal with issues related to the protection of consumers."⁹⁵ Nor is it the essence of U.C.C. Article 4A, which clearly provides that consumer electronic payments are governed by a different legal regime.⁹⁶

The reason for the clear de-emphasis of consumer matters is plain. A payment obligation satisfied through a funds transfer can arise from virtually any sort of underlying contractual relationship between the buyer/payor and seller/payee.⁹⁷ However, it is factually erroneous to think that consumer transactions generate the bulk of activity on Fedwire or CHIPS. "The bulk of payment activity is concentrated in New York City and is associated with securities trading, including transactions in commercial paper, and foreign exchange trading."⁹⁸ This is not to say that there are no tensions whatsoever in the inverted pyramid but, rather, to point out that the principal players are large and sophisticated financial institutions.

A subtle distinction between "consumers" and "users" is implicit in the argument that there is more to funds transfer law than consumer protection. "Consumer" conjures up images of individual or small business bank account holders and related consumer protection notions, yet they are far less likely to be originators⁹⁹ or beneficiaries¹⁰⁰ than large, sophisticated institutional investors.¹⁰¹ The term "user" better captures the players affected by funds transfer law. Consequently, provisions such as the money-back guarantee¹⁰² can be seen as basic user protections in a statute affecting the likes of Citibank ("Citi"), Morgan Guaranty Trust Company ("Morgan"), Banque Nationale de Paris ("BNP"), and Dai-Ichi Kangyo ("DIK").

If consumer protection were the focus of funds transfer law, then that law would look vastly different from the U.N. Model Law or U.C.C.

⁹⁵ U.N. MODEL LAW art. 1.

⁹⁶ U.C.C. § 4A-108 (excluding consumer transactions that are governed by the Electronic Fund Transfer Act, 15 U.S.C. §§ 1693-1693r (1978), and its implementing regulation, Regulation E, 12 C.F.R. pt. 205 (1993)).

⁹⁷ See *supra* note 26.

⁹⁸ CENTRAL BANKS OF THE GROUP OF TEN COUNTRIES AND SWITZERLAND, BANK FOR INT'L SETTLEMENTS (BASLE, SWITZERLAND), PAYMENT SYSTEMS IN ELEVEN DEVELOPED COUNTRIES 215 (3d ed. 1989) [hereinafter PAYMENT SYSTEMS].

⁹⁹ See *supra* note 49.

¹⁰⁰ See *supra* note 50.

¹⁰¹ The cost of contracting out of statutory provisions is likely to be higher for such consumers than for sophisticated investors, thus making it more likely that those provisions will govern.

¹⁰² U.C.C. § 4A-402(c); U.N. MODEL LAW art. 14(1).

Article 4A. For example, provisions on disclosure obligations of receiving banks to senders, fee schedules of receiving banks, and severe limitations on the freedom of receiving banks to contract out of obligations might dominate the statute.¹⁰³ Instead, neither the U.N. Model Law nor Article 4A says anything about disclosure obligations—under those laws, a receiving bank need not inform a sender about how the sender's payment order will be processed, the route the funds transfer will take, the funds transfer system that will be used, or the risks of intermediary bank¹⁰⁴ failure. Fee schedules and cut-off hours are entirely unregulated, except by market forces. Most importantly, receiving banks are free to vary by agreement with their senders most of the statutory provisions.¹⁰⁵

Both the U.N. Model Law and Article 4A feature the freedom of parties to contract out of the statute in favor of their own arrangements.¹⁰⁶ The provision of this freedom suggests a conception of users

¹⁰³ See, for example, the Electronic Fund Transfer Act, 15 U.S.C. §§ 1693-1693r (1978), and Regulation E, 12 C.F.R. pt. 205 (1993), with respect to consumer electronic payments, and the Truth in Lending Act, 15 U.S.C. §§ 1601-1667e (1988), and Regulation Z, 12 C.F.R. § 226.25 (1993), with respect to credit cards.

¹⁰⁴ The "intermediary bank" is a receiving bank other than "the originator's bank or the beneficiary's bank" U.C.C. § 4A-104(b). The "originator's bank" is the bank to which the payment order of the originator (the sender of the first payment order in a funds transfer) is sent if the originator is an entity other than a bank. *Id.* § 4A-104(c)-(d). Where the originator is a bank, the originator and the originator's bank are the same party. *Id.* § 4A-104(d)(ii).

¹⁰⁵ In the U.N. Model Law, the money-back guarantee cannot "be varied by agreement except when a prudent originator's bank would not have otherwise accepted a particular payment order because of a significant risk involved in the credit transfer." U.N. MODEL LAW art. 14(2). With the exception of one limitation regarding agreement to a commercially unreasonable security procedure, the interloper fraud rules are variable. *Id.* art. 5(3). A receiving bank cannot avoid its liability to a non-bank originator or beneficiary. *Id.* art. 17(1). Similarly, in U.C.C. Article 4A, the only invariable provisions are the money-back guarantee, U.C.C. § 4A-402(f) (1990), the right of a beneficiary to receive payment and damages in the event of wrongful nonpayment, *id.* § 4A-404(c), and the receiver finality rule. *Id.* § 4A-405(c). There are some limitations on the freedom to vary the interloper fraud rules, *id.* § 4A-202(f), and the discharge rule can be varied only by the agreement of the originator and beneficiary, as the rule affects only those parties. *Id.* § 4A-406(d).

¹⁰⁶ U.N. MODEL LAW art. 4 ("Except as otherwise provided in this law, the rights and obligations of parties to a credit transfer may be varied by their agreement."); U.C.C. § 4A-501(a) ("Except as otherwise provided in this Article, the rights and obligations of a party to a funds transfer may be varied by agreement of the affected party."). Funds transfer system rules, as well as agreements between parties, are a second vehicle for altering the U.C.C. Article 4A regime. Participants in the system, namely, banks, are the beneficiary of this freedom: "Except as otherwise provided in this Article, a funds-transfer system rule governing rights and obligations between participating banks using the system

and providers of funds transfer services who operate on a level playing field rather than the classic unequal bargaining power scenario that a consumer protection statute anticipates.¹⁰⁷ In the classic consumer protection scenario, the universe of consumers and vendors is virtually mutually exclusive.¹⁰⁸ In the world of high finance and funds transfers, in contrast, sizeable, experienced financial institutions populate both the "user" and "provider" categories. Citi, Morgan, BNP, and DIK are service users (i.e., originators or beneficiaries) when they buy and sell financial instruments amongst themselves and settle their resulting payment obligations by funds transfers. In other instances, they provide funds transfer services (i.e., they act as the originator's bank,¹⁰⁹ an intermediary bank,¹¹⁰ or a beneficiary's bank¹¹¹) and thus receive and execute payment orders for the users.

IV. THE INVERTED PYRAMID

A. *The Macroeconomic Purpose of Funds Transfer Law*

A funds transfer law should primarily serve the financial markets, specifically the interests of the players in those markets. The foreign exchange markets, short-term money markets, interbank lending markets, corporate securities markets, and derivative products markets are the laboratories for testing funds transfer law.¹¹² The macroeconomic goals

may be effective even if the rule *conflicts with this Article* and indirectly affects another party to the funds transfer who *does not consent* to the rule." *Id.* § 4A-501(b) (emphasis added). In fact, a funds transfer system rule can even govern banks that do not participate in the system. *See id.* § 4A-501(b).

¹⁰⁷ *See generally* JOHN M. CARTWRIGHT, UNEQUAL BARGAINING (1991) (discussing bargaining positions during the contract formation process).

¹⁰⁸ *Id.*

¹⁰⁹ U.C.C. § 4A-104(d) (1990) (stating that the originator, if it is a bank, is also the originator's bank).

¹¹⁰ *See supra* note 104.

¹¹¹ *See supra* note 50; *infra* note 168.

¹¹² Conspicuously absent from this list is the market for U.S. government securities. These book-entry securities, maintained in the accounts of depository institutions at a Federal Reserve Bank, are delivered from a seller to a buyer simultaneously with the payment from the buyer (delivery-versus-payment, or DVP). While the payment is made through Fedwire, the transfer is not governed by U.C.C. Article 4A. It is a debit transfer (wherein the securities seller initiates the payment instruction) and bears an electronic type code distinct from "normal" Fedwire funds transfers. FED. RESERVE BANK OF N.Y., OPERATING CIRCULAR NO. 8, FUNDS TRANSFERS THROUGH FEDWIRE ¶ 5 (rev. effective Jan. 1, 1991) [hereinafter OPERATING CIRCULAR NO. 8]. *See generally* CENTRAL BANKS

of funds transfer law should be to support the growth and development of these domestic and international financial markets. Funds transfer law should facilitate (1) growth in the volume of financial transactions and in the size of each transaction and (2) the development of internationally competitive financial centers.¹¹³

The underlying transaction that gives rise to a payment obligation settled by a funds transfer is very likely to be a spot or forward foreign exchange contract,¹¹⁴ an investment in a short-term money market

OF THE GROUP OF TEN COUNTRIES AND SWITZERLAND, BANK FOR INT'L SETTLEMENTS (BASEL, SWITZERLAND), DELIVERY VERSUS PAYMENT IN SECURITIES SETTLEMENT SYSTEMS (Sept. 1992) (discussing the types and sources of financial risk in the clearing and settlement of contracts for the purchase and sale of securities).

