

**VALUE, VULNERABILITY
AND RESILIENCE
OF THE
FINANCIAL MARKET INFRASTRUCTURE**

Professor Niklaus Blattner
Member of the Governing Board
of the Swiss National Bank

SIBOS Conference
Opening Plenary
Geneva, September 30, 2002
Ladies and Gentlemen

As a central banker sharing the responsibility for overseeing payment and settlement systems, I have of course been closely following the developments of the financial market infrastructure. There is no doubt that these developments have greatly contributed to an enhanced efficiency of the financial sector. They have also highlighted the fact that not only the payment and settlement systems but also other providers of standardized services in the field, not least S.W.I.F.T., have become more important over time. The developments have further shown that safety and resilience have clearly gained more weight for the system operators, for the system participants as well as for the regulatory authorities.

In the first part of my address I would like to consider the economic value added by the payment and settlement infrastructure and to briefly discuss the driving forces underlying its development. In the second part I shall focus on the role of central banks as agencies of oversight. In the third part I shall describe the factors that shape the vulnerability of financial markets and their infrastructure and examine how these factors have changed over time. The fourth part is devoted to the implications of identified vulnerabilities for resilience. In the fifth part I shall address the cost-benefit issues that sooner or later inevitably turn up whenever measures to improve resilience are discussed. I shall conclude with a summing-up of my main points.

Value: Significance and Driving Forces

The main function of banks is intermediation. In its basic form intermediation takes place between borrowers and lenders. Additional intermediation functions are – among many others – making payments and buying and selling securities on behalf of clients.

Over the past decades we have seen a huge decrease in the costs of intermediation. This has drastically changed the structure of the banking sector and, at a more general level, the structure of the whole financial sector. Two factors have triggered this change.

First, competition in the markets has increased as a consequence of reduced trade barriers and of deregulation. Trade barriers not only in goods but also in services including financial services and in financial assets have been progressively lifted. This has led to rapidly growing interaction among economies, not least in the area of banking and financial services. Countries participating in this process have seen their domestic financial markets become deeply integrated with markets abroad. Distance and location, increasingly becoming less of an obstacle, no longer give protection from competition. This is globalization.

Second, technological progress, especially in information technology (IT) and telecommunications, has exerted an all-pervasive pressure to innovate at the level of processes and products and has greatly affected the way the financial sector organizes itself. Innovation has sharply reduced the costs of telecommunications as well as the costs of IT equipment. As a consequence, the costs of trading financial services and financial assets have decreased enormously. Additionally, not only has innovation brought down costs, but it has also increased the scale and scope as well as the quality of services. Innovation made markets expand to a hitherto unknown degree. Indeed, the value of traded financial services and assets has gone up almost explosively.

These developments have required the construction of an adequate trading, clearing and settlement infrastructure. A good example is the market for foreign exchange (FX). Today, FX is one of the few truly global markets. It is open 24 hours a day and participants from all over the globe are connected through electronic networks. Here, the birth of Continuous Linked Settlement (CLS) is of utmost importance. Since September 9 of this year the settlement of FX transactions in the largest seven currencies can take place on a Payment versus Payment basis. CLS has only been possible thanks to technological progress, the decrease in communication costs, and large trading volumes. The benefit is not only higher efficiency but also reduced risk.

Let me sum up this first section on value as follows: There is no doubt that market integration and technological progress have been the driving forces. They have led to sizeable reductions in transaction costs. This has permitted the creation of today's globalized financial industry and has made possible an impressive growth in value.

The Role of Central Bank Oversight

Now, let me turn to the role of central bank oversight: Every transaction – be it a commodity or a service – eventually leads to a transfer of money. From trade to settlement at least one system of the financial market infrastructure is usually involved. Given this, it is not surprising that the regulators are keeping a keen eye on market developments.

Central banks, with their core mandate of monetary policy, have an especially close relationship with the payment systems. To the overseers of payment systems the main objective is safety. The definition and standards of safety have evolved with the years. For a long time the main interest of central banks in payment systems came from computer experts. Payment systems used to be viewed merely as 'computers' that cleared and settled payment obligations. In the late 1980s the focus started to shift towards the

financial risks, i.e. credit and liquidity risk inherent in payment systems. Slowly it became common knowledge that payment systems could be a source of systemic risk by providing a channel through which the failure of one participant to meet its payment obligations could be passed on to other participants. In their own best interest and under the influence of the overseers operators started to protect their systems against financial risks – in most cases by building Real-Time Gross Settlement systems (RTGS). Today almost every country is operating an RTGS system.

