

OECD FORUM FOR THE FUTURE

Conference on
THE FUTURE OF MONEY

Key Points
An Analytical Synthesis of the Discussions

By

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Executive Summary

To put it in succinct and current terms, money's destiny is to become digital. Conference participants came to this general conclusion by looking at both money's long historical record and its likely relationship to future socio-economic changes. Historically, money has been on the path towards greater abstraction, or pure symbolic representation disassociated from a precise physical materialization, for millennia. Less evident for many was the question of the rate at which the last vestiges of physical money will disappear and, for some, if it is destined to vanish at all. Views also differed regarding the economic and social importance of traversing this "last mile" and what it would take to achieve it. At one end of the spectrum, Singapore's Board of Commissioners of Currency is moving forward with a comprehensive effort that is meant to replace, by 2008, the physical money it issues with a functionally equivalent and much more efficient digital system. At the other end of the spectrum, many central banks and governments have taken predominantly conservative stances, which accounts in part for the very limited success of recent efforts to diffuse digital money more widely.

Reflecting on these divergent approaches a case can be made for reconsidering both the significance, in economic and social terms, of much fuller digitisation of money and how to make it happen. On the economic front it was argued that there are high costs, public and private, because of the slow pace at which new payment systems, capable of generalising digital money throughout the economy, are being introduced. These costs are not only the familiar direct ones caused by the large expenses involved in handling, clearing and policing physical cash, but also the less obvious losses associated with the difficulties of making the transition towards a "new economy of intangibles". From this "opportunity cost" vantage point, instantaneous digital payment systems that extend throughout the economy were seen as a crucial and still underdeveloped part of the infrastructure necessary for the flourishing of tomorrow's global knowledge-intensive economy where electronic commerce, in all its forms, is likely to be one of the key determinants of overall economic performance.

In social terms concern was expressed regarding the ways in which payment system costs are distributed and how accessibility issues will be addressed. Today the costs of cash (and near cash instruments like cheques and credit cards) are largely hidden for consumers. For instance there is little discussion of the equity dimension of the cross-subsidy, imposed when credit card companies prohibit merchants from offering discounts for cash payment, between people who pay cash (particularly the "unbanked" without other options) to those who pay with credit cards. Similarly many clearing and settlement systems give rise to expensive service charges and lucrative floats that have serious social consequences in areas such as remittances by foreign workers, providing financial services to the excluded or encouraging the start-up of micro-enterprises. Equally serious is the possibility that a major social fault line could develop in the future when access to digital money becomes the principal way to benefit from lower transaction costs and burgeoning cyber-markets.

Adding these social concerns to the economic ones makes a strong case for proactive policies that aim to accelerate the diffusion of digital money to the point where it marginalizes physical cash. This conclusion has not emerged from most other recent discussions of the future of money because, for the most part, the focus has understandably been on the new and exciting technologies that might replace the physical with the digital and concerns about the implications of these technologies for central banks. These discussions have provided reassuring conclusions regarding the implications of new technologies for the effective pursuit of macroeconomic policy. However, such a technology-centric approach tends to obscure both key forces likely to influence the future of money and important policy issues and tools. Indeed, as became apparent at this conference, policy makers have good reasons not only to increase the pace at which tomorrow's digital money diffuses throughout the economy but also to shift the policy focus away from

monetary technology (physical) towards monetary agreements and standards (virtual) that underpin clearing and settlement systems that could be used by all participants to money based transactions.

Two precedents offer important insights into why it makes sense to redirect policy efforts towards the virtual side of money. First, the internet, as a network of networks, shows how uniform standards (TCP/IP and HTML, both originally sourced from the public sector) can be neutral with respect to the particular technologies (physical and digital) that use the system. This is crucial because it creates a wide-open market on the connection side where competition, technical advances and a very wide diversity of uses can flourish. Second, the national inter-bank clearing systems and international currency markets provide some examples of how, in the past, policy makers have helped to introduce the rules, as well as nurture the institutions, that run complex settlement systems with relatively high degrees of confidence and efficiency. Taking these kinds of policy initiatives could go a long way towards transforming technological potential into practical and efficient economic reality.

