WHY REGULATE CYBERMONEY?

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INTRODUCTION: WHAT DISTINGUISHES CYBERMONEY FROM MONEY?

Economists long have admitted uncertainty about what money really is. The Federal Reserve marks the confusion by monitoring at least
four measures of money, M1, M2, M3, and L. Even when defined functionally, money's confines are uncertain. Money's usefulness as a vehicle for payment almost always is acknowledged, but it often is counterposed against the role of money as a store of value, with varying degrees of emphasis placed on each role. Meanwhile, money also serves as a sort of loan from money-holders to money-issuers. Moreover, in the background of most functional definitions are suggestions that money serves as a tool for governments to exercise macroeconomic control and to channel financial commerce along preferred routes.

Cybermoney is subject to the same definitional uncertainties as money proper, plus a few of its own. Some use “cybermoney” or “cybercash” to refer narrowly to anonymous small-scale payment transactions over the Internet that are designed to facilitate Internet purchases, especially purchases of information that are too small to warrant the expense associated with clearing. On the other hand, at least one commentator uses the term “cybermoney” more generally to refer to “any and all types of ‘electronic money,’” including “electronic funds transfers . . . , electronic benefit transfers . . . , electronic data processing . . . , electronic payment systems . . . ,

2. M2 consists of M1 plus savings and small-denomination time deposits, overnight repos, overnight Eurodollars, money market mutual funds, and money market deposit accounts. See id. at 6-7.
3. M2 plus large-denomination time deposits at all depository institutions, repos at commercial banks for terms longer than overnight, and institution-only money market mutual fund balances comprise M3. See id. at 10.
4. L includes M3 plus other liquid assets such as Eurodollars held by U.S. residents other than banks, bankers' acceptances, commercial paper, Treasury bills, and other liquid Treasury securities. See JOHN DOWNES & JORDAN E. GOODMAN, BARRON'S FINANCE & INVESTMENT HANDBOOK 347 (1987).
6. The difference in value between the cost of a monetary token and the resources that the token are worth in the market is termed “seigniorage.” See BLACK'S LAW DICTIONARY 1358 (6th ed. 1990). Traditionally, in metal-based systems, seigniorage was understood as the difference between the base value of the metal and the face value of the coin. See JUDY SHELTON, MONEY MELTDOWN—RESTORING ORDER TO THE GLOBAL CURRENCY SYSTEM 217-20 (1994). In flat paper systems in which there is no convertibility to metal, seigniorage is even higher—the face value of the paper for the period during which the currency circulates, or, stated differently, the implicit rate of interest on the face value of the paper. See id. at 212-13.
7. See infra Part I.H (discussing reasons that government may want to manage money supply to achieve macroeconomic control).
8. See Keiron Henderson, Cybermoney Friend or Foe?, REUTERS WORLD SERVICE, Mar. 11, 1996, available in LEXIS, Nexis Library, News File (discussing how more traditional banking systems are resisting cybermoney).
global payment systems..., and use of home computer... to access bank services."

Because of the rapid, and inevitably uncertain, evolution in the current practices and technologies of modern money and banking, this Article employs a broad analytical definition rather than more particularized, empirically based understandings about the scope of cybermoney that may be evolving in the business of banking. Therefore, this Article presumes that money is any standardized, fungible device that market participants recognize as representing a valid current claim on resources in that market. Additionally, unless otherwise noted, this Article presumes that cybermoney is any such monetary device that necessarily relies upon electronic signals to state the holder's claim.

Viewed in this broad way, cybermoney is a large and only subtly discrete subcategory of money in general. Its only distinction from money is, by definition, its necessary reliance on an electronic medium. From this perspective, any discussion about whether to regulate cybermoney should entail an inquiry into the basic rationales for monetary regulation, to which this Article now turns.

I. WHY REGULATE MONEY?

Money is one of the oldest subjects of governmental regulation. Not surprisingly, the justifications asserted by governments for their interventions in this field are several and various. At least fifteen sometimes overlapping rationales recur in discussions about the government's role in regulating money. 11

A. To Set a Standard Accounting Unit

Perhaps the most elementary role asserted by governments for their involvement in money is to define a common unit of monetary measure that will enable the translation of values between different classes of and markets for assets, where those classes and markets may be segmented economically, geographically, or politically. Indeed, the question of setting the unit of account was the first one addressed by Alexander Hamilton in his 1791 Report on the Establishment of the Mint. 12


11. See infra Part I.

12. Hamilton pondered: "1st. What ought to be the nature of the money unit of the United States?" 2 ANNALS OF CONG. 2061 (1790-91).
Shortly afterward, pursuant to its apparently substantial constitutional powers to regulate money, the U.S. federal government adopted a formal system for monetary notation that established the same decimal-based dollar notation that is used today. The validity of this regulatory endeavor to set a standard unit of monetary measure never was questioned seriously and is viewed widely as a proper responsibility of any sovereign national government. Although it is viewed as proper for governments to set a unit of account, it is not universally understood to be necessary. A few countries, for example, "borrow" units of account along with the currencies of better established nations.

B. To Fix Money's Relationship to Other Assets

The rate at which a particular form of money will be exchanged for other valued assets is another elementary concern of government, especially in the context of full-bodied or representative full-bodied currencies and fixed-exchange-rate systems like the one that prevailed among many nations from 1946 to 1971 pursuant to the Bretton Woods Agreement. For example, beginning in 1792 in the United States, Congress carefully fixed precise relationships among gold, silver, and coin. Likewise, in the Bretton Woods Agreement Act, the United States in 1945 fixed the rates at which foreign governments can redeem its currency for gold.


15. See SHELTON, supra note 6, at 171-75.

16. Indeed, the United States itself began its monetary system on the template of the Spanish milled dollar. As of June 1983, the currencies of at least 54 nations were pegged to a single currency—36 of those currencies being pegged to the U.S. dollar. See ANDREAS F. LOWENFELD, THE INTERNATIONAL MONETARY SYSTEM 233 (2d ed. 1984) (citing INTERNATIONAL MONETARY FUND, 1983 ANNUAL REPORT 65-66 (1983)).

17. See HUTCHINSON, supra note 1, at 512-13 (describing how most of world's nations were concerned with method by which exchange rates would be established and how system of adjustable pegs emerged when exchange rates were kept stable in most cases).

18. See id. at 512-15 (explaining how exchange rates were stabilized under Bretton Woods System through national exchange stabilization funds).

19. Silver dollars were to contain 371 and four-sixteenth grains of pure silver or 416 grains of standard silver. See The Mint Act, ch. 16, § 9, 1 Stat. 246, 248 (1792). Meanwhile, ten-dollar gold "Eagle" coins were to contain 247 and four-eighths grains of pure gold or 270 grains of standard gold. See id.


