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Committee of Central Bank Governors in SADC

2006

Online at <https://mpra.ub.uni-muenchen.de/47420/>

MPRA Paper No. 47420, posted 05 Jun 2013 15:01 UTC

Operational risk, payments, payment systems, and implementation of Basel II in Latin America : recent developments¹

Gregor Heinrich²

It is in honour for me to have been invited to this panel on “Evolución de mercado de pagos: la visión Banco Mundial y B.I.S y la experiencia SWIFT” on the occasion of this year’s regional SWIFT user group conference.

Banking is a risky business, and only taking on risks in a professional manner will allow for a healthy business. But, as we all know, the banking and payment industries are not like most other businesses. Given the importance of financial intermediation for the economy and the need to have a functioning infrastructure in order to allow for a speedy and safe transmission of information between all players, all states have created special entities that will supervise or oversee the proper functioning of institutions, systems and networks.

The Bank for International Settlements (BIS) on the other hand is a bank for central banks and it is also a forum for cooperation among central banks and supervisors.³ Furthermore, by benefiting from a small but effective research department and by providing secretariat services for a number of expert committees, the BIS is in a unique role as facilitator of processes that lead, hopefully, to a better understanding of elements that are important for financial stability. The result of such processes is for instance standards that are of relevance in the area of payment and settlement systems or banking supervision. Many of these standards and recommendations are elaborated in two important Committees, the Committee on Payment and Settlement Systems (CPSS) and the Basel Committee on Banking Supervision (BCBS); the BIS provides the Secretariats for these Committees.

As regards one of the more recent texts coming out the BCBS, “International Convergence of Capital Measurement and Capital Standards”, also known as “Basel II”,⁴ there has been some uncertainty about the implications of this new capital adequacy framework; uncertainty and perhaps even concern over how these new rules would affect the banking industry and the supervisors, and related industries/service providers.

But let me mention this right at the beginning: the extent to which this new framework will be introduced and implemented for banks in your countries depends entirely on the supervisory authority of each country, and on no one else. Regardless of this, there are certainly elements in the new framework that will be taken on, that have in fact already been taken on, by many major banks, because those elements reflect best practice.

¹ Based on a presentation given at XI Encuentro Latinoamericano de Usuarios SWIFT, ELUS 2006, “Creciendo en Competitividad”, Santiago de Chile, 3-5 July 2006.

² Chief Representative, BIS Representative Office for the Americas, Mexico City; www.bis.org. I am thankful for useful comments that I received from Douglas Connover and Marc Hollanders of the CPSS Secretariat and from a Kirk Odegard and Jeff Miller of the BCBS Secretariat in preparing this paper. The text reflects the personal opinions of the author and not necessarily those of the BIS, the CPSS, the BCBS or any of its members.

³ For a more detailed overview, see “The BIS in Profile”, <http://www.bis.org/about/profile.htm>.

⁴ BCBS, Basel II (2006).

Today, I shall explain first the two main standard-setting committees that are of interest in the context of my presentation: the BCBS and the CPSS. I shall then highlight some recent developments in the region.

I think that the extraordinary increase in the volume and value of transactions over the last years has not only has positive aspects, but, from an operational point of view, is possibly also the source of more risk.

This will lead to some thoughts on operational risks and steps to mitigate it and bring me back to the topic of Basel II and other documents from the Basel Committee that promote a better awareness and management of operational risk.

I. BCBS and CPSS

1. Basel Committee on Banking Supervision (BCBS)⁵

The Basel Committee was established by the central-bank Governors of the Group of Ten countries at the end of 1974. The Committee does not possess any formal supranational supervisory authority, and its conclusions do not, and were never intended to, have legal force. Rather, it formulates broad supervisory standards and guidelines and recommends statements of best practice in the expectation that individual authorities will take steps to implement them through detailed arrangements - statutory or otherwise - which are best suited to their own national systems. In this way, the Committee encourages convergence towards common approaches and common standards without attempting detailed harmonisation of member countries' supervisory techniques.⁶

The present Chairman of the Committee is Mr Nout Wellink, President of the Netherlands Bank; its Vice-Chairman is Mr Nicholas Le Pan, Superintendent of Financial Institutions, Canada, and the Secretariat is provided by the BIS.