There is now a widespread consensus within the private sector and the central banking community about the kind of operational requirements and financial risk controls that are necessary to make a payment system safe. A main contributor in this area has been the Committee on Payment and Settlement Systems (CPSS) at the Bank for International Settlements (BIS). As a standard-setting body the CPSS has, for instance, drafted the Core Principles for Systemically Important Payments Systems. The Core Principles are a testimony of the consensus about standards for safety and efficiency in payment systems. The CPSS has also played a leading role in raising the awareness of the risks involved in the settlement of foreign exchange transactions. It has also followed and to some extent promoted the CLS project since its beginning.

The safety of the clearing and settlement infrastructure has been a long-standing concern of the overseers. Together with the financial industry they might even have enjoyed some pride while looking at what was achieved in terms of efficiency as well as safety and soundness of operations by the industry. But clearly, since September 11, 2001, a new awareness of vulnerability has grown on us all. Those tragic events have made us rethink our approach vis-à-vis safety and operational risk. I think we all suddenly realized we had to reassess the vulnerability of our institutions and systems and, where necessary, improve their resilience.

Vulnerability – a Quick Survey

Ensuring that companies, consumers and investors have confidence in their ability to effect transactions and access their funds, securities, and other financial assets is of the highest importance in times of crisis. Therefore it is clearly in the private and public interest to ensure that, in the event of any large-scale disruption, systemic consequences are minimized. However, minimizing systemic consequences requires knowing the major vulnerabilities of the financial system. With this knowledge the responsible parties in the

private sector as well as in central banks and government can in principle take adequate precautions and remedies. Three sources of vulnerability can be identified.

A first source of vulnerability is economic concentration among large and complex financial institutions. This may strike you as odd. But size is a potential source of vulnerability and industrial consolidation usually increases size. The financial industry has been experiencing numerous mergers and acquisitions. This has resulted in financial services offered by an increasingly small number of large and dominant players. Even if only one of these players were to stop functioning well the financial system as a whole might suffer.

The second source of vulnerability is geographical clustering. Financial institutions are heavily clustered in a limited number of important international financial centers. Economic concentration and geographical clustering tend to add up. A huge number of firms, among them the industry's giants, may be affected in one and the same location by one and the same disruptive event.

A third source of vulnerability is the large degree of connectivity and interdependency of the financial sector. Y2K and the terrorist attacks of September 11, 2001, highlighted this type of vulnerability. One key lesson learnt was that vulnerability extends beyond these systems since they crucially rely on utilities such as electricity and telecommunications or on service providers like S.W.I.F.T.

Let me sum up again. There are three major sources of a financial system's vulnerability: economic concentration, geographic clustering, and connectivity and interdependency. The latter are an obvious characteristic of financial networks. Networks contribute to increased efficiency and facilitate risk management. At the same time they also can act as channels as well as origins of systemic crisis.

From Vulnerability to Resilience

Hand in hand with a new awareness of the vulnerability of the financial system, those responsible for its safety and stability in private firms, in financial market infrastructures as well as in the regulatory agencies have recently been taking a new hard look at the financial system's capacity for resilience.

In retrospect the Y2K problem was a first mild but nevertheless rather valuable test. The Y2K test was mild in the sense that everybody had enough time to prepare for it. What helped in Y2K was the clear deadline. All the contingency and communication networks could be set up before the event. Many of us gathered here today knew exactly where we

had to be on December 31, 1999, what we had to do and whom we had to call if there were problems. Still, Y2K was valuable to the financial community in so far as it opened our minds and increased our sensitivity for problems that nobody had encountered or envisaged before.

Today, however, the situation is different and considerably more complex. The events of September 11, 2001, have clearly increased our awareness further. Looking back to the time before the attacks we seem to have tended to underestimate the probability and consequences of disruption.

So what needs to be done to make sure that we do not continue to underestimate threats? How can the resilience in financial systems be improved? What are the responsibilities of each and all of us?

At the level of a single financial institution objectives and measures – in terms of back up solutions, staff safety and training, testing procedures, and contingency planning in general – may have to be newly defined. A specific issue that has probably not yet received enough attention everywhere is the internal crisis management process. Establishing a crisis management committee, which coordinates decisions and communication in times of crisis, can be vital, especially for large and complex financial institutions acting globally. On top of this, crisis management needs to be tested in general. One of the simpler scenarios could be: what happens if a bank is – for whatever reason – not able to release S.W.I.F.T. messages? In addition, crisis management of a single institution must involve its customers, its business partners and peers, its service providers and its utility providers. Crisis management is therefore a very demanding activity.

What applies to single financial institutions obviously also applies to institutions of financial market infrastructure, to central banks and to institutions of supervision and oversight in general. The same insights apply to everyone: Be aware of the new dimensions of systemic risk within globalized financial markets and refrain from early satisfaction with what you appear to have achieved. At this point, I would like to stress that the overall resilience of the financial sector also depends on the financial strength of each institution. In retrospect it might be said it was a benign coincidence that the September 11, 2001 attacks happened in a period of comparatively favorable economic conditions in the financial industry. Under less favorable circumstances the capacity to absorb shocks could have been considerably smaller. This is another reason why the rapid implementation of

the new Basel Accord on capital adequacy is so very important for the financial system as a whole.

