Cyberspace and E-Finance

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1. Introduction

Cyberspace already takes little note of national borders, which may eventually lose their significance for electronic commerce. Cyberspace and other innovative information technology (IT) have affected the financial system greatly moving from restricted proprietary systems to open networks. In the last 20 years, the financial services industry has witnessed dramatic changes, largely driven by globalisation, deregulation and consolidation. Moreover, technological advances helped make globalisation and consolidation feasible and encouraged deregulation. IT has accelerated the process of globalisation and deregulation facilitating the development of e-finance.

‘E-finance’ is the provision of financial services over cyberspace or other electronic media including money, banking, payments, trading, broking and insurance. Rapid progress in information and communication technology (ICT) is a key factor changing the financial sector in many countries and its effects are predominantly strong in finance. Financial services are intangible and progress in ICT has significantly reduced the cost of providing them and is a driving force for structural change in conjunction with globalisation and deregulation. Low operating costs are influence on both the performance of e-finance providers and the structure of the finance industry namely the “e-broking”.

E-finance is the most promising areas of e-commerce as financial services are information-intensive and often involve no physical delivery. Will e-finance continue to be PC-based or move towards mobile phones or interactive digital television? Will established financial institutions account for a larger or smaller share of it and whether it will lead to greater or less concentration? New information technology (IT) has revolutionized the finance industry with the rapid growth of electronic finance. As mentioned above, e-finance activities include all types of financial activities carried out over the cyberspace or other public networks, such as online banking, electronic trading, the provision and delivery of various financial products and services such as insurance, mortgage and brokerage, electronic money, electronic payment and communication of financial information. Thus, e-finance is a driving force that is changing the landscape of the finance industry vitally, specifically towards a more competitive industry and has distorted the boundaries between different financial institutions, enabled new financial products and services, and made existing financial services available in different packages. Aim of this article is to highlight the importance of the new developments on e-finance.

2. IT Application

The liberalisation of the capital account and the deregulation of financial markets have contributed significantly to the growth of financial markets in the industrial countries. ICTs have made a central contribution by spectacularly increasing the ability to move information both in terms of volume and speed, making capital account restrictions more difficult to re-establish. Hence, IT allows vast quantities of financial information to be available anywhere, anytime. The finance industry is affected because the information business is one of the primary services provided by financial intermediaries and IT increases competition in financial services by making it much easier for foreign competitors to penetrate local markets.

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1 G. Zekos, MNEs, Globalisation and Digital Economy, 2003 Managerial Law Issues1/2.

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and renders the process of price formation more transparent. The greater interconnection and transparency of markets make asset prices and financial flows more volatile because market participants are able to react immediately to any new information. Moreover, there is an internationalisation of products and attitudes, leading to global institutions with a worldwide customer base for which it is more and more irrelevant where the customer and the institution reside. In the past, financial activity was heavily regulated and regulation governed both qualitative and quantitative aspects of financial intermediaries’ activities. Hence, the administrative determination of prices charged for financial services and the types of service offered barriers to entry as well as geographic restrictions. Financial regulators’, and mainly banking regulators’, main aim is and has always been minimizing systemic risk by providing government guarantees and addressing the moral hazards arising from them. Besides, deregulation in the financial sector aimed at increasing competition and integrating financial markets while preserving financial stability attaining welfare gains from greater competition. The integration aspects of deregulation aimed at globalising the financial activity and so breaking the historical segmentation between financial intermediaries. Both consequences of deregulation have been reinforced by the application of IT to financial services and regulators’ attention has focused on consumer and investor protection and competition together with minimizing systemic risk. Moreover, competition policy aimed at ensuring that financial intermediaries do not abuse the market power they have gained from their capacity to supply services at lower cost thanks to economies of scale. Regulators removed entry barriers to the local markets (the single market programme in the European Union, and the Riegle-Neal Act in the United States), favoring mergers both across and within borders. Factors affecting consolidation vary across financial services and banks have been subject to strong competition from capital markets obliging banks to increase their capital base via mergers and acquisitions in order to achieve economies of scale in the medium-size loan market, where the larger banks have potential competitive advantages. However, a plethora of financial services such as brokerage services and trading systems have witnessed a reduction in their economies of scale and an increase in competition due to the availability of IT. Securities markets have been principally affected by the development of IT that allows securities trading and capital raising activities to drift to global financial centres. Consumer protection, promotion of competition and protection of the stability and reliability of the financial system are the driving forces behind government intervention in the form of regulation. Regulators have advocated broader disclosure in recent years allowing counterparty surveillance and making markets more efficient².