Finally, recent terrorist events give additional salience and urgency to the accelerated introduction of much more widespread clearing and settlement systems based on broadly agreed rules for ensuring transparency of financial transactions. Establishing internet type open standards for ubiquitous payment systems, with internationally agreed principles for respecting privacy and the responsibilities of citizenship embedded in the basic software code, offers a major opportunity to marginalise illegal transactions of all kinds. First by significantly reducing the place of cash and second by bringing all economic agents on to a level playing field when it comes to the transparency of their financial activities. Many pieces of such systems are either in place or being developed. Now, with global interdependence so clear to everyone, there is an opportunity to add a sense of urgency to setting an ambitious and innovative policy agenda for the future of money.

Synthesis of the Conference Conclusions

Over the last few years the future of money has received considerable attention. Many important questions have been posed and many answers provided. This conference built on previous efforts to clarify a number of crucial issues and added a dimension that has been largely ignored up to now – to what extent do major advances in economic and social conditions, two to three decades from now, depend on as well as give rise to the use of digital money in most (if not all) market transactions? Consideration of this latter question follows directly from the mission and preceding conferences of the OECD International Futures Programme, in particular the findings of the recent 21st Century Transitions conference series on the prospect that there may be technological, economic, social and governance changes on par with the radical transformations that characterised the transition from agricultural to industrial society.

For the sake of brevity this Key Points synthesis of the Forum for the Future conference on the Future of Money offers a four point overview of the main findings that emerged from the background documentation and lively discussion: 1) Defining the Issues; 2) Implications of Long-run Historical Trends; 3) The Imperatives of Economic and Social Change; and 4) Time for Policy Breakthroughs?

1) Defining the Issues

Fairly often discussions of the future of money get sidetracked by confusion over the definition of money, its many functions, various forms and the multitude of mechanisms for effecting transactions. Without offering a systematic review of the numerous strands of thought and differences in vocabulary, it is worth covering three basic points that together provide a solid analytical foundation for thinking about the future of money. First, for most participants at this conference money serves three classic functions - as unit of account, means of payment and store of value. In the future there is little prospect of change in these basic attributes of money. Second, there are a range of forms of money, not all of which must serve all three of money's primary functions. In the future there is a good chance that current forms of money will be joined by new ones, although it is difficult to ascertain the likelihood of widespread acceptance. And third, there can be little doubt that there will be a proliferation of monetary mediums or transaction methods, both physical and digital, over the next few decades.

These points of departure are helpful for clarifying the issues at stake in a discussion of the future of money. However, two additional concepts make it much easier to assess the many possible trajectories that monetary forms and means of payment might take over the coming decades. One is the idea of a "monetary space" which refers to a domain, understood both in the physical sense of a particular territory and in the virtual sense of a specific market, within which a particular money serves one, two or all three functions. For instance the territory of Japan defines a territorial monetary space that uses Yen, while oil markets define a virtual monetary space that uses American dollars. The second useful concept is that of a "monetary hierarchy" that exists within a monetary space. This notion helps to distinguish different forms of money and the relationships that exist amongst them.

