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New Economy and Its Challenge to Financial Intermediation and Banking[1]

ABSTRACT

Technological progress and knowledge-based innovations have more important role in economic growth and development than ever. This conjecture is often called the new economy, referring to economic growth which is strongly associated to the development of information and communication technology. In order to understand an ongoing process it is important to separate short and long term as well as micro- and macroeconomic aspects of the new economy.

Financial intermediation and banking are under constant structural change due to new technologies and deregulation. Despite that, the basic functions of banks do not change. However, in the changing environment banks have to manage the potential threat of disintermediation, i.e. structural change from direct to indirect finance. As an example of the new challenges, banks are forced to create an online strategy in order to survive the ever increasing global competition.

Keywords: *new economy, globalization, information and communication technology, economic growth, financial intermediation, banking*

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1. INTRODUCTION

The term new economy refers to economic growth that is associated to the development, innovations, and spread of applications of information and communication technology (ICT) throughout industries. Based on the experience in the USA some observers have proposed that the laws of economic growth have changed indicating continuous growth with high employment and low inflation. The latest evidence from other OECD countries reveals that ICTs affect on growth performance, suggesting that ICT innovations are likely to have global effects.

The Internet has an important role in globalization. It has been argued that it has improved the productivity of knowledge-based investments. The Internet is also often said to make markets more competitive, and to affect trade. Markets become transparent, liquidity improves and transaction costs are expected to fall. For example, OECD (2000) estimates that by transferring bank transactions to the net the cost per transaction diminishes 90%.

The purpose of this selective survey is to review nature and prospects of the new economy, and its implications to financial intermediation and banking. As an information- and transaction-intensive industry financial services should be affected by ICT developments. The study proceeds as follows. In chapter 2 we discuss the changes that have occurred in advanced economies in the 1990s. Technological progress and innovation have much more important role in economic growth and development than earlier. In chapter 3 we outline how financial intermediation is changing in the new economy, and how technological progress and internationalization change financial markets. In chapter 4 we examine how banking is affected by the pressures of the new economy. Chapter 5 concludes.

2. ECONOMICS OF THE NEW ECONOMY

2.1 Short- and long-term features of the new economy

The new economy has been used to describe the recent evolution of the US economy, especially to argue that the economy has reached a higher level of sustained growth with better tolerance for outbreak of inflation. It is argued that the present restructuring of the US economy is due to high investment in ICT, and it is able to create ever higher productivity. It was even claimed, that stock markets have changed so that share prices could remain high permanently. Although the origins of the new economy lie in the USA, the phenomenon is becoming global, even though the evidence for this is much weaker outside the USA (Jalava and Pohjola 2001, Pohjola 2001).

As a term new economy is unambiguous (cf. Quah 2000, Nordhaus 2001a). However, three main characteristics emerge. First, the new economy implies higher trend growth. Se-

cond, the new economy may affect the business cycles and possibly abolish them. Finally, the sources of growth are changing due to increasing returns to scale, network effects, and externalities (OECD 2000, 17). Some of the descriptions above include myths but also something real.

Many current characterizations of the new economy involve both short- and long-term, as well as micro- and macroeconomic issues, and at its worst confuse with all of these dimensions. Traditionally, business cycle is a short term phenomenon, whereas consideration of productivity and growth requires long-term perspective.

The standard macroeconomic theory takes technology as given, so the state of technology does not affect short-run economic fluctuations. Dampening or widening of business cycles would be result of changed structural parameters. In fact, this is very likely whenever conditions and institutions of economies are changing. It is quite possible that because better ICTs are used for investment analyses, investors would make less errors in their decisions. This would eliminate some overshooting. On the other hand, ICT also makes possible that herd behavior and speculative bubbles became much wider and severe, which would exacerbate business cycles. Clearly, there is not evidence enough to make any conclusive statements about the nature of business cycles in the new economy.

The most critical views question the existence of the new economy altogether. According to Gordon (2000) the current short term favorable business cycle is confused with long term productivity growth by advocates of the new economy (see also Vatter and Walker 2001). That is, growth accounting reveals that computers' role in US productivity gains are negligible. Discussion about the productivity gains is still going on and different results have been introduced. This is partly due to unreliable statistics and measurement problems in growth accounting (e.g. Brynjolfsson and Hitt 2000). Nordhaus (2001a) argues that none of the present measures of productivity growth are consistent with the theoretically correct measure. He develops an index based on welfare theory separating aggregate productivity growth into three factors: pure productivity effect, the effect of changing industries, and the effect of changing employment to aggregate productivity. These new calculations suggest that ICT has made a significant contribution to economy-wide productivity growth in the United States (Nordhaus 2001b, 2001c). Also Jorgenson (2001) finds that the importance of information technology has increased in the US economy.

Recent US studies suggest that ICT contributes to multifactor productivity (MFP) (OECD 2000, 57). Oliner and Sichel (2000) found in their study of the US economy that the use of hardware, software, and communication equipment contributed markedly to the productivity growth in the second half of the 1990s. The other contributing factor was the increased productivity in the production of computers. In fact, three channels of the impact of ICT on eco-

nomic growth can be recognized. The first effect comes from the expansion of the ICT industry itself. The second impact comes from high investments in ICT in other industries. Lastly, MFP increases in every industrial sector because of the diffusion of ICT applications which reduce transaction costs, combine labor and capital more productively, and get efficiency gains from organizational improvements (Visco 2000).