The application of IT to the financial services sector has been responsible for the increase in transparency and the balance of power between customer and financial intermediary has been tilted more in favour of the consumer, thanks to the improvement in the quantity and quality of information. Thus, regulators need to focus on increasing information quality and facilitating private access to that information. Security and data privacy, the global character of the provision of e-finance services and the entrance of non-regulated new intermediaries are challenges faced by the financial regulator. Financial services are mostly and more efficiently provided by large firms that thanks to their size achieve economies of scale. IT has reduced barriers to entry, facilitating entry by non-financial entities and an increase in competition, predominantly in services traditionally provided by banks and brokerage firms. By creating standards that lead to a dominant share of the market, financial service providers may abuse their market power. Financial markets involving high network externalities include payment and trading systems and exchanges. New forms of abuse of market power in the form of network externalities are increasingly a matter of concern for regulators. Banks are not the sole participants in the payment system, nor do they enjoy the exclusivity of being financial intermediaries nor are they the sole providers of information about borrowers.


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Technology is rendering obsolete the traditional categories of financial intermediaries while facilitating the entry of non-traditional financial intermediaries. IT innovation change the competitiveness of markets providing companies with powerful tools for more effective price discrimination including market segmentation through the sale of dissimilar versions of essentially the same product and the production of goods personalized to the preferences of individual customers enabling companies to accumulate and process the information crucial to identify consumer taste. Changes in production towards more skill-based activities involve adjustment of incentive structures and corporate control mechanisms. The growth rate of output per hour as a result of a more rapid pace of innovation for a certain period of time influences growth via additional investment and higher consumption but sharp movements in the prices of financial assets threaten the stability of financial institutions when they encourage an over expansion of balance sheets and excessive risk-taking during the up phase. In other words IT investment is significant source of macroeconomic volatility because uncertainty is associated with the long-term profitability of IT-related investment projects and greater flexibility in the timing of IT investment, reinforced by the possibility that IT investment is more sensitive to changes in the cost of capital than other capital spending.

3. Monetary policy and E-money

Market structure, market size, competition and demand growth powerfully affect innovative activities of market participants. The Internet offers the potential to trade electronically in an open network environment that in principle is accessible and adaptable to the needs of any trader or type of transaction. The institutional framework can influence innovative activity in various ways but regulations are not always effective. Moreover, technology has become increasingly important in the payment sector due to the rise of e-commerce and m-commerce. Monetary policy is a core responsibility of all central banks affected by e-finance developments and e-finance changes the transmission mechanism. The rapid spread of cyberspace and the development of e-finance are changing the financial system and having potential ramifications for monetary policy all through the process of its operation affecting the central bank’s capacity to run monetary policy, the relation between interest rates it controls and key market rates, how these rates affect the real economy and inflation, and the feedback from real economy data to policy setting. Moreover, implementing monetary policy involves the central bank’s role as operator of the inter-bank settlement market and the monopoly supplier of liquidity to it. Does e-money replacing banknotes affect the money supply triggering a recession? The central bank decides the interest rate prevailing in the inter-bank market to an adequate degree of precision affecting other interest rates and consequently ultimately output and inflation. It should be taken into consideration that the central bank does not need to operate in the market and a merely announce its desired rate and the rate in the market will move there since the market knows that the central bank has the capacity to act to move the rate to its desired level. According to Friedman5 the danger posed by e-finance is that “the central bank will become “an army with only a signal corps” lacking the means to impose its will”. E-money allows payments (including P2P payments) without involvement of a third party during the payment transaction and e-money is a new type of money that can be sent anywhere in the world within a second. There are two main types of e-money such as ‘e-cash’ including electronic purses and multi-purpose stored value smart cards and ‘cybermoney’ called ‘network money’ prepaid software products that can be used for payments or transfers on cyberspace. It could be said that e-cash substitutes notes and coin while cybermoney substitutes bank deposits. At present a mixture of payments instruments

such as coins, notes, cheques, giros, credit cards and direct debits co-exist, specialising in different uses, which mean that e-cash and banknotes will co-exist for a long period. Excessive issue of e-cash in the same way the paper money have caused could give rise to inflationary pressures and if a prominent e-cash system fails, it will shatter consumer confidence in many other electronic schemes. A high-flying e-cash scheme will become too big to be allowed to fail and so unconditionally government-guaranteed, otherwise will be highly disruptive to the economy. Furthermore, developments in information technology permits banks to manage their operations in the inter-bank market more effectively holding smaller amounts on average in their accounts with the central bank. The growing value of technology implies that payment providers have to either produce the required technical knowledge in-house or rely on specialized suppliers resulting in outsourcing becoming more important and so banks lose some control over innovation.