In addition to this it is obvious that further and new tasks arise for regulatory agencies and central banks at the national as well as the international level. Addressing the issue of disaster recovery has to become part of the routine supervisory process. Supervisory guidelines and examination procedures are being adjusted in this light and they are helpful tools in increasing resilience. Also, when overseeing payment systems resilience and business continuity will have to be scrutinized anew.

Finally, central banks must always keep in mind that they carry a big responsibility for resilience and stability through their role as liquidity providers. Time and time again, free and easy access to liquidity has proven to be essential in large-scale crises. Since central bank liquidity is usually granted against collateral, the linkage between the payment and the securities settlement systems has to be especially robust. The market participants have to know and understand the conditions of access to lending of last resort facilities provided by central banks so that they can shape their contingency planning and collateral portfolios accordingly. Simultaneously central banks have to take the necessary precautions to increase resilience at their own end.

Costs and Benefits of Resilience

Let me add some remarks on the costs and benefits of improving resilience. My conviction will not come as a surprise to you: investment in resilience does indeed pay out for the financial sector as a whole and for society at large, but it also pays out for financial market infrastructures and for each and every financial firm. In other words, I have no doubt that more still needs to be done at the level of single institutions, and, on top of that, at the level of the financial industry as a whole.

However, voices have raised the concern that, in light of the ever-increasing cost of safety and against the background of the significant cost pressure due to deteriorating market conditions, investment in resilience might in fact be increasingly limited. But, as I said before, the higher requirements for operational reliability, for contingency planning and for crisis management stem mainly from the financial industry's own development. Clearly, increasing concentration, geographic clustering, connectivity and interdependency are highly beneficial, but they do also have a price when it comes to the reduction of risk. We cannot enjoy the benefits without paying this price.

The point here is that we all have to be very careful about how we invest in resilience. And we have to make sure that no resources are wasted. For sure, the regulatory community will keep this in mind and will do its best not to impose unnecessary burdens on the private sector.

Summary and Conclusion

Finally, let me sum up my main points.

- Today's globalized financial industry shows impressive long-term value growth. This growth is due to market integration and technological progress. Together they led to sizable reductions in transaction costs and to expanding markets.
- Every transaction eventually leads to a transfer of money. From trade to settlement usually at least one system of financial market infrastructure is involved. Overseers care for the safety of these systems. This is their responsibility.
- The events of September 11, 2001, made the industry, the regulators and the overseers rethink their approach to safety. Consequently the vulnerability of the financial system and its resilience are currently being reevaluated.
- Three major sources of vulnerability have been identified: economic concentration, geographic clustering and connectivity and interdependency. Networks by their very nature can act as channels as well as origins of systemic crisis.
- The awareness of vulnerability leads to new and substantial demands for investment in resilience. For instance, crisis management is a demanding activity. It involves private firms, financial market infrastructures, public supervisors and oversight institutions. Without the cooperation of all of them crisis management cannot succeed.
- Investment in resilience, however, is costly. The benefits of the financial sector's value growth cannot be enjoyed without paying this price. Should the price not be paid value growth would turn out to be unsustainable. There are no stable financial systems that are not at the same time highly resilient under crisis conditions.

Allow me to expand on this last point: As a representative of a central bank I assure you that central banks are not likely to close an eye on this issue. Resilience of financial service providers in general and of the financial market infrastructure in particular has been placed at the top of regulatory authorities' agendas. Indeed, it will stay there. As much as public bodies are contributing to the resilience of the financial system as a whole,

they will make demands of the private sector. As much as public bodies are willing to step in as coordinators before and during times of crisis and eventually as lenders of last resort, they also want to see private sector entities being involved and actively participating in shaping resilience and resolving crises. The responsibility for financial stability is a shared responsibility.

I am fully aware that none of us can precisely estimate today the economic consequences of what we all yet have to do in order to increase the resilience of financial systems. Since this resilience is bound to be tested again harshly sooner or later, there is no alternative to rapid, serious, adequate and if necessary costly preparations by all of us.

Let me end by expressing my gratitude. I enjoyed contributing to the exchange of information, evaluations and views. This is the essence of the SIBOS conference. I am particularly grateful since I know that all of us in this room as well as those financial sector professionals who were unable to attend this conference, those of the private sector as well as those from the public sector, willingly share the noble responsibility for the efficiency and stability of today's and tomorrow's financial systems.

Thank you very much for your attention.