Empirical findings of the so-called new growth theory, or endogenous growth theory, have for a some time revealed as the latest 'stylized fact' that structurally homogenous group of advanced (OECD) economies follow absolute convergence[2], even though absolute convergence does not apply for a broader set of world economies (See e.g. Barro and Sala-i-Martin 1995, 26–30). However, this development may have been only temporal, since latest data suggest divergence among the OECD countries. This may indicate the emergence of the new economy (OECD 2000, 19). The new growth theory claims that investment in research and development (R&D) and human capital may well conduct increasing returns on (human) capital. If this really is the case, one possible explanation is that earlier knowledge-based investment behavior of OECD countries did not differ much. OECD countries have followed different investment strategies in basic research, R&D, innovation, ICT, education, etc. only at recent times. According to the new growth theory, if investments in human capital differ, also growth rates differ, and divergence in economic growth occurs.

2.2 Market performance and competition

The Internet is an essential part of the utilization of ICTs. It is able to reduce information costs in large extent, which alleviate efficiency gains from activities that are subject to transaction costs. Brynjolfsson and Smith (1999) found in their empirical study concerning books and CDs that the Internet retailers charge lower prices than conventional retailers do. Also lower menu costs allow the Internet retailers to make small price changes more frequently. These findings suggest that the Internet may converge towards the ideal of perfect competition. However, Brynjolfsson and Smith (1999) found that the dispersion in prices is higher in the Internet than in conventional markets. This is in contradiction to perfect competition. In fact, even in the Internet there prevails some features that make markets less than perfect: asymmetric information, externalities, heterogeneous goods, differentiated products, brand names, and trust. After all, price is only one dimension of goods.

The Internet may cause expansion in output and down turning in the price level. However, the new lower equilibrium price level is not the same as lower inflation. The reason why inflation could be affected by the new economy is because of permanent productivity growth

2 Absolute convergence means that poor economies tend to growth faster in per capita terms than rich ones.

that allows keeping excess demand of inputs down to zero. Gordon (2000) claims that the demand curve for computers has not shifted much or at all since 1963 in the USA. Gordon presents a figure in logarithmic terms with observations on real purchases of computers associated with price deflator, revealing the time-path that resembles the demand curve. In addition, Gordon assumes that the supply curve is horizontal. On the other hand, this time path can also be explained to represent an equilibrium path of supply and demand in different years. The estimation of the demand curve requires profound econometric analyses, and thus true nature of the real demand curve is still controversial.

The Internet reduces barriers to entry because of an easy access to the marketplace. The other reason for the reduction of barriers to entry is that the optimal size of the firm is smaller. Even one-person-one-task -firms are much easier to implement; a peripheral firm or innovative entrepreneur may have an access to the global market. In Ronald Coase's (1937) theory of the firm the firm is seen as a nexus of treaties. The firm is a constellation of different functions like different production stages, marketing, accounting, maintaining, and services. Each such function can be self-produced or bought from markets. The firm makes its decision to buy or make an input itself according to which way minimizes transaction costs. The Internet provides a global marketplace for all such functions so that relevant boundaries of the firms can be evaluated continuously. Thus, business-to-business electronic commerce leads to cost reductions in procurement costs, supply chain management costs, and inventory costs. All in all the new economy makes the whole economy more efficient eventually expanding the total output more than is ever possible in 'the old economy'.

2.3 Growth and economic policy

The new economy changes structures of the old economy; many activities, firms and even industries decline, new firms and industries will emerge, unemployment will increase in obsolete occupations while demand for labor of new skills will grow. The key factors behind knowledge based growth are internationalization, liberalization, deliberate deregulation, entrepreneurship, human capital, infrastructure, social order, basic scientific research in universities, R&D-activity, and diffusion of knowledge. Long-run economic policy must be able to design correct incentives for innovations which are bread and butter in competitiveness and prosperity. The new growth theory is useful for understanding the essential features of, and relevant policy in the new economy (see e.g. Aghion and Howitt 1992, and 1998, Cannon 2000, Jones 1998, Lucas 1988, Romer 1986, 1990, and 1994).

Neoclassical growth theory concludes that (Mankiw 1995): (1) Every economy has a steady state that is independent of the initial level of the capital per labor ratio. A country grows faster, the further it is from its steady state. (2) The steady state level of income depends on

savings rate and population growth. (3) Increased savings rate means more total income per person but there exists a definite savings rate that maximizes consumption per person. (4) Higher population growth means lower steady state level of income per person. (5) In the steady state income per capita can grow only at the rate of technological progress.

These results mean that similar economies have the same steady state level. The growth rate of a poorer country should be faster than in a rich country, and a poor country should eventually catch up in terms of per capita income. For policy purposes the growth model suggests that promoting savings, i.e. investments, and controlling population growth typically are the keys for achieving higher levels of income per person in an economy. Furthermore, even though the model takes technology as given, it suggests that technological progress increases income per person.

