

# Creating an “e-finance friendly” regulatory and institutional framework

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## Introduction

E-finance has the potential to be more than just another incremental change in ways of doing business; it could be a real revolution. Earlier waves of technological advance focussed on the elaboration of information, for example, the development and pricing of new hedging instruments; and on the transmission of information, i.e. faster and cheaper communication of product and price data. The wave based on the internet could well make a further quantum jump. While the previous electronic technologies employed by the financial services sector were generally based on proprietary networks and standards with restricted access, the internet relies on open networks and standards, allowing much wider and easier access by consumers, which is a radical change.

There are good grounds for supposing that the internet and financial services have unique synergies: the internet offers convenience, price transparency, broader access to information and lower cost; financial services are information-intensive and generally require no physical delivery. E-finance has the potential, not only to take business away from traditional, “bricks-and-mortar” delivery systems but also to introduce new business models, changing financial market structure and driving financial consolidation, but exactly how the changes will take place is quite uncertain. It is difficult to know which technologies will work best, how customers will respond and so on. The fast pace of developments means that there is considerable uncertainty about which parts of the financial system will feel the greatest stress. How quickly institutions will have to adapt to changes remains uncertain. These uncertainties and potential destabilizing effects on the financial systems are posing challenges to central banks and financial supervisors. There is a need for “e-finance friendly” regulatory and institutional framework to reap the full benefit of e-finance without stifling innovation. This paper discusses how “e-finance” affects financial institutions and markets, what risks are involved in these developments, and the official sector agenda.

## Implications for banks and other financial institutions

There are many ways of classifying the implications of e-finance for the institutions involved, which can be grouped under six headings. First, it is becoming clear that the physical start-up costs of e-financial institutions are lower than those of traditional institutions. Even the cost of setting up IT systems – sometimes regarded as a barrier to new entry – can be reduced by outsourcing to a well-established service provider. **Lower cost barriers to entry** could well intensify competition and increase the threat of disintermediation of existing institutions.

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Because it is cheaper to open a selling point on the internet than to open a network of physical branches, the distribution cost and marginal operating costs of electronic-based platforms are significantly lower. This impact will be significant in sectors that rely on a high-cost network of agents, who can be replaced by electronic communication of content. These agents, whether employees or independent contractors, may not have enough special advantages over firms that engage in direct distribution to justify the widening cost differences. Although entry is made thus easier, staying profitable in the e-finance industry is difficult because of the existence of scale economies, network externalities, switching costs and brand names.

Secondly, e-finance is **blurring the barriers** between banks and other institutions. The internet, combined with data-processing advances and deregulation, is reinforcing the trend to de-couple manufacturing of financial products from their distribution. Institutions now find it easier to retail products they have not themselves produced. Though it remains an open question how much further this integration of financial activities will progress, the boundaries between banks, brokers and insurers are likely to be further eroded. One force behind this is increasing consumer demand for personalised money management services, which is pushing banks to respond with products that cross financial boundaries. These “hybrid financial services” are nothing new, but the advent of technologies such as fixed and mobile internet as well as digital TV promises to transform both their design and their delivery.

Thirdly, the rapidity of change and the unfamiliarity of the names of some new players highlight the critical importance of **public trust**. Pure internet banks have not so far been very successful, in part because of problems of public acceptance. While technology has been lowering one barrier to entry, brand establishment and customer acquisition have remained disproportionately expensive, particularly in banking. One survey indicates that even the most promising demographic groups – such as young, educated, wealthy, active consumers of financial services - are unlikely to switch to technology firms for financial products. A “brand premium” is probably the best protector of established banks against pure internet banks. The fact that some banks that started as pure internet operations have opened physical branches as “relationship enhancers”, or acquired ATM networks for the consumers’ cash withdrawal and deposit convenience, illustrates the continuing importance of physical presence. This experience seems to suggest that the choice is not that of “clicks-versus-bricks”: it may be “*clicks-and-mortar*” (or multi-channel distribution) that will have the ultimate advantage.