21. See id.
Although a benchmark relationship to an existing currency or asset historically may have been useful for a fledgling currency, governments in the modern era have tended to withdraw from the task of setting fixed relationships among more established currencies and assets. Instead, governments in the modern era are allowing the relative rates to be determined by the increasingly mature private markets in currency. In the United States, at least since 1971 when the dollar officially was allowed to "float," the international currency markets, rather than governments, have set the relative value of the dollar internationally—despite occasional calls for a return to a fixed international gold standard. Domestically, the federal government withdrew from the classical gold standard in 1914. In more recent years, when governments like those in Russia and Nigeria tried to enforce fixed international exchange rates for their currencies, black markets in currency exchange sprung up quickly, undermining their efforts. In short, the attempt to set a fixed exchange rate for a currency is of questionable viability today, unless the issue is small and the issuer is willing and able to subsidize discrepancies between the exchange rate and the market price.

C. To Provide an Initial Source of Money

In the United States, the power of the federal government to coin money was established constitutionally and has been exercised ever since. The issuance of money by the government may be justified as a primer to start the engine of monetary circulation, giving substantive content to money beyond its mere status as a unit of account having a defined value relative to other currencies and assets.

A government's initial interest in issuing money to prime the pump of circulation may be distinguished from its possibly separate interest in controlling, or even monopolizing, the supply of money in perpetuity, a goal discussed later. At least until the Civil War, the U.S. government's power to issue money was not suggested to be

23. See Shelton, supra note 6, at 53.
24. See id. at 49-60.
25. See U.S. Const. art. 1, § 8, cl. 5 ("The Congress shall have Power... To coin Money, regulate the Value thereof, and of foreign Coin... ").
26. In 1792, Congress passed an Act establishing a mint, and regulating coins of the United States, which established the mint as a seat of government and among other things set the standard for gold and silver coins in the United States. See The Mint Act, ch. 16, 1 Stat. 246 (1792).
27. See infra notes 47-59 and accompanying text.
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exclusive.28 Although American states were prohibited constitutionally from coining money,29 probably because of their poor records as issuers during pre-constitutional times, private parties could issue currency and vigorously exploited this opportunity during the Gold Rush era from 1830 to 1860.30 More importantly, private banks issued paper money almost from the founding of the republic until 1863.31 Their issues were especially prolific during the free banking era beginning in 1836, after the demise of the Second Bank of the United States, and ending with the National Currency Act of 1863.32 Not until 1864 was the private issuance of coins outlawed,33 and private issue of paper currency apparently never has been prohibited.34

In short, the issuance of money at the threshold of a monetary system may be justified as a method of bringing life and currency to the establishment of an otherwise abstract monetary system, but it is a rationale that does not justify the monopolization of money.

D. To Facilitate the Ready Acceptance of Money

Having established a unit of account, adopted a benchmark of relative value, and injected money into the stream of commerce, governments also commonly have sought to ensure the public’s ready acceptance of that money. Fostering public acceptance is a job of considerable difficulty and finesse for which law normally is not well suited. Nonetheless, the usefulness of any form of money is linked closely to the extent to which the public accepts it. Thus, governments often have applied themselves diligently to various forms of public relations on all matters monetary.35

The first step that governments typically take to enhance money’s public acceptability is a simple and rather blunt technique: They make money legal tender. In the United States, the legal tender rule

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28. See Sheldon, supra note 6, at 236-41.
29. See U.S. Const. art. 1, § 10, cl. 1 ("No State shall . . . coin Money, emit Bills of Credit; make any Thing but gold and silver Coin a Tender in Payment of Debts . . . ").
31. See id. at 62 (discussing how 1863 National Banking Act provided for federally chartered note-issuing banks and also how Act taxed state chartered bank notes).
32. ch. 58, 12 Stat. 665 (establishing Bureau of Currency within Department of the Treasury to execute all national legislation regulating national currency secured by U.S. bonds).
34. See Solomon, supra note 30, at 82.
35. For example, central bankers routinely issue statements designed to influence currency traders about the relative strength or weakness of their currencies—although there is increasing skepticism about the efficacy of such jawboning.
adopted in the first mint act\textsuperscript{36} remains in today’s law books\textsuperscript{37} and is recited on every Federal Reserve note.

One might imagine that the legal tender rule would end any question about the acceptability of a form of money, but public reluctance still may hamper the viability of legal tender as a circulating medium. A reluctant public, for instance, may drag its feet in accepting a particular form of money, may flaunt the legal tender rule outright, or may avoid denomiating debts in terms of the unit of account. Effective public resistance to a particular form of currency is common today in many less developed countries where the public disfavors the native currency and has access to a more desirable foreign currency, such as dollars, marks, pounds, or yen.

Another type of public resistance to accepting a form of money arises when the supply of that money is infected with undesirable elements, including debased forms of money, counterfeit versions, or inferior substitutes. Even when the incidence of such “bad” money is relatively small, transactions still may be slowed as handlers check for quality. If the incidence of bad money is large enough, the bad money will drive the “good” money out of circulation completely.\textsuperscript{38}

Governments may address this sort of public resistance to dealing in money of inconsistent quality by legally discouraging debasement, counterfeiting, and lesser-valued substitutes. In the United States, for example, the power to debase the money supply is segregated partly in the Federal Reserve to protect against easy monetary intervention by politicians seeking short-term gains. Another way to preserve the quality of the money supply is to adopt and enforce anticounterfeiting laws.\textsuperscript{39} Thus, to protect against the introduction of potentially inferior substitutes, the U.S. government takes pains to ensure that its coins differ from Canadian coins of comparable size and denomination.

In short, government occasionally plays a role in cultivating the public’s willingness to accept money in transactions, whether through direct regulation of the public’s behavior or by ensuring that the

\textsuperscript{36} “[A]ll the gold and silver coins which shall have been struck at, and issued from the said mint, shall be a lawful tender in all payments whatsoever . . . .” The Mint Act, ch. 16, § 16, 1 Stat. 246, 250 (1792).

\textsuperscript{37} See 31 U.S.C. § 5103 (1994) (“United States coins and currency . . . are legal tender for all debts, public charges, taxes, and dues.”).

\textsuperscript{38} This concept is known as Gresham’s Law and is attributed widely to Sir Thomas Gresham (1519-1579), financial advisor to Queen Elizabeth I. See MILLER & PULSINELLI, supra note 5, at 27, 221.

\textsuperscript{39} The counterfeit laws of the United States are codified at 18 U.S.C. §§ 470-513 (1994).
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quality of the money supply is so good and consistent as to encourage
the public to rely on it without worry.

