

**HOW TO ENCOURAGE GLOBAL ELECTRONIC COMMERCE:
THE CASE FOR PRIVATE CURRENCIES ON THE INTERNET**

*Kerry Lynn Macintosh**

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* Professor of Law, Santa Clara University School of Law. J.D., 1982, Stanford Law School. I thank Professors June Carbone and David Friedman, Santa Clara University School of Law, Professor Arthur Travers, University of Colorado School of Law, and my editor, Tim Ehrlich, J.D., Harvard Law School, Class of 1999, for their helpful comments on earlier drafts. I am also indebted to Renee Lacey, J.D., Santa Clara University School of Law, 1996, and Justin Hovey, J.D., Santa Clara University School of Law, 1997, for their outstanding research assistance.

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On July 1, 1997, President Bill Clinton and Vice President Al Gore issued a visionary policy statement entitled "A Framework for Global Electronic Commerce."¹ Noting that Internet commerce could total tens of billions of dollars by the turn of the century, the President asserted that, "for this potential to be realized fully, governments must adopt a non-regulatory, market-oriented approach to electronic commerce."² Stating that the private sector should be allowed to lead, the President reasoned that "[i]nnovation, expanded services, broader participation, and lower prices will arise in a market-driven arena, not in an environment that operates as a regulated industry."³

The President identified *electronic payment systems* as a key component of a vigorous electronic marketplace, noting that new technology has made it possible to pay for goods and services over the Internet.⁴ For example, moving beyond traditional, magnetic stripe cards,⁵ some companies have developed "smart" cards — that is, cards embedded with a micro-chip that can be loaded with value and used at stores equipped with card-reading terminals.⁶ Soon, personal computers

1. President William J. Clinton & Vice President Albert Gore, Jr., *A Framework for Global Electronic Commerce* (July 1, 1997) <<http://www.iitf.nist.gov/elecomm/ecom.htm>> [hereinafter *Global Electronic Commerce*]. For an alternative vision of electronic commerce, see A European Initiative in Electronic Commerce: Communication to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, COM(97)157 final, <<http://www.cordis.lu/esprit/src/ecomcom.htm>>.

2. *Global Electronic Commerce*, *supra* note 1, at "Background."

3. *Id.* at "Principles."

4. *See id.* at I.2.

5. For many years, phone companies, transit authorities, and others have sold prepaid cards to customers, who have used the value stored on the magnetic stripe to make convenient, cash-free purchases. *See* Task Force on Stored-Value Cards, *A Commercial Lawyer's Take on the Electronic Purse: An Analysis of Commercial Law Issues Associated with Stored-Value Cards and Electronic Money*, 52 BUS. LAW. 653, 658 (1997); John L. Douglas, *Banking Law*, NAT'L L.J., Aug. 26, 1996, at B4.

6. *See* Gary W. Lorenz, *Electronic Stored Value Payment Systems, Market Position, and Regulatory Issues*, 46 AM. U. L. REV. 1177, 1183 (1997); Katherine Morrall, *Smart Cards Signal a Cashless Society*, 27 BANK MARKETING, Apr. 1995, at 13; Brian W. Smith & Ramsey J. Wilson, *How Best to Guide the Evolution of Electronic*

will be equipped with smart card readers, taking the stored-value concept online.⁷ Meanwhile, other companies have developed online credit card systems,⁸ and electronic cash ("e-cash") that can be used to make anonymous purchases on the Internet.⁹

President Clinton also noted that the commercial and technological development of electronic payment systems is changing rapidly, making it hard to develop timely and appropriate policy.¹⁰ Reasoning that

Currency Law, 46 AM. U. L. REV. 1105, 1106 n.7 (1997).

Mondex, a British technology company, sponsors a stored-value card system that allows users to transfer value directly from one card to another, without having to be cleared through any bank. See A. Michael Froomkin, *Flood Control on the Information Ocean: Living with Anonymity, Digital Cash, and Distributed Databases*, 15 J.L. & COM. 395, 468 (1996). Following trials of the system in England, Canada, and the United States, Mondex plans to introduce its system worldwide. See CONGRESSIONAL BUDGET OFFICE, EMERGING ELECTRONIC METHODS FOR MAKING RETAIL PAYMENTS 15 (1996).

7. See PC/SC Workgroup to Develop Open Technology For Integrating Smart Cards and Personal Computers, FIN. NEWS, Sept. 10, 1996, at PR Newswire.

8. See CONGRESSIONAL BUDGET OFFICE, *supra* note 6, at 27. For example, Visa, MasterCard, and American Express have agreed to develop Secure Electronic Transaction ("SET") standards to regulate the encryption of credit card numbers, and verification of credit card use. These standards will be incorporated into Internet browser software. See *id.*

9. Under the patented system operated by DigiCash, a customer uses her computer to generate a random serial number with an associated dollar value that serves as a digital coin. See Task Force on Stored-Value Cards, *supra* note 5, at 660. Her bank adds its digital signature to the coin and then debits the customer's account. See Froomkin, *supra* note 6, at 460. The bank does not read or record the serial number that the customer assigned to her coin. See Task Force On Stored-Value Cards, *supra* note 5, at 661 & n.15. Next, the customer electronically transmits the coin to a merchant in payment for goods or services. Because the coin is signed by the bank, and not the customer, her identity is not revealed. See *id.* Meanwhile, the merchant can go online to ask the bank whether the coin has already been spent. See *id.* at 661; Froomkin, *supra* note 6, at 462. If the coin is good, the merchant deposits it in his own bank.

When compared with existing payment methods, e-cash reveals itself as the functional equivalent of a cashier's check. See Andrew Singleton, *Cash on the Wirehead*, BYTE, June 1995, at 71. Customers purchase cashier's checks from banks. Because these checks are bank obligations, creditors accept them as cash equivalents. See U.C.C. § 3-411 cmt. 1 (1995).

10. See *Global Electronic Commerce*, *supra* note 1, at I.2. Although it may be too early to develop policy, international efforts to identify key considerations have already begun. For example, the Group of Ten (Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom, and the United States) recently released a report that acknowledges that electronic money raises consumer, law enforcement, and supervisory issues, and that surveys how its member states have responded. See GROUP OF TEN, ELECTRONIC MONEY: CONSUMER PROTECTION, LAW ENFORCEMENT, SUPERVISORY AND CROSS BORDER ISSUES (1997)

inflexible rules and regulations could harm the nascent industry, he advocated that electronic payment experiments be monitored on a case-by-case basis.¹¹ This stance is consistent with the Federal Deposit Insurance Corporation ("FDIC") and the Federal Reserve Board ("Fed") reports that have questioned whether stored-value cards should be covered by federal deposit insurance¹² or Regulation E.¹³

[hereinafter G-10 REPORT]. Without intending to imply any particular policy approach, the *G-10 Report* identified four key considerations: (1) transparency, that is, information that allows potential users to make informed choices about the relative merits of electronic money products; (2) the financial integrity of electronic money issuers; (3) the technical security of electronic money schemes; and (4) the vulnerability of such schemes to criminal activity. *See id.* at 28-29. The *G-10 Report* also urged authorities to consider how best to design national policies to minimize impediments to the cross-border use of electronic money. *See id.* at 29. The *G-10 Report* also included an extensive chart detailing the regulatory stance each member state has adopted with respect to the issues examined in the report. *See id.* at Annex 1.

11. *See Global Electronic Commerce*, *supra* note 1, at 1.2. However, Clinton recognized that, in the long term, government action might be necessary to ensure the safety and soundness of electronic payment systems, to protect consumers, or to respond to important law enforcement objections. *See id.*

12. The FDIC has issued regulations governing deposit insurance which can be found at 12 C.F.R. § 330 (1996). On July 16, 1996, the FDIC released General Counsel's Opinion No. 8, addressing whether funds that depository institutions receive in exchange for stored-value cards are deposits subject to these regulations. *See* 61 Fed. Reg. 40,490 (1996). Opinion No. 8 describes four basic stored-value card systems. The first two systems are "Bank Primary Systems," in which the depository institution creates the electronic value embodied in the card. In "Bank Primary — Customer Account Systems," the depository institution maintains the funds underlying the card in the customer's account until a merchant seeks to collect the funds. *See id.* Since the funds are kept in the customer's account, they qualify for deposit insurance. *See id.* at 40,492. By contrast, in "Bank Primary — Reserve Systems," when a card is issued, corresponding funds are withdrawn from the customer's account, and paid into the depository institution's own reserve account, where they are held until merchants make claims for payments. *See id.* at 40,490. Since the depository institution has no obligation to credit these funds to a commercial, checking, savings, time, or thrift account, and since the depository institution does not hold these funds for a single, specific purpose, the reserve accounts are not "deposits" within the meaning of the Federal Deposit Insurance Act. *See id.* at 40,492-93.

The other two systems discussed in Opinion No. 8 are characterized as "Bank Secondary Systems," because a third party holds the funds underlying the electronic value on the stored-value card. In these systems, the depository institution merely acts as an intermediary in collecting funds from customers in exchange for the cards. *See id.* at 40,490. In "Bank Secondary — Advance Systems," the depository institution holds customer funds for a short time before forwarding them to the third party. Since these funds are received for a special purpose, they may qualify as insurable deposits, though the liability would be to the third party, not the customers who bought the cards. *See id.* at 40,493. However, in "Bank Secondary — Pre-Acquisition Systems," the depository institution purchases electronic value from the third party, and then exchanges that value

Undoubtedly, the inventors and entrepreneurs who have developed

for funds with its customers. *See id.* at 40,490. Because these funds are held by the third party, rather than the depository institution, they are not subject to the Federal Deposit Insurance Act. *See id.* at 40,491.

13. The Electronic Fund Transfer Act ("EFTA"), 15 U.S.C. §§ 1693-1693r (1994), which regulates electronic fund transfers involving consumers, is implemented by Regulation E. *See* 12 C.F.R. § 205 (1996). Regulation E imposes many responsibilities on banks, from issuing receipts to document every electronic fund transfer, *see* 12 C.F.R. § 205.9, to bearing most of the loss when fund transfers are unauthorized. *See id.* § 205.6.

Industry participants have opposed the application of Regulation E to stored-value cards, arguing that the high cost of compliance (such as providing receipts for every transaction) would render smart cards cost-ineffective. Industry participants also contend that consumers should bear the loss of lost or stolen stored-value cards. *See* CONGRESSIONAL BUDGET OFFICE, *supra* note 6, at 42; Bill McConnell, *Lawmakers Warm to Exemption from Funds Law for Smart Cards*, AM. BANKER, Oct. 4, 1995, at 4. Meanwhile, consumer advocates have vigorously argued that Regulation E should be applied to stored-value cards. *See* Jaret Seiberg, *Bankers and Activists Clash on How Far Fed Should Go in Regulating Smart Cards*, BANKER, Apr. 4, 1996, at 11.

In April 1996, the Fed issued proposed amendments to Regulation E that would have made some provisions applicable to certain stored-value products. *See* 61 Fed. Reg. 19,696 (May 2, 1996). However, before these amendments could become law, Congress intervened by passing the Economic Growth and Regulatory Paperwork Reduction Act of 1996, Pub. L. No. 104-208, 110 Stat. 3009. By this Act, Congress directed the Fed to conduct a study of electronic stored-value products that evaluated whether provisions of the EFTA could be applied without adversely impacting the cost, development, and operation of such products. *See id.* § 2601, 110 Stat. at 3009-469. The Board was also required to consider whether allowing competitive market forces to shape the development of electronic stored-value products would more efficiently achieve the objectives of the EFTA. *See id.*

In March 1997, the Board of Governors of the Federal Reserve System issued its REPORT TO THE CONGRESS ON THE APPLICATION OF THE ELECTRONIC FUND TRANSFER ACT TO ELECTRONIC STORED-VALUE PRODUCTS (1997), available at <http://www.bog.frb.fed.us/boarddocs/RptCongress/efta_rpt.pdf> [hereinafter REPORT]. The Report is cautious in tone. Given the tremendous variety of existing and planned stored-value products, the Board reasoned, no one set of consumer protections would be appropriate for all products. *See id.* at 75. Moreover, providers already had significant legal and business incentives to make disclosures and design products that consumers found attractive. Thus, it was difficult to predict whether benefits to consumers would outweigh the operating and opportunity costs that would arise if Regulation E were applied to stored-value products. *See id.*

The Board advised that steps short of regulation could be undertaken. For example, the Board could issue policy statements and guidelines informing the stored-value card industry of Board expectations for industry practices; however, such policy statements or guidelines would not be supported by any enforcement mechanism. Consumer education programs could also be helpful in informing consumers of their rights and obligations; however, Congress would have to consider whether the incremental increase in information justified the cost of such programs. *See id.* at 76.

new electronic payment systems have facilitated Internet commerce. In many ways, however, their vision has been a conservative one, bent on adapting more familiar payment devices, such as magnetic stripe cards, credit cards, and cashier's checks, to the online environment.

The Internet is more than just another marketplace that happens to be electronic, and it needs more than a way to translate traditional payment systems to the electronic realm. In many important ways, the Internet is a New World — a unique place that transcends geographical or national boundaries.¹⁴ At one end of the spectrum, the Internet has made a truly *global* commerce possible; any person can transact business with any other person (or computer agent), anywhere, anytime. At the other end of the spectrum, the Internet has enabled a commerce that is more transnational than global; individuals from different countries can come together to form new communities, with their own trade and micro-economies. Given the pioneering attitude expressed in the Clinton-Gore report, it is time to entertain more radical proposals designed to realize the full economic potential of the Internet.

Therefore, in this Article, I argue that the Internet needs its own *private electronic currencies* — that is, currencies that private individuals or companies issue, manage, and denominate independently of any government or official money.¹⁵ Such currencies would help to realize the potential of the Internet in two very different ways.

Part I presents the case for *global electronic currencies* — that is, private electronic currencies that serve as media of exchange within the global marketplace that the Internet has created. Reasoning by analogy to a famous economic argument in support of private currencies, Part I describes how private companies could issue electronic currencies. Such currencies would reduce exchange fees, facilitate comparison shopping

14. See *infra* Part II.A.

15. In this Article, I have chosen to use the word "currency" rather than "money" for two reasons. First, from a lawyer's point of view, the term "money" is often used in a narrow sense. For example, the Uniform Commercial Code defines "money" as "a medium of exchange authorized or adopted by a domestic or foreign government and includes a monetary unit of account established by an intergovernmental organization or by agreement between two or more nations." U.C.C. § 1-201(24) (1995); see Task Force on Stored-Value Cards, *supra* note 5, at 670. Thus, United States dollars are money, the Japanese yen is money, and so forth.

Second, the term "money" is associated with the concept of legal tender — that is, a medium of exchange that, according to law, must be accepted to discharge public or private debts. See *id.* at 669. By contrast, this Article addresses private media of exchange that would not qualify as legal tender. See *id.* at 670 (under federal law, United States coins and currency are legal tender for all debts; public charges, taxes and dues; checks and smart cards are not).

within Internet sub-markets, eliminate unnecessary political and psychological barriers to trade, and protect users against the consequences of government-caused inflation. Moreover, global electronic currencies would neither threaten the ability of governments to conduct monetary and economic policy, nor jeopardize the safety and soundness of the payment system as a whole.

In contrast to Part I, which discusses currencies designed to operate within global markets (or sub-markets), Part II addresses *community electronic currencies* — that is, private electronic currencies that are designed to circulate only within specific Internet communities. Part II begins by recognizing that, because the Internet transcends existing geographic and national boundaries, it offers individuals the chance to exercise their liberty in new and exciting ways. Over time, individuals could establish thousands of Internet communities dedicated to a wide variety of values and goals. Reasoning by analogy to existing barter programs, Part II explains how communities could issue their own electronic currencies, which would serve as common media of exchange for communities with transnational membership. Their limited circulation would allow members to develop a sense of community identity and social solidarity. By strengthening Internet communities, these currencies would expand opportunities to engage in electronic commerce.

Throughout Parts I and II, this Article identifies and discusses some of the obstacles to the issuance of private electronic currencies under existing law in the United States. However, analysis of such obstacles is kept brief, for one reason. As high technology continues to evolve, such laws must, and surely will, change. Thus, this Article seeks to present a policy-oriented vision of what should be, rather than what is.

I. GLOBAL ELECTRONIC CURRENCIES

President Clinton has offered five principles designed to assist the development of a vibrant, global marketplace:

- (1) The private sector should lead. . . .
- (2) Governments should avoid undue restrictions on electronic commerce. . . .
- (3) Where governmental involvement is needed, its aim should be to support and enforce a predictable, minimalist, consistent and simple legal environment for commerce. . . .
- (4) Governments should recognize the unique qualities of the Internet. . . .

- (5) Electronic commerce over the Internet should be facilitated on a global basis.¹⁶

From these principles, two broad themes emerge. First, the private sector should lead in the development of the Internet; government should follow and provide support, but try not to get in the way. This approach is mandated by the Internet itself. According to President Clinton, "[t]he genius and explosive success of the Internet can be attributed in part to its decentralized nature and to its tradition of bottom-up governance."¹⁷ Second, the Internet is a unique marketplace, because it is global. Given this fact, "[t]he legal framework supporting commercial transactions on the Internet should be governed by consistent principles across state, national, and international borders that lead to predictable results regardless of the jurisdiction in which a particular buyer or seller resides."¹⁸

Given these two themes, it is time to consider the possibility that Internet commerce requires currencies that are provided by the private sector, and specifically designed for use in a global marketplace. In this Article, such currencies will be described as "global electronic currencies."

Subpart A begins by outlining a well-known economic argument that private companies — rather than government monopolies — should provide currencies. Subparts B and C explain how private companies could issue and successfully market their own global electronic currencies. Subpart D outlines several ways in which global electronic currencies would benefit electronic commerce. Subpart E then considers the ramifications of such currencies for monetary and economic policy. Finally, Subpart F discusses whether global electronic currencies should be subjected to banking-style law and regulations.

A. Hayek and the Denationalisation of Money

Some twenty years ago, the famous Austrian economist Friedrich A. Hayek issued a radical proposal: "to do away altogether with the monopoly of government supplying money and to allow private enterprise to supply the public with other media of exchange it may prefer."¹⁹ Hayek's proposal went well beyond the boundaries of the free banking movement of the nineteenth century, which, as he explained,

16. *Global Electronic Commerce*, *supra* note 1, at "Principles."

17. *Id.* at "Principles."

18. *Id.*

19. FRIEDRICH A. HAYEK, *DENATIONALISATION OF MONEY* 20 (1976).

"agitated merely for the right to issue notes in terms of the standard currency."²⁰ Rather, what Hayek wanted was a free market in money, with private enterprise offering currencies based on different standards of value to the public.²¹

Hayek set forth a simple model for private currency. Institutions (which he called "banks") would be allowed to issue notes in competition and carry checking accounts in their own, individually denominated currencies.²² The name or denomination that each issuer chose for its currency would be protected like a brand name or trademark against unauthorized use.²³ The currency would be made

20. *Id.* at 26. During the 1830s, many American states enacted free banking laws that allowed entrepreneurs to organize banks under general incorporation laws, without a specific charter from the legislature. See Lewis D. Solomon, *Local Currency: A Legal & Policy Analysis*, 5 KAN. J.L. & PUB. POL'Y 59, 61-62 (1996).