However, the need to inspire the trust of the public does not necessarily favour existing banks, because firms that have built up consumer trust and achieved high degree of name recognition in other lines of business (Sony, Volks Wagen, General Electric, etc) may also command confidence. Thus, the fourth consequence is the increased likelihood of **entry of non-financial institutions** into financial activity. While hardly unique to e-finance, the increasing reliance on untested and sophisticated technology implies a greater need to have a brand name that the public knows and trusts. It may lead to new forms of conglomerate that bring together financial and non-financial companies. The most serious challenge to the banking industry probably comes from the entry of telecommunication companies that already possess the necessary IT skills, exercise command over an important delivery channel and have built an extensive customer base. A major challenge for supervisors is the adaptation of supervisory techniques that are traditionally used in licensing new entry (such as fit and proper tests; the clarification of business plans; policies on mergers and acquisitions; etc). And the very meaning of concepts such as consolidated supervision becomes problematic in this context, as does the distinction between banking and commerce.

Fifthly, the internet could well speed up the process of **financial industry consolidation**, both cross-border and cross-sector. Operating costs that are low relative to those of initial start up costs, give rise to significantly increased potential for economies of scale. In order to

pursue these, financial service companies are increasingly forming alliances with IT vendors and telecommunication companies. Large client lists made available through consolidation increase the profitability of the provision of a broad range of different financial products. Name recognition also favours big players. E-banking facilitates cross-border expansion at minimum cost. Moreover, the resources devoted to foreign e-banking business (staff, computing resources, etc) can more easily be centralised, so that service output can be readily switched from one foreign market to another. It is much easier to retrench quickly from a virtual offering than a branch-based one. However, full fledged consolidation is not inevitable since strategic alliances could in principle achieve the same goal of saving costs without requiring a full merger. The merger of back office functions is a case in point.

The sixth and final implication is the most difficult to come to grips with, yet it is arguably the most important. It is the potential of e-finance to create new and radically **different business models**. In the current model, a bank makes use of private information it has gathered about its customers in evaluating and pricing credit risk. By transforming information gathering and by altering the way communication is handled, the internet will make several new models possible.

One example of such a new business model that has attracted much attention is that of the so-called “aggregators”, firms that offer customers one-stop shopping for financial and non-financial products offered by a multitude of suppliers. By monitoring the transaction patterns of their customers, such firms are uniquely placed to observe individual consumption patterns and obtain information on the financial profile of an individual. Such information can in turn be used to directly market financial products, assess credit risk etc. This poses various threats to banks. Banks may lose their direct links and delivery channels to reach customers. At the same time, banks fear being held responsible for the mishandling of confidential customer data by the aggregator.

In a move to counter attempts by non-financial players to enter the banking market, banks could capitalise on their brand name and the trust they enjoy with the public by expanding into services like certification, digital signatures and secure communication. An important issue in that context is even-handedness in the official treatment of financial and non-financial firms. Supervisors are usually reluctant to allow banks to expand into non-financial commercial business. But how can and should they react to traffic in the opposite direction?

### **Implications for markets**

Internet technology is beginning to have a major impact on the structure and functioning of exchanges and trading systems. The introduction of new trading technology offers greater possibilities in **market architecture** – by which is broadly meant the key features of market structure such as participation arrangements, venues, trading protocols – influences trading outcomes of prices and quantities. These decisions about architecture also affect aspects of a **market’s quality** – its performance across attributes such as liquidity, trading costs, price efficiency and resilience to shocks. Ultimately, market quality has **broader welfare implications** – such as through the contribution of the efficiency of the financial system to economic growth and through the performance and resilience of markets to financial stability.

On-line trading is more cost-efficient, accelerates trade execution and potentially expands the price information available to investors. As a result, traditional dealers are finding their margins coming under increasing pressure. Some of the larger dealers may try to respond by chasing volume, which electronic trading can facilitate. Others may unbundle their services

and concentrate on certain niches. Some may just withdraw totally from trading and concentrate on advice and research.

An important issue arising from the growing reliance on electronic trading is its impact on market liquidity. Market liquidity is a multi-faceted concept and it is therefore very difficult to assess the relationship between electronic trading and liquidity. On the one hand, electronic trading leads to tighter pricing (ie lower bid-ask spreads) in equity and securities markets by decreasing transaction costs. Thus one dimension of liquidity may be improved. But there are two other factors that may reduce liquidity. First, in some currently centralised markets (like equity markets in the United States), lower barriers to entry may mean that new trading systems (such as ECNs) proliferate, none of which individually is particularly liquid. Markets may therefore become more fragmented. Second, by reducing bid-ask spreads, electronic trading will tend to reduce the profitability of active market-making, causing financial institutions to scale back this activity. Markets may become shallower, resulting in increased intra-day volatility and a less efficient price-discovery mechanism. This may be all the more likely in periods of market stress, and may exacerbate turbulence. This is an unresolved issue on which we need to keep a close eye.

