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APPLYING EQUILIBRIUM THEORY AND THE FICAS MODEL: A CASE STUDY OF CAPITAL ADEQUACY AND CURRENCY TRADING

RAJ BHALA*

I. INTRODUCTION

A. *Equilibrium Theory In Brief*

Is international banking law in a state of chaos? Or, is the law moving toward a stable dynamic equilibrium? I address these issues in the present article by applying a theory of equilibrium developed in my article *Equilibrium The-*

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Finally, I would like to thank my excellent research assistants at William and Mary for their help: Ms. Heather Anderson, Class of 1998; Mr. James Cady, Class of 1996, Mr. Stephen P. Diamond, Jr., Class of 1998; Mr. Matthew Kaiser, Class of 1998; Ms. Susan L. Ludi, Class of 1997, Ms. Michelle LaRose, Class of 1997; and Mr. Ramsey Taylor, Class of 1996.

ory, the FICAS Model and International Banking Law.¹

In the *Equilibrium Theory* article, I focus on two questions. First, what does "equilibrium" mean in the international banking context? Second, what are the determinants of a stable dynamic equilibrium? I answer the first question by arguing that a legal regime is likely to be a stable dynamic equilibrium if banks would have no legitimate reasons to present significant opposition to that regime. Banks' challenges may destabilize the regime because the authority responsible for creating the regime, the Basle Committee on Banking Supervision (or Basle Supervisors Committee ("BSC")), is *de facto* compelled to change the regime.²

I answer the second question by identifying five independent determinants of stability, collectively referred to as the FICAS variables: the *Frequency* of adjustments to rules in a regime; the *Intricacy* of the rules; the *Cogency* of the rules; the *Authority* of the rules; and the *Scope* of the rules. The FICAS model I develop hypothesizes five relationships: (1) the more frequent the adjustments to rules in a regime, the more likely banks will oppose the regime; (2) the more intricate the rules, the more likely banks will oppose the regime; (3) the less cogent the rules, the more likely banks will oppose the regime; (4) the less authoritative the rules, the more likely banks will oppose the regime; and (5) the narrower the scope of application of the rules, the more likely banks will oppose the regime.

Finally, in the *Equilibrium Theory* article, I argue the FICAS model suggests an "ideal type" of regime in international banking law. In other words, the model prescribes a type of regime unlikely to give banks reason for opposition and, therefore, is likely to be a stable dynamic equilibrium. This ideal type is a self-regulatory regime. In such a regime, banks—not the BSC—are principally responsible for drafting rules and proposals for the regime.

An analysis of the FICAS variables reveals the reasons why self-regulation is an ideal type. In a self-regulatory regime, banks are free to set an adjustment frequency and intricacy level with which they are comfortable. As rational actors, banks adopt rules and proposals they find cogent. The authority of banks to devise rules and proposals is "delegated" by the BSC and domestic bank regulators, and banks attempt to widen the scope of application of the regime to ensure a level, competitive playing field.

Thus, the issue to which I now wish to address may be rephrased as follows: *to what extent, if any, does international banking law resemble the ideal type self-regulatory regime as prescribed by the FICAS model?*

1. 38 HARV. INT'L L.J. (forthcoming 1997) [hereinafter *Equilibrium Theory*].

2. The BSC was established in 1975 and formally known as the "Committee on Banking Regulations and Supervisory Practices." See Cynthia C. Lichtenstein, Introductory Note, 30 INT'L LEGAL MATERIALS 967 n.1 (1991). It is usually referred to by its informal name, "Basle Committee." *Id.*

B. *Why Study This Regime?*

This issue can be explored via a general equilibrium analysis, *i.e.*, by asking whether equilibrium exists at a given moment in all legal regimes in international banking. Such regimes include capital adequacy, foreign bank regulation, information sharing and disclosure among bank regulators, and regulation of on- and off- balance sheet banking transactions. Alternatively, the issue can be addressed by a partial equilibrium analysis, that is, an inquiry into the stability of a single legal regime over time.

For two reasons, I pursue the latter course.³ First, a general equilibrium analysis of international banking law may not be well-suited to a law review article given the space constraints in this mode of discourse. The problem is exacerbated because I wish to engage in a time-series analysis. That is, rather than looking at equilibrium in a given moment, I want to consider it over a period of time—an inherently more meaningful inquiry.

The second and more significant reason is the presence of an outstanding candidate for partial equilibrium analysis: the capital adequacy regime for foreign exchange transactions. The BSC developed its capital adequacy regime between 1988-96 by publishing eight documents:⁴

3. Therefore, no inference about the stability of other international banking law regimes can be drawn from my conclusions in Parts II and III of this article.

4. All documents listed below are on file with the author and may be obtained from the Bank for International Settlements, Postfach, CH 4002, Basle, Switzerland.

Because the BSC lacks rule-making authority, it is technically precise to use the term "guidelines" instead of "rules" when speaking of the capital adequacy regime. However, because in practice the 1988 Accord has been implemented throughout the G-10 countries, and many non-G-10 countries, the guidelines have become rules. Accordingly, the term "rules" is used throughout the text and Capital Adequacy Regime Appendix.

The BSC's economic and financial studies are sent to persons on its mailing list. However, one of the frustrations associated with research in international banking law is the difficulty in obtaining the BSC's legal documents. Few such documents appear on LEXIS or in *International Legal Materials*, and if they are so published it is only after a great delay. Typically, the best way to obtain a document is through personal contacts. The BSC ought to follow the example of the World Trade Organization and ensure the results of its legal work are widely disseminated and easily accessible. One step would be to include the BSC's legal documents on the mailing list, and expand the addressees to cover legal data bases and law libraries. This step would be consistent with the BSC's self-interest of promoting itself as a pre-eminent international banking law forum.

Of course, the BSC has rules and proposals for the capital adequacy treatment of many transactions in addition to foreign exchange. See, e.g., Frederick M. Struble & Norah Barger, *International Capital Standards for Banking Institutions*, in *I REGULATION OF FOREIGN BANKS* 4-19 (Michael Gruson & Ralph Reisner, eds., 2d ed. 1995) (summarizing the 1988 Basle Capital Accord credit risk requirements); Joseph Jude Norton, *DEVISING INTERNATIONAL BANK SUPERVISORY STANDARDS* 193-212 (1995) (also summarizing the credit risk capital requirements contained in the 1988 Accord); *I GLOBAL RISK BASED CAPITAL REGULATIONS* (Charles A. Stone & Anne Zissu eds., 1994) (treating selected topics concerning the BSC's capital ade-

(1) *The 1988 Basle Accord*⁵ a report establishing capital adequacy requirements to cover potential losses resulting from credit risks associated with on- and off-balance sheet transactions.⁶

(2) *The 1993 Market Risk Proposal*⁷ a "consultative proposal" to amend the 1988 Accord by requiring an express capital charge to cover potential losses resulting from market risks arising from trading activities.⁸

(3) *The 1993 Netting Proposal*⁹ a "consultative proposal" to amend the 1988 Accord to recognize the credit-risk reduction effects of certain netting techniques.¹⁰

(4) *The 1993 Interest Rate Risk Proposal*¹¹ a "consultative proposal" to amend the 1988 Accord to measure interest rate risk arising from trading ac-

quacy regime); RAJ BHALA, PERSPECTIVES ON RISK-BASED CAPITAL 43-102 (1989) (discussing the Basle Accord rules to safeguard against the risk of loss arising from credit risks associated with a variety of on- and off-balance sheet banking transactions).

5. The formal title of the 1988 Basle Capital Accord is *International Convergence of Capital Measurement and Capital Standards*, 30 INT'L LEGAL MATERIALS 980 (1991), reprinted in 1 Fed. Banking L. Rep. (CCH) ¶ 5403 (July 29, 1988) [hereinafter 1988 Basle Capital Accord].

6. "Credit risk" is the risk of counterparty failure, i.e., the risk a bank's counterparty will default on its obligations to the bank. See 1988 Basle Capital Accord, *supra* note 5, at ¶¶ 8, 31.

7. The formal title of the 1993 Market Risk Proposal is *The Supervisory Treatment of Market Risks* (Apr. 1993) [hereinafter 1993 Market Risk Proposal]. The 1993 Market Risk Proposal is prefaced by *The Prudential Supervision of Netting, Market Risks and Interest Rate Risk* (Apr. 1993) [hereinafter *The Prudential Supervision of Netting*].

8. "Market risk" is the "risk of losses in on- and off-balance-sheet positions arising from movements in market prices." That is, it is the risk of loss in the value of a financial asset because of absolute or relative price changes in exchange rates, interest rates, or equity values. See 1993 Market Risk Proposal, *supra* note 7, at 1, glossary at 45. Thus, the term "market risk" encompasses the narrower term "foreign exchange risk," which is the risk exchange rate movements will affect adversely the financial position of a bank. See 1996 Market Risk Amendment, *infra* note 16, at 1. In currency trading, market risk arises because of interest rate as well as exchange rate fluctuations associated with the currencies traded.

Market risk is relevant to interest-rate related instruments and equities in a bank's trading book, as well as to foreign exchange instruments. See 1996 Market Risk Amendment, *infra* note 16, at 1. The term "trading book" includes a bank's proprietary positions in financial instruments it holds for short-term resale in anticipation of gains from differences between purchase and sale prices. See *infra* note 82 for a more complete definition.

9. The formal title of the 1993 Netting Proposal is *The Supervisory Recognition of Netting for Capital Adequacy Purposes* (Apr. 1993) [hereinafter 1993 Netting Proposal].

10. "Netting" refers to any technique used to calculate a net (as distinct from gross) position by offsetting positions associated with a series of transactions. See 1988 Basle Capital Accord, *supra* note 5, Annex 3. For example, a bank may be obligated to deliver a given currency on a particular date. Through a bilateral netting technique known as "netting by novation," this obligation is amalgamated with all other obligations for the same currency and value date, thereby substituting a single net amount for the previous gross obligations. *Id.* at Annex 3 n.6.

11. The formal title of the 1993 Interest Rate Risk Proposal is *Measurement of Banks' Exposure to Interest Rate Risk* (Apr. 1993) [hereinafter 1993 Interest Rate Risk Proposal].

tivities.¹²

(5) *The 1994 Netting Amendment*¹³ an amendment to the 1988 Accord to recognize the credit-risk reducing effects of certain netting techniques.

(6) *The 1995 Netting Amendment*¹⁴ a second amendment to the 1988 Accord to recognize the credit-risk reducing effects of certain netting techniques.

(7) *The 1995 Market Risk Proposal*¹⁵ another "consultative proposal," which supersedes the 1993 Market Risk Proposal, to amend the 1988 Accord by requiring an express capital charge for market risk.

(8) *The 1996 Market Risk Amendment*¹⁶ an amendment to the 1988 Basle Accord to cover capital rules on market risk, which confirms the proposed

12. *Id.* "Interest rate risk" is "the risk that changes in market interest rates might adversely affect an institution's financial condition." *Id.* at 33. A classic example of an adverse effect is a mismatch between the value of assets and liabilities recorded on a bank's balance sheet. As the 1993 *Interest Rate Risk Proposal* states:

[B]anks are exposed to interest rate risk whenever the interest sensitivity of their assets does not match the sensitivity of their liabilities or off-balance-sheet positions. For a bank whose liabilities reprice faster than its assets, a rise in interest rates can reduce net interest income by increasing the institution's cost of funds relative to its yield on assets, and vice versa. Changes in interest rates may affect not only an institution's current earnings but also its future earnings and the economic value of its capital, reflecting changes in the value of the institution's financial instruments. For the bank with liabilities carrying interest rates which change faster than those on its assets, its net present value will decline if interest rates rise.

Id. at 4-5.

13. The formal title of the 1994 Netting Amendment is *The Capital Adequacy Treatment of the Credit Risk Associated with Certain Off-Balance Sheet Items* (July 1994) [hereinafter *1994 Netting Amendment*]. The 1994 Netting Amendment is prefaced by a July 15, 1994 Press Statement [hereinafter *July 15, 1994 Press Statement*].

14. The formal title of the 1995 Netting Amendment is *Basle Capital Accord: Treatment of Potential Exposure for Off-Balance Sheet Items* (Apr. 1995) [hereinafter *1995 Netting Amendment*].

15. The formal title of the 1995 Market Risk Proposal is *Planned Supplement to the Capital Accord to Incorporate Market Risks* (Apr. 1995) [hereinafter *1995 Market Risk Proposal*]. The 1995 Market Risk Proposal is prefaced by a press release dated April 13, 1995 [hereinafter *April 1995 Press Release*] and a summary document entitled *Proposal to Issue a Supplement to the Basle Capital Accord to Cover Market Risks* [hereinafter *1995 Proposal to Issue a Supplement*]. The 1995 Proposal is followed by a commentary entitled *An Internal Model-Based Approach to Market Risk Capital Requirements* (Apr. 1995) [hereinafter *Internal Model Based Approach*].

16. The formal title of the 1996 Market Risk Amendment is *Amendment to the Capital Accord to Incorporate Market Risks* (Jan. 1996) [hereinafter *1996 Market Risk Amendment*]. The 1996 Market Risk Amendment is prefaced by a Dec. 12, 1995 Press Statement [hereinafter *December 1995 Press Statement*], a Dec. 12, 1995 Communiqué [hereinafter *December 1995 Communiqué*], and a summary document entitled *Overview of the Amendment to the Capital Accord to Incorporate Market Risks* (Jan. 1996) [hereinafter *Overview*]. The 1996 Amendment is followed by a paper entitled *Supervisory Framework for the Use of "Backtesting" in Conjunction with the Internal Models Approach to Market Risk Capital Requirements* (Jan. 1996) [hereinafter *Supervisory Framework For the Use of "Backtesting"*].

amendment in the 1995 Market Risk Proposal.

This enumeration suggests one reason why the capital adequacy regime for foreign exchange transactions is an excellent case to which to apply equilibrium theory. The rapid pace of issuance of these documents and their extraordinary complexity reinforces the perception among even seasoned scholars and practitioners that international banking law is plagued by upheaval and turmoil.

Indeed, the eight documents have attracted significant attention from banks. Banks have provided comments to the BSC (or their relevant domestic bank regulators) to pressure the BSC to modify its existing or proposed rules. For example, in 1993 three major banking groups, the International Swaps and Derivatives Association, the British Bankers' Association, and the Institute of International Finance, published lengthy critiques of the BSC's consultative papers.¹⁷ These critiques effectively forced the BSC to publish a revised consultative paper in 1995, which in turn was the subject of another round of comments from banks.¹⁸ The BSC again responded to criticisms by issuing the 1996 Market Risk Amendment.

The second basis for asserting this regime is that it is an excellent candidate for partial equilibrium analysis. Capital adequacy is the heart of international banking law. The existing and proposed rules in the BSC's capital adequacy regime are key weapons in the regulatory arsenal against future

17. See Letter from Joseph Bauman, Chairman, International Swaps and Derivatives Association, Inc., to Basle Committee on Banking Supervision re: Consultative Proposal by the Basle Committee: Capital Adequacy for Market Risk (Dec. 28, 1993) (on file with author) [hereinafter Letter from Joseph Bauman]; British Bankers' Association, *The Supervisory Treatment of Market Risks- Comments on the Basle Consultative Paper*, Oct. 1993 (on file with author) [hereinafter *Supervisory Treatment of Market Risk*]; Institute of International Finance, *Report of the Working Group on Capital Adequacy—A Response to the Basle Committee on Banking Supervision 1993 Consultative Papers*, Oct. 1993 (on file with author) [hereinafter *Capital Adequacy*]; Institute of International Finance, *An Integrated Bank Regulatory Approach to Derivatives Activities*, May 1993 (on file with author) [hereinafter *An Integrated Bank Regulatory Approach*]. The three groups represent a very substantial number of banks active in the foreign exchange market.

18. See, e.g., Letter from David H. Sidwell, Managing Director and Controller, J.P. Morgan to William W. Wiles, Secretary, Board of Governors of the Federal Reserve System re: Basle Committee Proposal on the Supervisory Treatment of Market Risks (Aug. 2, 1995) (with attachments) (on file with author) [hereinafter Letter from Sidwell]; Letter from Gay H. Evans, Chairman, International Swaps and Derivatives Association, to Basle Committee on Banking Supervision re: Planned Supplement to the Capital Accord to Incorporate Market Risks (July 31, 1995) (on file with author) [hereinafter Letter from Evans]. In addition, the Technical Committee of the International Organization of Securities Comm's offered comments on the 1995 Market Risk Proposal. See Technical Comm., Int'l Org. of Sec. Commissioners, "Implications for Securities Regulators of the Increased Use of Value at Risk Models by Securities Firms" (July 1995) (on file with author).

international bank collapses.¹⁹ The amount of capital maintained by banks is a critical indicator of their financial health and the overall safety and soundness of the international banking system. Additionally, any capital adequacy regime devised by the BSC represents an ambitious effort to harmonize banking law across borders and thereby level the competitive playing field among banks from different countries.²⁰

In turn, the capital adequacy regime shapes events in the world's largest financial market, the over-the-counter ("OTC") foreign exchange market. This market boasts daily trading of over one trillion dollars worth of foreign currencies.²¹ To put this amount into perspective, observe that the total value of all goods and services traded globally in 1995 was \$6 trillion dollars.²² Thus, roughly every week the annual value of world trade is turned over in the foreign exchange market. In fact, referring to a single foreign exchange "market" is somewhat misleading. There is a global bazaar that never closes in which there is a market for every freely convertible currency. In this cur-

19. See, Ethan B. Kapstein, *Shockproof*, 74 FOREIGN AFFAIRS 2 (1996) (arguing capital adequacy requirements have saved financial markets from potentially disastrous consequences of the Mexican peso crisis and the Barings collapse). I am somewhat skeptical of Kapstein's optimistic assessment. See David Mutch, *20 Years of Hard Work Ease Impact of Financial Fiascos*, CHRISTIAN SCIENCE MONITOR, Mar. 1, 1996, at 8 (noting my skepticism).

20. See, 1988 Basle Capital Accord, *supra* note 5, ¶ 3 (stating the Accord should be applied consistently to banks in different countries "with a view to diminishing an existing source of competitive inequality among international banks"); Hal S. Scott & Shinsaku Iwahara, *In Search of a Level Playing Field*, 46 GROUP OF THIRTY OCCASIONAL PAPERS (1994) (exploring the consistency of implementation of the Accord in the U.S. and Japan, and questioning the extent to which the Accord levels the competitive playing field); Raj Bhala & Ethan Kapstein, *The 1988 Basle Capital Accord and Financial Competition*, 90 HARV. BUS. REV. 158 (Jan.-Feb. 1990) (discussing the numerous opportunities for bank regulators to exercise discretion when implementing the Accord).

21. Bank for International Settlements Press Communique, *Central Bank Survey of Foreign Exchange Market Activity in April 1995: Preliminary Global Findings* (Oct. 24, 1995). After adjusting for double counting, the Bank for International Settlements estimates the average daily turnover of spot, forward, and swap contracts is \$1.230 trillion. This figure excludes currency options. See also Big: *The Foreign Exchange Market*, ECONOMIST, Sept. 23, 1995, at 63 (discussing the estimates).

The Bank for International Settlements' previous survey of trading volumes in the foreign exchange market yielded similar results, though a comparison of the two sets of results indicates the market has continued to grow in size at an impressive rate. See MONETARY AND ECONOMIC DEPARTMENT, BANK FOR INTERNATIONAL SETTLEMENTS, CENTRAL BANK SURVEY OF FOREIGN EXCHANGE MARKET ACTIVITY IN APRIL 1992 1, 5, and Table I at 6 (March 1993) (noting gross average daily turnover of approximately \$1 trillion, including trading in all OTC instruments, namely, spots, forwards, and derivatives (options and currency swaps) as well as exchange-traded derivatives (options and futures), but excluding cross-currency interest rate swaps) [hereinafter CENTRAL BANK SURVEY].

22. See Frances Williams, *WTO Predicts Robust Trade Growth, Despite Slowdown*, FIN. TIMES, Mar. 28, 1996, at 14.

rency bazaar, there is a broad assortment of transactions, from simple spots and forwards to OTC derivative contracts such as options and swaps.²³

Given this enormous size and diversity, it is not surprising the BSC and domestic bank regulators are concerned about the currency bazaar.²⁴ They influence it in part by the amount and nature of the capital charges they impose on banks active in the bazaar. First, the requisite capital charges can affect the overall liquidity in currency markets: the greater the capital requirements, the more expensive it is to trade in the markets, hence the less desirable (*ceteris paribus*) it is to trade, and the less liquid the markets become. Second, capital charges can strongly and perhaps adversely affect the ability of banks to compete with one another and non-bank players in the bazaar, particularly if different requirements are imposed by different regulators.²⁵ Finally, like any regulation, capital adequacy requirements can be a barrier to new bank entry into the bazaar.²⁶

23. See the Transactions Appendix to this article. While there is some debate about the meaning of the term "derivatives," it is commonly understood to encompass "financial instruments which derive their value from the performance of assets, interest or currency exchange rates, or indexes." Office of the Comptroller of the Currency, Banking Circular 277, *Risk Management of Financial Derivatives 4* (Oct. 1993) reprinted in *Safety and Soundness Issues Related to Bank Derivatives Activities—Part 1, Hearing before the House Comm. on Banking, Finance and Urban Affairs*, 103d Cong., 1st Sess. 688 (Oct. 28, 1993). Accordingly, there is no need to actually buy the underlying asset, interest rate or currency instrument, or index. See also Claude Brown, *How to Recognize a Derivative*, 14 INT'L FIN. L. REV. 28 (May 1995); Joseph S. Rizzello, *The Development and Evolution of Derivative Products*, in THE HANDBOOK OF DERIVATIVES & SYNTHETICS 2-3 (Robert A. Klein & Jess Lederman, eds., 1994); GENERAL ACCOUNTING OFFICE, FINANCIAL DERIVATIVES 3, 24 (GAO/GGD-94-133, May 1994). For instance, currency options and currency swaps are examples of derivatives in that their value depends in part on an exchange rate for an underlying pair of currencies. In addition, forwards are sometimes classified as derivatives. See Office of the Comptroller of the Currency, Banking Circular 277, *supra*, at 4; GENERAL ACCOUNTING OFFICE, FINANCIAL DERIVATIVES, *supra*, at 26-27.

24. For instance, recently leading central banks have warned about failure to settle large foreign exchange liabilities. See Committee on Payment and Settlement Systems, Bank for International Settlements, *Settlement Risk in Foreign Exchange Transactions* (Mar. 1996); Philip Gawith, *Banks Warned Over Foreign Exchange Risks*, FIN. TIMES, Mar. 28, 1996, at 1 and George Graham, *BIS Outlines Forex Settlement Risk Strategy*, FIN. TIMES, Mar. 28, 1996, at 5. For a discussion of foreign exchange settlement issues and wire transfer law, see Raj Bhala, *The Inverted Pyramid of Wire Transfer Law*, 82 KY. L.J. 347 (1993).

25. See generally Scott & Iwahara, *supra* note 20, at 49-54 (discussing the original versus current exposure method for calculating the credit risk equivalent amount of foreign exchange contracts).

26. Regulation can, of course, be a barrier to entry in the foreign exchange (or any other) market. See generally PAUL A. SAMUELSON & WILLIAM D. NORDHAUS, *ECONOMICS* 154-55 (15th ed. 1995) (discussing different forms of legal restrictions); Raj Bhala, *Self-Regulation in Global Electronic Markets through Reinvented Trade Usages*, 31 IDAHO L. REV. 863, 912-13 n. 138 (1995) (stating legally recognized "usages of trade can raise costs of entry into the for-

In sum, a second reason for focusing on the BSC's capital treatment of the currency bazaar is that this regime represents one of the most significant intersections between rules and a market in international banking. However, each part of this intersection tends to attract *independent* attention. There are countless handbooks describing foreign exchange instruments and "how to trade" currencies.²⁷ Several excellent guides to international bank capital adequacy rules exist.²⁸ *Little attention is given to the intersection itself.* How do

eign exchange market because potential new entrants must learn those usages"); RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 312 (4th ed. 1992) (defining a barrier to entry as "a condition that makes the long-run costs of a new entrant into a market higher than the long-run costs of the existing firms in the market," and citing "regulatory limitation on entry" as "a good example"); ROBERT COOTER & THOMAS ULEN, *LAW AND ECONOMICS* 38 (1988) (noting "statutory and other legal restrictions on entry" as a barrier to entry). At the same time, the number of participants in the foreign exchange market is quite large. One estimate puts the figure at about 200,000 active traders. See ANDREW KRIEGER, *THE MONEY BAZAAR* 21 (1992). Anecdotal evidence suggests roughly 2,000 banks around the world trade foreign exchange in the ordinary course of business. Thus, while capital adequacy requirements could pose a substantial barrier to entry, the degree of competition already in the market should not be underestimated.

27. See, e.g., CORNELIUS LUCA, *TRADING IN THE GLOBAL CURRENCY MARKETS* (1995); DAVID F. DEROSA, *CURRENCY DERIVATIVES* (1995); Eileen Baecher, *Swaps and the Derivatives Markets*, in *HANDBOOK OF DERIVATIVES*, *supra* note 23, at 113-43; JOHN F. MARSHALL & KENNETH R. KAPNER, *THE SWAPS MARKET* 55-119 (2d ed. 1993); COOPERS & LYBRAND, *CURRENCY SWAPS* (1992); JACK D. SCHWAGER, *THE NEW MARKET WIZARDS* 17-68, RUDI WEISWEILLER, *HOW THE FOREIGN EXCHANGE MARKET WORKS* 9-38, 109-185 (1990); JACK D. SCHWAGER, *MARKET WIZARDS* 3-190 (1989); GARY L. GASTINEAU, *THE OPTIONS MANUAL* 255-59 (3d ed. 1988); and TORBEN JUUL ANDERSEN, *CURRENCY AND INTEREST-RATE HEDGING* (1987).

28. See, e.g., Matthew Elderfield, *Basle Publishes Final Market Risk Capital Standards* 11 *BUTTERWORTHS J. INT'L BANKING & FIN. L.* 125 (1996) (explaining the BSC's 1996 market risk rules); Barbara C. Matthews, *Capital Adequacy, Netting and Derivatives*, 2 *STANFORD J. L., BUS. & FIN.* 167 (1995) (tracing the evolution of capital adequacy requirements for derivatives transactions); Walter I. Conroy, Note, *Risk-Based Capital Adequacy Guidelines: A Sound Regulatory Policy or A Symptom of Regulatory Inadequacy?*, 63 *FORDHAM L. REV.* 2395 (1995) (considering whether capital adequacy rules guarantee bank soundness); NORTON, *supra* note 4 (analyzing the formation and content of capital adequacy requirements); Hal S. Scott, *The Competitive Implications of the Basle Capital Accord*, 39 *ST. LOUIS U. L.J.* 885 (1995) (discussing the competitive effects of the 1988 Basle Capital Accord); ETHAN B. KAPSTEIN, *GOVERNING THE GLOBAL ECONOMY* 103-28 (1994) (discussing the origins and competitive effects of the 1988 Basle Capital Accord); STONE & ZISSU, *supra* note 4 (discussing various financial issues associated with the 1988 Basle Capital Accord); Struble & Barger, *supra* note 4 (providing an expositional treatment of the 1988 Basle Capital Accord and its implementation in the U.S.); MATHIAS DEWATRIPONT & JEAN TIROLE, *THE PRUDENTIAL REGULATION OF BANKS* 48-61 (treating the implementation of the 1988 Basle Capital Accord in the European Union); Matthew Elderfield, *Developments in EC and International Capital Adequacy Regulations*, 2 *J. FIN. REG. & COMPLIANCE* 314 (1994) (explaining the BSC's 1993 proposed market risk rules); Scott & Iwahara, *supra* note 20. For additional sources on the 1988 Basle Capital Accord, see *infra* note 475.

the BSC's existing and proposed rules work in the currency bazaar? What are their effects? Would the BSC's rule-making activities be better performed by banks? A partial equilibrium analysis using the FICAS model from my first article provides insights into these questions.

C. *Argument*

Applying the equilibrium theory to the BSC's capital adequacy regime for foreign exchange transactions raises doubts about the stability of this regime and underscores the importance of self-regulation by banks. In Part II below, I argue *the regime as it existed until 1995 which was not tending toward a stable dynamic equilibrium*. There were several reasons for banks to oppose—and indeed they did oppose—the BSC's capital rules for credit risk, specifically, the netting amendments, and its proposed rules for market risk.

In Part III, I suggest that *since 1995, the regime appears to be headed for a stable dynamic equilibrium*. The post-1995 regime increasingly resembles the self-regulatory ideal type. This resemblance is particularly noteworthy with respect to the frequency, intricacy, and scope variables of the FICAS model. However, pressing concerns about the cogency and authority of the regime remain. If and when they are addressed, the resemblance between the ideal type and post-1995 regime will be sufficiently close to conclude the latter is a stable dynamic equilibrium.

The policy repercussions of Parts II and III are clear. If legal stability is desired, then banks should play the leading role in devising capital adequacy rules. The BSC ought to condone banks trading currencies subject to their own internally-generated capital requirements. The BSC should not be a rule creator, but rather a non-intrusive referee administering the players' rules.

In Part IV, I offer concluding remarks. Two appendices provide essential background material for this article.²⁹ A Currency Trading Appendix explains the major OTC foreign exchange transactions, namely, spots, forwards, options, and swaps. A Capital Adequacy Regime Appendix reviews the BSC's existing and proposed rules for these transactions.

II. INSTABILITY: THE 1988 ACCORD, 1993 MARKET RISK PROPOSAL, 1994 NETTING AMENDMENT AND 1995 NETTING AMENDMENT

To create law in disregard of the context in which international commerce operates is to deplete the self-sufficiency of the merchant regime; it is to create a legal system in a vacuum at the expense of the practical necessities of business.

29. Hereinafter, familiarity with the material in these Appendices is assumed.

LEON E. TRAKMAN, *THE LAW MERCHANT: THE EVOLUTION OF COMMERCIAL LAW* 97 (1983).

[W]e are forced to conclude that central bankers are failing to give the lead they should over the guardianship of the financial system. . . . With regulation having assumed a high profile, their reputation is suffering more than they care to admit.

MARJORIE DEANE & ROBERT PRINGLE, *THE CENTRAL BANKS* 148 (1994).

Applying the FICAS model to the capital adequacy regime for foreign exchange spots, forwards, options, and swaps demonstrate that the regime did not tend toward a stable dynamic equilibrium between 1988-95. During this period, the regime was hardly a self-regulatory one. The evidence in favor of this result is summarized in Table 1. This Table indicates that banks had many legitimate reasons to object to the 1988 Accord and 1993 Market Risk Proposal. Indeed, banks did manifest publicly their objections to these documents. The Table also shows banks had a legitimate basis for objecting to the 1994 and 1995 Netting Amendments. Overall, bank objections to the 1988 Accord, 1993 Market Risk Proposal, and 1994 and 1995 Netting Amendments cast doubt upon the stability of the regime.

In contrast, Part III applies the FICAS model to the 1995 Market Risk Proposal and 1996 Market Risk Amendment and argues the capital adequacy regime for foreign exchange transactions may be moving toward a stable dynamic equilibrium as a result of this Proposal and Amendment. Through these documents, the BSC allows for constrained self-regulation.

A. Frequency: More Upheaval Than Necessary?

1. The Blistering Pace Of BSC Issuances

The frequency of adjustment to the capital adequacy regime for foreign exchange transactions between 1988-95 is a basis for bank opposition to the regime. Eight times in eight years the BSC issued rules or proposals. As indicated above,³⁰ in 1988, it published an initial set of rules on credit risk. In 1993, the BSC proposed changes to those rules to deal with netting, and then finalized new netting rules in 1994 and 1995. In 1993, the BSC issued a market risk proposal. In 1993, it also issued an interest rate risk proposal. In 1995, it issued a superseding market risk proposal, and subsequently finalized this proposal in 1996.

30. See *supra* note 20 and accompanying text.

FICAS INDEPENDENT VARIABLES AND HYPOTHESES	DEPENDENT VARIABLES AND RESULTS STABILITY OF BSC'S CAPITAL ADEQUACY REGIME FOR FOREIGN EXCHANGE TRANSACTION
<p><i>Frequency of Adjustments</i></p> <p>Inverse relationship between frequency and stability—high adjustment frequency is likely to undermine stability.</p>	<p>Does Not Favor Stability Because:</p> <p>While possibly not so frequent as to be overwhelming, the adjustment process may have caused unnecessary upheaval.</p>
<p><i>Intricacy of rules</i></p> <p>Inverse relationship between intricacy and stability—simpler, more flexible rules are likely to enhance stability.</p>	<p>Does Not Favor Stability Because:</p> <p>1993 Market Risk Proposal regarding calculation of capital charge for debt derivatives is complex and, in some respects, seems arbitrary.</p>
<p><i>Cogency of rules</i></p> <p>Direct relationship between cogency and stability—persuasive, well-grounded rules are likely to contribute to stability.</p>	<p>Does Not Favor Stability Because:</p> <ol style="list-style-type: none"> (1) By emphasizing product types, the 1993 Market Risk Proposal did not take a holistic view of risks and could have raised systemic market risk by discouraging cross-product hedging. (2) 1993 Market Risk Proposal does not encourage the use of accurate and sophisticated risk management techniques devised by banks. (3) The 3 percent add on factor for calculating the capital charge for foreign exchange risk under the 1993 Market Risk Proposal is arbitrary. (4) The 1994 Netting Amendment might not cover spots, has no set timetable for implementation, and places too many burdens on banks which, in turn, may discourage banks from developing accurate and sophisticated risk management techniques. (5) The formula in the 1995 Netting Amendment for recognizing the credit risk reduction effects of netting on potential future exposure appears arbitrary.
<p><i>Authority of rules</i></p> <p>Direct relationship between authority and stability—binding obligations are likely to enhance stability.</p>	<p>Does Not Favor Stability Because:</p> <ol style="list-style-type: none"> (1) 1988 Accord may not create binding obligations as a matter of public international law.
<p><i>Scope of rules</i></p> <p>Direct relationship between scope and stability—comprehensive applicability of rules is likely to foster stability.</p>	<p>Does Not Favor Stability Because:</p> <ol style="list-style-type: none"> (1) 1988 Accord does not account for market or interest rate risks. (2) 1993 Market Risk Proposal could be implemented in different G-10 countries. (3) Capital adequacy regime applies to commercial banks from non-G-10 countries only to the extent those countries choose to adhere to the regime. (4) Capital adequacy regime applies only to commercial, not investment banks.

TABLE 1
SUMMARY OF RESULTS OBTAINED FROM APPLYING THE FICAS MODEL TO THE 1988
ACCORD, 1993 MARKET RISK PROPOSAL, AND 1994 NETTING AMENDMENT

No doubt many banks must have been overwhelmed by this blistering pace of developments. They had to digest quickly the substance of the new rules and proposals. To do so, the banks had to consider the effect of these rules and proposals on their capital levels and major transactional areas on a global basis. Accordingly, they incurred adjustment costs, namely, the time and money associated with legal and financial analyses.

Moreover, two features related to the frequency of adjustment gave banks a legitimate reason to oppose the regime. First, the process by which the BSC proposed to adjust rules in the capital adequacy regime for foreign exchange transactions was inefficient. Second, the BSC seemed to lack a coherent strategy in the timing of its adjustments to the regime. These features suggest the BSC's *modus operandi* contributes to the instability of its regime, as banks may wonder whether the BSC is a source of avoidable upheaval.

2. An Inefficient Process?

The adjustment process was—and still is—a sequential one involving the BSC, domestic bank regulators, and banks. Either the BSC as a whole, or more likely a subset of its members, develops an idea regarding capital adequacy. The BSC discusses, negotiates, and eventually publishes a rule or proposal. Some bank regulators might promulgate a proposed implementing regulation. Banks comment on the BSC issuance and any proposed implementing regulation, and the BSC and domestic regulators pay attention to such comments, possibly incorporating the comments into the final version of a rule or regulation.³¹

It is reasonable for banks to view this sequential process as inefficient. Currency trading is a fast-paced, high-technology business in which banks need clear answers yesterday. The multi-step process, while resulting in plenty of rules and proposals between 1988-95, is cumbersome. The adjustment process places the most significant player-banks in a reactive posture. Why should they have to wait and then comment upon new proposals from Basle? Why are they not direct participants in the BSC's deliberations, which are conducted *in camera*, but rather represented indirectly through bank regulators that have their own distinct interests? What value added exists in each step of the sequential interaction that could not be added at once with direct bank representation? Banks reasonably could argue that if the BSC "asked the banks to sit at the bargaining table," then the BSC would "get it right the first time" and avoid unnecessary iterations in the movement toward a stable dynamic equilibrium.

Such an argument is fueled by the contrast between the banks' reactive

31. See Bhala, *Equilibrium Theory*, *supra* note 1 (manuscript pts. II.B.2 and III.E.1, on file with author).

posture and the reality of currency trading. Professors Eskridge and Frickey point out that "an important feature of law as equilibrium [is that] the deeper changes in law . . . occur when the relative social, economic, and political power of affected groups changes."³² In recent years, growing attention has been given to the shift in the relative balance of power among institutions away from central banks and toward market players.³³ One author likens "currency traders [who] sweep away economic empires that have lost their power to resist" to "the vandals who conquered decadent Rome."³⁴ Another author (who is a currency trader) says bluntly that "[t]he market is always right, and over time no one player can ever hope to dominate it."³⁵ Still another source intimates domestic regulators and the BSC cannot keep up with marketplace reality: "the markets have moved on, even as regulators hammer out the rules."³⁶ A good example is that by the time the BSC had released its 1993 Market Risk Proposal, banks were developing their own risk management techniques, like J.P. Morgan's value at risk methodology discussed below in Part III.

One inference from these anecdotes is that banks are frustrated by, perhaps even chafe at, their reactive posture. They may view the BSC and its domestic bank regulator members as Lilliputians who ought to realize they are at the mercy of a far larger force. The modern-day Lilliputians irritate banks by firing round after round of rules or proposals, thereby driving up banks' adjustment costs, while suspicious of or oblivious to the giants' ability to exercise self-restraint.

3. A Piecemeal Approach?

This inference is reinforced by a second facet of the adjustment process. The BSC adjusts the capital adequacy regime in a piecemeal fashion. It has not sought with a single stroke a broad regime encompassing all risks associated with foreign exchange transactions. It started with credit risk in 1988, moved to market risk, interest rate risk, and netting in 1993, dealt again with netting in 1994 and 1995, returned to market risk in 1995, and then again handled market risk in 1996. Not surprisingly, after the BSC issued its 1993 Market Risk Proposal, banks urged the BSC to consider a comprehensive, multi-dimensional framework that covered all risks with one aggregate ratio.

32. William N. Eskridge, Jr. & Philip P. Frickey, *Foreword: Law as Equilibrium*, 108 HARV. L. REV. 27, 55 (1994).

33. See, e.g., GREGORY J. MILLMAN, *THE VANDALS' CROWN* x-xiii, 24-26, 59-61, 121-28, 189-93 (1995); STEVEN SOLOMON, *THE CONFIDENCE GAME*, 340-95 (1995); MARJORIE DEANE & ROBERT PRINGLE, *THE CENTRAL BANKS* 148-71 (1994); ANDREW KRIEGER, *THE MONEY BAZAAR* 21-22, 89, 210-11 (1992).

34. MILLMAN, *supra* note 33, at xii.

35. KRIEGER, *supra* note 33, at 92-93.

36. DEANE & PRINGLE, *supra* note 33, at 170.

[B]ecause the relationship between capital requirements for credit, market, forex and interest rate risks is not obvious in the Consultative Papers [*i.e.*, the 1993 Market Risk Proposal], the [1988] Accord's clear benchmark of 8 percent risk-based capital, will be lost. [T]he [Institute of International Finance Working] Group views the lack of one aggregate capital ratio as a significant weakness One method would present an aggregate capital ratio that expresses a bank's total capital as a percentage of its minimum required regulatory capital. The other method would create a more explicit link between capital requirements for credit risk and market risk.³⁷

For example, an aggregate capital adequacy ratio method could entail two steps: the calculation of separate capital requirements for credit, market, and other risks, followed by a comparison of the capital required for all risks with the capital available to meet regulatory requirements.³⁸ The aggregate ratio "would show overall capital sufficiency" to meet all of the separate capital requirements, "thereby eliminating potential confusion stemming from uneven distributions of capital requirements among the different risk factors."³⁹ An alternative method—explicitly linking credit and market risk requirements—might involve a three—step process: measuring the amount of market risk, multiplying this amount by a factor (such as eight percent) that reflects the credit risk capital ratio, and adding the result to credit risk weighted assets.⁴⁰ The goal of both methods would be to ensure that a bank meeting the ratio has sufficient capital to cover both credit and market risks.

Perhaps political pressures among the BSC members disable the BSC from pursuing either alternative. In other words, the BSC's piecemeal adjustments may be a pragmatic accommodation to the impossibility of developing a global capital adequacy strategy. The consequence, however, is uncertainty for banks, as they pointed out after the BSC issued the 1993 Market Risk Proposal.

The capital requirements [proposed in the 1993 Market Risk Proposal] are clearly intended to be additive to the current CR [credit risk] requirements. However, the relationship between the original [1988 Accord] CR capital requirements and the new MR [market risk] requirements remains unclear in the Consultative Papers. The proposed capital framework is structured so that some items currently covered under the CR rules (which require explicit capital cover for items based on their on-balance-sheet value) will instead be covered under the MR rules [T]he introduction of a more complex capital framework *undermines the certainty and simplicity* of the 8 percent CR ratio.⁴¹

Put bluntly, banks wonder when the BSC might publish its next proposed ad-

37. INSTITUTE OF INTERNATIONAL FINANCE, INC., *Capital Adequacy*, *supra* note 17, at iii.

38. *Id.* at 10-11.

39. *Id.* at 11.

40. *Id.* at 11-12.

41. *Id.* at 8-9 (emphasis added).

justment, what its nature and scope will be, and whether there will be any end to new proposals.

In sum, the frequency of adjustments to the capital adequacy regime for foreign exchange transactions between 1988-1995, and the associated adjustment costs, are sufficiently high to engender bank opposition. The reactive posture of banks in the adjustment process, coupled with the BSC's erratic movements, raise further troubling questions about adjustments to the regime. Banks may legitimately question whether more upheaval than necessary has occurred.

B. Intricacy: Calculating Required Capital For Debt Derivatives Under The 1993 Market Risk Proposal

In its 1993 Market Risk Proposal, the BSC addresses two issues affecting capital adequacy requirements for foreign exchange transactions. First, how should a bank calculate the amount of capital it must maintain both to support its portfolio of debt derivatives (e.g., forwards and currency swaps) and to cover possible losses arising from foreign exchange risk associated with certain transactions (namely, spots and currency options)? Second, how should a bank satisfy the requisite capital charge?⁴²

The BSC's answer to the second inquiry is relatively straightforward. The BSC proposes a new "tier III" category of qualifying capital instruments. Specifically, a bank could use subordinated debt to meet its market risk capital charge as long as this debt could absorb losses. The BSC proposes tests to determine whether a particular subordinated debt instrument would qualify.⁴³ However, as discussed below, the BSC prohibits the use of tier III capital to cover losses caused by foreign exchange risk.⁴⁴

The BSC's answer to the first issue, the methodology for calculating the capital charge, is virtually impenetrable. If the BSC wants banks to digest an intricate methodology, then it should provide ample and clear explanations about that methodology. It does not do so in the 1993 Market Risk Proposal. Worse yet, the dearth of careful rationales makes the BSC's work seem not just complex, but also arbitrary. Thus, the 1993 Market Risk Proposal raises a number of troubling issues identified by banks.⁴⁵ Because it is so intricate, the Proposal could not possibly contribute to the stability of the capital adequacy regime for foreign exchange transactions. When the Proposal was issued, The Economist pronounced it stillborn, saying capital rules were "in danger of be-

42. INSTITUTE OF INTERNATIONAL FINANCE, INC., *Capital Adequacy*, *supra* note 17, at 8-9.

43. *Id.* at 10-11.

44. *Id.* at 11. See *infra* notes 158-164 and accompanying text.