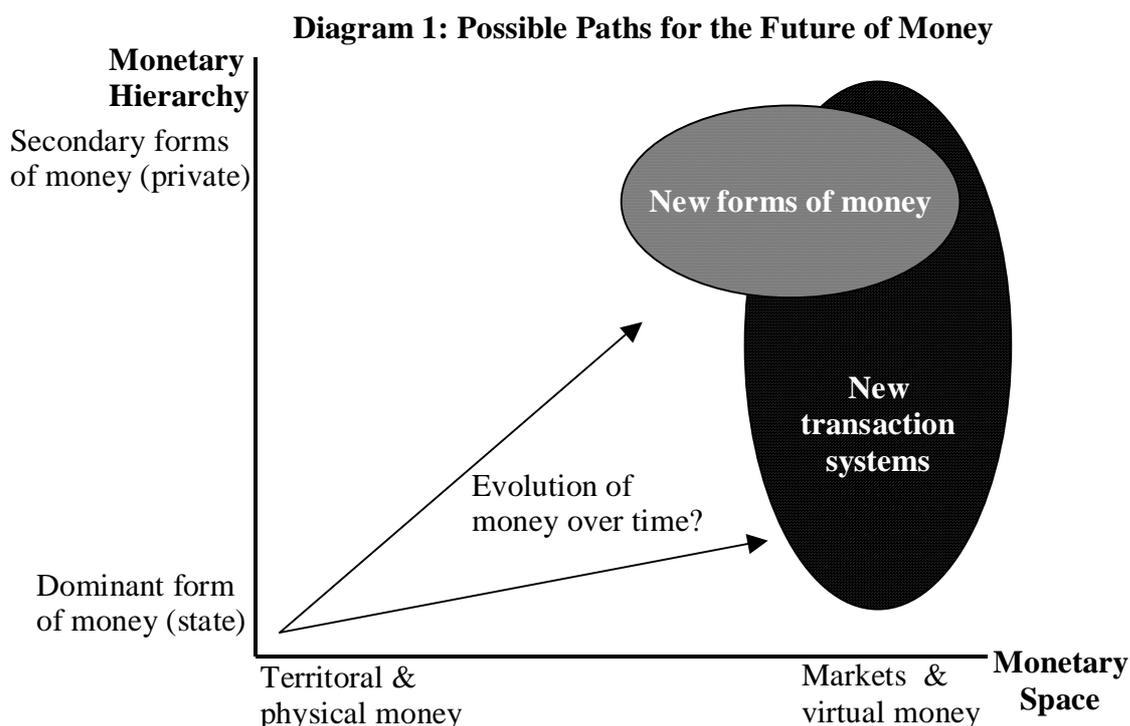
Dominating the hierarchy is the form of money that inspires the greatest confidence and can perform fully all of money's primary functions. Here it is worth recalling that money is a form of credit, with state debt in the form of issued currency usually having the highest degree of credibility in terms of the expectation of future redeemability. Legitimate and stable political authority has two strong advantages when it comes to ensuring that its money constitutes the common denominator of the monetary hierarchy. First the state can specify that the payment of tax liabilities must be in a specific currency. Second, in so far as a government maintains its fiscal balances within acceptable limits, respects the prevailing rules of political legitimacy and seems well positioned to maintain its territorial sovereignty, there is usually widespread

confidence that the currency will be a generally accepted unit of account and means of payment in the future (often this acceptance is a legal requirement within a territorial monetary space).

Other forms of money occupy a less dominant or less central position in the hierarchy either because of less credibility or an inability to perform one or two of money's general functions. For the most part, the position of a particular form of money in the monetary hierarchy is determined by two attributes: its liquidity, which means the ease with which it is redeemable into the dominant currency, and its effectiveness in performing money's different functions. To take one example, the tokens stored on the smart-cards used by some phone companies do not function at all as a generalised unit of account (no prices are posted in these units) and are limited as both a store of value (to the extent that they expire) and even as means of payment (no one else accepts them). Furthermore, these tokens are not at all liquid in so far as there is no redeemability back into the original currency. Frequent flyer miles and loyalty "dollars" are another example of a form of money with relatively narrow functionality. However, despite such limitations these private tokens are a genuine form of money, while a credit card or other transaction mechanisms, like a debit card, simply facilitate exchange using, in most cases, the dominant form of money.

Looked at in terms of monetary spaces and hierarchies it becomes clear that most current discussions of "electronic money" are not about new forms of money at all but rather about new ways of executing transactions with existing forms. Genuinely new forms of money emerge when a person or institution offers to create a token which has no prior record and which they promise to redeem at a particular value in the future. In most circumstances this new token starts at a very weak position in the monetary hierarchy. By way of contrast, new tools or technological means for engaging and recording transactions often try to overcome the steep hurdles to widespread acceptance by using the most familiar and dominant form of money. So when credit cards were introduced there was no effort to compound the problems of gaining user's confidence by attempting to introduce a new form of private money at the same time. Credit cards simply offer an easier way to use the currency that dominates the monetary hierarchy.