The use of electronic trading is also spreading in other financial markets where contracts have historically been traded over-the-counter (OTC). A report by the Committee on the Global Financial System<sup>2</sup> suggests that electronic trading in foreign exchange and fixed income securities is centralising many OTC markets and putting some dealers under pressure. However, the report found no conclusive evidence that these developments have led to a marked reduction in liquidity.

A final concern is about the difficulty of transposing existing market standards to trading platforms which are purely virtual. For example, securities regulators will want to ensure that disclosure standards are not avoided by marketing new issues directly on the internet. Investment advisers are often required to be licensed and “suitability” obligations are imposed. It is not clear how these requirements would apply to advice offered on a website.

### **Key risks in these developments**

Several key risks will merit attention that will be grouped under four headings. Firstly, there is the risk of **strategic and business misjudgements**. Needless to say, this is always a possibility during periods of rapid technological change. A characteristic of internet-related firms has been the acceptance of high initial costs in the hope of long-term profits. The absence of a simple short-term profit test, given relatively little near-term revenue, makes it very difficult for companies to assess whether their strategy is working. That mistakes can be made is quite evident from the volatility of high-tech stocks and the failure of many high-profile ventures. Banks can also make big mistakes in their e-finance strategies. Bank managements today need to be more knowledgeable about IT matters than in the past.

Uncertainty about the nature of the prospective changes implies that the private sector would be prudent to maintain a questioning attitude about specific IT developments. It is wise to recall examples of earlier over-estimation of demand for technical products such as smart cards. Although many electronic purse pilot schemes are still in place, the customer resistance

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<sup>2</sup> The Committee on the Global Financial System (2001).

they have encountered has turned initial euphoria into, at best, cautious optimism. Another example would be pure internet banks, which have had only a limited success so far.

In making IT investment decisions, e-finance firms need to balance two conflicting considerations. On the one hand, technology is constantly changing and prospective returns on new technology may be undermined by still newer technology. This calls for caution and the need to discount future returns heavily. On the other hand, so-called “network effects” may create “first mover” advantages that encourage market players to adopt quickly the latest technology, without awaiting a full evaluation of costs and benefits.

The second risk is **operational**, resulting from reliance on complex technology. Such risks can arise whether technology is developed in-house or outsourced. The practice of outsourcing core technologies and processing operations raises questions about how far, and by what mechanisms, a bank’s management should oversee the operations of service providers. The existence of increasingly complex arrangements between a financial institution and a whole chain of service providers – a main contractor with multiple sub-contractors providing the various different elements of the IT architecture – creates novel oversight problems. A report by the Basel Committee on Banking Supervision<sup>3</sup> suggests that the comfort from outsourcing may be illusory.

The third risk arises from **legal and regulatory uncertainty** in e-finance transactions. Even a question of “Where is the headquarters of an e-finance firm?” cannot always be answered easily. Another question is whether location is physical or legal. Under such circumstances, it is all the more important that the definition of home and host supervisors and the division of responsibilities between them be clarified. This should include any requirement for licensing in the “targeted” host country. It is also all the more desirable that common standards are set and enforced across countries to avoid financial firms moving their notional headquarters to laxer supervisory regimes. Cross-border mergers of exchanges would pose even harder questions. Similar considerations apply to different sectors of the financial industry within one country. The risks of “regulatory arbitrage” must be kept clearly in mind.

The fourth risk is **systemic risk**. Because financial institutions use similar software programs, there is a risk that many large institutions could be simultaneously subject to a common adverse shock. This was one worry about the 2000 year bug, which happily turned out to be well contained. But can we rely on always being so fortunate? A simultaneous technology-related problem would be a potential systemic nightmare.

We know that there is no computer systems technology that is absolutely “hacker-proof”. And the more open the platform, the greater is the risk. A failure of a large internet service provider could be a major disruption. So far, incidents have been relatively minor, but the risk remains. For instance, insufficient or inadequate segregation between internal systems for retail and large-value payments could allow the breach of the lighter security net around a lower value system, such as a bank’s retail website, which would in turn allow entry to a high value system via the bank’s internal network.