The new growth theory asks 'why rich nations get richer, and poor nations stay poor, although neoclassical theory suggests that poor nations should catch up?' One reason for capital not to outflow from rich countries to poor countries is that the rich countries are somehow able to escape the law of diminishing returns to capital. Unlike neoclassical theory, new growth theory takes technological progress, not as given, but endogenous; investment in technological progress is a policy variable. Investments in human capital are able to speed growth rate of technology leading to innovations and productivity growth.

Also intensity and openness of trade have similar effects (Baldwin and Forslid 1996, Baldwin et al. 1998). Progress in ICT has intensified globalization and networking, and promoted further economic efficiency and productivity. However, firms' investments in R&D are not enough for economic progress to occur. From the societal point of view firms invest too little in research, because they cannot capture the full benefits of general knowledge that is valuable for the whole society. Also, firms are motivated to protect their inventions and findings in order to keep their competitive advantage. Successful R&D require good-quality human capital. Science is leaded by academic researchers who are guided by their intuition and who search knowledge only for the sake of knowledge. Often the practical usefulness for their scientific findings is unforeseeable, and may be found only in an indeterminate future. Firms are not interested to provide such basic knowledge. Knowledge is a public good, since once an invention has been made public, everyone who can understand it is free to use it. Public sector is needed to promote universities and basic research in order to expand the total knowledge base in society so that firms are capable to innovate and create wealth.

2.4 Globalization and network economy

The new economy is tightly attached to the worldwide trends of globalization. Processes of globalization can be seen in financial systems, foreign direct investments, employment, tech-

nology, spread of liberal thoughts, and international trade (Väyrynen 1997, 40–69). In industrialized democracies deregulation and internationalization of financial markets began in 1960s. The impetus to the process had several reasons: the development of the eurodollar market, the expansion of multinational corporations increased demand for international financial services, in the 1970s macroeconomic instability caused the collapse of the Bretton Woods exchange-rate regime (Harris and Pigott 1997).

By foreign direct investment (FDI) corporations establish a long term presence in other economies and create global networks. The structure, forms, and flows of the world trade have been shaped in large extent by FDIs. Baldwin and Martin (1999) remark that FDI flows, which exploded in the mid 1980s, are an essential component of globalization. In Europe FDIs between the EU and the CEE countries create trade, and vice versa (Widgrén 2000).

The spread of knowledge-based technology and business means that human capital has become more important factor of production. High technology activities are able to generate more value to the industries involved, and to create well-paying jobs. Consequently, demand for low-skilled workers may decline, which increases unemployment of this kind and widens a gap between wage rates at least temporarily. (Okko and Haukioja 2000).

According to critique on integration and globalization, the world economy will be divided to winners and losers; the rich core becomes richer on the expense of the periphery. However, globalization may also benefit the periphery. Krugman and Venables (1995) show that the economies must achieve a certain level of integration, before the core benefits. At some point advantages are eroded, and then also the peripheries will progress. These developments are driven by the interaction between scale economies, transportation, and other transaction costs. Thus, the basic question how globalization affects the location of production and gains from trade remains open, because several development paths are possible. (See e.g. Baldwin 1998, Baldwin and Forslid 1997).

Spread of liberal thoughts can be seen both cause and effect of globalization. On the one hand, globalization makes the exchange of different thoughts and ideas between people all over the world possible. This individualizes people, since they are forced to think and compare different phenomena, cultures and life styles, and to form understanding of their own on these matters. On the other hand, liberalism is good for globalization, because it enhances peoples freedom to act, expands and deepens market relations, promotes competition, and limits the powers of (despotic) governments to advance their query ends. (Okko and Haukioja 2000).

Among the industrialized countries exports have been growing more quickly than GDP, and consequently, the economic interdependence between economies has increased. The share of raw materials has reduced, the manufactured exports have grown, and services have increased considerably. Among industrialized countries intra-industry trade on manufactured goods

is dominating (Baldwin and Martin 1999). It is estimated that 30–40 per cent of the world trade consists of intra-firm trade within international companies. The expansion of sales by foreign subsidiaries has created the network economy across national borders.

The extent by which countries trade, affects the knowledge spillovers and diffusion across borders leading to increased steady state growth rate. Trade liberalization increases the steady state levels of all countries concerned (Ben-David and Loewy 1995, Ben-David and Loewy 1996). Also, empirical findings support the view that total factor productivity converges among countries that trade extensively with one another (Ben-David and Rahman 1996).

Baldwin and Martin (1999) analyze two waves of globalization in 19th and 20th centuries. There are some common features in the both waves, but the current wave has quite new aspects. One notable feature is the dramatic reduction in communication costs, sometimes called as 'death of distance.' Also some kind of deindustrialization is going on in the OECD countries. With the exception of some newly industrializing countries, the share of labor in manufacturing industry has fallen significantly since 1980s. Maybe the most important feature of the present wave is the trade in ideas. (Baldwin and Martin 1999) Optimistic views suggest that increase in human capital and knowledge-based services, goods, production methods, logistic systems, together with deepening and widening network economy may give almost unlimited potential to the present wave of globalization to launch economic long-run growth path to quite a new level. Individual technical and social skills are appreciated; labor is not only seen as an input in production process, but also as an active and participating developer, organizer, innovator, and manufacturer. (Holly 1996)

One feature in the present globalization is the importance of clusters as a source of competitive advantage (Porter 1990). Reasons for clusters or industrial districts originate from network advantages. Many products compete globally and national markets have become too small for them. In order to stay in business innovations must be made continuously, which means escalating R&D costs. High investment in R&D activity often is too risky for an individual firm, but firms in networked clusters may share these risks in manageable ways. Greater specialization of tasks means that firms in virtual network may concentrate into their core competencies.