Diagram 1 below uses these concepts to provide a graphical context for mapping possible directions for the future of money. The bottom left quadrant of the diagram applies to situations where most transactions use: the dominant currency of the monetary hierarchy, occur within a particular territory and are conducted using a physical medium. Historically most societies have operated in this quadrant and even today this is still the sphere of the majority of transactions involving individuals, retail merchants and small businesses. However, over time the weight of transactions measured in terms of value has moved more towards the bottom right quadrant. In specific markets like oil, foreign currency and financial markets more generally, transactions have become less territorially circumscribed and more virtual, although for the most part the strongest currencies of the monetary hierarchy have continued to dominate.



For the future, as Diagram 1 makes graphically clear, the question is to what extent transactions will shift towards other quadrants, particularly the upper right where conditions contrast the most with those that pertain today. Two distinct and mutually reinforcing answers, dealt with in turn in the following sections, were provided by the conference: one based on the long-run trends of monetary development and the other rooted in an assessment of the implications for money of future economic and social changes.

2) *Implications of Long-run Historical Trends*

The likely path money might take in the future can be partly assessed by looking at three non-linear but nevertheless persistent trends that have marked money's long history. First is the gradual dematerialisation or abstraction of money from a tangible object to an almost entirely intangible sign or digital record. Initial steps along this path can be found in some of the earliest written records. For instance, Plutarch describes how monetary reform in the 6th century BC, aimed at easing the debt load of poor peasants to their landlords, involved reducing the weight of the Drachma by 30%. Another prominent step along this same path came with the Italian Renaissance and the introduction of bills of exchange that dematerialised money into entries in the accounts of creditors and debtors. Over time money has steadily moved towards the lower right quadrant of Diagram 1, gradually becoming less material and increasingly digital.

The second long-run historical trend relates to the efficiency with which the relationships between creditors and debtors are managed, particularly within the financial sector which plays a pivotal role in sustaining confidence in a specific monetary hierarchy and space. The key development here has been the steady improvement in the agreements and standards that ensure mutually acceptable and routine resolution of daily inter-bank obligations. This trend displays two dimensions, one towards greater centralisation of the management of system-wide clearing, and the other, a growing capacity to support complex, decentralised forms of money and payment mechanisms. The first is most clearly seen in today's networked national payment systems where central banks and a specialised public regulator are usually the backstop and supervisor. The second dimension, made possible by the high integrity of the core financial sector's payment systems, is manifested in many OECD countries by the proliferation of new financial

instruments (like mortgage bonds and hedge funds) and payment technologies (like smart cards and the new person-to-person Internet based payment intermediaries – e.g. Paypal).

From the perspective of Diagram 1, this two-fold movement of centralisation and decentralisation does not suggest a particular trajectory for money. However, there can be little doubt that steady improvements in the capacity to ensure the integrity of a diversified and continuously evolving financial sector is a crucial enabler of movement from one quadrant to another. The successful introduction of both new forms of money and new means of payment depends, in large part, on the ease with which an issuer or medium can become part of a credible and efficient financial system. Without such a base, or when the system is regulated in ways that make it difficult for new entrants and innovation, there is little scope for movement in the possibility space described by Diagram 1. This is why, as discussed in the concluding policy section, payment system rules and standards (including how they are governed) are likely to play such a crucial role in determining the pace and extent of the movement towards the upper right quadrant of Diagram 1.

The third trend that marks money's historical record also points towards the importance of regulatory conditions. Here the story is one of the enhancements made to governance capacity, not only in the relatively narrow field of inter-bank clearing and the integrity of the financial sector, but broadly in terms of how money and the financial sector interact with the rest of the economy and society. Today's monetary spaces and hierarchies rest on governance systems that have the capacity to handle challenges that combine broad economic and monetary dimensions such as controlling inflation, dealing with bank failures, and resolving the conflicts of interests that divide different constituencies (e.g. importers vs. exporters, debtors vs. creditors). For instance, in most OECD countries, the credibility of the rules and institutions that underpin a specific monetary space and hierarchy is realised through the regular publication of dependable economic statistics (e.g. the consumer price index), the establishment of clear lines of accountability and transparency (e.g. in state budgets, stock markets and central banks), and open processes for resolving disputes amongst competing interests (e.g. legislative debate and judicial remedies). In this system the state is the lender of last resort, legal enforcer of the national currency as means of payment, supervisor of the integrity of the financial sector and guardian of macro-economic stability. Based on its legitimate political authority the state can make decisions that have a major impact on who are the winners and losers in society, including choices in the monetary sphere that at times favour creditors over debtors, bank share-holders over taxpayers, exporters over importers, and even owners over creators of intellectual property (by, for instance, failing to introduce a level playing field for micro-payments).