Moreover, the deeper involvement of greater numbers of new and different firms – including non-financial firms – in financial markets may make it much more difficult to monitor the links between the various actors and to assess the risks to which they are exposed. As the

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<sup>3</sup> Basel Committee for Banking Supervision (2000).

links between financial and non-financial markets become more pervasive, the sources of systemic threat are likely to become harder to identify.

### **An official sector agenda**

The official sector agenda for dealing with some of these issues can be summarized in five points. First, the official sector should do some serious thinking about how e-finance could change the **structure of the finance industry**. Is it possible that the impact could be revolutionary and rapid? The transformations engendered by the spread of e-finance could at some point raise systemic concerns for central banks, particularly given the greater importance of unregulated entities outside the present reach of supervisors. Prudential concerns about individual institutions and markets may need to be supplemented from the perspective of systemic risk to address directly market dynamics and industry structure issues.

Ironically, while the internet has vastly expanded the availability of information, there are too few reliable data on e-finance itself. The statistics produced by market analysts are generally piecemeal, based on different definitions and assumptions and sometimes include optimistic biases. But before new data collection systems are considered, a clearer conceptual framework is needed to pose relevant questions and the help of the private sector and of the academic community is needed in this endeavour.

Secondly, as discussed earlier, e-finance is also likely to blur further the distinctions between different financial sectors as well as products. This will pose **co-ordination problems** for financial regulators, regardless of whether supervision is organised along product or institutional lines. It will make banks less “special”. There is a need to be aware of linkages across sectors, particularly links between banks, insurance companies and securities companies. This implies a greater need for consultation and co-ordination among regulators. As depositors are less familiar with e-banks, and know deposits can be withdrawn faster, e-banks may be more susceptible to erosion of their deposit base than traditional banks. The challenges for banks, supervisors and central banks will remain the same, but the nature of cyberspace may leave them far less time for crisis management and resolution.

Thirdly, **a flexible and adaptive regulatory approach** becomes vital. This does not mean an absence of regulations. In particular, licensing rules for banks, investment advisers, etc, will remain crucial in maintaining high standards in the financial system and building public confidence. The public sector faces a dilemma. On the one hand, the authorities cannot predict the future shape of the financial industry. This argues against actions that risk stifling the process of innovation, for example by regulations that “freeze the present”. On the other hand, there is a danger of new unregulated developments going too far, too quickly. It may then be more difficult to introduce prudent guidelines: once the genie is out of the bottle, it may be difficult to put it back.

Balancing these two concerns is not easy. In principle, the public sector should be “technology-neutral”, neither favouring nor hindering particular technical approaches. But what this means in practice may vary across countries and industry sectors. Many European countries, for instance, favour limiting e-finance to regulated institutions. The United States, on the other hand, tends to favour a more hands-off approach in dealing with the types of institutions that deliver financial products and the types of delivery channels used. However, US supervisors are strong advocates of the systematic on-site inspection of unregulated service providers. Recall a similar difference in views between the EU and the US as to the issuance of e-money several years ago.

This does mean that the old regulatory mind-set is no longer appropriate. This will be particularly so in the world of e-finance where change is the norm. There is a need for guidance, not rules. Different contexts require different responses. There will have to be more emphasis on operational and reputational risk. E-finance raises many additional complexities: for example, the question of “What is a bank?” becomes even more difficult to answer. Moreover, the answer could well differ from one supervisory jurisdiction to another. The good news is that advanced technology permits more effective monitoring of the complex issues that technology has created. For example, the use of intelligent electronic agents should enable consumers to monitor their journey through cyberspace and warn them when they are entering a site whose privacy policies do not match their preferences.

Fourthly, there may be cases where **additional prudential buffers for risk-seeking institutions** are needed. It can be debated whether e-banks are inherently riskier than traditional banks, but some aspects of e-banks do require much more careful examination. They have generally needed to offer higher interest rates to attract deposits, which can be very rapidly transferred to another bank. They may be more vulnerable to operational breakdowns and security breaches by “hackers”. The management challenges, such as credit assessment at a distance, are less well-understood, though technologies could be employed to monitor and overcome these risks. It is interesting to note that in some countries (for example, Singapore and Hong Kong), e-banks cannot be established except through the conversion of existing local banks. Some countries require a physical presence for e-banks within their national jurisdiction, but this may be difficult to enforce.