Throughout the next several decades, banks issued and circulated their own notes, denominated in dollars. See *id.* at 62. However, during the Civil War, Congress enacted laws that severely restricted the ability of state banks to issue their own notes. See *id.* at 62-63. National banks continued to issue notes until 1935, when issuance of paper currency became the exclusive province of the federal government. See *id.* at 64.

Free banking is of more than historical significance. There is modern literature that supports a return to an unregulated monetary and banking system, wherein banks issue both notes and deposits that are redeemable in a common base currency consisting of gold, silver, or a stock of permanently frozen fiat money. See, e.g., George A. Selgin & Lawrence H. White, *How Would the Invisible Hand Handle Money?*, 4 J. ECON. LIT. 1718, 1720-22 (1994). Writers from this school argue that maladroitness regulation caused the problems commonly associated with the American free banking experience (for example, notes circulating at less than par, panics, and bank failures). See *id.* at 1721, 1727, 1731; Solomon, *supra*, at 62-64. Modern free banking advocates point instead to nineteenth-century Scotland, where free entry and competitive note issuance resulted in a stable banking and monetary system. See, e.g., LAWRENCE H. WHITE, *FREE BANKING IN BRITAIN: THEORY, EXPERIENCE, AND DEBATE, 1800-1845*, at 23-49 (1984).

Most recently, two economists have argued that electronic currency such as smart cards could help to establish and maintain a stable free banking monetary system. See F.X. Browne & David Cronin, *Payments Technologies, Financial Innovation, and Laissez-Faire Banking*, 15 CATO J., 101, 103-06 (1995). According to these writers, one of the usual arguments raised against free banking is the risk that banks would issue too many paper notes, leading to currency inflation and panics. See *id.* at 105. Electronic notes would greatly minimize this risk, by returning excess claims to the issuer at the speed of the electron. See *id.* at 105-06.

21. See HAYEK, *supra* note 19, at 21.

22. See *id.* at 38.

23. See *id.* Without such protection, the currency would be vulnerable to unauthorized minting resulting in hyperinflation. See Selgin & White, *supra* note 20, at 1734.

available to the public by short-term loans and exchanges against other currency.²⁴

Each issuer would regulate the quantity of its own currency, so that currency value would remain stable relative to a diversified "basket" or portfolio of commodities²⁵ — i.e., value would be "stable" when commodity price increases and decreases balanced each other out.²⁶ Currencies intended for specialized use within particular occupations, industries, or lifestyles, would track commodities important to those occupations, industries, or lifestyles.²⁷ Other currencies intended for international use would be based on a standardized set of wholesale commodity prices.²⁸

Hayek preferred a currency kept stable in terms of products like raw materials, agricultural foodstuffs, and standardized industrial products.²⁹ He reasoned that such commodities are "traded on regular markets, their prices are promptly reported, and, at least with raw materials, are particularly sensitive and would therefore make it possible by early action to forestall tendencies towards general price movements (which often show themselves in such commodities first)."³⁰ A currency based on such commodities would be most conducive to the stability of general economic activity.³¹

But, no matter what standard was chosen, Hayek continued, issuers should not commit *legally* to maintain that particular standard. That way, issuers could adjust the composition of the commodity basket in accordance with changing commodity prices and public demand.³² Meanwhile, competition would force issuers to keep the value of their currency constant by regulating the quantity of currency issued.³³ The

24. See HAYEK, *supra* note 19, at 39.

25. See *id.* at 39–40.

26. See *id.* at 59. Recognizing that specific price movements were inherently difficult to predict and plan for, Hayek reasoned that the public would prefer a currency with value held stable in terms of commodities, since errors in predicting price movements up or down would cancel each other out. See *id.* at 59–62.

27. See *id.* at 64.

28. See *id.* at 63–64.

29. See *id.* at 63.

30. *Id.*

31. See *id.* Hayek also reasoned that a commodity basket composed of raw materials would secure for wage earners an automatic share in increased industrial productivity. See *id.*

32. See *id.* at 40.

33. See *id.* at 42–44. Since most commodity prices would be quoted in terms of competing currencies, an issuer would assess the effect of changes in its circulation, not directly on commodity prices, but rather on the rates of exchange with the currencies against which the commodities were chiefly traded. See *id.* at 51.

financial press would serve as a watchdog, by providing up-to-date information about private currencies, and the extent to which each deviated from its own announced standard.³⁴

Hayek supported his proposal by making policy arguments in favor of a free market in money. He reasoned that government monopoly over the issuance of money was harmful in several ways. First, government efforts to implement monetary policy contributed to economic instability. By supplying too much easy money, the government not only caused inflation, but also encouraged misdirection of production that resulted in unemployment and depression.³⁵ Second, "[a] good money, like good law, must operate without regard to the effects that decisions of the issuer will have on known groups or individuals."³⁶ Such neutrality was impossible for a central bank controlled by a democratic government dependent on special interests. Thus, politics inevitably corrupted monetary policy.³⁷ Third, government power over money distorted political decisions. Relieved of the necessity to keep expenditure within revenue, governments could initiate new programs, claim an increasingly large share of real output, and consolidate power.³⁸ Also, if governments wanted more output to support more programs, they could use inflation to push people into higher tax brackets, without the need for new legislation.³⁹

By contrast, Hayek reasoned, so long as several issuers of different currencies were allowed to compete without government interference, there would always be one or more who found it competitively

34. *See id.* at 44.

35. *See id.* at 78-79. As Hayek explained, "[a] single monopolistic governmental agency can neither possess the information which should govern the supply of money nor would it, if it knew what it ought to do in the general interest, usually be in a position to act in that manner." *Id.* at 80.

36. *Id.* at 89.

37. *See id.* More specifically:

Once governments are given the power to benefit particular groups or sections of the population, the mechanism of majority government forces them to use it to gain the support of a sufficient number of them to command a majority. The constant temptation to meet local or sectional dissatisfaction by manipulating the quantity of money so that more can be spent on services for those clamouring for assistance will often be irresistible. Such expenditure is not an appropriate remedy but necessarily upsets the proper functioning of the market.

Id. at 80.

38. *See id.* at 90, 92.

39. *See id.* at 90.

advantageous to maintain a stable value.⁴⁰ A stable currency would provide more stable business conditions.⁴¹ Also, by determining the largest amount of currency that the public was willing to hold, competition would determine optimal supply more accurately than a government could when acting by conscious design.⁴² A free market in currency would curb inflation and reverse the trend towards increasing government centralization and power.⁴³

B. The Rise of Global Electronic Currency

Could Hayek's vision of competing, private currencies be realized on the Internet? Reasoning by analogy to Hayek, Subpart B explains how private companies could issue and manage global electronic currencies. Subpart C explains how such currencies could be marketed, while Subpart D outlines their practical advantages. Subpart E brings the analogy to Hayek full circle, by examining the impact of global electronic currencies on monetary and economic policy.

1. The Basic Model

Analysis begins with a hypothetical model of one company and its currency. Suppose that a company called "Free Market, Inc.," decided to invent an electronic currency, named the "hayek" in memory of the celebrated economist.⁴⁴ Free Market could design its currency as digital promissory "notes"⁴⁵ — that is, electronic promises to pay the bearer one

40. See *id.* at 75.

41. See *id.* at 79.

42. See *id.* at 78–79.

43. See *id.* at 75, 92, 99.

44. This Article is not the first to suggest a private currency named in honor of Hayek. See, e.g., Max More, *Denationalisation of Money: Friedrich Hayek's Seminal Work on Competing Private Currencies*, EXTROPY #15, 2d–3d Quarter 1995, at 19, 19–20.

45. One interesting question is whether such electronic notes would be negotiable. The answer is probably not. Article 3 of the Uniform Commercial Code sets forth several conditions for negotiability. At a minimum, a negotiable instrument must be an unconditional promise or order to pay a fixed amount of money. See U.C.C. § 3-104(a) (1995). A promise "means a written undertaking to pay money signed by the person undertaking to pay." *Id.* § 3-103(9). An undertaking is written when it is printed, typewritten, or otherwise intentionally reduced to tangible form. See *id.* § 1-201(46)(1995). An electronic message, though produced through typewriting on a keyboard, would not have tangible form; thus, an argument can be made that the message is not "written" and not a "promise" within the meaning of the Code. See Richard L. Field, 1996: *Survey of the Year's Developments in Electronic Cash Law and*

or more hayeks.⁴⁶ To foil would-be counterfeiters, the hayek would bear the company's digital signature,⁴⁷ and be designed so that it could be moved from one computer or storage medium to another, but not

the Laws Affecting Electronic Banking in the United States, 46 AM. U. L. REV. 967, 972 (1997).

More importantly, the term "money" is a technical one, encompassing only media of exchange authorized or adopted by a domestic or foreign government, or monetary units of account established by intergovernmental organization or agreement between nations. See U.C.C. § 1-201(24) (1995). This narrow definition clearly excludes the hayek, as well as the community electronic currencies discussed in Part II of this Article.

However, some scholars have theorized that contract assignment can function as an alternative to negotiability. See David Frisch & Henry D. Gabriel, *Much Ado About Nothing: Achieving Essential Negotiability in an Electronic Environment*, 31 IDAHO L. REV. 747, 757 (1995). To implement this theory, the hayek could be structured as a contract between Free Market and the original recipient, who could assign her right to payment. See generally E. ALLAN FARNSWORTH, *CONTRACTS* § 11.2, at 780 (2d ed. 1990). Then, the assignee would acquire the same right as the assignor to enforce the promise against Free Market. See *id.* § 11.8, at 809-10. Enforcement rights would be greater only if Free Market waived claims and defenses in favor of an assignee taking in good faith, for value, and without notice of a claim or defense. See U.C.C. § 3-104 cmt. 2 (1995); cf. Frisch & Gabriel, *supra*, at 763-67 (some jurisdictions might not enforce waiver-of-defense clauses; however, assignee can sue assignor for breach of warranty).

46. Thus, the hayek would function not only as a unit of account, but also as a medium of exchange, through the digital notes that functioned as an independent base currency. This distinguishes the hypothetical model from another recent proposal based on New Monetary Economics ("NME"). NME is an ironic name, since the literature proposes elimination of base money. See Selgin & White, *supra* note 20, at 1736. The unit of account would be defined physically as the market value of a bundle of specified commodities. See Robert L. Greenfield & Leland B. Yeager, *A Laissez-Faire Approach to Monetary Stability*, 15 J. MONEY, CREDIT, & BANKING 302, 305 (1983). There would be no official medium of exchange (base money); rather, contracts and obligations evaluated in the unit of account could be satisfied with an equivalent value of whatever medium the parties designated. See *id.* The unit of account would remain stable in terms of the designated commodity bundle because its value would not depend on convertibility to that bundle. See *id.* at 306. In theory, without money whose purchasing power depended on its quantity, there could not be price inflation or imbalances in the business cycle. "A wrong quantity of money could no longer cause problems because money would not exist." *Id.* at 305. But see Selgin & White, *supra* note 20, at 1736-42 (criticizing NME on several grounds).

A recent article has argued that rapidly improving technology in electronic payment systems could encourage a slow, evolutionary separation of the unit of account from the medium of exchange. See Browne & Cronin, *supra* note 20. According to this article, the NME vision of a world without money would be realized through the electronic transfer of productive liquid assets. "Trade would be executed by the instantaneous debiting and crediting of liquid wealth accounts." *Id.* at 108.

47. For an explanation of digital signatures, see *infra* note 214.

duplicated. Free Market would also obtain the trademarks necessary to protect its property rights in the hayek.⁴⁸ Free Market would issue the hayek to Internet users in exchange for government money, securities, or some other item of value.⁴⁹ Company profits would consist of the

48. Under federal law, the registered owner of a trademark can bring a civil action against a person who, without his consent, uses the same or similar mark to advertise, distribute, or sell goods or services in a manner that is likely to cause confusion. See 15 U.S.C. § 1114 (1994); MICHAEL A. EPSTEIN, MODERN INTELLECTUAL PROPERTY § 7.03[A](1) (3d ed. 1995). Remedies available for trademark infringement include injunctions and damages. See 15 U.S.C. §§ 1116-1117 (1994); EPSTEIN, *supra*, § 7.03[C].

49. Whether Free Market, as an issuer of hayeks, would be subject to the Securities Act of 1933 and the Securities Exchange Act of 1934 is a complex topic beyond the scope of this Article. However, an argument can be made that the hayek should not be considered a "security" within the meaning of the Securities Acts.

Congress defined "security" broadly, in order to encompass virtually any instrument that might be sold as an investment. See *Reves v. Ernst & Young*, 494 U.S. 56, 61 (1990). The hayek, however, would be a currency, and not an investment. The Securities Exchange Act of 1934 expressly excludes currency from the definition of "security." See 15 U.S.C. § 78c(a)(10) (1994). Although the Securities Act of 1933 does not expressly exclude currency from its definition of "security," see *id.* at § 77b(1), at least one court has reasoned that foreign currency is not a security as defined in that Act. See *Procter & Gamble Co. v. Bankers Trust Co.*, 925 F. Supp. 1270, 1281 & n.4 (S.D. Ohio 1996); cf. 15 U.S.C. §§ 77b(a)(1) (1994), 78c(a)(10) (under both Acts, the term "security" does include any put, call, straddle, option, or privilege entered into on a national securities exchange relating to foreign currency). Moreover, Free Market should not be subject to the Securities Acts simply because it structured the hayek as a digital "note." Both Securities Acts include "notes" within the definition of "security." See *id.* §§ 77b(1), 78c(a)(10). However, in *Reves*, the Supreme Court reasoned that this language should not be interpreted literally, but rather should be understood against the backdrop of Congress' purpose in regulating investments. See *Reves*, 494 U.S. at 62-63. Accordingly, a presumption that a note was a security could be rebutted if the note bore a "family resemblance" to specified categories of notes used for commercial, rather than investment, purposes such as consumer financing, home mortgages, small business loans, "character" loans, and so forth. See *id.* at 65. Alternatively, four factors should be analyzed to determine whether the note had the basic characteristics of a "security." See *id.* at 66-67.

Analysis of these four factors strongly suggests that a court should not consider the hayek to be a "security." First, and most importantly, the court would determine whether Free Market wanted to raise money for a business, or finance substantial investments, and whether purchasers were interested primarily in the profits that the hayek would generate. If so, the hayek would likely be a "security." See *id.* at 66. But Free Market would not sell the hayek to raise business or investment capital; rather, Free Market would simply be marketing a product, like any other good or service. Moreover, individuals who purchased the hayek would do so because they needed an electronic medium of exchange with a stable value. They would earn no interest, or any other profits. See *id.* at 68 n.4 (profit in the context of notes includes interest).

Second, the court would examine the plan of distribution, to determine whether

fees users paid to obtain or exchange hayeks, as well as the seigniorage earned on hayeks in circulation.⁵⁰

Free Market would regulate the quantity of the hayek to keep its value stable relative to a commodity basket or price index. Free Market could choose a basket or index that tracked the price fluctuations of goods and/or services in the market as a whole. Such "universal" currency would have the widest possible utility and circulation, both on and, if smart card technology were employed, off the Internet.

However, since the hayek would be designed primarily for use on the Internet, Free Market also could choose a basket or index that was designed to track the price fluctuations specifically of goods and services sold over the Internet. (Presumably, a basket of this kind would include a higher percentage of *information* goods and services.) Such currency

there was common trading in the hayek. *See id.* at 66. If the hayek could be offered and sold to a broad segment of the public, this second factor could make the hayek look like a "security." *See id.* at 68. However, the third factor — the reasonable expectations of the investing public — would weigh against such a conclusion. The hayek would be marketed as an electronic medium of exchange with a stable value, that could be used to purchase goods and services over the Internet. Thus, the public would have no reason to mistake the hayek for an investment — which has been recognized as the fundamental essence of a "security." *See id.* at 68–69.

As a fourth and final factor, the court would have to consider whether some other regulatory scheme significantly reduced risks associated with the hayek. *See id.* at 67. As explained below, Free Market probably would not be subject to banking laws and regulations, *see infra* text accompanying notes 121–25, but might have to comply with money transmitter laws, *see infra* note 144. In any event, a regulatory structure designed to manage the risks inherent in currency would be more effective than the Securities Acts, which were designed for the very different purpose of regulating investments. *See Reves*, 494 U.S. at 61.

50. Seigniorage refers to the difference in value between the cost of a monetary token, and what the token is worth in the market. *See* David G. Oedel, *Why Regulate Cybermoney?*, 46 AM. U.L. REV. 1075, 1077 n.6 (1997). For an issuer of paper money (like the dollar), seigniorage can be very valuable. Since the cost of the paper itself is trivial, the issuer earns seigniorage equal to the implicit interest rate on the face value of the paper during its circulation. *See id.*

Similarly, Free Market would earn seigniorage equal to the difference between the cost of hayeks and the implicit interest rate on hayeks in circulation. Presumably, Free Market's costs would decrease over time, as its new currency became better established and more efficient. Then (as my colleague David Friedman has suggested in conversation), Free Market could compete with other currency issuers by eliminating exchange fees — or even by slowly *deflating* the hayek, so that users would, in effect, earn interest on their currency. Although such eventual developments are outside the scope of this Article, I note that an interest-bearing currency might be characterized as an investment subject to securities regulation, *see supra* note 49, or treated as a deposit subject to banking laws and regulation. *See infra* text accompanying notes 121–25.

could also be described as "universal," in the sense that it would circulate throughout the *cybermarket* as a whole.

Or, Free Market could select a still more *narrowly* tailored basket or index, so that the hayek tracked the price fluctuations of goods or services within a particular *sub-market* of Internet commerce. Such "niche" currency would circulate only within the relevant sub-market. Traders within the sub-market could use the currency to compare prices without investigating underlying market events. For example, suppose an information service that cost ten hayeks in January suddenly cost twenty hayeks in March. The purchasing power of the hayek within the sub-market would have remained stable. Therefore, a comparison shopper would know that the one hundred percent mark-up was attributable to events specific to that one information service, rather than events within the sub-market.

Free Market would hire engineers and computer experts to provide technical designs for the hayek and its supporting software or hardware. Although this Article does not seek to provide a technical schema, two different types of currency design can be imagined. Free Market could design software that would allow users to transmit hayeks electronically over the Internet, from one computer hard drive to another.⁵¹ This product design would not require specialized hardware, and Free Market

51. This product design raises two distinct security issues. First, even if Free Market placed its digital signature on each hayek, could wrongdoers duplicate currency files? Free Market could respond to this risk by giving every hayek a unique serial number. Before accepting hayeks in payment for goods and services, a merchant could contact Free Market to verify that these particular hayeks had not been spent before. Then, Free Market could verify the hayeks, "retire" them from service, and send the merchant an equal number of new hayeks with new serial numbers. Cf. Joshua B. Konvisser, *Coins, Notes, and Bits: The Case for Legal Tender on the Internet*, 10 HARV. J.L. & TECH. 321, 329, 341 (1997) (U.S. government should issue electronic cash; system could use single-use tokens to deter counterfeiting). Unfortunately, this single-use model would involve additional processing costs, which would be passed through to users of the currency. See *id.* at 342.