For the future, however, governance capacities may need to be significantly enhanced. The biggest challenges seem likely to arise from the need to negotiate new rules and reform or launch institutions capable of setting the standards and supervising the operation of a universally accessible digital currency. Many issues will need to be resolved, from the best method for establishing universal systems for verifying people's identities and providing effortless access to a digital money accounts to ensuring high levels of interoperability on both the software and hardware sides of the monetary network. These challenges will require concerted efforts on the part of public authorities. At the national, or in the European case regional level most of the governance capacities in terms of rule setting, institution building and dispute resolution are in place, even if the experience of the existing system is largely confined to dealing with the issues that arise in the lower left quadrant of Diagram 1, the sphere of territorially defined monetary spaces with state dominated monetary hierarchies. At the global level few of the requisite decision making and implementation mechanisms are in place. The extent to which this could pose a problem will depend, as discussed in the next section, on the nature of the changes and public policy goals likely to prevail.

3) *The Imperatives of Economic and Social Change*

If money's long-run trends signal that major shifts in monetary spaces and hierarchies are possible, it is the strong connection to socio-economic change that offers a way of assessing the probability and desirability of such movement over the next few decades. Many conference participants noted that there is a clear inter-dependency between specific socio-economic conditions and the success of specific forms of money as well as payment mechanisms. For instance, inter-city trading during the Italian Renaissance helped to both inspire and diffuse the use of bills of exchange. Taking more current examples, there is a mutually reinforcing relationship between credit cards as a payment mechanism and the conspicuous consumption patterns characteristic of certain social groups. While the use of American dollars in parts of the world where the state lacks sufficient fiscal credibility (Argentina) or the 'legal' economy is weak (Russia) also demonstrates that there is close connection between specific socio-economic and monetary systems.

In the future, four potential sets of developments seem likely to exhibit a strong inter-dependency with the emergence of new payment systems and possibly forms of money: the transition to a global knowledge-intensive economy; the demands for equitable access in more diversified societies; technological advances that open up new possibilities for payment and settlement mechanisms; and the pursuit of societal interests in the context of the "public good" dimensions of money.

Transition to a global knowledge-intensive economy: Despite the recent popularisation of the Internet and the long-standing recognition that many OECD countries have become "post-industrial", a number of conference participants argued that there is considerable scope for further profound changes in economic functioning. In particular, it was contended that the evolution towards an economy where intangibles such as knowledge are the primary source of value-added will both enable and demand fundamental changes to transaction systems. The importance of changes in the monetary sphere for the development of the global knowledge-intensive economy stems from the difficulties, already encountered by so many of the failed Internet start-ups, of creating markets for intangibles like ideas and entertainment. Perhaps the clearest early sign, without going into detail, that the appropriate payment systems have yet to be worked out, is in the field of music. Here the creators and owners of music, now traded using digital files, have been unable to find efficient ways of getting paid. The economy-wide consequences of this genuine market failure, often referred to as the lack of a viable "business model", may be much more severe as an ever greater share of total wealth creation falls into the realm of intangible knowledge.