Fifthly, it is important to make sure that the current levels of **market and operational integrity** are not undermined by the development of e-finance. The safe and orderly operation of banking and financial systems at all times is essential to ensure public trust. Security is critical to allow customers to do financial transactions online. It is important that a “virtually closed” network is built supported by robust technology such as cryptography and digital signature. The information technology infrastructure supporting the settlement of financial market transactions must be entirely reliable. As long as online payments are cleared and settled through the existing clearing and settlement infrastructure that complies with “best practice”, such as the Core Principles recently published by the Committee on Payment and Settlement Systems<sup>4</sup>, the development of e-finance should have only a limited impact on payment system risks. E-finance will continue to increase the demand for more efficient and robust back-office operations. This “straight-through” processing will not only reduce operational risks by minimising errors caused by human intervention but also reduce settlement risks by shortening the settlement cycle. A continued effort will be required to transpose disclosure for listing as well as licensing for investment advisers to purely virtual markets, however difficult this might be.

## **Conclusion**

Assessing and dealing with potential risks e-finance poses is the key challenge to central banker and financial supervisors worldwide. Not only are reliable data on the current situation hard to find, its growth extremely hard to predict. Even once the trends are identified, it is hard to distinguish between familiar issues in new guise and totally new challenges. This will

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<sup>4</sup> Committee on Payment and Settlement Systems (2001).

necessarily be difficult, as it is hard to isolate the contribution of internet separately from complementary innovations and long-term industry trends. The net impact of conflicting forces will vary significantly by product, by player and by market. While it is retail financial services that have been most radically transformed by the internet to date, there may be a major impact on the business-to-business segment in the medium term. The business models will also keep evolving with the enabling technologies (such as mobile data communications or interactive TVs) bringing about major change in the nature of financial services. But which business models will work, and which will fail, is difficult to know at this stage. How these models will behave under stress as well as during normal market conditions is also very difficult to predict.

These uncertainties make it all the more important to have a regular and deep exchange of information between central banks, supervisors and the private market players. Periodic reappraisal of the global e-finance landscape and the main policy issues becomes therefore vital. Committees that meet in Basel such as the Basel Committee on Banking Supervision, the Committee on the Global Financial System and the Committee on Payment and Settlement Systems and the Financial Stability Forum are carefully reviewing policies toward e-finance, and the private sector is expected to play a full part.

## Further readings

- Allen, H, and John Hawkins and Setsuya Sato (2001): “Electronic trading and its implications for financial systems”, in *Electronic Finance: A New Perspective and Challenges*, BIS Papers [10], Bank for International Settlements (forthcoming on [www.bis.org](http://www.bis.org)).
- Banks, E (2001): *E-Finance: the Electronic Revolution*, John Wiley.
- Basel Committee for Banking Supervision (2000): *Electronic Banking Group Initiatives and White Papers* ([www.bis.org](http://www.bis.org)).
- Committee on the Global Financial System (2001): *The Implications of Electronic Trading in Financial Markets*, Bank for International Settlements ([www.bis.org](http://www.bis.org)).
- Committee on Payment and Settlement Systems (2001): *Core Principles for Systemically Important Payment Systems*, Bank for International Settlements ([www.bis.org](http://www.bis.org)).
- DeYoung, R (2001): “The financial progress of pure-play internet banks”, in *Electronic Finance: A New Perspective and Challenges*, BIS Papers [10], Bank for International Settlements (forthcoming on [www.bis.org](http://www.bis.org)).
- Greenspan, A (2000): “Remarks on e-finance” presented to the 9th Annual Financial Markets Conference of the Federal Reserve Bank of Atlanta ([www.federalreserve.gov](http://www.federalreserve.gov)).
- Sato, S, J Hawkins and A Berentsen (2001): “E-finance: recent developments and policy implications”, *Tracking a Transformation: E-commerce and the Terms of Competition in Industries*, Brookings Institution.
- Sato, S, and John Hawkins (2001): “E-finance: an overview of the issues”, in *Electronic Finance: A New Perspective and Challenges*, BIS Papers [10], Bank for International Settlements (forthcoming on [www.bis.org](http://www.bis.org))