Second, if hayeks resided on hard drives, could users lose their currency to computer crashes, accidental deletions, or viruses? Users could respond to these risks by purchasing only quality computers, exercising reasonable care in maintaining equipment and deleting files, making back-ups of currency files, and using up-to-date virus detection programs. Users who were particularly risk-averse could even maintain checking accounts denominated in hayeks, leaving the task of safely storing the actual currency to banks. If the market demanded that risk of loss be further reduced, Free Market could agree to replace hayeks, upon proof of loss. However, the cost of a replacement program would be passed through to all users.

could operate around the globe without establishing a physical presence in more than one country.⁵²

Alternatively, Free Market could design its currency to take advantage of smart card technology. For example, the Mondex Company offers tamper-resistant computer-chip cards that allow users to transfer stored-value directly from one cardholder to another.⁵³ Free Market could sell hayeks loaded on smart cards.⁵⁴ Then, users could transmit the currency over the Internet to each other, using computers equipped with card readers.⁵⁵ This design would impose additional expenses; users and merchants would have to purchase card readers, and Free Market would have to distribute and maintain cards in multiple countries.⁵⁶ However, this system would have a significant advantage: users could also take their hayeks out into the "real world," and shop at stores equipped with card readers.⁵⁷

52. See G-10 REPORT, *supra* note 10, at 25.

53. See generally *supra* note 6. To prevent counterfeiting, Mondex has devised extensive security features and protocols for its products. For example, under the "Value Transfer Protocol," cryptography protects value as it passes from one Mondex card to another. Value can only move between Mondex cards, and can only be stored on Mondex cards. See *Prepared Testimony of Tim Jones, Chief Executive, Mondex Co., Before the House Banking and Financial Services Committee and Domestic and Int'l Monetary Policy Subcomm.*, FED. NEWS SERV., June 11, 1996 [hereinafter *Prepared Testimony of Tim Jones*].

Meanwhile, some scientists remain unconvinced that smart cards can be made tamper-proof. Bell Communications Research ("Bellcore") scientists claim to have found a security flaw in public key coding systems that would allow wrongdoers to counterfeit stored-value cards, including those used by Mondex, and other European companies. See *Scientists See Possible Defect in Smart Cards*, S.F. CHRON., Sept. 26, 1996, at B2. In addition, Israeli computer scientists claim to have discovered security flaws in secret key data coding systems such as the American Data Encryption Standard. Deliberate application of heat or radiation causes the computer chip in the card to generate an error, which can then be used to obtain the code key and copy the card. See John Markoff, *Two Israelis Outline New Risk to Electronic Data Security*, N.Y. TIMES, Oct. 19, 1996, at 20.

The ultimate outcome of this technological debate may determine the viability of private electronic currency programs that depend on a stored-value card vehicle.

54. The Mondex card is designed so that value expressed in different currencies can be held on the embedded computer chip at one time. The company has recognized that its cards could be used to support not just foreign currencies, but also private or "artificial" currencies. See *Prepared Testimony of Tim Jones, supra* note 53.

55. See *id.*

56. See G-10 REPORT, *supra* note 10, at 25. To ease these burdens, Free Market could hire local companies to distribute or maintain cards; however, such arrangements could provide an avenue for potential exercise of regulatory jurisdiction. See *id.*

57. See David C. Stewart, *Picking Winners and Losers in Digital Cash*, BANK TECH. NEWS, Oct. 1997, available in LEXIS, News Library; *Cash Poor*, ECONOMIST, May 10,

2. A World of Competing Currencies

The foregoing model described one company (Free Market) and one currency (the hayek). In theory, however, an unregulated market should generate many companies and currencies that would compete for the business of Internet users. Only the most stable and efficient currencies would survive this competition.⁵⁸ Users would quickly abandon currencies that suffered from fluctuating value. And just as quickly, users would desert currencies that were too limited in their circulation. Seeking to avoid the transaction costs of exchanging one private currency for another, users would gravitate to more popular currencies with greater market share. Ultimately, an optimal number of universal currencies should emerge for use within the global electronic marketplace. Alongside them, the market could support a myriad of niche currencies, each operating within its individual sub-market.

Would the efficiencies generated by common currency be so great that only one global electronic currency (of the universal type) could survive? If such a natural monopoly existed,⁵⁹ currency competition — and the corrective discipline it imposed — would not last for long. However, as critics of the prevailing government monopoly in money have pointed out, in the absence of free competition, it is impossible to know whether money is truly a natural monopoly.⁶⁰ The same argument can be made in the case of global electronic currencies. Even if pressure to reduce transaction costs would otherwise encourage the emergence of a single, dominant currency, that pressure would be counterbalanced by other market forces — in particular, consumer desire for stable currency. To illustrate, imagine what would happen if the hayek became so dominant that Free Market felt free to inflate the currency. Then, users would abandon the hayek in favor of more stable electronic currencies. In this manner, the market could strike an effective balance between transactional efficiency and currency stability.

1997, at S13 (arguing that electronic currency will not succeed unless consumers can use it in the physical, as well as the virtual, world).

58. See HAYEK, *supra* note 19, at 75.

59. A natural monopoly is defined as an industry where the cost of serving the public is lower when only one firm operates. See ARMEN A. ALCHIAN & WILLIAM R. ALLEN, *EXCHANGE & PRODUCTION* 290 (3d ed. 1983).

60. See Roland Vaubel, *Currency Competition Versus Governmental Money Monopolies*, 5 CATO J. 929, 933 (1986).

C. Marketing the Product

As with any new product, global electronic currencies would face a marketing challenge. How could private companies convince prospective users that their currencies were stable, safe, and sound?

1. Self-Disclosure

The first method that companies could use to build confidence in their currencies would be self-disclosure. As Professor Daniel Klein has explained, "if a lack of information would prevent trusters from entering into deals, the promisor provides the information. If his quality is high, he has every incentive to selfdisclose, far and wide."⁶¹ Thus, companies would have a strong incentive to advertise the most desirable characteristics of their currencies.

For example, Free Market could release ads explaining that the value of the hayek was designed to remain stable relative to a specified commodity basket or price index. Also, Free Market could emphasize its promise to redeem the hayek at a minimum value, as suggested in Subpart C.3, *infra*.

After the hayek had operated long enough to establish a track record, Free Market's ads could include statistics to prove that the currency was stable. By comparing the purchasing power of the hayek with that of the dollar and other currencies, Free Market could encourage users to adopt the hayek rather than government monies that were less stable.⁶²

Of course, prospective users might suspect that Free Market's own advertisements were biased or misleading in some way. Accordingly, Free Market could also hire or encourage independent financial advisors or companies to investigate the hayek, and report on its stability relative to other currencies in magazines, newsletters, and newspapers, in both print and online versions.⁶³ Once produced, Free Market could incorporate the results of these independent reports in its own advertising.⁶⁴

61. Daniel B. Klein, *Trust for Hire: Voluntary Remedies for Quality and Safety, in REPUTATION: STUDIES IN THE VOLUNTARY ELICITATION OF GOOD CONDUCT* 97, 110 (Daniel B. Klein ed., 1997).

62. Klein terms such self-disclosure "competitive expose." See *id.* at 118.

63. See *id.* at 111.

64. See *id.*

2. Financial Health

Professor Klein has noted that companies attempt to build confidence by emphasizing traits associated with trustworthiness, such as company size and longevity.⁶⁵ Similarly, a company that is known to be in good financial health tends to advertise its own success and stability, thereby attracting more customers.

Thus, issuers of global electronic currencies would have a strong incentive to maintain (and disclose) a positive net worth, a portfolio of prudent and diversified investments, and enough liquid assets to meet redemption demands — all in an effort to convince prospective users that their currencies could be trusted. As a recent report by the Group of Ten industrialized nations has suggested, “[p]roviders of electronic money also have incentives to reduce risks that could cause their product to be unacceptable to consumers or to damage their reputation and commercial viability. . . . Issuers can adopt prudent investment and liquidity management techniques and hold assets with relatively low credit and market risk, such as short-term government securities.”⁶⁶

3. Eliminating the Risk of Hyperinflation

Private companies could increase confidence in their electronic currencies by using contract to eliminate the risk of hyperinflation. As explained above, Hayek believed competition forces currency issuers to keep the value of their currencies stable in terms of the announced commodity standard; he saw no need for issuers to make a legal commitment to observe that standard.⁶⁷ Similarly, competition with public and private monies gives companies a strong self-interest in maintaining the stability of their own electronic currencies. Absent such stability, no one would use the currencies, and the companies could not sustain enough profits to survive.

However, after *Denationalisation of Money* was published, other scholars pointed out that an issuer could hyper-inflate its own currency, and would do so if the one-time profits from unexpected hyperinflation exceeded than the present value of staying in business.⁶⁸ Some have suggested that this problem could be solved with an enforceable repurchase clause — that is, the issuer’s contractual commitment to

65. See *id.*

66. See G-10 REPORT, *supra* note 10, at 8–9.

67. See *supra* text accompanying notes 32–34.

68. See, e.g., Selgin & White, *supra* note 20, at 1734–35; Bart Taub, *Private Fiat Money With Many Suppliers*, 16 J. MONETARY ECON. 195 (1985).

redeem its currency at a specified rate for an asset whose supply the issuer could not augment.⁶⁹

To illustrate, consider once again our hypothetical model. Free Market could agree with users to redeem one hayek in exchange for a minimum value equal to a specified percentage of the underlying commodity basket. For convenience, users would not be required to take the underlying commodities themselves, but could recover the minimum value in more liquid assets (including, but not limited to, government currency). Through this strategy, Free Market could increase user confidence in the stability of its currency. The gain in confidence, however, would be offset by a loss in flexibility. Having assumed a contractual obligation to redeem the hayek at a minimum value fixed in terms of a specified commodity basket, Free Market could no longer change the composition of that basket.⁷⁰

Assuming Free Market promised to redeem the hayek at a specified minimum value, users would want to know that its promise could be enforced. In assessing the prospects for enforcement, users would consider the value of Free Market's assets. Free Market could increase user confidence by maintaining valuable assets that were diversified to compensate for unpredictable market fluctuations. Free Market could reassure users further by obtaining personal guarantees from its

69. See Seigin & White, *supra* note 20, at 1735; see also Vaubel, *supra* note 60, at 932 (arguing that if there is a danger of "profit snatching" by issuers of private currencies, money holders will prefer currencies that offer value guarantees.).

70. Hayek may have suggested a less intrusive solution to the risk of hyperinflation. "The only legal obligation I would assume would be to redeem notes and deposits on demand with, at the option of the holder, either 5 Swiss francs or 5 D-marks or 2 dollars per ducat." HAYEK, *supra* note 19, at 39. In other words, Hayek envisioned a redemption value that would serve as a *floor* below which the value of the ducat could not fall. See *id.*

Similarly, perhaps Free Market could obligate itself contractually to redeem hayeks at a specified *minimum* value (in dollars or other assets) which would be much less than the actual redemption value of the hayek on the exchange market. Free Market could set the minimum value so that the cost of redeeming outstanding hayeks would exceed any profits that Free Market could make with a one-time hyperinflation. At the same time, since the minimum redemption value would not be tied to any particular set of commodities, Free Market would have room to experiment with the composition of its commodity basket. My colleague David Friedman has suggested another possible solution to the flexibility problem. Suppose Free Market promised that currency released today would be redeemed in exchange for a specified commodity basket, but only for the next six months. In his view, this redemption period would be long enough to generate the necessary trust, since most users could cash in their hayeks within six months. At the same time, this redemption period would be short enough to let Free Market update its commodity basket as necessary to meet the evolving needs of the marketplace.

executive officers (who could disclose their positive net worth to the public), or by purchasing insurance to cover the contingent liability to redeem its currency.⁷¹

Users also would consider Free Market's location to be highly relevant in assessing the prospects for enforcement. Users would prefer that Free Market, and its assets, be located in a country with a stable government and with a justice system based on the rule of law. Furthermore, just as asset diversification helps to protect property value against unpredictable market events, jurisdictional diversification could help to protect the enforceability of promises against unpredictable political events. Free Market could achieve such diversification by maintaining its operations and/or assets in not one, but several countries. Such a move would allay the concerns of users who feared that a particular forum would demonstrate bias in favor of Free Market or its own citizens.

4. Association

Professor Klein gives the following account of how brand names create trust:

The inventor-genius may create, *de novo*, in his basement workshop a fantastic new tool, but he cannot create trust in such a manner. Instead trust emerges only as institutions age and markets adapt. The genius in his basement has created a great invention, but he has not produced a great *product*. To achieve the latter he must collaborate with those who have striven for and acquired trust; he will find it to his best advantage to sell his invention to Black & Decker and let the firm offer it under the umbrella of its brand name.⁷²

71. In other words, I am suggesting that Free Market has market incentive to *voluntarily* structure its assets or purchase insurance to reassure prospective users of the hayek.

One author has gone further, suggesting that government could appropriately *require* that any company contractually liable for redeeming a private currency be licensed and supervised for financial soundness. See Oedel, *supra* note 50, at 1093-94. In the alternative, government could *require* the company to establish a legally separate redemption fund, or purchase insurance to cover its contingent liability to redeem. See *id.*

72. Klein, *supra* note 61, at 123.

Global electronic currency is like the new tool in Klein's example. As explained in Subpart D below, this new invention would offer significant advantages to global electronic commerce. However, the novelty of global electronic currency, which would not be denominated in dollars or other familiar monetary units, might generate distrust among potential users.

Certain companies, like American Express and Thomas Cook, already offer financial products (e.g., traveler's checks) that are trusted and accepted worldwide. An unknown start-up company might sell its currency invention to an established company, like American Express. Alternatively, a private currency issuer could operate as a subsidiary of American Express or a similar company with a reputation for financial trustworthiness.

5. Summary

In sum, private companies could use advertising programs, strong finances, redemption promises, and company reputation to build consumer confidence in their global electronic currencies.

What kind of company would be most likely to succeed with this four-point program? At first, financial service corporations that already had an impressive portfolio of assets and a reputation for trustworthiness might dominate the market. Free Market could turn out to be MasterCard, American Express, or a smaller company associated with such financial superstars. This marketing strategy would be particularly effective for universal currencies with wide circulation, since greater wealth and reputation would be needed to reassure users that such currencies could be redeemed.

Over time, as the public became more comfortable with global electronic currencies, opportunities for smaller and newer companies to enter the market would increase. Such companies might be particularly successful in marketing niche currencies — that is, currencies designed to track specific indices and circulate only within sub-markets. Their more limited wealth and reputation could still be adequate to maintain user confidence within the relevant sub-markets.

D. Why Have Global Electronic Currencies?

Having explained how global electronic currencies could be issued, managed, and marketed, this Article now confronts another important question. Why should the Internet marketplace use such currencies, rather than electronic cash or other electronic payment methods that are

denominated in and represent claims to dollars or other government currencies?

Scholars have defined three functions of currency. First, currency is a medium of exchange,⁷³ allowing trade to transcend barter and operate on a more efficient basis. Second, currency provides a unit of account, a measure of relative worth.⁷⁴ Third, currency serves as a store of value of current earnings for future spending.⁷⁵ In the context of the Internet, global electronic currencies could perform each of these functions better than electronic currencies based on government monies.

1. Medium of Exchange

Within the physical world, buyers and sellers (of goods, services or information) are often located far apart. The Internet offers such buyers and sellers a unique opportunity to meet and transact business within the virtual world. "The Net enables transactions between people who do not know, and in many cases cannot know, each other's physical location."⁷⁶

Of course, each Internet buyer or seller could simply transact business using electronic payment systems denominated in his or her own national monies. But then, participants would not only bear the expense and irritation of negotiating over prices stated in different units of account;⁷⁷ they would also incur foreign exchange fees. For example, suppose an American buyer purchased information services from a Japanese seller. Unless the Japanese seller was willing to accept dollars, the American buyer would have to pay a service fee to a bank or other financial institution to convert her dollars to yen. In economic terms, the exchange fee would be a transaction cost making the deal more expensive, and thus less efficient.

By contrast, global electronic currencies could greatly reduce (if not entirely eliminate) the need to pay exchange fees. For example, each user might pay a one-time exchange fee to obtain hayeks from Free Market.⁷⁸ After that, repeat transactions within the cybermarket would

73. See Smith & Wilson, *supra* note 6, at 1106.

74. See *id.*

75. See *id.*

76. David R. Johnson & David Post, *Law and Borders — The Rise of Law in Cyberspace*, 48 STAN. L. REV. 1367, 1371 (1996).

77. Many, if not all, electronic transactions are conducted by computer agents. These agents could convert different units of account more cheaply, and (presumably) with less irritation.

78. As discussed in note 50, *supra*, competitive pressures might induce Free Market to waive its initial exchange fees.

simply employ the hayek. Thus, for example, the American buyer might already be holding hayeks from a previous transaction, and could use them to purchase the information services from the Japanese seller. Then, the Japanese seller could use her hayeks to buy electronic products from a French manufacturer, and so forth. As transaction costs declined, these and other global deals would become less expensive, and more efficient. As Dan Lynch, Chairman of CyberCash, Inc., has noted, "[t]he ideal form of digital money will be a currency without a country, or of all countries, infinitely exchangeable, without the expense or inconvenience of exchanging among local denominations."⁷⁹

As discussed in Subpart B.2 above, the market could, and probably would, generate a number of competing currencies. In that case, users around the world would employ not only hayeks, but also other electronic media of exchange. From time to time, users would find it necessary to convert hayeks to other global electronic currencies. However, market discipline should ensure that such currencies did not proliferate beyond an optimal number. If transaction costs (in the form of exchange fees) became too high, users would trade unpopular, expensive currencies for currencies with wider circulation and lower costs.

Global electronic currencies are particularly relevant today, given predictions that much Internet commerce will involve micro-transactions and micro-payments. Commentators anticipate a future when Internet users will pay a few pennies to read a news article, view a picture, or play a game on the Web.⁸⁰ But this future might prove uneconomical, if users have to pay an exchange fee for each individual micro-transaction. Users could avoid this problem by acquiring global electronic currencies in large quantities (possibly paying a *single* exchange fee for each currency), and then purchasing information services from a multitude of vendors around the world.⁸¹

Granted that a common medium of exchange would be efficient, some might question why users should prefer global electronic

79. DANIEL C. LYNCH & LESLIE LUNDQUIST, *DIGITAL MONEY: THE NEW ERA OF INTERNET COMMERCE* 122 (1996).

80. See, e.g., J.D. Mosley-Matchett, *Big Bucks or Lots and Lots of Tiny Bucks*, *MARKETING NEWS*, Aug. 4, 1997, at 10.

81. A primitive form of global electronic currency has already emerged to support the micro-transactions market. Known as the "Millicent," the system works this way: Each vendor devises its own electronic currency, known as "scrip," which brokers then sell to consumers. The consumers then use the scrip to buy products from that particular vendor. Once or twice a month, the vendor redeems its scrip. Unfortunately, this system requires consumers to use a different scrip for every vendor. See *id.*

currencies, when government currencies, like the dollar, could also serve as the common media of exchange for the entire world. However, as this Article explains in greater detail below, users would prefer private currencies, because they could serve not only as efficient media of exchange, but also as politically neutral units of account, and stable stores of value.