The Committee reports to the central bank Governors of the Group of Ten countries and to the heads of supervisory authorities of these countries where the central bank does not have formal responsibility. It seeks their endorsement for its major initiatives. These decisions cover a very wide range of financial issues. One important objective of the Committee's work has been to close gaps in international supervisory coverage in pursuit of two basic principles: that no foreign banking establishment should escape supervision; and that supervision should be adequate. To achieve this, the Committee has issued a long series of documents since 1975.

In close collaboration with many non-G10 supervisory authorities, the Committee in 1997 developed a set of "*Core Principles for Effective Banking Supervision*", which provides a comprehensive blueprint for an effective supervisory system. To facilitate implementation and assessment, the Committee in October 1999 developed the "*Core Principles Methodology*". A review of the Core Principles and the Methodology is currently underway.⁷

⁵ <http://www.bis.org/bcbs>.

⁶ The Committee's members come from Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, United Kingdom and United States. Countries are represented by their central bank and also by the authority with formal responsibility for the prudential supervision of banking business where this is not the central bank.

⁷ BCBS (2006).

IMF and World Bank use these Core Principles in their assessment of financial stability in various countries.

2. Committee on Payment and Settlement Systems (CPSS)⁸

The other major Committee whose Secretariat is provided by the BIS is the CPSS. Like the BCBS, the CPSS, too, elaborated standards that are included in the list of “key standards” identified by the Financial Stability Forum (FSF) as being essential to strengthening a country’s financial stability.⁹ The CPSS contributes to strengthening the financial market infrastructure through promoting sound and efficient payment and settlement systems.

It serves as a forum for the central banks of the Group of Ten countries (G10), monitoring and analysing developments in domestic payment, settlement and clearing systems as well as in cross-border and multicurrency settlement schemes.

Since June 2005 Timothy F Geithner, President and Chief Executive Officer of the Federal Reserve Bank of New York, has chaired the Committee.

The CPSS undertakes specific studies in the field of payment and settlement systems at its own discretion or at the request of the G10 Governors. Working groups are set up as required. The standards, codes and best practices that are deemed essential for strengthening the financial architecture worldwide, published by the CPSS are mainly the *Core principles for systemically important payment systems*, the *CPSS/IOSCO Recommendations for securities settlement systems* and the *CPSS/IOSCO Recommendations for central counterparties*.

II. Regional developments¹⁰

Payment system and infrastructure providers are naturally interested in economic developments in the region. After all, a healthy economic environment should be one of the elements that contribute to growth in payments, higher sophistication of equipments used, and a better capacity to keep systems up to date with user requirements.

In emerging market economies, the expansion that we can observe since 2002 continued further in the course of the last year. Strong growth in many countries was accompanied by increasing export values and large current account surpluses.