¹¹³ Professor Spak's insightful argument that U.C.C. Article 4A is needed to provide legal certainty given the increasing frequency and volume of wire transfer activity does not go far enough. He rightly suggests that this activity is generated by changes in federal banking law that "open up investment banking opportunities to the nation's commercial banks heretofore barred under the Glass-Steagall Act," Michael I. Spak, *The Case to be Made for Proposed Article 4A of the Uniform Commercial Code: What's a Trillion Dollars between Friends?!*, 80 KY. L.J. 167, 168 (1990-91), but fails to explore the specific financial activities that lead to wire transfers or to identify the interest groups involved in such activities. "The Glass-Steagall Act is the popular name of the Banking Act of 1933, ch. 89, 48 Stat. 162 (codified as amended in scattered sections of 12 U.S.C.)." *Id.* at 168 n.8. Professor Spak's reference to the Glass-Steagall Act is technically misleading. The Act limits the extent to which commercial banks can underwrite and deal in non-bank eligible securities as principals (principally, corporate debt and equity), yet such underwriting and dealing activities are only one of several potential types of financial transactions which give rise to funds transfers. Nothing in the Act restricts the ability of commercial banks to trade foreign exchange, short-term money market instruments, or to make and receive interbank loans, which, as discussed below, also generate payment obligations that are settled by funds transfers.

¹¹⁴ In a foreign exchange transaction, each party promises to deliver a specified amount of foreign exchange (not physical currency) to the other on an agreed date. Deliveries are accomplished by funds transfers. Thus, the foreign exchange markets are where bank credits denominated in different currencies are electronically delivered to bank accounts designated by the trading parties or their settlements departments. See generally ROGER M. KUBARYCH, FOREIGN EXCHANGE MARKETS IN THE UNITED STATES (Fed. Reserve Bank of N.Y. 1983) (discussing foreign exchange transactions). Legally, these bank credits are choses in action. The ratio of the amount of one currency delivered against the receipt of the other currency is the exchange rate between the two currencies. The date on which the transaction is entered into is the "trade date" (T). The date on which delivery occurs is the "value date." For virtually all spot transactions, the value date is two business days after the trade date, or T+2 ("T+2 settlement"). For Canadian dollar/U.S. dollar deals, the trade date is T+1 ("tomnext," for "tomorrow next," or "T+1 settlement"). In contrast, a forward foreign exchange transaction is one where the value date is more than two business days after the trade date. See GRABBE, *supra* note 21, at 393, 399; KUBARYCH, *supra*, at 9-10.

instrument, a purchase or sale of securities, or an interbank loan.¹¹⁵ Typically, the transactors are commercial and investment banks.¹¹⁶ These facts are critical to any proposed theory of funds transfer law. Specifically, with respect to foreign exchange transactions, payment obligations are settled by funds transfers through CHIPS.¹¹⁷ Payment obligations arising from purchases of some stocks, bonds, and government and government agency issues involve funds transfers through Fedwire.¹¹⁸ Efforts are underway to expand the use of funds transfers for settling corporate stock and bond transactions.¹¹⁹ Funds transfers through Fedwire are used to settle payment obligations arising from purchases and sales of Fed funds and repos¹²⁰ and payment obligations associated with commercial paper.¹²¹ Funds transfer law will better serve the players in the financial

¹¹⁵ See generally KUBARYCH, *supra* note 114 (discussing foreign exchange transactions).

¹¹⁶ Sophisticated individual investors also transact in these markets. See, e.g., *Salomon Forex, Inc. v. Tauber*, 795 F. Supp. 768, 769-70 (E.D. Va. 1992) (portraying defendant Tauber as a wealthy veteran of the over-the-counter foreign exchange options markets). Of course, central banks intervene in the foreign exchange market to counter disorderly market conditions. FED. RESERVE BANK OF N.Y., FEDPOINTS 44: FOREIGN EXCHANGE INTERVENTION (Aug. 1988). See generally C. Edward Fletcher, *Sophisticated Investors Under the Federal Securities Laws*, 1988 DUKE L.J. 1081, app. 1149-55 (justifying disparate treatment of sophisticated and unsophisticated investors on the grounds of statutory interpretation and the position of sophisticated investors).

¹¹⁷ GRABBE, *supra* note 21, at 75; KUBARYCH, *supra* note 114, at 36. Fedwire is involved in that net positions at the end of the funds-transfer business day of CHIPS are settled by Fedwire transfers to and from accounts of CHIPS settling participants. PATRIKIS, BAXTER & BHALA, *supra* note 6, at 203-04.

¹¹⁸ BOARD OF GOVERNORS OF THE FED. RESERVE SYS., THE FEDERAL RESERVE SYSTEM: PURPOSES AND FUNCTIONS 109 (1984) [hereinafter PURPOSES AND FUNCTIONS].

¹¹⁹ See *infra* note 146 (discussing the same-day funds settlement proposal of the National Securities Clearing Corporation and the Depository Trust Company). It should be noted that payment for some corporate and municipal securities is still made by means of a next-day funds settlement system. This involves the use of cashiers or clearing bank checks. See BOARD OF GOVERNORS OF THE FED. RESERVE SYS., STAFF STUDY NO. 163: CLEARANCE AND SETTLEMENT IN U.S. SECURITIES MARKETS, app. D, at 28-29 (Mar. 1992).

¹²⁰ PURPOSES AND FUNCTIONS, *supra* note 118, at 109. Indeed, it has been suggested that the Fed funds and repo markets should be called "the markets for short-term immediately available funds," Lucas et al., *supra* note 20, at 10, because both markets are settled in "immediately available funds" (a term referring to funds transfers through Fedwire). *Id.*

¹²¹ DAVID M. WEISS, AFTER THE TRADE IS MADE: PROCESSING SECURITIES TRANSACTIONS 214, 387 (1986); see also *infra* note 146 (discussing the same-day funds settlement proposal of the National Securities Clearing Corporation and the Depository Trust Company).

markets if certain benefits flow from the operation of the key features of the law. Players in the world of high finance will find that funds transfers are an attractive means of settling payment obligations if they are rapid, cheap, certain, secure, and entail minimal risks. Whether these benefits are realized—and thus whether more and bigger trades in specific financial markets can be accommodated—hinges critically on the rules established in a funds transfer statute.

In addition to growth in the volume and amount of financial market transactions, an important macroeconomic goal is gaining or maintaining an international competitive advantage as a financial center. Every developed or emerging financial center can be conceived of in terms of the inverted pyramid.¹²² Why are certain financial centers such as Singapore attractive, while other locations such as Bombay less so? What are the critical ingredients in the recipe for developing the Shanghai Stock Exchange and other such emerging markets?¹²³ While there is more to obtaining an international competitive advantage as a financial marketplace than a supportive funds transfer law,¹²⁴ such a statute is needed to accommodate large-value credit transfers used to settle obligations arising from financial transactions.¹²⁵ Policy makers and financiers who seek to develop their

¹²² See *supra* notes 6-35 and accompanying text.

¹²³ See generally ECONOMICS DEP'T, BANK NEGARA MALAYSIA (KUALA LUMPUR), MONEY AND BANKING IN MALAYSIA 339-66 (3d ed. 1989) (describing characteristics of the foreign exchange market in Malaysia); HU YEPI, CHINA'S CAPITAL MARKET 69-74 (1993) (discussing problems in the development of a stock market in China).

¹²⁴ There are other factors outside of the pyramid, some of which are immutable. Geographic location and the relative position in a time zone make London attractive—trading hours in London overlap with both the New York and Tokyo markets. Within the pyramid, slow and unreliable clearing and settlement mechanisms at the second level inhibit the transfer of ownership claims among investors. For instance, the collapse of the Taurus project for settling trades in uncertificated securities on the London Stock Exchange ("LSE") has damaged the international prestige of the LSE. See *After Taurus: City Lessons*, FIN. TIMES (London), Mar. 23, 1993, at 17; *Taurus Done to Death*, FIN. TIMES (London), Mar. 12, 1993, at 13. Inadequate custody arrangements have heretofore precluded U.S. investment companies from directly investing in the Shanghai and Shenzhen stock exchanges.

¹²⁵ See PAYMENT SYSTEMS IN DEVELOPED ECONOMIES (Bruce Summers & Hans Blommestein eds., forthcoming 1993) (on file with author). It is beyond the scope of this Article to analyze the funds transfer laws of other countries in relation to the settlement of financial transactions in those countries. For an excellent guide to the European large-value electronic credit transfer systems used to settle payment obligations arising from financial transactions denominated in European currencies and the European Currency Unit ("ECU") (e.g., the U.K.'s Clearing House Automated Payments System, or CHAPS, for sterling credit transfers and France's SAGITTAIRE system for settling international French franc transfers), see COMMITTEE OF GOVERNORS OF THE CENT. BANKS OF THE

financial centers or preserve the global importance of those centers must pay due regard to the speed, cost, security of, and risks associated with funds transfers. They must appreciate that the legal regime governing funds transfers determines, in part, these features.