Moreover, even if the dollar could serve as an efficient medium of exchange for the market *as a whole*, users might still prefer to use niche currencies when trading within Internet sub-markets. To explain, recall that Free Market had the option of creating a specialized currency, by selecting a commodity basket or index that tracked price fluctuations of goods or services within a particular sub-market of the Internet. Since this currency would internalize any increases or decreases in production cost, it would allow users to comparison shop without having to investigate underlying market events. A currency based on the dollar, or any other money that depended on general market and/or political events, could not offer this informational advantage. By linking individuals with common trading interests around the world, the Internet could generate the critical mass necessary to support multiple niche currencies, each serving as a common medium of exchange within its own sub-market.

2. Unit of Account

To serve as an efficient unit of account, a currency must be more than decimal and readily divisible. It must provide a measure of relative worth that users can understand on a deep, nearly intuitive level. Otherwise, users must expend valuable time and money, just to determine what the currency, and its associated unit of account, really means. Value expressed in an obscure unit of account must be "translated" into value expressed in a familiar unit of account.

In the world today, hundreds of national currencies exist, each establishing its own unit of account. Thus, within global electronic commerce, transactions may be conducted in hundreds of units of account. This is an inefficient state of affairs (even if computers could be used to reduce the transaction costs of conversion somewhat).

However, the advent of private electronic currencies would improve this situation. As explained above, competition should ensure that a limited number of universal currencies emerge for use within the global electronic marketplace. These dominant currencies could establish transnational units of account that could be understood without translation or calculation. Within sub-markets, niche currencies could

perform the same function, replacing hundreds of units of account with only a few.

In the absence of private alternatives, the unit of account employed by some commercially important or politically powerful nation could emerge as the *de facto* global standard. For example, individuals of many nations have already learned to measure the relative worth of their goods and services in terms of United States dollars. However, ceding the unit of account to any one nation — particularly one as powerful as the United States — would have a subtle, but politically and psychologically significant, cost.

As Professors David Johnson and David Post have pointed out, in a democratic society, the legitimacy of laws comes from the consent of those governed. Thus, laws developed within a nation may be applied only within its territorial boundaries.⁸² But Internet participants may be located anywhere around the globe. There is no nation or geographically localized set of citizens whose claim to regulate the Internet has more legitimacy than that of any other nation or citizens.⁸³ For this and other reasons, Johnson and Post have argued that cyberspace should be governed by its own rules, rather than territorial laws.⁸⁴

Similarly, a currency can serve as an effective unit of account only if users accept its legitimacy. The citizens of any nation are likely to have a strong sense that their own national currency has a special legitimacy. In a democratic society, this legitimacy may derive from the fact that an elected government issues and manages the currency. In any society, the fact that the government currency is designated as legal tender adds further prestige. Tradition, national chauvinism, and familiarity are further factors tending to establish the legitimacy of a nation's currency in the minds of its own citizens.

Recent political events in Europe illustrate the struggle that can result when citizens resent a "foreign" currency. A key component of the Maastricht Treaty on European Union⁸⁵ is the European Monetary

82. See Johnson & Post, *supra* note 76, at 1369–70.

83. See *id.* at 1375.

84. Johnson and Post identify three other ways in which the traditional relationship between law and physical location does not hold in cyberspace. First, the power that governments ordinarily have to police activities within their territorial boundaries does not extend to a cyberspace composed of electronic information that freely flows across such boundaries. See *id.* at 1371–74. Second, the effects of Internet activities are not tied to geographical location. See *id.* at 1375. Third, a person who enters cyberspace does so without crossing physical borders, and thus does not receive notice that she has become subject to new, territorial laws. See *id.*

85. See Treaty on European Union and Final Act, Feb. 7, 1992, 31 I.L.M. 247 [hereinafter Maastricht Treaty]. The Maastricht Treaty went into effect on November

Union,⁸⁶ as implemented through the "Euro," a single European currency. Many British citizens have opposed the Euro, viewing it as a threat to their sovereignty.⁸⁷ This opposition has taken on an anti-

1, 1993, following ratification by the following members of the European Union: Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and England. See Brian K. Kurzmman, *Challenges to Monetary Unification in the European Union: Sovereignty Reigning Supreme?*, 23 DENV. J. INT'L L. & POL'Y 135 nn.2-3 (1994). Ultimately, the Treaty seeks to achieve the political unification of Europe by the end of the century. See Christopher Young, *The Ramification of the Exchange Rate Collapse in Europe: Implications for Monetary Union*, 13 BOSTON U. INT'L L.J. 263, 265 (1995). Toward this end, the Maastricht Treaty also mandates economic and monetary union. See *id.* at 266; Maastricht Treaty, *supra*, art. 2.

86. See Maastricht Treaty, *supra* note 85, art. 3a. To qualify for participation in the European Monetary Union, each member State must satisfy four convergence criteria. See *id.* art. 109j(1). These criteria were described in the Protocol on the Convergence Criteria Referred to in Article 109j of the Treaty Establishing the European Community, 31 I.L.M. 352 (1992) [hereinafter Convergence Protocol]. First, a State must demonstrate that, during the year prior to examination, its average rate of inflation did not exceed by more than 1.5% that of the three best performing member States. See *id.* Second, at the time of examination, a State must not have an excessive deficit. See *id.* at art. 2. In other words, a State's deficit cannot exceed 3% of gross domestic product, and its debt cannot exceed 60% of gross domestic product. See Maastricht Treaty, *supra* note 85, art. 104c(2); Protocol on the Excessive Deficit Procedure, 31 I.L.M. 352, art. 1 (1992). Third, during the two years prior to examination, a State must maintain stable exchange rates within designated European Monetary System ("EMS") currency bands. See Convergence Protocol, *supra*, art. 3. (That is, a State must keep its currency stable vis-à-vis the European Currency Unit ("ECU"). The ECU is a unit of account composed of specific amounts of each European currency. See Kurzmman, *supra* note 85, at 144. Fourth, during the year prior to examination, a State's average nominal long-term interest rate must not have exceeded by more than 2% that of the three best performing member States. See Convergence Protocol, *supra*, art. 4.

The road to monetary union has been a rocky one. In 1993, acting in response to economic woes brought about by German unification, European Union finance ministers were forced to widen the EMS currency bands for most countries from plus or minus 2.25% to plus or minus 15%. See Young, *supra* note 85, at 275-78. Nevertheless, nearly every State has had some difficulty in complying with the criteria. See John-Thor Dahlburg, *Nations Edgy About Minting Euro*, S.F. CHRON., June 5, 1997, at C3.

As of this writing, eleven countries are expected to qualify for admission to the European Monetary Union, including Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Spain, and Portugal. Britain, Denmark, and Sweden have chosen not to participate for now. See Edmund L. Andrews, *Positive Economic Data Brings Europe Closer to Single Currency*, N.Y. TIMES, Feb. 28, 1998, at A6; Anne Swardson, *Eleven Nations Meet Criteria for New Euro Currency*, S.F. CHRON., Feb. 28, 1998, at A9. Qualifying states will automatically move to a single currency beginning on January 1, 1999. See Young, *supra* note 85, at 274; see also *infra* note 90.

87. See Kenneth J. Garcia, *Major Wilds Dreaded 'Euro' as Campaign Issue*, S.F.

German flavor, with cartoons depicting British politicians as puppets of German Chancellor Helmut Kohl, and speculations that British money might, in the future, display images of Kohl rather than the Queen.⁸⁸ The Euro even emerged as a "hot button" issue in the 1997 election for Prime Minister. In an unsuccessful effort to revitalize his doomed campaign, Tory John Major played upon voter patriotism by accusing his Labor opponent, Tony Blair, of favoring the Euro. Blair, in turn, accused the Tories of encouraging "a narrow, crabbed nationalism."⁸⁹

Unlike the Euro, which will replace the national currencies of European Union member countries,⁹⁰ an electronic currency denominated in United States dollars would not replace competing currencies, and thus would not offend nationalistic sentiment quite so strongly. Nevertheless, within a global marketplace, there is no one nation or geographically localized set of citizens whose currency has greater legitimacy than that of any other nation or citizens. Thus, currency denominated in dollars would not only be unfamiliar to many users, but also might be viewed as an offensive form of cultural imperialism, particularly if it became the *de facto* standard for the entire cybermarket.

By contrast, private currency, developed and managed without any government involvement (whether at the national or international level),

CHRON, Apr. 28, 1997, at A1. This political opposition has had a significant impact. The United Kingdom is not obliged to move to the final stage of economic and monetary union unless and until its government and Parliament decide to do so. See Protocol on Certain Provisions Relating to the United Kingdom of Great Britain and Northern Ireland, Feb. 7, 1992, 31 I.L.M. 355. Britain has chosen not to participate in the initial launch of the Euro on January 1, 1999. See Swardson, *supra* note 86.

The British have not been alone in resisting the challenge to their monetary sovereignty. For a more detailed examination of legal and political challenges to monetary integration, see Kurzmann, *supra* note 85, at 146-57.

88. See Garcia, *supra* note 87.

89. *Id.*

90. On January 1, 1999, the rates at which qualifying State currencies are exchanged against the Euro will be irrevocably fixed, and the Euro will become a currency in its own right. See Maastricht Treaty, *supra* note 85, art. 109(4). Thereafter, the Euro will be the sole currency of participating States. However, during a three-year transitional period, national currencies will be accepted as alternative expressions of the Euro, both as means of denominating value in legal instruments, and as notes and coins. See FINANCIAL LAW PANEL, LTD., ECONOMIC AND MONETARY UNION: THE RELATIONSHIP BETWEEN NATIONAL CURRENCIES AND THE EURO 8 (1996). No later than January 1, 2002, the final conversion to the Euro will begin. Over a six-month period, new Euro notes and coins will be exchanged for national notes and coins. This process should be complete no later than June 30, 2002. See *The Scenario for the Changeover to the Single Currency*, 1996 O.J. (C 22) 2, para. 14 (Annex I to the conclusions of the European Council held at Madrid on December 15-16, 1995).

and denominated independently of national monies, would remove political and psychological barriers to commerce, by offering a politically neutral unit of account for the first time. Traders should have the opportunity to choose private currencies as their units of account and not simply be relegated to the dollar, or whatever other unit might emerge as dominant in the absence of private currencies.

3. Store of Value

The third and final advantage of global electronic currencies is the most significant. Such private currencies would serve as stores of value more stable than government monies — or currency denominated in terms of government monies.

As explained above, Hayek believed that private issuers would find it competitively advantageous to keep currency values stable.⁹¹ For example, Free Market could stay in business only so long as the value of its currency was stable enough to reassure prospective users. Sellers would not accept the hayek as payment if its value could be eroded by inflation. Likewise, any issuer who failed to keep its currency stable would be quickly subjected to market discipline, as disgruntled users exercised their freedom to discontinue use of the currency.

By contrast, national currencies are subject to governmental control. For example, the United States, acting through the Fed, works to manipulate monetary demand and supply.⁹² And from the perspective

91. See *supra* Part I.A.

92. The Fed has three methods of manipulating money. First, the Fed requires banks to maintain a certain level of reserves (e.g., currency and deposits with Federal Reserve Banks) to secure the demand deposits of their customers. See Solomon, *supra* note 20, at 65. By increasing or decreasing the reserve requirement, the Fed reduces or enlarges the money multiplier effect, and causes banks to extend fewer or more loans. See *id.*

Second, the Fed engages in open market operations, by buying and selling U.S. securities in the open market. The Fed purchases to increase the money supply, since the Fed must pay for the securities with either: (1) newly-printed dollar bills; or (2) checks drawn on Federal Reserve Banks, which, when deposited, count as reserves enabling banks to extend more loans. See *id.* Conversely, Fed sales of government securities decrease the money supply by reducing both the number of dollar bills in circulation and reserves. See Oedel, *supra* note 50, at 1087.

Third, the Fed affects demand for money by setting the discount rate, that is, the interest rate at which the Fed loans funds to banks. Since banks borrow primarily to cover reserve shortages, increasing the rate makes it harder for banks to build reserves and make loans. Decreasing the discount rate makes it easier for banks to build reserves, meaning that more loans can be extended. See Solomon, *supra* note 20, at 65; Oedel, *supra* note 50, at 1087.

of the Fed, maintaining a stable currency is not the only relevant economic goal. As Professor Lewis Solomon has explained:

[T]he federal government can more-or-less freely print large amounts of money to cover its deficits or for other purposes, e.g., to redistribute income and wealth between creditors and debtors or as a means to reduce unemployment. Subject to what the public will tolerate in terms of domestic inflation and the depreciation of the value of the U.S. dollar vis-à-vis foreign currencies, virtually no limit exists with respect to what the U.S. government can do with the nation's money supply.⁹³

Thus, as many Americans have found to their displeasure over the decades, the dollar has not always served as a stable store of value.⁹⁴ Moreover, now that the United States has become a big debtor nation, there is reason to fear that the value of the dollar (so pleasingly stable in recent years) could suffer in the future, if the government allowed inflation to erode that debt.⁹⁵ Any private currencies denominated in dollars, and redeemable for a fixed number of dollars, would be subject to the same pressures. The value of such parallel currencies would fluctuate in tandem with the dollar and its economic fortunes.

Arguably, the citizens of democratic societies are obliged to take some bitter along with the sweet. For example, even though an increase in the money supply would produce inflation (an undesirable result), it also could stimulate the economy and reduce unemployment (a desirable result). If citizens do not agree with such tradeoffs, they can elect new officials and representatives, who, in turn, can appoint new members of central banks and other agencies charged with responsibility for monetary policy.⁹⁶

93. See Solomon, *supra* note 20, at 66.

94. Solomon points out that the value of the U.S. dollar has depreciated by roughly 93% from 1913 to 1993. See *id.* at 74.

95. See *Survey: The World Economy*, *ECONOMIST*, Oct. 7, 1995, at 23.

96. Different countries exert varying degrees of political control over central banks and other agencies charged with managing monetary policy. For example, Germany's Bundesbank is a model of political independence, while other European central banks are more controlled. See Kurzmann, *supra* note 85, at 146-47. In the United States, the Fed is designed to encourage its political independence. Fourteen-year terms help to ensure that Board members are relatively immune from short-term political pressures. However, a political connection remains: all seven Board members are appointed by the President of the United States. See BERNARD S. KATZ, *BIOGRAPHICAL DICTIONARY OF*

This rationale does not apply, however, to those who wish to participate in global electronic commerce. For example, a buyer or seller located in Egypt does not benefit from increased employment in the United States, but surely would lose if her transactional wealth were stored in an electronic currency based on an inflated dollar. Moreover, a buyer or seller located in Egypt has no reasonable means of influencing United States monetary policy. Now, multiply this one example across millions of Internet users located in about two hundred countries. Clearly, *no* currency based on national money could provide *every* user with an opportunity to participate in, and benefit from, national politics and monetary policy. Moreover, given the economic and political difficulties that European countries have encountered in attempting to achieve the European Monetary Union,⁹⁷ it seems highly improbable that the United Nations, or any other form of international government, could succeed in establishing an official electronic money for the entire planet.

Global electronic currencies issued, denominated, and managed by private companies would answer to market forces, rather than the parochial and self-interested policies of national governments and the various special interests they represent. Thus, issuers would have a strong economic incentive to keep their currencies stable, making them a better store of value. Moreover, every user — without regard to nationality — would have an opportunity to influence company decisions through her market choices (such as returning an unstable currency to its issuer), making currency more democratic. For these twin reasons — stability and control — users should, if given the choice, prefer privately issued, denominated, and managed currencies over national monies.

E. Would Global Electronic Currencies Erode Government Power?

As explained above, Hayek believed that a free market in currencies would not only curb inflation, misdirection of production, and other economic woes, but also would curtail the growth of centralized

THE BOARD OF GOVERNORS OF THE FEDERAL RESERVE at xiv (1992); THIBAUT DE SAINT PHALLE, *THE FEDERAL RESERVE: AN INTENTIONAL MYSTERY* 3 (1985).

Even an independent central bank or agency is often accused of using monetary policy to achieve political results. One common charge is that the Fed lowered interest rates right before a presidential election, thus skewing the outcome in favor of the incumbent. See Kurzmann, *supra*, at 139 n.22.

97. See *supra* text accompanying notes 85–89.

government.⁹⁸ Similarly, the very prospect that global electronic currencies might emerge has led to speculation that government could "lose much of its vast power to tax and spend, inflate, impoverish, and manipulate."⁹⁹

This issue is an important one. At present, companies like Free Market probably could issue their currencies without offending federal law.¹⁰⁰ The U.S. Constitution prohibits only states — not private parties — from issuing money.¹⁰¹ The few statutes that directly prohibit issuance of private currency date from the Civil War Era and were not drafted with electronic currency in mind; as a result, companies probably could structure their currencies to avoid violating these ancient statutes.¹⁰² To date, the United States government has shown little interest in passing legislation to restrict the issuance of global electronic currencies.¹⁰³ Indeed, if the Clinton-Gore report is any indication, the

98. See *supra* text accompanying notes 40–43.

99. Peter Huber, *Bye-bye, Big Brother: How George Orwell's '1984' Failed to Predict the Blessings of Telecommunications Technology*, NAT'L REV., Aug. 15, 1994, at 48, 50.

100. Given the limited objectives stated in the introduction, *supra*, a thorough discussion of whether a currency like the hayek would violate the laws of the fifty states is beyond the scope of this Article. For a discussion of some state-imposed limitations on privately issued currencies, see *infra* notes 153 & 240; Solomon, *supra* note 20, at 84–85.

101. See U.S. CONST. art. I, § 10, cl. 1; Solomon, *supra* note 20, at 81.

102. One statute imposes fines and/or imprisonment on anyone who issues "any note, check, memorandum, token, or other obligation for a less sum than \$1, intended to circulate as money or to be received or used in lieu of lawful money of the United States." 18 U.S.C. § 336 (1994) (emphasis added). This statute was originally enacted as a means of securing a monopoly for an experimental national postage currency. See *United States v. Van Auken*, 96 U.S. 366, 367 (1877); Solomon, *supra* note 20, at 82. Commentators have questioned whether this statute applies to electronic currency, which lacks the physical characteristics of coins or paper, and thus cannot be "intended to circulate as money" within the meaning of the statute. Smith & Wilson, *supra* note 6, at 1110 (quoting *United States v. Roussopoulos*, 95 F. 977, 978 (D. Minn. 1899)). In any event, a private company like Free Market could sidestep the statute altogether simply by ensuring that the exchange value of its currency was greater than one dollar. See *Van Auken*, 96 U.S. at 368 (holding that a note for a larger sum than one dollar is "not within the prohibition, and is not affected by the law").