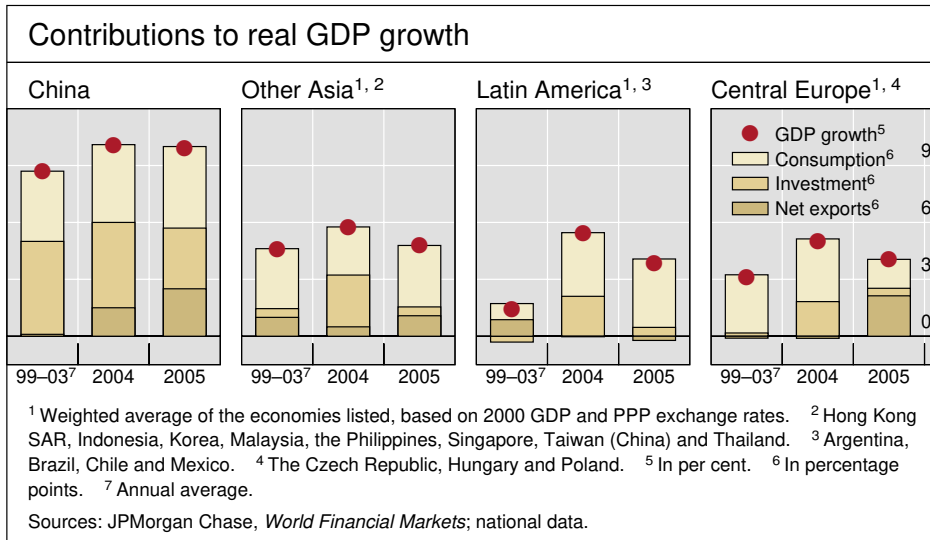
Also in Latin America, despite some slowdown, the expansion remained intact. In particular in Brazil and Mexico, industrial output rebounded early this year, and Argentina, Chile, Colombia and Peru have all continued to see above trend growth.

It is interesting to see that in Latin America, at least in the large countries, growth was supported mainly by household spending, and, only to a smaller degree by investments or exports.

⁸ <http://www.bis.org/cpss>.

⁹ See <http://www.fsforum.org>.

¹⁰ Information in this section is taken mainly from Chapter 3 of the BIS 76th Annual Report, 2006 (available also in Spanish) as well as data obtained from SWIFT, Banco de México (www.banxico.org.mx) and other BIS data.

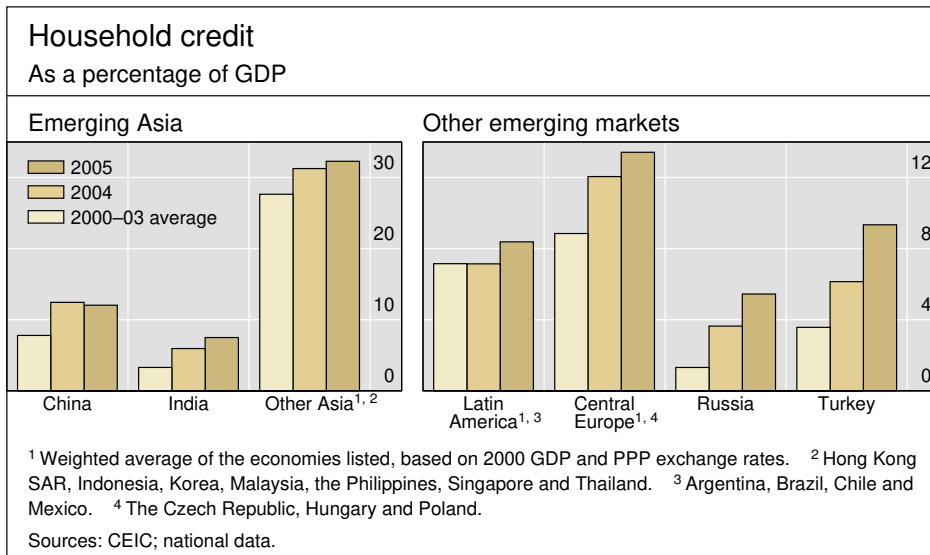


This household spending was boosted by a rapid expansion in bank lending. In Brazil, for instance, lending to households surged last year by 37%.¹¹

Such trends certainly have a positive effect on the use of banking system in general and the systems supporting their operations.

Forecasts for 2006 are for continued strong growth or even further acceleration in most emerging market economies. Of course, there exist several challenges to this outlook and not all countries benefit equally from this trend.

Commodity exporting countries have, for instance seen a large improvement in their terms of trade (in Latin America for instance Brazil, Chile Colombia, Peru and Venezuela), while countries with a concentration of exports in manufactured goods or services and large oil import requirements have suffered substantial terms-of-trade losses.