E. To Prevent Panic in Redemption, Convertibility, or Transfer

Even if the public initially accepts and uses a form of money, it later
may lose faith in that form. For example, although one may hold
deposits in a particular bank when the bank appears healthy, one may
seek to withdraw those deposits if the bank develops an apparent
weakness. Should the weakness appear suddenly, and should public
perceptions gel simultaneously, the results can be a widespread,
panicked attempt to flee from the asset and a loss in the viability of
the form of money. This phenomenon is exemplified by the repeated
financial panics of the late nineteenth century, such as the panic of
1857, which occurred in the wake of the sinking of the Central America
on its way to New York from California with $2 million in gold.40

One response to the threat of financial panic is to provide coping
device. Although private arrangements, like the “loan certificates”
developed by the banking clearinghouses during the late nineteenth
century, can minimize the effects of financial panics without govern-
mental intervention, governments sometimes have used a financial
panic to justify monetary and financial intervention. For example, the
financial panic of 1907 led directly to the passage of the Aldrich-
Vreeland Act,41 which nationalized the contemporary technology for
providing liquidity during a financial panic. Reserve requirements,
which now are set between eight and fourteen percent of transaction
accounts held by banks,42 also serve, in part, as a legally enforceable
method of coping with the threat of a bank run.43

In addition to providing cover in the midst of a financial panic,
government might intervene to reduce public incentives to flee from

40. For a discussion of the panics and private attempts to quell them, see 2 FRITZ REDLICH,
THE MOLDING OF AMERICAN BANKING (1968); and David G. Oedel, Private Interbank Discipline, 16
("FRB") discretion to set reserve rates).
43. Recent Swiss experience suggests that mandatory reserve levels may be higher than
necessary to cope with the threat of a run. When the Swiss dispensed with mandatory reserve
requirements in 1988, reserves fell dramatically, apparently without notable effect on the stability
of the currency or depository banks. See F.X. Browne & David Cronin, Payments Technologies,
requirements may serve purposes other than to cope with panic, such as to tax financial
institutions, to fund the regulatory bureaucracy, and to operate as one of several tools for
governmental manipulation of the money supply. See MILLER & PULSINELLI, supra note 5, at 271-
75 (discussing reasons for requiring maintenance of resources).
a monetary instrument. To the extent that such an intervention is successful and a panic does not occur, maintenance of an effective system for withstanding panics would be unnecessary.

Deposit insurance is a good example of a governmental intervention justified for its usefulness in minimizing the possibility of panic. Thus, although the banking crisis and "holiday" of 1933 provided the impetus for the initial adoption of federal deposit insurance, the continued provision of deposit insurance by the U.S. government today represents a fundamentally different strategy for addressing the threat of financial panic than does the intervention of government to provide liquidity during a crisis. Deposit insurance minimizes the possibility of panic; legally assisted liquidity salves a panic. However, both strategies share the common general purpose of minimizing disruption and loss from possible changes in public perceptions of the vitality of particular monetary instruments or institutions.

F. To Guard Against the Possible Misuse and Counterfeiting of Money

In its traditional forms, money gives to its users the chance to buy or sell valuables more quickly and more anonymously than in a barter economy. This feature may be useful not only to legitimate businesspersons seeking to streamline commerce, but also to parties hoping to hide illegal transactions, illicit sources of funding, and taxable income from public scrutiny. To prevent the use of money for such fraudulent purposes, governments sometimes oblige financial institutions to report unusual cash transactions and to disclose monetary flows that appear to be linked to fraudulent activities. The government's interest in policing against the misuse of currency is counterposed, however, against its obligation to avoid excessive intrusion into its citizens' reasonable expectations of privacy—a duty that is enshrined formally in law.

44. Federal deposit insurance was ushered in by the Glass-Steagall Act, also known as The Banking Act of 1933. See The Banking Act of 1933, ch. 89, § 12B, 48 Stat. 162, 168 (codified as amended at 12 U.S.C. § 1811 (1994)) (providing for "safer and more effective use of the assets of banks to regulate interbank control").

45. In the United States, for example, banks generally are obliged to report currency transactions greater than an amount prescribed by regulation of the Secretary of the Treasury. See The Bank Secrecy Act, 31 U.S.C. § 5313 (1994). Currently, the triggering amount is $10,000. See 31 C.F.R. § 103.22 (1996). The statute provides for mandatory exemptions to the reporting requirement when the transaction involves another depository institution; state, federal, or local government agencies; entities organized under state, local, or federal law to exercise governmental authority; or any business that the Secretary of the Treasury determines is not of interest to law enforcement. See 31 U.S.C. § 5313(d). The filing of required reports is governed by 31 C.F.R. §§ 103.20-103.29.

46. See, e.g., The Right to Financial Privacy Act of 1978, 12 U.S.C. §§ 3401-3422. Section 3402 limits the ability of government authorities to access financial information in certain
Governments also sometimes defend their issue and regulation of money on the ground that such intervention minimizes the threat of counterfeiting. The standardization of the supply of monetary issues may call greater attention to irregularities in issue, thereby simultaneously increasing the chance of detecting counterfeits and reducing the incentive to issue counterfeits.

G. To Limit Over-Supplies of Money and Erosion in the Value of Prior Issues

The successful implementation and circulation of any monetary device poses a lingering temptation for any individual, firm, or government with continuing supervisory authority to increase the supply of the money. By effecting implementation, the issuer gains funds for its discretionary use, the costs of which ultimately are borne by all prior holders of the currency to the extent that the over-issue debases the value of the currency as a whole.

Over-issue of currency has been a problem throughout monetary history. During the pendency of the Articles of Confederation in the United States, the Continental Congress' issuance of paper money was so rapid that the value of the paper quickly became negligible, thus giving rise to the idiom of depreciation, "Not worth a Continental." The infamous inflation of Weimar Germany after World War I and the notorious inflations of some South American countries in the 1980s, offer more recent examples.

To limit over-issues of currency, law takes two basic approaches: (1) it limits the number of potential issuers; and (2) it restricts the circumstances under which the remaining issuers may increase supplies of money.

Examples of legal limits on the ranks of issuers include the U.S. Constitution's prohibition against states issuing money, the nation-

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situations, such as when the customer has authorized disclosure or when a subpoena or warrant has been procured. See id. § 3402. See generally William C. Heffernan, Property, Privacy and the Fourth Amendment, 60 BROOK. L. REV. 693, 670-88 (1994) (discussing implications of Fourth Amendment on government's ability to seize intangible and computerized bank assets).

47. See Oedel, supra note 40, at 337 & n.34 (stating that, as a symbolic gesture, government redeemed Continentals in 1790 at one percent of their face value).

48. From 1920 to 1924, the German economy existed in a state of hyperinflation, with a rate of 100 million percent between December 1922 and November 1923. See MILLER & PULSINELLI, supra note 5, at 19.