45. See Elderfield, *supra* note 28. See Letter from Joseph Bauman, *supra* note 17; *The Supervisory Treatment of Market Risk*, *supra* note 17; *Capital Adequacy*, *supra* note 17.

coming too bitty (and therefore too burdensome).⁴⁶ Nonetheless, the Proposal is being implemented by the G-10 countries, albeit in reincarnated form through the 1996 Market Risk Amendment discussed below.⁴⁷

1. Defining Debt Derivatives

The best way to convey the intricate and arbitrary nature of the 1993 Market Risk Proposal is to explain it.⁴⁸ The BSC sets as a target capital level the amount needed to "cover adequately a high proportion of the losses that would have been experienced in any two-week holding period in a range of representative portfolios over the last five years."⁴⁹ The capital requirement would apply to the current market value of debt securities in which the bank had a proprietary position, and to the foreign exchange risk associated with the bank's transactions.⁵⁰ The BSC proposes different calculation methodologies for debt securities and foreign exchange risk.

A threshold ambiguity is delineating the precise scope of these categories. "Debt securities" include "debt derivatives," and the latter term applies to currency forwards and currency swaps.⁵¹ Whether "debt derivatives" also encompass currency options is debatable. On the one hand, options are not expressly listed in the definition of "debt derivatives."⁵² On the other hand, the BSC's definition is open-ended, stating that "[i]t is proposed to include in the

46. *A Simple Proposal*, ECONOMIST, Dec. 11th-17th 1993, at 20:20.

47. See *infra* note 227 and accompanying text.

48. The explanation is based on 1993 Market Risk Proposal, *supra* note 7, at 17-20, and the bank commentaries cited *supra* note 17. The BSC provided a thoroughly confusing sample calculation. 1993 Market Risk Proposal, *supra*, note 7, Annex 4 at 50-51.

49. 1993 Market Risk Proposal, *supra* note 7, at 5.

50. *Id.* at 6. However, some foreign currency positions would be reported at book value. "Proprietary positions" are those "taken on with the intention of benefiting in the short term from actual or expected differences between their buying and selling prices or of hedging other elements of the trading book, or which are held for short-term resale, or in order to execute a trade with a customer." *Id.*

The BSC also proposed capital charges for equity instruments (including equity derivatives). *Id.* at 1-32. Thus, the 1993 Market Risk Proposal applies to all positions in a bank's "trading book" (i.e., all financial instruments incurred for trading purposes). The distinction between a trading and non-trading book is significant because the Proposal applied only to the former category. The 1988 Accord applied to a bank's non-trading book and, to some extent, its trading book. Banks complained that the distinction was not clear from the Proposal because the scope of the trading book category was not delineated with care. See *The Supervisory Treatment of Market Risk*, *supra* note 17, at 5; Elderfield, *supra* note 28, at 315; *infra* note 82.

51. 1993 Market Risk Proposal, *supra* note 7, at 21. The 1993 Proposal uses the term "cross-currency swaps" by which it appears to encompass both fixed-for-floating and fixed-for-fixed swaps.

52. The definition states debt derivatives "would include forward rate agreements (FRAs), futures and options on debt instruments, interest rate and cross-currency swaps and forward foreign exchange positions." *Id.* (emphasis added).

measurement system those debt derivatives and off-balance sheet instruments which react to changes in interest rates and thus affect the reporting institution's exposure to market risk."⁵³ An option could be affected by the interest rate associated with the currency pair underlying the option.⁵⁴

Apparently, the BSC means to exclude spots, though it does not articulate this intent. The BSC does not list expressly spots as a "debt derivative," and it is inappropriate to think of them as such because their value is not derived from an underlying financial asset.⁵⁵ In addition, the BSC may mean to exclude spots because the usual two-day maturity of spots is too short to necessitate a capital charge for market risk, and because spots are covered by the capital charge for foreign exchange risk discussed below.⁵⁶

2. The Eight Steps

The 1993 Market Risk Proposal does not expound upon how a bank should calculate the market risk associated with its portfolio of debt derivatives.⁵⁷ However, a careful review of the Proposal suggests the BSC wants banks to apply the following eight-step methodology: (1) convert debt derivatives into underlying notional long or short positions; (2) slot long and short positions by maturity; (3) weight the long and short positions by a factor that captures price sensitivity of these positions to interest rate changes; (4) "vertically" offset the weighted long and short positions; (5) adjust the vertical offsets by a "vertical disallowance" factor; (6) "horizontally" offset the weighted long and short positions; (7) adjust the horizontal offsets by a "horizontal disallowance" factor; and (8) obtain the total amount of residual net long and short positions.⁵⁸

The end goal of these steps is to arrive at a figure representing a bank's market risk exposure. That figure equals the amount of capital the bank would need to safeguard itself against market risk. In other words, in contrast to the

53. *Id.*

54. See *The Supervisory Treatment of Market Risk*, *supra* note 17, at 11.

55. See *supra* note 23 at 4.

56. See *infra* note 125 and accompanying text.

57. In the Proposal, the BSC takes a "building block" approach to the market risk associated with debt securities; it distinguishes "specific risk" (the risk of loss caused by an adverse price movement of a security or a derivative product linked to it due principally to factors related to the issuer of the security) and "general market risk" (the risk of loss caused by an adverse market movement unrelated to any specific security). *1993 Market Risk Proposal*, *supra* note 7, Annex 1 at 44, 46; Elderfield, *supra* note 28, at 315-16. But, the BSC acknowledges specific risk is not relevant to debt derivatives because they are not issued by a private entity. (Rather, the BSC proposed to break them down into notional holdings of central government securities.) Therefore, only general market risk has to be calculated. *1993 Market Risk Proposal*, *supra* note 7, at 25-26. Accordingly, the term "market risk" used in the context of the eight-step methodology discussed below technically refers to general market risk.

58. *1993 Market Risk Proposal*, *supra* note 7, at 17-20.

1988 Basle Capital Accord, which requires a bank to cover eight percent of its credit-risk weighted assets, the 1993 Proposal obligates a bank to cover completely, "dollar for dollar," its market risk exposure.⁵⁹ Unfortunately, even seasoned international banking scholars and practitioners are sure to find each step in the 1993 Proposal hopelessly abstruse.

In the first step, a bank converts each debt derivative into a long or short position in a relevant underlying instrument. This position, which the bank records at market value, is the basis for calculating the capital charge against market risk. The bank reports all long and short positions on a currency-by-currency basis, and at every subsequent step separate reporting ladders are used for each currency.

Exactly how should a bank convert currency forwards and swaps into long and short positions? The BSC provides an illustration of a three-month interest rate futures contract purchased in June. The contract is treated as a combination of a long and short position in a notional government security, namely, a long position in a government security with a maturity of five months and a short position in a government security with a maturity of two months.⁶⁰ Similarly, an interest rate swap is treated as two notional positions in government securities with relevant maturities.⁶¹

But, the BSC provides no explanation of how this "two-legged treatment" works in the foreign exchange context. Indeed, it admits readily that some of the central banks represented at the BSC believe this treatment is "a needless complexity."⁶² To keep the bank guessing, the BSC refers to the "relevant underlying" and the "principal amount of the underlying or notional underlying" without indicating precisely what the underlying "thing" is that the BSC has in mind.⁶³ The most logical inference to draw is that the "thing" is the currency or currencies that are the subject of the forward or swap contract.⁶⁴ But, the BSC casts some doubt on this interpretation because it says forwards and swaps should be treated "as notional positions in the relevant *instruments*" instead of using the word "currencies."⁶⁵ One clue as to the BSC's intention appears in its 1993 Interest Rate Risk Proposal. That Proposal gives an example of a five-month forward contract to sell dollars for Deutsche marks. The contract is slotted as a short position in the three-to-six month band of the dollar ladder, and a long position in the three-to-six month band of the Deutsche mark ladder.⁶⁶ Does this example mean the "purchased" cur-

59. *Capital Adequacy*, *supra* note 17, at 11.

60. *1993 Market Risk Proposal*, *supra* note 7, at 22.

61. *Id.*

62. *Id.*

63. *Id.* at 21-22.

64. *An Integrated Bank Regulatory Approach*, *supra* note 17, at v.

65. *1993 Market Risk Proposal*, *supra* note 7, at 24.

66. *1993 Interest Rate Risk Proposal*, *supra* note 11, at 23.

rency always is slotted as a short position, and the "payment" currency as a long position? Unfortunately, the BSC does not provide an example in the 1993 Market Risk Proposal for a currency swap to resolve such questions.

Assuming currency options fall within the scope of the term "debt derivative," a bank must also convert these instruments into long and short positions. The 1993 Market Risk Proposal is no more helpful with respect to currency options than with respect to currency forwards and swaps. In fact, the BSC admits its proposals for options are "less definitive than for most other elements of the framework."⁶⁷ It recommends a bank report its option positions on a "delta-weighted basis" and, therefore, "as a position equal to the market value of the underlying multiplied by the delta."⁶⁸ To be sure, deltas are familiar to banks. A delta is "the expected change of an option's price as a proportion of a small change in the price of the underlying instrument."⁶⁹ For example, a delta of 0.5 means that for every \$2.00 change in the price of the underlying asset, the value of the option changes by \$1.00.⁷⁰ Unfortunately, the BSC does not elaborate further on its recommendation, and the treatment of currency options in the remaining steps remains unclear.

Assuming a bank successfully figures out how to convert its currency-based debt derivatives into long and short positions in relevant underlying notional principals, it proceeds to the second step. In this step, the bank slots all long and short positions into a maturity ladder consisting of thirteen maturity bands. The BSC does not explain why or how it devised these bands—their origin is entirely obscure. A long or short position in a fixed-rate instrument is slotted on the basis of its residual term to maturity. Presumably, a currency forward would be slotted in this manner. Likewise, a bank slots both legs of a fixed-for-fixed currency on the basis of residual term to maturity. As for a fixed-for-floating currency swap, the bank slots the fixed-rate leg on the basis of the residual term to maturity of the swap, and categorizes the floating rate leg on the basis of the next reset date.

In step three, the BSC establishes numerical weights for a bank to apply to the bank's long and short positions in each currency. The weights "reflect the price sensitivity of those positions to changes in interest rates."⁷¹ The BSC provides weights for each maturity band. But, with almost no explanation, the BSC states the value of the weights are based on (1) the price sensitivity in an eight-percent interest rate environment of an eight-percent coupon bond with a

67. 1993 Market Risk Proposal, *supra* note 7, at 23.

68. *Id.* at 23.

69. *Id.* Annex 1, at 43.

70. *Id.* A delta is analogous to the concept of elasticity that is applied in markets for goods or services. *Id.* Deltas give rise to the use of a hedging strategy known as "delta hedging." A trader can hedge the risk exposure of an option by buying or selling the underlying asset in proportion to the delta. *Id.*

71. *Id.* at 17.

maturity equal to the mid-point of the maturity band in question to changes in interest rates (a concept known as "modified duration") and (2) "an assumed change in yield which is designed to cover about two standard deviations of one month's yield volatility in most major markets."⁷² What is the underlying logic? Why were eight percent figures used?⁷³ Why two standard deviations of one month's volatility? What are "major" markets?

The BSC calls step four "vertical offsetting." A bank counterbalances its weighted long and short positions within each of the thirteen maturity bands against one another. The result is a single long or short position in each band. The BSC recognizes long and short positions in the same maturity band are not strictly comparable. For instance, some identical positions might have slightly different maturities, while others might have the same maturity but represent different instruments. Because of imperfect comparability, a bank might be exposed to basis risk, which is "the risk that the relationship between the prices of two similar, but not identical, instruments will change."⁷⁴ Consequently, the BSC asserts it "does not believe it would be consistent with its prudential objective to permit full offsetting of longs and shorts"⁷⁵ The BSC calls for a compensating adjustment—the vertical disallowance, which is step five in the calculation of requisite capital for the market risk associated with debt derivatives like currency forwards and currency swaps.

Without explanation, in step five the BSC proposes a ten-percent vertical disallowance factor. A bank applies this factor to the smaller of the offsetting positions (whether they are long or short) in each maturity band.⁷⁶ For example, assume in a particular maturity band the sum of the weighted long positions is \$200 million and the sum of the weighted short positions is \$150 million. The vertical disallowance is ten percent of \$150 million, or \$15 million. As a result of vertical offsetting and the vertical disallowance, there are two figures associated with each maturity band: a net weighted long or short position, which in the above example is \$50 million (the difference between the \$200 million weighted long positions and \$150 million weighted short positions), and a vertical disallowance, which is \$15 million in that example. The vertical disallowance factor could be extremely significant—in some cases, possibly as high as 85 percent of the entire capital charge.⁷⁷

The BSC predicates step six on the observed phenomenon that interest rates associated with debt securities of different maturities often move in tan-

72. *Id.*

73. The BSC indicated that with the permission of its domestic bank regulator, a bank with the necessary capability could construct its own alternative that used an actual coupon rate and residual maturity. See 1993 *Market Risk Proposal*, *supra* note 7, at 20.

74. *Id.* at Annex 1, at 43.

75. *Id.* at 18.

76. *Id.*

77. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 10.

dem in the same direction.⁷⁸ For instance, as long-term interest rates rise, so too may short- and medium-term rates, albeit perhaps by different magnitudes. The BSC concludes it is appropriate for a bank to offset the bank's net weighted long or short positions for each maturity band with those positions for all other maturity bands. The BSC calls this process "horizontal" offsetting. Thus, whereas vertical offsetting nets positions within a single maturity band, horizontal offsetting requires netting positions across different bands.

The BSC proposes two rounds of partial horizontal offsets. The first round relies on grouping the thirteen maturity bands into three maturity zones—zero to one year, one to four years, and over four years. A bank places its net weighted positions associated with each maturity band in the appropriate zone. Then, the bank offsets each net weighted position in a zone against the other positions in that zone (*i.e.*, intra-zone offsetting) to yield a single position for each of the three zones. In the second round of horizontal offsets, the bank offsets the three net weighted positions for each zone against one another (*i.e.*, inter-zone offsetting) to yield a single net weighted position for all zones.

Why go through these two rounds? Perhaps the reason lies in the BSC's statement that "[o]bserved correlations suggest that the likelihood of divergent movements is lower for nearer segments of the yield curve and higher for more distant segments."⁷⁹ Unfortunately, the BSC does not elaborate, and banks are left to ponder the matter without further assistance.

Though it does not say why, the BSC indicates it will not permit horizontal offsets without some adjustment, and such adjustment constitutes step seven. The BSC asserts that in each of the two horizontal offset rounds "the offsetting of opposite positions would be subject to a disallowance (expressed, in the same way as the vertical disallowance, as a fraction of the smaller of the offsetting positions), based on observed correlations of interest rate movements."⁸⁰ Accordingly, step seven involves adjusting horizontal offsets by "horizontal disallowance" factors. In Annex 3 to the Market Risk Proposal, the BSC lists the horizontal disallowance factors. It offers little insight into the derivation of these factors, even though they "would yield significantly higher capital requirements than justified [under alternative, more accurate methodologies] by limiting the scope for matching long and short positions within a zone."⁸¹

Step seven yields a single net weighted long or short position for a bank's book of debt derivatives. In addition, step seven results in a horizontal disallowance for each of the three maturity zones. The final step—step eight—produces the overall capital requirement against market risk arising from debt

78. 1993 Market Risk Proposal, *supra* note 7, at 19.

79. *Id.*

80. *Id.*

81. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 10.

derivatives. A bank adds the horizontal disallowance factors for each of the three maturity zones to the vertical disallowances for each of the thirteen maturity bands. It then adds the grand disallowance figure to the single net weighted long or short position resulting from step seven. The total is the market risk capital charge for the portfolio of debt derivatives. Thus, this charge is the sum of (1) the net long or short position of a bank's trading book,⁸² (2) a proportion of matched positions in each time band (the vertical disallowance), and (3) a proportion of the matched positions across different time bands (the horizontal disallowance).⁸³

The BSC proposes a significant qualification to the above-outlined methodology for currency-based debt derivatives like forwards and swaps. The scope of the qualification is unclear. The BSC states "capital charges [are to] be calculated for each currency separately with no offsetting positions between positions of opposite sign."⁸⁴ Does this qualification apply to both horizontal and vertical offsets? Does it mean a bank would not have to make vertical and horizontal adjustments?

Further, the qualification suggests long and short positions in different currencies cannot be offset.⁸⁵ For example, a bank cannot offset a 100 million yen long position against a 50 million short deutsche mark position. Similarly, even matched positions (like that in the example of Hongkong Shanghai Bank's fixed-for-floating swaps set forth in the Currency Trading Appendix) cannot offset one another.⁸⁶ But, does the BSC also mean to suggest a bank cannot offset long and short positions within a single currency?

The BSC admits the qualification—whatever its precise scope and nature—is "rather harsh."⁸⁷ The qualification assumes "a worst-case scenario in

82. In brief, a "trading book" is comprised of a bank's proprietary trading positions in financial instruments [including off-balance sheet transactions such as derivative products] which are taken on with the intention of benefiting in the short term from actual or expected differences between their buying and selling prices or of hedging other elements of the trading book, or which are held for short-term resale, or in order to execute a trade with a customer.

1993 Market Risk Proposal, *supra* note 7, at 6. In its 1996 Market Risk Amendment, the BSC discusses the scope of the term "trading book" and how to determine whether a financial instrument is included therein for purposes of the market risk capital requirements. See 1996 Market Risk Amendment, *supra* note 16, at 1-2.

83. See 1995 Market Risk Proposal, *supra* note 15, at 11; 1993 Market Risk Proposal, *supra* note 7, at 19.

84. 1993 Market Risk Proposal, *supra* note 7, at 19.

85. *Id.* at 24.

86. *Id.* Under certain circumstances, positions in the same category of instruments and same currency could be regarded as matched and offset one another. 1993 Market Risk Proposal, *supra* note 7, at 24.

87. 1993 Market Risk Proposal, *supra* note 7, at 19-20.

the movements of interest rates in different currencies.”⁸⁸ The BSC attempts to defend the qualification by saying “the purpose of the proposals is to provide protection against movements in interest rates over relatively short periods and while some correlation across currencies is observable circumstances quite frequently occur in which interest rates in different countries move in opposite directions.”⁸⁹ Surely for banks, this defense is so general as to be unpersuasive.

3. Stifling Product Innovation

The eight-step methodology outlined above is clear only in one respect: it illustrates why the 1993 Market Risk Proposal is intricate and, in some respects, arbitrary. These defects have an untoward second-order consequence noted by banks. The Proposal is likely to stifle product innovation. One advantage of a simple capital adequacy regime for foreign exchange transactions is flexibility. The more intricate the rules of the regime, the more difficult it may become to adapt the regime to new situations without changing the rules. In turn, rule changes entail a time-consuming and costly process. The inflexibility of the Proposal renders it difficult to adapt to new international banking product innovations.⁹⁰

In particular, under the 1993 Proposal market risk was measured on a product-by-product basis. Accordingly, the market risk associated with currency forwards, options, and swaps must be measured separately, and thereafter the capital charge for each transaction must be calculated and aggregated. One difficulty with this methodology is that a product might contain different types of risk. For instance, a fixed-for-floating currency swap involves market and interest rate risks. An even more fundamental difficulty is that product types change.

It will be difficult to adapt the 1993 Proposal to new products. The product type orientation causes capital to be assessed against products, which combine several risk types. As product innovation occurs, this will result in a built-in inflexibility to the capital requirements, since each new product type will require a new policy from the Basle Committee and local regulators, even if the new product constitutes a simple rearrangement of existing risk factors. With the rapid pace of new product development and innovation in the financial services industry, this could soon create a serious monitoring and enforcement problem for regulators.⁹¹

The inflexibility of the 1993 Proposal has a potentially adverse effect on product innovation in currency trading. To be sure, the decision to introduce a

88. *Id.*

89. *Id.* at 20.

90. Letter from Joseph Bauman, *supra* note 17, at 2.

91. *Id.* at 8.

new product depends on a thorough cost-benefit analysis, and capital treatment is only one factor to be considered in that analysis. Occasionally, a bank's product marketers may be so aggressive as to introduce a new product and "pay the price" of non-compliance with capital rules at a later date. Yet, at the margin the inflexibility of the 1993 Proposal could deter some banks from offering a new product because of concerns about the treatment of the product under the Proposal. An additional deterrent could be the waiting period involved in obtaining a decision from the BSC about the proper treatment. Finally, some banks might withhold a product after obtaining an unfavorable decision from the BSC.

C. Cogency

1. Product Types And The 1993 Market Risk Proposal

a. A Holistic View

The 1993 Market Risk Proposal lacks cogency in part because it does not take a holistic approach to the risks banks incur from foreign exchange transactions. The eight-step methodology is myopic because it focuses on transaction types: a bank must isolate each type of foreign exchange transaction, identify a capital charge to deal with each type, and obtain an aggregate capital charge by summing the separate capital charges. The myopia may result in excessive capitalization. Indeed, using this approach some banks might have to double their existing capital levels.⁹²

Three defects in the BSC's proposed methodology account for the possibility of excessive capitalization. First, the BSC neglects the fact that potential changes in foreign exchange and interest rates should be examined in tandem.⁹³ For example, the value of a currency forward or option depends on both underlying exchange and interest rates. Hence, it is important to transcend product types and simultaneously examine both risk factors.

Second, banks know well the 1993 Market Risk Proposal does not account for portfolio effects. Some market risks associated with currency forward and swap obligations in a portfolio offset risks from other obligations, in part because of diversification of these obligations. To account for this phenomenon, it is not sufficient to examine the portion of the portfolio associated with one part of an entire banking organization. Rather, it is necessary to take a global institutional approach to a bank's portfolio.

[T]he Consultative Papers [*i.e.*, the 1993 Proposal] are ambiguous concerning consolidation of risks and capital requirements within conglomerates. Con-

92. *The Sum, Not the Parts*, *ECONOMIST*, Dec. 11, 1993, at 85.

93. Letter from Joseph Bauman, *supra* note 17, at 4.

solidation more accurately reflects the true risk exposure borne by each bank and its affiliates because mismatch-induced losses in one affiliate within a properly hedged holding company will create gains in its affiliated counterparty. Therefore, when viewed from the larger group perspective, individual losses and gains within the group offset each other.

Failure to recognize the interplay between these intragroup transactions would result in an overestimate of the aggregate risks undertaken by the group as a whole. Banking or financial groups tend to evaluate their risks and calculate internal capital on a global, consolidated basis

A capital adequacy framework that ignores these legal and market realities by focusing on individual banks within a larger group would overestimate risk. It would also create excessively large capital requirements⁹⁴

Thus, in response to the 1993 Proposal banks lobbied for a holistic approach. They sought to aggregate risks associated with an entire portfolio, and thereafter calculate the capital charge for the market risk associated with that portfolio.⁹⁵

Third, the BSC subjects debt derivatives to a credit risk charge in accordance with the 1988 Basle Capital Accord as well as a market risk charge under the 1993 Proposal.⁹⁶ In response to the Proposal, banks rightly pointed out the possible inverse relationship between credit and market risk exposure:

The Basle Committee provides only a limited discussion of the interaction of counterparty risk requirements and the proposed market risk regime [A] fundamental concern is that market risk and credit risk for off balance sheet instruments [which include spots, forwards, options, and swaps] are under the Basle proposals considered additive. On the contrary, it can be demonstrated that for each instrument a market movement that results in a mark to market loss cannot also produce an increase in credit exposure. For example, with respect to a forward foreign exchange transaction two future scenarios are possible: the deal may move against the bank, causing a market risk loss, or in favour of the bank, increasing exposure in the event of a counterparty default. It is not possible for both risks to arise simultaneously and as a result it is clear that additive market and counterparty risk capital requirements are not a fair assessment of the risk assumed by the bank. The position is certainly more complex when the trading book as a whole is considered, but it is still the case that a simple additive approach will tend to overstate the risk that arises.⁹⁷

94. *Capital Adequacy*, *supra* note 17, at 17-18.

95. Letter from Joseph Bauman, *supra* note 17, at 2, 6-7 (saying the 1993 Proposal "will overstate the true economic level of capital requirements because it does not incorporate diversification and risk-offsetting opportunities"). See also, *A Simple Proposal*, *supra* note 46, at 20.

96. Elderfield, *Developments in EC and International Capital Adequacy Regulations*, *supra* note 28, at 317.

97. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 6. ("Marking to market" refers to a periodic, such as end-of-day, valuation of each asset position based on current market

More generally, the BSC fails to appreciate the integral relationship between credit and market risk from a bank's perspective. A bank analyzes the ability of its counterparty to meet its obligations, in part by simulating changes in market prices and examining their effect on the counterparty.⁹⁸ Such analysis, coupled with a possible inverse relationship between credit and market risk exposures, indicate that subjecting foreign exchange transactions to full capital charges for both market and credit risk results in excessive capitalization.

b. Risk Management Incentives

In response to the 1993 Market Risk Proposal, banks logically posited "the appropriate amount of capital should equal the amount of market risk for each firm's trading portfolio, which is the measure of its potential loss in economic value."⁹⁹ With respect to currency forwards and swaps, banks argued the starting point should be a calculation of the market value of each forward or swap, *i.e.*, the present value of expected future cash flows from each transaction. In turn, the present value depends on two factors: the terms and conditions specified in each forward or swap contract, and the underlying foreign exchange and interest rates relevant to the transaction. Whereas contractual provisions are fixed and determinable, the exchange and interest rates may be volatile and, therefore, the source of market risk.

Accordingly, banks told the BSC the correct conceptual approach to market risk is to view it as the potential change in the present value of a bank's portfolio of all of its currency forwards and swaps.¹⁰⁰ This change could be calculated in one of two ways: determine the sensitivity of the value of the portfolio to an estimated potential change in the relevant underlying exchange or interest rates; or simulate the effects of various potential changes.¹⁰¹ In either case, the goal is to reduce the capital charge "to reflect the fact that some risks cancel each other out."¹⁰²

The banks' approach offered in rebuttal to the 1993 Market Risk Proposal creates an incentive for them to operate in a prudent manner. If the BSC allows a bank to maintain less capital against foreign exchange transactions by counterbalancing risks associated with these transactions, then the bank has an incentive to improve its risk management systems. Therefore, the bank is likely to build and adjust its portfolio of currency forwards and swaps to maximize offsets among market and interest rate risks.

prices.)

98. *An Integrated Bank Regulatory Approach*, *supra* note 17, at 3.

99. Letter from Joseph Bauman, *supra* note 17, at 8.

100. *Id.* at 3.

101. For the details of the sensitivity analysis, see *id.* at 3, 5-6.

102. *A Simple Proposal*, *supra* note 46, at 22.

c. Increasing Systemic Market Risk

Because of the emphasis on product types in the eight-step methodology for measuring the market risk capital charge, the 1993 Market Risk Proposal creates a perverse risk management incentive that might increase the systemic level of market risk. This result, which would be inconsistent with the goal of the Proposal, is possible because the Proposal distorts economic incentives to hedge market and interest rate risks.¹⁰³

Consider the fixed-for-floating currency swap example set forth in the Currency Trading Appendix.¹⁰⁴ Suppose Hongkong Shanghai Bank enters into the swap with Sumitomo Bank, but cannot find a counterparty with which to enter into a matching swap. One strategy for Hongkong Shanghai Bank is to hedge the market and interest rate risks arising from the swap with Sumitomo by buying or selling foreign exchange futures contracts and Treasury securities.¹⁰⁵

The 1993 Market Risk Proposal ignores this strategy and insists on a matched pair of cross-currency interest rate swaps.¹⁰⁶ As a result, the BSC effectively discourages the practice of hedging currency swaps with other financial instruments—at least from the perspective of reducing capital requirements. This effect arises because of steps four and five in the calculation methodology identified above,¹⁰⁷ the calculation of vertical offsets and vertical disallowances for different product types. The larger the number of long or short positions in debt derivatives, the larger the vertical disallowance and, therefore, the smaller the amount of allowed vertical offsets. The result is a capital charge on a position that would be inconsistent with, and significantly larger than, the risk of the position.

[The] use [of vertical disallowances] is in effect a simple charge on volume and presents a distorted picture of the risk arising from the trading book. A closely matched trading book with little market risk can still give rise to a significant capital charge due to the disproportionate effect of the vertical disallowance. This is inappropriate. Instead, any vertical disallowance factor should be set as an accurate reflection of the basis risk that it is intended to cover. We [the British Bankers' Association] therefore feel that the disallowance factors . . . should be significantly reduced.¹⁰⁸

103. Letter from Joseph Bauman, *supra* note 17, at 2.

104. See *infra* notes 459-66 and accompanying text.

105. See MARSHALL & KAPNER, *supra* note 27, at 18; See also Letter from Joseph Bauman, *supra* note 17, at 7 (noting that the "matched pair approach" would discourage such hedging swaps).

106. See 1993 Market Risk Proposal, *supra* note 7, at 24 (noting that "fully matched positions would be excluded from the reporting framework altogether" but that "[n]o offsetting would be allowed between positions in different currencies.").

107. See *supra* notes 74-77 and accompanying text.

108. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 9.

For example, suppose Hongkong Shanghai Bank hedges its risks through the futures or Treasury markets. The vertical disallowance increases to reflect the additional futures or Treasury positions. The end result, ironically, is an increased capital charge to account for market risk, even though the Bank uses futures or Treasuries to reduce such risk. This result occurs because the vertical disallowance is used to preclude a certain amount of vertical offsets of long and short positions and, therefore, to increase the number of such positions subject to a capital charge. In sum, the 1993 Market Risk Proposal creates the incentive for Hongkong Shanghai Bank to leave its swap with Sumitomo unhedged.

This perverse risk management incentive might increase the level of market risk taken on by banks. Banks might reconsider whether they should engage in cross-product hedging (*i.e.*, hedge a risk associated with one financial instrument by using a different instrument) because of the attendant capital charges associated with the strategy. To the extent banks leave positions unhedged, market risk in the international banking system might increase.

2. Alternative Methodologies Under the 1993 Market Risk Proposal

a. Insisting On Equivalent Results

Step three of the calculation methodology in the BSC's 1993 Market Risk Proposal requires a bank to weight its currency forwards and currency swaps according to a factor designed to reflect the price sensitivity of these positions to changes in interest rates. As noted above, the factors proposed by the BSC are based on three assumptions: an eight-percent interest rate environment, an eight-percent coupon, and a change in yield designed to cover about two standard deviations of one month's yield volatility in most major markets.¹⁰⁹ Banks pointed out these assumptions render the BSC's methodology crude and inaccurate. In effect, the BSC's proposed methodology is complicated to use. However, it is not complex enough to yield an accurate measurement of market risk.¹¹⁰

The banks had good reason to question the cogency of the methodology. Realizing that measuring their exposure to market risk is a necessary but challenging task, many banks have spent millions of dollars on sophisticated computer systems to keep track of this exposure.¹¹¹ Nonetheless, the BSC de-

109. See *supra* notes 71-73 and accompanying text; *1993 Market Risk Proposal*, *supra* note 7, at 17. Volatility is "a measure of the variability of the price of an asset, usually defined as the annualized standard deviation of the natural log of asset prices." *An Integrated Bank Regulatory Approach*, *supra* note 17, at v.

110. See *A Simple Proposal*, *supra* note 46, at 20; *The Sum, Not the Parts*, *supra* note 92, at 85.

111. *The Sum, Not the Parts*, *supra* note 92, at 85; *The Supervisory Treatment of Market Risk*, *supra* note 17, at 1. For an overview of the conceptual underpinnings of some of these

mands a bank prove its alternative method "produces results which are consistently equivalent with the [BSC's] standard method," *i.e.*, that the bank's method yields a capital charge equivalent to that set forth in the 1993 Proposal.¹¹²

[I]t is important that the Basle Committee's proposals take account of these parallel developments [the extensive progress made by international banks in developing accurate risk management techniques], in order to encourage widespread adoption of best industry practices In this latter respect, it is essential that the Basle proposals are structured in such a manner as to encourage the use of more accurate and sophisticated risk management techniques. Thus, while it is most welcome that the Basle Committee makes provision throughout its proposals for various "alternative" risk assessment methodologies (*i.e.*, the duration approach to general market risk for debt securities and the simulation approach for foreign exchange risk), it is deeply disappointing that the Committee insists these must nevertheless produce equivalent results to what are acknowledged to be more basic, less accurate, approaches.¹¹³

In essence, without explanation much less evidence the BSC deems systems devised by banks to be no more reliable than the BSC's proposed measurement.

b. Raising Transaction Costs

The consequence of the BSC's summary conclusion on alternative methodologies for measuring market risk is severe. Banks are forced to measure their exposure to market risk by using the BSC's methodology as well as their own techniques.¹¹⁴ Duplicative measurements raise transaction costs: it is necessary to "train personnel, revise risk management procedures, implement the duration methodology for debt instruments, ensure appropriate offsets, adopt the historical simulation approach [and] break down derivatives instruments."¹¹⁵ These costs, plus any added capital requirements, are not offset by corresponding benefits. As the Institute of International Finance states,

[m]ost international banks will have to bear the expense of installing and maintaining two separate or parallel risk measurement and management systems: one that conforms to the regulatory model and one that reflects management's assessment of what is needed to monitor and control risks. This duplication is an inefficient use of technical and analytical capabilities as well

systems, see Letter from Joseph Bauman, *supra* note 17, at 3-6.

112. 1993 Market Risk Proposal, *supra* note 7, at 20; Elderfield, *Developments in EC and International Capital Adequacy Regulations*, *supra* note 28, at 319.

113. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 1. See also *id.* at 8.

114. *The Sum, Not the Parts*, *supra* note 92, at 85.

115. Elderfield, *Developments in EC and International Capital Adequacy Regulations*, *supra* note 17, at 319. See also Letter from Joseph Bauman, *supra* note 17, at 2 (stating that the 1993 Proposal "will be very costly for firms to implement, due to its fundamental inconsistency with existing systems which trading groups already have in place to manage market risk").

as financial resources.¹¹⁶

Similarly, the British Bankers' Association points out

[t]he [1993] Proposal will be costly for firms to implement. Firms that manage trading portfolios use computer systems that measure risk in economic terms to facilitate the management of their market risk. The matched pair approach would force these firms to build additional computer algorithms, whose only purpose would be to optimize the matching up of contract pairs in order to minimize capital requirements. Moreover, the calculation of the required [vertical and horizontal] disallowances, which the Basle Committee proposes as crude proxies for term structure and basis risk, would also require the creation of additional computer software. Regrettably, the cost of creating these capital requirement management systems would have no redeeming value in terms of controlling actual market risk.¹¹⁷

Not surprisingly, the British Bankers' Association finds the 1993 Market Risk Proposal to be "frankly, puzzling."¹¹⁸ The Association rightly argues "[t]here would not appear to be any justification on prudential grounds for mandating equality of capital standards" as between the BSC's imprecise and banks' accurate methodologies.¹¹⁹

c. Risk Management Incentives Again

By duplicating work and reducing banks to the level of the BSC with respect to the measurement of market risk, the BSC overlooks an important point. It "fail[s] to create sufficient regulatory incentives for banks to operate more sophisticated risk measurement systems than those necessary to meet the regulatory minimum."¹²⁰

This "consistently equivalent" requirement is, in light of the acknowledged advantages of the alternative method, unjustified and objectionable. It reflects a general reluctance throughout the Basle paper to recognise the advantages of more accurate risk management techniques and methodologies. It also implies that institutions would have to conduct the standard calculation as well in order to demonstrate equivalence, which would be extremely onerous. *Instead, the Basle Committee should be seeking to encourage the wider adoption of industry best practices, as more accurate risk management facilitates the task of prudential supervision. In fact, by requiring equivalence, the Basle proposals instead undermine incentives to use more accurate and sophisticated methods of calculating risks.*¹²¹

116. *Capital Adequacy*, *supra* note 17, at iii. See also *Id.* at 23.

117. Letter from Joseph Bauman, *supra* note 17, at 8.

118. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 1; *The Sum, Not the Parts*, *supra* note 92, at 85.

119. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 1.

120. *Capital Adequacy*, *supra* note 17, at iii. See also 5-6, 23-24.

121. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 10 (emphasis added).

Put simply, the BSC exalts regulatory compliance over internal risk management, yet "[b]y demanding equivalent capital charges in all areas, there is less incentive to develop more sophisticated risk management systems."¹²² The ironic result is "[t]o the extent that some banks might forego the cost of operating duplicate systems by using only the less accurate regulatory risk measurement model, financial system safety and soundness could be compromised"¹²³

Further, the BSC ignores strong incentives banks have to devise their own precise measurement systems. When the BSC proposes a standard calculation methodology, it engages in a regulatory exercise that is likely to impose a compliance burden on banks. In contrast, when a bank devises a methodology for itself, its own survival and interest in profitability are at stake. If the bank wrongly underestimates its market risk exposure, then it may fail in the event of adverse foreign exchange or interest rate movements. If it wrongly overestimates this exposure, then it may forego profitable foreign exchange transactions. This incentive structure implies banks would find the 1993 Market Risk Proposal more cogent if the BSC recognizes banks' market risk measurement systems. Indeed, the BSC could offer preferential capital treatment for banks with superior internal risk management systems. In sum, the BSC ought to have considered allowing "banks with superior risk management systems [to] be exempted from application of the less precise regulatory model to calculate capital adequacy requirements."¹²⁴

3. Foreign Exchange Risk And The 1993 Market Risk Proposal

a. Overlap

In addition to establishing capital requirements for market risk associated with debt derivatives, the 1993 Market Risk Proposal devises a capital requirement to cover losses on currency positions due to foreign exchange risk. The latter capital requirement encompasses a bank's spot, forward, and option positions.

With respect to currency spots and swaps, there is no overlap between the market risk requirement for debt derivatives and the foreign exchange requirement. Spots are subject only to a capital charge under the foreign exchange calculation. Swaps are subject only to a capital charge under the market risk calculation. However, with respect to currency forwards and options, the 1993 Proposal ignores the problem of overlapping requirements. Forwards and options are subject to capital charges under both the debt derivative and

122. Elderfield, *Developments in EC and International Capital Adequacy Regulations*, *supra* note 28, at 319.

123. *Capital Adequacy*, *supra* note 17, at 24. See also, *id.* at iii.

124. *Id.* at 6; See also, *id.* at 24.

foreign exchange risk proposals.¹²⁵

Separate calculations and capital charges for currency forwards and options are unnecessary. The BSC refers to the problem of volatile exchange risks, but does not define what it means by "foreign exchange risk."¹²⁶ Presumably, it has in mind changes in the value of a bank's currency positions as a result of exchange rate fluctuations. But, surely a movement in exchange rates is (or ought to be) encompassed by market risk and, therefore, by the capital requirement for debt derivatives. After all, the purpose of maintaining capital against market risk is to safeguard against "the risk of a general market movement arising from, for example, a change in interest rates or official policy."¹²⁷ In sum, exchange rate risk is logically a species of market risk, hence the calculations and capital charges for currency forwards and options are redundant.

b. Measuring The Net Option Position

Redundancy is not the only reason the proposed capital requirement for foreign exchange rate risk lacks cogency. The calculation methodology contains arbitrary features which discourage implementation of, and improvements to, internal risk management by banks. There are three steps in this methodology: (1) measuring the exposure of a bank's open currency position in each currency; (2) measuring the risks inherent in the bank's mix of long and short positions in different currencies; and, (3) determining the appropriate capital charge.¹²⁸

The goal of the first two steps is to produce a single figure representing a bank's net open currency positions. In the third step, the bank applies a pre-set percentage capital requirement to this figure. Unfortunately, the BSC omits transparent rationales to support these steps. Consequently, the methodology seems arbitrary.

The first step requires a bank to sum its net spot, net forward, and net option positions in individual or particular currencies. Its net spot position in a particular currency is the spot market value of asset less liability items (*i.e.*, the amount of a currency it expects to receive minus the amount of that currency it is obligated to pay, valued at the relevant spot market rate).¹²⁹ Its net forward position in a particular currency is the difference between amounts to be received less amounts to be paid, where these amounts are valued at the relevant

125. Of course, the overlap regarding currency options assumes these instruments fall within the ambit of the capital requirement for debt derivatives.

126. *1993 Market Risk Proposal*, *supra* note 7, at 33.

127. *Id.* at Annex 1 at 44. Plainly, the examples the BSC provides are not meant to be exhaustive.

128. *1993 Market Risk Proposal*, *supra* note 7, at 7 and 33.

129. *Id.* at 33. For example, if the currency at issue was yen and the capital charge calculation was in dollars, then the relevant spot market rate would be the yen-dollar rate.

spot market rate.¹³⁰ Its net option position is the net delta equivalent of its total option positions. The first step yields a single net position for each currency that included all of spot, forward, and option transactions.

However, measuring the net option position is troublesome. The BSC attempts to differentiate between two types of banks. On the one hand, there are "major option players" that actively trade options. On the other hand, there are banks that use options to hedge foreign exchange risk but do not trade a portfolio of options. This distinction is imprecise.

What is a "major" option player? What if a bank both actively trades options and uses options for hedging purposes? Because the BSC does not address these issues, they are left to domestic bank regulators for resolution. But, if regulators are responsible for putting banks into one of the two categories, then what safeguard (other than good faith) exists against strategic behavior? Capricious enforcement? Idiosyncratic or inconsistent implementation? For example, a regulator could categorize one or more of the banks subject to its supervision in a manner that minimizes capital charges for options transactions. In turn, the playing field for trading currency options transactions might be unlevel.

The fuzzy distinction is not the only problem with respect to options. For both trading and hedging banks, key details of the proposed methodology for measuring a net option position have no apparent justification. Consider the way the 1993 Market Risk Proposal treats major option players. The BSC understands correctly that

[t]he main complication is that the price of an option does not move in a one-for-one relationship with the spot rate of the deliverable currency, since an option's value is a complex function of the spot rate of the underlying currency, its volatility, interest rate differentials, the strike price and the option's remaining term.¹³¹

The BSC says "the net delta value will be used as the measure of exposure for major option players, the deltas being calculated according to an exchange model or internal pricing model approved by the supervisor [*i.e.*, domestic regulator of the bank in question]."¹³²

For instance, an option worth \$1.00 with a delta of 0.5 has a delta equivalent

130. 1993 Market Risk Proposal, *supra* note 7, at 33. The BSC contended it was inappropriate to use the relevant forward rate because that rate reflected interest rate differentials, and such differentials "would normally be taken into account in measuring a bank's interest rate exposure." *Id.* at 3, 35. It is unclear whether the BSC meant that the general market risk and foreign exchange risk calculations were not redundant.

The BSC allowed for the possibility that some international banks might measure their forward positions according to present value (*i.e.*, discount forward positions to net present value) instead of spot market rates. *Id.* at 35.

131. 1993 Market Risk Proposal, *supra* note 7, at 35.

132. *Id.* at 36.

lent of \$2.00. However, as the BSC itself admits, several variables, most notably volatility, are not captured in a delta.¹³³ That is, "options can pose risks other than delta risk which are not captured by the delta-weighted methodology."¹³⁴ The 1993 Proposal does not encourage banks to devise and utilize accurate techniques that capture such risks.

[T]he MR [market risk] framework's silence concerning gamma or volatility risks is a significant oversight because it creates an inaccurate picture of the risks undertaken by banks active in the options area. This [Institute of International Finance] Report strongly recommends regulatory recognition of internal simulation methods which incorporate gamma or volatility analysis. Banks that operate such sophisticated systems should not be required simultaneously to operate the less accurate regulatory system. This would simplify the proposed capital adequacy framework by eliminating widespread application of an inaccurate and complex method for calculating capital adequacy. *It would also provide banks with incentives to create sophisticated risk measurement and management systems*, if they are not obligated to install a second, less accurate risk measurement system which would be used only for regulatory compliance purposes.¹³⁵

Further, the delta value of an option is likely to fluctuate. Because "the delta measures the change in the value of a financial asset as the underlying price changes . . . the delta value changes with a shift in the underlying market."¹³⁶ The fluctuations can be dramatic in the event of large market moves, which the BSC contemplates in the 1993 Proposal.¹³⁷ Not surprisingly, in response to the 1993 Proposal, banks registered strong opposition to the use of deltas as a risk weight.¹³⁸

For banks using options as hedging devices, the BSC prescribes two rules. The first rule applies when a bank hedges a long spot or forward position with a long put (*i.e.*, the bank bought an option to sell the underlying currency),¹³⁹

133. *Id.* Hence, delta hedging is effective only for small changes in spot rates.

134. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 19.

135. *Capital Adequacy*, *supra* note 17, 15-16 (emphasis added).

136. *Id.* at iv-v.

137. *Id.* at v.

138. *Id.* at iv.

139. For example, suppose the Bank of Tokyo obtains a one million dollar long spot or forward position in dollars at a rate of 105 yen per dollar. The yen-denominated value of this position is 105 million yen. The Bank of Tokyo is concerned the dollar might depreciate against the yen, thus making its position less valuable in its home currency—yen. Yen is the currency in which its financial statements and capital ratios are reported to its regulatory authorities.

The Bank of Tokyo's strategy is to buy a put option on one million dollars. The put option gives it the right, but not the obligation, to sell the dollars at an exercise price. Assume the exercise price is 100 yen per dollar.

Assume also that dollars depreciate relative to yen, and the new spot rate is 95 yen per dollar. The yen-denominated value of the Bank of Tokyo's long spot or forward position falls

or a short spot or forward position with a long call (*i.e.*, the bank bought an option to buy the underlying currency).¹⁴⁰ The capital charge for both the option and position being hedged is eight percent of the position hedged, less the amount by which the option is in the money.¹⁴¹ Why eight percent? Why deduct the amount by which the option is in the money? The BSC provides no explanation.¹⁴² The second rule applies where a long call or long put option is

to 95 million yen—a loss of 10 million yen (105 million yen minus 95 million yen). Therefore, the Bank of Tokyo elects to exercise the option, selling one million dollars and receiving 100 million yen.

As a result of this hedge, the Bank of Tokyo incurs a loss of only five million yen (105 million yen minus 100 million yen). This loss excludes the cost of the option premium and, of course, varies with the assumed numbers used.

140. For example, suppose the Bank of Tokyo takes a one million dollar short spot or forward position in dollars at a rate of 105 yen per dollar. The yen-denominated value of this position is 105 million yen, which is important because yen is the currency in which its financial statements and capital ratios are reported to its regulatory authorities.

The Bank of Tokyo is concerned the dollar might appreciate against the yen, thus making it costly for it to cover its short position and fulfill its delivery obligation to its counterparty on the short transaction. For instance, if the dollar-yen rate moves to 115 yen per dollar, then the Bank of Tokyo must pay 115 million yen to get one million dollars. In contrast, at the 105 yen per dollar rate it would pay 105 million yen.

Accordingly, the Bank of Tokyo's buys a call option on one million dollars. The call option gives it the right, but not the obligation, to buy the dollars at an exercise price. Assume the exercise price is 110 yen per dollar.

Assume also that dollars appreciate relative to yen, and the new rate is 115 yen per dollar. To cover its short position, the Bank of Tokyo exercises the option, spending 110 million yen for one million dollars.

This hedging strategy saves five million yen (115 million yen minus 110 million yen), excluding the cost of the option premium. Of course, this result varies depending on the assumed numbers used.

141. *1993 Market Risk Proposal*, *supra* note 7, at 35. An option is "in the money" if it is profitable to exercise the option.

142. For example, suppose Deutsche Bank has a long forward position of \$100 million. It is concerned the dollar will depreciate against the mark. It hedges its position with a put option that entitles it to sell dollars for marks at a strike price of 1.45 marks per dollar. If the dollar depreciates on the spot market, then the decline in the value of Deutsche Bank's long forward position will be offset (at least in part) by its gain from exercising the option.

Suppose the spot rate is 1.40 marks per dollar, then the option is in the money, and Deutsche Bank will exercise. If the dollar appreciates to over 1.45 marks per dollar, then the option will be out of the money. In turn, the capital charge will be eight percent of the dollar forward position.

To determine the requisite capital charge (in marks), Deutsche Bank calculates the position being hedged at the spot rate, which is 140 million marks (\$100 million multiplied by 1.40 marks per dollar), and multiplies this figure by eight percent. The result is 11.2 million marks. Then, if the option is in the money, Deutsche Bank must deduct from this result the amount by which the option is in the money.

For example, at the 1.40 marks/dollar spot rate, Deutsche Bank calculates the difference between the number of marks obtained by exercising the option and the spot market value of the

held outright (*i.e.*, not as a hedge). In this case, the capital charge is the lesser of eight percent of the market value of the underlying currency and the market value of the option. Again, the BSC gives no rationale for the eight percent charge.¹⁴³ These omissions create a strong impression the proposed methodology is arbitrary.

c. Constraints On The Simulation Method

The second step in calculating the capital charge for foreign exchange rate risk is designed to account for foreign exchange risks associated with long and short positions in various currencies. A bank converts its net positions in each currency it calculated in step one into a single net open position encompassing all net positions in the different currencies. The lack of cogency in this step lies in the conversion method. The BSC gives a bank a choice between the BSC's "shorthand method" and a "simulation method" devised by the bank.¹⁴⁴

Under the shorthand method, the bank converts at the relevant spot rates its net long and short positions in each currency into the currency in which it denominates its financial statements and maintains its capital (*i.e.*, the bank's "reporting currency"). Then, it aggregates these net long positions and short positions into a single net long or short position in the reporting currency. Finally, the capital charge is eight percent of the larger of the long or short positions.

The BSC does not explain why the larger position is the basis for the capital charge. Presumably, the BSC wants to be conservative. Moreover, the shorthand method assumes a capital requirement of eight percent "would ensure an adequate level of protection against losses for most portfolios"¹⁴⁵ Yet, the BSC offers no supporting evidence for this assumption.

The ostensible purpose of the simulation method is to provide a bank with a flexible means to determine risks associated with its long and short positions in different currencies.

[T]he actual exchange rates experienced in a defined past observation period would be used to revalue the bank's present foreign exchange positions and—from those revaluations—to calculate "simulated" profits and/or losses which would have arisen if those positions had remained fixed for a defined holding period. The capital requirement would be set in relation to the worst or near to the worst simulated loss which would have arisen during that period.¹⁴⁶

position being hedged, which is 145 million marks less 140 million marks, or 5 million marks. The final capital charge is 6.2 million marks (11.2 million marks minus 5 million marks). See *id.* § 4, at 35-36 n.27.

143. *Id.* at 36.

144. *Id.* at 36-38.

145. *Id.* at 39.

146. 1993 Market Risk Proposal, *supra* note 7, at 39-40.

However, the BSC imposes four serious constraints on the use of the simulation method. These constraints pertain to the (1) holding period during which a bank is assumed to hold a position and during which losses can accumulate; (2) observation period during which exchange rate data are gathered to capture sufficient evidence of currency volatility; (3) level of confidence required to measure the risk for determining the capital requirement; and, (4) scaling factor used to set the rigor of the capital charge.¹⁴⁷ All but the third constraint seem arbitrary.¹⁴⁸ Thus, banks expressed serious concern, contending the BSC's "restrictive approach" would "undermine the incentive for banks to adopt sophisticated foreign exchange risk measurement systems."¹⁴⁹

The BSC assumes a holding period of two weeks (*i.e.*, ten banking days) is appropriate because it takes two weeks for a bank to close out its loss-making positions. However, this assumption is excessively conservative. The same criticism leveled by banks at the BSC's capital charge for equities and equity derivatives in the 1993 Market Risk Proposal is relevant to the holding period assumption:

[S]etting capital standards with reference to unduly pessimistic simulations provides only marginal additional protection than under more moderate capital requirements, while having a disproportionate effect on the costs of doing business. This can harm competitiveness . . . inhibit financial innovation and lead to distortions in normal investment decisions.¹⁵⁰

In the foreign exchange risk context, as the BSC itself admits, it takes more than a day to close out a loss-making position only in a currency market that is illiquid and highly volatile.¹⁵¹ By definition, all major currencies are liquid and the bulk of trading activity occurs in these currencies. While some banks decline to close out loss-making positions in the hope the market would turn in their favor, others cut their losses. There is no *a priori* basis to presume banks behave in an imprudent manner.

The observation period set by the BSC—five years—is equally dubious. It is designed to be "sufficiently long to avoid over-reliance on recent exchange rate movements while still being practical and not too burdensome to run."¹⁵² Yet, the BSC gives no explanation as to why a three-year period might not be appropriate. Indeed, banks proposed a shorter period combined with a higher

147. *Id.* at 40.

148. With respect to the third constraint, the BSC suggests the level of confidence for measuring foreign exchange risk ought to be the "worst loss, or . . . in terms of loss quantiles . . . the level which includes 95% of the hypothetical losses that would have arisen from the bank's current set of open positions." *Id.* at 41. Whether this level is excessively conservative is difficult to judge because the BSC provides no explanation for its suggestion.

149. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 17.

150. *Id.* at 2.

151. 1993 Market Risk Proposal, *supra* note 7, at 40-41.

152. *Id.* at 41.

level of confidence (e.g., 99 instead of 95 percent of simulated losses).¹⁵³

Undoubtedly, the most arbitrary aspect of the entire foreign exchange rate risk measurement methodology concerns the BSC's proposal for a scaling factor to determine the rigor of the capital requirement produced by the simulation methodology. It establishes a three percent scaling factor. A bank using the simulation method to calculate its capital charge also must calculate three percent of its hypothetical capital charge under the shorthand method. Then, the bank must add (on to the capital charge under the simulation method) the three percent figure from the shorthand method to arrive at a total foreign exchange risk capital charge.¹⁵⁴

The BSC's rationale is the scaling factor "would deliver approximate equivalence in terms of toughness of the capital requirement for a portfolio of average riskiness between the shorthand and the simulation methods."¹⁵⁵ Banks justifiably complained no basis exists for the three percent add on and urged the BSC to drop the notion. The British Bankers' Association stated

[t]he additive 3% requirement is in our view *completely unjustified*. The use of the simulation method provides a more accurate measurement of foreign exchange risk, and can only be undertaken by sophisticated systems after considerable research and investment. As a result, the Basle proposals should be framed in such a manner as to encourage use of this method so as to strengthen prudent risk management. Consequently, it is particularly objectionable that the Basle Committee has "approximate equivalence" as its stated goal This undermines the incentive to absorb costs required to establish a simulation measurement system. *Indeed, the additive 3% requirement raises the prospects that in some instances the simulation method will generate a higher capital requirement than the 8% charge under the shorthand method (which may well be too high itself).*¹⁵⁶

Likewise, the Institute of International Finance indicated it opposes the seemingly arbitrary 3 percent add-on. Since the Basle Committee has not released its background papers describing the origin of the 3 percent add-on, the Working Group cannot evaluate it. Internal analyses at a number of the Working Group's banks indicate that the simulation method for calculating Foreign Exchange Risk ("FXR") is accurate without the add-on. Grafting a 3 percent add-on to an otherwise accurate measurement system will undermine the credibility of the new framework and will introduce significant regulatory

153. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 18.

154. *1993 Market Risk Proposal*, *supra* note 7, at 42. As a result, the minimum capital charge for risks associated with a bank's mix of long and short positions in different currencies would never be less than three percent of its overall net open positions as measured under the shorthand method.

155. *Id.*

156. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 18 (emphasis added).

distortions by requiring banks to be overcapitalized on FXR.¹⁵⁷

In sum, the BSC repeats the same mistake it makes with respect to the treatment of alternative methodologies for measuring the market risk of debt derivatives. The three percent scaling factor creates a needless duplication of effort and a disincentive to develop sharper simulation methods because it compels banks to perform both the shorthand and simulation method calculations.

d. Denial Of The Use Of Tier III Capital

The third step in the foreign exchange rate risk measurement methodology in the 1993 Market Risk Proposal provides few details, yet imposes a noteworthy burden on banks. To be sure, the BSC grants a *de minimis* exception from the capital charge for foreign exchange rate risk for banks with negligible foreign exchange business.¹⁵⁸ But, banks subject to the charge cannot use tier III capital to satisfy the requirement. Accordingly, they must allocate tier I or tier II capital to their foreign exchange transactions.¹⁵⁹

As intimated above,¹⁶⁰ a financial instrument must meet certain criteria to qualify as tier III capital. For instance, it must be unsecured, subordinated, and fully paid up debt; it must have an original maturity of at least two years; it cannot be repayable before the agreed repayment date; and it cannot be repaid if repayment would deplete a bank's capital base supporting the bank's trading activities.¹⁶¹ From the BSC's point of view, these restrictions help ensure tier III capital is available to absorb losses.¹⁶²

The banks have a very different view. They criticized the BSC's position against the use of tier III capital to absorb losses arising from foreign exchange risk as "unduly conservative."¹⁶³ In their view, there is "no clear prudential justification for prohibiting the application of tier III capital to meet foreign exchange risks."¹⁶⁴ Given the restrictions on qualifying for tier III capital, their view is reasonable. If a tier III capital instrument can fulfill its central loss-absorption function, then why preclude it from fulfilling this function?

157. *Capital Adequacy*, *supra* note 17, at v; see also *Id.* at 16.

158. *1993 Market Risk Proposal*, *supra* note 7, at 39.

159. For a discussion of the components of tier I and II capital, see the *Capital Adequacy* Regime Appendix.

160. See *supra* notes 43-44 and accompanying text.

161. *1993 Market Risk Proposal*, *supra* note 7, at 10. The last criterion is known as a "lock-in" provision.

162. *Id.*

163. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 6.

164. *Id.* at 6-7.

4. Recognizing Netting Arrangements And The 1994 And 1995 Netting Amendments

The original unamended version of the 1988 Basle Capital Accord does not recognize netting techniques, except for netting by novation, for the purpose of computing a bank's capital requirement to cover losses arising from credit risk.¹⁶⁵ For example, close-out netting,¹⁶⁶ a technique commonly used in foreign exchange contracts,¹⁶⁷ does not receive preferential capital adequacy treatment. The BSC's concern is that close-out netting clauses may not be enforceable in every relevant jurisdiction.¹⁶⁸ It fears certain domestic bankruptcy laws might empower a receiver of a failed counterparty to "cherry pick" among executory foreign exchange contracts, assuming only those contracts favorable to the estate of the failed counterparty.¹⁶⁹ So long as this possibility exists, the BSC reasons banks should not be allowed to reduce the capital they maintain to support currency transactions.

The 1994 Netting Amendment establishes conditions under which bilateral contractual netting techniques, in addition to netting by novation, are recognized for the purpose of calculating the credit risk capital charge.¹⁷⁰ Unfortunately, the Amendment is a half-hearted effort to acknowledge the possibility

165. See *Capital Adequacy*, *supra* note 17.

166. Under a close-out clause in a bilateral contract, each party specifies that if "one of the counterparties is wound up, the outstanding obligations between the two are accelerated and netted to determine the [solvent] counterparty's net exposure [if any, to the failed counterparty]." 1988 Basle Capital Accord, *supra* note 5, at Annex 3 n. 7. That is, close-out netting is "an arrangement whereby default by one of the counterparties creates a nondefaulting party right to close out all open positions and net the resulting payment streams. This net amount can either result in an amount owed to the defaulting party or in an amount owed by the defaulting party."

An Integrated Bank Regulatory Approach, *supra* note 17, at B-1, B-2. A bilateral netting scheme is a private contractual arrangement for offsetting obligations arising between two parties. In a multilateral scheme, more than two parties agree to establish a central clearinghouse that acts as a counterparty to both sides of a transaction. Transactions give rise to net and net-net positions, and amounts owed by residual debtors are paid to creditors through the clearinghouse. See *Id.* at B-2.

167. Indeed, a close-out netting clause exists in various standard-form contracts used for currency trading. See, e.g., FOREIGN EXCHANGE COMMITTEE & BRITISH BANKERS' ASSOCIATION, INTERNATIONAL FOREIGN EXCHANGE MASTER AGREEMENT (IFEMA) § 5 (Nov. 1993) (standard-form contract for spots and forwards); BRITISH BANKERS' ASSOCIATION & FOREIGN EXCHANGE COMMITTEE, INTERNATIONAL CURRENCY OPTIONS MARKET (ICOM) MASTER AGREEMENT AND GUIDE § 8 at 9-12 (Apr. 1992) (standard-form contract for currency options); INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION, MASTER AGREEMENT AND GUIDE § 5(a)(vii) § 6(b), (d)-(e) (1992) (standard-form contract for currency swaps).

168. See, e.g., *An Integrated Bank Regulatory Approach*, *supra* note 17, at B-2.

169. See *Capital Adequacy*, *supra* note 17.

170. *Id.* For an overview of the 1994 Netting Amendment, see Matthews, *supra* note 28, pt. I.A.

close-out netting (or another technique other than netting by novation) could reduce a bank's credit risk. It raises three threshold problems.

First, its effect on spots is unclear.¹⁷¹ It might be argued that a spot is just a forward that settles in two days. In any event, the problem of application to spots seems to have gone unnoticed by the international banking community. Second, the timing of implementation is left to bank regulators. The BSC prescribes no final date by which the Amendment should be incorporated into domestic law (it appears good faith implementation efforts are being made by various bank regulators in the U.S. and Europe). Third, there may be inconsistencies among bank regulators in interpreting the Amendment. For example, U.S. regulators refuse to endorse a particular netting agreement, whereas French authorities essentially provide such endorsements, and British supervisors apply their own unique criteria to netting agreements.

In addition to these threshold difficulties, the cogency of the Amendment is dubious because it skews the allocation of burdens. Neither the BSC nor domestic bank regulators bear any responsibility for determining whether a netting arrangement will be upheld in the event of counterparty insolvency. Rather, "[u]nder the amendment [to the 1988 Accord] the primary burden rests on banks to demonstrate to their supervisors the legal enforceability of netting arrangements in all relevant jurisdictions."¹⁷²

The 1994 Netting Amendment requires a bank to satisfy its regulator that its netting arrangement creates a single legal obligation to receive or pay a netted sum in the event its counterparty defaults or becomes insolvent. Proof is required in the form of written, "reasoned legal opinions."¹⁷³ These opinions must be obtained from every jurisdiction in which the counterparty is located—*i.e.*, its home country plus the locations of any of its branches involved in the netted transactions—and from the jurisdiction "necessary to effect the netting."¹⁷⁴ The bank must monitor legal developments in these jurisdictions to ensure its netting arrangement remains viable in the event of counterparty failure.¹⁷⁵ By placing these burdens on banks, the BSC neglects four fundamental points. As a result, it may discourage development of new netting techniques. Certainly, these points provide ample legitimate basis for banks to oppose the Amendment.

First, in general banks are not in as good a position as domestic regulators to ensure the legal enforceability of netting arrangements under the bankruptcy laws of various jurisdictions. (Of course, there are instances of sophisticated

171. The BSC mentions "forwards, swaps, options and similar derivative contracts," but not spots. See *1994 Netting Amendment*, *supra* note 13, Annex 1 at 1.

172. *1994 Netting Amendment*, *supra* note 13, at 2.

173. *Id.* at Annex 1 at 2.

174. *Id.*

175. *Id.*

banks from countries in which the bank regulator is unsophisticated or slow. The Spanish bank, Santander, might be an example.) Banks can lobby for legal change, but only regulators can make such change, and banks rely on regulatory leadership to effect such change. That is, banks "cannot provide the legal certainty needed to enforce netting agreements"—only the BSC and domestic bank regulators can perform this task.¹⁷⁶

Accordingly, the BSC ought to impose on bank regulators the obligation of effecting a change in their domestic laws to immunize banks from the possibility that a bankruptcy trustee might attempt to unbundle netted contracts by "cherry picking" in search of contracts favorable to a debtor-bank's estate.¹⁷⁷ Certainly, no immunization will work every time, as much rests in the hands of domestic bankruptcy judges. But, the apparent unwillingness of the BSC to impose any obligation on regulators to work toward positive legal reform seems inexplicable.

Further, the BSC ought to assume the obligation of creating a central database of information about the bankruptcy laws of jurisdictions around the world (or at least in all major currency trading centers). This database could be maintained at the Bank for International Settlements ("BIS") in Basle, Switzerland or the International Monetary Fund ("IMF") in Washington, D.C. and be accessible to users around the world through on-line connections. A bank contemplating a netting arrangement could then access the database to check the enforceability of its proposed scheme in relevant jurisdictions. Unfortunately, the BSC expressly disavows this obligation, stating that "[t]he Committee will not publish a list of acceptable [netting] agreements."¹⁷⁸ Perhaps there are intellectually meritorious reasons for this disavowal. For example, a database could create a moral hazard problem, as banks conduct all their netting transactions in "endorsed" jurisdictions. However, the BSC does not explore such reasons or explain its position.

Second, the precise nature of the obligations the BSC means to impose on banks is unclear. Perhaps it does not seem unreasonable for a bank to be required to defend its methodology for commissioning legal opinions on netting agreements, especially in light of the fact that it must defend its risk management procedures. But, consider the ambiguities raised by the Amendment. What is a "reasoned" legal opinion? How many legal opinions for a particular jurisdiction are necessary? Must bank regulators independently verify the enforceability of a netting arrangement?¹⁷⁹ What procedures must a bank im-

176. *An Integrated Bank Regulatory Approach*, *supra* note 17, at B-2.

177. *See Capital Adequacy*, *supra* note 17.

178. *1994 Netting Amendment*, *supra* note 13, at 2.

179. This possibility is raised because the BSC requires bank regulators to "be satisfied that the netting is enforceable under the laws of each of the relevant jurisdictions" *1994 Netting Amendment*, *supra* note 13, Annex 1 at 2.

plement to ensure that the legal characteristics of netting arrangements are reviewed in light of possible changes in relevant laws? How often must such reviews be conducted? Conceivably, banks might get different answers from different regulators. For example, the Bank of Tokyo might get approval for its netting arrangements from the Bank of Japan, but not the Federal Reserve. The 1994 Netting Amendment contemplates "consultation when necessary" between supervisors.¹⁸⁰ In the event of continued disagreement, the Amendment tips the balance in favor of an objecting regulator: if any regulator is dissatisfied with the enforceability of a netting arrangement under its laws, then the arrangement does not qualify for preferential capital adequacy treatment.¹⁸¹ But, what if the objecting regulator is overly conservative, or withholding its acceptance to obtain a concession from the accepting regulator on a different issue? If the BSC simply published a list, acceptable to its members, of enforceable netting arrangements and related jurisdictions, then these ambiguities would be avoided.

Third, it is unclear how a netting agreement that covers some, but not all, relevant jurisdictions should be treated. Suppose Citibank signs a netting agreement with the London branch and Madrid headquarters of a Spanish bank. Citibank has obtained an acceptable legal opinion covering the U.S. and England, but no such opinion exists for Spain. (That is, either there is no legal opinion covering Spain, or the Spanish legal opinion does not state that the netting agreement would work under Spanish law.) Thus, the London branch is "clean," while the Madrid headquarters is "dirty." Does the latter fact vitiate the entire netting agreement in the eyes of the BSC or relevant domestic bank regulator? Anecdotal evidence suggests the Federal Reserve will ignore the "dirty" Madrid headquarters. However, other regulators might look askance at a netting agreement that mixes clean and dirty jurisdictions. Here, then, is an illustration of a threshold problem with the Amendment mentioned above—inconsistent regulatory interpretations. Whether the apparent Federal Reserve position makes sense depends in part on the likelihood of compelling "dirty" jurisdictions to change their netting laws by isolating them into separate "dirty" agreements.

Finally, whatever their exact nature, the banks are likely to incur significant costs in meeting their obligations. It could cost hundreds of thousands of dollars to procure legal opinions for (1) all jurisdictions in which counterparties are chartered, (2) all jurisdictions in which branches of counterparties involved in netted transactions are located, and (3) every jurisdiction whose law is needed to effect netting arrangements. (Of course, obtaining opinions in major jurisdictions like England may be more expensive than obtaining opinions in emerging markets like Turkey.) Worse yet, the costs are unnecessarily

180. 1994 Netting Amendment, *supra* note 13, Annex 1 at 2.

181. *Id.*

duplicative. Suppose Citibank obtains legal opinions covering its close-out netting arrangements in its forward contracts with counterparties in Shanghai and Manila. These opinions are "reasoned" in the eyes of the Federal Reserve, People's Bank of China, and Central Bank of the Philippines. Subsequently, the Bank of America seeks to engage in netted forward trading with counterparties in Shanghai and Manila. Why should the Bank of America incur the cost of obtaining another set of legal opinions? Clearly, its incentive is to rely on the opinions obtained by Citibank that have been filed with the relevant regulators. But, of course, Citibank will object to such blatant free riding. It will argue its opinions are specific to its transactions, and subject to the attorney-client privilege. Bank of America will rebut that there is no material difference between its forwards and those entered into by Citibank, and that keeping the opinions privileged means banks must replicate legal work and thus pay unnecessary fees. The only winner will be lawyers. Again, a central database at the BIS would avoid these problems.

To be sure, an alternative solution to the fourth problem is for banks to use a standard form contract for their foreign exchange transactions.¹⁸² Trade associations could obtain legal opinions on behalf of all member banks, and the members could share the attendant costs. While this alternative may lower transaction costs, it also may create an artificial incentive to use the standard form contracts, namely, the existence of a supporting legal opinion. In turn, it may stifle the development of innovative netting arrangements, or discourage netting schemes that are tailor made for specific banks—though perhaps riders to standard form contracts could resolve this difficulty. Also, the standard form contract alternative is unhelpful to banks that are not members of a relevant trade association. Such "non-club" banks are likely to be from developing and newly industrialized countries.

In sum, the "liberalized" netting policy espoused in the 1994 Netting Amendment is more theoretical than real. There may be little incentive for banks to devise alternatives to netting by novation because of the difficulties associated with getting an alternative netting arrangement recognized for capital adequacy purposes. Once again, whether spots are covered is unclear. There is no timetable for implementation. There may be inconsistent regulatory interpretations of the Amendment. The BSC and domestic regulators shirk burdens and related costs they ought to assume, while at the same time leaving a number of critical issues unresolved. Therefore, based on the cogency variable, banks would have legitimate reason to object to the Amendment.

A similar lack of cogency plagues the BSC's rules, set forth in its 1995

182. See, e.g., FOREIGN EXCHANGE COMMITTEE & BRITISH BANKERS' ASSOCIATION, BRITISH BANKERS' ASSOCIATION & FOREIGN EXCHANGE COMMITTEE, INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION, *supra* note 167 (citing three standard-form contracts).

Netting Amendment, for reducing the add-ons for potential future exposure.¹⁸³ The same obligations imposed on banks in the current credit exposure context are imposed on banks in the potential future exposure context.¹⁸⁴ Worse yet, the BSC's formula for limiting the amount by which add-ons for potential future credit risk could be reduced as a result of a netting arrangement makes little sense. Logically, the constraint should be the extent to which netting impacts potential future exposure. The BSC admits it has no "precise indicator" to measure this impact.¹⁸⁵ Its proxy is the ratio of net to gross current replacement costs for the transactions subject to netting. Thus, its formula is:¹⁸⁶

$ANET = (0.4)(AGROSS) + (0.6)(NGR)(AGROSS)$; where

ANET = the add-on for netted transactions (ANET),

AGROSS = the average of the add-on as calculated under the 1988 Accord,¹⁸⁷

and

NGR = the level of net replacement cost divided by level of gross replacement cost, with respect to transactions subject to legally enforceable netting arrangements.¹⁸⁸

The BSC tosses out this formula with little explanation. Why is NGR an appropriate proxy for the impact of a netting arrangement on potential future credit risk? Is it suitable for a wide variety of netting arrangements? Why does it not matter whether NGR is calculated on (1) a counterparty-by-counterparty basis or (2) an aggregate basis for all transactions subject to le-

183. The rule was first published as a proposal in the *1994 Netting Amendment*. See *Capital Adequacy*, *supra* note 17.

184. *1994 Netting Amendment*, *supra* note 13, at 3. In this paragraph, the BSC states that its proposed formula for reducing the add ons would apply to "transactions subject to legally enforceable netting agreements consistent with the requirements set out in the attached amendment to the Capital Accord on bilateral netting" (emphasis added). See also *1995 Netting Amendment*, *supra* note 14, at 3-6.

185. See *1994 Netting Amendment*, *supra* note 13, at 3.

186. See *1995 Netting Amendment*, *supra* note 14, at 5; *1994 Netting Amendment*, *supra* note 13, at 3.

187. That is, AGROSS is calculated by multiplying notional principal amounts of transactions by the appropriate add-on factors specified in Annex 3 of the 1994 Amendment. See *1995 Netting Amendment*, *supra* note 14, at 5 n. 9; *1994 Netting Amendment*, *supra* note 13, at 3 n. 3.

188. *1995 Netting Amendment*, *supra* note 14, at 5; *1994 Netting Amendment*, *supra* note 13, at 3.

gally enforceable netting arrangements?¹⁸⁹ Why are the factors of 0.4 and 0.6 “an appropriate compromise” between “recognizing the effects of netting,” on the one hand, and “providing a cushion against potential fluctuations in net current exposure,” on the other hand?¹⁹⁰

The dearth of answers to these questions creates the impression the formula is arbitrary, which undermines the cogency of the Netting Amendment. This impression is reinforced by the BSC's position on bank-devised netting models. In the 1994 Netting Amendment, the BSC elects not to accept in lieu of its formula any internal simulation model developed by a bank to measure the bank's potential future credit exposure under the bank's particular netting arrangements.¹⁹¹ It confirms this refusal in the 1995 Amendment.¹⁹² The perverse repercussion is banks are discouraged from devising accurate, tailor-made models to regulate their risk exposures—with no explanation as to why.

D. Authority: Three Problems With The Elite Club

The World Trade Organization (“WTO”) possesses a well-trained staff of international trade experts in its permanent secretariat in Geneva. The WTO consists of roughly 125 members and does not appear to favor systematically any particular constituency.¹⁹³ In brief, it is an expert, representative, unbiased entity.

Likewise, the BSC boasts expertise in international banking law. But, the analogy with the WTO ends here. The BSC is a club of elite central bankers and bank regulators shrouded in secrecy.¹⁹⁴ Any agreement reached by the BSC is at best a plurilateral one.¹⁹⁵ This fact has a profound implication for

189. 1995 Netting Amendment, *supra* note 14, at 1; 1994 Netting Amendment, *supra* note 13, at 3-4.

190. 1995 Netting Amendment, *supra* note 14, at 1. When the BSC first proposed the formula in the 1994 Netting Amendment, it used a 0.5 factor. See 1994 Netting Amendment, *supra* note 13, at 3.

191. 1994 Netting Amendment, *supra* note 13, at 4.

192. The BSC did not mention the matter in the 1995 Amendment, thus implicitly confirming its refusal.

193. See RAJ BHALA, INTERNATIONAL TRADE LAW: CASES AND MATERIALS chs. 2-3 (1996).

194. See generally RAJ BHALA, FOREIGN BANK REGULATION AFTER BCCI 116-19 (1994) (discussing the exclusive nature of the Bank for International Settlements).

195. To be sure, the Accord is relevant to central banks and bank regulators beyond the G-10 countries, Luxembourg, and Switzerland. For example, the Own Funds Directive issued by the European Union (EU) is based on the Accord and applies to non-G-10 members of the EU: Denmark, Greece, Ireland, Portugal, and Spain. Authorities from various other countries have declared unilaterally their fidelity to the Accord in an effort to boost the financial strength and, therefore, reputation, of their banks. See Scott, *The Competitive Implications of the Basle Capital Accord*, *supra* note 28. There appears to be no publicly available tabulation of the number of countries not represented at the BSC that have implemented the Accord and consider

the authority variable of the FICAS model: it casts doubt on the authority of the rules and proposals issued by the BSC.

Specifically, it raises three difficulties. First, the BSC has no authority over securities firms that trade currencies. That authority belongs to the International Organization of Securities Commissioners ("IOSCO") (and, of course, domestic securities regulators). The BSC and IOSCO have worked on joint frameworks for disclosure of derivative trading activities.¹⁹⁶ But, they have yet to reach a consensus on a harmonized set of capital adequacy guidelines to apply to banks and securities firms.¹⁹⁷ For a variety of reasons (*e.g.*, variations in cross-border accounting standards, differences in regulatory cultures between banking and securities regulators, and differences in asset/liability structures of affected banks) such a consensus is unlikely in the near future.

Second, the BSC cannot purport to issue rules or proposals for banks from countries not represented at the BSC. At best, it could be argued that a set of rules (as distinct from proposals) issued by the BSC is a binding agreement from which customary international law develops, and that banks from non-BSC countries are bound by the custom law.¹⁹⁸ However, this argument is unpersuasive. As discussed below, the premise the agreement is binding is flawed. Moreover, the agreement is not conclusive evidence of a custom, but rather must be weighed with other evidence.¹⁹⁹ Finally, as a political matter, non-BSC countries (particularly less developed and newly industrialized countries) may object to and even spurn an agreement made by a largely western cabal and to any custom that might flow from such an agreement.

Third, as for banks from countries represented at the BSC, the authority of an agreement reached at the BSC to create a binding obligation as a matter of public international law is dubious. Certainly with respect to proposals issued by the BSC (such as the 1993 and 1995 Market Risk Proposals) no binding obligations are created. All banks, whether or not their countries are represented at the BSC, are free to disregard entirely the proposals (unless their do-

seriously the BSC's proposed capital adequacy guidelines.

196. *See, e.g.*, Joint Press Statement by the Basle Committee and IOSCO Technical Committee, July 27, 1994. In addition, the BIS has produced its own discussion paper on disclosure of derivatives trading activities. *See* Working Group of the Euro-currency Standing Committee of the Central Banks of the Group of Ten Countries, *Public Disclosure of Market and Credit Risks by Financial Intermediaries* (Sept. 1994).

197. *See, e.g.*, *The Prudential Supervision of Netting*, *supra* note 7, at 3.

198. *See* RESTATEMENT (THIRD) OF THE FOREIGN RELATIONS LAW OF THE UNITED STATES § 102(3), cmts. f, i, and Reporters' Note 5; *North Sea Continental Shelf Cases* (West Germany v. Denmark & Netherlands), 1969 I.C.J. 3, ¶ 71; ANTHONY D'AMATO, *THE CONCEPT OF CUSTOM IN INTERNATIONAL LAW* 103-66 (1971).

199. Richard Baxter, *Treaties and Custom*, 129 RECUEIL DES COURS 25, 99 (1970-I). *See also* Arthur M. Weisburd, *Customary International Law: The Problem of Treaties*, 21 VAND. J. TRANSNAT'L L. 1 (1988).

mestic regulators have implemented regulations following the proposals).

With respect to the 1988 Accord, the problem of authority is less clear.²⁰⁰ On the one hand, Article 38:1(a) of the statute of the International Court of Justice ("ICJ"), and Section 102(1)(b) of the *Restatement (Third) of the Foreign Relations Law of the United States*, list international agreements as a source of international law.²⁰¹ Article 38 and Section 102 are widely accepted as accurate lists of such sources, and the Accord could be viewed as fitting squarely within the lists.

On the other hand, the BSC scrupulously avoids dubbing its rules and proposals as "agreements."²⁰² It deliberately selects rubrics with no legal significance, such as "consultative paper." The Accord itself has no formal title other than "International Convergence of Capital Measurement and Capital Standards," and paragraph 1 of the document uses the term "[t]his report."²⁰³ Moreover, some commentators refer to the Accord as a "gentleman's agreement" and imply obedience to it is a matter of good faith among central banks and bank regulators represented at the BSC.²⁰⁴ Indeed, the Institute of International Finance states "the Accord is not a binding legal document."²⁰⁵

The plurilateral and possibly non-binding nature of BSC rules and proposals suggests a more authoritative forum than the BSC for developing a capital adequacy regime for foreign exchange transactions ought to be considered. If a market is multilateral in nature, then so also should be the system of governance of that market. The WTO follows this principle. Cross-border trade in goods and services is conducted by almost every country with scores of other countries. Similarly, multilateralism is a hallmark of trade in currencies.

Accordingly, one alternative would be to reinvigorate the International Monetary Fund, a forum that boasts a far broader membership than the BSC.²⁰⁶ An even more ambitious alternative is suggested by the Commission on Global Governance ("CGG"). In 1992, as a result of efforts by former West German Chancellor Willy Brandt, the CGG was established to "analyse the main forces of global change, examine the major issues facing the world commu-

200. To the extent the Accord is implemented in domestic law through regulation, it creates legal obligations as a matter of that law. But, such obligations are conceptually and legally distinct from those created under international law.

201. Statute of the International Court of Justice Annexed to the Charter of the United Nations, T.X. 993; RESTATEMENT, *supra* note 198, § 102.

202. The synonymous term "Accord" is used informally by commentators but does not reflect the official labels on the rules or proposals. Further, the BSC tends to use the term "guidelines" as distinct from "rules."

203. See 1988 Basle Capital Accord, *supra* note 5, ¶ 1.

204. See, e.g., Scott, *The Competitive Implications of the Basle Capital Accord*, *supra* note 28, at 885.

205. *An Integrated Bank Regulatory Approach*, *supra* note 17, at app. D at i.

206. See BHALA, *supra* note 194, at 267-68.

nity, assess the adequacy of global institutional arrangements and suggest how they should be reformed or strengthened.”²⁰⁷ The CGG consisted of twenty-eight distinguished representatives from around the world, and its co-chairpersons were the former Prime Minister of Sweden, and Shridath Ramphal of Guyana, the former Secretary-General of the Commonwealth. The CGG observed correctly that no apex organization exists to consider global economic matters. Presently, global economic governance is *ad hoc*. To be sure, officials from the Group of Seven (“G-7”) countries discuss economic policy coordination. But, newly industrialized and less developed countries are excluded from the G-7, and enormous economies like China and India are not represented. Therefore, the CGG recommended the creation of an “Economic Security Council” as an apex organization. The Council’s membership would be multilateral like the WTO. Its terms of reference would include all global economic markets, including currency markets.²⁰⁸

Unfortunately, while the IMF and CGG alternatives have some intellectual appeal, it may be politically infeasible for either option to be pursued in the near future. Concerns about sovereignty raised during the Uruguay Round in the context of international trade no doubt would be resurrected with great vigor. Many countries—particularly the U.S.—would look askance at the creation of yet another international bureaucracy and balk at providing supporting funds. A realistic alternative may be self-regulation and the development of customary international law or an international law merchant. The CGG gave short shrift to this possibility. Yet, in currency markets this alternative is worth pursuing.

E. Scope: Limited

With respect to the scope variable, banks had three good reasons to oppose the capital adequacy regime for foreign exchange transactions between 1988-95. The regime was substantively incomplete, some of its details could be implemented in different ways in different countries, and it did not cover all relevant players.

First, the Accord itself could not possibly be a stable equilibrium because of its restrictive substantive scope. It is silent with respect to interest rate and market risk. Indeed, the BSC admits in July 1988 that “other risks, notably interest rate risk and the investment risk on securities, need to be taken into account by supervisors in assessing overall capital adequacy.”²⁰⁹ This admission could be translated as follows: “The BSC has drafted inchoate rules that

207. COMMISSION ON GLOBAL GOVERNANCE, OUR GLOBAL NEIGHBORHOOD, THE REPORT OF THE COMMISSION ON GLOBAL GOVERNANCE: 368 (1995).

208. *Id.* at 153-62.

209. 1988 Basle Capital Accord, *supra* note 5, ¶ 8. See also *Capital Adequacy*, *supra* note 17, at 2.

clearly are in need of revision, and while the BSC cannot agree upon the exact nature of the revisions at present, it surely will publish new proposals soon." As one commentator states,

the framework does not represent an exclusive set of rules with respect to capital adequacy regulation, and the rules that it does endorse are "designed to establish *minimum* levels of capital for internationally active banks. National authorities will be free to adopt arrangements that set higher levels."

....

Essentially, the methodology as currently constituted effectively captures only credit risk. It is left to the discretion of individual supervisory authorities to decide whether to attempt to account for *more methodologically difficult* types of risk, such as investment risk, interest rate risk, exchange rate risk, or concentration risk.²¹⁰

At the time, the BSC's admission created uncertainty about the capital treatment of foreign exchange transactions. When would the BSC revisit the gaps (*i.e.*, interest rate and market risk), and what rules would it propose? Until the BSC proposes new rules, would some regulators promulgate rules on interest rate and market risk? The last question implies the possible creation of cross-border competitive disadvantages through differential capital rules for foreign exchange transactions: some, but not all, regulators might demand a capital charge for interest rate and market risk.

Second, there is no guarantee G-10 regulators would implement the 1993 Market Risk Proposal in a uniform way. (Of course, this problem also existed with respect to any non-G-10 regulator that voluntarily implemented the Proposal). As with the Accord,²¹¹ the Proposal contains various provisions giving discretion to domestic bank regulators. Some regulators could abuse their discretion to favor their banks. For example, consider the use of deltas in calculating the appropriate capital charge for the market risk associated with options.²¹² Conceivably, different domestic bank regulators might approve different deltas for the same type of currency option. A bank from a country whose regulator is permissive with respect to approving deltas could gain a competitive advantage in options trading. That bank would be able to convert the value of its options into a smaller underlying long or short currency position and, therefore, incur a smaller capital charge.

Third, neither the 1988 Accord nor the 1993 Market Risk Proposal covers all private sector players in the foreign exchange market.²¹³ As discussed

210. MICHAEL P. MALLOY, *BANKING LAW AND REGULATION* § 5.3.3.4 at 5.106 (emphasis original) and 5.110 (emphasis added) (1995).

211. See Scott & Iwahara, *supra* note 20; Bhala & Kapstein, *supra* note 20.

212. See *supra* notes 68-70 and accompanying text.

213. See NORTON, *supra* note 4, at 40-41.

above,²¹⁴ these documents apply only to banks from G-10 countries, and from non-member countries choosing to adopt the regime. For some banks, less-than-universal coverage is an incentive to conduct their foreign exchange business from a country outside of the BSC's regime. Certainly, G-10 bank regulators can (and do) apply capital requirements to their banks' global operations, and thereby reach the offshore operations of their banks. But, why not move the bank's headquarters to the Cayman Islands, out of the reach of every G-10 regulator?

Furthermore, the Accord and Proposal are inapplicable to investment banks. Yet, like commercial banks, investment banks regularly engage in foreign exchange transactions.²¹⁵

The need for a "level playing field" among banks concerning their capital adequacy requirements is perhaps more pressing today, primarily due to the rapid growth of a global over-the-counter (OTC) derivatives market and the different approaches national regulators may take in addressing off-balance sheet risks.

....

First, banks are undertaking increased off-balance sheet and other fee-driven financing activities traditionally undertaken by nonbanks. Second, growing global disintermediation has simultaneously enabled nonbanks to offer more traditional bank-like services. In sum, the traditional distinction between banks and nonbanks is becoming blurred and the importance of harmonized regulatory requirements for financial service providers is growing.²¹⁶

This situation creates "a danger that trading business will be driven to [non-bank] competitors by a regime that imposes onerous costs on the banking industry."²¹⁷

The 1993 Market Risk Proposal furnishes two examples of such costs. First, because the Proposal fails to account for offsetting risks in a portfolio, it imposes excessively large capital requirements on banks, which in turn impair the ability of banks to compete with non-banks.²¹⁸ Second, the treatment of alternative methodologies for measuring general market risk means banks must maintain "a dual system, which creates costs for banks not shared by their nonbank competitors, thereby further weakening banks' cost competitiveness."²¹⁹

214. See *supra* notes 194-205 and accompanying text.

215. *A Simple Proposal*, *supra* note 46, at 22. To be sure, in some jurisdictions investment banks engage in foreign exchange transactions through commercial banks because of relevant domestic laws.

216. *Capital Adequacy*, *supra* note 17, at 12, 14.

217. *The Supervisory Treatment of Market Risk*, *supra* note 17, at 3.

218. See *Capital Adequacy*, *supra* note 17, at iv, 18.

219. *Id.* at iii, 23.