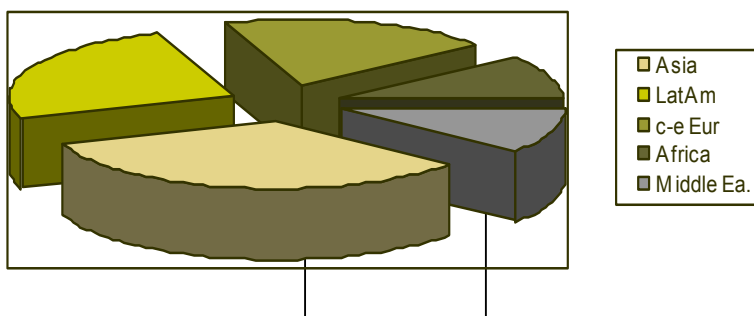
¹¹ Following the introduction of a payroll guarantee scheme that effectively protects banks against default risk.

Banks and related service providers are probably also indirectly benefiting from capital flows to the region in that more available funds, paired with more prudent management of public finances and economic growth, could influence positively banking activity, including retail transactions.

Capital flows to Latin America increased significantly in 2005, and these flows are mainly portfolio investment and other private flows.

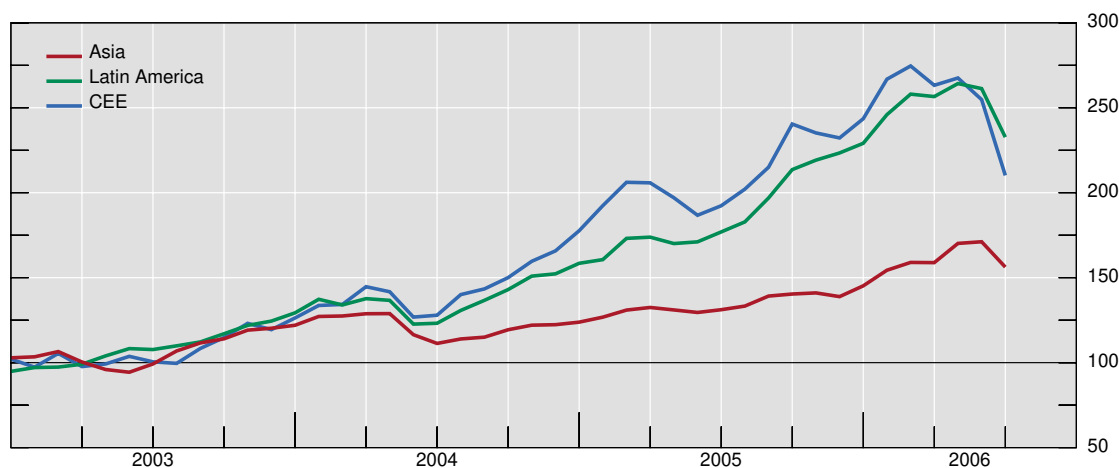
Looking at the regional distribution of net foreign direct investments (FDI), we see that \$72 bn went to Asia, \$51 bn to Latin America and \$41 bn to central and eastern Europe, with the remainder distributed evenly between Africa and the Middle East.

FDI to Latin America and the Caribbean, excluding financial centres, increased 11% as compared to 2004, but still remain below the peak that was achieved at the end of the last decade.¹²



Improving conditions, paired with capital inflows to the region might also explain why equity prices in the region, have risen faster than the S&P 500 index.

Equity prices relative to S&P 500¹



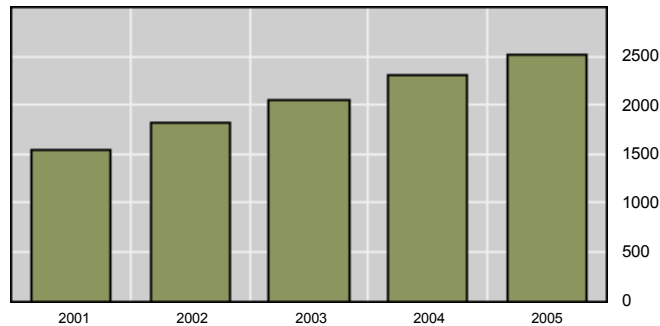
¹ Sources: Datastream; MSCI; national data; BIS calculations. 1998-2002 = 100, in US dollar terms. Weighted averages based on 1998-2002 equity market capitalisation in US dollars.