At present only the larger banks settle financial problems directly using central bank funds and smaller banks settle across accounts at one of the larger banks but there are private sector bank networks that credibly could develop in this direction and global banks might decide to settle all transactions between each other rather than using national central banks. However, the increasing use of cyberspace technology will shape the transmission mechanisms through influences on financial institutions, trading in financial markets and changes in the behavior of the real economy which means that accelerates the impact of monetary policy having to operate more by changing relative rates of return. Furthermore, the spread of e-broking in retail markets enhances the magnitude of wealth effects in the monetary transmission mechanism reducing transactions costs, which has been a factor in encouraging more small investors to invest directly in equity markets and reductions in equity prices resulting from a tightening in monetary policy would have much larger effects than were experienced after the 1987 stock market crash. The appearance of new entities such as vertical portals comparing offers from rival banks, smart agents going one pace further and mechanically transfer funds to the bank offering the best deal and aggregators consolidating information about a consumer’s various bank accounts reducing information and transactions costs and subsequently diminish lags in the monetary transmission mechanism. It is noteworthy mentioning that architectural features such as access, and the extent of transparency and anonymity, are a matter of choice rather than being dictated by physical limitations and e-trading could cause liquidity and volatility of financial markets. On the other hand, as e-trading is reducing the cost of trading and it is possible to lead to greater than before market participation increasing liquidity. Markets are dominated by institutional investors looking for better returns than their rivals and by reducing the costs of transacting. However, great amount of investors may hit limits concurrently, causing them all to sell at once, leading to sharp price falls. Hence, in this way a vicious circle may arise, amplifying price volatility. Finally, e-money will contribute to a more efficient payment system boosting the velocity of circulation of monetary aggregates.

The European Commission hoped that new payment technology would make cross-border payments cheaper and foster monetary and real integration adopting the EMI Directive. The

6 King, M (1999): “Challenges for monetary policy: old and new”, in New Challenges for Monetary Policy, Federal Reserve Bank of Kansas City, pp 11-58. “the key to any such developments is the ability of computers to communicate in real time to permit instantaneous verification of the creditworthiness of counterparties, thereby enabling private sector real time gross settlement to occur with finality.”


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EMI Directive does not make it very attractive for non-banks to become an EMI and the definition of e-money is open to interpretation aiming much more at a new electronic form of cash (concept of a cash-like electronic money) than at the existing schemes. Besides, in US e-money is seen as just another payment service. US regulators, unlike their European counterparts, have not tried to reserve the issuance of e-money to credit institutions. US law puts less stringent restrictions on e-money issuers harmonizing not only e-money regulation, but also most of the other payment activities in which non-banks may engage. Moreover, the ability to repudiate orders, to revoke payments, to charge back, to turn to legal actions or to alternative dispute resolution, are elements of integration and there is a need of making unequal ends meet by linking, bridging, embedding and interfacing. Consequently, complete e-commerce solutions are software suites that tolerate the design and operation of a web store in all its business aspects allowing multiple languages, currencies and tax regimes including a number of payment protocols allowing for the use of various payment cassettes leading to the integration of payment systems into B2B and B2C Internet-commerce. Electronic payment systems are never only about payments but they always go together with technical security measures, legal regulations and potential law enforcement, contractual regulations of liabilities and insurance against risks, communication steps to ensure dispute resolution, steps that allow the collection of digital proofs, and communications that build trust.

4. E-trading and Banks

E-trading is transforming the structure of wholesale financial markets such as foreign exchange and equity markets introducing new architectures with new trading rules and the new systems are owned by consortia of dealers raising questions about whether the design features incorporate anti-competitive features. Electronic systems have made far less impact on transactions between banks and their customers. Regardless that many banks have offered customers single-dealer platforms, customers have made known their preference for multi-dealer platforms and banks have feared competition from non-bank platforms. Changes to market architecture have an effect on the resilience of financial markets and price volatility in them because liquid markets are more resilient than illiquid markets, and prices tend to adjust more smoothly.

E-trading cuts trading costs, including through facilitating “straight-through-processing” (STP) allowing trades to pass mechanically through to final settlement without further manual intervention. Electronic trading leads to fragmentation of markets spreading transactions among more exchanges operating independently. Foreign exchange and bonds have been mostly bilateral and the introduction of electronic trading has led to greater concentration in these markets and enhancing liquidity. The estimation that traditional banks were “dinosaurs” that cyberspace would drive to extinction is no longer extensively held. The internet-only banks have been considerably less profitable generating lower business volumes and any savings generated by lower physical overheads appear to be offset by other types of non-interest expenditures, especially marketing to attract new customers. It seems that a combination of cyberspace delivery channel with focused bank branches will prevail, at least in the medium term.

As public trust is vital to banking, an established brand name is essential and many customers wish to be able to do some banking physically but bank branches are becoming smaller and...
their focus is shifting to advisory roles. According to Sullivan\textsuperscript{12} large banks offering e-banking have comparable costs and profitability to those not offering such facilities. It could be argued that banks have invested too much, too quickly in new technology without a clear business plan. E-banking services requires high initial set-up costs both technological and marketing with the savings following later. E-banking would facilitate new bank entry and increase competition speeding up bank consolidation as the fixed costs including marketing are excessive but marginal costs very low and adding e-banking services demands high investment and a willingness to accept lower profits for a time\textsuperscript{13}. In the longer term, consolidation will lead to a stronger, albeit possibly less innovative, banking system.