49. Brazil's inflation rate at times exceeded 100% per month. See Norman Gall, Shunning Map to Prosperity, Vast Nations Take the Low Road, WALL ST. J., May 31, 1989, at A18.

50. See U.S. CONST. art. 1, § 10, cl. 1.
alization of paper money issue in 1863,51 and the subsequent consolidation of much authority to issue paper money in the Federal Reserve banks.52 Regulation also limits the flexibility of the few remaining issuers of money. For example, the Federal Reserve Bank ("FRB") is constrained in its manipulation of the money supply by its obligation to make most important monetary supply decisions through the vehicle of the Federal Open Market Committee,53 a body that is subject to various procedural checks designed to minimize the possibility of rash, ill-considered, and overly political decisions about the supply of money.

H. To Use Money as a Tool to Sustain Macroeconomic Health

If a particular absolute amount of money is shown to have been associated with an acceptably robust level of macroeconomic activity, a government might be inclined to try to fix the money supply at that "ideal" level. For several reasons, though, economies do not stand still. The population grows or shrinks; business grows or shrinks; the unemployment rate grows or shrinks; domestic spending grows or shrinks; the foreign demand for currency, goods, and services grows or shrinks. Fluctuations in the markets for money make it possible to justify governmental attempts to manage those markets to sustain steady economic conditions.

During the twentieth century, governments have grown increasingly sensitive to their roles in sustaining a macroeconomically healthy balance between the supply of and the demand for money, while encouraging steady, gradual growth in the supply of money to avoid constricting the natural growth of the economy. When governments intervene for these purposes, they have two basic strategies: they attempt to influence either the demand for or the supply of money.
Both strategies have been used, although the first, and most adventuresome, regulatory efforts in this century focused on manipulating monetary demand, and later regulatory efforts have focused on manipulating supplies of money.

Before and during the Great Depression, the FRB and other central banks resisted providing enough liquidity (supplying enough money) to assist banks and firms facing financial panic.\footnote{See \textit{Milton Friedman} \& \textit{Anna J. Schwartz}, \textit{A Monetary History of the United States 1867-1960}, at 300 (1963).} Under specie-backed monetary systems, like the one that existed in the United States until 1914, governments had limited ability to manipulate the money supply.\footnote{See \textit{id.} at 212-13.} Even after 1914 in the United States, the FRB was wary of experimenting with the potentially powerful and untested effects of money supply manipulations.\footnote{See \textit{id.} at 213-14, 532-33.}

Meanwhile, encouraged by the insights of economist John Maynard Keynes,\footnote{See generally \textit{John Maynard Keynes}, \textit{The General Theory of Employment, Interest, and Money} (1936).} other arms of governments adopted aggressive governmental spending policies to boost demand for money.\footnote{In the United States, for instance, the Roosevelt Administration established the Works Progress Administration to employ hundreds of thousands of people in public projects.} Demand for money also may be influenced at the central bank level by lowering or raising interest rates, which in turn may be affected by adjusting the price and quantity of funds available for banks to borrow through operation of the "discount window."

Supplies of money, on the other hand, are manipulated most directly today in the United States through the availability of government debt for sale and the open market purchase or sale of such debt by the FRB. Purchases of government debt introduce new money into the economy with high-powered, multiplier effects. Alternatively, sales of such debt retire money from circulation, thereby ending the cycle in which such funds naturally multiply.

As the twentieth century draws to a close, however, the ability of central bankers to dictate \textit{either} the demand for or the supply of money is growing weaker, apparently because the relative size and frequency of governmental intervention in the money markets is decreasing in relationship to the amount of private activity.\footnote{See Kenneth H. Bacon, \textit{The End of Banking as We Know It}, \textit{Wall St. J.}, July 9, 1993, at A1 (discussing FRB Chairman Alan Greenspan's alarm about FRB's growing difficulty in attempting to exercise control over money supply).} Thus,
although the macroeconomic watchdog rationale for governmental intervention in the regulation of money historically has seemed to justify almost any plausible degree of governmental intervention in the money business—including monopolization of the supply of money—the rationale is growing progressively more dubious.

I. To Streamline and Police Monetary Transactions

Even after facilitating the basic development of currency, government may have an additional role in facilitating the operation of a predictable, uniform, fair, and inexpensive system for its exchange. Although, as an historical matter, most payment systems have emerged from commercial practice, state and federal laws often have been enacted to regularize those procedures and to reform aspects of those systems that tended to take advantage of relatively disorganized groups of affected users. Examples of such regulations include Articles 3, 4, and 4A of the Uniform Commercial Code ("U.C.C."), the Expedited Funds Availability Act, and the Electronic Fund Transfers Act ("EFTA").

60. See U.C.C. arts. 3, 4, & 4A (1991). These articles of the Uniform Commercial Code ("U.C.C.") are illustrative of legislative attempts to structure the rules governing a form of currency after private markets have established working practices independently. The comments to each article speak directly of a need for legislation to define clearly the rights and duties of private parties and to provide fair notice to persons engaging in various transactions. Article 3 of the U.C.C. deals with negotiable instruments, attempting to standardize the conventions attending their use and to put persons using them on notice of the rights and duties recognized by law. See JAMES J. WHITE & ROBERT S. SUMMERS, UNIFORM COMMERCIAL CODE § 13-1, at 460 (4th ed. 1995). When first created, Article 3 significantly changed existing law. See U.C.C. § 3-301 cmt.

Article 4 defines the rights between parties with respect to bank deposits and collections. The official comment to § 4-401 states the need for comprehensive legislation: "There is needed a uniform statement of the principal rules of the bank collection process with ample provision for flexibility to meet the needs of the large volume handled and the changing needs and conditions that are bound to come with the years . . . ." U.C.C. § 4-401 cmt.

Article 4A, added in 1989, applies to funds transfers, specifically to "wholesale wire transfers." See U.C.C. art. 4A prefatory note (1991). It does not apply to transactions governed by the Electronic Fund Transfer Act ("EFTA"). The drafters of Article 4A believed that uniform legislation was necessary as there was an absence of comprehensive law "defin[ing] the rights and obligations that arise from wire transfers." Id. They also lamented that there was "no consensus about the juridical nature of a wire transfer and consequently of the rights and obligations created." Id.


J. To Supervise Lending and Borrowing

Probably the most ancient rationale for governmental intervention in finance involves the delicate, potentially exploitive, nature of relations between lenders and borrowers. Money itself, however, technically is a loan from holder to issuer. Because the issuers of money typically are stronger than the users of money (who formally are the "lenders" of present values), government need not intervene to protect the "borrower" issuers.