¹² CEPAL, p.9.

Furthermore, daily foreign exchange turnover in countries such as Brazil, Chile, and Mexico has reached levels that compare with selected European countries such as Spain or Portugal.¹³

As regards **payment and settlement systems** data, we can also note positive developments.

Overall, we see a steady growth in financial messages transported via SWIFT:

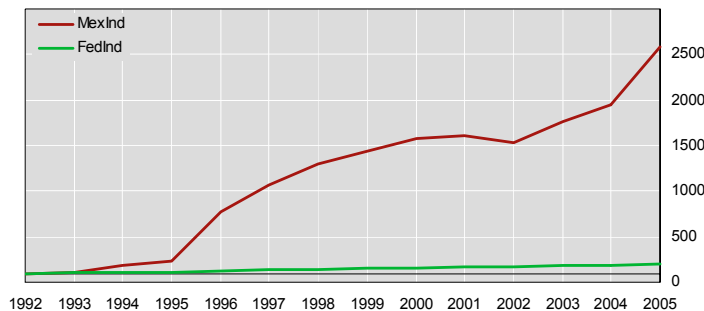


Total SWIFT Fin volume.

And this growth is paralleled by growth in volumes (both values and amounts) settled in large-value funds transfer systems. But such growth is not at all distributed evenly.

If we look, for instance, at comparative trends of only two systems, that of the US Fedwire and that of the Mexican RTGS system, we note a modest growth in Fedwire and an exponential growth in the Mexican system.

Comparative trends in payment volumes



The sharp increase starts after the banking crisis in Mexico, growing internationalisation of the Mexican financial landscape, and entry into NAFTA. It shows, I think, that integration into a globalised economy as well as the introduction of modern payment infrastructures that can

¹³ Based on the 2004 fx survey (BIS, 2005), Mexican trading volumes are a slightly higher than those in Spain, volumes in Brazil or Chile roughly at the level of those in Portugal. The next survey will be undertaken in 2007.

meet the need of customers will actually create demand and thus result in a sharp increase in transactions that need to be processed and settled.

Also in the retail area, there is a steady growth. In the US, the volume in debit card, credit card and ACH nearly doubled between 2005 and 2006. At the same time, in that country with a long tradition of using cheques, the share of non-cash retail payments made by cheque fell from 77% to 29%.

The CPSS has for many years compiled statistics on payment and settlement systems,¹⁴ and also developed an approach to describing payment and settlements systems in a given country. These publications became known as “Red Books”. At first this approach was used only for the countries of CPSS member central banks.¹⁵ In the meantime the CPSS has published reports in systems in a number of other countries,¹⁶ and, perhaps more importantly, this approach has been used by other organisations, notably the World Bank, to describe and assess payment and settlement systems in other regions. In Latin America, these reports are known as “Yellow books”.¹⁷ The first ones were compiled by a team headed by the World Bank¹⁸ and published by CEMLA. In the meantime, while the reports are still published by CEMLA, the teams that visit and assess other countries are organised by a regional payment systems working group,¹⁹ modelled to some extent after the CPSS.

All the reports and assessments point to enormous progress made in all countries. We note the introduction of so-called RTGS systems in most countries, a great improvement in achieving settlement of payment instructions at the latest at the end of the day, at least in systemically important payment systems, a more efficient use of liquidity, and a vast increase in electronic access to bank accounts and use of payment cards, paired with a reduction of the use of paper-based instruments such as cheques.

One may of course ask whether it was the introduction of new systems that helped spur the growth of payment system usage or whether increased demand from users and increasing volumes put pressure on institutions to introduce more efficient and safer systems. Most likely we can see elements of both, but growth is nevertheless impressive.