Aware of the unlevel playing field on which commercial and investment banks compete, the BSC has attempted to work with securities regulators to harmonize bank capital rules with capital requirements for securities firms and develop a universal capital adequacy regime for foreign exchange transactions. However, some securities regulators lack interest in a universal regime.²²⁰ Others, most notably the U.S. Securities and Exchange Commission, insist on harsher rules than those advocated by the BSC.²²¹ Not surprisingly, banks remain disappointed by the lack of progress toward common capital adequacy standards.²²²

Getting non-BSC countries to adopt the BSC's capital adequacy regime for foreign exchange transactions is equally problematic. To be sure, several countries—Singapore and Malaysia, for example—profess adherence to the Accord. Yet, the overall regime does not enjoy the support of the international banking community in the same manner the Uruguay Round agreements are accepted by the international trade community. Without broader support, complaints from banks subject to the regime that they are handicapped by it are likely to be heard with increasing force. Or, banks may elect to take the "Caymans option."

III. TOWARD STABILITY?: THE 1995 MARKET RISK PROPOSAL AND 1996 MARKET RISK AMENDMENT

The objective in introducing this significant [1996] amendment to the [1988 Basle] Capital Accord is to provide an explicit capital cushion for the price risks to which banks are exposed, particularly those arising from their trading activities. Introducing the discipline that capital requirements impose is seen as an important further step in strengthening the soundness and stability of the international banking system and of financial markets generally.

.....

The [Basle] Committee notes that the use of proprietary in-house models to measure market risk for supervisory capital purposes represents a *significant innovation* in supervisory methods.

Basle Committee on Banking Supervision, *Overview of the Amendment to the Capital Accord to Incorporate Market Risks*, ¶¶ 1 at 1 and II.21 at 6, January 1996 (emphasis original).

The principal fear is that the Basle methodology may in some cases require banks . . . to be vastly overcapitalized, which, in turn, could diminish profits

220. *A Simple Proposal*, *supra* note 46, at 22.

221. Elderfield, *Developments in EC and International Capital Adequacy Regulations*, *supra* note 28, at 318.

222. *See, e.g., The Supervisory Treatment of Market Risk*, *supra* note 17, at 3.

and liquidity and stymie financial innovation.

....

End-users of banking products and services have their own reasons to be concerned: If capital requirements jump, so will prices and fees.

Karen Spinner, *Test-drive the New BIS Value-at-Risk Model . . . Before It's Too Late!*, DERIVATIVES STRATEGY, May 29, 1995, at 4.

A. The BSC's New Two-Track Approach To Market Risk

Part II of this article has argued the capital adequacy regime for foreign exchange transactions as it existed through the issuance of the 1995 Netting Amendment was not a stable dynamic equilibrium. Legitimate bank objections to the pre-1995 regime were so fundamental as to undermine the stability of that regime. Indeed, with respect to the 1993 Market Risk Proposal, even the BSC itself admitted there were a number of important *common underlying themes* [to the banks' criticisms of the 1993 Proposal] which the Committee felt to be worthy of a considered response. These were, in brief, that:

- a. the proposal did not provide sufficient incentive to improve risk management systems because it did not recognize the most accurate risk management techniques;
- b. the proposed methodology did not take sufficient account of correlations and portfolio effects across instruments and markets, and generally did not sufficiently reward risk diversification;
- c. the proposal was not sufficiently compatible with banks' own measurement systems;
- d. there is a need to widen the scope of the institutions subject to the rules to include, notably, major securities firms.

A strong common theme among the responses was the argument that proprietary risk management *models* developed by some of the more sophisticated banks produce far more accurate measures of market risk and that there would be costly overlaps if those banks were required to calculate market risks in two different ways. A supporting argument was the risk that the proposed measurement framework and resulting capital charges might impede development of sound risk management practices within the banks.²²³

The current Part of this article paints a very different picture. As a result of the 1995 Market Risk Proposal and 1996 Market Risk Amendment, the regime may be headed toward a stable dynamic equilibrium. The basis for this argument is the new Proposal and Amendment allow for constrained self-

223. *Proposal to Issue a Supplement*, *supra* note 15, at 2 (emphasis in original). See also April 1995 Press Release, *supra* note 15, at 1; *Internal Model-Based Approach*, *supra* note 15, at 1.

regulation by banks.

When the BSC issued its 1995 Market Risk Proposal in April 1995, it triggered a veritable revolution in international banking law. For the first time, the BSC opened the door for banks to self-regulate in the area of capital adequacy. The BSC confirmed its revolutionary approach in January 1996 when it published its 1996 Market Risk Amendment. With one exception mentioned below concerning the treatment of correlations across market risk categories, the 1996 Amendment to the 1988 Basle Capital Accord makes no material changes to the 1995 Proposal. Thus, by the end of 1997 when the Amendment takes effect, banks will have new freedom to determine the amount of capital they must maintain against market risk associated with foreign exchange (and other) transactions.²²⁴ As the Chairman of the BSC, Tommaso Padoa-Schioppa, says, the international banking community is entering a new era of "market-friendly" regulation.²²⁵

How did this revolution happen? In the 1995 Proposal and 1996 Amendment, the BSC adopts a two-track approach to calculating the market risk capital charge.²²⁶ Now, a bank can calculate the amount of capital it must maintain against possible losses arising from market risk by using the method prescribed in the 1993 Market Risk Proposal—renamed the "standardized" methodology.²²⁷ Alternatively, a bank can ignore the standardized methodology and devise its own calculation methodology—technically referred to as the "internal model" methodology.

The internal approach is based on a sophisticated mathematical model designed by a bank to measure Value at Risk. VaR is an estimate of the amount of earnings a bank could lose on its trading portfolio as a result of the market risks inherent in that portfolio.²²⁸ Maintaining, upgrading, and implementing

224. See December 1995 Press Statement, *supra* note 16, at 1; December 1995 Communique, *supra* note 16, at 1; Overview, *supra* note 16, at 1; 1996 Market Risk Amendment, *supra* note 16, at 1 and 5. For an overview of the 1995 Market Risk Proposal, see Matthews, *supra* note 28, at pt. I.B.

225. *Safe Banking*, ECONOMIST, Apr. 27, 1996 at 27.

226. April 1995 Press Release, *supra* note 15, at 2; Proposal to Issue a Supplement, *supra* note 15, at 1-2; 1995 Market Risk Proposal, *supra* note 15, at 3; December 1995 Communique, *supra* note 16, at 1; Overview, *supra* note 16, at 2; 1996 Market Risk Amendment, *supra* note 16, at 3; Final Market Risk Capital Standards Published, FIN. REG. REPORT (Jan. 1996).

227. The 1995 Proposal and 1996 Amendment make minor modifications to the standardized methodology. These modifications are explained in the *Capital Adequacy*, *supra* note 17.

228. See *infra* notes 245-246 and accompanying text. For discussions of the array and limitations of VaR models currently in use, see *Can One Value-at-Risk System Adequately Measure a Bank's Total Risk Exposure?*, AM. BANKER, May 6, 1996; Justin Fox, *Debate: Risk Standards Based on Computer Models Series: 2*, AM. BANKER, Feb. 22, 1996. The internal model methodology is somewhat distinct from the "pre-commitment" idea raised by the Federal Reserve. Its idea would allow a bank to pre-commit a level of capital it deemed appropriate to cover any losses from market risk. Periodically, the bank's regulator would review whether that pre-

the model require high-powered computer systems and a full-time professional staff that understands both trading operations and the technical engineering associated with the design and use of the model.

To be sure, as discussed below, a bank's internal VaR model must satisfy qualitative and quantitative standards set forth in the 1995 Proposal and finalized in the 1996 Amendment.²²⁹ Otherwise, the BSC and domestic regulators will second-guess the bank's calculations. Nevertheless, the key feature of the revolution is that a bank is free to develop its own means for measuring and monitoring market risk capital requirements.

What currency trading activities do the standardized and internal VaR methodologies cover? Both methodologies produce a market risk capital requirement pertaining to two categories of activities. First, the requirement applies to the mark-to-market value of interest-rate related instruments in a bank's trading book.²³⁰ These instruments include foreign exchange transactions sensitive to interest rate changes, namely, forwards, swaps, and options.²³¹ Second, the requirement applies to foreign exchange risk associated with a bank's total foreign currency positions.²³² A bank must meet the market risk capital requirement on a continuous basis, specifically, at the close of each

committed amount was sufficient and, if not, could impose a sanction such as a fine or disclosing to the market that the bank was undercapitalized. See *Risk Management: Bettering Basle*, ECONOMIST, Dec. 9, 1995 at 76; Matthews, *supra* note 28, at pt. I.B.

229. See *infra* notes 235 and 256; 1995 *Market Risk Proposal*, *supra* note 15 at 3-4, and at 38; 1996 *Market Risk Amendment*, *supra* note 16, at 3-4 and 38. In addition to the qualitative and quantitative standards, the BSC set forth "general criteria." For example, in the judgment of the bank's regulator, a bank must have "sufficient numbers of staff skilled in the use of sophisticated models not only in the trading area but also in the risk control, audit, and if necessary, back office areas." 1995 *Market Risk Proposal*, *supra* note 15 at 38. See also 1996 *Market Risk Amendment*, *supra* note 16, at 38. Once a bank adopts the internal model methodology, it cannot revert to the standardized approach, save in "exceptional circumstances." *Overview*, *supra* note 16, at 9; 1996 *Market Risk Amendment*, *supra* note 16, at 5-6. The BSC does not define what circumstances may be "exceptional."

230. The "mark-to-market" value refers to the current market value of an instrument. See 1996 *Market Risk Amendment*, *supra* note 16, at 2.

231. With respect to the standardized methodology, see 1995 *Market Risk Proposal*, *supra* note 15 at 9 and 14; 1996 *Market Risk Amendment*, *supra* note 16, at 9 and 14. It is implicit in the BSC's discussion of the internal model methodology that such instruments are included. See 1995 *Market Risk Proposal*, *supra* note 15, pt. B.3(a), at 42; 1996 *Market Risk Amendment*, *supra* note 16, pt. B.3(a), at 42.

232. With respect to the standardized methodology, see 1995 *Market Risk Proposal*, *supra* note 15 at 1-2 and 22-25; 1996 *Market Risk Amendment*, *supra* note 16, at 1-2 and 23-26. The BSC allows "some discretion to exclude structural foreign exchange positions." 1996 *Market Risk Proposal*, *supra* note 16, at 2 and 24-25. It is clear from the BSC's discussion of the internal model methodology that a VaR model must account for foreign exchange risk. See 1995 *Market Risk Proposal*, *supra* note 15, pt. B.3(b), at 42-43; 1996 *Market Risk Amendment*, *supra* note 16, pt. B.3(b), at 42-43.

business day.²³³ A bank's total capital charge is the sum of its market risk capital charge and its capital charge for credit risk established by the 1988 Accord.²³⁴

As intimated above,²³⁵ the amended capital adequacy regime for foreign exchange transactions does not amount to unrestricted self-regulation. Rather, it is best characterized as "constrained self-regulation." The BSC's qualitative and quantitative standards are the constraints, and within them a bank is free to determine its market risk capital requirement using its internal VaR model. The constrained self-regulatory regime raises two significant issues for analysis using the FICAS model. The analyses are set forth in Parts III.B and C respectively, and the results are summarized in Table 2 below.

First, to what extent is the regime moving toward the ideal type of self-regulation and, therefore, toward a stable dynamic equilibrium? Part III.B argues that with respect to the frequency, intricacy, and authority variables of the FICAS model, the regime is beginning to resemble the ideal type. The constraints imposed by the BSC seem unlikely to be adjusted frequently and are not intricate. A bank can take advantage of the self-regulatory opportunity afforded by the regime and establish a frequency of adjustment and level of intricacy with which it is comfortable. The authority of the regime may be enhanced insofar as its self-regulatory features become customary international law or international law merchant.²³⁶

233. 1995 Market Risk Proposal, *supra* note 15 at 5; 1996 Market Risk Amendment, *supra* note 16, at 5.

234. Proposal to Issue a Supplement, *supra* note 15 at 7; 1995 Market Risk Proposal, *supra* note 15 at 4; Overview, *supra* note 16, at 9; 1996 Market Risk Amendment, *supra* note 16, at 4. The credit risk capital charge applies to derivatives, including foreign exchange derivatives such as options and swaps. Proposal to Issue a Supplement, *supra* note 15 at 7. To be sure, the VaR methodology also covers non-currency trading activities, for example, trading in equities and commodities. Thus, conceptually, the "true" total capital charge equals the sum of (1) the credit risk requirement, (2) the VaR amounts for interest rate, foreign exchange, equity, and commodity positions, as adjusted by the multiplication factor of three (discussed below), and (3) an add on factor (discussed below) based on backtesting results.

235. See *supra* note 229 and accompanying text.

236. Of course, to the extent banks use the standardized methodology, none of these benefits is obtained.

FICAS INDEPENDENT VARIABLES AND HYPOTHESES	DEPENDENT VARIABLES AND RESULTS
	STABILITY OF BSC'S CAPITAL ADEQUACY REGIME FOR FOREIGN EXCHANGE TRANSACTION
<p><i>Frequency of Adjustments</i></p> <p>Inverse relationship between frequency and stability—high adjustment frequency is likely to undermine stability.</p>	<p>Favors Stability Because:</p> <ol style="list-style-type: none"> (1) The qualitative and quantitative standards for self-regulation are broad and flexible, and they seem unlikely to require frequent revision. (2) Banks can determine when and how often to adjust their internal VaR models.
<p><i>Intricacy of rules</i></p> <p>Inverse relationship between intricacy and stability—simpler, more flexible rules are likely to enhance stability.</p>	<p>Favors Stability Because:</p> <ol style="list-style-type: none"> (1) VaR is an intuitively appealing concept. (2) The qualitative and quantitative standards for self-regulation are straightforward. (3) Banks can determine the degree of intricacy of their internal VaR models.
<p><i>Cogency of rules</i></p> <p>Direct relationship between cogency and stability—persuasive, well-grounded rules are likely to contribute to stability.</p>	<p>Does Not Favor Stability Because:</p> <ol style="list-style-type: none"> (1) The 99 percent confidence level and ten-day holding period quantitative standards are excessively conservative. (2) There is no rationale for the correlation standard or multiplication factor. (3) The multiplication factor leads to excessive capitalization.
<p><i>Authority of rules</i></p> <p>Direct relationship between authority and stability—binding obligations are likely to enhance stability.</p>	<p>Favors Stability Because:</p> <ol style="list-style-type: none"> (1) Self-regulation through internal VaR modeling could become customary international law or international law merchant.
<p><i>Scope of rules</i></p> <p>Direct relationship between scope and stability—comprehensive applicability of rules is likely to foster stability.</p>	<p>Does Not Favor Stability Because:</p> <ol style="list-style-type: none"> (1) The scope of application of the 1995 Market Risk Proposal and 1996 Market Risk Amendment is limited to G-10 commercial banks.

TABLE 2
SUMMARY OF RESULTS OF APPLYING THE FICAS MODEL TO 1995 MARKET RISK PROPOSAL AND 1996 MARKET RISK AMENDMENT

Second, to what extent does the regime still fall short of the self-regulatory ideal type and thereby generate the potential for opposition from banks? Part III.C argues that the BSC's two-track approach does not yield a regime that is as cogent or comprehensive in scope as the ideal type. Arbitrary features of the BSC's quantitative standards undermine the cogency of the regime. The scope of the regime still does not encompass similarly situated parties involved in trading currencies.²³⁷ Thus, if the BSC resolves the cogency and scope difficulties associated with constrained self-regulation, then the regime will more closely resemble the ideal type and, therefore, progress toward a stable dynamic equilibrium. Fixing these problems requires the BSC to reduce, and perhaps abandon, certain quantitative standards.²³⁸

B. How Constrained Self-Regulation Contributes To Stability

It is not surprising banks express strong support for the BSC's willingness to recognize internal VaR models.²³⁹ As the Executive Director of the Bankers Roundtable stated in response to the 1995 Market Risk Proposal, "[i]t sounds like a great approach. We would be very pleased with it. It is a great step

237. Here, too, insofar as banks use the standardized approach, the critique offered in Part II of this article of the 1993 Market Risk Proposal remains relevant. *See also* Letter from Evans, *supra* note 18, at 3 (stating the standardized approach described in the 1995 Market Risk Proposal "contains all the limitations" of the 1993 Proposal, including "(i) lack of accuracy, (ii) incompatibility with internal risk measurement systems and (iii) lack of flexibility to incorporate new products").

238. Of course, there may be a political limit on the extent to which the BSC is willing or able to fix the problems. Put bluntly, the BSC may fear unconstrained self-regulation as a threat to its self-interest as a leading forum for international banking law development. *See Equilibrium Theory*, *supra* note 1 (manuscript pts. II.B.2 and V., on file with author). Accordingly, the BSC's constraints on self-regulation could reflect its own political constraints against moving the regime aggressively toward the ideal type.

If pressed, the BSC might justify the qualitative and quantitative standards for internal VaR modeling as follows: in an unconstrained self-regulatory regime, each bank might publish the VaR model it uses to measure its market risk exposures and determine corresponding capital levels. Some banks might be tempted to disclose false and misleading information, perhaps to appease their creditors and thereby avoid a liquidity crisis or even a bank run. However, this justification ought not to be overblown. A bank that fails to publish accurate information about its VaR model and capital positions no doubt would be ostracized by the rest of the international banking community, as well as face penalties for violating applicable securities law disclosure requirements.

239. *See, e.g.*, Letter from Evans, *supra* note 18, at 2-3 (stating that the 1995 Proposal is "a significant improvement over the" 1993 Proposal); Letter from Sidwell, *supra* note 18, at 2 and Attachment at 2 (supporting the BSC's "decision to provide for the use of banks' internal models for measuring market risks as an alternative to the standardized approach"); *Overview*, *supra* note 16, at 2.

forward.”²⁴⁰ Three of the FICAS variables—frequency, intricacy, and authority—suggest that as a result of the 1995 Market Risk Proposal and 1996 Market Risk Amendment the capital adequacy regime for foreign exchange transactions is moving toward the ideal type of self-regulation. It is unlikely the BSC will adjust frequently the qualitative and quantitative standards for the use of internal VaR models to determine market risk capital charges. Moreover, these standards are not intricate. Therefore, subject to the standards, banks can tailor the intricacy and adjustment frequency of their internal models. Finally, the authority of at least the self-regulatory features of the regime may be enhanced. These features could develop into customary international law or international law merchant.

1. Frequency: The BSC Is Unlikely To Adjust The Standards Frequently

Will the BSC adjust frequently the qualitative and quantitative standards for the use of internal models to determine market risk capital charges? To be sure, there are no formal constraints on the frequency with which the BSC makes adjustments. In fact, in its 1995 Market Risk Proposal it reserves the right to make changes. However, this reservation is remarkably tentative.

The use of proprietary in-house models to measure market risk for supervisory purposes represents a significant innovation in supervisory methods, and implementation of the approach will of necessity be to some extent *evolutionary*. The Committee thus reserves the right to modify the specifications required for banks using models *as more experience is gained*²⁴¹

In other words, there is reason to believe the BSC will exercise restraint in adjusting the qualitative and quantitative standards.

The BSC appears to realize it laid a trap for itself in its 1993 Market Risk Proposal. On the one hand, the BSC cannot keep pace with market developments. When it issued its 1995 Proposal, the BSC admitted it “has gained a heightened appreciation for the rapid pace of change within the industry which is prompting banks to make . . . major investments in [human and technological] resources” to develop their own market risk models.²⁴² On the other hand, the standardized methodology in the 1993 Proposal does not account for these investments. The significant bank opposition to the standardized methodology means the BSC would have to make constant adjustments to that methodology.

240. Anthony Cluff, Executive Director, Bankers Roundtable, *quoted in* Jaret Seiberg, *Basel Committee Drops Formula Approach to Weighing Market Risk*, AM. BANKER, Apr. 13, 1995, at 2.

241. April 1995 Press Release, *supra* note 15 at 3 (emphasis in bold in original, emphasis in italics added). See also *Proposal to Issue a Supplement*, *supra* note 15 at 3-4; *Overview*, *supra* note 16, at 2.

242. *Proposal to Issue a Supplement*, *supra* note 15, at 3.

In turn, frequent adjustments raise the specter that the methodology would become even more intricate and less cogent. As the Institute of International Finance puts it,

[s]ince the methods for dividing and measuring risk components are evolving at a very fast pace, banks believe that the proper regulatory focus should be on management's ability . . . to identify and adapt to technological and analytical developments. For this reason, it would be short-sighted for bank supervisory agencies to impose specific technical methods *that could rapidly become obsolete*.²⁴³

To escape the trap, the BSC wisely gives banks the option of self-regulation through internal VaR modeling in the 1995 Market Risk Proposal, and confirms this option in the 1996 Market Risk Amendment.

There is no need for the BSC to monitor and upkeep constantly the new constrained self-regulatory regime. Internal VaR modeling is subject only to broad, inherently flexible standards that can capture a range of future market developments. Indeed, with the exception of somewhat more liberal treatment for empirical correlations among market risk categories, there are no material differences between the 1995 Proposal and 1996 Amendment.²⁴⁴ In sum, the BSC seems to concede banks are in the best position to adjust their internal models to account for new developments.

2. Intricacy: VaR Is Intuitively Appealing And The Standards Are Straightforward

a. VaR

The internal model methodology is based on the intuitively appealing concept of VaR. The amount of capital to safeguard against market risk should depend on "an estimate of the likely maximum amount that could be lost on a bank's portfolio with a certain degree of statistical confidence" as a result of market movements.²⁴⁵

[A]n internal valuation model calculates the potential change in the value of each position resulting from specified movements in the relevant underlying risk factors. The changes in value are then aggregated, taking account of historical correlation between the different risk factors to varying degrees—either at the level of an individual portfolio or across trading activities throughout the bank. The movements in risk factors and the historical correlations between them are measured over the observation period chosen by the bank as appro-

243. *An Integrated Bank Regulatory Approach*, *supra* note 17, at 3.

244. *See Overview*, *supra* note 16, at 2-3.

245. *Internal Model-Based Approach*, *supra* note 15, at 4. *See also* Supervisory Framework for the Use of "Backtesting," *supra* note 16, at 2.

priate for capturing market conditions within its overall strategy.²⁴⁶

Accordingly, with respect to foreign exchange transactions, a VaR model simply measures how much a bank stands to lose as a result of exchange rate fluctuations.

Banks are free to use a variety of specific methodologies to measure VaR.²⁴⁷ One alternative is an historical simulation approach. A bank calculates the hypothetical change in the value of its current portfolio of transactions based on actual historical movements in risk factors such as exchange rate fluctuations.²⁴⁸ A second alternative is to use a variance/covariance methodology. A bank calculates the change in the value of its portfolio of transactions by considering the sensitivity of these positions in relation to a matrix of variances and covariances that is based on risk factor volatilities and correlations.²⁴⁹ A third alternative is the Monte Carlo simulation method. It tests the value of a bank's portfolio under a large sample of randomly chosen combinations of risk factor scenarios whose probabilities are based on historical experience.²⁵⁰ All three methodologies produce a final VaR number.²⁵¹

Once a bank obtains this number, it sets its market risk capital requirement at the higher of (1) the previous business day's VaR or (2) the average of its VaR figures during the previous sixty business days, multiplied by a factor of at least three.²⁵² It must meet this requirement on a daily basis. Suppose yesterday a bank stood to lose \$100 million from its foreign exchange transactions, and it had no other transactions subject to a market risk capital charge. During the last sixty days its average VaR was \$40 million. The bank's market risk capital requirement would be \$120 million (\$40 million multiplied by the minimum factor of three, which exceeds the \$100 million figure from yesterday).

Why compare the previous day's VaR figure with the sixty day average? The previous day's figure is particularly important during periods of market

246. *Internal Model-Based Approach*, *supra* note 15, at 4. Of course, the mathematics of a VaR model are likely to be highly sophisticated.

247. *1995 Market Risk Proposal*, *supra* note 15, pt. B.4(f), at 44; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(f), at 44.

248. *Internal Model-Based Approach*, *supra* note 15, at 5.

249. *Id.*

250. *Id.*

251. *Id.* Technically, a Monte Carlo simulation produces more than a single VaR estimate. It also yields a distribution of potential profit and loss outcomes, which is even more useful than a single estimate.

252. See *infra* notes 273-278 and 303-305 and accompanying text; *Proposal to Issue a Supplement*, *supra* note 15, at 3; *1995 Market Risk Proposal*, *supra* note 15, pt. B.4 (i), at 45; *Internal Model-Based Approach*, *supra* note 15, § IV(f), at 15-16; December 1995 Communique, *supra* note 16, at 2; *Overview*, *supra* note 16, at 2; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(i), at 45.

stress, when a higher capital cushion is needed.²⁵³ Conversely, the sixty day average provides stability and a cushion for potential losses in the event the previous day's VaR is relatively low as a result of day-to-day fluctuations.²⁵⁴ Taking the higher of these two numbers means there is a built-in lower limit on the capital charge. This limit helps prevent a bank from obtaining a competitive advantage through imprudently low capital charges.²⁵⁵

b. Qualitative Standards

The qualitative standards in the constrained self-regulatory regime are not intricate. Certainly, banks would not have reason to oppose the regime on the grounds that the BSC engages in micro-management. To the contrary, the broad qualitative standards "are designed to ensure that banks' measurement systems are conceptually sound and that the process of managing risks is carried out with integrity."²⁵⁶ Possibly, banks might fear capricious implementation due to overly broad standards.

First, a bank must have "an independent risk control unit that is responsible for the design and implementation of the bank's risk management system."²⁵⁷ This unit must be distinct from trading units and report directly to senior management.²⁵⁸ This standard directly addresses problems that contributed to the Barings Bank and Daiwa Bank scandals.²⁵⁹ Moreover, "[t]he bank's internal risk measurement model must be closely integrated into its day-to-day risk management processes."²⁶⁰ In this respect, it should not be considered a substitute for trading and exposure limits.²⁶¹ The model should be well-documented, and a routine for ensuring compliance with the market-

253. *Internal Model-Based Approach*, *supra* note 15, § IV(d), at 16.

254. *Id.*

255. *Id.*

256. April 1995 Press Release, *supra* note 15, at 2. See also 1995 Market Risk Proposal, *supra* note 15, pt. B.1 at 38 and pt. B.2, at 39; *Internal Model-Based Approach*, *supra* note 15, at 2; 1996 Market Risk Proposal, *supra* note 16, pt. B.1 at 38 and pt. B.2 at 39.

257. April 1995 Press Release, *supra* note 15 at 2. See also *Proposal to Issue a Supplement*, *supra* note 15 at 3; 1995 Market Risk Proposal, *supra* note 15, pt. B.2(a), at 39; December 1996 Communique, *supra* note 16, at 1; 1996 Market Risk Amendment, *supra* note 16, pt. B.2(a), at 39.

258. 1995 Market Risk Proposal, *supra* note 15, pt. B.2(a), at 39. See also December 1995 Communique, *supra* note 16, at 2; 1996 Market Risk Amendment, *supra* note 16, pt. B.2(a), at 39.

259. See *Equilibrium Theory*, *supra* note 1 (manuscript pt. I., on file with author).

260. April 1995 Press Release, *supra* note 15 at 2. See also 1995 Market Risk Proposal, *supra* note 15, pt. B.2(d), at 39; December 1995 Communique, *supra* note 16, at 2; 1996 Market Risk Amendment, *supra* note 16, pt. B.2(d), at 39.

261. 1995 Market Risk Proposal, *supra* note 15, pt. B.2(e), at 39; *Overview*, *supra* note 15, at 15; 1996 Market Risk Proposal, *supra* note 16, pt. B.2(e), at 39.

risk related capital level generated by the model should exist.²⁶² Also, "an independent review of the risk measurement system should be carried out regularly as part of the bank's internal audit, which should include a review of the independent risk control unit."²⁶³ This review should determine whether the bank's internal model is well designed and implemented with integrity.²⁶⁴

Second, senior management must be actively involved in the design and implementation of the bank's internal model.²⁶⁵ For instance, daily reports about market risk exposures produced by the internal model must be forwarded to senior managers. These managers must be empowered to act on the reports, namely, to order reductions in positions taken by individual traders and the bank's overall risk exposure.²⁶⁶

Third, a bank's internal model must have "a proven track record of reasonable accuracy in predicting losses."²⁶⁷ Accordingly, the bank must have a backtesting program whereby VaR estimates generated by the internal model are compared *ex post* to actual daily changes in the bank's portfolio value.²⁶⁸ In its 1995 Proposal, the BSC offers little explanation of backtesting. However, in response to banks' concerns about vagueness and the relationships between backtesting and a multiplication factor the BSC dedicates an entire document to the matter in its 1996 Amendment.²⁶⁹ As the BSC points out, backtesting is a simple way to ensure the accuracy of a VaR model.²⁷⁰

262. 1995 Market Risk Proposal, *supra* note 15, pt. B.2(g), at 40. See also December 1995 Communique, *supra* note 16, at 1; 1996 Market Risk Amendment, *supra* note 16, pt. B.2(g), at 40.

263. April 1995 Press Release, *supra* note 15, at 2. See also Proposal to Issue a Supplement, *supra* note 15, at 3; 1995 Market Risk Proposal, *supra* note 15, pt. B.2(h), at 40; December 1995 Communique, *supra* note 16, at 1; 1996 Market Risk Amendment, *supra* note 16, pt. B.2(h), at 40.

264. Internal Model-Based Approach, *supra* note 15, § VI, at 15.

265. Proposal to Issue a Supplement, *supra* note 15, at 3. See also 1995 Market Risk Proposal, *supra* note 15, pt. B.2(c), at 39; December 1996 Communique, *supra* note 16, at 1; 1996 Market Risk Proposal, *supra* note 16, pt. B.2(c), at 39.

266. 1995 Market Risk Proposal, *supra* note 15, pt. B.2(c), at 39; 1996 Market Risk Amendment, *supra* note 16, pt. B.2(c), at 39.

267. 1995 Market Risk Proposal, *supra* note 15, pt. B.1, at 38; 1996 Market Risk Amendment, *supra* note 16, pt. B.1, at 38.

268. 1995 Market Risk Proposal, *supra* note 15, pt. B.2(b), at 39; Internal Model-Based Approach, *supra* note 15, § VI(f), at 16; 1996 Market Risk Amendment, *supra* note 16, pt. B.2(b), at 39.

269. See Supervisory Framework for the Use of 'Backtesting,' *supra* note 16.

270. Backtesting is not the only means to check the accuracy of a VaR model. "Stress tests" help determine the performance of a model, and thereby a bank's vulnerability, during periods of extreme market turbulence. Internal Model-Based Approach, *supra* note 15, § V(c), at 18. See also December 1995 Communique, *supra* note 16, at 1. Accordingly, the BSC requires a bank to conduct regular stress tests. 1996 Market Risk Amendment, *supra* note 16, pt. B.5, at 46-47. For instance, a bank should test the effect on its foreign exchange positions

The essence of all backtesting efforts is the comparison of actual trading results with [VaR] model-generated risk measures. If this comparison is close enough, the backtest raises no issues regarding the quality of the risk measurement model. In some cases, however, the comparison uncovers sufficient differences that problems almost certainly must exist, either with the model or with the assumptions of the backtest. In between these two cases is a grey area where the test results are, on their own, inconclusive.

....

[B]acktesting programs typically consist of a periodic comparison of the bank's daily value-at-risk measures with the subsequent daily profit or loss ("trading outcome"). The value-at-risk measures are intended to be larger than all but a certain fraction of the trading outcomes, where that fraction is determined by the confidence level of the value-at-risk measure. [As discussed below with respect to quantitative standards, that level is 99 percent.] Comparing the risk measures with the trading outcomes simply means that the bank counts the number of times that the risk measures were larger than the trading outcome. The fraction actually covered can then be compared with the intended level of coverage to gauge the performance of the bank's risk model.

....

The framework adopted by the [Basle] Committee, which is also the most straightforward procedure for comparing the risk measures with the trading outcomes, is simply to calculate the number of times that the trading outcomes are not covered by the risk measures ("exceptions"). For example, over 200 trading days, a 99% daily risk measure should cover, on average, 198 of the 200 trading outcomes, leaving two exceptions.

....

The appeal of using the number of exceptions as the primary reference point in the backtesting process is the simplicity and straightforwardness of this approach.²⁷¹

For instance, as a statistical matter, focusing on the number of exceptions does not require a bank to make a large number of assumptions. The key assumption is that "each day's test (exception/no exception) is independent of the outcome of any of the others."²⁷²

Just as the assumptions underlying backtesting are simple, so too are the

caused by a disturbance like the 1993 European exchange rate mechanism crisis. April 1995 Press Release, *supra* note 15, at 2; Proposal to Issue Supplement, *supra* note 15, at 3; 1995 Market Risk Proposal, *supra* note 15, pt. B.2(f), at 40; Internal Model-Based Approach, *supra* note 15, § V(b), at 18; 1996 Market Risk Amendment, *supra* note 16, pt. B.2(f), at 40.

271. Supervisory Framework for the Use of "Backtesting," *supra* note 16, 1-5 (emphasis added).

272. *Id.* at 5.

inferences that may be drawn from test results. In general, if backtesting shows a bank's internal VaR model consistently underestimates the amount of capital the bank needs, then the bank's regulator can demand improvements in the model. Alternatively, the regulator can increase the bank's multiplication factor (a quantitative standard discussed below) or even disallow the model.²⁷³ The BSC urges a simple three-zone approach to determine the appropriate regulatory response to backtesting results.

The green zone corresponds to backtesting results that do not themselves suggest a problem with the quality or accuracy of a bank's model. The yellow zone encompasses results that do raise questions in this regard, but where such a conclusion is not definitive. The red zone indicates a backtesting result that almost certainly indicates a problem with a bank's risk model.²⁷⁴

The BSC defines the green zone in terms of zero to four exceptions, the yellow zone in terms of five to nine exceptions, and the red zone in terms of ten or more exceptions.²⁷⁵ For example, if a bank's VaR model generates a capital requirement that does not cover trading outcomes on two occasions, then that model is in the green zone. It is, therefore, deemed accurate and no regulatory response is necessary.²⁷⁶ If the resulting capital requirement is deficient on fifteen occasions, then the model is in the red zone and presumed defective. The bank's regulator will increase the multiplication factor (e.g., from three to four), investigate why the bank's VaR model produces so many misses, and require the bank to improve the model.²⁷⁷ A model falling in between these extreme zones, that is, a yellow-zone model, might trigger an increase in the multiplication factor if the bank cannot prove the model is fundamentally sound. The size of any increase will vary directly with the number of exceptions.²⁷⁸

The BSC does not mandate a bank adopt a particular type of backtesting because it recognizes "the [banking] industry has not yet settled on a single backtesting methodology."²⁷⁹ Instead, the BSC sketches a framework to

273. See *infra* notes 303-305 and accompanying text; *Internal Model-Based Approach*, *supra* note 15, § IV(f), at 16.

274. Supervisory Framework for the Use of "Backtesting," *supra* note 16, at 5. The zones are designed to balance "type 1" errors (the possibility that an accurate VaR model is classified as inaccurate and rejected because of backtesting results) and "type 2" errors (the converse possibility, i.e., erroneous acceptance of an inaccurate model). *Id.* at 6.

275. These definitions are based on a 99% confidence level and 250 daily observations. Supervisory Framework for the Use of "Backtesting," *supra* note 16, at 7. Arguably, the BSC is relatively lax in defining the zones. For example, with a 99% confidence level and 250 observations, the green zone should be from 0 to 2.5 exceptions.

276. Supervisory Framework for the Use of "Backtesting," *supra* note 16, at 7-8.

277. *Id.* at 11.

278. *Id.* at 8-9.

279. *Id.* at 1.

which a bank should pay attention when customizing its methodology. First, the observed percentage of outcomes covered by a VaR model should be consistent with a 99 percent level of confidence, *i.e.*, the backtest should determine whether a model generates risk measures covering 99 percent of a bank's trading outcomes. Second, model-generated risk measures should be compared with actual one-day trading outcomes. In reality, the composition of a bank's portfolio changes on an inter- and even intra-day basis. Moreover, a bank earns fee income from executing trades on behalf of customers, and separating fee from trading income is a costly and time-consuming process. In contrast, a VaR model assumes a static portfolio without fee income. Hence, focusing on one-day outcomes provides a snapshot of a bank's portfolio and helps minimize "contamination" from portfolio changes or fee income.²⁸⁰ Third, backtests should be performed on a quarterly basis using the most recent twelve months of data.²⁸¹

In sum, the three qualitative standards cover the design and implementation of an internal model, the role of senior management, and testing. Certainly, banks may have questions for the BSC and regulators about how to implement the standards in particular contexts.²⁸² However, the crucial point is to contrast the complexity of the eight-step standardized methodology in the 1993 Market Risk Proposal discussed above in Part II with the simplicity of the three qualitative standards. Because the standards are relatively more straightforward than the eight steps, the standards represent a shift in the capital adequacy regime for foreign exchange transactions toward reduced intricacy.

c. Quantitative Standards

The quantitative standards established by the BSC for VaR modelling are designed to ensure a bank's VaR model is sufficiently conservative in the way it measures potential losses arising from market risk. From the BSC's perspective, these standards have a harmonizing effect. They help guard against self-serving attempts by an unscrupulous bank to obtain a competitive advantage by using a sub-standard VaR model that consistently produces lower capital requirements than models designed and implemented by the bank's competitors.

There are eight basic quantitative standards, "expressed as a number of

280. *Id.* at 2-3. See also Jaret Seiberg, *Bankers Dispute Regulators' Plan to Verify Models Used to Set Capital Series: 3*, AM. BANKER, Apr. 24, 1996, at 1. Of course, as the BSC acknowledges, the same contamination concern exists with respect to one-day trading outcomes. The fact that a bank's portfolio changes on an inter- and intra-day basis helps explain why banks oppose the ten-day holding period quantitative standard.

281. Supervisory Framework for the Use of "Backtesting," *supra* note 16, at 4.

282. See, e.g., *Banks Struggle with Basle's Qualitative Directive*, DERIVATIVES WEEK, Apr. 29, 1996, at 1 (discussing the integration of VaR models into the risk management process).

broad risk measurement parameters for banks' internal models, with a simple rule for converting the models-based measure of exposure ('value-at-risk') into a supervisory capital requirement."²⁸³ The key point is that like the qualitative standards, the eight quantitative standards are not intricate. A brief explanation of the quantitative standards illustrates that they are readily comprehensible.

First, VaR must be computed daily.²⁸⁴ Every day a bank must enter into its VaR model the price and position data arising from its trading activities.²⁸⁵ The price data should cover all relevant exchange rates.²⁸⁶ The position data should cover all relevant foreign exchange transactions.²⁸⁷

Second, a VaR model must use what the BSC deems a prudent level of protection against the risk of loss associated with changes in market prices, specifically a 99 percent, one-tailed confidence level.²⁸⁸ This level means there is only a one percent probability based on historical experience that the combination of positions in a bank's portfolio will result in a loss higher than that measured by the VaR model.²⁸⁹

Third, a VaR model must assume that in the event of market disruption, a bank is forced to hold its positions for a minimum of ten business days.²⁹⁰ To be sure, under normal market conditions a bank may be able to adjust risk exposures on a daily basis. But, during crises markets may become illiquid, hence banks may not be able to offload immediately their losing positions.²⁹¹ During this minimum holding period, the value of the bank's positions could continue to deteriorate. The longer the holding period, the greater the potential deterioration. A minimum ten-day period guards "against the consequences of banks being locked into unprofitable positions."²⁹²

Fourth, a VaR model must be based on risk factor data (e.g., data on ex-

283. April 1995 Press Release, *supra* note 15, at 2.

284. *Id.*; *Proposal to Issue a Supplement*, *supra* note 15, at 3; *1995 Market Risk Proposal*, *supra* note 15, pt. B.4(a), at 44; December 1995 Communique, *supra* note 16, at 2; *Overview*, *supra* note 16, at 2; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(a), at 44.

285. *Internal Model-Based Approach*, *supra* note 15, at 4.

286. *Id.*

287. *Id.*

288. April 1995 Press Release, *supra* note 15, at 2; *Proposal to Issue a Supplement*, *supra* note 15, at 3; *1995 Market Risk Proposal*, *supra* note 15, pt. B.4(b) at 44; December 1995 Communique, *supra* note 16, at 2; *Overview*, *supra* note 16, at 2; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(b) at 44.

289. *Internal Model-Based Approach*, *supra* note 15, at 12.

290. April 1995 Press Release, *supra* note 15, at 2; *Proposal to Issue a Supplement*, *supra* note 15, at 3; *1995 Market Risk Proposal*, *supra* note 15, pt. B.4(c), at 44; December 1995 Communique, *supra* note 16, at 2-3; *Overview*, *supra* note 16, at 3; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(c), at 44.

291. *Internal Model-Based Approach*, *supra* note 15, at 10.

292. *Id.*

change rates, volatilities, and correlations) gathered over an historical observation period of at least one year.²⁹³ Of course, a bank is free to use a longer data-gathering period.²⁹⁴ In addition, a bank should update its data set every three months.²⁹⁵

Fifth, a VaR model must "incorporate risk factors corresponding to the individual foreign currencies in which the bank's positions are denominated."²⁹⁶ Because the capital charge resulting from a bank's VaR model is expressed in the bank's reporting (*i.e.*, home country) currency, any net position denominated in a foreign currency introduces a foreign exchange risk. Consequently, a bank must specify in its VaR model the exchange rates relevant to risks inherent in its portfolio of foreign exchange transactions. That is, it must account for the exchange rates between the reporting currency and each currency in which the bank has a significant exposure.²⁹⁷

Sixth, to a certain extent a bank can recognize empirically-observed correlations within a particular risk factor category (*e.g.*, exchange rate risk), and

293. April 1995 Press Release, *supra* note 15 at 2; *Proposal to Issue a Supplement*, *supra* note 15 at 3; *1995 Market Risk Proposal*, *supra* note 15, pt. B.4(d) at 44; December 1995 Communique, *supra* note 16, at 2; *Overview*, *supra* note 16, at 2; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(d) at 44.

294. As the BSC explains,

the choice of historical sample period can have a significant impact on the size of the estimated value-at-risk produced by an internal model. Short sample periods are more sensitive to recent events than long sample periods but this very sensitivity means that for a fixed set of positions a short sample period leads to greater variability in the measure of value-at-risk relative to a longer measurement horizon. Although a longer time horizon may sound more conservative, the value-at-risk depends on how rapidly prices have changed in different time periods. If recent price volatility has been high, a measure based on a short horizon could lead to a higher risk measure than a horizon covering a longer but overall less volatile period. The disadvantage of a short time horizon is that it captures only recent "shocks", and it could lead to a very low measure of risk if it coincides with an unusually long stable period in the markets. The disadvantage of a longer time horizon is that it does not respond rapidly to changes in market conditions

. . . [T]he Committee does not feel it would be desirable to impose a fixed historical sample period for all institutions that use the internal models approach.

Internal Model-Based Approach, *supra* note 15, at 11. See also *Overview*, *supra* note 16, at 4.

295. *1995 Market Risk Proposal*, *supra* note 15, pt. B.4(e), at 44; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(e), at 44.

296. *1995 Market Risk Proposal*, *supra* note 15, pt. B.3(b), at 42; *1996 Market Risk Amendment*, *supra* note 16, pt. B.3(b), at 42. The BSC discusses this topic in the context of specifying market risk factors, but in effect it represents a quantitative standard.