The macroeconomic goals are most likely to be met where the critical provisions of the law meet the interests of the players in the financial markets. The typical approach to funds transfer services is to identify two categories of interested parties: users and providers.¹²⁶ However, this obfuscates the relationship between settling payment obligations arising from financial market transactions and funds transfer law. Moreover, it fails to account for the overall consistency of interests of the players in the inverted pyramid with respect to funds transfer law. The four-level inverted pyramid¹²⁷ should be the analytic framework in which to identify the relational positions of the players and their interests.

Traders—the top level of the inverted pyramid—require a statute that fosters high speed transfers in order to minimize risk exposure and maximize their ability to use funds credited to their accounts. Traders also need a low-cost means of settling payment obligations that arise from their actions in the markets for foreign exchange, short-term money market instruments, interbank lending, and securities. Otherwise, the thin profit margins that sometimes characterize trading in these markets will erode.¹²⁸

MEMBER STATES OF THE EUROPEAN ECONOMIC COMMUNITY, PAYMENT SYSTEMS IN EC MEMBER STATES (Sept. 1992) [hereinafter PAYMENT SYSTEMS IN EC MEMBER STATES].

¹²⁶ See, for example, U.C.C. § 4A-102 cmt. 2 (1990), which notes that

[f]unds transfers involve *competing* interests—those of the banks that provide funds transfer services and the commercial and financial organizations that use the services, as well as the public interest. These competing interests were represented in the drafting process and they were thoroughly considered. The rules that emerged represent a careful and delicate *balancing* of those interests

....

(emphasis added). Similarly, the U.N. Model Law was negotiated among UNCITRAL delegates from all over the world representing central banks, ministries of finance and justice, and regional and international organizations. U.N. GAOR, 47th Sess., Supp. No. 17, at 2-4, U.N. Doc. A/47/17 (1992). A common approach in negotiating and drafting the U.N. Model Law was to divide delegations along “pro-consumer” and “pro-bank” lines. *Id.*

¹²⁷ See *infra* notes 139-211 and accompanying text.

¹²⁸ Consider a short sale of one million Singapore dollars in the Singapore dollar/U.S. dollar spot foreign exchange market, followed by a purchase of one million Singapore dollars to cover the short sale. Assume that there are no brokerage or other transaction costs, that the short sale price is 1.640 Singapore dollars per U.S. dollar, and that the cover purchase price is 1.641 Singapore dollars per U.S. dollar. The profit on the

Settlements departments, the second level, attempt to minimize uncertainty arising in two contexts. First, the legal effect of using funds transfers as a means of settling payment obligations must be clear. Second, payment order processing and dealing with mishaps must be routine.

Funds transfer systems, the third level, aim to preserve contractual freedom for their system rules and implement risk-reduction schemes. Innovation of this sort reduces potential losses arising from the settlement failure of one or more system participants. In turn, reduced risk provides a competitive advantage for one system over another.

Funds transfer law, the focus of the third proposition, is the base of the inverted pyramid and must be measured against the interests of the players who populate the top three levels of the pyramid. Technical rules on same-day execution,¹²⁹ consequential damage liability,¹³⁰ receiver finality,¹³¹ discharge,¹³² payment order processing,¹³³ money-back guarantee,¹³⁴ and variation by agreement¹³⁵ should directly address these interests.¹³⁶

The link between macroeconomic goals for financial markets and the interests of financial market players should be clear: it is far easier to meet the goals if funds transfer law pays attention to the interests of financial market players. The logic behind this link is a modification of the classic doctrine of Adam Smith "that if all seek to promote their self-interest, the whole society prospers: 'He . . . neither intends to promote the publick [sic] interest, nor knows how much he is promoting it . . . he intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention.'"¹³⁷ If funds transfer law allows the players to enter into and

transaction is the difference between the short sale price (U.S. \$609,756.10) and the cover purchase price (U.S. \$609,384.52), or just \$371.58.

¹²⁹ U.C.C. § 4A-301; U.N. MODEL LAW art. 11(1).

¹³⁰ U.C.C. § 4A-305(c); U.N. MODEL LAW art. 18.

¹³¹ U.C.C. § 4A-405(c). There is no receiver finality rule in the U.N. Model Law.

¹³² U.C.C. § 4A-406; U.N. MODEL LAW art. 19.

¹³³ U.C.C. §§ 4A-207, 4A-208; U.N. MODEL LAW arts. 8, 10.

¹³⁴ U.C.C. § 4A-402(c); U.N. MODEL LAW art. 14.

¹³⁵ U.C.C. § 4A-501; U.N. MODEL LAW art. 4.

¹³⁶ It is beyond the scope of this Article to evaluate the extent to which each of these rules satisfies the interests of the relevant financial market players. This critical analysis is performed in a companion article. See Bhala, *supra* note 8.

¹³⁷ TODD G. BUCHHOLZ, NEW IDEAS FROM DEAD ECONOMISTS: AN INTRODUCTION TO MODERN ECONOMIC THOUGHT 21-22 (1990) (quoting ADAM SMITH, 1 AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS 456 (R.H. Campbell et al.

complete financial market deals more quickly, at lower cost, with greater certainty, and with less risk, then the players' interests are met. In turn, the players will be able to engage in a greater number of transactions in a shorter period of time, and the average transaction will be larger. As a result, the financial markets will grow and prosper and funds transfer law will act—at best—as a visible hand promoting this end or—at worst—will not stand in the way of increased financial market activity. Thus, the first step to understanding the importance of funds transfer law must begin with an analysis of each interest group.

B. Moving within the Inverted Pyramid

Movement from the top through the third level deliberately corresponds with the chronology of events in a financial market transaction.¹³⁸ First, the traders agree to a deal, which generates a payment obligation. If foreign exchange is traded, then each party is obligated to render timely delivery of currency to the other. If the deal is the purchase of a short-term money market instrument or a security, then the payment obligation is the timely delivery of the required consideration. If the deal is an interbank loan, then the payment obligations are effectively the disbursement of the loan and its subsequent repayment.

Second, the transaction is cleared and arrangements are made for the settlement of the payment obligations associated with the trade. These operations comprise level two of the inverted pyramid. Interestingly, the players at the top and second level are employed by the same financial institution (a commercial or investment bank), and that institution is a participant in one or more funds transfer systems.

Through a funds transfer, payment obligations are settled. The funds transfer is conducted via a particular funds transfer system such as Fedwire or CHIPS. This is the third level of the inverted pyramid.

Although the players and systems do not necessarily have the same interests regarding a funds transfer law, their interests tend to be broadly consistent. Funds transfer law should thus support all three levels above it in the inverted pyramid.

eds., 1976)).

¹³⁸ See U.S. GEN. ACCOUNTING OFFICE, CLEARANCE AND SETTLEMENT REFORM: THE STOCK, OPTIONS, AND FUTURES MARKETS ARE STILL AT RISK 10-14 (Apr. 1990) (Pub. GAO/GGD-90-33) [hereinafter 1990 GAO REPORT].

1. *The Traders' Interests: High Speed and Low Cost*

The players at the top level are the traders employed by commercial banks, securities firms, and other financial institutions.¹³⁹ Theirs is a twenty-four-hour world of telephones, computer terminals, and portable electronic quotation devices for which a funds transfer law that ensures high speed transfers at low cost is needed. Traders buy and sell foreign exchange, stocks, bonds, commercial paper, bankers' acceptances, and Fed funds, engage in repos and reverse repos, and place and receive certificates of deposit and Eurodollar deposits.

These financial market deals give rise to a payment obligation of the buyer to the seller, which is settled through a funds transfer.¹⁴⁰ There-

¹³⁹ The term "traders" is used to focus attention on principals trading for the account of their institutions. Brokers are involved (e.g., in obtaining a counterparty for a seller of Malaysian ringgit or a counterparty for a buyer of stock in a Thai company), but they add a layer of factual complexity (and transaction costs) that does not alter the significance of funds transfer law. For a general introduction to the role of the trader, see DAVID M. WEISS, *TRADERS: THE JOBS, THE PRODUCTS, THE MARKETS* (1990).

¹⁴⁰ See *supra* notes 6-35 and accompanying text. There are two caveats to this discussion. First, not every payment obligation in every financial instrument is settled by a funds transfer. To take an extreme case, an investor buying stock on the Bombay Stock Exchange does not pay for its shares with a funds transfer. However, funds transfer law must anticipate the potential interest among financial transactors to settle their payment obligations over the wires. The recent same-day funds settlement proposal of the National Securities Clearing Corporation ("NSCC") and the Depository Trust Company ("DTC"), *infra* note 146 and accompanying text, is a case in point. A less extreme example is trading in derivative instruments. Typically, futures contracts are settled by offsetting transactions. ROBERT E. FINK & ROBERT B. FEDUNIAK, *FUTURES TRADING: CONCEPTS AND STRATEGIES* 48 (1988).