Other federal statutes prohibit issuance of metal coins or devices intended for use as current money. See 18 U.S.C. §§ 486, 491(a) (1994). The purpose of these statutes was to prevent the coining of money in competition with the United States. See *United States v. Gellman*, 44 F. Supp. 360, 364 (D. Minn. 1942). However, a global electronic currency should not run afoul of these statutes. See *United States v. Reiger*, 163 F. Supp. 799 (D. Haw. 1958) (holding that similar language in predecessor statute applied only to devices made of metal or metallic compounds).

103. See Smith & Wilson, *supra* note 6, at 1112.

government plans not merely to tolerate, but to encourage private innovations that benefit the Internet marketplace. Nevertheless, the United States — along with other nations — might enact new legislation to ban global electronic currencies, if it believed that such currencies threatened government power.

Such a ban would be an unfortunate overreaction for several reasons. First, global electronic currencies would not unduly complicate daily money management. Fed members already have recognized that stored-value cards, e-cash, and similar products do not threaten their operations.¹⁰⁴ The combined value of such products is simply too small to complicate the calculation of standard monetary aggregates.¹⁰⁵ Similarly, it would take a long time before global electronic currencies designed for use on the Internet constituted a large enough portion of the entire money supply to seriously compromise money management.

Second, global electronic currencies would not significantly limit the ability of government to achieve economic goals through monetary policy. The global capital market makes it possible for investors to pull their capital out of assets denominated in inflated currencies and move it to assets denominated in more stable currencies. Thus, in effect, the global capital market subjects national monies to competition.¹⁰⁶ As a result, governments already face constraints in achieving economic goals through monetary policy.¹⁰⁷ For example, policies perceived as inflationary are met with market resistance: investors move funds out of the country,¹⁰⁸ and bond markets demand higher rates of return, thereby braking any economic recovery that the government hoped to encourage.¹⁰⁹ Global electronic currencies that were significantly more stable than government monies would pose a new and unusual

104. See *id.* at 1115 n.55; *Slowly but Surely, Congress is Showing Interest in E-Banking*, BANKING POL'Y REP., Mar. 4, 1996, at 28.

105. For example, even if every U.S. citizen held \$150 in stored-value cards or other electronic currency, the total value would be less than \$50 billion — an amount considered trivial relative to the existing M1 monetary aggregate of \$1 trillion. See Smith & Wilson, *supra* note 6, at 1115 n.55 (citing Edward W. Kelley, Jr., Member, Board of Governors of the Federal Reserve System, Remarks at the Digital Commerce Conference 4 (May 6, 1996)).

106. See Catherine England, *Cyberbanking and Currency Competition* (May 23, 1996) <<http://www.cato.org/moneyconf/14mc-3.html>>. Of course, monies compete directly as well, in the foreign exchange market. This market is not only global, but enormous. As of 1992, some \$900 billion per day were moving through it. See *Survey: The World Economy*, *supra* note 95, at 9–10.

107. See England, *supra* note 106, at 7.

108. See *id.*; Richard O'Brien, *Who Rules the World's Financial Markets?*, HARV. BUS. REV., Mar.–Apr. 1995, at 144, 150.

109. See *Survey: The World Economy*, *supra* note 95, at 15.

competitive threat. However, it seems unlikely that investors would altogether abandon assets denominated in familiar and trusted government monies. More probably, global electronic currencies would increase competition, particularly on the Internet, while still leaving room for government to effect monetary policy.¹¹⁰

More importantly, many economists argue that encouraging growth through inflationary policies is short-sighted and counterproductive, and that a better environment for investment and growth is one where prices are stable.¹¹¹ If true, then global electronic currencies would *support*, rather than undermine, government policy, by providing the global electronic marketplace with a stable currency.

Third, despite occasional predictions to the contrary, global electronic currencies would not seriously threaten the political power of government. According to Hayek, government control over the money supply encourages deficit spending and promotes an undesirable centralization of political power.¹¹² However, these problems could be eliminated entirely only if nations not only tolerated private currencies but also relinquished sovereign power over their own monies — a highly unlikely prospect.¹¹³ The mere existence of alternative currencies would not eliminate this sovereign power and thus could not bring about significant decentralization of political power.

Loss of seigniorage¹¹⁴ is perhaps the most serious damage that global electronic currencies could inflict on government prerogatives. Every person who holds a dollar bill is, in effect, making an interest-free loan to the U.S. government. In 1994 alone, the aggregate value of the interest-free loan extended by all such holders to the government was nearly twenty billion dollars.¹¹⁵ Traveler's checks, stored-value cards, and the like have the effect of redirecting seigniorage from government

110. Cf. CONGRESSIONAL BUDGET OFFICE, *supra* note 6, at 46 (concluding that expected size of market for stored-value cards and electronic cash is sufficiently small that conduct of monetary policy will probably not be seriously affected).

111. *See id.* at 11.

112. *See* HAYEK, *supra* note 19, at 90, 92; Solomon, *supra* note 20, at 66.

113. For an account of how reluctance to abandon monetary sovereignty has challenged the European Monetary Union under the Maastricht Treaty, see Kurzmann, *supra* note 85.

114. For a formal definition of seigniorage, *see supra* note 50.

115. *See* Lorenz, *supra* note 6, at 1203 (quoting *The Future of Money — Part 2: Hearing Before the Subcomm. on Domestic and Int'l Monetary Policy of the House Comm. on Banking & Fin. Servs.*, 104th Cong. 63 (1995) (statement of Alan S. Blinder, Vice Chairman, Board of Governors of the Federal Reserve System)).

to private companies.¹¹⁶ If sufficiently widespread, global electronic currencies could have the same effect.

So far, the Fed has taken a "wait and see" attitude towards the as-yet-uncertain impact of stored-value cards on seigniorage, suggesting only that Congress should monitor the situation.¹¹⁷ The impact of global electronic currencies, which have yet to be invented and implemented, is even more speculative, rendering any predictions about government reaction premature. Ultimately, however, the United States — or any other government — may find that the best defense against loss of seigniorage is to maintain the stability, and thus the marketability, of its own currency.

F. Should Government Regulate Global Electronic Currencies?

Suppose the United States and other nations accept the argument that global electronic currencies would benefit Internet commerce without seriously undermining government power, and thus they allow such currencies to exist. Then, another question still remains to be answered: To what extent, and in what ways, should government regulate companies that issue global electronic currencies?

The Clinton-Gore report raised this question without resolving it. As already noted above, the report acknowledged that, given rapid changes in the commercial and technological environment, it would be difficult to develop timely and appropriate policy. Thus, the report eschewed inflexible regulation in favor of case-by-case monitoring of electronic payment experiments.¹¹⁸ In the long run, however, the report questioned whether marketplace and industry self-regulation would be adequate: "[G]overnment action may be necessary to ensure the safety and soundness of electronic payment systems, to protect consumers, or to respond to important law enforcement objectives."¹¹⁹

This Article does not attempt to address every possible regulatory issue raised by electronic currencies in general.¹²⁰

116. *See id.*

117. *See id.*

118. *See Global Electronic Commerce*, *supra* note 1, at "Electronic Payment Systems."

119. *Id.*

120. For example, the topic of how electronic payment systems could be used to launder money, and how regulations might respond, is beyond the scope of this Article. Government officials in the United States and elsewhere are worried that stored-value cards, digital cash, and other electronic payment systems could make it easier for criminals to evade money laundering controls. *See Next, Cyberlaundering?*, *ECONOMIST*, July 26, 1997, at 21. The Financial Action Task Force on Money

Laundering ("FATF"), which has 26 nations as members, has already begun to study the possible impact of electronic payment systems on money laundering. See FINANCIAL ACTION TASK FORCE ON MONEY LAUNDERING, 1997-1998 REPORT ON MONEY LAUNDERING TYPOLOGIES, pt. II(ii), New Payment Technologies (Feb. 12, 1998) <<http://www.ustras.gov/fincen/typo97en.html>> [hereinafter FATF REPORT].

In theory, any electronic payment system could make it harder to detect and punish money laundering. Unlike bulky paper money, electrons are easy to store, hide, and send from one country to another. See *Next, Cyberlaundering?*, *supra*. In addition, electronic payment systems that are anonymous (Digicash), or that permit users to transfer value directly to other users (Mondex), could erode the audit trail. See, e.g., *Proliferating Cyberbanks Threaten Money Laundering Controls*, MONEY LAUNDERING ALERT, May 1997, at 8.

The global electronic currencies proposed in this Article would be designed to circulate from user to user. Thus, they could present some of the same challenges for law enforcement as other electronic payment systems. However, global electronic currencies would not pose a *unique* money laundering threat, simply because they were privately issued, managed, and denominated.

Although some commentators have suggested that criminal enterprises would issue their own brands of electronic currencies, see Duncan Goldie-Scot & Elizabeth Sowton, *Outlook for Cyberlaundering*, VIRTUAL FIN. REP., June 1, 1997, at 10, this prospect seems unrealistic. After all, the entire purpose of money laundering is to conceal — not advertise — the criminal origin of these funds. Criminals could best avoid suspicion by using electronic payment systems denominated in existing currencies. Dollars would raise fewer eyebrows than hayeks for many years to come.

Moreover, global electronic currencies would create opportunities, as well as challenges, for law enforcement. Just as dollar bills are a paper form of cash, the hayek would be an electronic form of cash. As it became more popular and widespread, individuals who owned large amounts of the currency would seek out safe places to store and invest their cash. Responding to demand, banks might begin to offer interest-bearing accounts denominated in hayeks. Once this system was established, large deposits of hayeks would raise red flags for banks and regulators. Similarly, people who purchased cars, homes, or other big-ticket items with hayeks, rather than initiating a fund transfer from a bank account, would draw the attention of merchants and regulators.

It is difficult to predict how law enforcement might react to the emergence of global electronic currencies. For now, however, one warning is appropriate. Last year, the Financial Crimes Enforcement Network of the United States Department of Treasury proposed regulations that would impose extensive money laundering controls on banks and other companies that offer stored-value products and electronic payment systems. See Financial Crimes Enforcement Network; Proposed Amendment to the Bank Secrecy Act Regulations — Definition and Registration of Money Services Businesses, 62 Fed. Reg. 27,890 (1997) (to be codified at 31 C.F.R. § 103) (proposed May 21, 1997); Thomas E. Crocker, *Selected Regulatory Developments; Proposed Regulations Apply Bank Secrecy Act to Electronic Banking and Commerce*, ELECTRONIC BANKING L. & COM. REP., June 1997, at 25. This proposal is inconsistent with the "hands off" approach that the Clinton administration has adopted in order to encourage development of electronic payment systems. See Crocker, *supra*, at 26. Given that no case of "cyberlaundering" has yet been detected, see FATF REPORT, *supra*, at 7, the rush to regulate electronic payment technologies seems particularly surprising.

At the time this Article went to press, it was unclear whether the Treasury would

However, this Article focuses on one particularly serious challenge to its specific thesis that private companies should be allowed to issue, denominate, and manage their own currencies. Specifically, would — and should — issuance of global electronic currencies be considered “banking”? The answer to this question is critical; if “yes,” myriad federal and state banking laws and regulations could make it very difficult, or even impossible, for Free Market and its competitors to enter the marketplace.

1. What Is Banking?

Modern banking has come to be defined primarily by two types of activity: accepting demand deposits, and making commercial loans.¹²¹ The issuer of a global electronic currency need not be involved in either of these activities. To illustrate, reconsider the Free Market hypothetical. Initially, Free Market would issue the hayek — a digital note — to users in exchange for value equivalent to a specified percentage of a commodity basket. Once established, the hayek would be provided at the prevailing exchange rate. Users could pay for hayeks with dollars, securities, or any other form of value acceptable to Free Market.

Under this scenario, Free Market would not be making a commercial loan to users; rather, as the holders of digital notes, users would be

promulgate final regulations, and if so, what the content of those regulations would be. Thus, before issuing private electronic currencies, companies should investigate the status of these and other money laundering regulations that might apply to their projects.

For an overview of further regulatory issues that electronic payment systems pose, see Oedel, *supra* note 50.

121. See Henry H. Perritt, *Legal and Technological Infrastructures for Electronic Payment Systems*, 22 RUTGERS COMPUTER & TECH. L.J. 1, 34 (1996); see also EDWARD L. SYMONS, JR. & JAMES J. WHITE, *BANKING LAW* 3 (3d ed. 1991) (explaining that deposits and loans are at the core of banking).

The following definition from the Bank Holding Company Act is representative: [T]he term “bank” means any of the following:

- (A) An insured bank as defined in section 3h of the Federal Deposit Insurance Act [12 U.S.C. 1813(h)].
- (B) An institution organized under the laws of the United States, any State of the United States, the District of Columbia, any territory of the United States, Puerto Rico, Guam, American Samoa, or the Virgin Islands which both —
 - (i) accepts demand deposits or deposits that the depositor may withdraw by check or similar means for payment to third parties or others; and
 - (ii) is engaged in the business of making commercial loans.

12 U.S.C. § 1841(c)(1) (1994).

making a loan to Free Market.¹²² Nor would Free Market be in the business of receiving demand deposits.¹²³ As a general rule, demand deposits are represented by individual accounts with a determinate value that is carefully adjusted as further deposits and withdrawals are made. Customers draw upon these accounts using checks, ATM cards, passbooks, or other similar devices. By contrast, although Free Market would receive payments in exchange for hayeks, it would not maintain those payments in "accounts" belonging to individual users.¹²⁴ Doing so would be pointless, since there would be no expectation that users would be writing checks or otherwise making withdrawals against such accounts. Rather, users would be purchasing a currency designed to circulate from person to person indefinitely, without necessarily coming back to Free Market for redemption or exchange. Nor would users acquire the contractual obligation of Free Market to repay a fixed sum. Presumably, Free Market would be available to exchange hayeks, but at a rate that would change along with the fortunes of the currency. Even if Free Market agreed to redeem hayeks at a specified purchase value, this would establish not a fixed sum, but rather only a *minimum* sum.¹²⁵

Ironically, Free Market's business probably would have been recognized as banking during the nineteenth century, when state and national banks issued their own notes to circulate as currency. In 1872, the United States Supreme Court described banking this way:

Originally the business of banking consisted only in receiving deposits, such as bullion, plate and the like

122. See Oedel, *supra* note 50, at 1089 (explaining that money is a loan from holder to issuer).

123. Thus, Free Market would not violate section 21(a)(2) of the Glass-Steagall Act of 1933, which prohibits the receipt of deposits subject to check or repayment unless one is licensed or regulated under state or federal banking laws. See 12 U.S.C. § 378(a)(2) (1994); Task Force on Stored-Value Cards, *supra* note 5, at 676.

124. See Federal Deposit Insurance Corporation, General Counsel's Opinion No. 8; Stored Value Cards, 61 Fed. Reg. 40,490, 40,492-93 (1996) (when stored-value card represents funds that have been withdrawn from customer account and maintained in bank reserve account, that reserve account is not a "deposit" within the meaning of the Federal Deposit Insurance Act). *But see* WORKING GROUP ON EU PAYMENT SYSTEMS, EUR. MONETARY INST., REPORT TO COUNCIL OF THE EUROPEAN MONETARY INSTITUTE ON PREPAID CARDS (1994) (noting that balances on multi-purpose stored-value cards represent funding that is equivalent, in economic terms, to deposit-taking; thus, only credit institutions should be allowed to issue such cards).

125. These two characteristics of *currency* — indefinite circulation and variable value — distinguish the hayek and other global electronic currencies from stored-value products, such as traveler's checks and stored-value cards, which are intended for prompt redemption at the stated sum.

for safe-keeping until the depositor should see fit to draw it out for use, but the business, in the progress of events, was extended, and bankers assumed to discount bills and notes and to loan money upon mortgage, pawn, or other security, *and at a still later period to issue notes of their own intended as a circulating currency and a medium of exchange instead of gold and silver.* Modern bankers frequently exercise any two or even all three of those functions, but it is still true that an institution prohibited from exercising any more than one of those functions is a bank in the strictest commercial sense¹²⁶

Similarly, the National Bank Act, enacted in 1863 and still in force today, provides that a national banking association can exercise powers necessary to carry on the business of banking, including "obtaining, issuing, and circulating notes."¹²⁷ However, since 1935, when the last national bank notes were retired from circulation and currency became a monopoly of the Federal Reserve System,¹²⁸ the business of banking no longer has included the issuance and circulation of notes.¹²⁹

In sum, despite its treatment during the nineteenth century as an ordinary bank function, currency issuance falls outside the boundaries of banking as it is presently conceived. This is not because there is an *economic* distinction between notes and deposits (which are alternative forms of bank liabilities),¹³⁰ but rather because currency issuance has become a government monopoly. Given that the present regulatory structure was not designed with private currency in mind, the blind application of that entire structure to global electronic currencies would be unworkable and perhaps even impossible.

126. *Oulton v. Savings Inst.*, 84 U.S. (17 Wall.) 109, 118-19 (1872) (emphasis added).

127. 12 U.S.C. § 24(7) (1994).

128. See Solomon, *supra* note 20, at 64.

129. Several sections of the United States Code were once devoted to the issuance, redemption, and replacement of circulating bank notes. See 12 U.S.C. §§ 101-138 (1988). These provisions have been either repealed as obsolete or amended. See Riegle Community Development and Regulatory Improvement Act of 1994, Pub. L. No. 103-325, § 602(e)-(g), 108 Stat. 2160, 2291-94.

130. See WHITE, *supra* note 20, at 82.

2. Preventing Runs and Panics

Even if Free Market and other issuers of global electronic currencies would not be engaged in banking as such, two questions remain: would the issuance of such currencies raise the same policy concerns as banking; and, if so, would some form of government regulation be the best way of addressing those concerns?

One commonly asserted reason for regulating banks is to prevent runs and panics.¹³¹ According to the classic account of such events, when depositors lose faith in the solvency of one particular bank, a trickle of withdrawals quickly becomes a flood and causes the bank to close once its immediate supply of currency runs out. This closure, in turn, generates enough free-floating financial anxiety to cause a full-fledged panic, as depositors stampede other banks for no reason.¹³² Ultimately, if the withdrawals become heavy enough, bank solvency can be threatened, and the savings of depositors jeopardized.¹³³ In addition, widespread bank failures can disrupt the money supply,¹³⁴ and cause the check clearing system (which is managed by banks) to malfunction.¹³⁵

Over the years, banking laws and regulations have developed several defenses against runs and panics. For example, the policy of preventing bank failures plays a significant role in the granting of bank charters.¹³⁶ Before the Comptroller of the Currency exercises his discretion to grant a federal bank charter, he must consider several factors, including many that are relevant to solvency, such as the future earnings, capital structure, management, and financial history and condition of the proposed bank.¹³⁷ Federal deposit insurance minimizes the possibility of runs and panics by reassuring depositors that their money is safe even if their banks go under.¹³⁸ And, should a run occur nevertheless, federal regulation seeks to minimize its impact by requiring

131. See Oedel, *supra* note 50, at 1083.

132. For an account of the bank run and panic phenomenon, see JONATHAN R. MACEY & GEOFFREY P. MILLER, *BANKING LAW AND REGULATION* 47-49 (1992).