Nevertheless, money markets can have an effect on traditional lending relationships. If government is so involved in monetary regulation as to have a hand in purposefully guiding macroeconomic supply of and demand for money, then government also may have a responsibility to ensure that its manipulations do not discriminate incidentally against particular classes of potential borrowers in the lending markets. This has been a longstanding subject of governmental concern when monitoring bank lending, as evidenced, for example, by diverse state consumer protection laws, usury prohibitions, the Equal Credit Opportunity Act,66 and the Community Reinvestment Act of 1977.67 On the other hand, the regulatory bureaucracies themselves have faced less legal scrutiny of their operations; however, at least one, the Federal Savings and Loan Insurance Corporation, was dealt a legislative death blow in the wake of the notorious bailout of the thrift industry in the 1980s.68

K. To Foster Competition and to Inhibit Private Monopolization

Even if the banking industry were not consolidating at a rapid pace already, the American people and their political representatives likely would entertain the application of antitrust laws and affiliation limitations with respect to any monetary systems that might promise
to dominate payment transactions in the future. Indeed, the American public long has been skeptical of concentrations of power in money and finance. For example, each of the first quasi-public controllers of the currency, the Bank of North America, the First Bank of United States, and the Second Bank of the United States, was dissolved in the wake of general public alarm at their sheer size and efficacy in the business of administering monetary discipline. 9 The Sherman Act, 70 the Glass-Steagall Act 71 and the Bank Holding Company Act 72 remain living legal reminders of public suspicions about financial concentration. Indeed, the application of antitrust law to cybermoney already has been suggested. 73

L. To Protect Against Overcompetition in a New Natural Monopoly

The FRB occasionally has chosen to nationalize new payment technologies, apparently on the assumption that private entities would not be able to amass sufficient resources to develop such technologies on their own. For instance, soon after its creation in 1913, the FRB attempted to nationalize check clearing facilities and began a subsidized monopoly in the business of wire transfers. 74 Despite some evidence that the private sector already was providing, or was capable of developing, technologies in these fields, the potential for FRB intervention in new payment technologies plainly is precedentined.

M. To Tax Citizens and to Fund Government Operations

One classic justification for governmental provision of money is, in effect if not in name, to tax the public and to fund governmental operations without resorting to normal legislative processes. During the pendency of the Articles of Confederation, for example, the Continental Congress lacked formal taxing authority and thus for lack of any other meaningful funding alternative, was obliged to issue

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69. See JAMES WILLARD HURST, A LEGAL HISTORY OF MONEY IN THE UNITED STATES, 1774-1970, at 7, 77-78 (1973) (explaining creation and later demise of the Bank of North America, the First Bank of United States, and the Second Bank of the United States due in good measure to "local agrarian jealousy"); see also HAMMOND, supra note 51, at 18-25 (describing creation of independent Treasury by Congress in 1840, later repealed in 1841 and enacted again in 1846, with goal of extricating federal government from banking business and leaving banking to individual states).
72. Id. §§ 1841-1850.
74. See Oedel, supra note 40, at 856-60, 869-74 (describing federal government's entry into check clearing business, activity previously performed by private banks, and into wire transfer service).
money.\textsuperscript{75} Again during the Civil War, the issuance of treasury notes was used to fund a majority of governmental expenses.\textsuperscript{76} In general, especially when faced with politically dangerous crises, many nations throughout history have chosen to impose indirect taxes through the issue of money, rather than following traditional political routes that might not yield the necessary license.\textsuperscript{77}

\textbf{N. To Subsidize Particular Groups or Activities}

According to James Willard Hurst, governmental subsidization of groups or activities historically has been a disfavored rationale for financial regulation. "Some men desired, others feared, regulations of money which might bring large shifts in the distribution of wealth or income, to alter the structure of power among interests or classes. On balance the record [rejected] legal regulation for th[is] goal[]."\textsuperscript{78} Nevertheless, the effects of monetary policy on wealth have continued to be subjects of debate.\textsuperscript{79} For instance, during the period of high interest rates in the late 1970s and early 1980s, the burdens of these high rates on different socioeconomic groups were noted with concern.\textsuperscript{79} Wage earners were believed by some to benefit at the relative expense of persons on fixed incomes and holders of non-income-producing assets.\textsuperscript{80} Moreover, in banking regulation, the federal government occasionally has protected special groups from market forces, as it did by passing the National Housing Act of 1934\textsuperscript{81} and the Community Reinvestment Act of 1977.\textsuperscript{82} The United States also has directed funds extraterritorially, for instance, during the Marshall Plan, to recovering European economies during the late 1940s and early 1950s,\textsuperscript{83} and more recently, through the funding of international financial institutions.\textsuperscript{84}
O. To Protect Existing Regulatory Arrangements and
Overall Financial Soundness

A final rationale for the regulation of money arises from the fact
that so much of money, banking, and finance already is regulated
thoroughly. In accord with the theory of the "second best," it
sometimes is argued that regulation of a new subject, even if
unwarranted as an abstract matter still may be warranted in the real
"second best" world because related subjects are not themselves free
from regulation. By regulating the new entrant to the field (so the
argument goes), one may avoid disrupting a greater regulatory
scheme that may be justified on other grounds. For example, in
banking and finance, regulation is justified to protect the safety and
soundness of the financial system as a whole. In other words, the
mere presumption and pervasiveness of regulation in money, banking,
and finance in the minds of some lawmakers may serve to justify
regulation of new innovations in the field.

More particularly, any threat of a redemption problem within any
unit of account used in the payment system poses the potential for a
domino effect of failures in the clearing of payments down the line.
To the extent that any form of money is subject to redemptive risk,
is of a sizable volume, and is issued in the payment system generally,
the government may be justified additionally in regulating it to
preserve systemic safety and soundness.

II. Do the Classic Reasons for Monetary Regulation Justify
Regulation of Cybermoney?

A. To Set a Standard Cybermoney Accounting Unit?

Because cybermoney appears to be emerging as an adjunct to
established monetary accounting systems and is being denominated
in standard monetary units, it is plausible that there will be no
occasion for governmental intervention on the pretext of establishing
a new unit of accounting. On the other hand, it is conceivable that
some firms may wish to sever some forms of cybermoney from
denomination in standard units of currency—especially forms of

(appropriating funds for humanitarian assistance in foreign countries).
85. See STEPHEN BREYER, REGULATION AND ITS REFORM 16-17 (1982).
86. See id. at 15-35.
87. See id. at 16.
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cybermoney used in information exchange that might be stated in "cyberbytes" or some other novel and distinct term, rather than in dollars, cents, and mills. Indeed, the adoption of a new unit of account might obviate many questions of taxation, regulation, and choice of law that otherwise might arise in the business of cybermoney transactions. Even if such a distinction develops, however, there is little reason to believe that commercial entities through a trade association or self-regulatory organization cannot agree on a common unit of account if they choose, as airlines managed to do in establishing “frequent flyer miles.”