Do banks achieve potential cost savings? Banks are not providing strong price incentives for customers to switch to e-banking because they offer convenience but this is not proving enough to overcome customer disinterest or concerns about security. One of the underlying attractions of e-banking is the capability to address a materially larger customer base in geographically remote markets without incurring the expense of building and maintaining a branch network. At present banks have select access to customer information that they can use for evaluating and pricing loans but e-finance creates new and fundamentally different business models that will challenge this advantage of banks. So, vertical portals tolerate customers one-stop shopping for financial and other products offered by a range of firms reducing search costs considerably and so enhance competition in banking and strengthen the position of the customer posing a further risk to banks. Vertical portals are in a better position than banks to target marketing of financial services and make credit assessments. Internet technology allows more targeted cross-selling of other financial products or even services such as certification, digital signatures and secure communication and banks reluctant to expand into non-financial services but non-financial firms are gradually more encroaching on banking business.

It could be argued that in an e-finance world, cross-border expansion becomes cheaper and less risky and it is indispensable for banks in smaller economies to expand their cross-border operations in order to reap economies of scale. However, so far there has not been that much cross-border e-finance because it is harder for an offshore bank to build up trust and it is less familiar with the market conditions. Cross-border finance, and the promotion of it, will require a degree of cross-border coordination extending to supervisory rules and disclosure requirements and some harmonising of legal, accounting and taxation arrangements. Improved competitive pressures and the pace of technology changes are leading to fast escalating outsourcing relationships allowing small institutions to benefit from economies of scale and gain access to expertise\textsuperscript{14}.

The rapid growth of banks into new activities stretches managerial capacity, mainly of smaller banks blindly following trends and lose profitability by adapting poorly to e-banking which involve either under- or over-spending on new technology tempting them to move into riskier business to maintain returns\textsuperscript{15}. Security concerns are a crucial factor discouraging many internet users from e-banking which means that there is a need for secure operating systems to hackers and denial-of-service attacks such as deliberate overloading of websites and introduction of safe cryptography, back-up systems, firewalls and emergency procedures. The development of common and robust authentication standards for digital signatures and legal recognition for them is necessary. Moreover, Some people especially in less developed countries are excluded from the Internet and so from the financial system. Electronic systems

\textsuperscript{12} Sullivan, R (2000): “How has the adoption of internet banking affected performance and risk in banks?”, in 


\textsuperscript{15} Basel Committee on Banking Supervision (2000): “Electronic banking group initiatives and white papers”, paper 76, October, (www.bis.org).

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are used to changing degrees for trading in financial markets, at variance between markets, between types of trades and users, and between the various stages of the trading process.\textsuperscript{16} IT is not used in markets where counterparty credit risk is noteworthy, unless the system has been designed to manage this risk. Electronic trading makes it technically viable for the market structure to move to a centralised order book, where end-users can transact directly with each other. While better market access and greater market transparency have put pressure on intermediaries, the balance of power between dealers and customers seems to be shifting to the advantage of the latter in some markets.

It could be taken into account that e-banking facilitate money-laundering but electronic systems may help in its detection. Moreover, there are dangers of false representation and identity theft. Besides, e-brokers enabled small investors to enter the market charging lower fees and the e-brokers are willing to deal in smaller quantities and at more convenient times. Deregulation of brokerage fees provide good opportunities for e-brokers to expand as they are able to offer very low fees and when brokerage fees are large, it requires a large price movement before a trade becomes profitable, even for an investor who appropriately predicts the direction. While traditional brokers only provided research and information to their large customers, e-brokers use cyberspace to give small investors access to a similar range of information. It could be said that the increasing use of e-broking does not imply high profits for the e-brokers and competition is squeezing fees and the vast investment needed in sophisticated systems may make it hard for them to achieve high profit margins. Thus, e-banking must be backed up by some branch services for activities such as easy access to cash and retail stores are well placed to provide a counter for such basic banking transactions.

The increasing importance of networks, and associated pressure towards consolidation heading towards undue concentration or monopoly, raises key issues and e-finance makes it easier for banks to trade information about consumers. The credit card system dominates retail cyberspace payments regardless of being costly, open to fraud, inadequately suited to micro-payments or person-to-person payments and not anonymous. The introduction of electronic money followed by Regulation promoting open and common standards minimise switching costs and allow flexible pricing. However, it still seems likely that e-money will coexist with physical banknotes for a long time yet, given the security, convenience and anonymity of banknotes and the lack of interoperability of diversified e-money schemes.\textsuperscript{17} Consumers who use new technology products utilize electronic forms of payment more than those who do not and direct deposit use and making purchases on the Internet contribute to a consumer’s likelihood of using electronic payment methods. Moreover, transaction characteristics influence payment choice and online bill payments are radically influenced by the bill characteristics.\textsuperscript{18}