133. See *id.* at 47.

134. See *id.* at 52-53. Some economists believe that the Great Depression was triggered when a breakdown of the banking system caused a sudden contraction in the money supply, as depositors withdrew funds from banks. See *id.*

135. See *id.* at 54-55. Again, an illustration from the Great Depression Era is instructive. A panic resulted in suspension of the payments system for about a week during the so-called "bank holiday" of 1933. See *id.*

136. See SYMONS & WHITE, *supra* note 121, at 72.

137. See 12 U.S.C. § 1816 (1994); SYMONS & WHITE, *supra* note 121, at 72.

138. See Oedel, *supra* note 50, at 1084.

a bank to maintain a specified percentage of its transaction accounts in reserves.¹³⁹

Global electronic currencies could raise some of these policy concerns, but to a lesser extent. For example, suppose that rumors began to fly that Free Market was experiencing financial difficulty. Then, users might begin to demand that hayeks be exchanged or redeemed at the guaranteed minimum value. If Free Market did not have enough liquid assets to meet these demands, it might be forced into insolvency.¹⁴⁰ However, this single run on a single company need not trigger a panic. The hayek would be an independently issued, managed, and denominated currency, unlike any other, and exist outside the traditional network of government currencies and banks. Holders of competing private and government currencies would have no reason to believe that Free Market's financial problems spelled trouble for other, independent companies or the financial system in general. (In particular, depositors would have every reason to remain confident in their federally insured dollar deposits.)

Nevertheless, lawmakers and regulators unfamiliar with global electronic currencies could respond by passing new laws that would subject Free Market and other issuers to banking laws and regulations, such as regulatory supervision, reserve requirements, and insurance.¹⁴¹ Unfortunately, this response would restrict issuance to banks.¹⁴²

Alternatively, lawmakers and regulators could enact laws or promulgate regulations modeled after state laws governing traveler's checks and money transmitters. For example, states that license American Express to issue traveler's checks have required it to back one

139. See *id.* at 1083. Reserve requirements are presently set between 8 and 14 % of transaction accounts. See *id.* "Reserves" are composed of currency and deposits in Federal Reserve Banks. See Solomon, *supra* note 20, at 65.

140. The real problem for Free Market would *not* be that redemption demands were greater than immediately available reserves. Rather, Free Market would be seriously threatened if its assets could not be liquidated, were less than liabilities, or had a market value that fell during the run. See DAVID FRIEDMAN, *THE MACHINERY OF FREEDOM* 221 (2d ed. 1989).

141. See Oedel, *supra* note 50, at 1095.

142. See Smith & Wilson, *supra* note 6, at 1114. Banks are enthusiastic about this prospective outcome. In September 1996, the American Bankers Association Payments System Task Force released a report recommending that "only regulated depository institutions have direct access to the Federal Reserve's payment services, and issuance of third-party instruments [such as stored-value cards] should be limited to regulated depository institutions." Joseph Radigan, *Locking Up: The Money Monopoly*, U.S. BANKER, Jan. 1997, at 26.

Another author has advocated a more radical solution: only the federal government should issue electronic cash. See Konvisser, *supra* note 51, at 333.

hundred percent of outstanding check value with liquid instruments such as cash, Treasury bonds, or AAA-rated corporate debt.¹⁴³ Similarly, money transmitters, such as Western Union, are often required to: (1) maintain reserves; (2) make only authorized investments; (3) file annual reports and submit to audits; (4) meet owner and operator qualifications; and (5) post bonds.¹⁴⁴

Before lawmakers and regulators leap into this apparent breach, however, it is worth considering whether the market might supply similar protections on its own. As explained more thoroughly above in Part C, issuers of global electronic currencies would have no chance of attracting business in the first place unless they took steps to ensure user confidence. Maintaining enough liquid assets to meet redemption demands,¹⁴⁵ establishing a reputation for trustworthiness,¹⁴⁶ and advertising¹⁴⁷ could help to break the dreaded chain of anxiety, runs, insolvency, and customer loss. Voluntary purchase of private insurance could also go a long way towards reassuring and protecting users of global electronic currencies.

Moreover, there are several excellent reasons to favor market, rather than regulatory, solutions at this time. First, as the Clinton-Gore report acknowledged, oppressive and inflexible regulations could prove harmful to the development of electronic payment systems.¹⁴⁸ Existing laws and regulations were developed for payment devices based on the dollar and other official monies. By contrast, global electronic currencies would be issued, managed, and denominated independently of official monies. Blind application of existing laws or regulations to such novel and unique currencies could stunt, or even kill, their development. Even laws or regulations designed specifically for global

143. See Radigan, *supra* note 142.

144. See TASK FORCE ON STORED VALUE CARDS, *supra* note 5, at 676; Smith & Wilson, *supra* note 6, at 1114-15. The scope of these laws may sometimes be broad enough to cover global electronic currencies, even without any deliberate legislative extension. For a discussion of representative state statutes, see Smith & Wilson, *supra* note 6, at 1114 n.50; *Money Transmitters and Check-Sellers: A State-by-State Survey*, ELECTRONIC BANKING L. & COM. REP., July-Aug. 1997, at 10.

145. See G-10 REPORT, *supra* note 10, at 19 (asserting that market incentives will motivate issuers to develop effective financial risk management practices, including maintaining liquid assets to meet redemption demands).

146. See *supra* Part I.C.4.

147. See *supra* Part I.C.1.

148. See *Global Electronic Commerce*, *supra* note 1, at "Electronic Payment Systems." This concern seems to be borne out by recent reports that banks — which are heavily regulated — have gotten off to a slow start in developing electronic payment systems and may be shut out of the market unless they act soon. See, e.g., Carol Power, *Internet Warning: It's Getting Late in the Game*, AM. BANKER, June 17, 1997, at 22.

electronic currencies could be damaging if enacted before the market had the chance to search out the most efficient solutions to the risks posed above.

Second, as the Clinton-Gore report noted, any legal framework for commercial transactions on the Internet should be governed by consistent principles across state, national, and international borders.¹⁴⁹ Premature imposition of regulatory controls by one financially powerful nation, like the United States, could encourage other nations to follow suit, generating a patchwork of legal requirements that no company could meet.¹⁵⁰ If this occurred, "global" electronic currencies would never become a reality. Unlike national governments, however, the Internet marketplace has a global reach and scope. Consequently, the marketplace itself is most likely to generate the consistent practices that are necessary to protect users while allowing a worldwide currency to function properly.

Third, hasty enactment or application of laws and regulations is unnecessary because global electronic currencies would not pose a significant threat to either users or the economy in the near future. Currencies designed specifically for use on the Internet would represent only a small fraction of the entire money supply — particularly in their infancy. Users could suffer occasional losses if companies produced currencies that malfunctioned, became unstable, or could not be redeemed due to insolvency; however, users could seek redress through insurance, breach of contract actions, or claims in bankruptcy actions. Similarly, because global electronic currencies would be used only on the Internet, the impact of runs or insolvencies on the economy as a whole would be minimized. Thus, governments could afford to monitor the progress of these currencies and determine whether the market was providing adequate solutions on its own to safety and soundness concerns.¹⁵¹

149. See *Global Electronic Commerce*, *supra* note 1, at "Principles."

150. I recognize that companies faced with burdensome laws and regulations often locate their operations in countries with a more accommodating attitude. However, given the global nature of the cybermarket, such "regulatory flight" might not provide a complete solution for electronic currency issuers. For example, even if Free Market issued hayeks from its corporate headquarters in the Cayman Islands, its currency would be received by people located in countries all over the world, who could be harmed if Free Market inflated its currency or became insolvent. It would not be surprising if those other countries took a strong interest in Free Market's operations — perhaps even passing laws to block the use of hayeks unless Free Market satisfied local safety and soundness standards.

151. Reports from American and international organizations have recognized that electronic currencies do not presently pose a serious threat to the economic order.

In the meantime, there is an important step that the United States could take to encourage the development of global electronic currencies. As mentioned above, one of the greatest threats to the emergence of global electronic currencies would be a patchwork of inconsistent legal requirements. To clean up this patchwork, legislators could enact legislation to repeal outdated laws while administrators could issue opinions to clarify the scope of remaining laws and regulations. For example, as explained above in Subpart E, the United States enacted several statutes during the Civil War Era that prohibited private issuance of currencies. Although companies can probably structure electronic currencies to avoid these laws, these laws have outlived their original purposes¹⁵² and should be repealed. At the same time, Congress could enact legislation to preempt similar state laws that prohibit private currency issuance.¹⁵³ Meanwhile, the Fed, FDIC, and like agencies

For example, the *G-10 Report* concludes: "[I]n the short term, there is no prospect of electronic money giving rise to systemic risk. Existing schemes are too small, both in terms of the total amounts outstanding, and the amounts held by individual users, for a failure to have contagion effects." *G-10 REPORT*, *supra* note 10, at 20-21.

Similarly, the FDIC recently announced that it would not propose regulations or seek legislation to define stored-value cards as deposits for purposes of insurance coverage. See Ellen d'Alelio, *Selected Regulatory Developments July 1997: FDIC Statement re Regulations and Legislation Addressing Stored-Value Cards*, *ELECTRONIC BANKING L. & COM. REP.*, July-Aug. 1997, at 16. In support of this decision, the FDIC reasoned that, because stored-value cards were presently being issued only to a small portion of the banking public, collapse of any one card system would not seriously threaten a card-issuing bank or the banking system as a whole. See *id.* For a look at the FDIC announcement, see Federal Deposit Insurance Corporation, *FDIC Will Continue to Rely on General Counsel Opinion Rather than Issue Rules on Stored-Value Cards* (June 24, 1997) <<http://www.fdic.gov/publish/newprs/pr9744.html>>.

152. For example, the Civil War Era statute with the broadest application was enacted to secure a monopoly for an experimental national postage currency. See *supra* note 102 and accompanying text.

153. Consider, for example, the following California statute:

Issuing or Circulating Paper Money. Every person who makes, issues, or puts in circulation any bill, check, ticket, certificate, promissory note, or the paper of any bank, to circulate as money, except as authorized by the laws of the United States, for the first offense is guilty of a misdemeanor, and for each and every subsequent offense, is guilty of felony.

CAL. PENAL CODE § 648 (Deering 1997). This ancient statute, enacted in 1872, has received little judicial attention. See, e.g., *People v. Burkett*, 74 Cal. Rptr. 692 (Ct. App. 1969) (holding that counterfeiting dollar bills does not constitute issuing or circulating paper money). Although the statute is otherwise broadly worded, the introductory language seems to limit its scope to *paper* money. Nevertheless, a company that marketed electronic currency could breathe easier if statutes like this one were stricken from the books.

could be encouraged to issue opinions recognizing that issuance of global electronic currencies would not constitute "banking" subject to existing laws and regulations. Other nations could be encouraged to take similar legislative and executive action to eliminate impediments to the cross-border use of global electronic currencies.¹⁵⁴

Of course, the process of weeding out obsolete or irrelevant laws one by one would take time. Congress could achieve a swifter solution by enacting legislation specifically authorizing private companies to issue global electronic currencies. Such legislation could: (1) preempt any federal or state laws that would otherwise prohibit the issuance of global electronic currencies; (2) clarify that banking laws and regulations do not apply to the issuance of global electronic currencies; and (3) override state money transmitter laws that might otherwise impose inconsistent requirements on issuers of global electronic currencies.¹⁵⁵ To ensure that the infant industry learned from experience, Congress could also authorize a federal agency to monitor it for a set number of years and report on its progress. If these observations gave rise to safety and soundness concerns, Congress could then consider implementing appropriate legislative or regulatory controls.

Ultimately, this *laissez-faire* program should be extended beyond the United States to other nations. Conventions or model laws could provide the vehicles necessary to obtain worldwide authorization for the issuance and use of global electronic currencies. If the United States government is serious about encouraging global electronic commerce, it should exercise its influence with the rest of the international community to get legal projects like these started now.

II. COMMUNITY ELECTRONIC CURRENCIES

Thus far, this Article has considered private electronic currencies that would facilitate global commerce on the Internet. This focus was consistent with the Clinton-Gore report, which asserted the need to facilitate global commerce as one of five basic principles.¹⁵⁶

154. Cf. G-10 REPORT, *supra* note 10, at 29 (stating that, given range of policies that have emerged in G-10 countries, governments must consider how to minimize impediments to the cross-border use of, or competition in the provision of, electronic money).

155. Although not designed with global electronic currencies in mind, some money transmitter laws may have been drafted broadly enough to bring such currencies within their scope. See *supra* note 144.

156. See *Global Electronic Commerce*, *supra* note 1, at "Principles."

Yet, to stop here would leave the full potential of the Internet unrealized. As the Clinton-Gore report recognized in another one of its basic principles, governments should recognize the unique qualities of the Internet, including its decentralized nature and "tradition of bottom-up governance."¹⁵⁷

One of these unique qualities is that individuals are freed from the constraints of physical space and can exercise their liberty to form new and diverse communities in cyberspace. Recognizing this fact, Part II devises a model for *community electronic currencies* — that is, private electronic currencies designed to circulate only within specific Internet communities. Part II explains how community electronic currencies would strengthen Internet communities and thereby facilitate electronic commerce in a manner consistent with, if not anticipated by, the Clinton-Gore agenda.

A. Internet Communities

As a global communications network, the Internet allows individuals to associate freely across geographical and national boundaries.¹⁵⁸ As a result, proto-communities have already begun to form in cyberspace. Professor David Friedman has noted the widespread formation of mail-groups.¹⁵⁹ Individuals who want to discuss a particular topic establish a group e-mail address and a list of members. E-mail messages to the group address are then relayed to everyone on the list. In effect, the mail-group is a privately evolved association, with limited objectives and voluntary membership.¹⁶⁰ Within a few decades, Friedman has predicted, the necessary technology will exist to support "virtual"

157. *Id.*

158. Two Internet scholars have observed:

Cyberspace has no territorially based boundaries, because the cost and speed of message transmission on the Net is almost entirely independent of physical location. Messages can be transmitted from one physical location to any other location without degradation, decay, or substantial delay, and without any physical cues or barriers that might otherwise keep certain geographically remote places and people separate from another.

Johnson & Post, *supra* note 76, at 1370–71.

159. David Friedman, *A World of Strong Privacy: Promises and Perils of Encryption*, SOC. PHIL. & POL'Y, Summer 1996, at 212, 222–23.

160. *See id.* To stay on the list, members must observe rules, such as sticking to the topic of discussion and observing a certain level of courtesy. Violators are eliminated from the list. If the rules are unsatisfactory, malcontents can leave and start a new mail-group. *See id.*

communities.¹⁶¹ Members will be able to hear, see, and interact with each other in "virtual" rooms.¹⁶² According to Friedman, "[e]ach [virtual] community will have its own rules, enforced by a single sanction: expulsion. The result will be a world defined by a single rule: freedom of association."¹⁶³

Within such Internet communities, ideas would reign supreme. Nicknames, voices, and images would make anonymous encounters possible,¹⁶⁴ allowing individuals to associate without regard to characteristics such as race, ethnicity, nationality, gender, age, or disability. Some communities would be organized around shared avocations; more significantly, others would emphasize common political, philosophical, scientific, artistic, and moral values.

Of course, the fact that the Internet tends to encourage the formation of communities does not necessarily provide a normative justification for such communities. However, such justification can be found in political theory.

As explained above, Professors Johnson and Post have argued persuasively that the Internet constitutes its own place — a place that transcends territorial boundaries.¹⁶⁵ At present, this place is not only unique, but also very new — an unregulated, virgin territory akin to a state of nature. As John Locke argued, individuals in a state of nature have the "freedom to order their actions, and dispose of their possessions

161. See *id.* at 223. More specifically, the requisite technology is Internet channels of sufficient bandwidth to provide real-time audio-video to most users. See *id.* at 216.

162. See *id.* at 223. Friedman has offered the following description of a virtual meeting:

The year is 2010. From the viewpoint of an observer, I am alone in my office, wearing goggles and earphones. From my viewpoint, I am at a table in a conference room with a dozen other people. The other people are real — seated in offices scattered around the world. The table and the room exist only in the mind of a computer. The scene is being drawn, at a rate of sixty frames a second, on my goggles — a little differently for each eye, to give three-dimensional vision. The meeting is virtual, but, to my sight and hearing, it might as well be real.

Id. at 216–17.

163. *Id.* at 223. Similarly, Professors Johnson and Post have suggested that cyberspace may promote "new connections between individuals" and new mechanisms of self-governance by which individuals attain a sense of community. Johnson & Post, *supra* note 76, at 1397.

164. E-mail aliases and nicknames are already common. If and when "virtual" encounters become possible, the technology could be designed so that users could present whatever voice or image they wish.

165. See Johnson & Post, *supra* note 76, at 1370–71, 1378–79.

and persons, as they think fit,"¹⁶⁶ so long as they do not harm the lives, health, liberty, or possessions of others.¹⁶⁷ Locke predicted that, although each individual has the right to enforce the law of nature herself,¹⁶⁸ the difficulty of doing so¹⁶⁹ would cause her to abandon the state of nature and unite in society with others to protect "their lives, liberties and estates."¹⁷⁰

Modern political theorists have given these basic premises a more current expression. Most notably, in *Anarchy, State and Utopia*,¹⁷¹ Robert Nozick set forth a natural law theory of the rise of the state.¹⁷² He theorized that individuals in a state of nature would exercise their liberty to form voluntary protective associations.¹⁷³ Over time, some of these associations would become dominant within particular geographic areas. These dominant protective associations would enjoy a near-monopoly¹⁷⁴ over the use of force¹⁷⁵ and would have a moral obligation

166. JOHN LOCKE, SECOND TREATISE OF GOVERNMENT § 4, at 8 (C.B. Macpherson ed., 1980) (1690) (emphasis omitted).

167. See *id.* § 6, at 9.

168. See *id.* § 7, at 9; see also § 8, at 10.

169. An individual might render a judgment in favor of herself that was biased or that imposed disproportionate punishment. See *id.* §§ 124–125, at 66. Moreover, even a proper judgment might be difficult or dangerous to enforce against others. See *id.* § 126, at 66.

170. *Id.* § 123, at 66.