III. Operational risk - the CPSS approach

Obviously, as volume of payments traffic grows, as more and more complex technology is used, as we see a shift from paper to electronic payments and a larger share of the population having access to banking services, and as business processes change also at retail level, the operational risk profile of banks is also changing. I would also argue that even if “risk” as such might not increase, and automation might help reduce risks, the likelihood that an operational incident would cause more severe losses is probably higher than before.

While there may be no single and globally applied definition of operational risk - and some of the reports show slight variances - all seem to agree that it is the role of central banks,

¹⁴ The latest publication in this series was published in March 2006 and contains figures for 2004: CPSS (2006).

¹⁵ The latest report is: “Payment and settlement systems in selected countries”, April 2003.

¹⁶ For instance (from latest to earlier publications): Sri Lanka, Saudi Arabia, Kazakhstan, Russia, Singapore, Belarus, Israel, Turkey, Australia, South African Development Community, Lebanon, Czech Republic, Korea.

¹⁷ See http://www.forodepagos.org/reporte_paises.htm.

¹⁸ As part of the “Iniciativa de Compensación y Liquidación de Pagos y Valores del Hemisferio Occidental”.

¹⁹ Grupo de Trabajo sobre Asuntos Relacionados con Sistemas de Pagos de América Latina y el Caribe (GTSP-ALC), website at <http://www.forodepagos.org>.

operators and service providers alike to prevent, or at least reduce, the risk of damage due to imperfections in systems for telecommunications, information, computing or payments, or due to flaws, errors or abuses in organisation, management, activities, communications or internal audit.²⁰

Time horizons, the perceived “risk horizon”, however, varies according to business areas. While insurances take a longer view, perhaps up to five years in which they think of risk incidents and recovery,²¹ banks supervisors will think more typically in periods of months during which to remedy any given malfunction in an institution. In payment systems however, the time-horizon for risk is often mere seconds. Any incident will be felt within minutes, not only in the affected institution but possibly also at wide range of institutions connected to the system, and possibly even with the general public. Central banks will thus monitor the performance of a systemically important payment system practically real-time.

In fact, payment systems are viewed by central banks to be a vital part of the economic and financial infrastructure. Their efficient functioning, allowing transactions to be completed safely and on time, makes a key contribution to overall economic performance.²² This is of particular importance if systems are deemed “systemically important”, but concern for operational risk is also valid for other systems, such as most retail payment systems.

Many central banks have been conscious of their role as overseers for a long time, and many were even given that responsibility in their country’s central bank law. But in a number of other countries it was not so evident who was responsible. All doubts were removed with the publication of the “Core principles for systemically important payment systems” (in 2001) elaborated by a special working group of the CPSS and published by the BIS.²³

The Core Principles give central banks the task of clarifying the responsibility for the operation of systems and, where the central bank is not the operator of a systemically important system, to also oversee operational risk management. This generally includes a review of the institutional framework and management of operations. Technical structures also need to be reviewed with the aim of reducing contagion risk between systems.

Unfortunately, incidents do occur, and we do not even need to refer to such extraordinary events like 9/11 or Y2K. Such disruptions have in the past caused at times considerable problems in areas such as ATMs, internet banking, account information, and also foreign exchange or money market trading.²⁴ In the banking world, large financial institutions have experienced more than 100 operational loss events in excess of USD 100 mn each; some of these individual operational losses, resulting from fraud, rogue trading, and settlements stemming from questionable business practices, have exceeded USD 1 bn.²⁵ Threats such

²⁰ The Canadian CPA follows the Basel Committee’s terminology (BCBS 2003, p 2) and breaks down operational risk into the following broad categories: internal fraud; external fraud; employment practices and workplace safety; clients, products and business practices; damage for physical assets; business disruption and system failures; and execution, delivery and process management. CPA, p 8-9.

²¹ An indicator of this could be the regulatory reporting periods, which are at minimum once a year according to the IAIS Core Principles (CP 12), IAIS, 2003.