Electronic trading both removes geographical restraints and allows continuous multilateral interaction permitting much higher volumes of trades to be handled that until a short time ago would have been technically impossible or prohibitively expensive. Electronic trading has penetrated various sectors very disproportionately. There are now order-driven markets in addition to several automated versions of dealer markets, offering a range of participation and access arrangements for dealer, inter-dealer and customer sectors. EBS and Reuters have been designed as order books, in which dealers can see the best bid and offer in the market, alongside the best bid and offer that they could trade subject to their institutional credit limit structure. The inter-dealer segment of the market has mostly moved away from voice broking, and the electronic systems now act as a standard reference for pricing reflecting the liquid,


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homogenous nature of the product that can be traded in standardised units. Electronic systems facilitate linkages to bring together sources of liquidity and to harness efficiencies that add to consolidation and the speed of development of the facilitating information network technology has led to a more rapid pace of change. Hence, the authoritative influence of network effects in this area means that a proliferation of similar trading systems that individually attract little liquidity would be expected to be a transitory phenomenon and the established one will need both to add some value and - remarkably - to attract, retain or link to an adequate amount of liquidity. Furthermore, electronic trading can widen access to trading systems across several dimensions. Physical limitations that some time ago rationed access to traditional venues no longer bite, users can participate at minimal marginal cost and remote linkages remove geographic limitations on the pool of potential users, and uninterrupted multilateral interaction is enabled. Electronic trading makes possible greater pre- and post-trade transparency affecting the balance of information among participants influencing the degree of information in the order flow, price discovery and liquidity. Transparency arrangements have uneven influence on “ultimate” objectives such as market quality and broader welfare.

Electronic systems disseminate real-time pre- and post-trade information market-wide operating with minimal information leakage, in a manner that trading based on personal contact could not achieve. Is the increased quantity of information enabled by technology accompanied by an increase in its quality? As electronic systems become more sophisticated moving along the multidimensional spectrum of transparency meeting unlike users’ preferences regarding information, some of which were once too multifaceted to put into practice. Furthermore, the demand for anonymous trading is now met through many electronic systems designed to eliminate (pre-trade) information leakage, enabling users to state precise orders without giving away potentially important information to competitors. Wholesale traders cover these orders in some way to avoid giving away information on their strategy, which leads to the market moving against them. Some systems permit traders to enter their true order preferences to the system with complete accuracy since the information is only “seen” by the computer system aiming to meet a demand for trading without losing informational advantage. The form and degree of disclosure vary with largely market-specific factors including the perceived role of the information in attracting liquidity to the system, the needs of its range of users and style of trades such as retail/wholesale and the commercial value of the data. For instance, the technique of information concerning a call market differs from that readily available from an order book or a dealer arrangement. Hence, the integration of electronic-trading increases potential for different arrangements, in principle virtually anywhere on a spectrum, between complete transparency and entire opacity.

The significance of international payments has grown along with global integration and there has been a remarkable shift from physical storage media such as hard copy records and magnetic tape to fully network-based transactions. The application of technology to payment systems continuously generates new opportunities: multi-purpose smart cards, sophisticated encryption and identification systems, a growing selection of services available on wireless devices, and higher network speeds. New technologies allow all parties to a transaction to be immediately and concurrently available, despite of the physical distances that separate them. The security of the payment system must be adequate to ensure completely that the customer always has access to her own funds. The raise in the use of cyberspace and online shopping challenges banks’ position as important providers of payment services. The SWIFT network and SWIFT standards are generally used in international payment traffic between banks requiring several manual steps when a customer payment order is transmitted from sender to

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receiver\textsuperscript{20}. Payment transfers need a common infrastructure that combines systems, structures and service providers to create an overall functional payment system. The establishment of standards has a great deal to do with technical development making interconnection of systems feasible allowing software providers to develop off-the-shelf solutions creating synergies in the marketing efforts of different organisations and suppliers. Customers and banks are served in international and domestic payment operations more effectively by the acceptance of common standards.

There is a need to create a development process capable enough to implement an infrastructure that takes into consideration the constraints imposed by the need to promote cooperation among banks and customers, to offer suppliers competitive opportunities and to meet the reliability demands set for the system open and standardized. Central banks have to develop and more effectively implement new technologies in their services. At present, almost all cyberspace transactions are settled using credit and debit cards but plastic cards are by no means ideal for a digital world and these systems involve a lot of paperwork and are costly to operate. Moreover, they are expensive for merchants and cannot be used competently for making small transactions or for person-to-person transfers. Security is easier to preserve online through encryption and dedicated servers than offline, where operatives handle security information in readable form. All-electronic media are much cheaper than hybrid paper-electronic systems.