171. ROBERT NOZICK, ANARCHY, STATE AND UTOPIA (1974) [hereinafter NOZICK, ANARCHY].

Recently, Nozick has suggested that the political philosophy presented in *Anarchy* failed to address the importance of political action as a symbolic expression of our social ties and concerns. See ROBERT NOZICK, THE EXAMINED LIFE 286–92 (1989); ROBERT NOZICK, THE NATURE OF RATIONALITY 32 (1993). However, his self-critique is not intended as an alternative theory to the one presented in *Anarchy*. See NOZICK, THE EXAMINED LIFE, *supra*, at 287. Because I find Nozick's original work to be logical, persuasive, and illuminating, I feel that its use here is justified.

172. Nozick acknowledged his reliance upon Locke in the opening chapter of his book. See NOZICK, ANARCHY, *supra* note 171, at 9.

173. These protective associations would apprehend, punish, and assess compensation against wrongdoers, both within and outside the association. See *id.* at 13–15.

174. According to Nozick, independents — those who did not join a protective association — could administer their own procedures of justice, adjudicating and exacting punishment for violations of their rights. See *id.* at 22–24. However, the dominant protective association legitimately could extend its power by defending its own clients against the unreliable or unknown procedures of independents. See *id.* at 88, 101–02.

Nozick acknowledged that the dominant protective association's control over the use of force would not be absolute — if one independent enforced justice against another, and both were satisfied with the procedure employed, the association would

to protect everyone living within their boundaries.¹⁷⁶ Thus, "[o]ut of anarchy, pressed by spontaneous groupings, mutual-protection associations, division of labor, market pressures, economies of scale, and rational self-interest there arises something very much resembling a minimal state or a group of geographically distinct minimal states."¹⁷⁷

Going beyond this basic political model, Nozick also speculated as to the nature of utopia, that is, the best of all possible worlds.¹⁷⁸ He began with the premise that people "differ in temperament, interests, intellectual ability, aspirations, natural bent, spiritual quests, and the kind of life they wish to lead."¹⁷⁹ Because people are so different, Nozick reasoned, no single lifestyle is objectively best for everyone.¹⁸⁰ Thus, he concluded, "[u]topia is a *framework* for utopias, a place where people are at liberty to join together voluntarily to pursue and attempt to realize their own vision of the good life in the ideal community but where no one can *impose* his own utopian vision upon others."¹⁸¹ This framework

have no right to intervene. However, he argued, the dominant protective association could still be a state, since citizens could opt out of a state's judicial apparatus. *See id.* at 110.

175. *See id.* at 109. Nozick argued that monopoly over the use of force (except that necessary in self-defense) was a defining characteristic of the state. *See id.* at 26; *see also* LOCKE, *supra* note 166, § 87, at 46 (identifying a monopoly over the use of force as a key attribute of the state).

176. The reasoning underlying this conclusion is complex. As explained, a dominant protective association would prohibit independents from enforcing unreliable or unknown procedures of justice, leaving them vulnerable to harm. *See supra* note 174. This would be unfair, since some independents *could* have carried out their own brand of justice without violating anyone's rights. Thus, Nozick reasoned, the dominant protective association would have a moral obligation to compensate independents for their disadvantages by, for example, supplying them with protective services against its own members. *See* NOZICK, ANARCHY, *supra* note 171, at 110; *see also id.* at 78-87 (deriving the "principle of compensation" underlying this conclusion). When an independent could not afford such services, the protective association would have to make up the difference between the monetary costs of independent enforcement and the cost of an adequate protective policy. *See id.* at 111.

177. NOZICK, ANARCHY, *supra* note 171, at 16-17. Nozick defined the *minimal* state as the "night-watchman state of classical liberal theory, limited to the functions of protecting all its citizens against violence, theft, and fraud, and to the enforcement of contracts." *Id.* at 26. He reasoned that a dominant protective association would qualify as a *minimal* state if it had both a monopoly on force and an obligation to compensate those within its borders for depriving them of the power to use force on their own initiative. *See id.* at 118-19.

178. *See id.* at 298.

179. *Id.* at 309.

180. *See id.* at 310.

181. *Id.* at 312 (first emphasis added).

was equivalent to the minimal state described above.¹⁸² Within it, a wide variety of utopian communities could "[grow] spontaneously from the individual choices of many people over a long period of time."¹⁸³

The foregoing political theory offers a normative rationale for the rise of Internet communities. Individuals exercising their "perfect freedom to order their actions, and dispose of their possessions and persons, as they think fit,"¹⁸⁴ could choose to come together in Internet communities for purposes of pursuing their political, philosophical, economic, artistic, scientific, and moral values. Because liberty offers a content-neutral framework for community building, individual choice should build a wide variety of communities on the Internet over time. However, no matter how wide the differences, each and every community could be characterized as the product of individual freedom. This would be particularly true given that members could not only join, but also exit, the community at will.¹⁸⁵

B. Strong Privacy

What features would be necessary to allow Internet communities to come into existence, thrive, and grow beyond their limited origin as mail-groups? Professor Friedman has argued that encryption¹⁸⁶ is the

182. *See id.* at 333.

183. *Id.* at 332. Nozick declined to describe or prescribe the character of particular utopian communities within society. The nature of such communities was important, he acknowledged — so important that it should not be prescribed by anyone (not even himself) for anyone else. *See id.* at 329.

184. *See* LOCKE, *supra* note 166, § 4, at 8 (emphasis omitted).

185. Compare the following argument in support of allowing cyberspace to evolve its own legal rules:

[T]he ease with which individuals can move between different rule sets in Cyberspace has important implications for any contractarian political philosophy deriving a justification of the State's exercise of coercive power over its citizens from their consent to the exercise of that power. In the nonvirtual world, this consent has a strong fictional element. . . . In Cyberspace, though, any given user has a more accessible exit option, in terms of moving from one virtual environment's rule set to another's, thus providing a more legitimate "selection mechanism" by which differing rule sets will evolve over time.

Johnson & Post, *supra* note 76, at 1398 (citations omitted).

186. Cryptography has been defined as "the art of creating and using methods of disguising messages, using codes, ciphers, and other methods, so that only certain people can see the real message." A. Michael Froomkin, *The Metaphor is the Key: Cryptography, the Clipper Chip, and the Constitution*, 143 U. PA. L. REV. 709, 713 (1995). Encryption takes place when a person takes an original message, or "plaintext,"

key to establishing and maintaining Internet communities. Encryption not only keeps the content of messages private, but also allows individuals to make anonymous cash payments to each other over the Internet.¹⁸⁷ Encryption also makes it possible to operate anonymous remailers,¹⁸⁸ which prevent interlopers from learning the ultimate destination of intercepted messages.¹⁸⁹ With defensive technologies like these, a world of "strong privacy" can be created in which individuals can establish and maintain Internet communities without suffering

and uses cryptography to generate a disguised message, or "ciphertext." *See id.* at 714. Decryption converts ciphertext into plaintext. *See id.*

Two basic systems of cryptography are popular today. The most widespread method encrypts plaintext with a secret key to create ciphertext. The same secret key must be used to decrypt the ciphertext and restore the original text. *See* Antony Watts, *Cryptography Is Key to Securing Proprietary Information*, EDN, July 6, 1995, at 99, available in LEXIS, News Library. Security turns on the complexity of the data involved; in theory, the most powerful computers available in 1995 would take more than 100 years to identify the secret key. *See id.*

A more recent innovation is public key cryptography, which uses two keys: one for encryption, and another for decryption. Suppose, for example, that Mary wants to send a message to John. She finds his public key in a directory and uses it to encrypt her message. To decrypt the message, John applies his private key known only to him. *See id.*; Friedman, *supra* note 159, at 215. Public key cryptography also makes it possible to send signed messages. Returning to the example, suppose Mary wants John to know that she — and only she — is sending the message. First, she encrypts the plaintext with her private key known only to her. Then, she encrypts with John's public key and sends the message to him. To decrypt, John first applies his private key and then applies Mary's public key (available through a directory). If the message truly comes from Mary, then John should end up with readable text. *See* Friedman, *supra* note 159.

As with secret key cryptography, the security of public key cryptography turns on its complexity. Supposedly, years of supercomputer resources might be required to crack the encryption. *See* John Markoff, *A Chink in the Digital Armor*, MIAMI HERALD, Int'l Ed., Dec. 15, 1995, at 2B. Recently, however, one researcher has published a paper detailing a possible method of determining private keys within minutes. *See id.* Using electronic eavesdropping devices, a wrongdoer could monitor the process of decrypting incoming messages. By keeping track of the precise length of time it takes to decrypt each message, the wrongdoer could eventually establish a group of possible keys and then test them until the correct one was identified. *See id.*

187. *See* Friedman, *supra* note 159, at 217.

188. Friedman has described anonymous remailers this way:

An anonymous remailer is a site on the Internet which receives messages, each with the address of its destination attached, and then resends them to that address. An observer sees a thousand messages come into the remailer and a thousand come out, but even if he knows the source of each incoming message and the destination of each outgoing one, he does not know which sender is communicating with which recipient.

Id. at 217-18.

189. *See id.* at 217-18.

interference by the government or other individuals.¹⁹⁰ As Friedman has stated, "[w]hat cannot be observed cannot be controlled."¹⁹¹

What possible reason could law-abiding citizens have for employing strong privacy? Many examples are possible. Support groups for victims of AIDS, herpes, infertility, or other medical conditions could use encryption to protect against casual snoopers, vigilantes, personal enemies, employers, and insurance companies. Less dramatically, even an Internet church group or sewing circle could use encryption to discourage private research firms from investigating its purchasing habits and selling reports, or home phone numbers, to advertisers and vendors.¹⁹² Finally — and most regrettably — strong privacy might sometimes be necessary to guard against political oppression. For example, pro-democracy activists in China or feminists in fundamentalist Iran could utilize encryption to protect themselves against the persecution that would follow if their beliefs became known. Even in America, encryption could provide necessary protection against the unlawful actions of our own elected representatives. Consider the recent revelation that former President Richard M. Nixon plotted to use the Internal Revenue Service to persecute his political enemies, particularly those of the Jewish faith.¹⁹³ For individuals who wished to exercise their

190. See *id.* at 223. Friedman has noted that a world of strong privacy would have advantages and disadvantages. For example, strong privacy would have the presumably advantageous consequences of protecting freedom of speech and allowing unlicensed individuals to provide services to the public. See *id.* at 219. Inability to observe digital-cash income and expenditures could lead to at least one ambiguous result — the shifting of taxes from information to goods that could be physically observed, such as food, housing, and fuel. See *id.* Perhaps most perniciously, strong privacy would make it easier to violate copyrights, to deal in trade secrets, to commit blackmail, and to hire contract killers. See *id.*

191. *Id.* at 219.

192. In this technological age, privacy advocates have frequently expressed concerns about the use of computerized information for marketing purposes. For example, smart cards or other unencrypted electronic payment systems have the potential to create a record of every purchase an individual makes, enabling market researchers and advertisers to build profiles of a person's lifestyle and habits. Commentators fear that individuals could react by altering or censoring their own activities. See, e.g., Catherine M. Downey, *The High Price of a Cashless Society: Exchanging Privacy Rights for Digital Cash?*, 14 J. MARSHALL J. COMPUTER & INFO. L. 303, 305, 322 (1996); Kevin O'Connor, *Smart Cards, Privacy Issues*, 5 J.L. & INFO. SCI. 245, 258 (1994); Linda Shrieves, *Cash: Headed for Extinction; Hey, Buddy, Can You Spare a Credit Card?*, ORLANDO SENTINEL, July 23, 1995, at G1.

193. See George Lardner, Jr., *Nixon Sought 'Ruthless' Chief to 'Do What He's Told' at IRS*, WASH. POST, Jan. 3, 1997, at A1; Barbara J. Saffir, *Nixon Ordered Probe of 'Big Jewish Contributors'*, WASH. POST, Dec. 11, 1996, at A8; Nixon: 'Go After' Jewish Contributors, L.A. TIMES, Dec. 8, 1996, at A32.

constitutional rights to free exercise of religion,¹⁹⁴ or freedom of speech,¹⁹⁵ encryption could provide protection against illegal government vendettas as well as the intolerance and hatred of private persons.

Unfortunately, the future of strong privacy remains an open question. Worried that encryption will make it harder to identify and punish criminals, some politicians and law enforcement agencies have tried to restrict domestic and foreign use of encryption. For years the Clinton Administration not only has limited export of sophisticated encryption products,¹⁹⁶ but also has floated proposals for voluntary development and use of encryption subject to key escrow.¹⁹⁷ In

Possible IRS abuses continue to raise concern. In 1997, Congress opened an investigation into whether the IRS has targeted conservative nonprofit groups, such as the Heritage Foundation, for audits. *See Congress to Probe Claims IRS Conducts Politically Motivated Audits*, CHI. TRIB., Mar. 25, 1997, at 6. The IRS welcomed the investigation as an opportunity to clear its name and restore public confidence in its integrity. *See id.*

194. *See* U.S. CONST. amend. I.

195. *See id.*

196. In November 1996, President Clinton transferred jurisdiction to license commercial encryption products from the Department of State to the Department of Commerce. *See* Thomas E. Crocker, *Administration's Key Recovery Policy Presents Opportunities and Challenges to Banks*, ELECTRONIC BANKING L. & COM. REP., Feb., 1997, at 6, 7. The Department of Commerce then issued an Interim Rule that added a new license exception. *See* 61 Fed. Reg. 68,572 (1996). Under the Rule, companies can export state-of-the-art encryption software and equipment, so long as their products are designed to allow recovery of cryptographic function keys, and the keys are escrowed with key recovery agents acceptable to the Department of Commerce. *See* Crocker, *supra*, at 7-11. These regulations are designed to ensure that law enforcement officials acting under proper authority can get access to keys. *See id.* at 7.

197. These proposals have failed miserably. The first proposal involved development of an Escrowed Encryption Standard ("EES") that was implemented in the Clipper Chip (for telephones) and the Capstone Chip (for e-mail, digital signatures, public key exchange, and random number generation). *See* Field, *supra* note 45, at 993; Froomkin, *supra* note 186, at 714-16 & n.16. Under this proposal, individuals and companies could use EES technology; however, in exchange, government agencies would act as escrow agents, holding keys in case law enforcement needed to break encryption for surveillance purposes. *See* Field, *supra* note 45, at 993; Friedman, *supra* note 159, at 225-26; Froomkin, *supra* note 186, at 716. By using the Clipper and Capstone Chips in its own operations, the government hoped to establish EES technology as a voluntary standard. *See* Friedman, *supra* note 159, at 226; *see also* Froomkin, *supra* note 186, at 716 n.20. Although domestic use of other encryption systems was permitted, export probably would have been blocked. *See* Field, *supra* note 45, at 993.

The first Clipper proposal was abandoned in the face of strong public opposition. A second proposal, which attempted to mollify critics by appointing third-party escrow agents, also failed. The Clinton administration's third proposal, released in May 1996, would have permitted export of encryption products up to 64 bits — with escrow. *See*

September 1997, the FBI took a tougher line, proposing legislation that would require domestic encryption products to have a "trapdoor" feature, so that law enforcement officials would have access to encrypted communications.¹⁹⁸ In opposition, some Senators and Congressmen have introduced legislation that would liberalize export of encryption products and prohibit mandatory key escrow.¹⁹⁹ However, such bills have not fared well. The best-known of these proposals, the Security and Freedom Through Encryption Act ("SAFE"),²⁰⁰ was gutted in committee last year.²⁰¹

id. at 993-94.

Despite these failures, the Clinton Administration remains committed to the key recovery concept. Noting that "[e]ncryption can also be used by criminals and terrorists to reduce law enforcement capabilities to read their communications," the recent report on global electronic commerce suggested that "[k]ey recovery based encryption can help address some of these issues." *Global Electronic Commerce*, *supra* note 1, at "Security."

198. See John Markoff, *White House Wants Control of High-Tech Scrambling*, S.F. EXAMINER, Sept. 7, 1997, at B1. Despite this proposal, the Clinton Administration has continued to insist that it has no plans to propose mandatory controls on domestic encryption. See Jeri Clausing, *U.S. Official Says Clinton Wants Market-Driven Encryption Policy*, N.Y. TIMES ON THE WEB (CyberTimes), Oct. 9, 1997, available via search at <<http://www.nytimes.com/yr/mo/day/tech/indexcyber.html>>.

199. For a chart listing encryption bills and reporting their progress, see *1997 Federal Legislative Initiatives Affecting Electronic Banking and Commerce*, ELEC. BANKING L. & COM. REP., Jan. 1998, at 17-18.

200. H.R. 695, 105th Cong. (1997).

201. Although endorsed by the House Judiciary and International Relations Committees, SAFE foundered in the House National Security Committee, which amended the bill to give the President and Secretary of Defense continued control over the export of encryption products. See Jeri Clausing, *House Panel Votes to Strengthen Export Controls on Encryption*, N.Y. TIMES ON THE WEB (CyberTimes), Sept. 10, 1997, available via search at <<http://www.nytimes.com/yr/mo/day/tech/indexcyber.html>>. Worse yet, the House Select Committee on Intelligence amended SAFE to impose the sort of "trapdoor" desired by the FBI on domestic encryption technology. See Jeri Clausing, *House Committee Casts Wide Net with Encryption Vote*, N.Y. TIMES ON THE WEB (CyberTimes), Sept. 12, 1997, available via search at <<http://www.nytimes.com/yr/mo/day/tech/indexcyber.html>>. The House Commerce Committee rejected mandatory key recovery. See Jon Swartz, *New Strict Encryption Controls Rejected*, S.F. CHRON., Sept. 25, 1997, at D1.

The House Rules Committee must determine which of these conflicting versions Congress may consider. The chairman of that committee has indicated that he favors the key recovery provisions. See Elliot Zaret, *House Panel Wants Cops to Find Their Own Keys to Encrypted Code*, S.F. EXAMINER, Sept. 25, 1997, at B3.

C. The Rise of Community Electronic Currencies

Strong privacy would not be the only prerequisite for the healthy growth of more sophisticated Internet communities. In order to achieve their highest potential, communities would have to move beyond the limited world of discussion and develop commerce. Such a development would seem only natural; after all, individuals who have "perfect freedom to order their actions, and dispose of their possessions and persons, as they think fit,"²⁰² could, and often would, choose to trade with each other over the Internet.

Because the Internet is an electronic environment, electronic payment methods would be required to grease the wheels of community commerce. Thus, payments could be made with stored-value cards, "e-cash," or other electronic methods expressed in dollars or other government monies.

There is, however, a more radical alternative: individuals could develop, issue, and use private electronic currencies intended to circulate only within their own communities. Before explaining the benefits of such individualized currencies, this Article first presents a model.

1. The Basic Model

Local exchange trades schemes ("LETS") are small-scale barter systems, popular here and abroad.²⁰³ In Great Britain, around 20,000 persons have joined 350 LETS.²⁰⁴ These LETS members trade skills and services with each other, earning and spending points with fanciful names ("acorns," "bobbins," and so forth) that are often equivalent in value to pounds sterling.²⁰⁵ Bartered services range from social services such as cooking, computing, painting, and haircutting, to professional services such as lawyering and accounting.²⁰⁶ The mechanics are simple. For a nominal fee, new participants receive a checkbook that can be used to pay for services and keep a record of deals. They also get an updated directory of skills and services that other participants offer. Once

202. LOCKE, *supra* note 166, § 4, at 8 (emphasis omitted).

203. See Victor Keegan, *Defying Pitfalls of a Cashless Society*, GUARDIAN, May 30, 1995, at 13 (speculating that an electronic LETS could permit transactions over the Internet).