²² Bank of England (2000), p 1.

²³ CPSS (2001). See also Bank of England (2000), and CPSS (2005).

²⁴ See for instance examples from several Scandinavian countries in Norges Bank (2003) and Annex 1, or the case studies reported in CPA, p 59-62. A survey of the Basel Committee of 89 banks and one year of data (2001) shows 47000 loss events (relating to operational risk in general) totaling € 7.8 bn. For US retail payments, Kellogg (p 2 and 36) reports for instance a steady growth of ID theft over the internet for the period between 1998 and 2006, pared with increasing indirect costs for banks; in line with evidence of increasing fraud and criminal activity and a surge in verified incidents of compromised computer security.

²⁵ Schmidt Bies.

as the Avian Flu threat, in turn pose a different set of implications from a point of view of business continuity,²⁶ in that it could result in major shortages of staff due to illness, quarantine or decisions to stay home to avoid exposure - and for an extended period of time. How should payment systems, for instance, prepare for such an event?

Awareness of operational risk has increased greatly in recent years, both at individual financial institutions and for payment, clearing, and settlement systems.

For payment system experts, operational risk has always been a major concern. Since the outset of the CPSS in 1990 the reports, published by the BIS, have always mentioned operational risk as one of the items that operators and overseers alike need to focus on (in addition to risks such as settlement risk, market risk, counterparty risk, etc).

This concern has not become less with increasing automation and integration. On the contrary: mergers of institutions, consolidation of processes and services, in particular when this occurs across borders can on the one hand set free synergies, increase efficiencies and lower costs. But at the same time, a single incident, for instance in a highly integrated and coordinated system such as CLS can have large adverse consequences in a multitude of entities and also raise a series of complex loss-distribution issues.²⁷

Texts related to operational risks in payment systems appear to be rather specific as to technical **solutions**, and provide examples on how to reduce operational risk, while bank supervisors appear to address rather the management and governance issues related to risk mitigation.

For instance, the first report to set out standards for netting schemes, the so-called "Lamfalussy Report"²⁸ states in Principle VI: "All netting schemes should ensure the operational reliability of technical systems and the availability of back-up facilities capable of completing daily processing requirements." Furthermore, operational reliability and safeguards are addressed throughout the text.

In the context of the report on "Settlement risk in foreign-exchange transactions" of 1996, operational risk is seen as "the risk of incurring interest charges or other penalties for misdirecting or otherwise failing to make FX settlement payments on time owing to an error or technical failure".²⁹ And the report later mentions that one of the solutions to reduce operational risk can be to increase automation and "straight-through processing".³⁰

The "Core Principles for systemically important payment systems",³¹ that build to a great extent on past experiences, states in Principle VII. that "the system should ensure a high degree of security and operational reliability and should have contingency arrangements for timely completion of daily processing". These Core Principles are of particular practical relevance for all countries as the IMF and World Bank can assess a country's financial stability against compliance with a number of standards, of which these Core Principles are one. And many countries actually use such assessments as a starting point for a thorough reform of their payment and settlement infrastructure.³²

²⁶ See Joint Forum (2005).

²⁷ See, for instance, McPhail, p 11-16, 23-25; or Miller/Northcott, p 19.

²⁸ BIS (1990).

²⁹ CPSS (1996), p 4 and 64.

³⁰ CPSS (1996), p 11, basing this statement on results of a market survey taken by the Committee.

³¹ CPSS (2001).

³² See for instance Central Bank of Iceland, p 47. For an adoption of national oversight policies in line with the Core Principles (and the CPSS-IOSCO Recommendations for Securities Settlement Systems), see Federal

One of the most recent reports of the CPSS, the “General guidance for national payment system development”,³³ interestingly does not mention the term “operational risk” in any of its 14 guidelines directed at central banks and all public and private sector stakeholders. But the report does of course address issues related to operational risk almost in all sections of the document.

