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The Regulatory Future

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The Regulatory Future

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Abstract: New lending and payment systems challenge traditional banks by splitting the two sides of the balance sheet into separate operations, leaving traditional regulated institutions as the bridge between the two. They thus also represent a potential challenge to the existing regulatory system designed for traditional deposit banking. None of these payment systems are themselves subject to prudential regulation, although they have linkages to parts of the formal financial system that are regulated in different ways. This raises the question of whether these new developments are increasing the efficiency and stability of the financial system. The new payments systems have the ability to evade or distort the regulation on the liability side of financial institutions, while the p2p system replace the due diligence of bank loan officers and bank supervisors with computer algorithms. It is for this reason these system will be the major challenge to the future regulation of the financial system.

Key words: Financial regulations, regulatory foresight, Hyman P. Minsky, Henry Kaufman, financial innovation, payment and lending systems, P2P

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1. INTRODUCTION

The greatest challenge facing regulation and supervision of financial markets is to keep abreast of the changes in financial practices and behavior of financial institutions represented by the organisation of financial markets. For example, Henry Kaufman (2000: 201-2) notes that a major cause of the increased instability in financial markets in the 1980s was the failure of the US Central Bank “to recognize early on the impact that structural changes in the financial markets have had on financial behavior, and the significance of these behavioral changes”. He considers “The structural changes in banking are a case in point” referring to the increased role of competitive market mechanisms in providing financial services to business and the public. He goes on to note that while “there are arguments to be made ... for opening up the banking system to greater competition. there are meaningful differences between the efficient allocation of *goods and services* through intense competition, and intense competition among *financial* markets and intermediaries. In the nonfinancial world, intensive competition encourages innovation and improved delivery of goods and services. In the financial world, intensive competition encourages lower profit margins for intermediaries, along with the search for investment and lending opportunities with higher profit margins – opportunities that typically entail greater risk, which can endanger not merely the banking institutions but the well-being of the larger society.”

This suggests that financial regulation should be dynamic to stay abreast of structural and behavioural changes driven by competition in the provision of financial services, and if possible, anticipate these changes. While Kaufman’s admonition has had little resonance in the academic literature and in government regulatory circles, it reflects the concerns of Hyman Minsky who insisted that: “If regulation is to remain effective, it must be reassessed frequently and made consistent with evolving market and financial structures” He notes that any “supervisory and regulating structure for banking and finance that is in place not only reflects institutional features of the economy stretching back over at least 150 years, it also reflects the understanding, i.e. the economic theory, of how our type of economy works that ruled at the time when the bits and pieces of this structure was first put in place.”



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Minsky's explanation of the dynamic behind the evolution of financial institutions and behavior is based on his Financial Instability Hypothesis that "explains why regulatory structures eventually become obsolete or perverse. The normal, profit-seeking activities of agents lead to innovation in order to create new sources of profits; innovation can be in products, process or finance. The search for profits also drives agents to avoid, evade and adapt to the structure of regulation and intervention put in place to constrain incoherence. In time this undermines the effectiveness of a regime of intervention that "stabilizes the unstable system". Therefore if regulation is to remain effective, it must be reassessed frequently and made consistent with evolving market and financial structures." Minsky concludes that "As the monetary system, the financial system and the economy are always in the process of adapting to changing circumstances, the quest to get money and finance right may be a never ending struggle." because what is an appropriate structure at one time is not appropriate at another. "Throughout our history the reaction to some 'unpleasant events' in banking or finance has been to reform the structure of banking and finance, as well as the structure of government chartering, regulation and supervision of financial institutions. Our predecessors were not fools: ... they knew the institutions of their time well enough so that when legislation changes institution, the new structure succeeded in correcting the malfunctioning, for at least the time being. Such a new structure of payments and financing was apt enough, so that a 'better' performance of the economy followed. However the perennial quest for the profits that successful innovators earn, energizes entrepreneurs. New financial and banking institutions and new financing patterns for business, households and government units emerge and their users prosper. Over time the initially apt pattern of regulation and supervision becomes increasingly inept: the inherited structure of regulation and the supervision first becomes not quite right and later becomes perverse. A cumulative effect of the institutional and usage changes that occur is that the institutions which are supposed to contain the endogenous disequilibrating forces of our economy lose much of their power to do so."

This paper seeks to identify and assess the future challenges of financial regulation, building on the insights of Kaufman and Minsky. It will present a description of a flood of new innovations in the provisions of payments services and in financing of the private sector that is leading to a competitive process amongst them. As noted by Kaufman and Minsky, the combination of innovations and competition in the provisions of financial services create a potential for financial system that will

require a new regulatory approach. It outline an alternative view of the development of banking that highlights the importance of the payments system to highlight the risks that are posed by new technology and innovation in mobile payment systems and “peer to peer” lending platforms. It is these areas will be the most relevant target of regulations in the near future.

2. THE FOCUS OF FINANCIAL REGULATION: WHAT IS BEING REGULATED?

In his *Treatise on Money*, Keynes defines money as “that by delivery of which debt contracts and price contracts are discharged, and in the shape of which a store of general purchasing power is held” noting that money “derives its character from its relationship to the money of account, since the debts and prices must first have been expressed in terms of the latter.” He goes on to note that from the money of account it is possible to distinguish: “Offers of contracts, contracts and acknowledgements of debt, which are in terms of it, and money proper, answering to it, delivery of which will discharge the contract or the debt ... for many purposes the acknowledgements of debt are themselves a serviceable substitute for money proper in the settlement of transactions. When acknowledgements of debt are used in this way, we many call them bank money ... an acknowledgement of a private debt, expressed in the money of account, which is used by passing from one hand to another, alternatively with the money proper, to settle a transaction. We thus have side by side State money or money proper and bank money or acknowledgements of debt.” (1930: 1:2,5)

Keynes is here distilling the results of a long tradition in banking: “A dealer in debts or credits is a Banker.” (Hawtrey, 1919: 4) Hawtrey is simply echoing McCleod’s description of banking found in his *Theory of Credit* (1894)¹. A similar account of the operation of banks can be found even earlier in Colwell’s 1859 *The Ways and Means of Payment* that defines banking as “a system by which men apply their credits to the extinguishment of their debts. ... This is in direct contrast with the cash or money

¹ Virtually all authors, post-Colwell, draw their inspiration from McCleod. Cf. Innes: “The present writer is not the first to enunciate the Credit Theory of Money. This distinction belongs to that remarkable economist H.D. McCleod ...the only economist known to me who had scientifically treated of banking and credit, [but] was unable to formulate the basic theory that a sale and purchase is the exchange of a commodity for a credit and not for a piece of metal or any other tangible property. In that theory lies the whole essence of money. (Innes, 1914: 63)



system, in which every article is either paid for in the precious metals at the time of delivery, or at some time afterwards. These two systems work side by side." Colwell (1859:188-9)