204. See Diane Boliver, *Strange Currencies: Cockles, Groats and Bobbins Take the Pain out of Paying*, SUNDAY MIRROR, Apr. 30, 1995, at 38.

205. See *id.*

206. See *id.*

written, checks are sent to a treasurer, who sends out regular statements to participants.²⁰⁷ Trades may be recorded on a central computer.²⁰⁸

American communities in thirty-eight states are using similar barter systems that measure the value of services in time units.²⁰⁹ One popular system based in New York State uses "Ithaca HOURS," which are printed as paper notes with watermarks and other features designed to prevent counterfeiting.²¹⁰ The use of paper notes, which can be traded hand-to-hand, eliminates the need to enter transactions into a central computer.²¹¹ One Ithaca HOUR is the equivalent of ten dollars.²¹² A bi-monthly newspaper, *Ithaca Money*, keeps participants informed by publishing advertisements and want ads for goods or services.²¹³

How could the LETS experience be translated to the Internet? Suppose members of a hypothetical Internet community wanted to barter information, skills, and services. Goods could also be traded, so long as members had access to delivery services. As a first step, the community would establish a private website where members could publish and search for advertisements and want ads. As a second step, the community would invent its own electronic currency, or "cyber-unit."

The cyber-unit could be issued and managed in one of two possible ways. The first method would rely upon a central computer or bookkeeper. A buyer would send the computer or bookkeeper a digitally signed²¹⁴ electronic message identifying herself and ordering payment of a specified number of cyber-units to a seller of goods or services. The

207. *See id.*

208. *See* David Boyle, *New Economics: Money for Old Hopes*, *GUARDIAN*, Mar. 22, 1995, at 4.

209. *See id.*

210. *See id.*

211. *See* Solomon, *supra* note 20, at 74.

212. *See id.*

213. *See id.*

214. Digital signatures work this way. Sender composes a message, then runs it through a hashing algorithm, creating a message digest. Then, she encrypts the message digest with her private key, which operates as a signature, and sends both the message and the signed digest. Recipient runs the message through the same algorithm that Sender used, creating his own digest. He then uses Sender's public key to decrypt her digest. If the two digests match, then Recipient has verified both that the message is from Sender, and that no changes were made to the message after it was sent. *See* Ira H. Parker, *Securing the World of Electronic Banking and Commerce*, 1 *ELECTRONIC BANKING L. & COM. REP.*, Mar. 1997, at 1, 3.

Use of digital signatures would allow the central computer or bookkeeper to verify both that the payment order was genuine, and that it had not been changed after sending. In this way, the Internet community could prevent wrongdoers from fraudulently issuing or altering payment orders.

computer or bookkeeper would debit the buyer, and credit the seller with cyber-units. The seller could use the resulting units to purchase services electronically from yet another member of the Internet community. Meanwhile, to work off her debt, the original buyer would offer services of her own in exchange for cyber-units. These transactions and records would be encrypted, or not, at the option of community members.²¹⁵

Could members exploit this centralized system by running up enormous deficits? LETS operating within physical space have not found a solution to this problem. Interest is not charged on debit balances, and there are no penalties for being in arrears.²¹⁶ As one LETS participant stated, "[s]ome people have debts of 1000 Strouds [a private currency] outstanding. There is nothing much we can do. It is on their conscience."²¹⁷ However, Internet communities, which are voluntary associations located in cyberspace, could afford to be stricter. Upon joining the community, a new member could agree as part of her contract not to allow her debit balance to exceed a certain amount on pain of expulsion. Alternatively, the community could limit the deficits that members were allowed to accrue.

A second method for currency management would mimic the Ithaca HOURS program. By using paper notes, Ithaca HOURS eliminates bookkeeping expenses and discourages freeloaders who might otherwise accrue enormous deficits. Likewise, the Internet community could use digital promissory "notes" consisting of electronic promises to pay the

215. It must be emphasized that use of the cyber-unit, or any other private Internet currency, would *not* exonerate members of the community from responsibility for income taxes. The Internal Revenue Code defines gross income as "all income from whatever source derived." 26 U.S.C. § 61 (1994). Bartered services are recognized as a form of gross income. The fair market value of such services must be included in income as compensation. See Treas. Reg. § 1.61-2(d)(1) (as amended in 1995). When barter clubs award barter units for performance of services, members must report the dollar value of those units as income for the tax year in which the units were received. C.B. Rev. Rul. 80-52, 1980-1, 26. Reasoning by analogy, a community member who performed services and was paid in private electronic currency would have to report the dollar value of that currency as income and pay taxes on it.

216. See Boliver, *supra* note 204, at 38.

217. James Meikle, *Stroud: Newly-Minted Swap Shop Can Feel Good About Lack of Cash*, GUARDIAN, July 13, 1995, at 9. One commentator has challenged the perception that such departures are benign. As he has pointed out, many LETS suffer from an over-accumulation problem. In other words, LETS participants who have provided services cannot find an outlet for their excess credits because the persons who accepted their services never provided any in return. Departing freeloaders deprive the LETS of the work energy it needs to survive. See Mark Jackson, *The Problem of Over-Accumulation: Examining and Theorising the Structural Form of LETS* (visited April 10, 1998) <<http://www.bendigo.latrobe.edu.au/arts/ijccr/TMJ.htm>>.

bearer one or more cyber-units.²¹⁸ To guard against counterfeiting, units would bear the digital signature of the issuing authority and would be designed so that they could be moved from one computer or storage medium to another, but not copied. As in the Ithaca HOURS program, the Internet community would release a limited number of cyber-units to each community member who was willing to offer goods or services in exchange for cyber-units.²¹⁹ Once trading begins, members might use software to transmit units electronically to each other, storing units on their hard drives. Alternatively, as explained in Part I above, the community could distribute computer-chip cards loaded with cyber-units, and members could use computers equipped with card readers to transmit units to each other over the Internet.²²⁰

Under either system, how would the cyber-unit be valued? Some British LETS declare that a single currency unit equals one pound sterling.²²¹ Similarly, the Internet community could correlate the cyber-unit to the dollar, or another government currency. However, for reasons explained more fully below, a transnational community could prefer a currency valued independently of government currency.²²² Towards this end, the Internet community could use online catalogs or other pricing information to help members understand what goods and services cost in the new currency. Given enough time and continued use, members would develop an independent sense of what the cyber-unit was worth. Under this alternative scenario, the value of the unit would float independently of the dollar or other currencies.²²³

Would the cyber-unit be redeemable in government currency (like dollars) or in gold, stock, commodities, or other assets? The answer might depend on its purpose. If, as explained below, the purpose were to provide economic support for members,²²⁴ the community might prefer a non-redeemable cyber-unit. On the other hand, the community might want only to encourage a sense of belonging²²⁵ or to facilitate transnational trade. Then, the community could make the unit redeemable in a government currency like the dollar or other assets with

218. For the reasons explained in note 45, *supra*, these digital "notes" would not be negotiable under Article 3 of the Uniform Commercial Code.

219. See Solomon, *supra* note 20, at 75.

220. See *supra* text accompanying notes 6 & 54-55.

221. See Boliver, *supra* note 204, at 38.

222. See *infra* Part II.D.

223. Cf. Solomon, *supra* note 20, at 76 (noting that catalog would allow value of Ithaca Hours to float independently of dollar).

224. See *infra* text accompanying notes 232-34.

225. See *infra* text accompanying notes 229-31.

value in the outside world. However, to do this, the community would need to maintain a reserve fund or asset pool large enough to ensure that redemption requests could be honored.²²⁶

D. Why Have Community Electronic Currencies?

Having explained how a community electronic currency would work, this Article next uses two hypotheticals to explore the advantages such currencies would offer Internet communities. First, suppose that amateur astronomers around the world decided to form an Internet community for the purpose of exchanging observational data, CCD photographic images, equipment, articles, and advice. Although these astronomers might exchange some data and information for free, they could charge each other for other items, ranging from CCD images of Comet Hale-Bopp to used telescopes and accessories. However, before transactions could occur, the astronomers would have to understand what items cost; and, if prices were quoted in a wide variety of currencies, confusion would result. Given the transnational character of the community, the astronomers would need a common medium of exchange, preferably denominated in a politically neutral unit. One solution would be to use a global electronic currency, such as the hayek, as their common medium of exchange. The advantage of this approach is that hayeks earned through trade within the community could be spent outside the community as well.

Alternatively, the astronomers could choose to devise and employ a community electronic currency that would circulate only within their own membership. Let us call this currency the "sagan," in honor of the late astronomer.²²⁷ Like the hayek, the sagan would serve as a common medium of exchange necessary for efficient transnational trade. Online catalogs and price lists would help the astronomers internalize the value of their new currency.²²⁸

226. The membership of an Internet community must be wealthy enough to use sophisticated computers on a regular basis. Thus, for many communities, financial problems would not pose a serious barrier to the establishment of a redemption fund.

227. Carl Sagan served as a Professor of Astronomy and Space Sciences at Cornell University and advised NASA on the Mariner, Viking, and Voyager unmanned space missions. He is perhaps best known for his public television series *Cosmos* and several books that sought to make astronomy and space science accessible to a wider audience, see, e.g., Carl Sagan, BILLIONS & BILLIONS: THOUGHTS ON LIFE AND DEATH AT THE BRINK OF THE MILLENNIUM (1997).

228. See *supra* Part I.B.

Unlike the hayek, however, the sagan would offer special social benefits. Social bonding would be particularly important to Internet communities, which would lack the sense of togetherness ordinarily produced by sharing a physical location. Trade would help the astronomers to build productive relationships with each other.²²⁹ As a community electronic currency, the sagan would heighten this bond by conveying a sense of *identity* — of belonging to a *unique* community, distinct from the rest of society. In this sense, the sagan would serve the same purpose as private or imaginary languages, which have already begun to appear on the Internet.²³⁰ Moreover, by supplying a politically neutral unit, the sagan would eliminate the corrosive effect that national or political chauvinism might otherwise have on community ties.²³¹

Second, suppose that global animal rights advocates formed a community on the Internet to provide a haven where their controversial beliefs and advocacy projects could be shared and discussed. Assume further that at least some of these advocates suffered ridicule, contempt, and discrimination in employment and the marketplace as the result of their beliefs.²³² Advocates who could not find employment would benefit from increased opportunities to work for each other.²³³ Advocates who could not otherwise gain access to necessary goods or services would benefit from increased opportunities to trade with each other. Of course, members could trade with each other using any

229. As one LETS advocate explained, "LETS gives [people] a tangible way to be neighbourly. It's a way of getting to know people, but it's not just a social circle. People are trading skills and resources so there's a productive, positive relationship." John Vidal, *Other Lives: Take a Few Pigs Along to the Pie in the Sky Cafe and Watch Payment Go Bob-Bob-Bobbin' Along*, GUARDIAN, Mar. 12, 1994, at 25.

230. For example, the original television series *Star Trek* featured an alien race of warriors known as the Klingons. The Internet now includes a site for the Klingon Language Institute ("KLI"). The KLI has two main goals: first, to promote, foster, and develop the Klingon language; and second, to unite Klingon linguists around the world by providing a forum for discussion. See Lawrence M. Schoen & Mark Shoulson, *The Klingon Language Institute* (visited Apr. 20, 1998) <<http://www.kli.org>>.

231. See *supra* Part I.D.2.

232. Strong privacy could reduce such persecution by making it easier for animal rights advocates to express their views while keeping their true identities hidden from others. For a discussion of strong privacy, see *supra* Part II.B. However, to have a significant impact on public opinion, advocates sometimes might find it necessary to declare their views openly to potential converts or within the political arena.

233. Cf. Lynne Edmunds, *Special Report Business Champions: Let's Put Our Heads Together and Trade Jobs*, DAILY TELEGRAPH, Sept. 30, 1994, at 4; Alan Wheatley, *Bobbins, Acorns Revive Economy at Community Level*, REUTERS WORLD SERV., June 17, 1994 (explaining that LETS provide an outlet for the work energy of the unemployed and elderly).

common medium of exchange. However, by employing a non-redeemable electronic currency that could be spent only within its membership, the community could further encourage such trade as a means of expressing social *solidarity*.²³⁴

E. Should Government Regulate Community Electronic Currencies?

By reinforcing group identity and solidarity, community electronic currencies may help Internet communities survive and thrive. But what benefits would community electronic currencies offer society at large?

Any organization that brings like-minded individuals together increases opportunities to engage in profitable trade, whether inside or outside the organization. Although networking within any one Internet community could be insignificant, networking within thousands of communities, with millions of members, could significantly expand both the scope and total amount of electronic commerce. Thus, community electronic currencies could promote the widest range of electronic commerce, enriching society as a whole.

Moreover, the rise of community electronic currencies would not jeopardize existing policy goals. Even cumulatively, such currencies would represent too small a portion of the money supply to complicate its management.²³⁵ Moreover, given their limited circulation, community electronic currencies would not pose a serious competitive threat to the dollar and thus could neither threaten monetary policy, nor undermine political power.²³⁶ Therefore, if the United States government is sincerely interested in encouraging electronic commerce, it should work to create a legal environment that would permit the rise of community electronic currencies.

Fortunately, the legal landscape already looks relatively friendly towards community electronic currencies. According to Professor Lewis Solomon, federal law limits the private minting of metal coins,²³⁷ but

234. Cf. Solomon, *supra* note 20, at 72; John Vidal, *Bank to the Future*, GUARDIAN, Jan. 28, 1995, at 21 (arguing that LETS keep wealth within community, thereby stimulating the local economy).

235. Cf. *supra* Part I.E (explaining why global electronic currencies would not compromise money management).

236. Cf. *supra* Part I.E (explaining why global electronic currencies would not jeopardize monetary policy or erode political power).

237. See Solomon, *supra* note 20, at 82-83. Federal law makes it a crime to issue metal coins intended for use as current money. See 18 U.S.C. § 486 (1994); see also *id.* § 491(a) (prohibiting issuance of any coin, card, token, or device in metal intended to be used as money). For a more detailed account of these statutes, see *supra* note 102 and accompanying text.

does not preclude issuance of paper currencies intended to circulate only within a neighborhood LETS.²³⁸ Presumably then, federal law would permit issuance of an electronic currency designed solely for limited circulation within an Internet community.²³⁹ Unfortunately, the presence of a patchwork of laws in the fifty states could limit the use and circulation of community electronic currencies.²⁴⁰ To eliminate such barriers, Congress could enact legislation to authorize expressly the issuance of community electronic currencies and to preempt state laws to the contrary. On an international level, the United States could propose a convention or model law that would acknowledge the utility and legitimacy of such currencies.

Internet communities might also be concerned that federal or state regulators would characterize credit balances as "deposits," thereby calling the full panoply of banking laws and regulations into play.²⁴¹ But this would be an absurd outcome, since the policy reasons for those laws

238. See Solomon, *supra* note 20, at 81–82. Federal law prohibits the issuance of any note, check, memorandum, token, or other obligation for a sum less than one dollar, intended to circulate as money or to be received or used in lieu of lawful money of the United States. See 18 U.S.C. § 336 (1994). However, the Supreme Court has held that this law does not prohibit issuance of small notes redeemable in goods. See *United States v. Van Auken*, 96 U.S. 366, 368–69 (1877). The Court reasoned that Congress intended to protect U.S. currency from competition, but did not mean to interfere with notes having only limited circulation within a neighborhood. See *id.* at 367–68.

For further discussion of the statute and case law, see *supra* note 102 and accompanying text.

239. An electronic currency like the cyber-unit would not be intended to circulate as money in competition with the money of the United States. See *Van Auken*, 96 U.S. at 368. Unless made redeemable in cash, the cyber-unit would be payable only in goods or services. Furthermore, the cyber-unit would circulate only within the Internet community. See *id.*

The community could sidestep this issue altogether by giving the cyber-unit a value greater than one dollar. See 18 U.S.C. § 336 (1994); see *supra* note 102.

240. See Solomon, *supra* note 20, at 85–86. On the one hand, a currency intended to circulate only within one Internet community might not offend state laws that prohibit the issuance of notes that would circulate as money. See, e.g., CAL. PENAL CODE § 648 (West 1988); see also *supra* note 102 (discussing similar federal laws). On the other hand, an Internet community using an electronic currency could run afoul of laws that prohibit payment of wages in scrip, merchandise, or any form other than in money. See, e.g., CAL. LABOR CODE § 212 (West 1989).

This Article does not include a thorough survey of possibly relevant laws in the fifty states for the reasons given earlier. See *supra* note 100.

241. This risk would be greater if the community utilized a central computer or bookkeeper system. See *supra* note 50. In such a system, the credit balance of each member might be considered an account, which the member accessed through payment orders issued to the computer or bookkeeper. For a discussion of deposit-taking as banking, see *supra* text accompanying notes 121–25.

and regulations would not be seriously implicated. Granted, one or more currencies could collapse due to mismanagement, causing some unlucky participants to lose the value of their credits.²⁴² But given their extremely limited circulation and idiosyncratic nature, community electronic currencies are unlikely to inspire panics or otherwise threaten the payments system as a whole.²⁴³ Therefore, regulators like the Fed should not only acknowledge that our banking laws and regulations would not apply to community electronic currencies, but work to obtain similar concessions from foreign regulators.

III. CONCLUSION

Global electronic commerce would benefit from two distinct types of privately issued, denominated, and managed electronic currencies. One type, global electronic currencies, would function within the cybermarket as efficient media of exchange, politically neutral units of currency, and stable stores of value. Another type, community electronic currencies, would function within specific Internet communities to strengthen social bonds and facilitate transnational trade. At this time, neither type would pose a serious threat to government control over economic or monetary policy, nor jeopardize the payments system. Accordingly, the United States should act to eliminate unnecessary regulatory clutter — and, if necessary, should enact new laws specifically authorizing the private sector to develop global and community electronic currencies, subject to as few regulatory restraints as possible. Similarly, the United States should push hard on the international scene to eliminate negative attitudes and regulatory barriers found in other countries.

President Clinton and Vice-President Gore have articulated a striking vision of a global electronic commerce that can enhance the wealth and lives of individuals around the world. However, this vision will mean nothing unless the government acts to implement it. The government can take a step in the right direction, by encouraging private companies to issue their own currencies for use on the Internet.

242. In the context of community electronic currencies, runs would not pose the most serious threat. Indeed, for systems utilizing non-redeemable currencies, runs would be impossible. Rather, community electronic currencies are most likely to founder when free riders leave the system without contributing services, thereby causing other members to accumulate large credit balances that cannot be spent. *See supra* note 217.

243. *Cf. supra* Part I.F.2 (reasoning that the insolvency of a single issuer of global electronic currencies should not threaten the entire financial system).