B. To Fix Cybermoney’s Relationship to Other Assets?

Given the sophistication of most modern financial and money markets, it would appear unnecessary and unwise to revert to the formal regulatory fixation of a relationship between cybermoney and any other established forms of money, even if cybermoney is denominated in its own unit of account. On those few recent occasions when governments have attempted to peg the value of a particular currency to another asset, extraterritorial currency traders and domestic black markets have overwhelmed such efforts.

In the United States, furthermore, the presumption against government monopolization of issue in the early development of a new payment vehicle is fixed even more firmly. As Federal Reserve Bank of New York President William McDonough recently stated, before the FRB would issue cybermoney itself, a “clear indication that private-sector supplies alone cannot provide this service with the same effectiveness, scope and equity as the Federal Reserve” would have to be shown. Such a showing in the cybermoney market, where several private firms presently are vying for position has not yet been made.

On the other hand, to the extent that a form of cybermoney is denominated formally in another currency and is convertible by contract to that currency, it may be appropriate to make a legal requirement that any institution contractually liable for redeeming or

89. In the latter stages of the Soviet Union, for instance, the fixed official exchange rate for the ruble was overridden by the black market, resulting in a general monetary crisis. See generally Editorial, The Empire Melts, WALL ST. J., Dec. 3, 1991, at A14 (noting that after collapse of Soviet Union, government officials moved to allow ruble to float “rather than trying to maintain the fiction of a fixed exchange rate”).
converting the currency be licensed and supervised for soundness, or, in the alternative, that such an entity establish a legally separate fund or purchase private deposit insurance to cover the contingent liability.

C. To Provide an Initial Source of Cybermoney?

Given the fact that several entities already are beginning to issue forms of cybermoney, it appears doubtful that governments initially will be obliged to issue cybermoney themselves. Even if the Bundesbank is correct in its recent speculation that central banks eventually may find themselves in the role of cybermoney issuers in order to maintain control of the money supply if cybermoney proves popular, it is extremely doubtful that such a role is warranted at this preliminary period.

D. To Facilitate the Ready Acceptance of Cybermoney?

The question of whether a particular form of cybermoney denominated in an established currency will fall within the rubric of the legal tender rule eventually may be tested legally. Even if a form of cybermoney is held not to be legal tender, however, the ease with which cybermoney may facilitate transactions still could make the matter moot. After all, checks are not legal tender, yet they have managed to capture a huge share of the payment transactions business.

To the extent that any concerns about the reliability of cybermoney are not solved by effective proprietary encryption systems, legislation narrowly tailored to protecting the reliability of cybermoney from counterfeiting might be worthwhile. On the other hand, it is possible that such legislation would prove superfluous, as existing criminal laws, anti-fraud laws, and anti-counterfeiting laws might be stretched to reach cybermoney.

91. See Jennifer Kingson Bloom, A Glimpse into the Future of Money, as Citi Sees It, AM. BANKER, Feb. 23, 1996, at 12 (noting that Digicash and Cybercash are providing electronic currency for cyberspace); Germany: Central Banks May Issue Cybermoney, ELECTRONIC PAYMENTS INT’L, June 1, 1996, available in Westlaw, 1996 WL 9799490 [hereinafter Germany] (noting that at least one Internet e-cash payment system is operating now with others underway).

92. See Germany, supra note 91.

93. See Fred R. Bleahley, Fast Money: Electronic Payments Now Supplant Checks at More Large Firms, WALL ST. J., Apr. 13, 1994, at A1 (explaining that number of electronic payment transactions for corporations is less than 1% of 12 billion checks drafted annually). The cost of printing, mailing, and clearing the almost 60 billion checks written in the United States annually is estimated to cost more than $580 billion. See id.

94. See generally Henderson, supra note 8 (indicating that difficulties of deciphering encryption codes protecting cybermoney and relatively small size of anticipated cybermoney transactions may deter cybermoney scams).
E. To Prevent Panic in Redemption, Convertibility, or Transfer?

If cybermoney is defined broadly to include the many existing forms of monetary transactions that rely upon electronic media, then there is little reason to fear panic in redemption, convertibility, or transfer. Electronic-based payments already swamp paper-based transactions in transactional value, and do so with less risk of panic than in the pre-wire-transfer era (before 1920), when financial panics were relatively commonplace.

On the other hand, if cybermoney is defined narrowly to include the systems of money now being developed primarily as ways to facilitate Internet payment, then new issues may be at stake. Given the minuscule significance of the cybermoney market at this time, the initial commercial plans to apply cybermoney primarily in low-value transactions, and the relative sophistication of likely users of cybermoney, it seems premature either to develop elaborate public mechanisms to cope with potential liquidity problems or to provide some sort of a public insurance mechanism to avoid the possibility of panic.

To the extent that concerns about the liquidity of issuers eventually are deemed to be serious, however, regulatory options are plausible. As noted previously, one might subject issuers to regulatory supervision, require them to post a fund to cover their contingent liabilities, or oblige them to prove that they have privately insured all cybermoney accounts against the possibility of issuer failure or mistake in transmission. If such steps were deemed useful, it at least is conceivable that they could be imposed by self-regulatory organization rather than government.

F. To Guard Against the Possible Misuse and Counterfeiting of Cybermoney?

To the extent that cybermoney is defined broadly to include all monetary systems relying on electronic media, the misuse of cybermoney already is being addressed legally, and apparently with relative satisfaction to tax collectors and law enforcement authorities. On the other hand, if cybermoney is defined more narrowly to mean Internet payment arrangements, a new subject of regulation may be

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95. The FRB reports that in the United States during 1991, $417 trillion in electronic payments were made, as opposed to $70 trillion in paper and check payments and $1.7 trillion in currency and coin payments. See Solomon, supra note 73, at 803.
96. See generally 2 REDLICH, supra note 40.
97. See supra notes 43-44 and accompanying text.
arising. If so, it seems premature at this early juncture to leap into regulatory systems to guard against the misuse of a medium that is not yet effectively in use. Eventually, if necessary, legislation along the lines of the Bank Secrecy Act as tempered by the Financial Privacy Act could be enacted to protect the privacy of the vast majority of cybermoney users and to permit the monitoring of a few transactions that are suspicious on their face or that are being conducted by persons suspected for independent reasons of criminal activity.

Other unlawful acts like counterfeiting, invasion of privacy, and cyber-theft pose immediate real risks to all parties involved in cybermoney transactions. Despite such commonly feared threats, however, the dangers do not justify governmental intervention for two reasons. First, the private suppliers of cybermoney services already have a powerful self interest to develop encryption systems and settlement protocols that will reduce the risks of fraud to negligible levels. Second, even if it wanted to intervene, the government largely lacks the expertise necessary to develop and maintain the kinds of sophisticated technologies that would serve as effective deterrents. This function is better left to those parties in the best positions and with the greatest incentives to minimize the risks of loss—the service providers.