In this alternative payments system "A class of men is formed, who make it their business to deal in these securities, or evidences of debt. If a banker or broker purchases the two notes given by the merchant and his customer, it is obvious that both receive the means from him to pay the notes of which he has become holder and owner. The Process of payment between them will be very simple, if the banker merely give each of the two parties credit on his books for the proceeds of the notes purchased of them their respective checks on these credits pay off the whole indebtedness, ..." (ibid.) Thus "Banks become, in this way, substantially book-keepers for their customers." (ibid, 9) and "The books of the banks furnish, thus, a mode of adjustment by which the customers are enabled to apply their credits to the payment of their debts," (ibid: 10 "No currency can be more suited to pay a man with than that which he has issued himself." (ibid: 8)

Mitchell Innes (1914) provides a similar explanation of the operation of banks: "A credit cancels a debt; this is the primitive law of commerce. By sale a credit is acquired, by purchase a debt is created. Purchases, therefore, are paid for by sales. The object of commerce is the acquisition of credits. A banker is one who centralizes the debts of mankind and cancels them against one another. Banks are the clearing house of commerce. ... The value of credit does not depend on the existence of gold behind it, but on the solvency of the debtor." (Innes, 1914: 168)

Minsky also provides a similar view of the system at a more advanced level: "Banking is not money lending; to lend, a money lender must have money. The fundamental banking activity is accepting, that is, guaranteeing that some party is creditworthy. A bank, by accepting a debt instrument, agrees to make specified payments if the debtor will not or cannot. Such an accepted or endorsed note can then be sold in the open market. A bank loan is equivalent to a bank's buying a note that it has accepted." (1986: 258) But, for this system to function it requires that the bank debtors have access to bank deposits to liquidate the loan.

The implications of this approach was codified by the British financial journalist Hartley Withers who noted that "Most of the money that is stored by the community in the banks consists of book-keeping



credits lent to it by its bankers. It is usually supposed that bankers take money from one set of customers and then lend it to other customers; but in most cases the money taken by one bank has been lent by itself or another bank.” (1906: 46) and that “the greater part of the banks’ deposits consist, not of cash paid in, but of credits borrowed. For every loan makes a deposit” (Ibid. 51).

The point eventually entered academic discourse with the book published by Phillips (1920) who noted that “The lending functions of a commercial bank are so radically different from those of the money lender, putting out only his own funds, that it will be desirable at the outset to consider carefully the nature of banking, the essence of which consists in the practice of extending loans far in excess of either the capital or cash holdings of the bank in question.” (1920:13) How this occurs is “the riddle of banking” since “the acquisition of additional primary deposits enables an individual bank to expand its loan item by little more than the amount of such deposits. (Ibid: 34). The answer is achieved by drawing “a sharp line of distinction between credit extension by an individual bank and that of banks taken in aggregate” (Ibid:32)

This recognition of the independence of the creation of “bank money” from money proper the realization that bank financing of investment could exceed private saving, causing fluctuations in output and prices. Most academic economists recognized the benefits of allowing banks to create purchasing power independent of the operation of the real system. In Schumpeter’s 1912 *Theory of Economic Development* banks’ ability to create purchasing power allowed innovative entrepreneurs to break the routine of the circular flow and produce economic development via he process of creative destruction. Hayek’s (1933 [1929 in the German original] *Monetary Theory and Trade Cycle* supported the role of banks’ ability to create unlimited finance: “The most significant result of our investigation must be the grasp of the elementary fact that we have no right to assume that an economic system with an ‘elastic’ currency will ever exhibit those movements which can be immediately deduced from the propositions of static theory. (Hayek, 1933: 183) But Hayek rejected the most radical monetarist proposals to eliminate the role of banks in this process: “If it were possible, ... to keep the total amount of bank deposits entirely stable, that would constitute the only means of getting rid of cyclical fluctuations. This seems to us purely Utopian. It would necessitate the complete abolition of all bank-money—i.e. notes and cheques —and the reduction of the banks to the role of brokers, trading in

savings. But even if we assume the fundamental possibility of this state of things, it remains very questionable whether many would wish to put it into effect if they were clear about its consequences. The stability of the economic system would be obtained at the price of curbing economic progress. ... The utilization of new inventions and the 'realization of new combinations' would be made more difficult, and thus there would disappear a psychological incentive towards progress, whose importance cannot be judged on purely economic grounds. It is no exaggeration to say that not only would it be impossible to put such a scheme into practice in the present state of economic enlightenment of the public, *but even its theoretical justification would be doubtful.*" (Hayek, 1933, Ibid. 190-1)

The role of commercial banks in this approach is to "make payments" on behalf of their clients by organising an alternative payments system, rather than providing an alternative "means of payment" to their clients which allows them to make payments. The evolution of the banking system may thus be viewed as an evolution of how banks provide the bookkeeping function of netting client assets and liabilities, or what is more easily seen as a "clearing house" function for debts.

It suggests a general principle at work in the development of innovations in the payments system. If banks act as agents, offering payments services via the offset of their clients' credit and debit positions, there is no need for bank capital since there is little credit or liquidity exposure. The basic risk is managing maturity mismatches. However, if to encourage volume, banks become principals or dealers, promising to make payment by guaranteeing the acceptability of its own liability issued against a client's debt, as suggested by Minsky's view of banking above, then netting takes place amongst the debts and credits of the banks in the system. History suggests that this is usually done through a formal clearing house. It is at this stage that the provision of payment services converges with the creations of bank money that serves as a means of payment. And it is in this area that the major innovations have been produced: bank notes, deposit liabilities, then credit cards, money market mutual funds and so forth. It is in the area of innovation in first the intrabank clearing and then interbank clearing that regulation seeks to limit the expansion of bank money.

This general evolution from broker/agent to principal/dealer can be seen in the development of many if not all other types of financial innovations. For example, banks initially provided foreign payment

services by matching foreign debit and credits of importers and exporters trade bills. Banks soon recognized that agricultural cycles would create cycles in available credits and evolved from this broker service to principal by issuing foreign claims on themselves through the floating of “finance bills” which would eventually be covered when the cycle turned. The same process took place in the development of stock trading (cf Kregel, 198) and can also be seen in the more recent creation of interest rate swaps in which banks initially acted to bring together fixed and floating rate borrowers and taking a piece of the spread before moving into warehousing the exposure until a suitable counterparty could be found. The same principle applies to the sub-prime mortgage market in which banks eventually evolved from brokers to dealers and principal investors through securitisation.

Thus, the general principle that financial institutions have in general transformed themselves from broker/agents to dealer/principals. And as a result took on the risk associated with the issue of own liabilities to finance the acquisition of assets without a counterbalancing private liability. Commercial banks only differ in this in that their liabilities serves as means of making payment. Thus the clearing evolved from the netting of the private sector debts and credits to the netting of the individual banks liabilities via the clearing house.

As Colwell notes “The credit system does not, then really furnish a substitute for money, so much as a model of dispensing with it.” (Colwell, op. cit.. 193) Indeed, in this point of view the credit system is a financial innovation that creatively destructs the use of commodity or government money by economizing and replacing it as a means of payment in the commercial transactions of the economy: “in all stages of commerce, we find there has been a constant effort to dispense entirely with the use of precious metals.” (ibid: 157). ... “Individuals might have trouble, owing to particular circumstance, in meeting payments; but a whole class or body of men could not, unless from other causes, because the fund for payment could never be short, and interest upon credits could never go to a high rate.”