Equitable access in a more diversified society: Recent analyses of the "digital divide" have already drawn attention to the potential for polarisation and exclusion as more everyday activities migrate to the Internet. A future where digital money is predominant for all types of transactions could either exacerbate accessibility problems or, under certain policy regimes, be an effective way of opening up the "digisphere" to tomorrow's highly differentiated societies. The former possibility arises most obviously if digital money only works in conjunction with relatively expensive technology or identity requirements that are not universally accessible. Alternatively, network money could be specified and implemented in ways that make it both less expensive to use than physical cash and a means of achieving greater social inclusion. Granting all people the right to a verifiable Internet identity and a basic money account, in the context of a much more universally accessible network, would put in place a strongly inclusive foundation for a monetary space that uses predominantly digital money. The pursuit of this more accessible path not only illustrates the close connection between changes in the socio-economic and monetary spheres but also the determinant role of public and private innovation in setting the direction and pace of change.

Technological possibilities: Digital money will only match the attributes of physical cash if there are major advances in the ease, cost and certainty with which digital transactions are handled. In particular there will need to be considerable progress in the following areas: verification, confidentiality, ease-of-use, interoperability and reliability - throughout the entire transaction chain. Many of these advances will

require improvements in regulatory frameworks and related instruments. For instance, privacy laws can play a major role in ensuring that the required confidentiality levels for different types of transactions are met. The implementation of mandatory cryptographic, insurance, supervisory and other “safety standards” like those applied to so many other products, such as cars and food, could go a long way towards creating the necessary confidence in digital money. There is also a more scientific dimension, where technical progress in fields ranging from biometrics and ubiquitous computing to network protocols and intuitive interfaces, can be expected to spur the invention of new payment systems and forms of money as well as improving the chances that such innovations will be successful in gaining acceptance.

Pursuing the public interest: Another crucial force likely to drive the diffusion of digital money over the long-run is the pursuit of the general public interest in: lower transaction costs, less crime, easier collection of taxes and greater competition in both new and existing markets. The introduction of monetary systems where digital money predominates could achieve these goals. The most evident link between lower transaction costs and digital money arises from the potential to eliminate the significant costs associated with printing, handling and back-office accounting of physical cash and near cash-like cheques. Further considerable savings might be possible if the clearing and settlement systems could be improved to reduce the costs of delay, intermediation and enforcement. There is also a clear connection between the “underground economy” in all its forms and physical cash. The marginalisation of physical cash, perhaps even to the point where it is marginalised, could serve to make many types of illegal transaction (including the financing of terrorism) much more difficult. Tax collection and verification methods that hinder criminal activity could also be automated in a variety of ways if the vast majority of monetary exchanges take place digitally through interoperable, secure and authenticated network based clearing and settlement systems. Finally, given the appropriate standards and regulations, the shift to the predominant use of digital money could facilitate both the entry of new competitors into the financial sector and encourage the emergence of new revenue models for many intangibles, including intellectual property.

Overall, putting the analysis of money’s long-term tendencies together with an assessment of the possible direction of future socio-economic changes points towards a future more likely to be in the upper right hand than bottom left of Diagram 1. How far, at what pace, and with what kind of complications will depend largely on the vigour and effectiveness of the public policies that are fundamental for shaping monetary systems.

4) Time for Policy Breakthroughs?

The answer to this question depends, in part, on expectations regarding what might be accomplished by accelerating the transition to more fully digital monetary systems and, in part, on the plausibility that new policy approaches are both available and likely to be effective. The results of this conference suggest that there would probably be a fairly high pay-off from a more rapid transition, particularly in terms of encouraging the emergence of an Internet enabled global knowledge-intensive economy. Moving fairly quickly to introduce the appropriate policies can be justified on both short- and long-run grounds. Looking to the shorter term, policies for accelerating the diffusion of digital money have taken on added urgency for two reasons. First, actions to re-establish confidence and encourage investment are now more important in light of the present global economic slowdown and the “new economy” backlash in particular. A second and equally important current reason for an activist stance is that governments need to find ways to support the creation of worldwide markets in ways that facilitate inclusion and participation. Looking to the longer-run, by pushing for policy breakthroughs in this domain governments can make a major and timely contribution to bringing the monetary system into closer alignment with changing socio-economic conditions. By so doing there is a good chance of both reducing the costs and expanding the benefits of the fundamental economic and social transformations underway.