297. *1995 Market Risk Proposal*, *supra* note 15, pt. B.3(b), at 42; *1996 Market Risk Amendment*, *supra* note 16, pt. B.3(b), at 42. In addition, a VaR model must contain at least six "maturity buckets" to account for interest rate risk arising from material exposures in major currencies. April 1995 Press Release, *supra* note 15, at 2; *1995 Market Risk Proposal*, *supra* note 15, pt. B.3(a), at 42; *1996 Market Risk Amendment*, *supra* note 16, pt. B.3(a), at 42.

across such categories (e.g., exchange rate and interest rate risk). Within a given risk factor category, a bank can recognize a correlation that is also recognized by its regulator.²⁹⁸ However, as for correlations across risk factor categories, the 1995 Proposal states a bank must aggregate its VaR numbers on a simple sum basis.²⁹⁹ In other words, a bank cannot offset risks across different categories. In the 1996 Amendment, the BSC liberalizes its position: a bank can recognize correlations across risk categories, but only if its regulator is "satisfied that the bank's system for measuring correlations is sound and implemented with integrity."³⁰⁰

Seventh, a VaR model must capture accurately the unique risks associated with a bank's options positions.³⁰¹ For instance, it must account for non-linear price characteristics (measured by gamma risk), the volatility of the rate and price of an underlying instrument (measured by vega risk), and the effect of a ten-day price shock to options positions.³⁰²

Finally, the market risk capital charge resulting from a bank's VaR model must be scaled up by a multiplication factor of at least three.³⁰³ Depending on the discretion of a bank's regulator, a factor greater than three could be required. That is, on the basis of backtests of a VaR model and an assessment of the overall quality of a bank's risk management system, the bank's regulator may add a "plus" factor to the multiplication factor.³⁰⁴ If the results of backtesting are satisfactory and a bank meets all of the qualitative standards, then the plus factor is zero.³⁰⁵

298. December 1995 Communique, *supra* note 16, at 2; *1995 Market Risk Proposal*, *supra* note 15, pt. B.4(g), at 44; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(g), at 44.

299. April 1995 Press Release, *supra* note 15, at 2; *Proposal to Issue a Supplement*, *supra* note 15, at 3; *1995 Market Risk Proposal*, *supra* note 15, pt. B.4(g), at 44; *Internal Model-Based Approach*, *supra* note 15, at 12-13. See also Karen Spinner, *Test-drive the New BIS Value-at-Risk Model . . . Before It's Too Late!*, DERIVATIVES STRATEGY, May 29, 1995, at 5.

300. December 1995 Communique, *supra* note 16, at 3. See also *Overview*, *supra* note 16, at 5; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(g), at 44.

301. *1995 Market Risk Proposal*, *supra* note 15, pt. B.4(h), at 44-45; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(h), at 44-45.

302. *1995 Market Risk Proposal*, *supra* note 15, pt. B.4(h), at 44-45; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(h), at 44-45.

303. April 1995 Press Release, *supra* note 15, at 2; *Proposal to Issue a Supplement*, *supra* note 15, at 3-4; *1995 Market Risk Proposal*, *supra* note 15, pt. B.4(i), at 45; December 1995 Communique, *supra* note 16, at 2-3; *Overview*, *supra* note 16, at 3-4; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(i)-(j), at 45.

304. April 1995 Press Release, *supra* note 15, at 2; *Proposal to Issue a Supplement*, *supra* note 15, at 4; *1995 Market Risk Proposal*, *supra* note 15, pt. B.4(i), at 45; December 1995 Communique, *supra* note 16, at 3; *Overview*, *supra* note 16, at 5; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(j), at 45. See also Supervisory Framework for the Use of "Backtesting," *supra* note 16 (presenting the BSC's requirements for backtesting).

305. *Overview*, *supra* note 16, at 5; *1996 Market Risk Amendment*, *supra* note 16, pt. B.4(j), at 45.

These eight quantitative standards are a marked contrast from the eight steps in the standardized methodology developed in the 1993 Market Risk Proposal and discussed above in Part II. No doubt banks will have questions for the BSC and regulators about the details of implementing certain standards. Nevertheless, like the qualitative standards, they evince a decided shift toward reducing intricacy in the capital adequacy regime for foreign exchange transactions.

3. Authority: The BSC's Standards As Customary International Law

The 1996 Market Risk Amendment enhances the authoritative basis for the capital adequacy regime for foreign exchange transactions. First, as discussed below, the BSC's qualitative and quantitative standards could become customary international law. Second, as discussed in the next section,³⁰⁶ internal VaR methodologies that banks design and implement could become international law merchant.

Custom is a widely acknowledged source of international law.³⁰⁷ It is no less authoritative than an international agreement.³⁰⁸ Could the BSC's qualitative and quantitative standards become customary international law? The answer depends on whether they meet the public international law criteria for the formation of that law. There are two criteria: general practice and a sense of obligation.

Article 38:1(b) of the Statute of the International Court of Justice states that "international custom, as evidence of a *general practice accepted as law*," constitutes international law.³⁰⁹ Section 102(2) of the *Restatement (Third) of the Foreign Relations Law of the United States* provides that "[c]ustomary international law results from a *general and consistent practice of states fol-*

306. See *infra* notes 326-369 and accompanying text.

307. ICJ Statute, *supra* note 201, art. 38:1(b); RESTATEMENT, *supra* note 198, at §§ 102(1)(a), (2). See also JORDAN J. PAUST, INTERNATIONAL LAW AS LAW OF THE UNITED STATES 1-9 (1996); JOHN MERRILLS, ANATOMY OF INTERNATIONAL LAW 4-5 (2nd ed. 1981); J.L. BRIERLY, THE LAW OF NATIONS 59-62 (1963). For a critique of customary international law doctrine, see Anthony D'Amato, *Sources of General International Law*, in INTERNATIONAL LAW ANTHOLOGY 51-94 (Anthony D'Amato, ed. 1994).

The formulation of custom as a source contained in ICJ Statute is backwards. The ICJ Statute refers to "custom, as evidence of a general practice." In fact, as Section 102(2) of the *Restatement* correctly indicates, "[c]ustomary international law *results* from a general and consistent practice." (emphasis added). See Stephen C. McCaffrey, *The Restatement's Treatment of Sources and Evidence of International Law*, in COMMENTARIES ON THE RESTATEMENT (THIRD) OF THE FOREIGN RELATIONS LAW OF THE UNITED STATES 9 n. 34 (International Lawyer, ed., 1992).

308. RESTATEMENT, *supra* note 198, § 102 cmt. j. See also WILLIAM R. SLOMANSON, FUNDAMENTAL PERSPECTIVES ON INTERNATIONAL LAW 11-12 (2nd ed. 1995).

309. Emphasis added. See also RESTATEMENT, *supra* note 198, § 102 at Reporters' Notes 1.

lowed by them from a *sense of legal obligation*.”³¹⁰ Accordingly, both formulations require general practice and *opinio juris sive necessitatis*,³¹¹ and the *Restatement* expressly mentions state action.³¹²

These formulations suggest the BSC’s standards could become customary international law if they are followed by states as a matter of general practice out of a sense of legal obligation.³¹³ That is, the formulations present a two-part issue: does a sufficiently large number of not only G-10, but also non-G-10, countries apply the standards to their banks’ internal VaR models, and if so, is their compliance based on a belief the standards are binding? Unfortunately, it is too soon to answer the issue. The 1996 Market Risk Amendment has not operated for a sufficiently long period to determine whether the general practice and *opinio juris* criteria are satisfied. Of course, longevity *per se* is not required for the creation of customary international law. As the *Restatement* indicates, “[t]he practice necessary to create customary law may be of comparatively short duration”³¹⁴ But, one or two years is an extremely short duration on which to base an inference that a custom has been established. At present, the issue can be addressed only by sketching out potentially relevant features of general practice and *opinio juris*.

a. General Practice

What constitutes general practice? More specifically, what if some states opt out and decline to apply the BSC’s qualitative and quantitative standards to their banks’ internal VaR models? Unanimity of practice is not required to create customary law. As the *Restatement* indicates,

[a] practice can be general even if it is not universally followed; there is no precise formula to indicate how widespread a practice must be, but it should reflect wide acceptance among the states particularly involved in the relevant activity. Failure of a significant number of important states to adopt a practice can prevent a principle from becoming general customary law though it might

310. RESTATEMENT, *supra* note 198, § 102(2) (emphasis added).

311. A sense of legal obligation. See also MERRILLS, *supra* note 307, at 4-5; BRIERLY, *supra* note 307, at 51-52, 60-61; MARK W. JANIS, AN INTRODUCTION TO INTERNATIONAL LAW 41-48 (2d ed. 1993).

312. Because the ICJ adjudicates disputes between states, the element of state action could be viewed as implicit in Article 38:1(b).

313. To be sure, Section 102 of the *Restatement* refers to “states,” not plurilateral organizations like the BSC or private actors like banks. The Section contemplates “diplomatic acts and instructions as well as public measures and other governmental acts and official statements of policy.” However, the BSC’s membership consists of central bank and finance ministry officials from states. Thus, the BSC’s standards represent coordinated state action.

314. RESTATEMENT, *supra* note 198, § 102 cmt. b. See also § 515; North Sea Continental Shelf Cases, *supra* note 198, at 43-44; IAN BROWNIE, PRINCIPLES OF PUBLIC INTERNATIONAL LAW 5 (4th ed. 1990).

become "particular customary law" for the participating states.³¹⁵

This passage suggests two alternative scenarios in the event the BSC's quantitative standards are not universally followed.

First, states in a particular region of the world—for example, South Asian countries such as India, Pakistan, and Bangladesh—might apply a different set of standards to their banks' internal VaR models. These standards might qualify as "regional" customary law,³¹⁶ which would apply to internal models developed and used by banks in that region. If the BSC's standards are applied by non-South Asian states, then the standards would be customary law wherever they are followed.

A second scenario is that a large number of states apply the BSC's standards, so there is no question of confining custom to a particular region. But, the states apply the standards only to commercial banks, not securities firms. Given the nagging scope problem discussed in Part II of this article and below, this scenario is quite realistic. In this scenario, the standards might become "special" customary law.³¹⁷ That law would bind only commercial banks.

b. *Opinio Juris*

The *Restatement* indicates "a practice that is generally followed but which states feel legally free to disregard does not contribute to customary law."³¹⁸ Would states follow the BSC's qualitative and quantitative standards out of a sense of legal obligation? There is no multilateral body to enforce international banking law akin to the WTO, which enforces international trade law.³¹⁹ But, an organization is not the only way to enforce legal obligation in a cross-border context. Reputational integrity can be the "stick" that creates an atmosphere of legal obligation.

Consider the possible fate of a state and its banks that do not view the BSC's standards as obligatory. The state fails to develop substantively equivalent alternative standards for internal VaR models. That state's shortsighted imprudence undermines the long-term reputation of its banks in currency markets. Banks from other countries obliged to follow the BSC's standards, or substantive equivalents, may eschew dealing with banks from the "rogue" state. Extensions of credit may be made on very conservative terms, such as higher interest rates, lower principal amounts, and stringent capital re-

315. RESTATEMENT, *supra* note 198, § 102 cmt. b. See also *Id.* cmt. e.

316. See RESTATEMENT, *supra* note 198, § 102 cmt. e; *Asylum Case* (Colombia v. Peru), 1950 I.C.J. 266 (Nov. 20).

317. See RESTATEMENT, *supra* note 198, § 102 cmt. e; *Case Concerning Right of Passage Over Indian Territory* (Merits) (Portugal v. India), 1960 I.C.J. 6 (Apr. 12); BROWNIE, *supra* note 314, at 9-10.

318. RESTATEMENT, *supra* note 198, at § 102 cmt. b.

319. See BHALA, INTERNATIONAL TRADE LAW, *supra* note 193, ch. 2.

quirements, to reflect the extra risk in dealing with the rogue state's banks. Foreign exchange transactional volumes may be noticeably lower in response to this risk. In brief, banks obligated to follow the BSC standards may adjust their behavior because they perceive non-obligated banks as operating in an unsafe and unsound manner (To take an extreme example, notwithstanding infrastructural barriers in Myanmar, U.S. banks are unlikely to trade currencies in large volumes with banks from Myanmar.).

Thus, as a practical matter, as banks gain experience with the BSC standards, reputational pressure may compel states to regard the standards as obligatory. Indeed, the *Restatement* indicates

[a] practice initially followed by states as a matter of courtesy or habit *may become law when states generally come to believe that they are under a legal obligation to comply with it*. It is often difficult to determine when that transformation into law has taken place. Explicit evidence of a sense of legal obligation (e.g., by official statements) is *not* necessary; *opinio juris* may be inferred from acts or omissions.³²⁰

The relevant point is that in the currency trading business a reputation for integrity is perhaps a bank's most important asset and source of competitive advantage. This reputation is integrally related to compliance with widespread practices, including the application of the BSC's standards. Following the standards is a symbol, or market signal, of a bank's integrity, which has financial consequences. This signal and its repercussions are the reputational pressures that cause a state to believe it is under a legal obligation to follow the BSC's standards. Put bluntly, a rogue state becomes a compliant state when it prefers its banks to have reputations like J.P. Morgan and Chase Manhattan instead of Barings and Daiwa.³²¹

320. RESTATEMENT, *supra* note 198, § 102 cmt. c (emphasis added).

321. It is an unfortunate fact that from time to time a Barings, Daiwa, or BCCI affair occurs (though none was infamous because of its currency trading activities). *See, e.g.,* BHALA, FOREIGN BANK REGULATION AFTER BCCI, *supra* note 194. The reputational enforcement mechanism is not failsafe. From the perspective of a rationally-calculating state inclined to violate a customary regime, the mechanism works if the state's cost-benefit calculation leads it to believe its banks will incur a net cost if it perpetrates a bad act. Accordingly, it is important for the state not to miscalculate the costs and benefits as a result of, for example, imperfect information or failure to internalize certain costs or benefits. *Id.*

At the same time, it is also important not to demand more of customary international law than is demanded of law created and enforced, respectively, by domestic legislative and adjudicatory institutions. No institutional enforcement mechanism is an infallible deterrent. Indeed, the Daiwa and BCCI scandals occurred with the Federal Reserve check in place. *See id.;* Bhala, *Equilibrium Theory*, *supra* note 1 (manuscript pt. I., on file with author).

4. Authority: Bank Practices As International Law Merchant

a. The Need For An International Law Merchant On VaR Modeling

As argued above, the BSC's qualitative and quantitative standards for internal VaR models could develop into customary international law. However, customary international law cannot be the source of authority for the many bank practices that are sure to evolve as banks gain more experience in designing and implementing VaR models. Customary law arises from the actions of states. Internal VaR modeling is conducted by private players.

Recently, J.P. Morgan developed a sophisticated risk-measurement methodology known as "RiskMetrics."³²² This methodology measures and monitors market risks associated with a bank's trading portfolio and thereby ascertains the VaR associated with the portfolio. Using the VaR generated by RiskMetrics, a bank can calculate its market risk capital charge. J.P. Morgan provides information on RiskMetrics free of charge to any bank upon request. The information includes pamphlets summarizing the system, a sizeable booklet explaining the system's design and operation details, and a computer diskette containing necessary software to implement the system.³²³ A bank can adopt RiskMetrics without variation, or may tailor the methodology to suit its individual needs. In sum, RiskMetrics is J.P. Morgan's internal VaR model that it shares with its peers for their consideration.

Anecdotal evidence indicates RiskMetrics has aroused a great deal of interest in the international banking community. Indeed, one observer states "[i]t's very possible that when the history of finance in the 1990s is written, J.P. Morgan's sharing of its highly respected in-house risk management system will be cited as *the most important financial development of the decade*."³²⁴ Of course, J.P. Morgan does not offer RiskMetrics for purely altruistic motives. Widespread adoption of RiskMetrics surely would bring great repute to Morgan and help it shape how market risk is measured and monitored in the banking industry. Morgan could obtain a dominant position in internal VaR modeling in the way Microsoft has such a position in computer operating systems. Further, from J.P. Morgan's perspective, financial transactions with banks that use RiskMetrics may entail less risk than transactions with banks

322. J.P. Morgan, *Introduction to RiskMetrics* (4th ed. Nov. 21, 1995). Other banks may develop similar methodologies, and this article does not endorse any particular methodology.

323. The information package may be obtained by writing to J.P. Morgan & Co., Inc., Risk Management Services, 60 Wall Street, New York, N.Y. 10260 or by e-mail at riskmetrics@jpmorgan.com. It should be noted that RiskMetrics has a VaR component, but also it is able to provide risk figures according to categories of underlying instruments. See *Iberdrola Rejects VAR; Eyes RiskMetrics*, DERIVATIVES WEEK, Nov. 27, 1995, at 4.

324. Desmond MacRae, *Is Risk Management the Next Hot Custody Product?*, AM. BANKER, Apr. 3, 1995, at 10A (emphasis added).

that use an unfamiliar or untested risk management system. Finally, widespread adoption of RiskMetrics might stave off heavy-handed regulation of trading operations by Congress or the Federal Reserve. Legislators and regulators might be less inclined to impose new rules if they believe banks are engaging in responsible self-regulation.

Assume Riskmetrics conforms with all applicable qualitative and quantitative standards issued by the BSC. Suppose it becomes the standard internal VaR modeling methodology. What legal authority, if any, would Riskmetrics have? The issue may be put in a generic way. In the next few years banks are sure to experiment with different VaR modeling methodologies as they take advantage of the constrained self-regulatory opportunity provided by the 1995 Market Risk Proposal and 1996 Market Risk Amendment. Over time, they will develop standard practices for designing and implementing these methodologies. What legal authority, if any, would such methodologies have?

The problem is not as academic as it may appear. Suppose a dispute arises between J.P. Morgan and another bank, or between J.P. Morgan and the Federal Reserve, as to the design or implementation of RiskMetrics. Assume there is no governing domestic banking statute or case law addressing the dispute, which concerns design and implementation of the methodology. A potentially important threshold question is the authority of the methodology: is RiskMetrics legally binding on banks?³²⁵ If the methodology is binding, then presumably there is a particular design and implementation pattern every bank must follow. If it is not binding, then a bank is free to deviate from the pattern in any way it chooses as long as the bank's idiosyncratic methodology satisfies the BSC's quantitative and qualitative standards.

The answer may lie in *lex mercatoria*, or law merchant. RiskMetrics, or any internal VaR methodology, could develop into an authoritative international law merchant. However, this answer begs four important questions. What is law merchant? Why is it authoritative? How is it created? How is it enforced? These questions are addressed below.

b. The Authority Of Law Merchant

Law merchant is "simply an enforceable set of customary practices" for the benefit of merchants that is reasonably uniform across all jurisdictions in

325. This issue is pertinent not only to internal VaR models, but also other self-regulatory techniques banks have developed for the foreign exchange market. Such techniques include master agreements for spot, forward, and option contracts, and a code of conduct. See, e.g., the standard-form contracts cited *supra* note 167; Foreign Exchange Committee, *Guidelines for Foreign Exchange Trading Activities* (Mar. 1996) (prescribing practices for the conduct of currency trading). Unfortunately, the Foreign Exchange Committee's documents are not yet available through an electronic legal database. They may be obtained by writing the Committee in care of the Federal Reserve Bank of New York, 33 Liberty Street, New York, N.Y. 10045, or by calling the Committee at 212-720-6651.

which the merchants operate.³²⁶ The essence of law merchant is respect for “‘merchant’ practice as a primary source of regulation and the “law” as a secondary control over commerce.”³²⁷ That is, law merchant is a self-regulatory apparatus.

[I]nternational merchants *are themselves very often well able to regulate their own business dealings by recourse to their trade devices* The role of the modern Law Merchant lies in enhancing rather than subverting the will of a merchant community expressed in terms of business institutions.³²⁸

The law merchant does not displace extant law governing a particular merchant transaction. Rather, it supplements governing law with rules more specific than that law.³²⁹ The law merchant is “a secondary force” that reinforces “the cycle of business practice” and commands “merchants to do that which

326. See I. Trotter Hardy, *The Proper Legal Regime for “Cyberspace,”* 55 U. PITT. L. REV. 993 (1994). In this context, a “merchant” is a person who dedicates herself to a particular line of commerce, though sometimes even a solitary act of trading suffices to qualify a person as a merchant. See WYNDHAM ANSTIS BEWES, *THE ROMANCE OF THE LAW MERCHANT* 12-13 (1923).

Interestingly, Karl Llewellyn developed the concept of “situation sense,” which closely resembles the law merchant. In Llewellyn’s jurisprudence,

a “sound” decision uncovering the “immanent law” would be one in which the judge has sufficient experience and understanding of the usages and ethics of the particular trade and the way this kind of transaction would be conducted and how it fitted into the general pattern of commercial usage to be able to know what kind of solution would be likely to be deemed reasonable and acceptable by the mercantile community. A judge in a commercial case who can see the facts in the way businessmen would see them, as well as from the lawyer’s point of view and from the point of view of the “mores” of the community as a whole, has grasped the “situation sense.”

WILLIAM TWINING, *KARL LLEWELLYN AND THE REALIST MOVEMENT*, 225 (1973). See also John F. Dolan, *Standby Letters of Credit and Fraud (Is the Standby Only Another Invention of the Goldsmiths in Lombard Street?)*, 7 CARDOZO L. REV. 1, 42-45 (1985) (arguing that “for the merchant invention to succeed in the courts, judges must be willing to learn mercantile practices or to defer to the judgment of the merchants”); KARL N. LLEWELLYN, *THE COMMON LAW TRADITION* 60-61, 206, 228, 232-35, 261 (1960) (discussing the duty of counsel to inform a judge about relevant usages and transactional details); Karl N. Llewellyn, *On Warranty of Quality, and Society* (pt. 2), 37 COLUM. L. REV. 341, 349-50 (1937) (noting judges sometimes learn about commerce through dinners with merchants).

327. LEON E. TRAKMAN, *THE LAW MERCHANT: THE EVOLUTION OF COMMERCIAL LAW* 9-10 (1983).

328. *Id.* at 44 (emphasis added).

329. See Hardy, *supra* note 326, at 1019. For example, Section 1-103 of the Uniform Commercial Code recognizes the vitality of the law merchant, stating “principles of law and equity, including the law merchant . . . shall supplement” the U.C.C. (emphasis added). See *infra* note 337; but see Peter Winship, *Contemporary Commercial Law Literature in the United States*, 43 OHIO ST. L.J. 643, 645 n. 8 (1982) (arguing Section 1-103 is “increasingly cryptic, is relied upon infrequently, and is usually only a minor factor in a decision when it is referred to”).

they themselves had promised to do" as reflected in the law merchant.³³⁰ For example, if a VaR methodology develops into law merchant, then it will supplement the BSC's qualitative and quantitative standards for internal VaR modeling.

Why is the law merchant authoritative? After all, from an Austinian positivistic perspective, the law merchant cannot be law. While it may be followed habitually, it lacks the imprimatur of a sovereign whose orders are backed by threats of punishment.³³¹ Elsewhere, in the context of trade usages, I have argued the Austinian approach is unduly narrow.³³² The argument applies *a fortiori* in the context of law merchant. While trade usages traditionally are seen as a device for interpreting a provision of an agreement, law merchant presents a system of rules governing all or many aspects of a contractual relationship. In jurisprudential terms, the argument relies on H.L.A. Hart's positivism to rebut the Austinian perspective. For Hart, there is room for law to be created without the formal enactment of a sovereign, and many laws confer power on private parties to engage in self-regulation.³³³ Law merchant is one such example. It is a body of customs that over time acquires "powerful legal force without the backing of the sovereign."³³⁴

Hart's rebuttal to Austin has triumphed. Just as public international law doctrine embraces customary international law as a source of legal obligation, commercial law doctrine recognizes the binding force of law merchant.³³⁵ The

330. TRAKMAN, *supra* note 327, at 18.

331. See John Austin, *The Province of Jurisprudence Determined* (1832), in THE GREAT LEGAL PHILOSOPHERS 338 (Clarence Morris, ed., 1959); BERNARD SCHWARTZ, MAIN CURRENTS IN AMERICAN LEGAL THOUGHT 339-40 (1993); M.D.A. FREEMAN, LLOYD'S INTRODUCTION TO JURISPRUDENCE 256-57 (1985); J. W. HARRIS, LEGAL PHILOSOPHIES 24-48 (1980); MARTIN P. GOLDING, PHILOSOPHY OF LAW 24-27 (1975); EDGAR BODENHEIMER, JURISPRUDENCE 95-99 (rev'd ed. 1974). Among the commentators who take an Austinian positivistic approach to law merchant are: Georges R. Delaume, *Comparative Analysis as a Basis of Law in State Contracts: The Myth of the Lex Mercatoria*, 63 TUL. L. REV. 575, 577-78 (1989) (questioning whether *lex mercatoria* is a viable alternative to a legal system); Keith Highet, *The Enigma of the Lex Mercatoria*, 63 TUL. L. REV. 613 (1989) (discussing the extent to which *lex mercatoria* has replaced national laws with respect to contract interpretation); John S. Ewart, *What is the Law Merchant?*, 3 COLUM. L. REV. 135, 138 (1903) (arguing commercial law is "nothing but a heterogeneous lot of loose undigested customs, which it is impossible to dignify with the name of a body of law").

332. See Raj Bhala, *Self-Regulation in Global Electronic Markets Through Reinvigorated Trade Usages*, 31 IDAHO L. REV. 863, 895-97 (1995).

333. H.L.A. HART, THE CONCEPT OF LAW 77-78 (1961).

334. Hardy, *supra* note 326, at 1021. See also TRAKMAN, *supra* note 327, at 17 (stating "[t]he Medieval Law Merchant does reveal the ability of merchants to regulate their business affairs within the broad framework of a suppletive legal order").

335. See, e.g., TRAKMAN, *supra* note 327, at 10 (stating the law merchant was "a primary source of regulation" and "'intended' to be binding," thereby allowing "[t]he merchant . . . to be master of his own destiny").

most obvious example is Section 1-103 of the Uniform Commercial Code ("U.C.C."), which is called "probably the most important single provision in the [Uniform Commercial] Code."³³⁶ It states provisions of the U.C.C. may be supplemented by law merchant.³³⁷ Subject to an initial proviso concerning displacement, Section 1-103 does not create a hierarchy of obligation as between the U.C.C. and law merchant. The U.C.C. is by no means the only example of the recognition of law merchant. Belgian, Dutch, English, French, German, Italian, Korean, Panamanian, and Philippine law provide for the possibility of drawing upon law merchant to resolve commercial disputes,³³⁸ and the preamble to the UNIDROIT *Principles of International Commercial Contracts* expressly acknowledges the existence and vitality of law merchant.³³⁹

In practical terms, the binding nature of law merchant, *i.e.*, the reason it is authoritative, flows from the intention of merchants.³⁴⁰ Merchants voluntarily accept it as conferring legal obligations upon them because it promotes their

336. JAMES J. WHITE & ROBERT S. SUMMERS, *UNIFORM COMMERCIAL CODE* 6 (3d ed. 1988).

337. This section, entitled "Supplementary General Principles of Law Applicable," states: Unless displaced by the particular provisions of this Act, the principles of law and equity, including the law merchant and the law relative to capacity to contract, principal and agent, estoppel, fraud, misrepresentation, duress, coercion, mistake, bankruptcy, or other validating or invalidating cause shall supplement its provisions.

U.C.C. § 1-103 (1991) (emphasis added). For discussions of the law merchant and the U.C.C., see Jim C. Chen, *Code, Custom, and Contract: The Uniform Commercial Code as Law Merchant*, 27 TEX. INT'L L.J. 91 (1992); David Frisch, *Buyer's Remedies and Warranty Disclaimers: The Case for Mistake and the Indeterminacy of U.C.C. Section 1-103*, 43 ARK. L. REV. 291 (1990); TRAKMAN, *supra* note 327; Andreas F. Lowenfeld, *Lex Mercatoria: An Arbitrator's View*, 6 ARB. INT'L 133 (1990); J. H. Baker, *The Law Merchant and the Common Law Before 1700*, 38 CAMBRIDGE L.J. 295 (1979); Daniel R. Coquillette, *Legal Ideology and Incapacitation IV: The Nature of Civilian Influence on Modern Anglo-American Commercial Law*, 67 B.U. L. REV. 877 (1987); Robert S. Summers, *General Equitable Principles Under Section 1-103 of the Uniform Commercial Code*, 72 NW. U. L. REV. 906 (1978); Robert A. Hillman, *Construction of the Uniform Commercial Code: UCC Section 1-103 and "Code Methodology"*, 18 B.C. INDUS. & COM. L. REV. 655 (1977); Steve H. Nickles, *Problems of Sources of Law Relationships Under the Uniform Commercial Code—Part I: The Methodological Problem and the Civil Law Approach*, 31 ARK. L. REV. 1 (1977); Steve H. Nickles, *Problems of Sources of Law Relationships Under the Uniform Commercial Code—Part II: The English Approach and a Solution to the Methodological Problem*, 31 ARK. L. REV. 171 (1977); Mitchell Franklin, *On the Legal Method of the Uniform Commercial Code*, 16 LAW & CONTEMP. PROBS. 330 (1951).

338. Barton S. Selden, *Lex Mercatoria in European and U.S. Trade Practice: Time to Take a Closer Look*, 2 ANN. SURVEY INT'L & COMP. L. 111, 124-25 (1995). However, the number of cases actually drawing on law merchant in some of these countries is small. *Id.* at 125.

339. INTERNATIONAL INSTITUTE FOR UNIFICATION OF PRIVATE LAW (UNIDROIT), *PRINCIPLES OF INTERNATIONAL COMMERCIAL CONTRACTS* (1994).

340. See TRAKMAN, *supra* note 327, at 10 (stating "[t]he ordinary undertakings of merchants were binding because they were 'intended' to be binding, not because any law compelled such performance").

interests.³⁴¹ The "primary source" of law merchant lies in "mercantile values and practices."³⁴² Merchants in different trades (e.g., banking and telecommunications) develop these customs over time to facilitate their interests, which include promoting commercial activity, minimizing commercial disputes, and resolving swiftly any disputes that arise.³⁴³ As one scholar puts it,

[t]he success of merchant law did not depend on a totally undefined standard of universal justice; nor could it be subject to juristic malleability in the hands of an overindulgent tribunal if commerce was to be truly enhanced in world trade. Merchants required a particular form of justice to be administered *which rendered their dealings most efficacious* in the context of free trade.³⁴⁴

Therefore, if a VaR methodology such as RiskMetrics qualifies as law merchant, then it will be accepted by banks as authoritative because it promotes their interests. As I have argued in *Equilibrium Theory, the FICAS Model and International Banking Law*, this interest is to achieve a high volume of profit-maximizing currency transactions.³⁴⁵

c. Ingredients Necessary For The Creation Of Law Merchant

By what means might a VaR methodology become law merchant? More generally, how is law merchant created? Typically, the origins of law merchant are said to lie in medieval Europe,³⁴⁶ though some scholars trace its roots to ancient Phoenician traders, caravan commerce in Mesopotamia, Persia, Arabia, and Egypt, and shipping trade involving the Persian Gulf, Red Sea, India, and China.³⁴⁷ Unfortunately, in contrast to the public international law jurisprudence on the formation of customary law, historical accounts of law merchant do not contain a neat "list" of essential ingredients.³⁴⁸ There is no

341. The importance of voluntary acceptance as the ultimate basis for authority is discussed in my previous article, *Equilibrium Theory*, *supra* note 1 (manuscript pt. IV.D, on file with author). See also Chen, *supra* note 337, at 108-09 (stating "only those customs that evoked subjective feelings of legal obligation could bind commercial parties").

342. TRAKMAN, *supra* note 327, at 13.

343. *Id.* at 11-13.

344. *Id.* at 12 (emphasis added).

345. See *Equilibrium Theory*, *supra* note 1 (manuscript pt. II.B.1, on file with author).

346. See, e.g., TRAKMAN, *supra* note 327, at 7-22; Hardy, *supra* note 326, at 1019; Charles A. Bane, *From Holt and Mansfield to Story to Llewellyn and Mentschikoff: The Progressive Development of Commercial Law*, 37 U. MIAMI L. REV. 351, 352-56 (1983); R.M. GOODE, *COMMERCIAL LAW* 31-33, 988-89 (1982).

347. See, e.g., BEWES, *supra* note 326, at 2-4.

348. For example, none of the following works on the law merchant provides such a list: TRAKMAN, *supra* note 327; BEWES, *supra* note 326; 1 WILLIAM HOLDSWORTH, *A HISTORY OF ENGLISH LAW* 543 (1903); Chen, *supra* note 337; Harold J. Berman, *The Law of International Commercial Transactions (Lex Mercatoria)*, 2 EMORY J. INT'L DISP. RESOL. 235, 238-44 (1988); Chris Williams, *The Search for Bases of Decision in Commercial Law: Llewellyn Redux*, 97 HARV. L. REV. 1495 (1984) (reviewing TRAKMAN, *supra* note 327); Bane, *supra* note

definitive list of ingredients necessary to create law merchant in the contemporary global economy.³⁴⁹ Instead, it is necessary to infer from various sources the ingredients from which law merchant was created during the middle ages.³⁵⁰ Arguably, it is also necessary to assume the same ingredients are needed to make law merchant today.

There are five such ingredients. First, the custom must reflect "trade habits and market usages."³⁵¹ Law merchant embodies actual merchant practice and "echo[es] the existing sentiments of the merchant community."³⁵² Second, the custom must persist over a sustained period of time. That is, it must be constant or established.³⁵³ Third, the custom must be universal.³⁵⁴ The custom cannot rest on the institutions or practices of one or a few jurisdictions in which merchants operate.³⁵⁵ Rather, it must promote the needs and convenience of merchants in all relevant jurisdictions, and merchants in these jurisdictions must follow the custom in a consistent manner. Fourth, the custom must be extrinsic to the legal system. There can be "no statute or other authoritative pronouncement of law [that gives] rise to its existence."³⁵⁶ Fi-

346; Harold J. Berman & Kaufman, *The Law of International Commercial Transactions (Lex Mercatoria)*, 19 HARV. INT'L L.J. 221 (1978); William C. Jones, *An Inquiry into the History of the Adjudication of Mercantile Disputes in Great Britain and the United States*, 25 U. CHI. L. REV. 445 (1958); Philip W. Thayer, *Comparative Law and the Law Merchant*, 6 BROOK. L. REV. 139 (1936); Ewart, *supra* note 331.

349. Consider two recent articles discussing international law merchant: Francesco Galgano, *The New Lex Mercatoria*, 2 ANN. SURVEY INT'L & COMP. L. 99, 107-10 (1995) and Selden, *supra* note 338, at 111-15. Neither piece deals squarely with the problem of how such law is formed.

350. The temporal caveat is important. The ingredients required in the middle ages were considerably more flexible than those demanded by formalistic common law judges in post-medieval England. It was not until the 19th and 20th centuries that needless inflexibility was avoided, in part as a result of decisions by Judge Learned Hand and the operation of § 1-205 of the U.C.C. See TRAKMAN, *supra* note 327, at 23-37; Chen, *supra* note 337, at 110-11.

351. TRAKMAN, *supra* note 327, at 2. See also BEWES, *supra* note 326, at 8 (noting the law merchant reflected the "habitual practice" of merchants); Chen, *supra* note 337, at 108 (stating "custom arises from the practices of a cohesive mercantile community. . .").

352. TRAKMAN, *supra* note 327, at 9.

353. *Id.* at 11. See also BEWES, *supra* note 326, at 9 (noting the law merchant developed "from the oldest times"); Chen, *supra* note 337, at 108 (noting the importance of the "continuous use" of custom).

354. TRAKMAN, *supra* note 327, at 11. See also BEWES, *supra* note 326, at 8 (noting "[t]here was no substantial difference" in the law merchant across different jurisdictions).

355. See TRAKMAN, *supra* note 327, at 11-12.

356. Hardy, *supra* note 326, at 1019. See also CLIVE M. SCHMITTHOFF, CLIVE M. SCHMITTHOFF'S SELECT ESSAYS ON INTERNATIONAL TRADE LAW 31-36, 188-204, 243-51 (Chia-Jui Cheng, ed., 1988) (proclaiming a "new law merchant" that "provide[s] its own legal regulation without reference to, and independent of, any municipal system of law"); John O. Honnold & Detlev F. Vagts, *Clive M. Schmitthoff's Select Essays on International Trade Law*, 85 AM. J. INT'L L. 247 (1991) (book review).

nally, an adjudicator cannot accept a custom as part of the body of law merchant if that custom does not confer a utilitarian benefit on the merchant community. As intimated above,³⁵⁷ the custom must promote the maximum benefit (or greatest good for the greatest number) of merchants.³⁵⁸

Assuming these medieval ingredients are required for a modern-day recipe, to what extent do they exist in modern-day internal VaR methodologies like RiskMetrics for measuring and monitoring market risk and calculating capital requirements? The first ingredient is present. All internal VaR methodologies reflect practices among banks because they are designed and implemented by the banks themselves. The fourth ingredient also is present. The methodologies are not pre-empted by existing statutes. Likewise, the fifth ingredient is apparent. As demonstrated in Part II, banks oppose the BSC's standardized methodology contained in the 1993 Market Risk Proposal. In contrast, they find the internal models methodology of the 1995 Market Risk Proposal and 1996 Market Risk Amendment to be more consistent with their interests.

However, the second and third ingredients—persistence and universality—in the recipe for law merchant are not yet present. No internal VaR methodology has persisted for a sustained period. The leading model, RiskMetrics, has been available to banks only since the mid-1990s. More generally, there is a tension between constancy and utilitarianism. Customs change over time to accommodate the interests of merchants, hence law merchant needs to be flexible. How persistent must a custom be before it is accepted as part of the law merchant?³⁵⁹ Must RiskMetrics be used for twenty years before it qualifies as law merchant? Perhaps in response to these questions it may be argued that the medieval requirement of persistence is inappropriate for the modern era. After all, at least in fast-paced markets like international banking (or, for example, computer software and hardware), customs evolve rapidly. Why wait twenty years if RiskMetrics is accepted within two or three years?³⁶⁰

357. See *supra* note 344 and accompanying text.

358. TRAKMAN, *supra* note 327, at 9.

359. In post-medieval English law, custom had to be "ancient" in its origins or in existence "since time immemorial," and also had to be "certain" and "predictable," to qualify as law merchant. See TRAKMAN, *supra* note 327, at 27, 30, 35. The U.C.C. dispenses with this interpretation and states a custom need only be "reasonable" in the circumstances. See U.C.C. § 1-205 cmts. 4-6; Chen, *supra* note 337, at 110-11.

360. This argument harkens back to Professor Gilmore's point in *The Ages of American Law* about statutory drafting. "[T]he more tightly a statute was drafted originally, the more difficult it becomes to adjust the statute to changing conditions without legislative revision." GRANT GILMORE, *THE AGES OF AMERICAN LAW* 96 (1977). Professor Gilmore suggests that at best a well-drafted statute can deal with issues raised during the 20 or 25 years preceding the drafting of the statute. *Id.* Given the pace of developments in international banking markets, Professor Gilmore's time limit might be reduced to less than a decade. If so, then the futility of a BSC-imposed scheme is apparent, and greater emphasis should be placed on law merchant. See also

Universality also is missing. No internal VaR methodology has become the clear industry standard. At best, RiskMetrics may be analogous to Microsoft's Windows 95 operating system. Both are used to an increasing extent, but other viable competitors remain. Further, just as a personal computer user can configure her own Windows 95 desktop, a bank can tailor the basic RiskMetrics methodology to suit its own needs. Unfortunately, there is no clear definition of what "universal" means. Suppose banks in London and New York, but not Tokyo, use RiskMetrics, and that several London and New York banks adjust RiskMetrics for their individual needs. Does the methodology qualify as law merchant?³⁶¹ In sum, until the temporal and universality ingredients exist, no internal VaR methodology can be accepted as international law merchant.

Despite the missing ingredients, developments concerning two aspects of currency trading other than capital adequacy give reason for optimism that an international law merchant in the capital adequacy area might emerge. Banks have laid the foundation for an international law merchant to regulate contractual obligations and proper trading practices. This foundation was created by associations of banks in each of the three major currency trading centers: in London, the British Bankers' Association; in Tokyo, the Tokyo Foreign Exchange Association; and in New York, the Foreign Exchange Committee, International Swaps and Derivatives Association, Emerging Markets Traders Association, New York Clearing House Association, Public Securities Association, and Securities Industry Association. Each association is comprised of representatives from dozens of banks and securities firms that actively trade currencies. For instance, the International Swaps and Derivatives Association boasts roughly 163 of the world's largest commercial, merchant, and investment banks involved in currency trading.³⁶² While most banks happen to be from BSC countries, this fact is not the result of a membership criterion, and there is no distinction between banks or firms from BSC or non-BSC countries.

With respect to contractual obligations, the Foreign Exchange Committee, British Bankers' Association, and Tokyo Foreign Exchange Association harmonized contract rules for all OTC foreign exchange transactions. In 1992

supra note 242 and accompanying text (discussing the inability of the BSC to keep pace with market developments).

361. See Chris Williams, *The Search for Bases of Decision in Commercial Law: Llewellyn Redux*, 97 HARV. L. REV. 1495, 1505-07 (1984) (reviewing TRAKMAN, *supra* note 327) (arguing "[n]either Trakman nor Llewellyn offers any insight regarding how much agreement on a trade practice is necessary for that trade practice to become an appropriate basis of decision"); TRAKMAN, *supra* note 327, at 36-37, 42-43, and 102 (discussing the "nationalization" of the law merchant and the problem of balancing between a harmonized law merchant, on the one hand, and the recognition of diverse customs across jurisdictions, on the other hand).

362. Letter from Evans, *supra* note 18, at 1; Letter from Joseph Bauman, *supra* note 17, at 1.

they published the International Currency Options Market ("ICOM") master agreement, a standard-form contract for currency option transactions. In 1993, they issued the International Foreign Exchange Master Agreement ("IFEMA"), a standard-form contract for spot and forward transactions. In addition, the International Swaps and Derivatives Association has published a master agreement for swap transactions that is used not only for swaps, but virtually any OTC trade.

With respect to proper trading practices, in 1995 banks and securities firms published a code of conduct for trading practices in OTC markets. Through the Foreign Exchange Committee, International Swaps and Derivatives Association, Emerging Markets Traders Association, New York Clearing House Association, Public Securities Association, and Securities Industry Association, banks and securities firms issued a document entitled *Principles and Practices for Wholesale Financial Market Transactions*.³⁶³ This document is a code of conduct that defines the relationship between participants in OTC financial markets. It specifies a set of "best" trading practices.³⁶⁴ Similarly, in 1996 the Foreign Exchange Committee published a revised version of its lengthy *Guidelines for Foreign Exchange Trading Activities*.³⁶⁵ The *Guidelines* articulate key issues arising in currency trading and offer ways to resolve such issues.³⁶⁶ In effect, the *Guidelines* are an industry code of conduct. In 1996 the Committee also published a paper entitled *Management of Opera-*

363. Aug. 17, 1995 (on file with author). Membership of the New York Clearing House includes only commercial banks, while the members of the Securities Industry Association includes only securities firms.

The *Principles and Practices* resulted in part because of a general concern about derivatives transactions. In turn, this concern arose in part because of Bankers Trust's well-publicized legal problems with derivatives contracts with its clients Procter and Gamble and Gibson Greetings, Inc. A similar effort undertaken by the Derivatives Policy Group yielded the *Framework for Voluntary Oversight* in March 1995.

364. *Id.* at intro. Also in 1995, the Bank of England published a set of "best" practice principles in consultation with market practitioners. See BANK OF ENGLAND, THE LONDON CODE OF CONDUCT FOR PRINCIPALS AND BROKING FIRMS IN THE WHOLESALE MARKETS (July 1995) (on file with author).

365. Jan. 1996. While the Federal Reserve Bank of New York is an *ex officio* member of the Foreign Exchange Committee and facilitates the process of drafting standard-form contracts and codes of conduct, it is incorrect to suggest this process is one led by that Reserve Bank. Its role is to coordinate meeting times and places, and offer comments on draft documents. It does not assume primary drafting responsibilities. Of course, commercial bank members of the Foreign Exchange Committee must be mindful of central bank interests throughout the drafting process. No doubt commercial banks realize if they fail to arrive at an acceptable outcome, then the Federal Reserve—or worse, Congress—might preempt their self-regulatory efforts through regulation or statute.

366. Letter from John Finigan, Chairman, *Foreign Exchange Committee revising Guidelines for Foreign Exchange Trading Activities* (Mar. 25, 1996).

tional Risks in Foreign Exchange.³⁶⁷ This paper, a supplement to the *Guidelines*, addresses operational risks associated with currency trading and prescribes a set of best practices.³⁶⁸

No significant problems appear to have occurred during the process of preparing the master agreements or code of conduct. Through their representative associations, banks and securities firms took responsibility for researching issues, negotiating and writing preliminary drafts, exchanging and commenting upon preliminary drafts, and agreeing upon a final version. Thereafter, the associations commended the documents to their members.³⁶⁹ Certainly, not every bank agrees with every provision of the master agreements and code of conduct. Still, these regimes seem to have gained widespread acceptance.