The idea is easiest to see in terms of a clearing house system. As long as all debtors are members of the clearing and settled within it, there can only be individual divergences between debts and credits, but not for the system as a whole. Any divergences can be handled by means of internal clearing house credits, as was indeed the case in the regional “money center” banks that participated in clearing houses in the United States before the creation of the Federal Reserve.

However, in the modern financial system bankers accept liabilities from the private sector in exchange for the issue of their own liabilities that not only serve as means of making payment, but are means” of payment because they are guaranteed redeemable at sight in State money, and thus substitutes for State money. As Colwell notes, this is a guarantee that cannot be kept because “Under *our present system,*” ... bank liabilities are “required to be convertible at will into gold or silver. In point of fact they are not so convertible, and they cannot possibly be, as they amount at all times to a sum from ten to twenty times greater than any possible amount of gold and silver which would be available for such purposes. ... neither the necessities of business, nor the demands of convenience, require to be convertible on demand... This requirement, as it operates, is one of the most mischievous blunders in modern times” (italics supplied, *ibid.* 197-9)

This centers the risk in the financial system in the shift from the issue of sight liabilities as substitutes for State money in the transition from agent/broker to principal/dealer. But this raises the question of how this “blunder” can be maintained without major disruptions to the payments system. The answer provided by Keynes and Hawtrey and other is that the system works on the condition that bank liabilities are not in practice redeemed and only offset in the clearing house, or the interbank market. As Hawtrey points out, this does not normally create risks if the system is functioning smoothly without disruptions, since businesses normally acquire deposits in order to make payments and the bank liabilities thus remain within the credit clearing system.

Minsky also notes that the reason that banks are able to provide clearing via a system of sight redemption of its liabilities that so bothered Colwell: “In our system payments banks make for customers become deposits, usually at some other bank. If the payments for a customer were made because of a loan agreement, the customer now owes the bank money; he now has to operate in the economy or in financial markets so that he is able to fulfill his obligations to the bank at the due dates. Demand deposits have exchange value because a multitude of debtors to banks have outstanding debts that call for the payment of demand deposits to banks. These debtors will work and sell goods or financial instruments to get demand deposits. The exchange value of deposits is determined by the demands of debtors for deposits needed to fulfill their commitments. Bank loans, while ostensibly money-today for money-later contracts, are really an exchange of debits from a bank's books today

for credits to a bank's books later." (1986: 258) In simple terms, bank liabilities are held because businesses have debts denominated in those same liabilities and thus they extinguish those liabilities.

As Minsky notes, despite financial innovation in the mechanisms providing clearing of credits and debts, "As the 21st century approaches, the only reason why banks are special is that they operate the "ultimate" payment system within economies (the proximate payment mechanism is now often a credit card). There are now alternatives to banks for all but the provision of the ultimate payment mechanism function. Because banks operate the ultimate payments mechanism, those liabilities of banks which serve as the "medium of exchange" also serve as the standard in which domestic public and private debts are denominated." (Minsky, 1995).

This approach thus provides for a sharp division between the creation of State money which is the result of government creation of liabilities through fiscal policy and the regulation of the ability of the financial system to create purchasing power through the control of the payments system. As Minsky has noted, this places the regulator in an impossible position since the goal must be to provide a perfectly safe system of payments, and at the same time allowing for the creation of liquidity necessary for Schumpeter's innovating entrepreneurs to appropriate resources and engage in creative destruction. Even Hayek recognized this necessity: "So long as we make use of bank credit as a means of furthering economic development we shall have to put up with the resulting trade cycles. They are, in a sense, the price we pay for a speed of development exceeding that which people would voluntarily make possible through their savings, and which therefore has to be extorted from them. And even if it is a mistake —as the recurrence of crises would demonstrate —to suppose that we can, in this way, overcome all obstacles standing in the way of progress, it is at least conceivable that the non-economic factors of progress, such as technical and commercial knowledge, are thereby benefited in a way which we should be reluctant to forgo." (1933, 189-90)

Thus regulation has tended to follow Hayek's proposed "neutral" money which would ensure that investment was limited by voluntary saving. A similar alternative was to limit credit creation by linking it to gold or reserve backing. Finally Milton Friedman, in the belief that the demand for money was a stable proportion of income used this new quantity theory to propose that the optimal quantity of money should produce a fixed rate of expansion in the money supply subject to the potential growth

rate and the income elasticity of the demand for money. The limit of this approach is narrow or 100% reserve banking proposed by Henry Simons and Irving Fisher in the 1930s and more recently in the 1980s and again more recently in response to the financial crisis of 2007. All of these approaches are built on the idea that the banking system should be managed so as to keep demand from outrunning supply by preventing investment in excess of saving. But this is precisely the aspect of the banking system that Schumpeter believed to be the source of the growth and development of capitalism.

However, experience suggests that attempts to so regulate the financial system have simply generated new innovation in the provision of payments services, which reduce the effectiveness of the limits on the private creation of purchasing power by the private financial system. This is what has come to be called "regulatory arbitrage innovation". However, in the present context technological progress in computation and telecommunications suggest that there are possible alternatives to the provision of means of making payments through private clearing houses that may compete with the traditional services offered by regulated financing institutions as well as the issued of private liabilities against the creation of assets that are not evaluated by regulated financial institutions. New forms of mobile payment systems and peer-to-peer lending thus have the potential to escape existing regulation and will require an extension as well as a new approach to prudential regulation.

3. INNOVATION IN THE PAYMENTS SYSTEM²

Electronic transmission of payments is not new. Indeed, it has been experimented since the late 1950s, pioneered by the Bank of America payments card which eventually produced the bank credit card the creation of the currently dominant franchises, VISA, successor to the BankAmericard system, and MasterCard. Initially these systems used payment instructions transmitted over telephone patch lines. Not only was this a revolution in the way payments were made, from physical collection of checks to electronic payment instruction messages, it also represented a major shift away from income generated by corporate to consumer lending for banks as unpaid credit balances automatically converted into term loans.

² The early history of electronic payments and cashless transactions is surveyed in *Martin Mayer, The Bankers, Part I*, Truman Talley Books/Plume, New York, 1998 and Robert Guttman *Cybercash: The Coming Era of Electronic Money*, Palgrave Macmillan, Houndmills, Basingstoke, Hants., UK, 2003

By the 1970s banks were promising a “cashless” society, which in the event turned into a “teller-less society” as ATM machines substituted electronic machines for personal transactions which eventually became globally linked through interchange switches, much like par clearance of checks providing a seamless payment system across banks and countries. But a cashless society it was not. Indeed, the next step toward the elimination of cash transactions was “offline stored value payment cards”, with imbedded chips or magnetic strips that recorded and reduced credit balances upon transaction with a standalone reader and eliminated the need for trunk line access. These cards, originally designed for the payment of specific services such as parking charges or transport fees eventually alerted politicians and regulators to the role of alternate payment systems.