G. To Limit Over-Supplies of Cybermoney?

If private institutions are permitted to issue cybermoney without restraint, it is conceivable under some scenarios that they could be tempted to provide more cybermoney than either they could support or the market could use; debasement, panic, and institutional failure all are possible results. On the other hand, it also is conceivable that cybermoney could be fixed directly to another monetary asset, could be impossible to re-circulate, and could be redeemed quickly, so that there is little practical risk of over-issue.

In short, in seeking implicit regulatory endorsement of any particular version of cybermoney, it would be important for any issuer to anticipate questions along these lines, and to explain publicly how its system would work and why it would pose no threat of over-issue. To the extent that a risk of over-issue still is evident, it would be possible to require that issuers of cybermoney establish an independent fund covering the value of all outstanding cybercurrency, purchase private deposit insurance to cover any remaining contingent

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99. Id. §§ 3401-3422.
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liabilities, or submit to reserve requirements and soundness regulation.

Another possible technique for limiting the threat of over-issue is to restrict those institutions that may issue cybermoney to depository institutions that already are subject to pervasive governmental regulation. Indeed, this is the technique recommended by the American Bankers Association’s Payment Systems Task Force. Such a restriction need not displace the nonbank developers of cybercash, as they could continue to facilitate the technological infrastructure of the cybercash systems as partners of the banks.

H. To Use Cybermoney as a Tool to Sustain Macroeconomic Health?

The already-established forms of money or payment that rely on electronic media (e.g., wire transfers) provide limited means for central bankers to manipulate either the demand for or the supply of money. By analogy, the macroeconomic watchdog rationale lends little justification for regulatory intervention in new forms of cybermoney. Indeed, the tiny size of the cybermoney market at present makes the prospect of macroeconomic manipulation through cybermoney appear quite remote, even if a theory for such intervention were well understood by central bankers.

I. To Streamline and Police Cybermoney Transactions?

Regulations governing the operation of new payment systems generally have arisen only after commercial practice already has established a proven, economically efficient prototype. The cybermoney market, narrowly defined, is far too new and experimental to withstand regulatory intervention. It seems possible that any substantial regulatory intervention at this juncture might destroy the potential viability of any emerging system.

Even after the emergence of a viable and popular cybermoney system, moreover, it would seem most desirable to permit participants to set their own standards for its operation, much as occurs in the self-regulation of the two major credit card networks, Visa and MasterCard.

The only exception might be to protect consumers whose interests are not reflected effectively by the self-regulatory organizations. Even with respect to consumer protection issues, however, it seems

100. See Limit Electronic Banking Products Issuance to Depository Institutions, ABA Report Says, 67 Banking Rep. (BNA) 624, 624 (Oct. 14, 1996) (describing concern expressed in 80-page report issued on October 6, 1996, that consumers will be harmed if non-bank issuers were to fail).
appropriate to wait to see if the emerging industry is able to avoid—whether for competitive commercial reasons, moral reasons, or both—any natural tendency to take advantage of relatively disorganized consumers. Government should intervene to protect consumer interests only after careful evaluation reveals that any final deal struck with consumers proves in practice to be substantively or procedurally unfair.

J. To Supervise Lending and Borrowing?

One regulator recently suggested that cybermoney necessarily must involve an extension of credit, which in turn necessarily must involve banks. One may expand the thought by suggesting that if cybermoney involves lenders like banks, it also must involve regulation.

It is far from clear that all possible modes of cybermoney will involve an extension of credit, however. Pre-paid cybermoney accounts now are being contemplated that would not involve extensions of credit. Under such circumstances, regulation may not be warranted.

As a practical matter, however, the regulator may be correct. If cybermoney is to compete successfully with other modes of payment that now provide extensions of credit, perhaps cybermoney must find a way to do so too. And if cybermoney ultimately serves as a means of extending credit, then the ancient rationale for supervising relations between lenders and borrowers may be invoked again.

K. To Foster Competition and to Inhibit Private Monopolization?

At this highly preliminary stage, the newest cybermoney products—even those proposed by large firms like Citicorp—hardly should raise concerns about untoward consolidations of financial and monetary power. Nevertheless, the recent troubles experienced by Microsoft in attempting to purchase Intuit as a means of expanding into financial services suggests that antitrust and entity-affiliation concerns will thwart the development of cybermoney as well. As

101. See Jaret Seiberg, Boston Fed President Sees World as Bankers Do, Extols Their Role, AM. BANKER, Oct. 23, 1996, at 4. According to Cathy E. Minehan, President of the Federal Reserve Bank of Boston, "It is all well and good to talk about virtual this and virtual that. The reality is that the payments system is a credit extension, and credit has to involve banks." Id.

102. See Bloom, supra note 91, at 12 (discussing Citibank’s plan to develop its own electronic currency for cyberspace).

103. See G. Christian Hill et al., Undone Deal: Microsoft Drops Bid for Intuit, WALL ST. J., May 22, 1995, at A1; Seiberg, supra note 101, at 4 (noting concern of Cathy Minehan, President of Federal Reserve Bank of Boston, that "software companies and convenience stores lack the
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a practical matter, however, one must wonder if such concerns will not hamper the ability of cybermoney systems to develop enough momentum to become economic. Recalling the massive investment needed by the Bank of America in the 1960s to release the Visa card, the antitrust enforcers and bank regulators might well exercise restraint during the development of cybermoney in the interests of fostering investment in a promising new monetary technology.

L. To Protect Against Overcompetition in a New Natural Monopoly?

As yet, there is little reason to conclude that new cybermoney systems are natural monopolies that will fail to attract investment dollars absent a scheme of regulatory protection. On the contrary, the nascent appearance of several cybermoney providers in the Internet market alone suggests that this market is anything but a natural monopoly. Even if substantial capital resources are necessary to raise a cybermoney system, like a credit card network, to a critical level of usage, there is reason to believe that such an enterprise still may be pursued economically. In short, the natural monopoly rationale provides little reason to protect early investors in the cybermoney field, nor will it likely justify a government takeover of any successful systems that eventually may emerge.

M. To Tax Citizens and to Fund Government Operations?

Although regulatory bureaucracies may look for new subjects to regulate to justify their continued existence in an era of governmental downsizing, this rationale for regulation is plainly indefensible under modern conditions. It is doubtful that such a rationale ever will be admitted publicly by regulators in discussions about the possible regulation of cybermoney—although such a rationale still may have some underlying practical force.

N. To Subsidize Particular Groups or Activities?

During his re-election campaign, President Clinton noted that distributive issues are likely to be associated with Internet develop-

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requisite risk controls and management systems to run broader payments programs"). According to Minehan, "Microsoft isn’t into the credit business" and "ultimately the credit must come through the banking system." Id.