Government policies with respect to the future of money seem most likely to succeed by: first, making the rapid extension of the use of electronic money throughout the economy a clear policy goal; and second, as the primary method for implementing this goal, work to accelerate the development and diffusion of economy-wide instantaneous clearing and settlement methods, similar to the ones that have been taking over in the sphere of inter-bank transactions. Government efforts in this direction will need to: use technology neutral approaches that rigorously maintain inter-operability (like that of the Internet where one standard for communication – TCP/IP – allows a flourishing of a vast range of different types of connections and uses), meet key social criteria with respect to privacy and universal access (judicial protection for individuals, mandatory technical safeguards), and fulfill basic economic criteria regarding transparency and trust (monitoring of monetary aggregates, tax collection, illegal activity, authentication). This means that there will be a crucial role for the processes and institutions that develop and approve standards within and across monetary spaces.

At least two major concerns have been voiced about the risks of rapid movement towards more fully digital monetary systems: one is in terms of the potential to undermine both macroeconomic goals and tools; and the other is related to the magnitude of the governance challenge (how to make and implement the necessary decisions), particularly at the global level.

Considering macroeconomic policy first, an initial analytical distinction needs to be made between monetary spaces that are isolated and those that are permeable. In the case of a relatively autonomous monetary space that has a stable, state dominated monetary hierarchy, there seems little reason to worry. Even if physical currency becomes marginal or disappears altogether, most experts agree that a state supported central bank would be able to control short term interest rates by buying and selling financial obligations, at a loss if necessary. With respect to the implications of a predominantly digital monetary system for assessing monetary aggregates and the velocity with which money circulates in the economy, there is a case to be made that the clearing and settlement systems that underpin a virtual monetary space could offer authorities greater transparency. Current efforts at data collection encounter substantial problems because physical cash remains very costly to trace and it is still in use for a very large number of day to day transactions. Shifting to much more sophisticated digital money systems that depend on universal accessibility to network clearing and settlement opens up the opportunity for real-time verification of almost all transactions by volume and kind, without necessarily abandoning confidentiality. Contrary to some expectations, digital money could appreciably facilitate the tracking of monetary aggregates and thereby improve the effectiveness of policy adjustments aimed at meeting macroeconomic objectives.

In the case of a much less isolated monetary space there seems, at least in theory, to be a more serious threat to the effectiveness of certain macroeconomic management tools. Experience with the inter-penetration of monetary spaces shows how the use of “outside money” can threaten to displace the local currency. This in turn can lead to situations where the effectiveness of the central bank’s tools for controlling monetary policy are weakened. Recent examples where an outside currency, in this case the American dollar, has been disruptive can be seen in Russia and even more so in Argentina with the adoption of a currency board. Projected to a global level the introduction of universally accessible and accepted networked money could increase the risk that strong outside currencies would replace weaker local currencies. Pushed to its logical conclusion this path might create a single worldwide monetary space and hierarchy. Without pronouncing on the desirability or not of this outcome, an issue long debated by advocates and opponents of a “gold standard”, it is clear that many formidable obstacles stand in the way. Two are worth highlighting here. First, the creation of a fully open global transaction system that is entirely agnostic regarding the particular currency being used runs counter to strong perceptions of national or regional interest. Second, the strength of the dominant money within a monetary space rests on the extent to which people have confidence that the policies of the issuer will serve the general interest in a politically legitimate way. Despite the views of some that the American dollar, in more or less competition

with other currencies like the Euro and the Yen, could serve as a global digital money, the institutional foundations for a global monetary space and hierarchy remain a long way off. In the same way that the first monetary hierarchies did not spring to life simply because money is more efficient than barter neither will the global digital currency suddenly appear. The creation of a global monetary space and hierarchy, like national ones before, would require a legitimate and credible authority.