A good example was a series of US Congressional hearings on the “Future of Money”. Alan Blinder, (The Future of Money, Part II, 1996) testifying on behalf of the Federal Reserve, noted that “First, the concept of electronic money is not new. Electronic transfer of bank balances, for example, has been with us for years. Indeed, some of the new proposals simply make available to consumers and smaller businesses capabilities that large corporations and banks have had for many years. Second, no one knows how the industry will evolve, either in form or in size. Some of us, for example, can still remember predictions made a generation ago that the United States was on the verge of being a cashless, checkless society. Those predictions, of course, did not come true. At least not yet. This last point reminds us that, at present, we do not know which, if any, of the many potential electronic innovations will succeed commercially. My testimony this morning will concentrate on stored-value cards and other types of so-called electronic cash, because they seem to raise the most challenging public policy issues. In particular, depending on their design, they could amount to a new financial instrument, an electronic version of privately issued currency. But even the concept of private currency is, of course, not entirely new. Traveler’s checks are familiar to everyone. And in the 19th century, the United States had considerable experience, not always happy experience, with privately issued bank notes. But widespread use of private electronic currency would certainly raise a number of policy questions. On behalf of the entire Board, I want to state clearly at the outset that the Federal Reserve has not the slightest desire to inhibit the evolution of this emerging industry by regulation. On the contrary, the Board encourages innovations in payments technologies that benefit consumers and businesses.”

In this written testimony Blinder had noted the even more important point that “This discussion raises the question of whether the federal government should issue electronic currency in some form. (In posing this question, I refer to general-purpose stored-value cards, not to special-purpose instruments such as government benefit cards which, in our view, do not raise major issues.) Government-issued electronic currency would probably stem seignorage losses and provide a riskless electronic payment product to consumers. In addition, *should the industry turn out to be a “natural monopoly” dominated by a single provider, either regulation or government provision of electronic money might be an appropriate response.* (italics added) But such a conclusion seems quite premature. And the availability of alternative payment mechanisms would mitigate any potential exercise of market power. Further, government issuance might preempt private-sector developments and stifle important innovations. Finally, the government's entry into this new and risky business might prove unsuccessful, costing the taxpayer money. So, while we would not rule out an official electronic currency product in the future, the Federal Reserve would urge caution.”

Europe has been far in advance of the US, basically because most countries worked on a giro payment system rather than a check based system, and had a smaller number of much larger banks. Nor were they subject to multiple regulatory agencies or Glass Steagall type separation which gave a monopoly on the payments system to commercial banks and certainly impeded innovation until investment banks sought to provide similar services without the same regulatory surveillance. The importance of data transmission in the development of these payments systems is evidenced by the initial developments in the area by telephone companies, the Minitel terminal in France and the systems offered by Swiss Com. Many of the other developments in the field of innovative e-Money systems in Europe were based on a European Union research project called CAFE (Conditional Access for Europe) which succeeded in implementing an electronic wallet system of payments for all transactions in the EU Berlaymont Headquarters in Brussels. The project, terminated in 1997, was succeeded by OPERA (Open Payments European Research Association), SEMPER (Secure electronics Marketplace for Europe) and the creation of the Chablis Accounting and Payment Concepts for Digital Library Services server. For the implementation of Chablis, it was noted that by 1998 there were some 60 different available electronic payment systems.

All of these projects, except OPERA, were merely integrators of existing e-Money payment schemes, CAFE is based on the initial developments of David Chaum (DigiCash Ecash³) and Dr. Stefan A. Brands (Brands Cash). Chaum, an American, was a major innovator in the US market as well. Various projects were carried out by different interest groups, such as SOSCARDS that makes use of smartcards or MILLION that used Personal Digital Assistants (PDA's) to integrate the payment function with the Internet. Neither are integrated/compatible with other pilot projects even though they rely on the same e-Payment procedure. A summary of various schemes is provided in the following table:

e-Money Scheme	Invented by	Introduced (died†)	Killed by / Remarks
e-cash (DigiCash)	David Chaum	1994 (2001 †)	tricky, no cash, closed-loop
CyberCoin (CyberCash)	Carnegie Mellon Uni	1994 (2000 †)	tricky, no cash, closed-loop
Brands Cash	Dr. Stefan A. Brands	1993	never activated
Universal Electronic Cash (UEC)	T. Okamoto and K. Ohta	1991	too fungible
Conditional Access for Europe (CAFÉ)	ESPRIT Project 7023	1992 (1997 †)	limited transferability
Mondex	Jones u. Higgins (NatWest UK)	1990 (2001 †)	money generator in Smartcard Chip
OPERA (Open Payments Europ. Research Association)	CAFÉ	1995 (1996 †)	limited anonymity
MILLION (CAFÉ with PDA's)	ESPRIT Project 20772	1995 (1997 †)	no e-Money relation
SOS cards (implementation of café on smart cards)	ESPRIT III Project 9259	1994 (1996 †)	no e-Money relation
EMS (Electronic Monetary System)	Sholom S. Rosen (Citibank)	1991	not disclosed completely

Source: Heinz Kreft, Cashing up with mobile Money – The fairCASH way¹ Author: Heinz Kreft, Institute for Informatics, University of Kiel, Hermann-Rodewald-Str. 3, 24118 Kiel, Germany Web page: <http://www.faircash.org>,

While these innovations did not initially succeed in providing a cashless society, they did demonstrate the potential of card to card transfers in facilitating “unaudited transactions” which could “facilitate money laundering,” and “create value, and spoof the system; put it (credit) on my card, and not take it off yours.” (Mayer, 160) As Mayer notes of stored-value card payment system, “Any chip card that is a substitute for cash creates difficulty because it does not produce any change in a bank balance sheet and thus is not only outside the scope of monitoring for criminal activity, it is outside the scope of normal monetary policy which relies on changes in reserve positions for its control of the balance sheets of banks. This anonymity or privacy of electronic transactions systems is a characteristic of

³ See http://chaum.com/projects/eCash/pressrelease/eCash_original_press_release.pdf for the 1994 introduction of the first protocols for electronic payments

cash payments and has also been an objective of those who have designed payments systems such as Chaum's Digicash – which was first introduced on a commercial basis by Mark Twain Bancshares (of which Minsky was a Board member).

As noted above, attempts to replace cash payments have been in the works since the late 1960s, but without much success. They were revived with the advent of widespread access to broadband and Wi-Fi internet. But the real impetus to a cashless society was not the smart ATM or the Smart card with a programmable chip, but internet shopping and then mobile payment systems based on the Apple's development of the smart phone. As Martin Mayer has noted, these systems provide a more direct form of competition than the innovations provided by unregulated investment banks: "One thing is certain: the future, whether money moves through the banks or through service providers, will belong to the man who owns the file of payees. The economies of electronic payment require that the money move directly from the payer through the computers to the switch to the credit of the seller and then to the payor's account with the seller. These economies are the big bucks ..." (Mayer, 179)

3.1 Mobile systems make payments they do not provide means of payment

Most of the initial e-money or cyber cash proposals attempted to replicate the payments of debts through bank liabilities. Just as notes and then deposits became substitute means of payment for government money, electronic payments sought to displace physical paper check clearance. It is thus not surprising that most of these efforts were introduced by banks, and in general were driven by the costs savings that they expected to achieve by eliminating teller and check collection services. And as noted, while they have provided acceptance of online banking, they have not produced either a cashless society or a major innovation in the way the payments system operates.