104. For example, in 1985, Sears introduced the Discover Card, and more recently Sears has developed a new credit card with MasterCard. See Antionette Coulton, Sears Testing Cobranded Product with MasterCard Series, AM. BANKER, Sept. 11, 1996, at 1 (explaining that cobranded market is highly competitive and that it is hard to “stand-out” among crowd).
Likewise, distributive issues may be associated with the development and popularization of cybermoney, if indeed such development occurs. Access to the Internet, for instance, eventually may become tantamount to access to profitable monetary vehicles; isolation from the Internet may doom the citizen to second-class status. Any such effects simply are too remote from the present to imagine clearly, however, let alone to regulate.

IV. To Protect Existing Regulatory Arrangements and Overall Financial Soundness?

A few bank regulators already are suggesting that cybermoney regulation may be coming—even before the market for cybermoney is measurable. One wonders whether such warnings possibly can be justified on any ground other than the instinct to regulate all that might come into contact with banking, and thus, that might threaten the "safety and soundness" of the sacrosanct financial infrastructure. If so, such an instinct probably should be left unrealized in the interests of possible alternative modes of organizing financial affairs.

III. When Warranted, How Might Government Regulate Cybermoney?

In several situations, it appears possible that existing laws already may regulate cybermoney. For instance, the EFTA\(^{106}\) and its implementing regulation, Regulation E,\(^{107}\) both of which apply to "any . . . person who, directly or indirectly, holds an account belonging to a consumer"\(^{108}\) may offer protection to consumers.\(^{109}\) Moreover, for those forms of cybercash designed to piggyback on the existing payment system infrastructure, U.C.C. Articles 4\(^{110}\) and 4A\(^{111}\) presumably would apply at least to those parts of the transaction cleared through the banking system or via wire transfer. Even hackers who download and use software designed to mimic cybermoney may be

\(\text{105. See President's Remarks in Macon, Georgia, 32 WEEKLY COMP. PRES. DOC. 2185 (Oct. 25, 1996) (promoting federal program to provide Internet access to every classroom, school, and library in America by 2000).}\)


\(\text{107. 12 C.F.R. pt. 205 (1996).}\)

\(\text{108. 15 U.S.C. § 1693a(8); 12 C.F.R. § 205.2(I).}\)

\(\text{109. See Fein, supra note 64, at 8.}\)

\(\text{110. Article 4 governs bank deposits and collections. See U.C.C. § 4-101 (1995).}\)

\(\text{111. Article 4A governs wire transfers, including wholesale wire transfers. See U.C.C. § 4A-102 cmt.}\)
prosecuted under criminal laws that prohibit the passing of bad currency.\textsuperscript{112}

To the extent that cybermoney may not already fall within the scope of existing financial laws and regulations, however, lawmakers and regulators may be challenged to conceptualize new regulatory regimes. In general, five basic strategies historically have been used by governments to regulate money, and each is a candidate for the regulation of cybermoney.

First, pervasive institutional regulation, which already is common in banking, may be justified when the operation of two or more independently risky and regulatorily questionable activities are inherently intertwined, such as deposit-taking and lending. The development and supervision of a cybermoney system is not so obviously and necessarily complex; thus pervasive institutional regulation appears to be among the least attractive regulatory alternatives.

Second, regulation through government monopolization or market participation provides another technique to set standards in a financial setting. The federal government's initial involvement in the development of the secondary mortgage markets is one example. Because the cybermoney market itself already is developing on its own, however, this appears to be another disfavored form of potential regulation.

Third, transactional regulation, such as the regulation provided by the EFTA,\textsuperscript{113} poses the most promise for regulation of cybermoney. Because such regulation is predicated on existing patterns of commerce, however, it appears premature to attempt to develop such a regulation at this time for fear of reifying the cybermoney business in a preliminary and inefficient mode.\textsuperscript{114}

Fourth, limited functional licensing regulation, such as a requirement that a firm issuing cybermoney either establish a separate fund that fully covers the value of any cybermoney outstanding or purchase cybermoney insurance covering any contingent liability, may be an appropriate practical method of policing cybermoney firms in this preliminary stage of market development.\textsuperscript{115}


\textsuperscript{113} 15 U.S.C. §§ 1693-1693r.

\textsuperscript{114} "Whoever ... being 18 years of age or over, with intent to defraud, makes, utters, inserts, or uses any card ... device ... or other thing similar in size and shape to ... any coin or other currency not legal tender in the United States, to procure anything of value ... shall be fined ... or imprisoned ...." 18 U.S.C. § 491(a) (1994).

\textsuperscript{115} 15 U.S.C. §§ 1693-1693r.
Fifth, self regulation is another plausible regulatory arrangement, although it may require further market development before it becomes practical in the cybermoney markets.

CONCLUSION

Cybermoney, like other forms of money, justifiably may be subjected to some regulatory scrutiny, although most of the classic rationales for the regulation of money do not fit the present circumstances of the cybermoney market. The two most compelling rationales for governmental intervention in the cybermoney market are: (1) to limit the threat of over-issue; and (2) to protect the integrity of the payment system from systemic failures occasioned by the default of a large cybermoney issuer. Even these two colorable rationales, however, would warrant governmental intervention only if the unregulated portions of the cybermoney markets were substantially larger than they are today.

Furthermore, when and if that day comes, the threats warranting regulation may be addressed with minimal intervention by requiring that the technical issuers of cybermoney be depository institutions that already are subject to pervasive institutional regulation, and already are parties to the payment system. Another regulatory alternative would be for nonbank issuers of cybermoney to be regulated narrowly, specifically to address the risks of over-issue and default, perhaps through the mandatory provision of private issue insurance.

Stated another way, almost all the classic rationales for monetary regulation fail to justify governmental intervention in the unregulated portions of the cybermoney markets.

The initial establishment of a unit of account, of cybermoney's convertibility to other assets, and of the introduction of a threshold supply, all are capable of being addressed through the private markets in coordination with existing monetary regulation.

Would-be issuers of cybermoney already have powerful incentives to satisfy potential consumers about the safety, reliability and fairness of cybermoney, so consumer regulation seems premature.

The government's general interest in the macroeconomic and distributional significance of money is not implicated yet by the nascent cybermoney products.

Finally, although the possibility of misusing and counterfeiting cybermoney is palpable and alarming, the government is not in the best position to design encryption systems and settlement protocols that would best prevent misuse and fraud. Meanwhile, criminal
statutes already are on the books that appear to give the government sufficient power to prosecute any transgressors after the fact.

In short, at least for the foreseeable future, regulatory restraint seems to be the most reasonable governmental reaction to the emerging cybermoney payment devices.