As mentioned above, cyberspace has become a major distribution channel for banks and Internet banks use a “clicks and mortar” banking model that deploys transactional websites in conjunction with traditional bricks and mortar branches. Only a handful of banks use a stand-alone, “internet-only” banking model in which websites are the sole delivery channel. To date, most internet-only banks have struggled for profitability. E-banks accumulate experience with this new business model that permit them to run it more efficiently in the future generating scale economies in excess of those available to traditional banks that use less capital-intensive production and distribution technologies. According to DeYoung and Hasan\textsuperscript{21} the typical de novo bank takes about nine years to become as profitable as an established bank, and that over half of this improvement occurs during the first three years. Moreover, Sullivan\textsuperscript{22} and Furst\textsuperscript{23} found that newly chartered internet banks earn lower profits than newly chartered non-internet banks but they refer to clicks and mortar internet banks. Finally, according to Robert DeYoung\textsuperscript{24} profitability ratios and non-interest expenses ratios improve more quickly over time at the internet-only start-ups than at the traditional start-ups, perhaps propelled by both technology experience effects and technology-specific scale effects.

eEurope is component of the strategy set out by the Lisbon European Council to make the European Union the most competitive and dynamic knowledge-based economy and the Barcelona European Council called on the Commission to focus on availability and use of broadband networks considering eGovernment, eLearning, eHealth and eBusiness\textsuperscript{25}. Banks do not produce physical products and have been trading electronically for decades. On-line banking can increase customer satisfaction, boost retention and improve profitability through


\textsuperscript{24} Robert DeYoung, The financial progress of pure-play internet banks, BIS papers 7 p86

\textsuperscript{25} Barcelona European Council, Presidency Conclusions, paragraph 40 (http://ue.eu.int/en/Info/Eurocouncil/index.htm)

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cost efficiency and increased customer profitability increasing competition among banks and new products and services for consumers. So, Internet banking could be an enabling instrument for cross-border bank expansion but remain limited partly due to the fact that the Internet is often used as a complementary channel to the branch network, which is by definition local. Internet banking is becoming a complementary channel to branch and call centres, and is generally used for simple transactions and so the Internet is changing the role, organisation and, in some cases, the number of branches, as these will tend to concentrate on advisory and selling functions. Technology allows banks to offer new added value services only available on-line such as personalised financial information menus, e-mail alerts, electronic commerce, real-time brokerage and third party services such as tax payment, management of electricity bills or portals that increase the benefits and interest of the service.

The degree of Internet penetration as a measure of customer readiness to transact on-line is a key factor in explaining customer conversion to Internet banking. The cost of access services and cost of PCs inhibiting e-finance market development. Trust in the institution, confidence in the security of the systems, the way private data will be used by the banks and how consumer privacy will be protected play an important role in the development of e-financial services. It should be taken into account that the dominant factor influencing e-finance in recent years seems to have been clients’ concerns about security and safety. Moreover, another factor is banking culture factors referring to which and how banking services are used and are influenced by the development of the service offer, the legislation and for example institutional usage of banking services by government institutions or enterprises of electronic payment transfers to pay salaries, benefits, pensions or even utility service providers forcing customers to pay via direct debit on current account, would strongly influence the number of people making use of bank accounts. Hence, a connection between the banking culture and the development and adoption of Internet banking services could be expected and e-banking culture factors relate to the range of e-services offered such as credit and electronic purse cards to pay at retail outlets, phone banking, electronic payment debit, or POS, cash withdrawal machines, bank services kiosk machines, PC banking and more newly Internet, mobile and iDTV banking and level of consumer usage of electronic channels for interfacing with the bank.

5. Financial intermediation

Banks and other depository institutions have played a central role in the payments system. Non-banks have always been an important element of a country’s payments system performing functions at all stages of the payments process, enhancing the efficiency, breadth, and competitiveness of the industry but at present show higher visibility and greater status. The purpose of a payments system is to transfer funds from one party to another which means that some risk is inevitable and the aim is to strike a balance between safety and effectiveness and to have controls in place that limit risk at both the overall and individual levels. So, central banks are concerned with systemic risk which is the risk that the failure of one party in a payments system will lead to the failure of other parties in the system, having a domino effect that ultimately is transmitted to other parts of the financial system or economy. The importance of non-banks in the payments system is multiplied even more in cyberspace era outsourcing escalates and paper gradually more gives way to electronics which means that non-banks will become even more prevalent than today.


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Financial intermediation exists because of market frictions and imperfections and acts as a remedy to the market system. The growth of financial markets and revolution in IT have reduced the transaction costs and alleviated information asymmetries but intermediaries survive, and expand in overall size and importance to the economy. The economic functions of financial intermediation are reasonably stable and the institutional structure evolves in performing those functions. The interactions between financial intermediaries and markets strengthen and expand the performance of their functions and drive the financial system in the direction of extensive effectiveness. According to Allen and Santomero while their role in reducing market frictions decline, they play a vital role in transferring and managing risk and in lowering participation costs for individuals. In fact, financial intermediaries create financial products and whose worth to their clients is the transformation of risk, term, scale, location, and liquidity.