As noted above, the basic banking functions can be carried out in one of two ways, or by creating an independent payments clearing system, or by providing a substitute for government money. Current mobile systems more resemble the first approach, although some have evolved into a mix of the two systems that resembles the current bank based payment system. On the other hand, the more recent efforts provide non-bank entities, including technology and internet companies, and follow the second line of operation, seeking to operate as clearing houses for their members. It is this area that raises

the problems cited above concerning anonymity, separation from the formal payments systems and the potential for a monopoly provision of payments services outside the regulated banking system.

At the April 2012 Minsky Conference, Henry Kaufman (Kaufman, 2012) predicted that “in the future the entire deposit function will be handled by some giant cloud computer facility.” Thus the first question in assessing the natural forces leading to change in the financial structure and the behaviour of financial institutions is whether electronically mediated mobile payments services will eventually eliminate and replace core deposits for regulated, insured banks. And if this is the case, how will the liquidity function provided by banks to borrowers be affected? And how will it be controlled?”

Or, as suggested in the quote from Alan Blinder’s testimony above, will central banks, or government decide to take over the payments system? An indication of this possibility is the action of a large European company, Siemens, to charter its own proprietary bank in order to allow it to keep its liquid reserves safely on overnight deposit at the ECB, raising the question of whether central banks might themselves take over the payments mechanisms, eliminating private institutions?

Anyone who buys on the internet is aware of the fact that alternative private transactions systems already proliferate. Pay Pal, originally the payment system for eBay’s auction transactions, is now an independent spin-off generally available for most domestic digital transactions and has recently expanded to handle international payments. Google has countered by producing Google Wallet, Mastercard generated PayPass and Visa has a similar system, Visa Checkout, and a European safe mobile payments systems V.me. Square and PayPal which started by supplying mobile individual card readers to attach to laptops, tablets and smart-phones that replace traditional fixed-line point of sale terminals have upgraded to mobile and chip card readers. Starbucks invested in the company and engaged it for exclusive provision of its payments systems, although this seems not to have evolved as planned and the agreement has been terminated. First Data Corp also provides point-of-sale hardware and software services through the Clover touch-screen system. Vantiv offers point-of-sale terminals and other technology for small businesses. Heartland Payment Systems offers traditional and tablet-based point-of-sale systems to restaurants. Poynt Corp. is also offering a terminal that allows for payments using a mobile phone or a chip-embedded card. Revel Systems bases its system on the iPad also targets specific business. ShopKeep acquired Ambur, a company that offered



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payment services. American Express was an early entry into this approach with its free "Blue" card providing guaranteed encrypted internet payments through its own network, but the system required a separate card reader which was initially provided free of charge, but had to be purchased and linked to PC. Basically designed for security purposes, it never generated large streams of payments and the card is now marketed as a simple no-fee credit card.

These systems use either Wi-Fi internet or a smartphone wireless connections or a near payment radio connection to provide payments transfers. As yet all link the users' regulated, insured bank account or credit/debt card account for the origination and final receipt of means of payment. Thus in the sense defined above they make payments on behalf of their clients, or can be considered as clearing houses for their members. As noted above, this does not prevent such systems from creating purchasing power, and indeed, some online payment services also provide lending services and issue branded credit cards through one of the major credit card networks. This in general requires a formal or informal link to a traditional bank. Thus the current environment already provides systems that offer a mixture of mobile payment providers through the use of smartphones and alternative payment systems to traditional bank based systems.

For example, PayPal processes payments through a Single Bank Holding Company, Bancorp, that owns a Delaware chartered bank of the same name that is a member of the FDIC, but not a member of the Federal Reserve System. It issues debt cards to PayPal customers. Bancorp is an innovator in branchless banking (that is, banks without physical "branch" premises), private label banking (that is setting up "banking" services in the name of an individual or entity) and affinity credit cards and prepaid debit cards.

PayPal has recently expanded its services with a global mobile payments system, PayPal Here, including a free app and fully encrypted thumb-sized card reader for iPhone that allows small businesses, service providers and casual sellers to send invoices or accept debit and credit cards, checks and PayPal using one system. The PayPal Mobile app for iPhone complements PayPal Here. It can notify the recipient merchant by a tap on the phone and the merchant can accept the payment by simply referencing the shopper's name and picture. It has also announced a quasi interchange system Payflow Services: Payflow Link and Payflow Pro payment gateways that process credit and



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debit cards, PayPal payments, delayed shipment billing, and electronic checks that come from online, mail, and telephone orders.

Google Wallet is operated in conjunction with Mastercard by the Google Payment Corporation (GPC). It makes the disclaimer “GPC is not a bank or other chartered depository institution. Funds held by GPC or its service providers (including any bank service providers) in connection with the processing of Payment Transactions are not deposit obligations of Buyer and are not insured for the benefit of the Buyer by the FDIC or any other government agency.”

The Square system that allows the user to accept payments, including card-based payments using MasterCard and Visa also makes the disclaimer “We are not a bank, and we do not offer banking services as defined by the United States Department of Treasury. We also do not offer money service business (“MSB”) services as defined by the United States Department of Treasury.” It relies on a merchant payment processing service offered by the Chase “Paymentech” system mentioned above which provides a digital service. Square also provides a free small square card reader that can be attached to a smart phone, tablet or laptop as well as standard PC converting it into a mobile point of sale terminal without the fix line connection and cumbersome hardware.

In general, all of these systems provide payments services via a wireless digital link between the purchaser’s bank or bank issued credit card to the seller’s bank. In addition to providing these transfer services at rates that are in general competitive with standard credit card interchange and assessment fees such as those offered by Visa or Mastercard, they seek to hold clients' excess cash balances and to use it to generate income in much the same way as Merrill Lynch's innovative Cash Balance brokerage account.

For example, a recent PayPal legal notice says “While your funds are in our custody PayPal will combine your funds with the funds of other Users and place those pooled funds into Pooled Accounts with one or more banks. These Pooled Accounts will be held in PayPal's name for the benefit of its collective Users at one or more banks. Balances in U.S. Dollars that are held in Pooled Accounts at one of the banks may be eligible for FDIC pass-through insurance. ... You agree that you will not receive interest or other earnings on the funds that PayPal handles as your agent and places in Pooled



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Accounts. In consideration for your use of the PayPal Services, you irrevocably transfer and assign to PayPal any ownership right that you may have in any interest that may accrue on funds held in Pooled Accounts. This assignment applies only to interest earned on your funds, and nothing in this Agreement grants PayPal any ownership right to the principal of the funds you maintain with PayPal. In addition to or instead of earning interest on Pooled Accounts, PayPal may receive a reduction in fees or expenses charged for banking services by the banks that hold your funds.”

One of the ways that funds may be accumulated is given in a recent announcement sent to Ebay sellers: “Starting Jan. 16, 2012, money from payments you receive will be placed in a pending balance for up to 21 days. By doing this, we’re making sure that there’s enough money in your account to cover potential refunds or claims. Even though you can’t access the money right away, please ship orders quickly and communicate with your customers. After 21 days, you can withdraw money from each payment as long as the customer hasn’t files a dispute, chargeback, claim, return or reversal”. There are also special “verification” delays on transactions. All of these are mechanisms that are presented as “risk prevention”. Indeed, one of the most common customer service complaints for PayPal is the sequestration of payments “for security purposes”.