It is evaluated that the introduction of the Internet applications has potentially increased the productivity and utilization expectations of ICT (OECD 2000, 56–62). Open worldwide network is accessible with low costs. Because of reasonable ICT prices the diffusion of the Internet has been fast (See Kiiski and Pohjola 2001). The MFP gains are realized from agriculture and construction to manufacturing, but also in the service sector, where customization and other value creating qualitative improvements are able to yield efficiency gains. The Internet provides an easy access marketplace for electronic commerce and business. OECD (2000,

61) lists the potential gains from e-commerce applications: (1) The reduction of the costs of executing a sale, (2) customer support and after-sales services, (3) purchase orders and procurement, (4) the less need for a large inventory, and (5) a greater ability to forecast consumer demand. The possibilities to exploit Internet applications in the full extent are just emerging, and many countries, firms, and consumers are still absent from the Internet. The pace of diffusion, however, is rapid.

3. FINANCIAL INTERMEDIATION IN THE NEW ECONOMY

3.1 Financial intermediation in transition

Globalization and ICT have drastically influenced modern finance. Development enables service providers to create and price new instruments and help investors to allocate their capital more effectively. As a result, financial markets have exploded. Reduction of trade barriers and transportation costs and progress in ICT have accelerated global economic integration. Increased trade in goods and services across borders has increased the demand for financial services, and cross-border capital flows have been intense. Both commercial bank claims and private capital flows have multiplied during the last two decades. While capital flows have strengthened, also cross-border entry has increased, i.e. financial institutions have acquired local financial institutions, or established branches or subsidiaries abroad. (Claessens et al. 2000)

Technology is changing the ways in which financial services are produced and delivered, and it is fundamentally changing the worldwide structure of the financial services industry. The Internet improves the management of information, and potentially makes financial markets, as markets for information, more effective (Wilhelm 2001). The Internet and mobile communication technologies provide not just new distribution channel, but a completely different way to offer financial services. Creating and tailoring products is cheaper and stratifying the customer base is easier, leading to personalization of information, services, and pricing, and to more effective monitoring of credit risks. Some of the previous human-capital intensive functions can be mechanized, changing the division between these routine functions and functions demanding genuine professional expertise (Wilhelm 2001). The Internet allows new providers to compete more intensively for customers, as it requires no physical presence.

The development of ICT has created a global market in all financial products from money to stocks. Public and private networks have created a network economy in which the laws of increasing returns can be extracted: the more people connected to the network, the more valuable it becomes. The network economy has been called a complex adaptive system with millions of agents operating according to their own agendas producing results that cannot be predicted accurately. These kinds of nonlinear and complex systems tend to resemble biologi-

cal rather than mechanical systems. Because of open systems evolution, the possibility for systemic failure built inside the financial infrastructure cannot be ruled out (Wriston 1998). If innovations are successful, economies will be more stable but if they fail, consequences may be devastating. The development of financial markets can slow down, if certain environmental or functional factors get an undesirable direction: Global recession could stop progress temporarily. Privacy, security, and problems of asymmetric information should be managed properly. Striking problems may encourage governments to take regulative actions that suppress financial and technological innovations. Realization of dismal scenarios would cause lack of trust toward financial service providers, which meant inefficiencies in the market. The fear of widespread failure is one reason why governments might increase regulation of cross-border financial activities more than necessary.

3.2 Competition and strategies of financial intermediaries

Relevant technology for the financial service industry has become cheaper. Communication costs have fallen and the number of Internet connections increased. The Internet eliminates some processing and labor costs, and reduces fixed costs of branches. According to Goldman Sachs and Boston Consulting Group's estimate, cost of a typical transaction taken in a branch or by phone is 50-fold compared to the one in the Internet (Claessens et al. 2000). The Internet and other technological advances increase competition in financial services. Economies of scope increase as cross selling of products becomes easier. For traditional financial service providers new technologies, especially the Internet, represent also an increasing threat of disintermediation. Pressures toward direct finance reshape competition. Emmons and Greenbaum (1998) analyze restructuring processes and argue that due to better quality of information and decline in information costs, the total volume of financial intermediation will increase. Asset transformers will lose some of their clients to brokers, because brokers can manage transparent and standard risks more profitably. However, the volume of asset-transforming intermediaries may still increase, as they will serve more clients with non-standard and opaque risks.

The changing industry structure affects the competitive scene of financial intermediation. New types of service providers are entering the market, including non-financial entities, which offer payment and other services through their distribution and customer relationships networks. Claessens et al. (2000) divide the providers of electronic finance to online banks, online lenders, aggregators, online brokers, financial portals, e-enablers and e-payments. Evidently, distinctions between financial service providers will become less important. Sunk costs, that were important entry barriers in the past, are becoming less important, and barriers of entry are being created through first-mover advantages. In response to this entry traditional providers join in the electronic delivery. Vertical integration in financial service companies creates sy-

nergies by combining brand names, distribution networks and customer relationships. These changes reshape the competitive business models in financial services.