Information structure is driven by the developments in IT and is decided based on technology and economic incentives and traders make IT investments to gain faster access to information. Technology developments shape markets and keep reducing transaction costs. Companies, acting as intermediaries, create and run markets operating the market mechanism and providing other related services such as monitoring. In fact, all financial institutions act as intermediaries between lenders and borrowers, either by purchasing and reselling with or without transformation such as a bank taking deposits and transforming them into loans, or a stock specialist trading shares from her own account, or by matching orders. Financial institutions produce “matching” between market participants and financial markets generate matching for standardised products. Besides, traditional intermediaries deal with more customized products and services, which mean that more transformation is needed within the organisation before matching is achieved.

The developments in electronic finance have distorted the boundaries between commercial and investment banks, brokerage firms and trading platforms, traditional intermediaries and market intermediaries and the advances in technology have changed the production function in all financial institutions and these firms are differentiating their products and services as well as vertically integrating with each other. Dealers provide liquidity to the markets by standing ready to trade from their own accounts with investors and banks can also provide liquidity with their own equity. Information is vital in the production process of financial services and IT investment is one of most important strategic decisions for all financial institutions allowing an institution to be more efficient than others in price discovery achieving narrower spreads that attract more customers and may gain higher profits. Is information free in financial markets? Is information asymmetry a market imperfection? Information asymmetry is a competitive advantage in production. The significant costs a direct limit order trader might face in order to monitor changing market conditions explain the continued importance of financial intermediaries. The personalized research, advice and execution offered by dealers is valued by customers in foreign exchange and fixed income markets. Additionally, systems are some distance from being able to seek out all sources of liquidity mechanically, and disparate sources of liquidity make this search a valued service of intermediaries.

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6. Competition issues for financial institutions in cyberspace era

Financial intermediaries and markets are deploying e-finance to compete with each other fiercer than ever before. It should be taken into account that a financial institution can no longer dominate a local or regional market simply by its physical presence and so financial institutions must find their specific competitive edge beyond sheer location and physical branches. Cyberspace and new information technologies have lowered the barrier of entering the finance industry by reducing the initial investment and the transaction costs remarkably. Because of the strong network externality in financial services, each company is trying to enlarge its customer base, many by mergers and acquisitions, either horizontally or vertically and differentiation in products and services. Does cyberspace reduce fixed costs and transaction costs allowing new competitors into the banking system? Entry barriers for virtual banks are reputation both as an agent for the lenders and as the monitor to the borrowers and large funds to pool risks. Hence, there is no way for an entrant to overcome these barriers and be able to compete with those long-established and well-trusted traditional banks. Besides, large companies such as Sony, overcome barriers by large initial investment, with a high reputation among customers and an existing large customer base are new entrants. Moreover, with large funding, virtual banks can steadily build up their customer base and reputation. The achievement of significant operating cost reduction by virtual banks can offer liquidity and much more attractive rates to their customers and virtual banks can build a customer base large enough to be viable taking into account that most financial services offered by banks are standardised. The successful strategies for financial institutions in the cyberspace age depends on how they find competitive edges over others in fully utilising the existing systems and endless new opportunities the technologies have brought differentiating operations, products and services and creating value for customers that others cannot provide. For instance, cyberspace has made the notion of a single global securities market possible leading to a boom in the business of developing electronic trading systems and financial markets can no longer operate as local monopolies because cyberspace has broken down the geographic boundaries.

On the one hand, the network externality effect makes market consolidation an attractive choice for security exchanges in terms of liquidity. On the other hand, due to the limitations of technologies, the geographical factor is still significant and a local monopoly is still possible because appropriate data transmission across a large geographical region over cyberspace is still technically complex giving the uncertain cyber-traffic. Additionally, the high security requirements for financial data worsen this technical difficulty as security and timely transmission are often at odds with each other. Markets distinguish from each other by different trading mechanisms that fit different demands. According to Hendershott and Mendelson\(^{33}\) less patient traders will go to dealer markets for instant execution, while more patient traders will first have a go crossing networks for a possibly better price. An informed trader cannot avoid sending information to the market if he wants to reap information rent, consequently alleviating the information asymmetry creating conflicts among informed traders. It is technologically feasible to implement an automated trading system in which the system can provide liquidity but in automated trading systems, limit orders are matched automatically and there is no liquidity provider\(^{34}\).