Every delayed payment remains to the credit of PayPal. The customer can expedite this process by signing up for a PayPal affiliated credit card, or by borrowing through the “bill me later” option from PayPal. This is done via Web Bank, a Utah State Chartered “Industrial Bank”. Industrial banks have a special exemption from Federal Reserve regulation; the bank has been subject in the past to an FDIC cease and desist order.

While regulated banks have been slow to recognize the threat to their business model. The initial response has seen banks providing the plumbing for online and mobile payment systems. For example Chase Paymentech⁴ offers a full service online payments technology, which runs through Chase computers and Chase accounts. It offers a Hosted Pay Page called Orbital® that makes it easier for the vendor to protect customers’ payment account data while providing a seamless payment system. The Orbital Payment Gateway clones the e-commerce website’s “look and feel” into a

⁴ See <http://www.chasepaymentech.com/>



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payment page that is securely hosted by Chase Paymentech. The consumer enters payment data directly into Chase's secure server, so the ecommerce seller never has to receive or store this data.

More recently banks have provided competing payment services. In November Chase Commerce Solutions announced that it had replaced Square as the non-mobile payments processor for Starbucks (which will continue to use First Data as its mobile payment processor). Chase is also partnering with Merchant Customer Exchange (MCX), the mobile-commerce network owned by a consortium of retailers ranging from Walmart and Target to Best Buy. Chase's relation with MCX is the basis of a new integrated mobile payment service that Chase will launch in mid-2016 called Chase Pay. The deal enables customers to use Chase Pay either directly, or through MCX's CurrentC mobile application at more than 100,000 MCX member retail merchants. Some MCX merchants have refused to accept Apple Pay in preference to the MCX system.

Chase said that it is partnering with 17 technology vendors to ensure that merchants who do not use Chase Commerce solutions can participate in Chase Pay. The system offers fixed pricing, no network fee and no merchant processing fee. The system will thus provide a directly competitive system in which consumers will be able to use mobile devices to pay directly at the point of sale register.

As long as these systems work through, or are provided by, accounts at regulated insured banks they offer nothing more than an alternative to writing a check. They thus qualify as simply methods to substitute for check payments and thus as noted above, as substitutes for cash payments. As such they should not require any additional regulatory attention. But some systems seem to be crossing the threshold towards independent anonymous clearing systems.

Thus while these services initially appear to be providing mobile payment services they generate little income unless they reach large size and coverage, and as a result they have started to branch out into the provision of quasi-banking services by holding deposits and offering credit services. And although these services have been the subject of a number of hearings by Congressional committees, these have tended to focus on the provision of payments services to the non-banked public rather than the creation of an unregulated encroachment on the official payments system.

As noted by Martin Mayer above, these various systems can compete, but the system that emerges will be the system with the largest client base. Thus the Schumpeterian result will be a single dominant payments provider, which links the maximum number of clients. And once this critical size is achieved it will not only be able to displace regulated banks as providers of the payment system, they will be able to provide credit creation without any regulatory or policy control.

4. INNOVATIONS IN THE LENDING SYSTEM: P2P LOAN PLATFORMS

It is an often heard lament that despite massive support for the financial system, in the recovery from the crisis traditional, regulated banks have been very slow to expand lending. Despite the impending full implementation of the Volcker Rule banks seem to have been concentrating on generating investment and trading income and advisory fees. At the same time, low interest rates have led depositors and other investors away from traditional investments towards higher yielding, and higher risk alternatives. The fears of “flash crashes” due to high frequency trading systems and other accounting and technical malfunctions such as MF Global and Knight roiling equity markets have also led retail investors to seek other alternatives for their savings. Indeed, some financial institutions have even sought to create their own internal markets. For example, BlackRock, a major mutual fund manager and adviser, has recently sought permission to match orders of its clients without going through regulated markets. Merrill Lynch made a similar request for trading across its multiple mutual fund clients, which was turned down by the US Securities regulator, in the 1970s.

The result has been a massive rate of increase in “Person to Person” or “Peer-to-Peer” (p2p) direct lending systems that link borrowers and lenders via the internet without any bank intermediation. Here a number of investors seeking higher returns are grouped together through a p2p lender to provide a loan to the borrower. These private lending systems outside of formal financial regulation are now in existence throughout the world. The chart below updated to October 2015 gives a rough idea of the size of these operations.

P2P Loan Volume Originated in October 2015				
created by P2P-Banking.com				
Company	Country	New loans [mio. EUR]	vs. previous month	vs. last years month
Ablrate		0,4	-63%	n/a
Arboribus		0,3	-25%	327%
Archover		1,6	32%	n/a
Assetz Capital		1,4	-47%	-47%
Auxmoney		35,0	3%	400%
Bondora		1,4	-10%	-25%
Comunitae		1,0	7%	-10%
Estateguru		0,8	399%	n/a
Fellow Finance		2,2	35%	n/a
Finansowo		0,2	14%	33%
Finbee		0,1	18%	n/a
Fixura		n/a	n/a	n/a
Folk2Folk		5,6	21%	60%
Funding Circle		64,6	-13%	48%
Funding Circle CE		4,5	7%	350%
FundingKnight		3,8	117%	976%
Fundingsecure		0,7	-82%	-24%
Geldvoorelkaar		1,9	-16%	-56%
Investly		0,0	-24%	n/a
Kokos		0,2	-23%	-41%
Landbay		3,9	7%	511%
Lendahand		0,4	19%	n/a
Lending Club		n/a*	n/a	n/a
Lending Works		1,9	4%	46%
Lendino		n/a	n/a	n/a
Lendinvest		47,7	36%	n/a
Lendix		1,8	11%	n/a
Loanbook Capital		0,3	-17%	n/a
Mintos		1,1	4%	391%
MYC4		0,0	0%	0%
Pret d'Union		9,9	-12%	27%
Prosper		n/a*	n/a	n/a
Ratesetter		71,6	4%	59%
Rebuilding Soc.		0,6	-8%	400%
Saving Stream		2,8	-88%	308%
Savy		0,4	30%	>999%
Smartika		0,6	-11%	45%
Smava		0,5	-17%	-37%
ThinCats		6,7	-19%	78%
Toborrow		0,1	-74%	n/a
Unilend		0,7	213%	-29%
Wellesley		20,5	217%	306%
Zopa		77,2	-5%	96%

Source: <http://www.p2p-banking.com/>

The lending activity ranges from micro loans to consumer and business development loans. An example of a micro loan is the San Francisco based Kiva \$3,200 loan to a group designated as “Las Perlas del Mar” (Pearls of the Sea) of good, honest woman and consider themselves to be as beautiful as pearls. The group representative is 19 years old, single, and has been selling shoes from a catalog for close to three months. ... She will use the loan to buy catalogs, shoes, runners, sandals etc. so she can better stock her business. The other group members have a variety of businesses: butcher, fruit seller, shoe seller, and clothes seller. The group is there to provide support to the members and to provide a system of peer pressure, but groups may or may not be formally bound by a group guarantee. In cases where there is a group guarantee, members of the group are responsible for paying back the loans of their fellow group members in the case of delinquency or default.” Kiva is a non-profit organisation founded in 2005 and has made \$337 million in loans with a 98.94% repayment rate since creation.