Network externalities are mainly positive, i.e. the value of the network rises with the number of participants using it. The influence of network externalities on competition depends whether the networks are open or closed, private or common, and on the time horizon (cf. Claessens et al. 2000, Shapiro and Varian 1999). Generally, declining economies of scale, standardization, and declining costs mean increasing competition. This is the case when the networks are open or common. However, network externalities may hinder competition between closed or private networks. The provider who is able to create a standard will gain a large share of the market, and possibly get market dominance.

The wave of mergers in financial sector continues, but to avoid difficulties of cross-border mergers it is also possible to expand by adopting Internet-based strategy. However, as in electronic commerce in general, to be successful, online finance needs offline presence, making the pure Internet-based expansion strategy only a passing phase. At the same time traditional service providers are establishing online services. The role of open finance, i.e. supermarket-style of service, where clients have access to products of many service providers, will probably strengthen. For traditional service providers open finance is an alternative to disintermediation of even higher degree. Many established financial service providers are in fact well prepared to operate in the changing competition climate. Brand recognition and reputation may be even more important in online than offline finance. Established providers already have a wide customer base and they have invested large sums of money in new technology.

The development of ICT and its widespread use erodes the distinctions between different parts of finance. The margins in financial intermediation will narrow leading to the emergence of new business models. In many financial services, e.g. banking, stock broking and 'bulk' insurances, the appeal of the Internet lies in relative cheapness of high-volume transactions, which results from the low marginal costs of electronic processing. Despite the relative cheapness, the increased competition will keep margins narrow in an extent that relatively less profits can be made from those transactions. Simultaneously, and for the same reason, deposits will pay near-market rates, narrowing the margins also in that part of business. Customers can observe the markets online and choose the best alternatives for their needs more easily. Consequently, capital markets are moving towards a model of perfect competition. Risk sharing will be at a new level and those who are best able and willing to bear risk also do so. At best, the development could deliver a new level of efficiency and stability in the global economy. Diversification that is made possible by the Internet plays a key role in this. (Wriston 1998)

Anand and Galetovic (1999) point out that irrespective whether the financial system is bank or market-based, all financial intermediation markets must solve the problem how to

gather information and use it profitably. Controlling the flows information is cumbersome, and the problem of non-excludability of information arises. However, institutional mechanisms that support cooperation advance mutual gains extracted from shared information.

3.3 Growth and financial intermediation

Applications of the new growth theory are expanding to various fields of economics. Also analysis of financial development has benefited from the new approach. Many features of the financial development in the new economy may be understood and analyzed by the help of endogenous growth theory and consequent empirical research. The role of financial intermediation in economic growth has been a controversial issue for a long time. One can find two extreme views about this: In one extreme, it is claimed that finance as such, does not contribute to economic growth. Rather, financial development is only a response to changing demand of financial services of other sectors in a growing economy. In the other extreme, financial conditions and innovations contribute to economic growth in large extent. The innovative and well-developed financial system is able to reduce intermediation costs, to screen good projects from bad ones, and to finance entrepreneurs and risky high-technology projects successfully. Consequently, the rate of economic growth will be higher than otherwise.

Emergence of the new growth theory has launched both theoretical and empirical research to reconsider the role of financial development in growth process. Theoretical modeling captures many links by the help of which the financial system may contribute long-term growth. For example, the banking system can ease capital accumulation by transforming the structure and contents of savings. Thus, economic growth may follow even if the savings rate does not change. Financial intermediaries may reduce the need for self-financing, and the occurrence of temporal downturn of business does not require liquidation of capital. These properties may be of great importance for equilibrium growth (Bencivenga and Smith 1991). One important feature of the financial system is its ability to gather and process information so that resource allocation and risk management become more efficient. This gives higher returns on investment enabling also those innovations that need lot of resources. Consequent expansion speeds financial development further (Greenwood and Jovanovic 1990). In the new economy division of labor and specialization are deepening. This requires that financial system is capable to finance high-technology projects that need lot of specific resources. If barriers to implement high-tech innovations are reduced, productivity increases leading to economic growth (Saint-Paul 1992).

Some empirical findings imply that indicators of the stage of the development of the financial system can give information about prospects of growth, capital accumulation, and technological progress (King and Levine 1993).

Wurgler (2000) shows that countries with developed financial sectors increase investment more in their growing industries and decrease investment more in their declining industries than those with less developed financial sectors.

International cross section studies reveal that the size and efficiency of financial sector affect growth performance. After the World War II those countries with developed financial intermediation systems have systematically reached higher growth figures (King and Levine 1993). Beck et al. (2000b) found an economically large and statistically significant relation between financial intermediary development and both real per capita GDP growth and total factor productivity growth. However, in the long-run links between financial intermediary development, and both physical capital growth and private savings rates are ambiguous. Also reforms of financial systems give evidence for positive growth impact (Holzmann 1997), but direction of cause-effect relations is not one-sided; time series analyses suggest that at least in some economies financial development results from economic growth (Arestis and Demetriades 1997). To conclude, financial markets do not just react for demand of other markets, but are also innovative in developing new services and products that can save transaction costs leading to increased economic activity and growth in the long-run (Freixas and Rochet 1997, 185–186, Beck and Levine 2000, Demirguc-Kunt and Maksimovic 2000, Beck et al. 2000a, Beck and Levine 2001, Demirguc-Kunt and Levine 1999, Levine et al. 1999).