Customarily, most of the dealers and brokers in the bond market executed trades by telephone and fax. Electronic bond trading systems with multiple dealers have been launched and the


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competition between multiple dealers generally leads to narrower bid-ask spread and better prices for investors. Anyway, the bond market progresses in adopting IT and many companies are developing their own electronic bond exchanges and these systems are competing with each other. Companies offer different services and expand scopes of products bond-trading systems increase their competitive advantages and get higher market share and profits. Differentiation of financial products and services is fundamental for business success and proprietary development of new services by utilising IT will be the key. Moreover, Innovation in organisation and mechanism is the key for financial institutions to supply value-added products and services and differentiate themselves. With the rapid growth in online brokerage companies and trading platforms, financial markets, in trying to make profits, are paying for the order flow and such practices apparently damage the customers of the brokerage companies because their orders may be routed to the best paying exchanges instead to those with best prices.

The emerging digital data network technology creates possibilities for innovative business strategies and organizations permitting the manipulation, transmission and storage of information. At the beginning the dotcom euphoria created a sense that the world would be transformed and that the equipment and networks that underpinned the experiments would grow constantly\(^35\). Employment, housing markets and entire regional economies were influenced by the crash of the dotcoms and the associated network decline. Anyway, if the financial market experienced sudden and broad collapses, as were seen with the dotcoms, then the integrity of the entire economy would be affected because if a set of large financial institutions collapsed the cost could be quite momentous.

The technologies change the way in which markets function and companies can be organized and the financial innovations facilitated by the electronic network technologies encompassing consolidation of companies, aggregation of activities, the creation of entirely new products and markets, and the entry of newcomers. Cross-border competition has led to numerous mergers and alliances among European exchanges and investment behaviour and trading platforms are moving from being wholly split on national lines to a greater pan-European sectoral emphasis mainly with the launch of the euro and presently there are several new contenders targeting different segments of the cross-border European market, notably in the market for larger stocks\(^36\). Electronic systems involve lower set up costs than trading floors, in particular when an existing system can be adapted for a new product and by replacing labour-intensive processes, they obviously reduce operating costs. A more competitive market reduces the ability of exchanges to cross-subsidise different types of trading activity and the allocation of costs change under electronic trading. Electronic trading potential to make markets more transparent in conjunction with anonymity reduces the risk premium driving down profit margins, by increasing competition between dealers and aiding price comparison. Effective price discovery is essential beyond the immediate asset market, since it underlies the accuracy of price signals to agents in the wider economy permitting appropriate investment decisions which have widespread economic impact, contributing to ultimate objectives of broader welfare. Electronic processing allows orders to reach the central market faster because of higher processing speeds than with manual processes. According to Jiang\(^37\) electronic trading itself had little effect on volatility. Lower transactions costs reduce price volatility and in large liquid markets price volatility is lower when there is greater


transparency, which means that more widespread electronic trading should lower price volatility.

Liquid markets are better placed to absorb shocks than less liquid ones, contributing to the robustness of financial systems and liquidity is a vital ingredient of price discovery and so price signals for the wider economy. In a world of electronic trading, liquidity is much more mobile and orders can be rerouted to the preferred system and to the best prices, and franchises can be quickly lost. Electronic systems are developing a number of ways to attract liquidity and seek it out from disparate sources such as minimum size limits on issues to be eligible for certain trading systems support issues to be made in larger size or reopened to maximise liquidity.

IT innovation affects the competitive position of companies both through production efficiency and changes in the goods markets but the adoption of IT have the greatest impact where it is successfully combined with human cognitive capabilities. Supplementary to changes in the production process, IT innovation modify the competitiveness of markets providing companies with powerful tools for more effective price discrimination including market segmentation through the sale of different versions of basically the same product and, at the extreme end, the production of goods adapted to the preferences of individual customers. Hence, IT technology combined with computer-literate labour modify the efficiency of almost every production process by improving the accessibility and dissemination of information and through more decentralized and customised production. Alternative trading systems (ATSs) has had a strong impact on the traditional stock exchange industry. Does the introduction of ATSs weaken the level of competition between market makers in the traditional exchange? Competing stock markets lead to a fragmentation of the market and a reduction of liquidity which in turn increases spreads and search costs for traders and threatens the efficiency of the overall price discovery process. Implicit collusion between market makers may take place when they compete by choosing inter-temporal pricing strategies. Besides, competition between a limited number of market-makers does not eliminate their profits when they use linear price schedules. The introduction of a crossing network may raise or decrease the equilibrium spread in the dealer market. It should be taken into account that no institution is responsible for providing a fair level playing field between competing stock exchanges. There is competition between ATSs for customer order flow ensuring that the payments received by market makers are passed over to brokers and as a final point lower the commissions paid by customers for trading stocks.

7. Conclusion

Technological developments should reduce the cost and enhance the security and convenience of dedicated digital media. There is a clear need to ensure open markets, minimizing the effect of switching costs, and police the pricing structures of both new and old transaction media. Regulation and supervision of payments markets should do much to promote the development of digital money.


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