In Germany Smava.de offers p2p lending in which anyone can lend or request a loan online. Borrowers, after registering are checked for identity and credit rating using PostIdent (a service offered by German postal service Deutsche Post) to verify the identity of the borrower and the credit report is produced from information provided by Schufa, a leading German credit bureau. Smava is only open to borrowers with credit grades A to F (which Smava says leads to expected default rates between 1.4% and 7.2%). After validation the borrower can post a from 500 to 10000 Euro and state the interest rate he is willing to pay. Lenders can bid in minimum units of 500 Euros. If the loan request is fully funded the loan is made with repayment over 36 months. The borrower has the right to payoff early anytime (without any additional fees). Smava does not take fees from the lenders. Smava charges 1% fee of the loan amount from the borrower.

A British p2p operated by Funding Circle Ltd, London, UK launched in 2010 provides UK resident lenders and UK business borrowers that are at least 2 years old loans of 1 to 3 years in amounts from 5,000 GBP to 50,000 GBP. Loans have been made to over 700 businesses for over 30 million BP and it operates a secondary market to provide liquidity for investors.

When John Mack retired as Head of Morgan Stanley he joined the leading US p2p operation, Lending Club, “an online financial community that brings together creditworthy borrowers and investors

replacing the high cost and complexity of bank lending with a faster, smarter way to borrow and invest." At inception in 2007, lenders were offered a range of risk rated prime consumer notes from borrowers with an average 715 FICO score, a 14.07% debt-to-income ratio (excluding mortgage), 15 years of credit history, \$69,225 personal income (top 10% of US population). The average loan size was \$11,439. Investors have purchased over 20,000 of these notes and earned from 6-18 per cent returns. It has expanded rapidly and in the second quarter of 2015 it issued nearly \$2 billion of loans at an approximately 5% NPL. It has currently floated an IPO, lowered its FICO score limit and increased interest rates, in all likelihood to provide a higher return to the newly acquired shareholders. All loans are made via WebBank, the same bank used by PayPal. Lending Club notes are offered pursuant to a prospectus filed with the SEC.

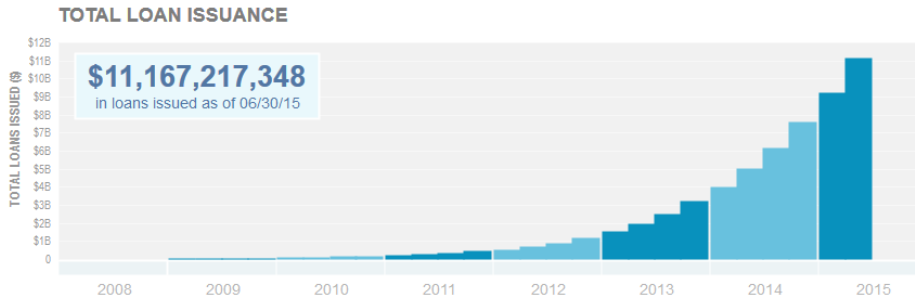
Lending Club Loan History

Performance by Year (36-month loans)

	ROI ↕	Avg Rate ↕	Loss ↕	Principal ↕	Count ↕	Completed ↕	Total Loss ↕
2007	-3.44%	12.21%	14.81%	\$4,791,550.00	603	100.00%	\$904,605.25
2008	-0.27%	12.37%	11.82%	\$19,980,228.00	2,395	100.00%	\$3,090,375.20
2009	4.56%	12.81%	7.41%	\$51,809,560.00	5,279	100.00%	\$5,004,401.00
2010	5.86%	11.68%	<u>5.00%</u>	\$87,524,488.00	<u>9,156</u>	<u>100.00%</u>	\$5,815,202.00
2011	5.81%	10.79%	4.18%	\$132,530,984.00	14,101	64.19%	\$7,355,289.00
2012	6.38%	12.98%	5.84%	\$507,669,440.00	43,470	0.00%	\$36,866,752.00
2013	8.19%	12.95%	4.10%	\$1,271,489,020.00	100,380	0.00%	\$47,034,752.00
2014	9.61%	12.48%	2.38%	\$912,224,700.00	71,779	0.00%	\$9,564,484.00

Source: <http://www.lendingmemo.com/lending-club-prosper-default-rates/>

Lending Club expansion



Source: <https://www.lendingclub.com/info/statistics.action>

In addition to P2P lending, crowdfunding has expanded via the internet. This is the equivalent to venture capital, in which websites offer to find a group of lenders to fund your business, without the risks of traditional financing. According to one website, "Don't let access to capital hold you back — let the crowd fund you." Amongst the existing initiatives are 33needs, appbackr, Chipln, Cofundos, FansNextdoor, IndieGoGo, Kickstarter, ProFounder (see <http://www.practicalecommerce.com/articles/2853-13-Crowdfunding-Websites-to-Fund-Your-Business>).

These services are also not formally regulated although a "Crowdfunding Accreditation for Platform Standards (CAPS)" initiative has been launched (crowdsourcing.org) "to promote the adoption of best practices for the operation of crowdfunding platforms globally. Designed to protect both crowdfunders (people pledging or investing capital) and fundraisers (people raising capital), the CAPS program's mission is to foster the sustainable growth of the crowdfunding industry to provide much needed capital for projects and initiatives, start-ups and small businesses." (see <http://www.crowdsourcing.org/caps>)

Supported by an advisory council of leading platform operators and industry experts, the accreditation criteria will be reviewed annually to ensure high standards for performance continue to be set as the industry develops. Accreditation is granted based on an interview and a review process. Platforms that do not meet the qualification criteria receive feedback, and upon implementation of the recommendations, are able to reapply. (see <http://www.crowdsourcing.org/caps>)



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Finally, even the US government through the recently adopted "Jobs Act" has sought to expand non-regulated financing. Jumpstart Our Business Startups (JOBS) Act provides a tax exemption for individuals to investor up to \$10,000 or 10 percent of an investor's annual income, whichever is smaller. Startups can raise up to \$1 million this way without having to do a public offering. "Emerging growth companies" with annual gross revenues under \$1B can go public under reduced SEC regulations.

As in the case of payment systems, regulated banks have been slow to recognize the threat to their business model. Citi bank has only recently announced a \$150 million partnership with online peer-to-peer platform Lending Club. It is managed by Citi Community Capital that provides accommodation for borrowers that qualify under the Community Reinvestment Act.

The system has evolved from a pure p2p system to attract investments from both regulated banks and unregulated hedge funds as major purchasers of p2p loan packages. Securitizations of p2p loans are also under development. In addition, insurance companies and other institutional investors have been reported as investors in the equity of p2p lending platforms. This involves both raising capital for p2p lenders and institutional investors as funders for p2p loans. This trend may be seen in decline in p2p loans that are funded in small investments from by multiple lenders relative to a single investor purchasing whole loans. Synthetic Lending Marketplace is developing a business in derivatives based on p2p lending. "If you could create a synthetic product that mimics all the features of a P2P loan and had the same risk and yield tradeoff, there would be a lot of demand to buy that paper,"

ING Bank has partnered with equity crowdfunding service Seedrs and reward based crowdfunding platform Kisskissbankbank to tackle the markets in Belgium and Luxembourg. Through this partnership, businesses will have a fast-track service for equity crowdfunding on Seedrs.