Governance is the second challenge to policies aimed at accelerating the diffusion of digital money. Here again the problems posed at the national level look to be more manageable than those at the global level. In a national monetary space many of the necessary institutional, legal and regulatory starting points are already in place. For example, Singapore's bold move to introduce digital money that is universally accessible, clears in real-time, and allows for peer-to-peer transactions amongst all economic agents, offers a useful set of guidelines for bringing together the key constituencies and setting out technical goals for accessibility, inter-operability, etc.. Authorities in larger, more heterogeneous jurisdictions may encounter a few more hurdles. Initial resistance can be expected from banks and other intermediaries that generate significant revenues from the delays and service charges that are associated with physical cash and near cash instruments, usually in the context of rather antiquated clearing and settlement systems. Digital systems can drastically reduce many of these transaction costs, including the time it takes for cheques to clear, the service charges added to foreign exchange activities, and the expenses incurred trying to stop criminals from both stealing and using cash. Faced with the advantages of digital money there is a good chance that the champions of change will at least get the ball rolling.

The more stubborn obstacles may arise further down the road with the efforts to actually introduce the rules and standards that make economy-wide and universally accessible digital monetary systems workable. Serious conflicts are likely to emerge because these parameters determine the competitive conditions that apply at both the basic level of which institutions have the right to issue digital currency and, at the operational level, of which companies will supply the technology (hardware, operating systems, etc.). Resolving conflicts in this arena, in ways that sustain confidence in the monetary space and hierarchy, poses the most significant challenge to policy makers. Part of the problem stems from the paradoxical situation of central banks. On the one hand these are the institutions with the credibility and knowledge to champion change in the monetary sphere. On the other hand actions that might destabilise the monetary system or undermine confidence in the central bank risk undermining the bank's central functions. This means that policy leadership will likely fall to the legislative and executive branches of government which are, in any case, better suited to the challenges of overcoming entrenched interests, opening up new fields for competition, and representing the broader societal interest in socio-economic transformation. Indeed, recalling money's second and third long-run trends, namely the development of regulatory infrastructures, it is to be expected that supervising the integrity and functioning of the clearing and settlement system is a job for central banks and/or oversight institutions. While the challenge of setting out the goals and rules that link the monetary system to society as a whole falls naturally to less specialised parts of government. In short, the governance capacities at the national, or in the European case regional level are probably both appropriate to and capable of introducing universal digital money.

Looking to the global level the challenge is severely compounded by the limited decision making and implementation capacities of today's international political institutions and processes. This global governance deficiency is manifested across a broad range of international issues, from the supervision of competition and the redesign of the financial architecture to environmental protection and social equity. Indeed, it is this inadequate governance capacity that leads to fears that the rapid introduction of digital money without the requisite codes and standards will simply serve to facilitate illegal activities like tax evasion, money laundering and violations of privacy rights. One approach that might overcome some of these fears and governance inadequacies involves the development of a common global framework for the introduction of national digital money networks. Building on this shared foundation in national monetary spaces might make it easier to knit together a global network that dispenses with the kind of central

authority that has so far been a pre-requisite for an efficient and durable monetary space and hierarchy. In this case the global clearing system would operate in ways that are similar to other networks, from social to digital, that use common protocols to create the transparency and understanding that are essential for communication and exchange.

Confidence in such a global network might be sustained, in part, by spreading risk over an immense number and diversity of transactions and participants. However, setting the rules and supervising decentralised global networks, particularly with the degree of certainty and transparency required for sustaining trust in a monetary system, will also call for policies that go beyond national interests. Current circumstances are already spurring innovative efforts of this kind, such as the International Corporation for Assigned Names and Numbers (ICANN), the organisation charged with supervising key aspects of the Internet's technical infrastructure. Although this experiment is encountering great difficulty in finding ways to legitimately articulate a global view, the imperatives pushing this kind of institutional evolution seem unlikely to diminish. In the interim, while global governance capacities mature, the challenge for national policy makers is to accelerate the introduction of universally trusted and accessible peer to peer, instant clearing systems for all transactions throughout the entire economy. Information technology makes this goal feasible, but in the end only the appropriate rules and institutions can make it practical locally and globally.

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Conference Documents:

- Aglietta, Michel: Whence and Wither Money?
Goldfinger, Charles: Intangible Economy and Electronic Money
Ingham, Geoffrey: New Monetary Spaces?
Low Siang Kok: Singapore Electronic Legal Tender
Tumin, Zachary: Future Technology of Money

Revised versions of the above documents will be published in a forthcoming OECD publication "The Future of Money", OECD/Paris 2002.

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