There are, however, some concerns that many potentially successful small businesses may not be able to obtain sufficient external finance, which hinder efficiency of allocation of resources, and economic growth. Credit crunches (Asia and the USA) or the lack of well-developed venture capital markets (continental Europe) increase this concern. Typically, bank lending is not available to small business until they achieve a level of production where their balance sheets reflect substantial tangible business assets that might be pledged as collateral, such as accounts receivable, inventory, and equipment. In general, the capital structure is different between small and large firms in part because of small businesses are usually more informationally opaque. (Berger and Udell 1998) In financing new economy firms, stock markets are important, but not the most common. A distinguishing characteristic of financing those firms is evolving pattern of control by different investors. The degree of risk taking and the diversity of investment are affected by the way in which competition and stability in financial systems are traded off and the form in which investor protection is provided, i.e. the nature of regulation. In Europe, where high levels of investor protection and low levels of diversity prevail, some changes may be needed to stimulate new economy firms. (Mayer 2001).

4. BANKING IN THE NEW ECONOMY

Some economists argue that, even without globalization, traditional banks that provide both deposits and loans will fade away, and more specialized financial institutions will take their place (see Freixas and Rochet 1997). This gives a reason to ask: 'Has this argument become more relevant because of deregulation and globalization?' or 'How new technology, like the Internet and online finance, affects banking, especially competition and the market structure?'

Rajan (1998) argues, that the historical origin of banks lies in providing liquidity and safety in the environment of uncertain property rights, scanty information and anticompetitive regulations. Technology, availability of information, and property rights have developed so profoundly that at least some of the historical reasons for banks have eroded. Despite of this, banks still have a role in providing liquidity. In addition, banks are important in innovating new forms of finance. Thus, banks have a specific task in offering incomplete and renegotiable contracts, which are crucial especially for the opaque projects (Rajan 1998), and also in offering important complementary functions to the economy (Bossone 2000). Because bank money has always been virtual, technological development and the emergence of the Internet does not threat the existence of banks as such. Electronic trade has its own requirements for financing transactions, and banking has competitive advantage also in virtual markets, because any modern trading system needs liquidity, payment services, and credit supply. Therefore, traditional banking functions are replicated in the cyberspace (Bossone 2000).

4.1 Technological transformation

Traditionally banking has not been classified as technology-intensive industry. Finland is a good case example of rapid technological and structural change that has taken place: The development of total factor productivity and labor productivity has been weaker in banking than in other service industries and manufacturing until late 1970s. In 1970s productivity took off, and in the 1980s it grew faster than in manufacturing. The productivity growth can at least to some extent be explained by deregulation and technological development, namely the introduction of Automatic Teller Machines (ATM) and debit cards. Although technological development reduces average costs of banking, the effect can be weaker than expected for two reasons. Firstly, if innovations are related to basic infrastructure, they rarely replace branch networks. That was the case with ATMs, which became a new network in itself with separate fixed costs. Secondly, innovations may affect customers' behavior in a way that the expected gains from diminished average cost per transaction are cancelled by the increase in the number of transactions (Kauko 2000). Banks are now facing similar changes in their environment on a global perspective.

Theoretically, there are scale economies in banking (Freixas and Rochet 1997), but the empirical evidence is somewhat controversial. A common conclusion is that there are clear economies of scale among small and medium-sized banks but not among large ones. However, among European and Japanese banks scale economies seem to exist even among very large banks. Thus, the impact of technological progress on scale economies is also a subject of controversy. In the new economy, discussion on the economies of scope between traditional banking and capital market activities is relevant. An important question is whether direct finance will gain market share in the expense of traditional banking, while technological development and globalization makes direct finance easier.

In their study of small business lending in the United States Petersen and Rajan (2000) find that physical distance between lenders and small firms is increasing. Their analysis suggests that this may be explained with improvements in banking productivity, which is due to cost reductions and efficiency improvements in information gathering, storage, processing, analyzing, and communication. Because of drastic developments in ICT applications small business lending has increased significantly in the USA. This means that even riskier small business projects may get such finance that was not possible earlier. Even though the distance between lenders and banks has increased, one may still observe that informationally opaque firms stay closest to lenders.

The most important effects of the Internet in banking are related to the basic nature of the Internet; (marginal) transaction costs are close to zero, physical distance becomes meaningless, searching and switching costs are reduced, and the need for branch network diminishes (Andersen et al. 2000). Thus, the worldwide trend has been the rapid increase of Internet-based banking service, Scandinavian countries and especially Finland being in the front of the development. In Finland over a one third's share of all banks' customers have Internet banking agreements and half of them use the Internet as their main channel for executing banking transactions. It is noteworthy, that established banks have maintained their positions despite the emergence of Internet services. In fact, there are no pure online banks in Finland, which is contrary to the situation in the USA and UK. However, also in those countries traditional banks have maintained their positions to a large extent. (Andersen et al. 2000)

Furst et al. (2000) evaluated Internet banking comprehensively in order to increase knowledge about its impact on banking industry. They used a questionnaire that covered the Internet banking offerings of US banks. Among other things, they find that large banks are likely to provide a larger variety of online services than small banks do, banks that provide Internet banking are more profitable than banks without such services, customers are likely to have accounts in institutions that are able to provide Internet banking, and Internet banks are likely to rely on other than interest income or core deposits in their business.