Second, not every payment obligation arising from a securities purchase and settled electronically is a funds transfer. Purchases of U.S. government securities are paid for through electronic means, but the payments are not governed by funds transfer law. Transactions in these securities are conducted through the Federal Reserve's book-entry system on a delivery-versus-payment ("DVP") basis. Payment for a purchased Treasury security is made by debit entry to an account maintained at a Federal Reserve Bank and, simultaneously, the purchaser's securities account is credited for the amount of the securities. The payment side of these book-entry securities transactions is not governed by U.C.C. Article 4A or Regulation J, in part because the payment instructions are not "payment orders" under the relevant operating circular. See OPERATING CIRCULAR NO. 8, *supra* note 112, at ¶ 5 (listing the type codes for messages that are "payment orders"). Conceptually, the payments side of a DVP transaction is a debit transfer insofar as the securities seller (the payee) is instructing payment. Debit transfers are not governed by U.C.C. Article 4A. See Prefatory Note, *supra* note 48, at ii; U.C.C. § 4A-103(a)(1) (defining "payment order" to exclude debit transfers).

fore, a funds transfer typically bears an integral relationship not to a small-dollar retail or consumer transaction in goods—these are usually paid for with cash, check, credit or debit card—but rather to a large-dollar financial market deal.¹⁴¹ Payment obligations arising from foreign exchange transactions are customarily settled by funds transfer.¹⁴² Similarly, trading in money market instruments, including certificates of deposit, bankers' acceptances, and some municipal government securities involves funds transfers. This is because "[b]roker-dealers instruct their respective clearing banks to deliver the appropriate securities physically and make payment, usually through Fedwire."¹⁴³ Purchases and sales of corporate securities—stocks and bonds—are cleared and settled through a clearing organization, such as the National Securities Clearing Corporation, and an associated depository that retains physical custody of the securities, such as the Depository Trust Company.¹⁴⁴ Payments for many of these securities are made in next-day clearing house funds.¹⁴⁵ However, payments for some corporate securities, such as commercial paper, are made by funds transfer and efforts are already underway to expand the types of securities for which payment is made by funds transfer.¹⁴⁶

¹⁴¹ Prefatory Note, *supra* note 48, at i ("Payments that are covered by Article 4A are overwhelmingly between business or financial institutions.").

¹⁴² See GRABBE, *supra* note 21, at 75-76. Buyers and sellers of foreign currency maintain accounts with each other or with correspondent banks for purposes of receiving and delivering foreign exchange. *Id.* To be a player in the foreign exchange market, maintaining an account in every currency in which trading is conducted is necessary.

¹⁴³ PAYMENT SYSTEMS, *supra* note 98, at 225.

¹⁴⁴ *Id.* at 226; see *supra* notes 6-35 and accompanying text.

¹⁴⁵ PAYMENT SYSTEMS, *supra* note 98, at 226.

¹⁴⁶ For instance, the current DTC/NSCC system for settling transactions in common stocks, preferred stocks, corporate and municipal bonds, unit investment trusts, and warrants is a next-day funds settlement system. Memorandum from the Depository Trust Company and National Securities Clearing Corporation to Users and Interested Parties Re: Same-Day Funds Settlement System Conversion, at 5 (July 26, 1993) (on file with author). An NSCC member or DTC participant that owes money to NSCC or DTC as a result of a securities transaction pays by certified check. If NSCC or DTC owes money, payment is made by draft. The certified checks and drafts clear in one day. *Id.* at 5-6. NSCC and DTC propose to switch to a same-day funds settlement system whereby all payments to or from members and participants arising from securities transactions would be made by funds transfers through Fedwire. *Id.* at 1, 5-6. Such a "same-day funds settlement system" currently is offered by NSCC and DTC only for commercial paper trades. *Id.* at 5.

Two factors justify the traders' interest in a funds transfer law that promotes high speed transfers: minimizing credit risk and maximizing funds availability. "Funds transfer services are used primarily by depository institutions and their corporate customers to make very large time-critical dollar payments."¹⁴⁷ With respect to credit risk, unless delivery is made against payment, one party assumes the risk of default of the counterparty. Where delivery of foreign exchange or a financial instrument occurs before payment, the seller-payee assumes the credit risk of the buyer. The more quickly payment is received, the shorter the credit risk exposure. The failure of Herstatt after U.S. dollars were credited to its account, but before it had delivered foreign exchange to its counterparty, illustrates that exposure for even a few hours entails potentially disastrous consequences.¹⁴⁸

With regard to funds availability, delays in settling payment obligations impede rapid responses to changing market conditions and may be costly.¹⁴⁹ Traders are not long-term investors. Their positions

¹⁴⁷ PAYMENT SYSTEMS, *supra* note 98, at 219-20.

¹⁴⁸ See *Delbrueck & Co. v. Manufacturers Hanover Trust Co.*, 609 F.2d 1047, 1049-50 (2d Cir. 1979); see also *supra* notes 73-87 and accompanying text (discussing *Delbrueck*). Indeed, the immediate past President of the Federal Reserve Bank of New York highlighted intra-day credit risks and argued that the payments system is a means of extending credit, akin to traditional bank lending:

An economic system and a financial system can only be as efficient and as safe as its payments system. In turn, the efficiency and safety of the payments system rests importantly on the extent to which the maker or recipient of a payment for a good, a service, or a financial transaction has confidence that the payment can and will be honored since this process—by its very nature—entails timing gaps of varying lengths. In turn, these timing gaps necessarily imply that the process of making and receiving payment is the process of extending credit, even if that credit is extended only for a day or an hour. In short, the payments system as we know it today is a credit system.

PATRIKIS, BAXTER & BHALA, *supra* note 6, at 211 (quoting E. GERALD CORRIGAN, *FINANCIAL MARKET STRUCTURE: A LONGER VIEW* (1987)). Corrigan's point is that parties to financial transactions send and receive payments instructions for millions or billions of dollars and are at risk when there is a gap between funds paid out and funds received. If payment obligations are not satisfied on time, then the chain of consequent defaults can cause the financial system to crumble. The parties are more likely to proceed in spite of these gaps if they have confidence in the health of the payments system, of which the applicable legal framework is a significant determinant.

¹⁴⁹ Overdraft charges are one such cost. If a trader has committed funds obtained from deal 1 to deal 2 before receiving final settlement in deal 1, then an overdraft fee may be charged. For the first time the Federal Reserve has implemented such charges on an intra-

in foreign exchange, securities, or money-market instruments turn over rapidly as new profitable trading opportunities are seized. Thus, funds from a previous transaction must be available for deployment in a new transaction.

The following covered interest arbitrage transaction illustrates the point.¹⁵⁰ Suppose on Day One a foreign exchange trader observes that short-term interest rates in India are higher than those in the United States and that the discount of the thirty-day forward¹⁵¹ rupee/dollar rate relative to the spot rupee/dollar rate is insufficient to eliminate a profitable interest arbitrage opportunity. Accordingly, on Day One she buys rupees for dollars in the spot market, invests the rupees for thirty days in India, and buys dollars for rupees in the forward market. She must have confidence that the rupees will be delivered on the spot value date, which would be Day Three so that they can be invested immediately for one month, at the end of which the forward contract matures and the rupees must be converted back into dollars. The arbitrage opportunity depends on compliance with exact delivery schedules.¹⁵²

What rules in a funds transfer statute facilitate high speed transfers? A same-day settlement convention, coupled with rules that facilitate high-volume, electronic processing of payment orders, are critical elements of the law in this regard.

The same-day funds settlement convention is found in U.C.C. Article 4A and indirectly in the U.N. Model Law. Section 4A-301(b) of the Uniform Commercial Code indicates that unless a payment order states otherwise, the day on which a receiving bank must execute the order is

day basis. Modification of the Payments System Risk Reduction Program; Daylight Overdraft Pricing, 57 Fed. Reg. 47,084 (Oct. 14, 1992) (effective Apr. 14, 1994); Modification of the Payments System Risk Reduction Program; Measurement of Daylight Overdrafts, 57 Fed. Reg. 47,093 (Oct. 14, 1992) (effective Oct. 14, 1993).

¹⁵⁰ See generally GUNTER DUFEY & IAN H. GIDDY, *THE INTERNATIONAL MONEY MARKET* 61-71 (1978) (studying the relationship between foreign exchange markets and Eurocurrency interest rates).

¹⁵¹ A forward foreign exchange contract is virtually identical to a spot foreign contract, *supra* note 36, except that the date fixed for delivery of the underlying currencies is more than two days (and generally between one week and two years) from the date of the contract.