In sum, the record on foreign exchange contracts and trading practices is positive. Banks have proven themselves capable of self-regulation through master agreements and a code of conduct. These documents appear destined to become international law merchant. Given this record, there is no reason to doubt the capacity of banks to create an international law merchant for internal VaR modeling.

d. Banker Adjudicators?

Discerning the ingredients necessary to create an international law merchant may be less difficult than devising a system to adjudicate disputes about that law. Consider a dispute between J.P. Morgan and another bank, or between J.P. Morgan and the Federal Reserve, concerning the RiskMetrics meth-

367. Apr. 1996.

368. Letter from John Finigan, Chairman, *Foreign Exchange Committee* Controlling Operational Risks of Foreign Exchange (Apr. 5, 1996).

369. For example, with respect to the *Principles and Practices for Wholesale Financial Market Transactions*, see Letter from Lewis W. (Woody) Teel, Chairman, *The Foreign Exchange Committee* (Sept. 12, 1995) (on file with author) ("strongly urg[ing]" foreign exchange professionals to send copies of the Principles and Practices to their customers and counterparties); Federal Reserve Bank of New York News Release, Final Version of Voluntary OTC Conduct Guidelines Issued (no. 2080, Aug. 17, 1995) (on file with author) (stating "it is expected that each trade association will recommend the best practices code to its members"); Emerging Markets Traders Association, EMTA Welcomes OTC Principles (Aug. 17, 1995) (on file with author) (announcing "support of the year-long effort to develop the Principles and Practices . . ."); Securities Industry Association Comment, SIA Backs Plan for Use of "Principles and Practices" for Wholesale Financial Market Activities (Aug. 17, 1995) (on file with author) (stating the Securities Industry Association "will recommend to its members who regularly participate in the wholesale financial markets that they adhere to the voluntary "principles and practices . . ."); ISDA News Release, ISDA Statement on Principles and Practices Guidelines (Aug. 17, 1995) (on file with author) (indicating that "ISDA [International Swaps and Derivatives Association] will strongly recommend the Principles and Practices to our U.S. members for implementation as they deem appropriate for their business").

odology. A threshold issue might be whether law merchant ingredients exist in RiskMetrics. Additional key issues might be how a bank should implement RiskMetrics, and whether a bank properly implemented RiskMetrics.

Is the modern adjudicatory system equipped to resolve these issues? Arguably, it may need reform to make it resemble more closely the medieval system and thereby better interpret and administer law merchant. In medieval times, law merchant was interpreted and enforced by merchants.

Adjudicators were generally selected from the ranks of the merchant class on the basis of their *commercial experience*, their *objectivity* and their *seniority* within the community of merchants. The rationalization for the choice of merchants rather than lawyers is apparent from an analysis of the premises underlying the Law Merchant. A merchant judge reputedly could *better evaluate commercial matters*. He was *equipped to assess mercantile custom*. He was expected to *appreciate the needs of merchants*, especially their desire to attain a speedy and low-cost determination of their disputes. He was able to *perceive of changing trade dynamics and the need to reach a decision in accord with the realities of business*. Most significantly, the merchant judge was *in a position to assess the relevance of the facts surrounding the transaction—to give justice according to the realistic needs of merchants*. Lawyers applying indigenous rules of substance and procedure were unsuitable adjudicators in merchant matters for various reasons. A lawyer who lacked traditional commercial training was necessarily tainted by a particularly legalistic perspective. He was presumably preoccupied with his duty to enforce forum law rather than rules of commerce. Furthermore, strict law as applied by lawyers involved formalities which hindered commerce. The needs of the Law Merchant were founded in commerciality first and foremost, rather than in strict legalism. Therefore, commercial judges suited the primary goals of business more readily than lawyers who were trained in matters of law³⁷⁰

In contrast, the modern system relies exclusively on government officials as adjudicators. In addition, even when cross-border trading issues are at stake, the system is confined by national boundaries.

For example, a dispute like the hypothesized ones between J.P. Morgan and another bank, or between J.P. Morgan and the Federal Reserve, is a matter for a domestic bank regulator and court system to decide. The case might be brought by the Federal Reserve against J.P. Morgan and heard by an administrative law judge. That judge's decision may be appealed to the Board of Governors of the Federal Reserve System, whose decision may in turn be appealed to the appropriate federal court.³⁷¹

370. TRAKMAN, *supra* note 327, at 15 (emphasis added).

371. See 12 C.F.R. § 263 (1996) (rules of practice for hearings). In general, private parties do not have standing to bring suits against banks for violation of federal banking law, hence actions typically are brought by a regulator (albeit sometimes as a result of a tip or encouragement from a bank, group of banks, or bank customer).

The same logic in favor of merchant adjudicators in medieval times might apply to the contemporary system.³⁷² Few Federal Reserve lawyers, administrative law judges, or federal district court judges practice international banking law in the private sector before joining the regulatory agency or bench. Typically, their knowledge of practices in the arena is vicarious, *i.e.*, learned from practitioners. They have little idea of what it "feels like" to have large sums of money "on the line" as a result of foreign exchange transactions. Accordingly, they may be less likely to adjudicate in a manner that best promotes the interests of banks. This logic suggests it is worthwhile to consider replacing the present system with one that relies on panels of international bankers to resolve disputes. The hallmark of a new system would be its use of experienced practitioners to address concerns about risk measurement.

Already, the infrastructure to develop a practitioner-based adjudicatory system exists. The practitioners could be drawn from the ranks of the membership of leading trade associations such as the Foreign Exchange Committee, British Bankers' Association, and Institute of International Finance. Each association could produce a roster of eligible adjudicators on the basis of their experience, competence, and integrity. A dispute between members of a single association could be resolved by a panel of adjudicators drawn from that association's roster. A dispute involving members of different associations could be dealt with by a panel of adjudicators drawn from the rosters of the relevant associations. In these respects, the roster-panel system would resemble the way WTO and North American Free Trade Agreement ("NAFTA") panels are selected.³⁷³ Of course, as occurred in the international trade context, the new system might require domestic legislative action to confer adjudicatory jurisdiction on association panels and guarantee panel decisions will be recognized and enforced.³⁷⁴

372. Interestingly, it is my understanding that certain specialized courts in Austria that handle business and labor matters are comprised of a three-member panel where two of the members are experienced practitioners. These practitioners sit as "lay judges," offering their expertise where necessary to direct the case or settlement negotiations.

373. See BHALA, *INTERNATIONAL TRADE LAW*, *supra* note 193, chs. 2-3 (1996); FRANK W. SWACKER, KENNETH R. REDDEN & LARRY B. WENGER, *WORLD TRADE WITHOUT BARRIERS* ch. 6 (1995); JAMES R. CANNON, JR., *RESOLVING DISPUTES UNDER NAFTA* CHAPTER 19 chs. 1-6 (1994).

374. See, e.g., *URUGUAY ROUND TRADE AGREEMENT*, H.R. DOC. NO. 316; vol. 1, 103d Cong., 2d Sess. 1008-36 (1994) (stating of administrative action on the Uruguay Round Understanding on the Rules and Procedures Governing the Settlement of Disputes); *NORTH AMERICAN FREE TRADE AGREEMENT*, H.R. DOC. NO. 159, 103d Cong., 1st Sess. 194-207 (1993) (stating of administrative action concerning NAFTA Chapter 19 on dispute settlement in antidumping and countervailing duty cases).

Certainly, there are a myriad of further details associated with a new system that would need careful consideration. For example, what procedural and evidentiary rules would apply? What rights of appeal would disputants have? These important questions are beyond the scope

Still, a difficult case arises when one disputant is a regulator, such as the hypothesized dispute between J.P. Morgan and the Federal Reserve. Should a panel of practitioners be used to resolve this dispute? If so, then how should a panel adjudicating the dispute be comprised? The difficulties are compounded when a bank and regulator are not from the same country (*e.g.*, a dispute between J.P. Morgan versus the Bank of Japan concerning activities of Morgan's Tokyo office).

It is unrealistic (if not ridiculous) to expect a regulator to submit to an adjudicatory panel comprised solely of practitioners, especially practitioners from foreign countries. The very notion destroys the distinction between a regulator and the regulated. A more plausible alternative is to rely on a hybrid panel. The hybrid panel would consist of two types of adjudicators: regulatory officials, and practitioners drawn from association rosters.³⁷⁵

Undoubtedly, agreeing upon the ratio of regulators to practitioners is problematic. But, the presence of at least a few practitioners on the panel might have a salutary effect on dispute resolution outcomes. For instance, practitioners are likely to pay attention to the goals of the applicable law merchant. That is, because of their expertise and experience, they are likely to insist panel decisions comport with the "realistic needs of the merchants."³⁷⁶ Therefore, a report on the hypothesized J.P. Morgan-Federal Reserve dispute produced by a hybrid panel is likely to evince a deep understanding of the design and implementation of RiskMetrics. The report also is likely to balance the regulatory interest in conducting foreign exchange transactions in a safe and sound manner with banks' interest in securing maximum profits from such transactions.³⁷⁷

In sum, once the ingredients for creating law merchant are in place, a problem of great concern is the administration and enforcement of that law. The current system relies on domestic administrative and judicial procedures. The continuing vitality of this system is questionable. When they apply highly technical rules in a cross-border marketplace, can adjudicators in the system properly account for the interests of banks? The medieval system, with appropriate modifications, could provide useful insights in reforming the modern system.

of the present article.

375. Here again, appropriate domestic law changes may be necessary.

376. TRAKMAN, *supra* note 327, at 15.

377. See *Equilibrium Theory*, *supra* note 1 (manuscript pts. II.B.1, 3, on file with author) (discussing the interests of banks and regulators).

C. *Lingering Reasons For Bank Opposition That Undermine Stability*

1. Cogency: The "One Size Fits All" Quantitative Standards

While the 1996 Market Risk Amendment allays concerns pertaining to the frequency, intricacy, and authority variables of the FICAS model, there are lingering problems with respect to the cogency variable. Of course, it would be wrong to suggest the BSC's qualitative standards set forth in the 1996 Amendment are not cogent. To the contrary, the qualitative standards can be defended on the basis of bitter experience. A common denominator in the collapse of Barings in 1994 and the Daiwa treasury loss scandal in 1995 was poor risk management. Neither bank separated entirely its trading and risk management functions, neither bank's senior management was sufficiently attentive to risk exposures, and neither bank engaged an independent third party to review its risk measurement systems.³⁷⁸ Thus, it is not surprising the qualitative standards have not engendered significant opposition from banks.³⁷⁹

Likewise, the quantitative standards could be defended as cogent. They provide a common set of parameters for internal VaR models to promote uniformity and consistency across banks using the internal model approach. Accordingly, they prevent a "race to the bottom" among banks. As the BSC articulates with respect to the 1995 Market Risk Proposal, "[i]t is important to ensure . . . that the use of [internal] models as a basis for measuring capital requirements does not introduce a bias in favor of less rigorous assumptions in terms of measurement parameters."³⁸⁰

However, this defense of the cogency of the BSC's quantitative standards is only part of the story. The defense assumes banks would behave imprudently if left to build internal VaR models without regulatory guidance. But, reputational and systemic pressures might be a constraint on such behavior.³⁸¹ Few banks knowingly will do business with a rogue bank that is undercapitalized as a result of its slack internal VaR model.

Moreover, the defense ignores the fact that four quantitative standards are excessively conservative, even arbitrary, and may lead to over-capitalization: the 99 percent one-tailed confidence level; the 10-day holding period; the sim-

378. See *supra* note 259.

379. See *Overview*, *supra* note 16, at 2. In response to the 1995 Market Risk Proposal, the International Swaps and Derivatives Association called upon the BSC to clarify that a bank would not have to obtain prior approval or certification from its regulator for its risk management system. See Letter from Evans, *supra* note 18, at 15. J.P. Morgan suggested the specific methodology for backtesting should not be standardized because no industry consensus existed on optimal methodology. Even if one were to exist, Morgan said backtesting ought to be part of a bank's proprietary risk management process. See Letter from Sidwell, *supra* note 18, Attachment at 8.

380. *Internal Model-Based Approach*, *supra* note 15, at 8.

381. See *Equilibrium Theory*, *supra* note 1 (manuscript pt. V., on file with author).

ple sum approach to risk diversification with respect to VaR estimates across market risk categories; and the multiplication factor.³⁸² Consequently, there are serious doubts as to the cogency of at least these four quantitative standards.

a. Excessive Conservatism: The 99 Percent Confidence Level And The Ten Day Holding Period

The BSC forgets it is impossible to turn currency trading, or international banking generally, into a risk-free business. The 99 percent confidence is "substantially more conservative than the confidence intervals used by many banks." For example, J.P. Morgan's RiskMetrics model uses a 95 percent confidence interval.³⁸³

If changes in market prices are assumed to be normally distributed . . . the 99% one-tailed confidence interval (2.33 standard deviations below the mean) is *more than 40% higher* than the 95% one-tailed confidence interval (1.65 standard deviations below the mean).³⁸⁴

Thus, it is all the more puzzling the BSC frets that "even under a ninety-nine percent confidence interval, extreme market conditions are excluded."³⁸⁵ Moreover, the BSC's 99 percent standard neglects the fact that banks "routinely reprogram their [VaR] models once mistakes are uncovered."³⁸⁶ Therefore, penalizing a bank by imposing an increased capital charge for a model with more than the allowed number of misses means "punishing a bank for a program it no longer uses."³⁸⁷

Similarly, "the 10-day holding period . . . is an order of magnitude *more than 3 times higher* than the standard 1-day holding period used by many" banks."³⁸⁸ The standard one-day period is not an attempt by banks to reduce their capital charges. Rather, it reflects the fact they rarely hold financial instruments in their proprietary trading accounts for 10-day periods.³⁸⁹

The BSC is properly concerned about liquidity risk during severe market

382. See generally Letter from Sidwell, *supra* note 18, at 2 (arguing "the specified assumptions . . . are not based upon empirical evidence and, consequently, are inherently biased toward an excessively conservative capital requirement"); Overview, *supra* note 16, at 2-5 (summarizing banks' criticisms of the 1995 Market Risk Proposal).

383. Spinner, *supra* note 299, at 4. Banks such as J.P. Morgan are researching the distributional assumptions that underlie VaR models. Presently, these models assume normal distributions, but in most markets normal distributions do not occur.

384. Letter from Evans, *supra* note 18, at 5.

385. Internal Model-Based Approach, *supra* note 15, at 14.

386. Bankers Dispute Regulators' Plan to Verify Models Used to Set Capital, *supra* note 280, at 1.

387. *Id.*

388. Letter from Evans, *supra* note 18, at 6.

389. *Id.*

stress. However, it provides no evidence in the 1995 Market Risk Proposal or 1996 Market Risk Amendment that such risk necessitates a 10-day holding period. Instead, in the 1996 Amendment it states ambiguously that “[t]o limit industry burden, banks will be allowed to scale up or down their value-at-risk measure to arrive at the required 10 day holding period.”³⁹⁰ Under what circumstances can a bank scale down its VaR estimate? For example, is regulatory approval needed? By what amount can the estimate be scaled down? For instance, is there a limit on the scale factor? These questions remain unanswered.

Faulty assumptions are the central reason the 10-day holding period standard lacks cogency. J.P. Morgan rightly challenges implicit assumptions underlying the standard.

The assumption of a 10-day holding period implies that the daily risk calculation is based on a 10-day price change with zero liquidity in all markets. Such an assumption is appropriate only in very extreme market conditions and is clearly more severe than historical experience would warrant for the vast majority of markets. *In fact, in abnormal market conditions, certain markets may become more liquid as investors move towards higher quality instruments.* The use of a 10-day holding period for the purposes of backtesting also implies that the portfolio would remain unchanged for 10 days, an assumption that is not realistic. *In practice, portfolio changes over a 10-day horizon are substantial.* The comparison of 10-day profit and loss with a 10-day holding period VaR calculation is a poor indication of the predictive capabilities of the internal model, so that backtesting of such a VaR calculation would be difficult to achieve.³⁹¹

Possibly the most significant assumption J.P. Morgan questions is that illiquidity can be measured. It argues “the 10-day holding period assumption achieves no greater degree of accuracy for illiquidity” than a 1-day holding period.³⁹² After all, “illiquidity risks are generally poorly understood and difficult to quantify.”³⁹³

b. No Rationale: Correlations Between Risk Factors And The Multiplication Factor

The BSC fails to articulate a persuasive reason for its reluctance to recognize historical, empirically-based correlations across different risk categories. It appears concerned historical correlations will break down because of illiquidity during periods of market turbulence.³⁹⁴ But, this concern “is premised

390. *Overview*, *supra* note 16, at 4.

391. Letter from Sidwell, *supra* note 18, attachment at 3 (emphasis added).

392. *Id.* at 4.

393. *Id.*

394. For example, suppose a bank observes a close correlation between price movements of certain paired currency instruments. *See Internal Model-Based Approach*, *supra* note 15, at 12.

on the unrealistic presumption that all markets will become illiquid simultaneously."³⁹⁵ As J.P. Morgan rightly notes in response to the 1995 Market Risk Proposal, "[t]he requirement that VaR [estimates] be aggregated across broad risk categories on a simple sum basis penalizes firms that diversify risks across markets as a risk management strategy and does not reflect the actual correlation of certain risk factors, such as interest rates and foreign exchange rates."³⁹⁶ Discouraging a bank from reducing market risks associated with foreign exchange rates is a "result . . . at odds with widely accepted portfolio risk management theory."³⁹⁷

The 1996 Market Risk Amendment does not go far enough toward resolving these concerns. Different domestic regulators may require different amounts and types of evidence to prove a bank's system for measuring correlations is sound and implemented with integrity. Some regulators may take an unrealistically strict approach. In turn, banks subject to the jurisdiction of such regulators may be placed at a competitive disadvantage relative to banks from other jurisdictions.

Likewise, the BSC offers no serious explanation why the multiplication factor is necessary, or why three is the appropriate minimum factor. The BSC attempts to justify the factor by saying it "reflect[s] various concerns about the limitations of the statistical assumptions on which modelling is based and . . . guard[s] against rare market occurrences."³⁹⁸ A daily VaR estimate "needs to be translated into a capital charge that provides a sufficient cushion for cumulative losses arising from adverse market conditions over an extended

The BSC appears to fear that in unusual market conditions the observed correlations may be unstable or breakdown, resulting in unanticipated losses. Therefore, the BSC seems unwilling to distinguish between legitimate and illegitimate *a priori* prudent correlation assumptions.

395. Letter from Evans, *supra* note 18, at 6.

396. Letter from Sidwell, *supra* note 18, attachment at 5.

397. Letter from Evans, *supra* note 18, at 6.

398. April 1995 Press Release, *supra* note 15, at 2. See also *Internal Model-Based Approach*, *supra* note 15, at 15; December 1995 Communique, *supra* note 16, at 2; *Overview*, *supra* note 16, at 3. Thus, for example, the BSC repeats platitudes like "the past is not always a good guide to the future," "the correlations assumed in the model may prove to be incorrect," and "market liquidity may become inadequate to close out positions." *Internal Model-Based Approach*, *supra* note 15, at 15. See also December 1995 Communique, *supra* note 16, at 2-3; *Overview*, *supra* note 16, at 3-4.

The BSC's point that "[t]he multiplication factor takes into account the fact that the actual capital charge is smoothed by its application to an average which may contain much higher daily exposures" makes little sense. December 1995 Communique, *supra* note 16, at 2. The BSC could require the capital charge to equal the previous day's VaR, instead of setting it at the higher of this figure or three times the average daily VAR for the previous sixty days.

Some banks speculate the BSC seeks to equate the results of the internal models and standardized approaches. Of course, this objective would undermine a different aim of the BSC, namely, to promote the development of sophisticated risk measurement methodologies. Letter from Evans, *supra* note 18, at 11.

period of time.”³⁹⁹ The BSC urges the plus factor is “a positive incentive to measure risks accurately and to warn banks whose models produce consistently low value-at-risk estimates that their capital charges will be adjusted upwards.”⁴⁰⁰

The justification must be rejected as an assertion. The BSC fails to present any supporting statistical analysis. Ironically, at present banks such as J.P. Morgan are conducting research to determine whether a convincing rationale exists.⁴⁰¹ Until their results are clear, the multiplication factor must be deemed arbitrary at least in the way the BSC arrived at it, and possibly also in its value and effects.

Further, this factor reveals an unfounded lack of confidence in self-regulation. If the BSC is serious about these concerns, then why allow banks to use internal VaR models in the first place? No VaR model can render the past a good guide to the future, ensure all correlations withstand extreme market conditions, and be a failsafe check against the risk of market illiquidity. Possibly, the BSC ought to place greater faith in the reputational and systemic pressures against rogue behavior in risk measurement. As J.P. Morgan states in response to the 1995 Proposal, “most banks *desire, and, indeed, are expected to hold capital well in excess of the minimum standards,*”⁴⁰² and “the Regulators should recognize that most banks have a *strong inclination to hold capital well above the required minimums.*”⁴⁰³

c. Excessive Capitalization: The Multiplication Factor

Not only is the multiplication factor arbitrary, but also its consequences are damaging. Empirical evidence provided by banks in response to the 1995 Market Risk Proposal shows the multiplication factor results in overcapitalization against market risks. The International Swaps and Derivatives Association performed two backtests on historical time series data from trading portfolios of a subset of its members.⁴⁰⁴ The backtests accounted for two different

399. Overview, *supra* note 16, at 3.

400. April 1995 Press Release, *supra* note 15, at 2. See also Proposal to Issue A Supplement, *supra* note 15, at 4; Internal Model-Based Approach, *supra* note 15, at 15.

401. See, e.g., Peter Zangari, A Value-at-Risk Analysis of Currency Exposures, RISK-METRICS MONITOR, Second Quarter 1996, at 26 (June 11, 1996).

402. Letter from Sidwell, *supra* note 18, at 3 (emphasis added).

403. *Id.* at Attachment at 3 (emphasis added). In light of these statements, J.P. Morgan's support, albeit lukewarm, for the multiplication and plus factors seems contradictory. It suggests these factors may be appropriate to penalize a bank that adopts insufficiently conservative assumptions in its VaR model, and proposes that the BSC establish a matrix of multiples. A bank could select any combination of confidence level and holding period it desired, but the lower the level and period, the higher the multiple. *Id.* at 2 and attachment at 2-5.

404. See Letter from Evans, *supra* note 18, at 7-12. J.P. Morgan also performed tests showing the multiplication factor results in ridiculously high capital requirements. See Letter from Sidwell, *supra* note 18, at 6-7 (acknowledging the multiple will result in overcapitaliza-

economic roles of market risk capital: that capital is a cushion to absorb trading losses, and that it is a cushion against volatility in a bank's earnings from trading. Accordingly, the International Swaps and Derivatives Association compared the market risk capital requirement resulting from the internal model methodology with actual trading losses. It also compared this requirement with the total trading profit and loss ("P&L") statement associated with representative portfolios. The Association adhered to the BSC's quantitative standards. However, the Association recognized varying degrees of correlations among risk factors. More importantly, the Association did not include a multiplication factor.

In the first backtest, the International Swaps and Derivatives Association took time series data from December 1993 through June 1995. The P&L data included both proprietary trading and customer flow income (*i.e.*, income from non-trading sources). For all banks, the ratios of trading losses to capital, and trading P&L to capital, were far less than one.⁴⁰⁵ "In other words, the capital cushion, however defined, *always exceeded* the relevant income result, whether measured against P&L or losses."⁴⁰⁶ Hence, with no multiplication factor, the VaR capital figures "were sufficiently large to exceed the trading P&L or loss figures at a ninety-nine percent confidence interval."⁴⁰⁷

In the second backtest, the International Swaps and Derivatives Association broadened the time period of the data sample to include 1987-95. The sample highlighted five stress events: the 1987 stock market crash, 1991 Gulf War, 1992 European exchange rate mechanism crisis, 1994 bond decline, and 1995 Kobe earthquake.⁴⁰⁸ The Association also excluded customer flow income, focusing on proprietary trading income.⁴⁰⁹ Again, the results supported the contention that even with no multiplication factor, banks would have been excessively capitalized.⁴¹⁰ Their capital would have been three to eleven times greater than their largest losses.⁴¹¹ With a multiplication factor of three, bank capital would have exceeded maximum trading losses by nine to thirty-three times. Thus, both backtests illustrate the multiplication factor is unnecessary to protect banks against market risks.⁴¹²

tion, and proposing to calculate VaR on the basis of bank-specific parameters and then translate this risk measurement into a capital requirement using some minimum multiple); Spinner, *supra* note 299, at 5 (illustrating the overstatement of market risk through an example of a 10-year, franc-denominated French OAT strip security).

405. *Id.*, Table 1 at 8.

406. *Id.* at 8 (emphasis added).

407. Letter from Evans, *supra* note 18, at 7-8.

408. *Id.*

409. Letter from Evans, *supra* note 18, at 9.

410. *Id.* at 10.

411. *Id.*

412. *Id.* at 11. Excessive capitalization may not be the only deleterious result of the multiplication factor. Banks may be motivated to shift to activities not covered by the capital re-

d. Abandon The Quantitative Standards

From its backtests, the International Swaps and Derivatives Association draws an even stronger conclusion than that the multiplication factor leads to excessive capitalization. It argues the BSC's 99 percent confidence level, 10-day holding period, and correlations standards—as well as the multiplication factor—are unnecessary and should be abandoned.⁴¹³

Even if the parameter values of the [1995] Proposal [and 1996 Market Risk Amendment] were more consistent with the actual VaR values (in order to render capital requirements that more closely mirrored firms' actual trading loss experiences), ISDA [the International Swaps and Derivatives Association] believes that the specification of any generic set of model parameters may not provide the best methodology for accurately measuring firm-specific market risks.

In many ways, the Proposal's [and Amendment's] "one size fits all" internal model approach can be considered only an alternative standardized method. Because of [their] . . . inflexibility, [they] . . . suffer[] from many of the drawbacks of the standardized approach. As an alternative, ISDA recommends that firms should be permitted to use their own internal models to compute their market risk capital requirements using parameter assumptions that are appropriate for each firm, rather than a standardized set of parameters.⁴¹⁴

J.P. Morgan offers the same observation, noting bank-specific parameters lead to greater accuracy in estimating VaR.⁴¹⁵

To enhance the cogency of the constrained self-regulatory regime, the BSC, in drafting the 1996 Market Risk Amendment, should have heeded the points made by the International Swaps and Derivatives Association and J.P. Morgan. It did not. Instead, the BSC declared steadfastly it had "concluded that the *overall approach of the April 1995 proposal remains appropriate*."⁴¹⁶

The BSC failed to appreciate that by abandoning the quantitative standards lacking cogency, the constrained self-regulatory regime would become less constrained and, therefore, more closely resemble the ideal type. A bank would be able to measure its market risk more accurately by using a VaR model whose parameters were specific to the bank's market risk characteristics. For instance, if its primary business is intra-day trading in liquid markets, then a bank could use a holding period of less than ten days.⁴¹⁷ If it engaged principally in positioning illiquid securities, then it could use a holding period

quirements. Such activities could entail greater risk than those subject to the high capital charges. This paradoxical result could undermine the interest of bank regulators in a safer and sounder financial system.

413. Letter from Evans, *supra* note 18, at 11.

414. *Id.* at 4-5.

415. Letter from Sidwell, *supra* note 18, at 2 and Attachment at 2-3.

416. *Overview*, *supra* note 16, at 3 (emphasis in original).

417. Letter from Evans, *supra* note 18, at 12.

of longer than ten days.⁴¹⁸

In contrast, retaining the quantitative standards means some banks, by default, may use the flawed standardized methodology.

[A]necdotal evidence . . . reveals that despite the weaknesses of the standardized approach, some institutions that have developed sophisticated risk management systems would still opt to use the standardized method for supervisory purposes. The explanation for this paradox is that for many portfolios, the standardized method generates *lower* capital requirements than the internal model approach.

....

This outcome is an unintended consequence of the particular specifications and limitations of the . . . internal model approach. . . . [T]hese specifications and limitations are *highly conservative* (i.e., 99% confidence interval, 10-day holding period, no benefit for diversification of risk in aggregating VaR's across market risk categories, and the inclusion of a multiplication factor whose minimum value is 3). The net result is that the . . . internal model approach can be *less* attractive as a basis for calculating supervisory capital requirements than the . . . standardized method.⁴¹⁹

This result is ironic because it discourages banks from improving the accuracy of their risk management systems. Another equally ironic possibility, suggested by J.P. Morgan, is that a bank might use two internal models: one based on particularized parameters for internal risk management purposes; and another for capital adequacy calculations that conforms to the BSC's quantitative standards.⁴²⁰ Because it would be costly to maintain two models, the bank might elect not to upgrade consistently both models. For example, it might refine only the regulatory model when required to do so by the BSC. Plainly, regulatory costs ought not to undermine bank efforts to strengthen their risk management systems.

Retaining the BSC's quantitative standards that lack cogency also may cause some banks to be priced out of currency trading activities. This phenomenon would occur because of the excessive capital charges associated with these activities, assuming the charges cannot be passed onto customers. In turn, market liquidity may be reduced.

For example, consider J.P. Morgan's contention the 10-day holding period may substantially raise a bank's transaction costs. In practice, sophisticated banks monitor trading activity through daily VaR estimates. Therefore, banks would have to calculate VaR twice every day: once for internal risk management purposes on the basis of a one-day holding period, and once for regula-

418. *Id.*

419. *Id.* at 4 (emphasis added).

420. Letter from Sidwell, *supra* note 18, at 2-3.

tory capital purposes on the basis of a ten-day holding period.⁴²¹ Possibly, banks from less developed and newly industrialized countries would find it particularly difficult to absorb the costs of these calculations. To the extent banks cannot afford market risk capital charges associated with spots, forwards, options, and swaps and curtail trading activities, liquidity in these markets is reduced. Ultimately, there may be a trade-off between capital levels relating to market risk, on the one hand, and reducing liquidity risk, on the other hand.

In sum, backtests conducted by the International Swaps and Derivatives Association cast doubt on the cogency of four of the BSC's quantitative standards that constrain self-regulation: the 99 percent confidence level, 10-day holding period, correlations requirements, and multiplication factor. These backtests signify serious bank opposition to the constrained self-regulatory regime and, therefore, potentially undermine its stability. Arguments concerning excessive capitalization and reduced market liquidity suggest the BSC ought to abandon the four standards.

2. Scope: Still Limited

Part II identified problems of scope that plagued the capital adequacy regime for foreign exchange transactions before the BSC issued the 1995 Market Risk Proposal and 1996 Market Risk Amendment.⁴²² These problems remain unresolved in spite of the new BSC Proposal and Amendment. Neither commercial banks from non-G-10 countries nor securities firms are bound by the Proposal or Amendment. Indeed, the International Organization of Securities Commissioners opposed the 1995 Proposal. The Organization argued it was premature to allow banks to use VaR models to set market risk capital requirements.⁴²³

The BSC cannot be faulted for a lack of understanding of the scope problems or for failing to try to resolve the problems. When it issued the 1995 Proposal, the BSC admitted it was "mindful of the fact that a level playing field is not achievable in the absence of consistent regulatory treatment of market risk for *all* types of players in *all* financial centers."⁴²⁴ Similarly, when it issued the 1996 Amendment the BSC declared achieving "*more consistent regulatory treatment* where different types of institutions engage in similar types of activities" was "a long-standing objective."⁴²⁵ Thus, the BSC has

421. *Id.* at 3 and attachment at 4.

422. See *supra* notes 209-22 and accompanying text.

423. See the Technical Committee, International Organization of Securities Commissioners, *The Implications for Securities Regulators of the Increased Use of Value at Risk Models by Securities Firms* (July 1995).

424. *Proposal to Issue A Supplement*, *supra* note 15, at 7 (emphasis added).

425. *Overview*, *supra* note 16, at 4 (emphasis original).

pledged to "make every effort" to work jointly with the International Organization of Securities Commissioners on harmonizing capital requirements.⁴²⁶ However, until such effort yields results, the scope variable of the FICAS model is a basis for banks to object to the capital adequacy regime for foreign exchange transactions.

IV. CONCLUSION

The equilibrium theory of international banking law posits a legal regime is likely to be a stable dynamic equilibrium if banks would have no legitimate reasons to present significant opposition to that regime. The FICAS model identifies five determinants of stability, *i.e.*, five variables that assess and predict whether banks will have such reasons. These variables are the (1) frequency of adjustment to rules and proposals in the regime; (2) intricacy of the rules and proposals; (3) cogency of the rules and proposals; (4) authority of rules and proposals; and (5) scope of rules and proposals. Banks have legitimate reasons for significant opposition if the rules and proposals in the regime are changed frequently, are intricate, lack cogency, have little authoritative basis, or are incomplete in scope. The FICAS model suggests a self-regulatory regime is an ideal type because it does not engender bank opposition in terms of the five variables. Therefore, a self-regulatory regime represents a stable dynamic equilibrium.

Equilibrium theory is a useful conceptual framework. It helps scholars and practitioners make sense of, and appraise critically, a bewildering blur of rules and proposals. It also helps the BSC predict the possible reactions of banks to new rules and proposals. The capital adequacy regime for foreign exchange transactions is a case in point of the utility of the theory.

Until the BSC issued its 1995 Market Risk Proposal and finalized this Proposal in 1996, the regime was not a stable dynamic equilibrium. Banks had reason to oppose, and indeed did oppose, the regime on the basis of each of the FICAS variables. The regime hardly resembled the ideal type.

In contrast, the regime is now a constrained self-regulatory one due to the 1995-96 revolution. Constrained self-regulation does not give banks reason for opposition on the grounds of three of the five FICAS variables, frequency, intricacy, or authority. However, important cogency and scope problems must be addressed. If and when they are resolved, the regime will resemble more closely the ideal type self-regulatory regime and, consequently, move toward a stable dynamic equilibrium. In that equilibrium, the BSC and domestic bank regulators stay out of the way of the foreign exchange market.

426. December 1995 Communique, *supra* note 15, at 4. See also *Overview*, *supra* note 16, at 10.

CURRENCY TRADING APPENDIX

(1) *Spots and Forwards*

The basic and most significant transactions in which banks in the OTC currency markets engage are spots and forwards.⁴²⁷ In terms of average daily turnover, spots are the "single most important segment of the foreign exchange market," though between 1989-92 spots grew less rapidly than other types of transactions.⁴²⁸ The spot market is driven in part by profit seeking through speculating and investing in anticipated currency movements. Indeed, recent interest in "exotic" currencies such as the Thai bhat has created whole new avenues for speculation and investment.⁴²⁹ The spot market also is driven by demand for foreign currency arising from transactions in goods and services—*i.e.*, international trade—and in international finance—*i.e.*, investment in financial instruments.

In a spot transaction, two parties agree to exchange amounts of two currencies in two business days.⁴³⁰ The date on which the agreement is formed is the "trade date," or "T," while the date on which value is exchanged is the "value date," or "T+2." (Spot trades involving certain currencies, such as Canadian dollars and Mexican pesos, settle on a "T+1" basis.) Typically, the settlement of currency delivery obligations that occurs on T+2 is effected by wire transfer. The rate at which the currencies are exchanged is the "spot" rate. By way of example, the Bank of America might agree on day 1 to sell 5 million deutsche marks to Deutsche Bank in exchange for dollars at a rate of DM 2 per dollar.⁴³¹ On day 3, the parties exchange value, with the Bank of America wiring DM 5 million to Deutsche Bank in exchange for \$2.5 million.

Conceptually, a forward is the same as a spot except the value date is more than two days after the trade date.⁴³² Usually, settlement occurs within seven days of the trade date, and few forwards have maturity exceeding one year.⁴³³ The rate of exchange is the "forward" rate. Accordingly, the Bank of America-Deutsche Bank illustration becomes a forward transaction if settlement oc-

427. For a more detailed discussion of spots and forwards, see Raj Bhala, *Risk Trade-Offs in the Foreign Exchange Spot, Forward and Derivatives Markets*, 1 THE FINANCIER 34, 36-43 (Aug. 1994).

428. CENTRAL BANK SURVEY, *supra* note 21, at 16.

429. See Philip Gawith, *Exotic But Not for Faint Hearts*, FIN. TIMES, May 15, 1996, at 13.

430. See CENTRAL BANK SURVEY, *supra* note 427, at 16; Bhala, *Risk Trade-Offs*, *supra* note 427, at 36.

431. In 72% of all spots, the U.S. dollar is on one side of the transaction. The deutsche mark is on over 50% of all spot market deals. CENTRAL BANK SURVEY, *supra* note 21, at 17-18.

432. See CENTRAL BANK SURVEY, *supra* note 21, at 18; Bhala, *Risk Trade-Offs*, *supra* note 427, at 40.

433. CENTRAL BANK SURVEY, *supra* note 21, at 19.

curs on or after day 4.

During 1989-92, business in forwards grew much more rapidly than in spots.⁴³⁴ The motivations for forward transactions resemble those for spot transactions. In addition, a forward may be used to hedge currency risk. Suppose, for example, the Bank of America wants to invest in German government bonds that will be issued 30 days hence, but fears the mark will appreciate relative to the dollar during the next 30 days, thus making the bonds more expensive. Through a forward contract, the Bank can lock in a specified dollar-mark rate and thereby protect itself against the possibility of spending additional dollars for the marks needed to buy the bonds.

(2) Options

An OTC currency option comes in two generic forms.⁴³⁵ A "call" option gives the purchaser (also called the "holder") the right, but not the obligation, to buy a certain amount of one currency in exchange for a second currency on or before a particular date at a predetermined rate from the seller (also called the "writer") of the option.⁴³⁶ The amount of currency is the "notional principal" of the option contract, the date is the "expiration date," and the rate is the "exercise" or "strike" price.⁴³⁷ A "put" option gives the holder the right, but not the obligation, to sell a notional principal of a currency in exchange for a second currency on or before the expiration date at the strike price.⁴³⁸ With respect to both calls and puts, the holder pays a fee to the writer for the right to exercise the option. Whether the holder of a currency option exercises its right depends on the movement in the spot rate for the underlying currency pair.

For instance, on November 1, when the dollar-mark spot price is DM 1.2 per dollar, NationsBank sells a dollar/deutsche mark put (*i.e.*, a dollar call/deutsche mark put) option for DM 1 million to the Bank of Tokyo with an expiration date of December 1 and a strike price of DM 1.3 per dollar.⁴³⁹ Suppose the spot dollar/mark rate on November 15 is DM 1.5 per dollar. If the Bank of Tokyo were to sell DM 1 million on the spot market, then it would receive \$666,666.67. However, if the Bank of Tokyo exercises its put option,

434. *Id.* at 18.

435. For a more detailed discussion of currency options, and for treatment of currency swaps, see Bhala, *Risk Trade-Offs*, *supra* note 427, at 43-48.

436. CENTRAL BANK SURVEY, *supra* note 21, at 22; Bhala, *Risk Trade-Offs*, *supra* note 427, at 45-48.

437. An "American-style option" can be exercised on any business day up to and including the expiration date. Bhala, *Risk Trade-Offs*, *supra* note 427, at 46. A "European-style option" can be exercised only on the expiration date. *Id.*

438. *Id.*

439. Dollar/deutsche mark option transactions are the most significant of any currency pair, accounting for 34% of total net options turnover. CENTRAL BANK SURVEY, *supra* note 21, at 23.

then NationsBank must pay \$769,230.77. Abstracting from the cost of the premium and other applicable fees, the option is "in the money," *i.e.*, it is profitable for the Bank of Tokyo to exercise the option based on the relative spot market movements of the underlying currencies. In this sense, the "intrinsic" value of the put option—the economic benefit gained if the option is exercised immediately based on the strike price and the spot rate⁴⁴⁰—is derived from the value of the underlying currencies. It is also a derived value in another sense. The Bank of Tokyo could sell the option on the secondary market before the expiration date. The secondary market price of the option is dependent upon a number of factors, including the spot rate of the underlying currencies.⁴⁴¹

Several motivations could lie behind a bank's rationale for buying or writing an OTC currency put or call. For instance, with respect to writing a put or call, a bank may desire premium income and believe the option will not enter into the money.

With respect to a currency call, a bank may anticipate needing the underlying currency at a future date and expect the relevant spot rate to move in a direction that will cause the option to become in the money. If the bank's expectation is met, then it could sell on the spot market the currency gained from exercising the option at the strike price, earning a profit because the strike price is cheaper than the spot price.

In addition to seeking delivery of a currency or speculating on spot rate movements, a bank may view a put or call as a short-term investment. In this case, a bank plans to sell its call or put on a secondary market for a profit.

Finally, a bank may rely on a currency option to hedge a currency risk associated with a particular long or short position it has taken in a currency. For example, suppose the Bank of Tokyo sells short DM 1 million against dollars. It does so because it expects the mark will depreciate relative to the dollar. The Bank of Tokyo seeks to profit from the difference between the lower rate at which it covers its short position and the higher rate at which it sold short. But, the short position entails a currency risk that marks might appreciate relative to dollars. To hedge against this risk, the Bank of Tokyo buys a call option on marks. The Bank of Tokyo strategizes that if marks appreciate against the dollar, then the option is likely to move into the money. To cover its short position, the Bank of Tokyo can exercise the option at a strike price cheaper than the spot rate.

Using actual numbers may help illustrate the above Bank of Tokyo exam-

440. Bhala, *Risk Trade-Offs*, *supra* note 427, at 47; JOSEPH A. WALKER, *HOW THE OPTIONS MARKETS WORK* 35 (1991).

441. See Bhala, *Risk Trade-Offs*, *supra* note 427, at 48. For in-depth treatments of various models to value options generally, see GASTINEAU, *supra* note 27, at 163-223, WALKER, *supra* note 440, at 31-49 (1991); COURTNEY SMITH, *OPTION STRATEGIES* 24-33 (1987).

ple involving a currency option to hedge currency risk. Suppose the Bank of Tokyo sells short DM 1 million against dollars at the cost of DM 1.50 per dollar, for a dollar equivalent of \$666,666.67. It does so because it expects the mark will depreciate relative to the dollar. Assuming the Bank of Tokyo expects the mark to fall to DM 1.51 per dollar, it will wait to cover its short position in order to realize a profit. If the Bank of Tokyo fills its position at DM 1.51 per dollar, then it pays only \$662,251.66 for the million deutsche marks. The Bank of Tokyo realizes a profit of \$4,415.01 (the difference between \$666,666.67 and \$662,251.66). Thus, the Bank of Tokyo profits from the difference between the lower rate at which it covers its short position and the higher rate at which it sold short.

But, the short position entails a currency risk that deutsche marks might appreciate relative to dollars. If the mark appreciates to DM 1.49 per dollar, then the Bank of Tokyo must spend \$671,140.94 to cover the mark position it sold. The Bank of Tokyo realizes a loss of \$4,474.27 (the difference between \$666,666.67 and \$671,140.94). To hedge against this risk, the Bank of Tokyo buys a call option on deutsche marks. Assume it buys a call option with a strike price of DM 1.4950 per dollar. The Bank of Tokyo strategizes that if marks appreciate against the dollar, then the option is likely to move into the money. If the mark does strengthen to DM 1.49 per dollar, then the Bank of Tokyo will exercise its call option and buy the million deutsche marks it needs at DM 1.4950 per dollar, thereby paying \$668,896.32. In turn, the Bank of Tokyo will limit its loss to \$2,229.65 (the difference between \$666,666.67 and \$668,896.32), thus hedging its short position.