4.2 System transformation

Direct finance has been connected to the innovation phase of production, and indirect finance mainly to the established investment phase. In the United States, direct finance is seen as the driving force in the emergence of the innovation based new economy. Also in Europe corporate bond market has emerged and whole new markets have become internationally relevant, e.g. Neue Markt in Germany (Danthine et al. 2000).

There exist much research on the subject which economies perform better, those that are mainly based on banking or those that rely on stock markets in financing economic activities? These studies often compare the USA, Great Britain, Germany, and Japan, where the former two present stock market and the latter present bank based systems. Conclusions from these studies are controversial. One advantage of bank based systems is lending relationships, which give a solid base for business to develop and to make long term plans without fear of running short of finance. On the other hand, it is argued that often innovative firms will not get finance enough in this system, because banks prefer established business and firms that are cooperative and ready to submit to banks' will in business. There exists also a potential threat that banks' lending to its customers is too slack and economic resources are wasted in unprofitable business.

In the USA traditional banking business of accepting deposits and making loans has declined in recent years. There has been a switch from directly held assets to pension funds and mutual funds. Banks have, however, maintained their relative GDP share by innovating and switching from their traditional business to fee-producing activities. The trends of development in different financial systems are quite similar, but the operating models are distinct. This can be explained by differences in competition from financial markets. When the significant competition is absent, banks are able to eliminate risks by intertemporal smoothing, i.e. building up reserves of short term liquid assets when returns are high and run them down when they are low. Thus the development of banking in the USA can be seen as a response to the competition from markets and the decline of intertemporal smoothing. (Allen and Santomero 2001).

In the changing financial environment banks have to consider the threat of disintermediation. Schmidt et al. (1999) carried out an empirical study of disintermediation and the role of banks in Europe. The paper investigated whether there can be found a common trend of disintermediation, securitization, and a declining role of banks in France, Germany, and the United Kingdom. The hypothesis that there is a general tendency toward disintermediation does not get support. The second finding is that there is a general tendency toward securitization, and thirdly, the importance of banks in the financial system is not declining. These three countries reveal somewhat different kinds of developments, and their financial systems do not seem to converge (see ECB 2000 for a survey of structural changes in the EU banking business).

It is often believed that stock markets based systems are more innovative in providing new forms of finance. This means that markets are able to provide finance to those projects that are most profitable and where the future of new business looks promising. Black and Gilson (1998) emphasize that stock market-centered systems are superior in providing venture capital. On the other hand, finance may be myopic which means that potential firms may fade away because of temporal crisis (von Thadden 1992 and 1995). Direct finance and venture capital activity has been the driving force of the emergence of the new economy in the USA. In more bank oriented financial systems banks' role in financing innovations and risky projects could be more active (Hellman 1997, Rajan and Zingales 1999).

Arestis et al. (2001) argue that although stock markets promote economic growth, the effects of banking are more powerful in that respect, and that the effects of stock markets may have been exaggerated by studies that utilize cross-country growth regressions. (See also Cetorelli and Gambera [2001] who get interesting results concerning the effects of banking market structure on the total economy, different industrial sectors, younger firms, and the pace of technological progress.)

We may conclude that both kinds of systems are able to finance economic development and progress. Even though direct finance has increased in economies that are traditionally bank oriented the role of banks will remain still important in financial intermediation. Banks are able to reduce transaction costs, uncertainty, manage risks, and specialize in specific project financing. It seems that economies still need both kinds of financing, because they can serve different needs of different kinds of business (Freixas & Rochet 1997, 39–40, 183–185; Levine 1997).

4.3 Competition and strategies in banking

Changes in operational environment affect directly to the competition banks encounter, and shape the strategies of successful banking. One significant change is deregulation and harmonization of banking industry. An example with resemblances to global development, is the expanding cross-border financial activity in the single economic space of Europe. Banking sector in continental Europe is now entering into a period of sharply increased competition. Public authorities have to reconsider contestability, excessive domestic profits, rising competition from abroad, and maintenance of financial stability. (White 1998)

Also the question of risk taking and its incentives in the new environment are relevant from the regulators point of view while the competition increases and the banks' charter value decreases. Herring and Vankudre (1987) remind that the willingness of banks to take large gambles at the cost of lower total expected return is greater, the lower the ratio of total economic net worth to assets. In the past, the contemporal incentives created by the excessive depo-

sit insurance system were countervailed by potential loss of valuable charter that induced banks to limit their own risk taking. In a new more competitive environment, after the demolition of various anticompetitive restrictions which endowed banks with market power and made banking charters high-valued, the deposit insurance system should be evaluated continuously to reduce the rewards it provides for excessive risk taking, and on the other hand, to strengthen the stability of banking system (cf. Keeley 1990).