¹⁵² Note that while exchange rates are notorious for quick and dramatic movements, the need for rapid delivery is not premised on such movements. The rate at which a spot or forward deal is made is established on the trade date, not the value date. DUFEY & GIDDY, *supra* note 150, at 63.

the day that the order is received.¹⁵³ Article Eleven of the U.N. Model Law does not strictly require the receiving bank to execute a payment order on the day of receipt.¹⁵⁴ However, if it executes on a later date, then it must give value as of the date of receipt.¹⁵⁵ In practice, this is likely to mean that a receiving bank that receives an order on Day One but executes on Day Two must pass one day's interest on to the next party in the funds transfer chain.

Rules that encourage rapid payment order processing are more pronounced in U.C.C. Article 4A than the U.N. Model Law. Whereas Article 4A unequivocally relieves the duty of a receiving bank to manually check a payment order for discrepancies between account names (described in words) and account numbers (described in figures), the U.N. Model Law does not provide this relief.¹⁵⁶ The nature and scope of a receiving bank's duties with respect to handling payment orders are less clear under the U.N. Model Law than under U.C.C. Article 4A. Accordingly, a receiving bank is more likely to incur liability for wrongfully processing a payment order that contains a discrepancy if the bank is subject to the U.N. Model Law. This is at odds with the traders' interest in high-speed funds transfers, as receiving banks may be forced to manually check for discrepancies.

However, a fast payments mechanism is not enough for the traders, as they need a low-cost mechanism as well. The price of settling a transaction can wipe out the slim profit margin on which the trader sometimes operates. The spread between a purchase and subsequent sale of ten million pounds against U.S. dollars may be only one-tenth of a

¹⁵³ U.C.C. § 4A-301(b) (1990).

¹⁵⁴ U.N. MODEL LAW art. 11(1).

¹⁵⁵ *Id.* art. 11(2).

¹⁵⁶ Compare U.C.C. §§ 4A-207(b)(1), 4A-208(b)(1) (beneficiary's bank or receiving bank may rely on the account number, as there is no duty to determine whether name and number match) with U.N. MODEL LAW arts. 8, 10(4) (requiring notice when discrepancies are found by receiving bank or beneficiary's bank). Article 8 of the U.N. Model Law, unlike U.C.C. § 4A-208(b)(1), makes no reference to misdescriptions of an intermediary bank or beneficiary's bank. Thus, a receiving bank operating under U.C.C. § 4A-208(b)(1) clearly has no duty to detect misdescriptions. Article 8(4) of the U.N. Model Law, by contrast, speaks of insufficient information in a payment order, but does not plainly spell out the bank's duties in detecting discrepancies. Article 10(4) indicates that when a beneficiary's bank detects an inconsistency, it must take corrective measures, but it does not indicate whether the bank has a duty to check for inconsistencies. In contrast, U.C.C. § 4A-207(b)(1) does not impose such a duty.

cent, and the spread between a sale and subsequent purchase of commercial paper may be only one-half of a basis point.¹⁵⁷

Liability rules in funds transfer statutes address the traders' interest in low cost. Legal liabilities are impediments in that the more onerous the liabilities are on banks which provide funds transfer services, the more likely that banks will increase the fees for these services.¹⁵⁸ Increased fees, in turn, represent increased transaction costs. U.C.C. Article 4A is more successful at delimiting the liabilities of receiving banks. Consequential damages are generally not recoverable unless the bank agrees in writing to assume such liability.¹⁵⁹ In contrast, the U.N. Model Law allows for any remedies provided by any applicable law where a receiving bank fails to execute a payment order or improperly executes the order, if the bank acted with specific intent to cause loss or acted recklessly and with knowledge that loss would result.¹⁶⁰

2. The Settlements Department's Interest: Certainty Manifested in Four Ways

Traders communicate the terms of their deal, including payment instructions, to their respective settlements departments (commonly referred to as "back offices"), which then confirm the terms and conditions of the deal. For example, the practice in the spot and forward foreign exchange markets and the over-the-counter foreign exchange options market is that the deal is negotiated and concluded by telephone and confirmed in writing by the back offices of the trading parties.¹⁶¹

¹⁵⁷ One basis point is 0.01 percent. NORMAN D. MOORE, *DICTIONARY OF BUSINESS FINANCE & INVESTMENT* 35 (lib. ed. 1975).

¹⁵⁸ Theoretically, this is not the only possible economic response. It is conceivable that competition could cause banks to deliver the same service at the same cost with lower risk.

¹⁵⁹ U.C.C. § 4A-305(c).

¹⁶⁰ U.N. MODEL LAW art. 18.

¹⁶¹ See, e.g., Raj Bhala, Preliminary Summary of Findings of Survey on Foreign Exchange Trading Practices (Jan. 26, 1993) (on file with author) (summarizing foreign exchange trading practices for nine European countries, Japan, and Australia); Lawyers Group of the Foreign Exchange Committee, International Foreign Exchange Master Agreement (1993) (on file with author) (used for spot and forward foreign exchange contracts); British Bankers' Association and Foreign Exchange Committee, International Currency Options Market (ICOM) Master Agreement and Guide (Apr. 1992) [hereinafter ICOM Agreement].

Without a routine system for clearing¹⁶² and settling¹⁶³ each trade, trading activity would grind to a halt. The back office of the bank that employs the trader formulates and executes clearing and settlement

¹⁶² Clearing refers to "the process whereby the trades are compared, matched, and confirmed." Charles W. Mooney, Jr., *Beyond Negotiability: A New Model for Transfer and Pledge of Interests in Securities Controlled by Intermediaries*, 12 CARDOZO L. REV. 305, 316 (1990). It involves "capturing the trade data, comparing the buyer's and seller's version of the data, and guaranteeing that the trade will settle once the data match." 1990 GAO REPORT, *supra* note 138, at 10.

¹⁶³ Settlement "is the process whereby parties to trades fulfill their obligations thereunder—generally a 'delivery' of the securities [or, in the case of a foreign exchange deal, the appropriate foreign exchange] by the seller and payment of the agreed price by the buyer." Mooney, *supra* note 162, at 316-17 (citations omitted). Settlement involves the exchange of funds and/or financial instruments between the trading parties: "Those who owe money and/or financial instruments make payments or deliveries. Those who are owed money and/or securities receive the funds or securities." 1990 GAO REPORT, *supra* note 138, at 10. Using the term "settlement" in the second level of the inverted pyramid raises the issue of whether there is an overlap between the second and third levels of the pyramid. The second level involves clearing, settlement, and custody matters. The focus is on confirming a transaction, payment instructions, and the transfer of ownership claims to financial instruments. In contrast, the third level involves funds transfers—the focus is squarely on the electronic transfer of bank credit, but this level pertains to a specific means of settling a payment obligation (a funds transfer) and a specific funds transfer system (Fedwire or CHIPS). "Settlement" as used in the context of the second level is generic. It includes payment methods such as cash, negotiable instrument, letter of credit, and funds transfer, which are all conceivable means of settlement, even though funds transfers may be the most commonly used method and/or the most significant in terms of the volume of financial transactions settled. For instance, payment for some securities, such as book-entry U.S. Treasury securities, is made through delivery-versus-payment. In other words, the electronic delivery of the securities and the electronic transfer of funds occur simultaneously. Alternatively, other securities, such as some of those that are cleared through the NSCC and held in custody at the DTC, may be paid for by cashier's check. At the second level of the pyramid there is no distinction between these alternatives. By contrast, at the third level of the pyramid, only one method of settlement and the law that governs it is seen: a funds transfer.

The justification for distinguishing the second and third levels in this manner is, in part, a practical one. Funds transfers, in terms of the volume of payments transactions and amount of dollars, are enormously more significant than other means of payment. See PAYMENT SYSTEMS, *supra* note 98, at 215-25. Everyday, payment obligations arising from millions of transactions representing billions of dollars are satisfied through funds transfers. Anecdotal evidence also explains the distinction. Considerable effort is expended by financial institution supervisors, namely the Federal Reserve, on matters pertaining to funds transfers. The important role played by Federal Reserve representatives in drafting U.C.C. Article 4A and the U.N. Model Law illustrates the perceived importance of funds transfer law. See U.C.C. § 4A-102 cmt. (1990) (presenting a general drafting history of Article 4A).

processes.¹⁶⁴ Because these must accommodate with precision a high volume of trades in short periods, certainty is valued in a funds transfer law in four ways: payment order processing, finality of payment, discharge, and interloper fraud prevention.¹⁶⁵ Remember that in each instance, the back office (or more correctly, the financial institution of which the back office is a part) acts as a receiving bank in a funds transfer.¹⁶⁶

The traders' back office demands certainty or, more specifically, routine and predictability. To accommodate growth in trading activity, the back office must be capable of processing a large number of instructions relating to the payment obligations arising from large financial transactions in a short time period. Every time a trader buys foreign exchange, short-term money market instruments, or corporate securities, or makes or repays an interbank loan, the trader instructs her back office to