As noted above, foreign exchange was an early application of the netting system, and this has also been replicated by TransferWise that provides p2p foreign exchange transfer services. A TransferWise customer in the U.S. wishing to exchange dollars for British pounds to make a payment in the U.K. would upload the dollar amount of the payment along with the U.K. recipient's bank account details. TransferWise would then match the dollar payment flowing to the U.K., with an equivalent amount of



British pounds that a customer in the U.K. wants to exchange to dollars and send to the U.S. The British pounds remain in the U.K. and are transferred to the account designated by the U.S. customer. The dollars stay in the U.S. and are transferred to the bank the U.K. customer had designated. The platform initiated business in the U.S. in February and has transacted more than \$1 billion in transactions. The potential to move from an agency model to a principal model will arise when the business offer in Mexico where payments out of the US exceed payments into the US. Again, at present the system is linked to the existence of a client bank account or credit cards, but it accepts Apple Pay and is exploring integration with mobile wallet systems.

These are only a few examples of the range of lending activities that are currently operating on the fringe of the regulated financial system. The conclusion is that information and transfer technology are developing systems that will be capable of replacing both the payments system and the lending function of traditional regulated system, transforming it into a mosaic of differing technologies and approaches with the unifying characteristic that they are unregulated. This is reminiscent of the early US financial system in which various bank note currencies circulated simultaneously, and the problem of clearing bank checks when note were replaced by deposits. In the first instance the government responded by introduction national bank notes, and in the second the Federal Reserve provided for the interbank par clearing system.

5. CONCLUSIONS

These new lending and payment systems challenge traditional banks by splitting the two sides of the balance sheet into separate operations, leaving traditional regulated institutions as the bridge between the two. They thus also represent a potential challenge to the existing regulatory system designed for traditional deposit banking. None of these payment systems are themselves subject to prudential regulation, although they have linkages to parts of the formal financial system that are regulated in different ways. This raises the question of whether these new developments are increasing the efficiency and stability of the financial system.

According to Money and Banking 101, the most efficient and stable payments system is one in which all transactors are part of a uniform payment clearing system. A one-bank system need not keep any

reserves since there is no risk of deposit drain or bank runs characteristic of multibank fractional reserve banking systems. Such a system would also not need deposit insurance, eliminating the moral hazard present in the existing system. It would also reduce the moral hazard and excessive risk taking by individual institutions caused by government bailouts of institutions that are too big to fail.

However, such a structure would also create an internal clearing system, an internal imaginary currency, similar to that used in the Bank of Amsterdam that could replace currency and demand deposits as the central means of debt settlement in the economy. The question is whether the new communications technology that is currently revolutionizing the transactions systems will produce the equivalent of a "one bank" transaction system. The experience of the Bank of Amsterdam, which eventually discovered it could create liquidity simply by crediting an account, the potential for malfeasance in these private clearing mechanisms should be obvious. It is also obvious from network theory that there will be a tendency toward concentration of users in single clearing systems. As Martin Mayer, cited above points out, the system with the largest number of members will win out. Will it be Google, or Pay Pal or "the Cloud"? Or will regulators step in to provide the equivalent of "par clearing" of checks introduced by the newly created Federal Reserve to ensure that local clearing systems were linked.

At the same time, p2p lending appears as the modern equivalent of Securities Affiliates that were the center of fraud and malfeasance in the run up to the Great Depression. These systems virtually eliminate the bank lending officer and the normal due diligence. In the view of Willis and his students, the vetting of bank assets was the only way to ensure financial stability. Certainly, these loans may be considered as having 100% capital backing, but this in no way eliminates the possibility for systemic instability to create havoc in the financial system.

As noted above, Henry Kaufman believes that "in the future the entire deposit function will be handled by some giant cloud computer facility" but he also went on to say that this system would be "controlled and guaranteed by the government." This will have massive implications for the current financial system. Paper checks will disappear, bank branches will disappear, financial advisers will disappear. "The financial future will be one in which credit is socialized and our major financial institutions are financial public utilities."

Traditional financial prudential regulation can be divided into two approaches: the control of the liabilities or the assets of the banking system. As noted above, controls over the creation of bank liabilities serving as means of payment was designed to ensure the balance of private saving and investment in order to ensure price stability. The aim is to ensure that bank liabilities always are perfect substitutes for State money. From this approach regulation requires bank reserves to cover possible deposit drain and a lender of last resort or deposit insurance schemes to provide State liabilities when there is a shortfall in a single bank. As recently discovered, this type of regulation does little to meet systemic crisis and has generated macroprudential regulation, which seeks other means of ensure the balance between investment and saving.

The other alternative is represented in the real bills doctrine and which provided the basis for regulation. As noted by Colwell, if bankers always intermediate self-liquidating exposures, then credits always equal debits and there can be no instability. Instability is caused by sight redemption of bank liabilities, which are to be discouraged or managed through clearing houses, or the financing of purely financial transactions which are not self-liquidating in the sense of producing the revenue to meet the liability, but are based on the expectation of capital gain. As noted by the architect of the US Federal Reserve System, Parker Willis, the stability of the financial system is determined by the stability of the banks' investment assets. Due diligence by bankers is the only way to ensure stability.

The new payments systems have the ability to evade or distort the regulation on the liability side of financial institutions, while the p2p system replace the due diligence of bank loan officers and bank supervisors with computer algorithms. It is for this reason these system will be the major challenge to the future regulation of the financial system.

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THE ABSTRACT OF THE PROJECT IS:

The research programme will integrate diverse levels, methods and disciplinary traditions with the aim of developing a comprehensive policy agenda for changing the role of the financial system to help achieve a future which is sustainable in environmental, social and economic terms. The programme involves an integrated and balanced consortium involving partners from 14 countries that has unsurpassed experience of deploying diverse perspectives both within economics and across disciplines inclusive of economics. The programme is distinctively pluralistic, and aims to forge alliances across the social sciences, so as to understand how finance can better serve economic, social and environmental needs. The central issues addressed are the ways in which the growth and performance of economies in the last 30 years have been dependent on the characteristics of the processes of financialisation; how has financialisation impacted on the achievement of specific economic, social, and environmental objectives?; the nature of the relationship between financialisation and the sustainability of the financial system, economic development and the environment?; the lessons to be drawn from the crisis about the nature and impacts of financialisation? ; what are the requisites of a financial system able to support a process of sustainable development, broadly conceived?

THE PARTNERS IN THE CONSORTIUM ARE:

Participant Number	Participant organisation name	Country
1 (Coordinator)	University of Leeds	UK
2	University of Siena	Italy
3	School of Oriental and African Studies	UK
4	Fondation Nationale des Sciences Politiques	France
5	Pour la Solidarite, Brussels	Belgium
6	Poznan University of Economics	Poland
7	Tallin University of Technology	Estonia
8	Berlin School of Economics and Law	Germany
9	Centre for Social Studies, University of Coimbra	Portugal
10	University of Pannonia, Veszprem	Hungary
11	National and Kapodistrian University of Athens	Greece
12	Middle East Technical University, Ankara	Turkey
13	Lund University	Sweden
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