(3) Swaps

After the spot market, the swap market is the second largest segment of the currency markets. In contrast to spots, swaps are the fastest growing transactions in the currency markets.⁴⁴² Indeed,

[n]o other markets have ever grown or evolved as rapidly as have the swaps markets. This is a testament to the efficacy and flexibility of the instrument, the resourcefulness and the professionalism of the new breed of financial engineer, and the increased appreciation by financial managers of the importance of risk management in a volatile interest rate [and] exchange rate environment. The original swap products, now known as "plain vanilla" swaps, have given way to hundreds of variants designed to serve very special purposes. Swaps are now used by industrial corporations, financial corporations, thrifts, banks, insurance companies, world organizations, and sovereign governments. They are used to reduce the cost of capital, manage risks, exploit economies of scale, arbitrage the world's capital markets, enter new markets, and to create synthetic instruments. New users, new uses, and new swap variants emerge al-

442. CENTRAL BANK SURVEY, *supra* note 21, at 19.

most daily.⁴⁴³

An important motivation for counterparties to enter into swaps is to exploit comparative advantages in borrowing costs (*i.e.*, reduce financing costs).⁴⁴⁴ This motivation is highlighted in the fixed-for-floating and fixed-for-fixed currency swap example below.⁴⁴⁵ Another important motivation is risk management (*i.e.*, offset, or “hedge” against a risk created by a different financial transaction). This motivation is illustrated in the fixed-for-floating currency swap example below.⁴⁴⁶

The basic idea behind a swap is simple. A swap is a “contractual agreement evidenced by a single document in which two parties, called counterparties, agree to make periodic payments to each other.”⁴⁴⁷ The contract specifies the currencies to be exchanged, which (as explained below) are not the same in a currency swap. It also specifies the applicable interest rates, which may be fixed or floating.

The periodic payments exchanged by the counterparties are called “service payments.” They commence on the “effective date” or “value date” of the swap, are made on “payment dates,” and continue until the “termination date” or “maturity date.” The time period between the effective and termination dates is the “maturity” or “tenor” of the swap. Typically, service payments

443. MARSHALL & KAPNER, *supra* note 27, at iii. See *id.* at 115-16 for a discussion of variants of plain vanilla swaps.

444. If international credit markets were perfectly efficient, then arbitrage activity ought to eliminate any comparative advantages. Put differently, the existence of comparative advantages suggests there are imperfections in international credit markets.

Imperfections in the world's capital markets include controls on the movement of capital across national borders, unequal access to the world's capital markets due to differences in borrower size and market acceptance, government-granted loan guarantees, differing tax treatments of interest paid and/or received (both internationally and intranationally), and, finally, different yield curve behaviors in different countries for both fixed-rate and floating-rate borrowings. In addition to these obvious imperfections, there are less obvious ones as well. For example, a potential lender may have unequal access to, or knowledge of, legal protections afforded to lenders in the world's capital markets. Concern over the validity and enforceability of protective covenants can diminish a potential lender's willingness to lend to a nondomestic borrower. The end result is a higher cost of funds for the nondomestic borrower. Thus, domestic borrowers often enjoy a comparative borrowing advantage over nondomestic borrowers.

Id., *supra* note 27, at 108-109.

445. A different way of expressing this point is that a swap transaction may allow a counterparty to gain access to a new market that otherwise would be unprofitable to enter. See MARSHALL & KAPNER, *supra* note 27, at 114-15.

446. Hedging may make it possible for a swap counterparty to operate on a larger scale, that is, exploit economies of scale. Through hedging, a counterparty may be able to enter additional transactions for a given capital base. See MARSHALL & KAPNER, *supra* note 27, at 113-114.

447. MARSHALL & KAPNER, *supra* note 27, at 3. The discussion below is based on MARSHALL & KAPNER at 3, 6, 9, 12-17, 32-34, 41-44, 90-96.

are made annually, semi-annually, quarterly, or monthly during the tenor. The amounts of the service payments are calculated on the basis of a hypothetical quantity of underlying assets, called a "notional." (When the assets are money, the term "notional principal" is used.)

The two service payment streams running between the counterparties in opposite directions are the "legs" or "sides" of the swap. One counterparty makes payments at a fixed price or rate, called the "swap coupon," that does not change during the tenor of the swap. The other counterparty may make payments at a floating rate, which is reset during the tenor on "reset dates" according to a "reference rate."

Due to imperfect information and search costs, it is often difficult for a counterparty to learn of other potential counterparties. Accordingly, counterparties rely on an intermediary—a swap dealer—to learn of each other's financing or hedging requirements. Commercial and investment banks serve as swap dealers. The dealer will meet any counterparty's currency or interest rate requirements by becoming a counterparty itself. To avoid bearing currency or interest rate risk, the dealer then finds another counterparty with which to enter into a second swap that offsets risks created by the first swap. This strategy is known as running a "matched" swap book. The swap dealer profits by imposing a "pay-receive" (or "bid-ask") spread on the swap coupon. That is, there will be a difference of several basis points between the payments the dealer makes to a counterparty and the payments it receives from that counterparty.⁴⁴⁸

In a currency swap, the counterparties agree to exchange payments in different currencies.⁴⁴⁹ In addition, the notional principal amounts also are likely to be exchanged twice, on the effective and termination dates.⁴⁵⁰ Thus, there

448. A basis point is 1/100 of a percent (0.01%). Pricing swaps is a complicated exercise typically performed by a bank's capital markets division. This division periodically publishes base rates that may be adjusted to account for the needs or creditworthiness of particular clients, the frequency of interest payments, and other factors. See MARSHALL & KAPNER, *supra* note 27, at 96-99, 117; COOPERS & LYBRAND, *supra* note 27, at 17-18.

449. Currency swaps are not the only type of swap transactions. Indeed, in terms of market size they are overshadowed by interest rate swaps. At the end of 1991, the outstanding amount of currency swaps was \$807 million, whereas the outstanding amount of interest rate swaps was \$3.065 billion. See COOPERS & LYBRAND, *supra* note 27, at ix.

450. The exchange of notional principals renders the word "notional" misleading because real quantities are involved, but the term remains commonplace.

Not every currency swap entails an exchange and subsequent re-exchange of notional principals. For an example where the counterparties have liabilities denominated in different currencies as a result of existing financing and seek to hedge by means of a currency swap the exchange and interest rate risks associated with such financing, see MARSHALL & KAPNER, *supra* note 27, at 100-102. As another example, the counterparties might not undertake an initial borrowing and have no desire to acquire the principal amount of one of the currencies being swapped. In this instance, there may be an exchange of notional principals at the termination,

are three distinct sets of cash flows: (1) an initial exchange of notional principals; (2) interest payments made by each counterparty to the other; and (3) the re-exchange of the same principal amounts that were previously exchanged.

Because different currencies are involved, the initial exchange and re-exchange of notional principals must occur at a certain rate. The first exchange is made at the spot foreign exchange rate prevailing on the day the counterparties agree to the swap contract.⁴⁵¹ The re-exchange may occur at that same rate, in which case the currency swap is sometimes called a "par swap."⁴⁵² Alternatively, it could occur at the forward rate prevailing on the contracting day, in which case the currency swap is sometimes described as a "spot plus a forward" transaction.⁴⁵³

The exchange and re-exchange give rise to a delivery risk. A counterparty may fail to exchange or re-exchange the notional principal amount. Because of this risk, currency swaps bear a heavy capital requirement under the 1988 Basle Capital Accord. Arguably, this requirement (which is discussed below) "probably explains much of the slowdown in the currency swap market in 1990."⁴⁵⁴ Nonetheless, the market did not experience a severe contraction during the July 1988-December 1990 transitional phase of implementation of the 1988 Accord.⁴⁵⁵ (The Accord came into full force on December 31, 1992.⁴⁵⁶) To the contrary, the currency swaps market proved resilient and developed in a robust manner, in part because of "the prudent approach which intermediaries have adopted without official encouragement."⁴⁵⁷

That prudent approach is a self-regulatory device, namely, an insistence that counterparties be of high quality, *i.e.*, creditworthy. This insistence follows logically from the reasons counterparties enter into currency swaps. Often, counterparties are motivated to enter into a currency swap to exploit comparative advantages and thereby reduce financing costs. This result follows from the fact a currency swap makes "it possible to raise funds in any currency and use those funds to invest in an asset denominated in any other currency," *i.e.*, "to transform the currency of a liability or asset."⁴⁵⁸ In addition, counterparties may seek to hedge against a particular currency or interest rate risk by means of a swap. In sum, risk-taking is not a common reason for entering into a currency swap, which helps explain the creditworthiness of the counterpar-

but not commencement, of the currency swap. See COOPERS & LYBRAND, *supra* note 27, at 1-4.

451. See COOPERS & LYBRAND, *supra* note 27, at 5.

452. See *id.* at 3, 5. This scenario presumes that the difference between the spot and forward rates is accounted for in the applicable interest rates on the swap. See MARSHALL & KAPNER, *supra* note 27, at 92.

453. See, *e.g.*, Bhala, *Risk Trade-Offs*, *supra* note 427, at 43-45.

454. COOPERS & LYBRAND, *supra* note 27, at ix.

455. 1988 Basle Capital Accord, *supra* note 5, at ¶¶ 46, 49.

456. *Id.* at ¶ 46.

457. *Id.* at x.

458. MARSHALL & KAPNER, *supra* note 27, at 116.

ties.

The interest rates associated with payment streams in a plain vanilla currency swap may be fixed or floating rates.⁴⁵⁹ For example, a fixed-for-floating transaction involves an exchange of fixed-rate payments in one currency for floating-rate payments in a different currency. Consider a fixed/floating currency swap motivated by comparative advantages in borrowing costs.⁴⁶⁰ Suppose Sumitomo Bank seeks five-year, floating-rate U.S. dollar financing. If it borrows dollars, then it will pay a floating rate of the London Interbank Offer Rate ("LIBOR"). Sumitomo also could borrow yen at a fixed interest rate of nine percent. Suppose also Chase Manhattan Bank wants five-year, fixed-rate yen financing. If Chase borrows the yen itself, then it will pay a fixed interest rate of 10.1 percent. In addition, Chase is able to borrow dollars at a floating rate of LIBOR. These assumptions are set forth in Chart 1.

In addition to the above assumptions, suppose the Hongkong Shanghai Bank is a swap dealer that makes a market for dollar-yen currency swaps. Its pricing schedule indicates it will pay a fixed rate of 9.45 percent on yen against LIBOR. It will pay LIBOR against a fixed rate of 9.55 percent on yen. The ten basis point differential (9.55 - 9.45 percent) is the pay-receive spread.

Given the above assumptions, Sumitomo and Chase can minimize their financing costs by entering into fixed/floating currency swaps with the Hongkong Shanghai Bank. Sumitomo and Chase each borrow in their respective cash markets. Sumitomo borrows five-year yen at nine percent, and Chase borrows five-year dollars at LIBOR.

459. One source suggests that the term "currency swap" should be used only for fixed-for-fixed swaps between currencies, and refers to a fixed-for-floating transaction as a "cross-currency coupon swap." See COOPERS & LYBRAND, *supra* note 27, at 9. (A floating-for-floating transaction involving two currencies is a "cross-currency basis swap.") Depending on the terms of the fixed-for-floating transaction, this source suggests the proper rubric is a "generic" or "plain vanilla" swap. *Id.* at 11. Finally, this source suggests that where a swap dealer is involved, the appropriate term is a "cocktail swap." *Id.* at 12. The point is that there appears to be no definitive usage, hence what is most important is to consider the exact terms of each transaction.

460. The numerical values in this example are taken from MARSHALL & KAPNER, *supra* note 27, at 40-44.

	Sumitomo Bank	Chase Manhattan Bank
	Seeks 5 year, floating rate, dollar financing.	Seeks 5 year, fixed rate yen financing.
Cost of Borrowing Dollars Directly	LIBOR (Floating)	LIBOR (Floating)
Cost of Borrowing Yen Directly	9 Percent (Fixed)	10.25 Percent (Fixed)

Chart 1
Assumptions for Fixed/Floating Dollar-Yen Currency Swaps

Sumitomo then enters into a swap agreement with Hongkong Shanghai Bank. It delivers the yen-denominated notional principal to Hongkong Shanghai Bank.⁴⁶¹ Similarly, Chase enters into a swap agreement with Hongkong Shanghai Bank and delivers to it the dollar-denominated notional principal.⁴⁶²

Hongkong Shanghai Bank passes the notional principles through to its counterparties. Sumitomo receives the dollar principal, and Chase receives the yen principal. The dollar-yen exchanges are made at the prevailing spot rate. These initial cash flows are depicted in Figure 1A.

During the five-year tenor of the two swaps, yen and dollar payment streams run among the counterparties so as to meet the financing needs of Sumitomo and Chase. These streams are depicted in Figure 1B. Because Sumitomo seeks floating-rate dollar financing, it swaps its initial yen obligation for new dollar-denominated debt. That is, Sumitomo makes LIBOR payments denominated in dollars to Hongkong Shanghai Bank. It receives 9.45 percent yen-denominated yen payments from Hongkong Shanghai Bank. Sumitomo can use these yen payments to service its obligations from its initial yen borrowing.⁴⁶³

This swap converts Sumitomo's initial yen borrowing into a dollar obligation. Moreover, it lowers Sumitomo's financing costs. Had Sumitomo borrowed dollars itself, it would have paid LIBOR. With the swap, Sumitomo's net cost is LIBOR - 45 basis points, *i.e.*, Sumitomo saves 45 basis points. This saving results from two facts. First, Sumitomo pays nine percent on its initial yen borrowing, plus LIBOR to Hongkong Shanghai. Second, Sumitomo receives 9.45 percent from Hongkong Shanghai. Thus:

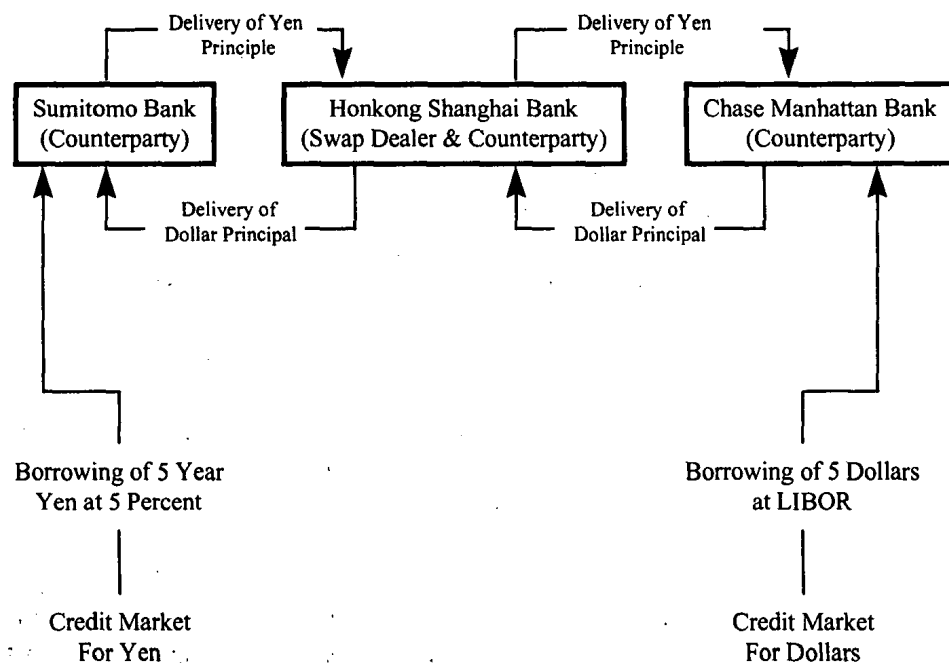
$$[9 \text{ percent} + \text{LIBOR}] - 9.45 \text{ percent} = \text{LIBOR} - 0.45 \text{ percent},$$

which is 45 basis points below the cost of borrowing dollars directly.

461. As of the end of 1991, yen were one leg in 22.3% of all currency swaps. COOPERS & LYBRAND, *supra* note 27, at xi.

462. By one account, as of the end of 1991, dollars were one leg in 36.2% of all currency swaps. *Id.* A different source indicates that the U.S. dollar is involved in one leg in 95% of all currency swaps, and dollar/yen transactions account for 25% of all currency swaps. CENTRAL BANK SURVEY, *supra* note 21, at 20.

463. See COOPERS & LYBRAND, *supra* note 27, at 5.



Results

Sumitomo Bank

Has a fixed-rate yen obligation that it swaps for a floating-rate dollar obligation.

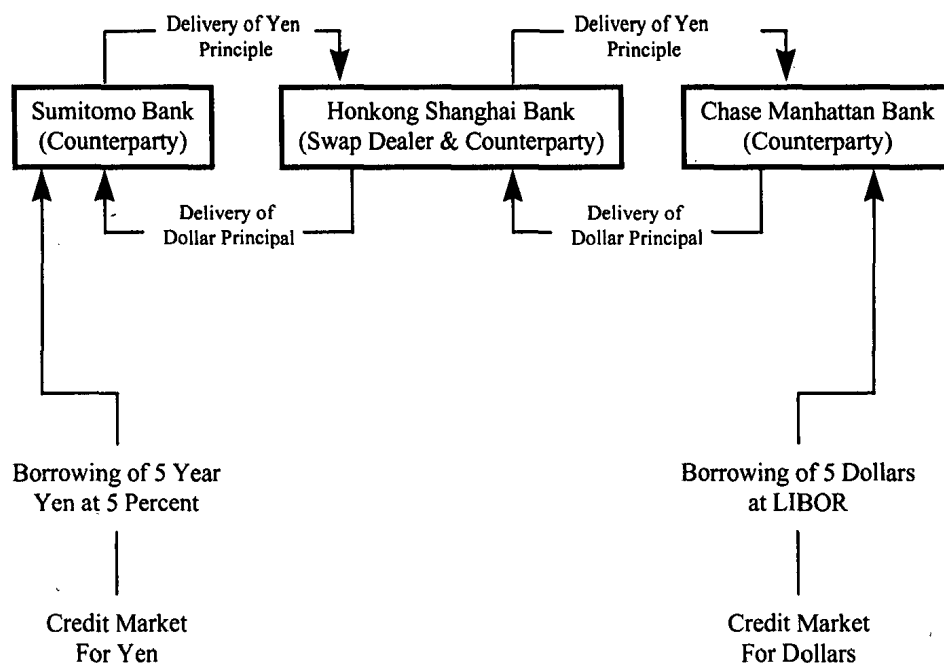
Chase Manhattan Bank

Has a floating-rate dollar obligation that it swaps for a fixed-rate yen obligation.

Hongkong Shanghai Bank

Essentially passes through notional principal amounts from Sumitomo to Chase and vice-versa.

Figure 1A
Initial Borrowing in Cash Markets and Exchanges of Notional Principals
at Commencement of Fixed/Floating Dollar-Yen Swaps



Results

Sumitomo Bank

Yen-for-dollar fixed/floating currency swap, coupled with initial yen borrowing, means Sumitomo pays out LIBOR + 9.55 percent and receives 9.45 percent. The difference is LIBOR - 0.45 percent, a saving of 0.45 percent over the 9 percent cost of direct yen borrowing.

Chase Manhattan Bank

Dollar-for yen fixed/floating currency swap, coupled with initial dollar borrowing, means Chase pays out LIBOR + 9.55 percent and receives LIBOR. The difference is 9.55 percent, a saving of 0.55 percent over the 10.1 percent cost of direct yen borrowing.

Hongkong Shanghai Bank

Earns a pay-receive spread of 9.55 percent, or 0.10 percent.

Figure 1B
Payment Streams During Tenor of Fixed/Floating Dollar-Yen Currency Swaps and Debt Service Payments on Initial Borrowings

Similarly, Chase benefits from the swap with Hongkong Shanghai Bank. Because Chase wants fixed-rate yen financing, it swaps its initial dollar obligation for new yen-denominated debt. That is, Chase makes 9.55 percent fixed-rate yen payments to Hongkong Shanghai Bank. It receives LIBOR payments denominated in dollars from the swap dealer. Chase can use the dollars received to pay off its initial dollar borrowing.⁴⁶⁴ Accordingly, the swap converts Chase's initial dollar borrowing into a yen obligation. Further, it reduces Chase's funding costs. Had Chase borrowed yen itself, it would have paid 10.1 percent. With the swap, Chase's net cost is 9.55 percent, which is a 55 basis point saving. This benefit results from two facts. First, Chase pays LIBOR on its initial dollar borrowing, plus 9.55 percent to Hongkong Shanghai. Second, Chase receives LIBOR from Hongkong Shanghai. Thus:

$$[\text{LIBOR} + 9.55 \text{ percent}] - \text{LIBOR} = 9.55 \text{ percent},$$

which is 55 basis points below the 10.1 percent cost of borrowing yen directly.

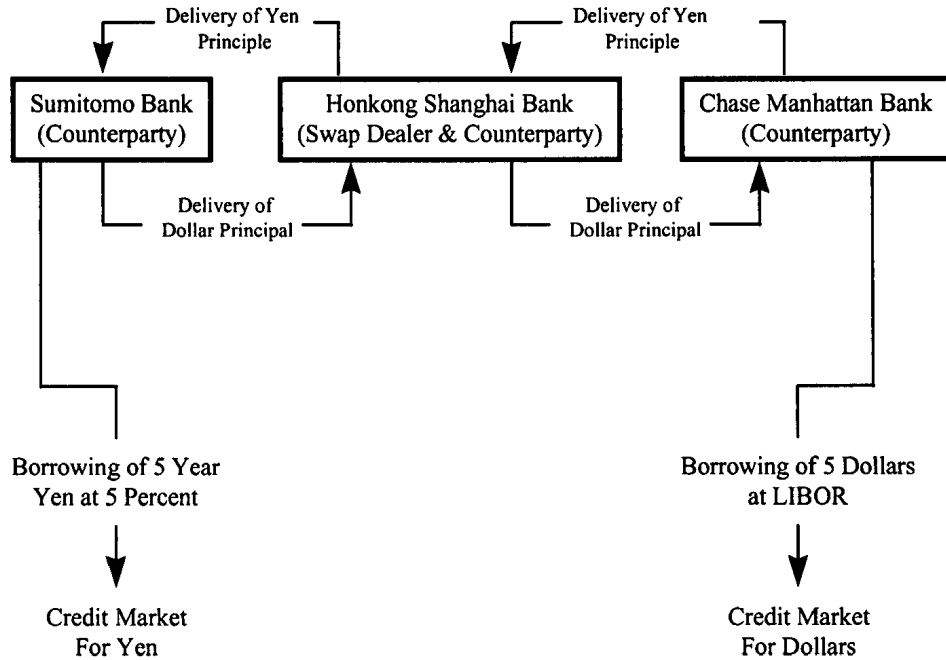
Hongkong Shanghai Bank also benefits from the two swaps. It obtains a pay-receive spread of ten basis points because it pays Sumitomo 9.45 percent and receives from Chase 9.55 percent. In addition, the swaps are matched. That is, by entering into the two swaps, Hongkong Shanghai Bank hedges foreign exchange and interest rate risk.⁴⁶⁵ For instance, if LIBOR increases, the amount of the payments it must make to Chase will increase, but so also will the amount of the payments it receives from Sumitomo. If the yen appreciates (or depreciates) relative to the dollar, then there will be a corresponding appreciation (or depreciation) in the yen payments Hongkong Shanghai receives and makes relative to the dollar payments it receives and makes.

Finally, when the swap matures, the counterparties will again exchange notional principal amounts at the prevailing spot rate. These amounts are used to pay off the initial borrowings made by Sumitomo and Chase.⁴⁶⁶ The re-exchanges and payoffs are depicted in Figure 1C.

464. *See id.*

465. In the above example, the swap dealer enters into an offsetting currency swap transaction to hedge risks arising from its first swap deal. For example, a risk from the first deal might be a depreciation in the value of the yen relative to the dollar, which entails a depreciation in the value of the 10 basis point spread Hongkong Shanghai Bank receives (as denominated in dollars). For an illustration of an end user hedging currency risk with a fixed-for-fixed currency swap, see MARSHALL & KAPNER, *supra* note 27, at 109-13.

466. *See* COOPERS & LYBRAND, *supra* note 27, at 5.



Results

Sumitomo Bank

Repays its fixed-rate yen with the notional principal it receives.

Chase Manhattan Bank

Repays its floating-rate dollar obligation with the notional principal it receives.

Hongkong Shanghai Bank

Essentially passes through the notional principal amounts from Sumitomo to Chase and vice versa.

Figure 1C
Re-Exchange of Notional Principals at Termination of Fixed/Floating Dollar-Yen Swaps and Repayment of Initial Borrowings

	Sumitomo Bank	Chase Manhattan Bank
	Seeks 5 year, fixed rate, dollar financing.	Seeks 5 year, fixed rate yen financing.
Cost of Borrowing Dollars Directly	11.5 Percent (Fixed)	11.75 Percent(Fixed)
Cost of Borrowing Yen Directly	9.5 Percent (Fixed)	10.25 Percent (Fixed)

Chart 2
Assumptions for Fixed/Fixed Dollar-Yen Currency Swaps

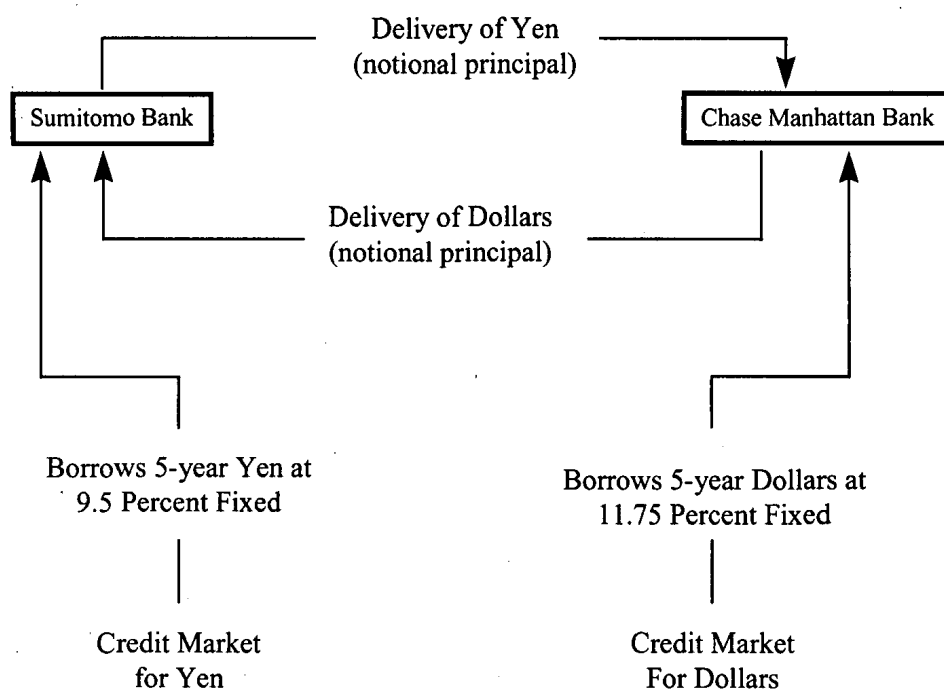
One way of characterizing the plain vanilla fixed-for-floating currency swap depicted above is that it is an exchange of borrowings. Sumitomo exchanged its fixed-rate yen obligation for a floating-rate dollar obligation, while Chase did the reverse. However, there are a myriad of variations on the plain vanilla currency swap. For example, in a fixed-for-fixed currency swap, each swap counterparty pays and receives a fixed rate of interest, hence the swap involves exchanges of fixed-rate payments in one currency for fixed-rate payments in a different currency. The above example can be altered to illustrate this variation.

Suppose Sumitomo Bank needs five-year fixed rate U.S. dollar funding, and Chase Manhattan Bank needs five-year fixed rate yen funding.⁴⁶⁷ Sumitomo can raise yen directly at 9.5 percent and dollars directly at 11.50 percent. Chase Manhattan Bank can borrow yen directly at 10.25 percent and dollars directly at 11.75 percent. These assumptions are set forth in Chart 2. Interestingly, even though Sumitomo has an absolute borrowing advantage over Chase Manhattan—*i.e.*, it can borrow both yen and dollars more cheaply than Chase—both banks can reduce their financing costs, because Chase has a comparative advantage in the dollar market. Each bank borrows in its domestic market and, assuming no swap dealer is used, enters into a fixed-for-fixed currency swap directly with one another. The initial borrowing and exchanges of notional principals are depicted in Figure 2A. The exchanges occur at the spot rate prevailing on the day the counterparties enter into the swap contract.

Assume Sumitomo makes dollar-denominated fixed-rate payments to Chase at 11.5 percent, while Chase makes yen-denominated fixed-rate payments to Sumitomo at 9.75 percent. Consequently, Sumitomo swaps its yen obligation for a dollar obligation, and Chase does the reverse. The payment streams during the tenor of the swap are depicted in Figure 2B. At these interest rates, both banks benefit through lower funding costs. Sumitomo must pay 9.5 percent on its initial yen obligation and 11.5 percent to Chase on the swap, but it receives 9.75 percent from Chase on the swap. The net result is $[9.5 + 11.5] - 9.75$, or 11.25 percent.⁴⁶⁸ Had Sumitomo borrowed dollars directly, it would have paid 11.5 percent. Thus, Sumitomo saves 25 basis points by borrowing yen and swapping the yen obligation for a dollar obligation.

467. The numerical values for the example are drawn from MARSHALL & KAPNER, *supra* note 27, at 92-96.

468. Strictly speaking, interest rates applicable to payment obligations denominated in different currencies are not directly comparable. However, the comparison is valid as a first approximation. For a discussion of how to adjust interest rates on different currencies to make them exactly comparable, see MARSHALL & KAPNER, *supra* note 27, at 102-07.



Results

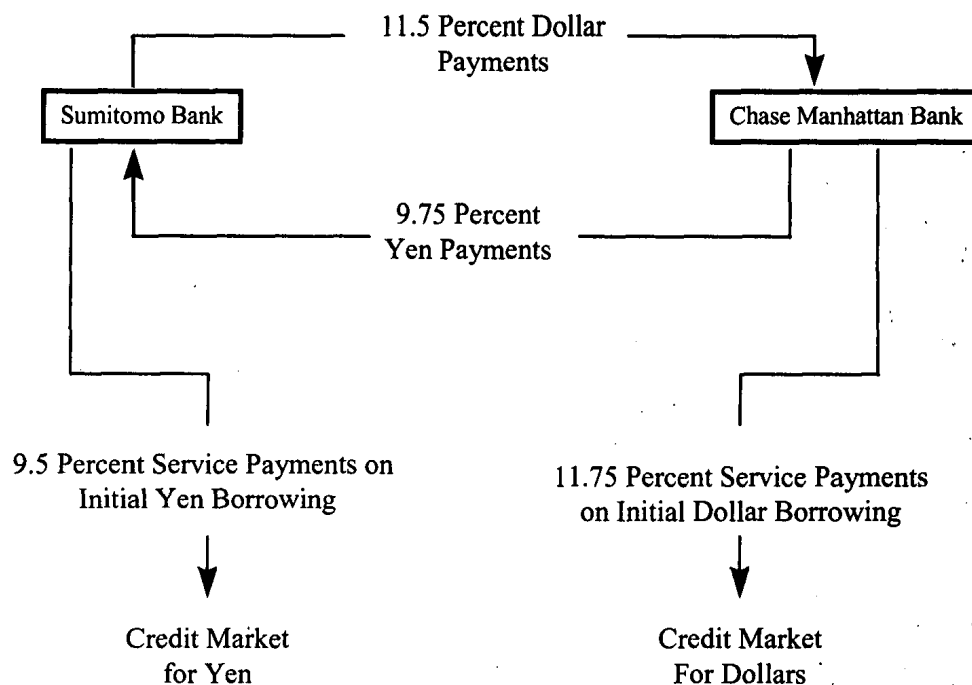
Sumitomo Bank

Has a fixed-rate yen obligation that it swaps for a fixed-rate dollar obligation.

Chase Manhattan Bank

Has a fixed-rate dollar obligation that it swaps for a fixed-rate yen obligation.

Figure 2A
Initial Borrowing In Cash Markets and Exchanges of Notional Principals
at Commencement of Fixed/Fixed Dollar-Yen Swaps



Results

(Using interest rates applicable to payment obligations denominated in different currencies as a first approximation)

Sumitomo Bank

$[9.5\% + 11.5\%] - 9.75\% = 11.25\%$. A saving of 25 basis points, because Sumitomo's direct cost of borrowing dollars is 11.5%.

Chase Manhattan Bank

$[11.75\% + 9.75\%] - 11.5\% = 10\%$. A saving of 25 basis points, because Chase's direct cost of borrowing yen is 10.25%.

Hongkong Shanghai Bank

Essentially passes through the notional principal amounts from Sumitomo to Chase and vice versa.

Figure 2B
Payment Streams During Tenor of Fixed/Floating Dollar-Yen currency Swaps and Debt Service Payments on Initial Borrowings

Similarly, Chase saves 25 basis points on its funding costs. It pays 11.75 percent on its initial dollar debt, plus 9.75 percent to Sumitomo on the swap. It receives 11.5 percent from Sumitomo. The net difference is

$[11.75 + 9.75] - 11.5$, or 10 percent.

The ten percent difference represents a saving of 25 basis points in comparison with Chase's cost of directly borrowing yen.

Until the swap matures, Sumitomo uses the yen payments received from Chase to service its initial borrowing. Likewise, Chase uses the dollar payments received from Sumitomo to service its initial borrowing.⁴⁶⁹ When the swap matures, the counterparties re-exchange notional principals, as shown in Figure 2C, and thereby pay off their initial borrowings.⁴⁷⁰ Thus, as with the fixed-for-floating currency swap, in a fixed-for-fixed currency swap each counterparty services the debt of the other.⁴⁷¹ The re-exchanges of notional principals may occur at the spot rate as of the day of contracting, or at the forward rate on that day. The entire transaction is, in effect, an exchange of the initial borrowings, and currency swaps sometimes are referred to as such.⁴⁷²

The above examples of a fixed-for-floating and fixed-for-fixed currency swap suggest each swap depicted is a "par swap," *i.e.*, the same notional principal amounts at the same spot rates are exchanged and re-exchanged. As a result, one of the swap counterparties forgoes foreign exchange gain, while the other avoids a foreign exchange loss.⁴⁷³ Suppose in the first swap yen appreciates relative to the dollar during the tenor of the swap from 100 yen per dollar to 95 yen per dollar. Also assume the notional principal amounts involved are 100 million yen and \$1 million. Consequently, Sumitomo's initial delivery to Hongkong Shanghai Bank is for 100 million yen, and Chase delivers \$1 million to the Bank. When the swap matures, the reverse deliveries will occur.

In contrast, if the spot rate at the maturity date of 95 yen were used to calculate the re-exchange requirements, then at maturity Chase re-delivers 100 million yen, while Sumitomo re-delivers \$1,052,631.58.⁴⁷⁴ The par swap implies Sumitomo gives up a foreign exchange gain of \$52,631.58, because Sumitomo initially receives delivery of \$1 million and re-delivers \$1,052,631.58 at maturity. The source of the foregone gain is the fact Sumitomo parts with yen during the tenor of the swap, and yen appreciates relative to the dollar. Conversely, Chase avoids a loss of \$52,631.58. Chase parts with dollars during the tenor of the swap, dollars depreciate relative to yen during the tenor, but Chase receives an additional \$52,631.58 upon re-delivery.

469. See COOPERS & LYBRAND, *supra* note 27, at 5.

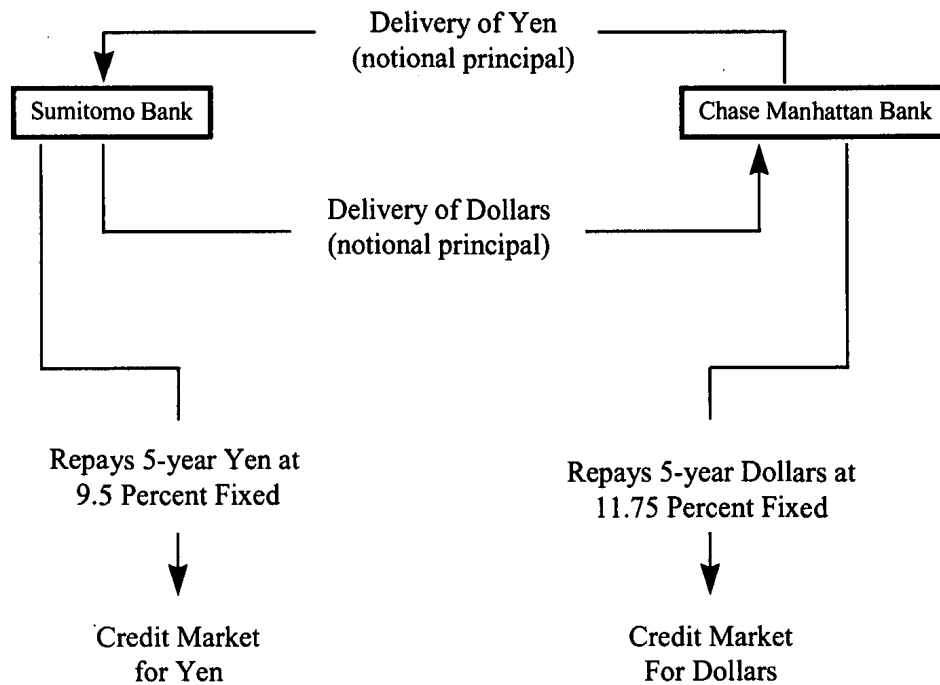
470. *Id.*

471. *Id.*

472. See MARSHALL & KAPNER, *supra* note 27, at 5, 93.

473. See COOPERS & LYBRAND, *supra* note 27, at 7.

474. This figure results from dividing 100 million by 95 yen per dollar.



Results

Sumitomo Bank

Repay its initial yen obligation with the yen notional principal it receives.

Chase Manhattan Bank

Repay its initial dollar obligation with the dollar notional principal it receives.

Figure 2C
Re-Exchange of Notional Principals at Termination of Fixed/Floating
Dollar-Yen Swaps and Repayment of Initial Borrowings

Why are the counterparties content with this arrangement? The par swap allows them to lock in the rate at which the re-exchange would occur—100 yen per dollar—at the start of the swap. In effect, they trade certainty and predictability for a potential gain or loss arising from currency risk.

CAPITAL ADEQUACY REGIME APPENDIX

(1) *The 1988 Basle Capital Accord*

The centerpiece of the Basle Supervisor's Committee's ("BSC's") capital adequacy regime is a plurilateral agreement among the G-10 central banks published in July 1988: the "Consultative Paper on International Convergence of Capital Measurement and Capital Standards," informally known as the 1988 Basle Capital Accord.⁴⁷⁵ The Accord took effect on December 31, 1992 and applies to internationally active banks from the G-10 countries. It ad-

475. See *supra* note 5. The 1988 Basle Capital Accord was preceded by a December 1987 draft proposal entitled "Consultative Paper: Proposals for International Convergence of Capital Measurement and Capital Standards," 27 INT'L LEGAL MATERIALS 527 (1988). In turn, this draft was preceded by the "February 1987 Agreed Proposal of the United States Federal Banking Supervisory Authorities and the Bank of England on Primary Capital and Capital Adequacy Assessment" and the "December 1987 BSC Consultative Paper: Proposals for International Convergence of Capital Measurement and Capital Standards." With respect to the forerunners of the Accord, see MALLOY, *supra* note 210, at § 5.3.3.4 at 5.103-5.106.

For discussions of the 1988 Basle Capital Accord, see Duncan E. Alford, *Basle Committee International Capital Adequacy Standards: Analysis and Implications for the Banking Industry*, 10 DICK. J. INT'L L. 189, 209-19 (1992) (considering specific effects on banks of the 1988 Basle Capital Accord such as encouraging asset securitization and portfolio adjustments); Gallatin, *Nothing to Lose But Their Chains*, EUROMONEY 58 (Sept. 1992) (addressing distortions in bank lending and funding operations created by the 1988 Basle Capital Accord); William Taylor, *Risk-Based Assessment of the Capital Adequacy of Commercial Banks*, in 1 CURRENT LEGAL ISSUES AFFECTING CENTRAL BANKS 341-48 (Robert C. Effros ed. 1992) (discussing international cooperation on bank capital adequacy issues); Lichtenstein, *supra* note 2 (explaining key features of the 1988 Basle Capital Accord); Peter C. Hayward, *Prospects for International Cooperation by Bank Supervisors*, 24 INT'L LAW. 787 (1990) (explaining the cooperation among G-10 bank regulators necessary to reach the 1988 Basle Capital Accord); BHALA, PERSPECTIVES ON RISK-BASED CAPITAL, *supra* note 4, at xxvi-xxviii, 12-15 (adopting a "building blocks" approach to the 1988 Basle Capital Accord, and exploring the substance-form distinction in the context of credit risk rules for swaps); David T. Llewellyn, *The Strategic Dilemma of World Banking*, 4 BUTTERWORTHS J. INT'L BANKING & FIN. L. 504 (1989) (considering the effect of the 1988 Basle Capital Accord on competitive neutrality, the cost of business services, and other structural variables); Joseph Jude Norton, *Capital Adequacy Standards: A Legitimate Regulatory Concern for Prudential Supervision of Banking Activities?*, 49 OHIO ST. J. 1299 (1989) (assessing the appropriateness of regulatory concern about capital adequacy); Joseph Jude Norton, *The Work of the Basle Supervisors Committee on Bank Capital Adequacy and the July 1988 Report on "International Convergence of Capital Measurement and Capital Standards"*, 23 INT'L LAW. 245 (1989) (discussing the features of the 1988 Basle Capital Accord); William A. Lovett, *Moral Hazard, Bank Supervision and Risk-Based Capital Requirements*, 49 OHIO ST. J. 1365 (1989) (considering the relationship between the moral hazard problem and a risk-based capital scheme); Michael P. Malloy, *U.S. International Banking and the New Capital Adequacy Requirements: New, Old and Unexpected*, 7 ANN. REV. BANKING L. 75 (1988) (treating key aspects of capital adequacy requirements).

dresses credit risks associated with on- and off-balance sheet transactions, including foreign exchange transactions.⁴⁷⁶ Thus, with respect to foreign exchange transactions, the Accord addresses the possibility a bank's counterparty is unable or unwilling to deliver currency as required by a spot, forward, option, or swap contract. The Accord is designed to ensure the bank has sufficient capital to absorb the loss associated with the default.

The Accord is a dramatic effort to improve the safety and soundness of the international banking system and level the competitive playing field among banks.⁴⁷⁷ The BSC believes that absent such an agreement, the system remains vulnerable to thinly capitalized banks engaged in excessively risky activities. Further, banks from countries with less stringent capital requirements could gain a competitive advantage over rivals from countries with more stringent requirements. The potential exists for unscrupulous regulators to help their banks by reducing capital requirements, resulting in a "race to the bottom." Thus, the two objectives of the Accord relate to safety and soundness and competitive equality.⁴⁷⁸

(A) Capital And Capital Ratios

To meet these objectives, the Accord expressly links requisite capital to credit risk. The amount of capital a bank should maintain with respect to a particular transaction depends on the credit risk of that transaction.⁴⁷⁹ Thus, the Accord reflects an effort by regulators to "refine" their policies to account for relative degrees of risk and "define more precisely" the elements of capital.⁴⁸⁰

Under the Accord, a bank must satisfy two risk-based capital ratio tests. The first test is the ratio of "Tier 1" (or "core") capital to total risk-weighted assets and off-balance sheet activities. This ratio must equal or exceed four percent.⁴⁸¹ "Tier 1" capital is narrowly defined to mean stockholder's equity and disclosed returns from post-tax earnings.⁴⁸²

476. Credit risk is simply the risk of counterparty failure. The term "international banks" is not defined in the Accord. The Accord applies on a consolidated basis, hence subsidiaries engaged in the banking business are subject to the Accord.

477. See *supra* note 20 and accompanying text.

478. First, "the new framework should serve to *strengthen the soundness and stability* of the international banking system." 1988 Basle Capital Accord, *supra* note 5, at ¶ 3 (emphasis added). Second, it "should be fair and have a high degree of consistency in its application to banks in different countries with a view to *diminishing an existing source of competitive inequality* among international banks." *Id.* (emphasis added).