¹⁶⁴ More generally, the players at the second level of the inverted pyramid are clearing, settlement, and custodial facilities of banks. They range from the back office of the trader's financial institution to sophisticated clearing, settlement, and depository facilities in which several institutions participate. Because the focus of this Article is on settling payment obligations and not on the mechanisms for transferring ownership claims to specific financial instruments or on the custody of those instruments, the sophisticated facilities are not highlighted. See generally EGON GUTTMAN, *MODERN SECURITIES TRANSFERS* (3d ed. 1989) (discussing all aspects of the law of securities transfers); Charles W. Mooney, Jr., *Property, Credit, and Regulation Meet Information Technology: Clearance and Settlement in the Securities Markets*, 55 LAW & CONTEMP. PROBS. 131, 135-39 (1992) (describing the clearing and settlement process in U.S. securities markets). Among the principal U.S. clearing and settlement systems for financial instruments are the NSCC (corporate equities), the Options Clearing Corporation (options contracts), and the Board of Trade Clearing Corporation (futures contracts). See 1990 GAO REPORT, *supra* note 138, at 12-14 (stock, options, and futures transactions). The Federal Reserve's book-entry system is the clearing, settlement, and custodial facility for U.S. Treasury obligations. See FED. RESERVE BANK OF N.Y., *FEDPOINTS 5: BOOK-ENTRY PROCEDURE* (Oct. 1986). Among the principal offshore facilities are FX NET (through which participants bilaterally net their spot and forward foreign exchange trades for the same currency and value date) and Euroclear and Cedel (the depository and settlement organizations for the long-term international bond market and the short-term Euro-note market). See PAYMENT SYSTEMS IN EC MEMBER STATES, *supra* note 125, at 294-95.

¹⁶⁵ See *infra* notes 167-83 and accompanying text. This is not to suggest that the value of certainty is unimportant in laws governing other payment mechanisms. Indeed, U.C.C. § 1-102 (1990) suggests that the U.C.C. should be "liberally construed and applied to promote its underlying purposes and policies." *Id.* Certainty is a relevant consideration of interested parties in check processing. See, e.g., *id.* §§ 4-301 to 4-303 (relating to check collection and payor banks). However, because funds transfers are used to settle large financial transactions in a short period of time, certainty takes on distinct manifestations and meanings in the context of funds transfers.

¹⁶⁶ See *supra* note 71 (defining "receiving bank").

generate a payment order to send funds to the trading counterparty. Every time the trader sells in one of these markets or receives repayment of an interbank loan, the back office is instructed to receive funds from the trading counterparty. In addition, the back office may be an intermediary between two trading parties neither of which is employed by the same institution. For example, the Bank of Baroda in India may buy U.S. dollars in exchange for Indian rupees through Westpac Bank in Australia in a spot foreign exchange transaction and the transfer of dollars may be routed through Security Pacific Bank in Los Angeles ("SecPac"). While no trader at SecPac is involved in the dollar/rupee deal, SecPac's back office, or funds transfer department, is involved in facilitating its execution. In all of these cases, the back office must efficiently handle the mishaps that sometimes occur in a funds transfer, such as a misdescription of a party in a payment order or an incomplete funds transfer.

To properly route a payment order, a receiving bank must know the party in the funds transfer chain to which the order should be sent. This party, either an intermediary bank,¹⁶⁷ the beneficiary's bank,¹⁶⁸ or the beneficiary,¹⁶⁹ is frequently described in the payment order in two ways: by account name (described in words) and account number (described in figures). The sender of the order might describe the party inconsistently. For example, the sender may tell the receiving bank to send the order to "Citibank" whose account number is 12345 when, in fact, Citibank's number is 12346.

U.C.C. Article 4A allows a receiving bank to rely on the numerical description of an intermediary bank, the beneficiary's bank, and/or the beneficiary contained in a payment order when routing the order, even if there is an inconsistent description in words provided the receiving bank is unaware of the inconsistency.¹⁷⁰ Moreover, the receiving bank has no duty to check for inconsistencies.¹⁷¹ In effect, the back office can process payment orders based on account numbers without worrying about potential inconsistencies. The U.N. Model Law is far less clear on these points. It does not unequivocally remove the burden of checking for

¹⁶⁷ See *supra* note 104 (defining "intermediary bank").

¹⁶⁸ The "beneficiary's bank" is "the bank identified in a payment order in which an account of the beneficiary is to be credited pursuant to the order." U.C.C. § 4A-103(a)(3); see *supra* notes 100, 113 and accompanying text.

¹⁶⁹ See *supra* note 50 (defining "beneficiary").

¹⁷⁰ *Id.* § 4A-207(b)(1) (concerning an inconsistency in a payment order between the account name and number describing the beneficiary); *id.* § 4A-208(b)(1) (concerning an inconsistency in a payment order between the account name and number describing the intermediary bank or beneficiary's bank where the sender of the order is a bank).

¹⁷¹ U.C.C. § 4A-208(b)(1).

inconsistencies from receiving banks, nor does it clearly state that they are entitled to rely on account numbers instead of account names in payment orders.¹⁷² Accordingly, in this area, the U.N. Model Law does not afford the same degree of certainty to receiving banks.

Processing payment orders is not the only context in which certainty is valued. When the back office is receiving funds on behalf of a trader or the bank, finality of payment is important—such as when a trader informs her back office that funds will be sent by a counterparty as a result of a sale by the trader to the counterparty of foreign exchange, short-term money market instruments, or corporate securities. Finality of payment is also important when the trader expects to receive repayment of a short-term interbank loan previously extended to the counterparty. The back office, as well as the trader or bank, must know when funds credited to an account maintained or used by the trader or her bank are final and irrevocable, because only then are the funds available without reservation.

The receiver finality rule of U.C.C. Article 4A directly addresses this problem. Once the beneficiary's bank has paid the beneficiary, the payment is final. Payment by the beneficiary's bank to the beneficiary cannot be made provisionally or subject to a right to recover payment from the beneficiary.¹⁷³ Payment occurs when the beneficiary's bank credits the beneficiary's bank account and notifies the beneficiary of the right to withdraw the credit.¹⁷⁴ In stark contrast, the U.N. Model Law does not contain a receiver finality rule. Therefore, a back office receiving funds in a funds transfer subject to the U.N. Model Law is not provided with certainty on the matter of finality of payment.

The need for certainty is also manifest when discharge becomes an issue during the transfer of funds by the back office. The back office needs to know when the payment obligation that spawns the funds transfer is discharged. Only then does liability for payment based on the underlying financial contract end. This concern will arise when, for example, a trader instructs the back office to pay funds to a counterparty as a result of purchasing foreign exchange, a short-term money market instrument, or corporate securities from the counterparty, or when the trader is extending or repaying a short-term interbank obligation.

¹⁷² See U.N. MODEL LAW arts. 8 (containing obligation of a receiving bank other than the beneficiary's bank); *id.* art. 10 (containing obligations of beneficiary's bank).

¹⁷³ U.C.C. § 4A-405(c).

¹⁷⁴ *Id.* § 4A-405(a). Payment also occurs when the beneficiary's bank credits the account of the beneficiary and then "lawfully applies the credit to a debt of the beneficiary," *id.*, or otherwise makes funds available to the beneficiary. *Id.*

Both the U.C.C. and the U.N. Model Law contain a rule on discharge, and the rules are substantively similar.¹⁷⁵ Upon acceptance of a payment order by the beneficiary's bank on behalf of the beneficiary, the funds transfer is completed¹⁷⁶ and the originator's underlying obligation to pay funds to the beneficiary is discharged. Acceptance by the beneficiary's bank and payment to the beneficiary are closely linked in that payment occurs when the bank accepts an order for the benefit of the beneficiary.¹⁷⁷

The converse to the discharge rules is the money-back guarantee.¹⁷⁸ There must be an answer to the problem of incomplete transfers, which occur when the beneficiary's bank does not, for whatever reason, accept a payment order on behalf of the beneficiary. Both statutes attempt to address the matter by assuring each sender in the funds transfer chain that it will obtain a refund, with interest, of any payment made for a payment order.¹⁷⁹

The final manifestation of the back office's need for certainty is the prevention of interloper fraud. This arises when the back office is instructed to send a payment order on behalf of a trader as a result of a financial market transaction entered into by the trader. A threat exists that a wrongdoer will instruct the back office to issue a payment order in the name of a trader or the trader's institution, and the wrongdoer might be an employee of the institution. The back office must be able to discern *bona fide* payment orders from unauthorized and fraudulent orders.

The U.C.C. and the U.N. Model Law rules on interloper fraud should be seen in the light of the interests of the back office.¹⁸⁰ Both statutes implement the concept of a "commercially reasonable"¹⁸¹ security procedure that is designed to test the authenticity of payment orders received.¹⁸² The general rule is that if a receiving bank and sender agree to such a procedure and the bank follows it, then the sender is liable for

¹⁷⁵ U.C.C. § 4A-406; U.N. MODEL LAW art. 19.

¹⁷⁶ U.C.C. § 4A-104(a); U.N. MODEL LAW art. 19(1).

¹⁷⁷ U.C.C. § 4A-406(a); U.N. MODEL LAW art. 9(1)(d).