Regulative changes are important also in respect of entry to the market. Besanko and Thakor (1992) found that a relaxation of barriers to entry in banking improves the welfare of borrowers and savers in the expense of bank stockholders. Equilibrium loan interest rates fall and deposit interest rates rise as banking becomes more competitive. Dell'Ariccia et al. (1999) argue, that asymmetric information can per se form a barrier to entry into banking market and it arises out of the nature of competition. A bank entering the market will receive disproportionately large share of bad borrowers, because established banks are probably able to distinguish between good and bad risks. Thus, informational asymmetry can make entry extremely difficult, even in multi-period examination.

The structure of financial industry forces entrants to make investment in information, leading to the conclusion that a steady-state equilibrium is characterized by restricted number of competing firms, even in the absence of exogenous fixed costs. Thus, asymmetric information represents an important determinant of the market structure in the banking industry. Technological, informational and institutional factors contribute to reduce the number of competitors in loan markets, and to make banking industry non-contestable. Thus, if significant economic barriers to entry exist, the removal of legal barriers will not necessarily increase competition (Dell'Ariccia 1998). Dell'Ariccia et al. (1999) present two strong implications. First, if established banks have been able to gather pervasive information about their customers, new entry will be more difficult. Second, new entry will be difficult in those segments of the markets where asymmetric information is more important. In systems where banks are able to create close relations to their customers and are thus able to solve their monitoring and screening more efficiently, barriers to entry are higher and there are less competition. A trade-off between efficiency and competition emerges. Thus, different degrees of competition may prevail in different segments of the market, even within the same regulatory environment. According to Dell'Ariccia (1998) information sharing as a solution to asymmetric information problems would have a threefold effect. Firstly, competition for creditworthy customers would increase. Secondly, competition for new borrowers would decrease, and finally, informational barriers to entry would fall, leading to more competitive banking industry.

Whether the threat of new entrants is relevant or not, the competition from established financial market operators have already shaped the strategies of banks. Structural changes, es-

pecially a shift by companies to direct capital-raising in debt and equity markets, force banks to start their own capital market business. According to Danthine et al. (2000), in EMU economies of scope between investment and commercial banks provide an organizational advantage to universal banks. They anticipate that there will be only few universal banks in Europe competing with US banks globally. However, Mester (1992) argues that there are diseconomies of scope between traditional (originating and monitoring loans) and nontraditional (loan selling and buying) banking activities. In their study Boot and Thakor (1997) found that the bank's optimal response to increased competition is to expand traditional activities relative to its nontraditional capital market activities. This implies that the motivation of banks' capital market business is purely to maintain or gain market shares.

As an example of one of the many aspects banks have to consider while aiming to successful banking in the new economy is the strategy concerning virtual banking. The development in financial market forces established banks to adopt an Internet strategy. There are several reasons for that: continuously spreading Internet banking, arising new competition from pure online operators, competition with current offline competitors and shareholders demands. Five basic strategies can be distinguished: 1) pure Internet banking, keeping offline and online operations completely separate, 2) online hybrid, extending existing brands to the Web, 3) online alliances, teaming up with, e.g. telecommunications company, Internet-service provider or portal, 4) 'white labeling', where banks are silent partners, e.g. by providing back-office services to enable another firm to run a bank, and 5) offline banking (Economist 2000). The development already seen has been especially to the direction of online hybrids and alliances, although examples from all categories exist. In the future the role of so called aggregators, i.e., companies helping customers to compare more easily the properties of different banking services, thus reducing searching costs, is likely to increase (Andersen et al. 2000). Open finance, where service providers no longer sell only their own products, but offer the best available, is also one possible Internet strategy. This has been said to apply especially to personal finance, and some large banks share that view. Aggregation, i.e. taking customers' all financial needs into account, and subsequent mass customization will be more important and with the new technology much easier.

5. CONCLUSION

The purpose of the study is to conduct a selective survey on the nature and characteristics of the new economy, and to consider its effects to financial markets and banking. The concepts new economy, networking, globalization, information society, and the like are different sides of the same phenomenon. To our view, it is important to separate short- and long-term, as

well as micro and macro aspects of the new economy. According to the new growth theory investment in human capital is increasingly important in economic development. To improve the competitiveness of an economy governments should ensure favorable conditions for entrepreneurship and innovations, and basic research, education and R&D should be recognized as essential factors in the long-term growth.

In this environment financial service industry is facing changes; fragmentation, disintermediation, and cross-branch and cross-industry fusions have significant effects on the structure, conduct and performance of the industry. Thus, pressures towards public policy are increasing. Deregulation and globally opening markets set new challenges to public supervision to ensure the stability and efficiency of the financial system. In the USA, direct finance and venture capital activity has had an important role in the new economy. It has been suggested, that also in continental Europe, where the financial system is more bank oriented, banks could be more active in financing innovations and risky projects.

Although technological development reshapes also the banking industry, the basic functions of banks do not change. Online banking is ever increasing form of banking activity, and banks are forced to create their own strategies in respect to it. In globalizing markets the positive demand effect for online banking will provide a counterforce to the negative effects of increasing competition. To conclude, banks have a comparative advantage in financing projects where trust and other social capital in valued. This advantage should be taken care of and maintained. Concentrating on relationship banking, online payment systems, aggregation, mass customization, and accurate consulting give means to serve customers profitably by the help of new ICTs. ■

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