479. MALLOY, *supra* note 210, at § 5.3.1 at 5.50.

480. MALLOY, *supra* note 210, at § 5.3.3.4.2 at 5.102-5.103.

481. Additionally, Tier 1 capital must equal or exceed 50% of a bank's capital base.

482. See 1988 Basle Capital Accord, *supra* note 5, at ¶¶ 12-14. Shareholder's equity, or equity capital, refers to (1) common stock that is issued and fully paid and (2) non-cumulative perpetual preferred stock. Disclosed reserves are created or increased by appropriations of retained

The second test is the ratio of the sum of Tier 1 and "Tier 2" capital to total risk-weighted assets and off-balance sheet activities.⁴⁸³ This ratio must equal or exceed eight percent. "Tier 2" (or "supplementary") capital is defined more broadly than Tier 1 capital. Tier 2 capital includes undisclosed reserves, revaluation reserves, general provisions and loan loss reserves, and subordinated term debt.⁴⁸⁴

earnings or other surplus (such as share premiums, retained profit, general reserves, or legal reserves). An amount for goodwill is deducted from Tier 1 capital.

483. The amount of a bank's investment in an unconsolidated subsidiary is deducted from the total capital base, the sum of Tier 1 and Tier 2 capital. Bank regulators have discretion to require a deduction from the capital base for the amount of capital held by one bank that is issued by another bank—*i.e.*, reciprocal cross-holdings of capital instruments. This deduction prevents the artificial inflation of capital by issuing shares to banks. If no deduction is required, then such holdings bear a 100% credit risk weight.

484. 1988 Basle Capital Accord, *supra* note 5, at ¶¶ 15-23. The total amount of Tier 2 capital cannot exceed the amount of Tier 1 capital.

Undisclosed reserves can be counted in Tier 2 only if they are authorized under the legal and accounting rules applicable to a bank, have passed through a bank's profit and loss account, and are accepted by the bank's regulator.

Revaluation reserves can be included in the Tier 2 capital base of a bank only if they are authorized under the legal and accounting rules applicable to the bank, and the bank's regulator agrees the assets have been revalued (*e.g.*, securities) in a prudent manner reflecting the possibility of price fluctuations and forced sale. To account for market volatility in asset values, and tax that must be paid on any capital gain upon sale of the asset, a revaluation reserve is subject to a 55% discount on the difference between the historical cost (or book value) of the asset and the current market value of the asset.

General provisions and loan loss reserves do not include provisions or reserves that are targeted for a specifically identified asset. In addition, the amount of provisions and reserves that can be included in Tier 2 is limited to 1.25% of risk-weighted assets.

A hybrid debt capital instrument is one that combines characteristics of equity and debt. To be included in the Tier 2 capital base of a bank, the instrument must be unsecured, subordinated, fully paid up, and not redeemable at the initiative of the holder without prior consent of the bank regulator. Unlike conventional subordinated debt, the instrument should be available to absorb losses without forcing the bank to cease trading. Also, it should be possible for the bank to defer servicing interest payments until its profitability is restored to a level that it can support such payments. A common example of a qualifying hybrid instrument is a mandatory convertible debt instrument.

Finally, for inclusion in Tier 2, subordinated term debt must be unsecured with a minimum original fixed term to maturity of more than five years and limited life redeemable preference shares. However, such debt can be included in Tier 2 only up to an amount equal to 50% of the total amount of Tier 1 capital. This restriction reflects the fact that subordinated term debt cannot be used to absorb unanticipated losses except in liquidation, *i.e.*, as long as the bank's shares continue to trade, subordinated term debt is unavailable to participate in losses. It is also subject to a discount of 20% per year during the last five years of its maturity. This limitation reflects the value of subordinated term debt in terms of its ability to absorb unanticipated losses declines as the debt nears maturity.

(B) Credit Risk Categories

With respect to both ratio tests, there are five credit risk categories used to slot on- and off-balance sheet transactions. Each category has a specific risk-weight: 0, 10, 20, 50, or 100 percent. Hence, the risk-weight assigned to a transaction depends on the credit risk associated with the activity which, of course, turns on the nature of the counterparty obligor.⁴⁸⁵

485. The 1988 Basle Capital Accord gives bank regulators discretion on categorizing certain assets. For example, a bank regulator may assign a 0, 10, 20, or 50 percent weight to a claim on a domestic public sector entity other than the central government, or a loan guaranteed by such an entity. For a discussion of whether and how this discretion has affected the level of the field on which international banks compete, see Scott & Iwahara, *supra* note 20; Bhala & Kapstein, *supra* note 20.

The risk-weight categories create an air of elegance to the regime. However, by devising a simple categorization scheme in 1988, the BSC may have laid the foundation for subsequent pressure for future reforms to the scheme. In terms of the FICAS variables, if the BSC fails to adjust the scheme, then it neglects concerns about the cogency of the categories. If it makes adjustments, then it could increase the intricacy of the scheme.

The threshold problem is that the five risk-weight categories result in the "grouping [of] different types of assets under the same risk weight, whereas in fact there may actually be differences in the actual risk involved among the various types of assets in a single risk-weight category." MALLOY, *supra* note 210, § 5.3.1 at 5.50-5.51. Is it appropriate to assign a 100% risk-weight to all claims on the private sector without distinguishing the creditworthiness of the obligor, and to claims on less-developed countries denominated in a foreign currency? Moreover, to what extent might a bank re-orient its activities toward lower risk-weighted assets? See generally John Gapper, *The Very Model of a Modern Risk*, FIN. TIMES, Aug. 4, 1993, at 11 (discussing efforts by British banks to ensure capital is allocated to activities with the best real returns). These rather obvious concerns create a challenge for the BSC: should it make adjustments in the contents of the 0, 10, 20, 50, and 100 percent credit risk categories in an effort to achieve a more "scientific" risk-weighting scheme? Alternatively, should it expand the number of categories in order to make more precise distinctions among assets?

Certainly, at least some banks might encourage the BSC to take on this challenge. Yet, herein lies a dilemma. By re-classifying assets within the existing five categories, or by creating new categories, the BSC tinkers with the capital adequacy regime. No doubt it acts with a pure heart. Its goal is to recalibrate the way capital charge is measured so as to "fine tune" the Accord. But, in so doing it ends up making the Accord more intricate. How can it re-classify assets without more precisely defining the assets at issue? Should, for example, loans to high-technology companies like Microsoft be distinguished from loans to aerospace companies like Boeing? If so, how are "high-technology" and "aerospace" to be defined? They could also cause the regime to seem more arbitrary. If additional risk-weights should be added, then what should they be—30%? 75%?

In sum, the elegance of the 1988 Accord credit-risk categories creates a tension involving frequency of adjustment and intricacy. The categories may be overly simplistic. A complicated reality cannot be reduced to five-credit risk categories without controversy, and pressure soon develops to make the regime "more realistic." Attempting to alter the regime means getting bogged down in a myriad of details and somewhat artificial distinctions. Ultimately, if the BSC tries to "fix" problems on an incremental basis, then the regime becomes unattractive because it loses any degree of elegance it might have had.

At one extreme, transactions with private counterparties (e.g., other banks) receive a 100 percent risk weight. For example, the full amount of a \$1 million loan to a private borrower is included in the denominator of both ratios. If this loan were a bank's only asset, then the corresponding capital charges would be \$40,000 (the Tier 1 ratio) and \$80,000 (the Tier 2 ratio). At the other extreme, claims on central governments that are members of the Organization for Economic Cooperation and Development ("OECD") receive a zero percent risk weight.⁴⁸⁶ Accordingly, the full value of a U.S. Treasury security is excluded from the denominator of each ratio because of the zero risk weight ascribed to government obligations.

(C) Off-Balance Sheet Transactions And The Current Exposure Method

Off-balance sheet transactions—those activities not normally appearing on a bank's balance sheet—are handled somewhat differently from on-balance sheet transactions. Foreign exchange forward, option, and swap contracts are examples of off-balance sheet transactions. The Accord does not separately itemize these foreign exchange transactions. Rather, it defines the broad category of "exchange rate contracts." This category excludes contracts with an original maturity of fourteen calendar days or less, hence it excludes spots and most forwards.

The reason for the distinct treatment of off-balance sheet transactions is that a bank is not exposed to credit risk for the full face value of its contract. Rather, its exposure depends on the potential cost of replacing the cash flow (assuming it is positive) from a forward, option, or swap contract (or other off-balance sheet transaction) in the event the bank's counterparty defaults on the contract. However, the cost of replacing the cash flow is difficult to calculate because it depends on a number of uncertain factors such as the maturity of a contract and the volatility of relevant underlying foreign exchange or interest rates.⁴⁸⁷

The Accord lays out two methods to calculate the replacement cost of an exchange rate contract: the "current exposure" method, and the "original exposure" method (discussed below). There are two steps in the current exposure method (also called the "asset equivalent amount"). First, an exchange rate contract is converted into a credit equivalent amount. In general, the credit equivalent amount depends on the maturity of the contract and the vola-

486. The members of the Organisation for Economic Cooperation and Development are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Mexico, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States. See ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, INTRODUCTION TO THE OECD CODES OF LIBERALISATION OF CAPITAL MOVEMENTS AND CURRENT INVISIBLE OPERATIONS 2 (1995).

487. MALLOY, *supra* note 210, at § 5.3.3.4 at 5.111.

tility of the prices or rates of the relevant underlying instrument. Thus, for example, the credit equivalent amount of a dollar-yen option contract depends on the maturity of the contract and the relevant dollar-yen exchange rates. Second, an appropriate risk weight is applied to the credit equivalent amount. An exchange contract is not slotted into the 100 percent risk weight category because banks entering into such a contract generally are "first class names."⁴⁸⁸ Instead, the Accord presumes a 50 percent weight will be used.

The first step in the current exposure method is the most complicated of the two steps. The credit equivalent amount is the value of an off-balance sheet transaction for purposes of risk-weighting. But, it is not the notional principal amount of that transaction. Rather, it is the sum of two terms: the current replacement cost of a contract and a term called the "add on."⁴⁸⁹ Accordingly, two calculations are necessary to obtain the credit equivalent amount.

With respect to the first term, the current replacement cost, it is necessary to mark to market an exchange contract. ("Marking to market" refers to a periodic, such as end-of-day, valuation of each asset position based on current market prices.) The current replacement cost is the cost a bank would incur if it entered into a new exchange rate contract on the same terms and conditions as an existing contract on which its counterparty defaulted. It focuses on market values and is calculated "by marking [the] contract[] to market, thus capturing the current exposure without any need for estimation"⁴⁹⁰ On the day a contract is entered into, the replacement cost is zero because it reflects prevailing market exchange or interest rates. As time passes, those rates are sure to change, and it is likely to be costly to replace the contract because its terms and conditions reflect what have become off-market rates.

The second term in calculating the credit equivalent amount is the add on factor. This factor captures potential future credit risk over the remaining life, or residual maturity, of the contract. In other words, it pertains to the possibility a counterparty might default on an exchange rate contract in the future.

488. 1988 Basle Capital Accord, *supra* note 5, Annex 3 at 30 INT'L LEGAL MATERIALS 1007. Likewise, the 1988 Basle Capital Accord acknowledges that counterparties on swap contracts generally are good credit risks. Accordingly, the risk-weight associated with swaps is not to exceed 50%. Interestingly, some bank regulators represented at the BSC reserve the right to apply a 100% risk weight. See BHALA, PERSPECTIVES ON RISK-BASED CAPITAL, *supra* note 4, at 178.

489. Accordingly, the formula for calculating the credit equivalent amount of an exchange rate contract under the current exposure method is the sum of:
Current replacement cost based on mark-to-market value of contract + Add on for potential future exposure based on notional principal amount and residual maturity.

Thereafter, the appropriate risk-weight is applied to the credit equivalent amount.

490. 1988 Basle Capital Accord, *supra* note 5, Annex 3, at 30 INT'L LEGAL MATERIALS 1004. A replacement cost is calculated only for an exchange contract with a positive value.

The amount of the add on depends on two variables—the notional principal amount of the contract and its residual maturity.

Originally, the 1988 Accord specified that for an exchange rate contract with a residual maturity of less than one year, an add on factor of one percent of the notional principal amount must be used. For an exchange rate contract with a residual maturity of one year or more, the Accord stated that an add on factor of five percent of the notional principal amount must be used.⁴⁹¹ As a result of the 1995 Netting Amendment, the BSC adopted an expanded matrix of factors.⁴⁹² Exchange rate contracts with a residual maturity of one year or less have a one percent factor. Those contracts with an original maturity of over one year to five years have a five percent factor. Those contracts with a residual maturity of over five years have a 7.5 percent factor.

As an example of calculating the credit equivalent amount of a foreign exchange transaction, consider the capital required to support the following dollar-yen call option. Suppose the Bank of Tokyo holds a \$1 million call option written by Citibank. The exercise price is 100 yen per dollar, the original maturity is 180 days, and the remaining maturity is 90 days. Suppose the dollar-yen spot rate moves to 101 yen per dollar. The option is in the money because the Bank of Tokyo can obtain \$1 million for ¥ 100 million. If it were to purchase \$1 million on the spot market, then it would have to pay ¥ 101 million. If the Bank of Tokyo exercises the option, but Citibank defaults, then the Bank of Tokyo incurs a positive replacement cost.⁴⁹³

This cost is estimated by marking the option to market. Assume the secondary market value of the option is \$1,000—that is, it would cost the Bank of Tokyo \$1,000 to enter into a new option with the same terms and conditions as the Citibank contract. Assume further that the secondary market value reflects the replacement cost.⁴⁹⁴ As for the add on, because the residual maturity is less than one year, it would be one percent of the notional principal amount of \$1 million, or \$10,000. Thus, the credit equivalent amount, or asset equivalent, of the dollar-yen option is \$11,000.

To this credit equivalent amount an appropriate risk weight is applied. If the counterparty obligor is a private party (*e.g.*, another bank) then the risk weight would be fifty percent. Accordingly, the Tier 1 capital required to sup-

491. 1988 Basle Capital Accord, *supra* note 5, Annex 3 at 30 INT'L LEGAL MATERIALS 1005.

492. See 1995 Netting Amendment, *supra* note 14, Annex at 2.

493. In contrast, suppose the dollar-yen spot foreign exchange rate moves to 99 yen per dollar. The option is not in the money because the Bank of Tokyo can obtain \$1 million on the spot market for ¥ 99 million. In contrast, if it exercises the option, then it must pay ¥ 100 million for \$1 million. Thus, if Citibank were to default on the option contract, then there would be no replacement cost incurred by the Bank of Tokyo.

494. In practice, the calculation of replacement cost is likely to be considerably more complex than suggested above.

port this contract would be four percent of \$6,500, or \$260, and the Tier 1 plus Tier 2 capital required to support the contract would be 8 percent of \$6,500, or \$520.

(D) The Original Exposure Method

The current exposure method in the 1988 Accord for calculating the credit equivalent amount of an exchange (or interest) rate contract is intricate. Indeed, a number of bank regulators represented at the BSC "apparently have found this two-step process of analysis *too complex*; they consider it inconsistent with the general approach of the framework."⁴⁹⁵ Quite possibly, these regulators were prodded by their banks. The BSC was compelled to allow bank regulators to use an alternative method for calculating credit equivalent amounts—the original exposure method.

This method eliminates the first step of the current exposure method by deeming immaterial the market value of an exchange (or interest) rate contract at a particular date. Instead, the credit equivalent amount of a contract is calculated by applying a conversion factor to the notional principal amount of the contract. The conversion factor used depends on the maturity of the contract. The original maturity is used for exchange rate contracts, but bank regulators have discretion to use either the original or residual maturity for interest rate contracts. The factors are:⁴⁹⁶

<i>Maturity</i>	<i>Exchange Rate Contracts (percent)</i>	<i>Interest Rate Contracts (percent)</i>
Less than 1 year	2.0	0.5
One year but less than 2 years	5.0 (i.e., 2.0 + 3.0)	1.0
For each additional year	3.0	1.0

Thus, in the case of the \$1 million currency option discussed above with an original maturity of 180 days, a factor of two percent would be applied to the notional principal amount of one million, yielding a credit equivalent amount of \$20,000.

A risk weight appropriate to the counterparty obligor is then applied to this amount. As with the current exposure method, under the original exposure

495. MALLOY, *supra* note 210, at § 5.3.3.4 at 5.112 (emphasis added).

496. 1988 Basle Capital Accord, *supra* note 5, Annex 3 at 30 INT'L LEGAL MATERIALS 1006.

method an exchange contract is not slotted into the 100 percent risk weight category because banks that enter into such a contract generally are "first class names."⁴⁹⁷ The Accord presumes a fifty percent weight will be used.⁴⁹⁸ Accordingly, assuming a private obligor and, therefore, a fifty percent weight, the Tier 1 capital charge is \$400. The Tier 1 plus Tier 2 capital charge is \$800.

Unfortunately, in trying to simplify matters by allowing bank regulators to use the original exposure method, the BSC created the potential of an unlevel playing field for banks. As the option example illustrates, the current and original exposure methods may yield different capital requirements for the same exchange rate contract, depending on the nature of that contract.⁴⁹⁹ Under the current exposure method applied above, the requisite capital charges for the hypothetical option were considerably smaller than the charges under the original exposure method. These differences stem in part from the fact that the original exposure method, unlike the current exposure method, does not focus on market values.⁵⁰⁰

(E) Netting By Novation

The 1988 Accord recognized a risk reduction technique used by many

497. *Id.* at Annex 3 at 30 INT'L LEGAL MATERIALS 1007.

498. The 1988 Basle Capital Accord acknowledges counterparties on swap contracts generally are good credit risks. Accordingly, the risk weight associated with swaps is not to exceed 50%. *See id.* Interestingly, some bank regulators represented at the BSC reserve the right to apply a 100% risk-weight. *See* BHALA, PERSPECTIVES ON RISK-BASED CAPITAL, *supra* note 4, at 178.

499. For an example of different capital charges under the two methods in the case of a single-currency fixed/floating interest rate swap, see Scott & Iwahara, *supra* note 20 at 50-54.

500. *See An Integrated Bank Regulatory Approach*, *supra* note 17, C-2-3.

The different results raise the possibility that some bank regulators may behave strategically to give their banks a competitive advantage. The Federal Reserve requires use of the current exposure method. Scott & Iwahara, *supra* note 20, at 49. In contrast, Japan allows its banks to use either method if they do not transact a large volume of exchange or interest rate contracts or are administratively unable to use the current exposure method. *Id.* at 50. (Administrative difficulties may arise in connection with mark-to-market accounting that is required to calculate replacement costs under the current exposure method. Japanese banks that select the original exposure method must use original maturities for interest rate contracts. If a Japanese bank selects the current exposure method, then the choice is irrevocable.)

It would be economically rational for a bank with the freedom to choose to select the method that results in the lowest overall capital charge for its exchange (and interest) rate contracts. Indeed, some Japanese banks have selected the current exposure method, while others have chosen the original exposure method. Scott & Iwahara, *supra* note 20, at 50. (Professors Scott and Iwahara raise the possibility that Japanese banks have chosen the original exposure method to secure a competitive advantage over their Japanese and U.S. counterparts. They express their personal disbelief regarding this possibility, but also indicate they would have to reconsider the matter if Japanese banks continue to use the original exposure method. *See* Scott & Iwahara, *supra* note 20, at 54.) Consequently, banks that lack this freedom may complain there is a gradient on the playing field for such contracts.

banks known as "netting by novation." This technique involves a bilateral contract between two counterparties under which any obligation to each other to deliver a given currency on a given date is automatically amalgamated with all other obligations for the same currency and value date, legally substituting one single net amount for the previous gross obligations.⁵⁰¹

Thus, for example, suppose the Bank of Tokyo has entered into dollar-yen and mark-dollar forward contracts for the same value date with Citibank. Under the first contract, the Bank of Tokyo owes Citibank \$1 million, while under the second contract it is entitled to receive delivery of \$400,000. Under a bilateral netting by novation arrangement, on the value date one payment transaction will settle both contracts: the Bank of Tokyo will pay Citibank \$600,000.

Because netting genuinely reduces counterparty risk, the Basle Accord allows the Bank of Tokyo to use the netted amount of \$400,000, rather than the sum of the notional principal amounts of each forward contract, as the basis for calculating the credit equivalent amount under the current or original exposure method.⁵⁰² The capital charge under the current exposure method is reduced because the credit conversion factor of one or five is applied to the netted amount, which of course is smaller than the sum of the notional principal amounts. Similarly, the capital charge under the original exposure method is reduced because the credit conversion factor of 2.0 percent or more is applied to the netted amount.

(2) THE 1993 PROPOSALS

(A) Market Risk

While the 1988 Basle Capital Accord accounts for credit risk, it does not consider market risks associated with foreign exchange transactions.⁵⁰³ At best, the replacement cost calculation in the current exposure method indirectly

501. 1988 Basle Capital Accord, *supra* note 5, Annex 3 n.6. See also *An Integrated Bank Regulatory Approach*, *supra* note 17, at B-1.

502. In general, netting by novation used in payments transactions can reduce the value and volume of such transactions by as much as 50%. BANK FOR INTERNATIONAL SETTLEMENTS, REPORT OF THE COMMITTEE ON INTERBANK NETTING SCHEMES OF THE CENTRAL BANKS OF THE GROUP OF TEN COUNTRIES 11 (Nov. 1990). A multilateral netting technique can reduce payments value and volume by up to 80%. *Id.* at 13. As a result of these reductions, systemic risk correspondingly declines. *Id.* See also Board of Governors of the Federal Reserve System, *Policy Statement on Privately Operated Large-Dollar Multilateral Netting Systems*, IV FED. RESERVE REG. SERVICE ¶ 9-1021 at 9-360 (Oct. 1995). Ironically, however, until at least 1993 most banks were unable to reduce capital charges through netting by novation because no formula had been approved by the BSC or domestic regulators for calculating net exposures. *An Integrated Bank Regulatory Approach*, *supra* note 17, at B-1.

503. *The Prudential Supervision of Netting*, *supra* note 7, at 4; *A Simple Proposal*, *supra* note 46, at 20. "Market risk" is defined *supra* note 8.

captures these other risks. But, volatile foreign exchange and interest rates can quickly and adversely affect the value of a bank's currency obligations or its asset-liability matches. Thus, the BSC realized an explicit cushion against losses arising from market risk is necessary.

On April 30, 1993 the BSC issued a "consultative proposal" entitled "The Supervisory Treatment of Market Risks"—i.e., the 1993 Market Risk Proposal—that was supposed to become a formal amendment to the Accord.⁵⁰⁴ The BSC intended to introduce specific minimum capital charges for the current market value of open positions, including derivative positions, in a bank's trading book, and for a bank's total currency positions as regards foreign exchange risk.⁵⁰⁵

Specifically, the BSC divided financial instruments into two separate categories, debt and equity. The former category included debt derivatives like forwards, swaps, and possibly options.⁵⁰⁶ In addition, the BSC proposed an express capital charge against foreign exchange risk that would cover spots and options.⁵⁰⁷ The BSC's proposed methodologies are analyzed in Part II above in the context of the intricacy and cogency variables of the FICAS model.

Conceptually, the BSC proposed that a bank's overall minimum capital requirement for foreign exchange transactions would be the sum of the capital charges for the (1) credit risk associated with these transactions, (2) market risk associated with debt securities, and (3) market risk associated with foreign exchange rate movements.⁵⁰⁸ For debt securities, the BSC agreed the capital charge against market risk would substitute for the capital charge against credit risk, i.e., items (1) and (2) were substitutes.⁵⁰⁹ Thus a bank with well-hedged positions might reduce its capital requirements. But, the BSC did not permit a compensating reduction in the capital charge for credit risk on account of the capital charge for foreign exchange risk, i.e., items (1) and (3) were additive.⁵¹⁰

(B) Interest Rate Risk

The 1988 Basle Capital Accord also failed to incorporate interest rate

504. 1993 Market Risk Proposal, *supra* note 7, at 3.

505. See Proposal to Issue a Supplement, *supra* note 15, at 4; see also 1993 Market Risk Proposal, *supra* note 7, at 1-5. The BSC expected banks to manage the market risk to which they are exposed through foreign exchange transactions on a continuous basis, i.e., at the close of each business day. *Id.* at 9.

506. 1993 Market Risk Proposal, *supra* note 7, at 14-32.

507. *Id.* at 1, 33-42.

508. *Id.* at 8.

509. *Id.*

510. *Id.* See also, A Simple Proposal, *supra* note 46, at 20. The BSC proposed a *de minimis* exception to enable banks with negligible foreign currency business to escape any capital charge. 1993 Market Risk Proposal, *supra* note 7, at 8.

risk.⁵¹¹ Again, the BSC relied on the replacement cost calculation mandated by the Accord to serve as an imperfect proxy to safeguard against this risk. While the 1993 Market Risk Proposal addresses trading activities valued at current market prices, it does not address the interest rate risk inherent in traditional bank activities like lending and deposit taking. This risk is the focus of a second consultative paper issued on April 30, 1993—"Measurement of Banks' Exposure to Interest Rate Risk," *i.e.*, the 1993 Interest Rate Risk Proposal.

In the 1993 Interest Rate Risk Proposal, the BSC reaffirms its view that "existing capital requirements [*i.e.*, the credit risk guidelines devised in 1988] can be regarded as providing adequate protection against interest rate risk in most situations."⁵¹² The BSC accepts the fact that "a certain degree of interest rate mismatching is a normal feature of the business of banking."⁵¹³ Therefore, in contrast to its Market Risk Proposal, the BSC does not call for new capital charges against interest rate risk.⁵¹⁴

Instead, the BSC attempts to develop a system for measuring interest rate risk that would identify banks incurring "extraordinarily large amounts of interest rate risk"—*i.e.*, "outliers."⁵¹⁵ The BSC leaves to the discretion of domestic bank regulators the possibility of an explicit capital charge or some other regulatory remedy.⁵¹⁶ In sum, the Proposal treats the first issue of how to measure interest rate risk, not the second issue of what action (if any) regulators should take to discourage excessive risk-taking.⁵¹⁷

The BSC does not offer its methodology as the definitive way to measure interest rate risk. It acknowledges there is no consensus among the G-10 regulators on a number of issues and invites comments from banks on such issues.⁵¹⁸ The goal of the proposed measurement methodology is "to estimate the sensitivity of the economic value [*i.e.*, going concern value] of the bank to future changes in interest rates."⁵¹⁹

The proposed methodology for measuring interest rate risk is intricate, involving at least five steps. First, a bank "would categorize interest rate sensi-

511. *A Simple Proposal*, *supra* note 46, at 20. "Interest rate risk" is defined *supra* note 12.

512. *The Prudential Supervision of Netting*, *supra* note 7, at 4.

513. *Id.* 1993 Interest Rate Risk Proposal, *supra* note 11, at 2.

514. 1993 Interest Rate Risk Proposal, *supra* note 11, at 2-4.

515. *The Prudential Supervision of Netting*, *supra* note 7, at 4; 1993 Interest Rate Risk Proposal, *supra* note 11, at 2 and 5.

516. 1993 Interest Rate Risk Proposal, *supra* note 11, at 5.

517. *Id.*

518. *Id.* 1, 6, 10-12, and 25-29. In the absence of a consensus, and pursuant to the Federal Deposit Insurance Corporation Improvement Act of 1991, the Federal Reserve and other U.S. bank regulators have issued a Joint Policy Statement on Interest Rate Risk. See Federal Reserve Press Release, Joint Agency Policy Statement: Interest Rate Risk, May 23, 1996.

519. *Id.* at 2, 8.

tive assets, liabilities, and off-balance sheet instruments according to their maturities or certain repricing characteristics."⁵²⁰ That is, a bank slots these items into one of thirteen maturity bands.⁵²¹ Separate maturity ladders are used for each currency, hence the bank must go through the remaining steps on a currency-by-currency basis.⁵²² Problems, of course, arise with respect to instruments whose maturity was uncertain, for example, pre-payable mortgages and installment loans, or savings and demand deposits where a bank has some discretion as to the timing and changes in the interest rate it pays.⁵²³

Second, the bank "vertically" offsets its positions (*i.e.*, calculate a net position for each maturity band).⁵²⁴ However, full vertical offsetting might not be allowed. Rather, disallowance factors might limit the extent to which instruments could offset one another.⁵²⁵ In addition, a bank might not be allowed to offset opposing interest rate positions denominated in different currencies (though the BSC did not issue a specific proposal on this point).⁵²⁶

Third, the bank assigns a weight to the net position in each maturity band according to the price sensitivity of that item to changes in interest rates.⁵²⁷ The BSC suggests the concept of "duration" as an appropriate way to measure this sensitivity.⁵²⁸

Fourth, the bank "horizontally" offsets its duration-weighted positions (*i.e.*, calculates net weighted positions across all maturity bands).

Fifth, the bank "compute[s] the difference between its duration weighted assets and liabilities, subject to certain adjustments."⁵²⁹

The result of the five steps is a single numerical estimate of the change in the value of the bank as a result of a specified change in interest rates.⁵³⁰ For instance, the number might indicate the bank was vulnerable to a rise in interest rates, *i.e.*, if the rates rose, then value of the bank as a going concern would decline.⁵³¹

The 1993 Interest Rate Risk Proposal treats foreign exchange transactions—in particular, debt derivatives like swaps, forwards, and possibly options—in the same way as the 1993 Market Risk Proposal.⁵³² This treatment is

520. *Id.* at 1.

521. 1993 Interest Rate Risk Proposal, *supra* note 11, at 8-9.

522. *Id.* at 20.

523. *Id.* at 6, 14-16.

524. *Id.* at 8-9, 18.

525. 1993 Market Risk Proposal, *supra* note 7, at 9, 18-19.

526. 1993 Market Risk Proposal, *supra* note 7, at 20.

527. *Id.* at 8-9.

528. *Id.* at 16-17.

529. *Id.* at 1.

530. *Id.*

531. 1993 Interest Rate Risk Proposal, *supra* note 11, at 1.

532. 1993 Interest Risk Proposal, *supra* note 7, at 15-24.

discussed in Part II of the text.

(C) Netting

The 1988 Basle Capital Accord deals with netting in a restrictive manner. A bank can reduce the capital charge associated with its currency trading activities on the basis of net rather than gross payment obligations only if it nets these obligations by novation. In its 1993 Netting Proposal, the BSC offered to liberalize its policy toward netting and recognize certain netting arrangements in addition to netting by novation. That is, the BSC agreed a bank should be allowed to calculate its capital requirement on the basis of a broader range of bilateral netting techniques than simply netting by novation, including close-out netting.

The BSC proposed to define "the precise conditions under which banks would be permitted to net the credit risks arising from trading in certain financial instruments" based on a November 1990 report published by the Committee on Interbank Netting Systems of the BIS, commonly known as the Lamfalussy Report.⁵³³ Banks could reduce their overall capital charges "to the extent that they have legally valid netting arrangements governing their trading in certain financial instruments."⁵³⁴ The BSC presented specific requirements a bank must meet before its netting scheme would be recognized for capital adequacy purposes.⁵³⁵ The BSC confirmed these requirements in its 1994 Netting Amendment, and they are discussed below in that context.

(3) *The 1994 Netting Amendment*

On July 15, 1994, the BSC confirmed its 1993 Netting Proposal as the 1994 Netting Amendment to the 1988 Basle Capital Accord. The 1994 Netting Amendment focuses on credit risks associated with off-balance sheet transactions.⁵³⁶ The BSC purports "to broaden the recognition of bilateral netting of current credit exposure for capital adequacy purposes."⁵³⁷ The BSC does not specify a timetable for implementing the new rules. Instead, it leaves the matter to domestic bank regulators.⁵³⁸

The BSC articulates its concern that "a liquidator of a failed counterparty has (or may have) the right to unbundle netted contracts, demanding perform-

533. *The Prudential Supervision of Netting*, *supra* note 7, at 2.

534. *Id.*

535. *1993 Netting Proposal*, *supra* note 9, Annex 2.

536. *See 1994 Netting Amendment*, *supra* note 13.

537. July 15, 1994 Press Statement, *supra* note 13. The Amendment applied only to contract netting, not payments netting. Payments netting schemes may reduce the number and cost of settlements, but do not affect a counterparty's gross contractual obligations. *See 1994 Netting Amendment*, *supra* note 13, Annex 1 at 1 n.6.

538. July 15, 1994 Press Statement, *supra* note 13; *1994 Netting Amendment*, *supra* note 13, at 1.

ance on those contracts favourable to the failed counterparty and defaulting on unfavourable contracts.”⁵³⁹ In the event of such “cherry-picking,” a netting scheme does not reduce counterparty credit risk.⁵⁴⁰ To address this problem, the BSC reiterates four requirements it had first set forth in its 1993 Netting Proposal. A bank must meet these requirements before the BSC or the bank’s domestic regulator recognizes for capital adequacy purposes any bilateral netting arrangement (including netting by novation). First,

the bank must satisfy its domestic regulator it has a netting contract or agreement with the counterparty which creates a single legal obligation, covering all included transactions, such that the bank would have either a claim to receive or obligation to pay only the net sum of the positive and negative mark-to-market values of included individual transactions in the event a counterparty fails to perform due to any of the following: default, bankruptcy, liquidation or other similar circumstances⁵⁴¹

Second, the bank must obtain “written and reasoned legal opinions that, in the event of a legal challenge, the relevant courts and administrative authorities would find the bank’s exposure to be such a net amount under” (1) the law of the jurisdiction in which the counterparty is chartered, (2) the law of the jurisdiction of a foreign branch of the counterparty, if a branch is involved in the netted transactions, and (3) the law that governs any contract necessary to effect the netting.⁵⁴² Third, the bank must have “procedures in place to ensure that the legal characteristics of netting arrangements are kept under review in the light of possible changes in relevant law.”⁵⁴³ Fourth, a contract containing a “walkaway clause”—i.e., “a provision which permits a non-defaulting counterparty to make only limited payments, or no payment at all, to the estate of a defaulter, even if the defaulter is a net creditor”⁵⁴⁴—is not eligible for netting for the purpose of calculating the credit risk capital charge.

The 1994 Netting Amendment also confirms a transition rule first proposed in the 1993 Netting Proposal pertaining to banks using the original exposure method to calculate their credit risk exposures from off balance sheet transactions.⁵⁴⁵ The BSC opines that under the current exposure method, bilateral netting could reduce the capital charges associated with exchange (and interest) rate contracts by 25-40 percent because of a reduction in the replacement cost for such contracts.⁵⁴⁶ It recognizes this benefit would not accrue to banks using the original exposure method because that method does not entail

539. 1994 Netting Amendment, *supra* note 13, Annex 1 at 1.

540. See BHALA, *supra* note 4, at 152-87.

541. 1994 Netting Amendment, *supra* note 13, Annex 1 at 1-2.

542. *Id.* Annex 1 at 2.

543. *Id.*

544. *Id.*

545. *Id.* at 2, and Annex 1, at 3.

546. 1993 Netting Proposal, *supra* note 9, at 4.

the calculation of replacement cost.⁵⁴⁷ Accordingly, the BSC states the credit conversion factors for the original exposure method would be reduced by 25 percent until market risk capital adequacy rules were adopted.⁵⁴⁸ After this transition period, the original exposure method could not be used.⁵⁴⁹ Hence, eventually all banks would use the current exposure method to calculate the credit equivalent amounts of their off-balance sheet transactions.⁵⁵⁰

Finally, in the 1994 Amendment the BSC offers a formula to recognize the effect of netting when calculating the capital charge for potential future credit exposure associated with off-balance sheet transactions subject to legally enforceable netting arrangements.⁵⁵¹ The BSC acknowledges these arrangements can reduce future as well as current credit exposure.⁵⁵² However, because it is concerned about cherry picking in both contexts, the BSC proposes to apply in the potential future credit exposure context the same four requirements established for the current credit exposure context.⁵⁵³ In addition, the amount by which add-ons for potential future credit exposure could be reduced as a result of a netting arrangement would be constrained by a formula incorporating net and gross current replacement costs for the transactions subject to netting. In particular, the add-on for netted transactions (ANET) would equal the average of the add-on as calculated under the 1988 Accord (AGROSS),⁵⁵⁴ adjusted by

547. *Id.* at 5.

548. *Id.* Annex 2 at 3. The 25% reduction could be linked to the BSC's conservative estimate of the capital reduction associated with the current exposure method. However, this linkage is not clear from the 1993 *Netting Proposal* or 1994 *Netting Amendment*. In other words, the origin and rationale for the 25% reduction is not transparent. Consequently, it could be argued the transition rule is a well-intentioned but arbitrary way of trying to ensure a bank using the original exposure method is not unfairly disadvantaged by the BSC's new approach to netting.

549. 1993 *Netting Proposal*, *supra* note 9, Annex 2 at 3; 1994 *Netting Amendment*, *supra* note 13, Annex 1 at 3. Domestic bank regulators have the discretion to add an additional twelve month transition period. 1994 *Netting Amendment*, *supra* note 13, Annex 1 at 3 n.10.

550. The BSC noted that for bilaterally netted forward transactions, a bank's credit exposure would be the sum of its net mark-to-market replacement costs (if positive), plus an add-on based on the notional underlying principal. It did not, however, provide any details about this calculation for spots, options, or swaps.

551. The BSC also suggested an enlargement of the matrix of add-ons for potential future exposure, first set forth in the 1988 Basle Capital Accord, in order to cover a broader range of transactions not covered expressly in the Accord. See 1994 *Netting Amendment*, *supra* note 13, at 4-5 and Annex 3.

552. 1994 *Netting Amendment*, *supra* note 13, at 3.

553. *Id.* at 3. In this paragraph, the BSC states its proposed formula for reducing the add ons would apply to "transactions subject to legally enforceable netting agreements *consistent with the requirements set out in the attached amendment to the [1988 Basle] Capital Accord on bilateral netting*" (emphasis added).

554. That is, AGROSS is calculated by multiplying notional principal amounts of transactions by the appropriate add-on factors specified in Annex 3 of the 1994 *Netting Amendment*. See 1994 *Netting Agreement*, *supra* note 13, Annex 3.

the product of the (1) ratio of the net current replacement cost to the gross current replacement cost (NGR) and (2) AGROSS.⁵⁵⁵ The BSC proposes the following formula:

$$\text{ANET} = (0.5)(\text{AGROSS}) + (0.5)(\text{NGR})(\text{AGROSS}),$$

where NGR = level of net replacement cost divided by level or gross replacement cost, with respect to transactions subject to legally enforceable netting arrangements.⁵⁵⁶

(4) *The 1995 Netting Amendment*

The BSC did not take long to confirm its proposal, first published in the 1994 Netting Amendment, for recognizing the effects of netting on reducing potential future credit risk exposure. This confirmation took the form of a paper issued on April 13, 1995 entitled "Basle Capital Accord: Treatment of Potential Exposure for Off-Balance Sheet Items"—the 1995 Netting Amendment. The only material change the BSC made to its initial ANET formula, presented above, was to scrap the 0.5 coefficients. In the 1995 Amendment, the BSC adopts a new coefficient for AGROSS, 0.4, and a new coefficient for the product of NGR and AGROSS, 0.6. Accordingly, the formula the BSC now mandates is:

$$\text{ANET} = (0.4)(\text{AGROSS}) + (0.6)(\text{NGR})(\text{AGROSS}).$$

The BSC states the 0.4 and 0.6 weights represent "an appropriate compromise between recognizing the effects of netting in the add-ons and providing a cushion against potential fluctuations in the net current exposure."⁵⁵⁷

(5) *The 1995 Market Risk Proposal*

The BSC's 1993 Market Risk Proposal was superseded in just two years by a new proposal. On April 12, 1995, it began a revolution in capital adequacy with its 1995 Market Risk Proposal.⁵⁵⁸ This Proposal offers banks a choice. They can determine the capital adequacy charge to cover market risk using the methodology outlined in the 1993 Proposal, re-named the "standardized measurement" (or simply "standardized") methodology. Alternatively, banks can determine the charge by using an internal VaR model that satisfied broad qualitative and quantitative standards.⁵⁵⁹

The second option, which may be called constrained self-regulation, is discussed in detail in Part III above. As for the standardized methodology, in its

555. 1994 Netting Amendment, *supra* note 13, at 3.

556. *Id.* at 3.

557. 1995 Netting Amendment, *supra* note 14, at 1.

558. *See supra* note 15.

559. The BSC did not suggest a capital charge for interest rate risk in its 1995 Market Risk Proposal. *Proposal to Issue a Supplement*, *supra* note 15, at 7; *1995 Market Risk Proposal*, *supra* note 15, at 6 n.7. *See also* 1996 Market Risk Amendment, *supra* note 16, at 6 n.7.

1995 Proposal the BSC makes only two material changes to the 1993 Market Risk Proposal relevant to foreign exchange transactions.⁵⁶⁰ The first change pertains to the treatment of options.⁵⁶¹ In contrast to its stance in the 1993 Proposal, the BSC agrees in its 1995 Proposal to allow a bank to use sophisticated means to measure the market risks associated with options. A bank that uses only purchased options can use the "simplified" approach, which resembles the approach set forth in the 1993 Proposal and discussed in the text.⁵⁶² However, a bank that also writes options must use an intermediate approach, or a comprehensive risk management model.⁵⁶³ The more significant its trading, the greater the expectation a bank use a sophisticated approach.⁵⁶⁴ Such an approach can be devised by the bank and should take account not only of delta (which measures the expected change in the price of an option as a result of a change in the price of the option's underlying instrument), but also gamma (which measures the rate of change of delta) and vega (which measures the sensitivity of the value of an option with respect to a change in volatility).⁵⁶⁵ Curiously, the BSC offers no rationale for its proposed formulas to measure gamma and vega risk,⁵⁶⁶ and it admits it has no proposal to deal with certain risks—most notably, rho (the rate of change of the value of the option with respect to interest rates) and theta (the rate of change of the value of the option with respect to time).⁵⁶⁷

The second change in the standardized methodology concerns the availability of tier III capital to cover foreign exchange risk. The BSC appears to relax the view it articulated in the 1993 Market Risk Proposal. It allows a bank to use tier III capital, subject to the similar criteria as those set forth in 1993, to absorb losses from foreign exchange risk.⁵⁶⁸

560. Compare 1995 Market Risk Proposal, *supra* note 15, pts. A.1 at 9-18, A.3 at 22-25 and A.5 at 31-37 with 1993 Market Risk Proposal, *supra* note 7, at 14-26 and 33-42. See also Overview, *supra* note 16, at 7; 1996 Market Risk Amendment, *supra* note 16, pts. A.1 at 9-18 and A.5 at 32-37. A number of minor changes made by the 1995 Proposal are summarized in *Proposal to Issue a Supplement*, *supra* note 15, at 5.

561. April 1995 Press Release, *supra* note 15, at 3; *Proposal to Issue a Supplement*, *supra* note 15, at 2-5; 1995 Market Risk Proposal, *supra* note 15, pt. A.5 at 31-37. See also 1996 Market Risk Amendment, *supra* note 16, pt. A.5 at 32-37.

562. Compare 1995 Market Risk Proposal, *supra* note 15, pt. A.5 at 31 with 1993 Market Risk Proposal, *supra* note 7, at 35.

563. 1995 Market Risk Proposal, *supra* note 15, pt. A.5 at 31-37.

564. *Id.* at pt. A.5 at 31.

565. *Id.* at pt. A.5 at 32.

566. *Id.* at pt. A.5 at 34-35.

567. *Id.* at pt. A.5 at 35-36.

568. Compare 1993 Market Risk Proposal, *supra* note 7, at 9-12 with April 1995 Press Release, *supra* note 15, at 3-4, *Proposal to Issue a Supplement*, *supra* note 15, at 5-6 & 1995 Market Risk Proposal, *supra* note 15, at 7-8. See also Overview, *supra* note 16, at 7-8; 1996 Market Risk Amendment, *supra* note 16, at 7-8.

(6) *The 1996 Market Risk Amendment*

Finally, in January 1996 the BSC confirmed its 1995 Market Risk Proposal. The 1996 Market Risk Amendment resembles the 1995 Proposal in all material respects.⁵⁶⁹ With respect to the standardized methodology, the most significant change concerns simplified treatment of options.⁵⁷⁰ With respect to the internal model methodology, as discussed above in Part III there are two noteworthy changes: a framework for using backtests to check the accuracy of a VaR model, and limited recognition of empirical correlations across market risk factor categories.

569. *See Overview, supra* note 16, at 3.

570. *See id.* at 7; *1996 Market Risk Amendment, supra* note 16, at 4.