¹⁷⁸ U.C.C. § 4A-402(d); U.N. MODEL LAW art. 14(1).

¹⁷⁹ A limited exception applies in cases where a sender designated the use of a particular intermediary bank that subsequently failed. Such a sender is not entitled to the money-back guarantee. It bears the risk of loss arising from the collapse of a bank that it selected. U.C.C. § 4A-402(e); U.N. MODEL LAW art. 14(3).

¹⁸⁰ U.C.C. §§ 4A-201 to 4A-203; U.N. MODEL LAW art. 5. These intricate rules are explained in detail in PATRIKIS, BAXTER & BHALA, *supra* note 6, at 39-51 (U.C.C. art. 4A rules); *id.* at 272-75 (U.N. Model Law rules).

¹⁸¹ U.N. MODEL LAW art. 5(2)(a).

¹⁸² U.C.C. §§ 4A-201, 4A-203; U.N. MODEL LAW art. 5.

any payment order issued in its name and accepted in accordance with the procedure, even if the order was sent by a wrongdoer.¹⁸³ Because the procedure must be "commercially reasonable" in order to absolve the receiving bank of liability, there is some uncertainty as to whether a court would hold that a particular procedure meets this standard. However, industry custom and practice (i.e., the nature of the security procedures used by other receiving banks) may afford greater certainty to receiving banks.

3. *The Funds Transfer System's Interest: Reducing Systemic Risk*

The vast sums transferred daily over the principal funds transfer networks are associated with wholesale transactions among sophisticated financial institutions.¹⁸⁴ The existence and importance of funds transfer systems derive largely from the use of funds transfers as a method of payment in a broad range of domestic and international financial market transactions.¹⁸⁵ After the trader has entered into a financial deal and communicated a payment instruction to her back office, that office sends or receives payment orders from other banks via a particular funds transfer system. If U.S. dollars are transferred, then the Fedwire or CHIPS systems will most likely be used.¹⁸⁶

Membership and participation in these systems is comprised of many of the same financial institutions, namely, banks, that employ traders and settlements personnel.¹⁸⁷ The member-participants have a critical collective interest: reducing systemic risk. Specifically, the credit risk

¹⁸³ U.C.C. § 4A-203; U.N. MODEL LAW art. 5.

¹⁸⁴ See *supra* notes 6-35 and accompanying text.

¹⁸⁵ See *supra* notes 6-35, 45-111 and accompanying text. With respect to the two principal U.S. funds transfer systems:

Fedwire is used principally for domestic payments, while over 70 percent of CHIPS payments are dollar-denominated international payments. For example, Fedwire is used for *interbank overnight loans*, interbank settlement transactions, corporate-to-corporate payments, and settlement of *security transactions*. In contrast, CHIPS is used to settle *foreign exchange transactions* and *Eurodollar placements*.

PAYMENT SYSTEMS, *supra* note 98, at 220 (emphasis added).

¹⁸⁶ See *supra* notes 11-12 and accompanying text.

¹⁸⁷ It should be noted that securities firms, which obviously have trading and settlements functions, do not have direct access to Fedwire (i.e., they do not participate in Fedwire) and very few are CHIPS participants. See *infra* note 188 (discussing access to Fedwire).

associated with one participant should not become a systemic risk problem. Participants in a funds transfer system—commercial banks and other depository institutions¹⁸⁸—are legitimately concerned about the ability of each net debtor participant in the system to settle its payment obligations at or before the end of the funds transfer business day.¹⁸⁹ If one or a few net debtors fail, then this should not cause liquidity problems for, or insolvencies of, other participants:

The increased interdependence of the securities markets and the various payment systems, coupled with the globalization of the securities markets, raises the issue of the growing danger of systemic risk in payment systems. This is the risk that one or more participants in a payment system will be unable to meet their obligations when due and thus cause other participants to be subsequently unable to meet theirs. Of the various kinds of risk to which banks may become exposed through the accelerated use of the new technology, it is this systemic risk that is the greatest cause for concern.¹⁹⁰

Settlement guarantees are one way of assuring that the system closes each day with all creditors' payments claims satisfied. Through a payments netting scheme,¹⁹¹ a second technique, the risk of a settlement

¹⁸⁸ Under the Monetary Control Act of 1980, "depository institutions" ("DIs") are allowed access to Fedwire. 12 U.S.C. § 248(o) (1980). There are thousands of DIs with on-line direct computer access to Fedwire and many smaller DIs with off-line access. See PATRIKIS, BAXTER & BHALA, *supra* note 6, at 11, 184. There are 122 CHIPS participants, including many of the world's largest banks. *Id.* at 11; PAYMENT SYSTEMS, *supra* note 98, at 224.

¹⁸⁹ The "funds transfer business day" of a receiving bank is the part of the day during which it is open to receive, process, and transmit payment orders, as well as cancellations and amendments thereof. U.C.C. § 4A-105(a)(4). CHIPS is a same-day funds settlement system where settlement occurs at the end of the day on the books of the Federal Reserve Bank of New York on the basis of multilateral netting of payment obligations. See *supra* note 12. Multilateral netting refers to "a netting system in which direct participants settle only their net net positions resulting from the clearing process." PAYMENT SYSTEMS IN EC MEMBER STATES, *supra* note 125, at 326. Fedwire is a same-day funds settlement system where settlement occurs instantaneously. See *supra* note 11. A net debtor participant in a system is one who, as a result of payment orders sent and received during the day that are netted on a bilateral or multilateral basis, has a net payment obligation to its counterparty (under a bilateral netting arrangement) or to the system (under a multilateral netting arrangement). See PATRIKIS, BAXTER & BHALA, *supra* note 6, parts III-IV (explaining CHIPS and Fedwire operations); see also LAMPALUSSY REPORT, *supra* note 84 (reviewing netting schemes).

¹⁹⁰ PAYMENT SYSTEMS, *supra* note 98, at 2-3.

¹⁹¹ Netting is a complicated and rapidly evolving topic. The single most important

failure of one participant in a funds transfer system causing a chain reaction of liquidity crises and failures of other participants is reduced, assuming that there is receiver finality.¹⁹² Players in the financial markets who understand that they can net payment obligations on a bilateral or multilateral basis with their counterparties will appreciate that larger volumes of trading activity and larger transaction values can be safely accommodated. The risk of non-payment by a counterparty will not rise in proportion to the credit exposure to that counterparty if a netting scheme is implemented. Credit exposure will depend on the number of trades and the amount of each trade executed with the counterparty. The number of settlement transactions arising from the trades will be reduced by fifty percent if a bilateral netting scheme is implemented¹⁹³ and by eighty percent if multilateral netting is used.¹⁹⁴ Settlement risk is reduced because the number and amount of funds transfers is reduced through netting. In sum, assuming financial market players operate rationally and with substantial information, they are likely to internalize reductions in systemic risk.¹⁹⁵ In turn, the macroeconomic purpose of fostering growth and development in financial markets will be served.

For pragmatic reasons, systemic risk reduction is shared by the bank regulators, principally the Federal Reserve, that examine the participants and the system. Regulators are a hidden interest group in the third level of the pyramid. They understandably want to avoid a major settlement failure that would necessitate a bail out. If a participant cannot settle a large net debit position, then the ripple effect of this failure could weaken that participant's counterparties, who were relying on the settlement to fund their payment obligations. As the "lender of last resort," the Federal Reserve could be called upon to provide liquidity to the net debtor participant and/or its counterparties to limit the systemic repercussions.¹⁹⁶

source of information and guidance for central bankers and other policy makers remains the LAMFALUSSY REPORT, *supra* note 84.

¹⁹² In other words, assuming that net settlement payments are final.

¹⁹³ *Id.* ¶ 2.4, at 11.

¹⁹⁴ *Id.* ¶ 2.12, at 13.

¹⁹⁵ Assume that an individual player that has sold foreign exchange or a financial instrument observes that receipt of final payment by funds transfer is essentially guaranteed because of abnormal settlement rules such as those in CHIPS Rule 13. See CHIPS RULES, *supra* note 12, at 4-11. From that player's perspective, the guarantee is internalized in that it becomes an incentive to choose a funds transfer over other means of payment. See generally Coleman, *supra* note 54, at 221, 231-32 (defining external effects and externalities).

¹⁹⁶ As the lender of last resort, as well as a regulator of many CHIPS and all Fedwire

Financial institutions that cooperate to form and participate in a funds transfer system lay down rules for entry and participation.¹⁹⁷ The relationship between these rules and funds transfer law is of critical interest to the participants. First, funds transfer law must recognize the existence of funds transfer systems and their rules. Funds transfer legislation that neglects these systems and rules ignores the reality of the funds transfer market. Second, the law should address what Professor Scott has dubbed the "third party problem"¹⁹⁸—to what extent, if any, can system rules bind non-participants? Third, and most important, funds transfer law should support the efforts of system participants to minimize systemic risk by allowing system rules to vary inconsistent provisions in the law. For instance, CHIPS participants have agreed to net payment obligations on a multilateral basis and to provide collateral and settlement guarantees to minimize systemic risk.¹⁹⁹ However, these privately negotiated rules are useful only if they are not undermined by specific rules in U.C.C. Article 4A or the U.N. Model Law. A rigid receiver finality rule, which back offices might favor, might discourage the development of abnormal settlement procedures. Similarly, efforts to expand the use of netting in foreign exchange markets through master agreements that call for netting²⁰⁰ or through new central clearing and settlement facilities²⁰¹ require the support of funds transfer law at least in the form of an ability to vary inconsistent provisions by agreement.

The status of funds transfer system rules under U.C.C. Article 4A is relatively clear in that each provision of the statute is variable by a funds transfer system rule, unless the contrary is indicated.²⁰² The rule may be effective even if it indirectly affects a non-consenting party.²⁰³ It may directly govern the rights and obligations of parties other than the

participants, the Federal Reserve's discount window would be a critical source of liquidity for a failing participant in a funds transfer system. See 12 C.F.R. § 201.1-110 (1993) (relating to discount window operations). To the extent that the system can contain the adverse effects of failure, emergency lending operations are unnecessary.

¹⁹⁷ See, e.g., CHIPS RULES, *supra* note 12; PATRIKIS, BAXTER & BHALA, *supra* note 6, part IV.

¹⁹⁸ HAL S. SCOTT, NEW PAYMENT SYSTEMS: A REPORT TO THE 3-4-8 COMMITTEE OF THE PERMANENT EDITORIAL BOARD FOR THE UNIFORM COMMERCIAL CODE 40 (1978).

¹⁹⁹ CHIPS RULES, *supra* note 12, at 12-13 (Rule 15).

²⁰⁰ For an example of such a master agreement, see ICOM Agreement, *supra* note 161.

²⁰¹ See PAYMENT SYSTEMS IN EC MEMBER STATES, *supra* note 125, at 294 (discussing the Exchange Clearing House Organization ("ECHO")).

²⁰² U.C.C. § 4A-501(b) (1990).

²⁰³ *Id.*

financial institutions that participate in the funds transfer system if such parties are given notice of the use of the system to effect the transfer and the system's rules.²⁰⁴ The status of a funds transfer system rule is not as clear under the U.N. Model Law as under U.C.C. Article 4A. The term "funds transfer system rule" is hardly ever used in the U.N. Model Law,²⁰⁵ as "funds transfer systems" are not discussed. While many of the U.N. Model Law articles are variable by agreement,²⁰⁶ the U.N. Model Law does not indicate whether rules promulgated by a funds transfer system constitute an "agreement" for this purpose.

The ability to opt out of a provision in a funds transfer statute may serve a secondary purpose for system participants: competitive advantage. Because the U.S. funds transfer market is dominated by Fedwire and CHIPS, it is tempting to characterize these providers of wholesale wire transfer services as natural monopolies.²⁰⁷ Arguably, there is competition between the two giants, in which case system rules are a competitive variable. Like any other private sector business, a funds transfer system must remain competitive and profitable. CHIPS, owned and operated by commercial banks, competes directly with Fedwire for the funds transfer business generated by trading activity in the foreign exchange markets, short-term money markets, and securities markets.²⁰⁸ Both are essentially privately organized systems that operate under the auspices of applicable funds transfer law.²⁰⁹

²⁰⁴ *Id.* §§ 4A-501(b), 4A-507(c).

²⁰⁵ U.N. MODEL LAW art. 6(b)(iv)(a) (concerning bilateral and multilateral netting and the identification of when payment is made). This is the only instance where the term is used.

²⁰⁶ *Id.* art. 4.

²⁰⁷ See, e.g., SCOTT, *supra* note 198, at 35-36 ("Wire transfer is highly concentrated in . . . Fedwire."). A natural monopolist is a producer for which unit costs decline at every level of output (i.e., there are economies of scale in production); thus a larger producer can sell at a lower price than a smaller producer. ROBERT COOTER & THOMAS ULEN, *LAW AND ECONOMICS* 97 (1988).

²⁰⁸ CHIPS and Fedwire are "funds transfer systems" under U.C.C. § 4A-105(a)(5), though Fedwire is accorded somewhat unique treatment under the statute. See U.C.C. § 4A-105 cmt. 3.

²⁰⁹ Fedwire cannot be considered a government service in the classic sense because the Federal Reserve Banks that own and operate Fedwire are instrumentalities of an independent federal agency providing a private service—the Board of Governors of the Federal Reserve System. Nor does Fedwire pose externality problems associated with public goods, because only depository institutions that sign written agreements with their local Reserve Bank can send and receive payment orders directly to and from Reserve Banks. See, e.g., OPERATING CIRCULAR NO. 8, *supra* note 112, at ¶ 1. A public good is one "for which there is no rivalry in consumption and for which the costs to a private

Viewed in this way, there is a consistency between the competitive interests of a funds transfer system on the one hand and the interests of traders and their back offices on the other. Competitive advantage is gained by one system over another in part by providing faster, cheaper, and more secure means of transferring bank credit, all of which appeal to traders and/or their back offices. In addition, one system can gain a competitive advantage by offering rules that more effectively reduce systemic risk.

CONCLUSION

What is the purpose of the new and complex body of funds transfer law? This Article argues that the law should serve the interests of three distinct players in the financial markets: the traders and back offices of major commercial and investment banks, as well as the funds transfer systems used by these banks. Funds transfer law is neither a backstop to private agreement nor a response to the common law. Consumer protection is an equally unsatisfying justification. Funds transfer law and domestic and international financial markets are inextricably linked because wire transfers are commonly used to settle payment obligations arising from financial market deals. Funds transfer law must not be seen in a vacuum, and financial market growth and development must not be viewed as the province of securities regulation, banking law, and commodity law. A concern for the health of domestic and international financial markets necessitates a concern for funds transfer law.

Checks as a means of settling payment obligations in the markets for foreign exchange, short-term money market instruments, interbank lending, corporate securities, and derivative products cannot satisfy the interests of the players. Traders require a high-speed, low-cost means of settlement. They seek high-speed transfers in order to maximize availability of funds and minimize credit risk, and low cost in order to preserve slim profit margins. Rules on same-day execution and payment order processing potentially satisfy their interest in high speed, while limitations on the liability of receiving banks for consequential damages potentially satisfy their interest in keeping funds transfer service costs low.

The concerns of settlements departments include certainty in handling payment orders, finality of payment (i.e., when funds received are irrevocable), and discharge (i.e., when an obligation is legally paid). Rules on payment order processing, receiver finality, discharge, and a money-back

supplier of excluding non-paying beneficiaries are high." COOTER & ULEN, *supra* note 207, at 108. Securities firms are among the potential rivals for consumption of Fedwire services. Under the Monetary Control Act of 1980, Reserve Banks are able to exclude non-depository institutions. 12 U.S.C. § 248(o) (1980).

guarantee potentially satisfy these interests. The back office also is at the battlefield against interloper fraud, and legally sanctioned security procedures that efficiently allocate risk are critical. Fraud prevention rules must address these interests.

The commercial and investment banks that participate in and utilize a funds transfer system have a shared interest in lowering systemic risk. Their efforts are aided if funds transfer law is variable by agreement. A funds transfer statute should accommodate this interest by allowing the system's members to engage in binding risk-reduction efforts. This, however, involves trade-offs between flexibility on the one hand and risk-fixing and economies of scale on the other.

The ultimate success of wire transfer law hinges critically on whether specific rules actually satisfy the interests they should be designed to serve. The inverted pyramid is only as strong as the foundation on which it rests. In turn, robust financial market development is dependent in part on the satisfaction of the interests of these key players. If settling payment obligations is a slow, costly, uncertain, and risky process, then financial market transactions will be stymied. The ultimate aim of a funds transfer statute must be to promote larger trading volumes and larger transaction sizes in the markets for foreign exchange, short-term instruments, corporate securities, derivative products, and interbank lending. Achieving this aim depends primarily on the law governing the settlement of payment obligations generated in these markets.

The next step for scholarly research is to test the theory of funds transfer law articulated herein.²¹⁰ The argument that funds transfer law should primarily serve the financial markets must be applied to specific provisions of U.C.C. Article 4A and the U.N. Model Law. The extent to which the law satisfies the interests of traders, back offices, and funds transfer systems could be gauged by using microeconomic and banking tools to critically analyze the relationship of the base of the inverted pyramid to the delineated interests of the players in each of the upper three levels.²¹¹ A complete framework for assessing this fascinating new body of law will then exist.

²¹⁰ See Bhala, *supra* note 8.

²¹¹ This is not to suggest that there is a single proper way to explore the link between funds transfer law and financial market growth and development. Empirical research is one avenue. Surveying securities, derivatives, foreign exchange traders, their back offices, and their lawyers is certainly one agreeable method for examining whether the U.N. Model Law will firmly support the inverted pyramid. The approach here is to use the laboratory—i.e., to develop a hypothetical transaction and analyze the interests of the key players.