Just to take one example from the report: Guideline 14 states “Coordinate settlement of retail, large-value and securities systems. - The settlement processes for the core systems should be operationally coordinated to efficiently manage the interrelated liquidity needs and settlement risks among them”. In the summary to this Guidance, the report then states, amongst other: “... The potential cross-system risks of greater coordination and interconnectivity - the legal, operational, financial and systemic risks - need to be monitored and well managed.”³⁴

As solutions, the CPSS recommends, for instance:³⁵ close coordination of operating rules and procedures, and, if possible, designed in such a way that straight-through processing is possible. Among the minimum strategies recommended to manage cross-system risk, it recommends:

- agreement on communications standards and formats, preferably through the adoption of recognised international standards;³⁶
- cost-effective, rapid and reliable communication links among interrelated systems;
- agreements among the interlinked systems regarding the allocation of legal and financial risks associated with spillover losses from disruption in one of the systems;
- procedures to deal coherently with outages of primary facilities in each system (involving backup arrangements), and full system outages (such as emergency use of retail payment systems); and
- procedures to deal with breakdowns in the internal computer systems of the major participants, which break their communications’ connectivity to securities systems, the large-value payment system and possibly even retail payment systems.
- In addition, the coordination of business continuity plans of all players involved could be organised.

IV. Operational risk - the BCBS approach

While texts related to operational risks in payment systems are more or less specific as to solutions, and provide examples of technical solutions of how to reduce operational risk, bank supervisors appear to take a different approach.

Reserve. On efforts to achieving harmonisation of legal (and other) standards applicable to payments and payment systems, see Heinrich (2006).

³³ CPSS (2006).

³⁴ CPSS (2006) p 6.

³⁵ CPSS (2006) p 52.

³⁶ On the practical relevance of standardisation, see, for instance Becker/Trinh.

On the one hand, supervisory guidelines emphasise the existence of operational risk (as do payment systems texts). On the other hand, supervisory guidelines attempt to affect the **management** of such risks, with the goal, of course, to reduce the risks.

1. A long history of dealing with operational risk

At the Basel Committee level you will see on the one hand guidance notes that aim at raising awareness as well as a common understanding of issues. And second there rules that will have a direct impact on institutions. The newest recommendations introduce a capital charge for operational risk, and introduce incentives for banks to move towards sophisticated methods of managing the risk, without however specifying with precise measures a bank should take to reduce the risks.³⁷

A number of documents from the Basel Committee have dealt with operational risk before the advent of “Basel II”.

Why would they do this?

For one, operational risks can have a direct impact on a bank’s “bottom line”. Having structures in place that try to avoid risks from materialising can be costly. Second, even very rare incidents can have a large impact, and it seems that so-called “hundred year events” are happening with greater frequency. There is also an increased reliance on specialised processing and on complex, rapidly evolving technology. Furthermore, one effect of globalisation is that activities and thus risks are no longer simply limited to one institution or one region or country. Also, while the outsourcing of activities has probably reduced the exposure to certain risks for many institutions, it has created risk elsewhere and one can not take for granted that the overall risk for an institution or economy is reduced by such means. Finally, operational risk is intrinsically linked to reputational risk. For instance, internal fraud, an operational risk, can have a huge impact on a bank’s ability to attract and retain clients, given that business is based on trust. Some would even argue that the fallout from reputational risk may, in some cases, exceed that from the operational risk event that gave rise to it.

Some examples of texts developed by the BCBS: already in 1989, the Committee published guidance on “Risks in computer and telecommunications systems”.³⁸

Ten years later, in 1998, the Committee published a (rather short) note “Operational Risk Management”. This document contains mainly the result of a survey undertaken among major banks of member countries. It showed that at the time the industry was far from converging on a set of standard models, but they all had some framework for managing operational risk, often in the early stages of development.

A surprising result of the survey was that those banks that were developing models all relied on a similar set of risk factors. Such factors include internal audit ratings, or internal control-self-assessments, operational indicators such as volume, turnover or rate of errors, loss experience, and income volatility.

Additional details from the interviews highlighted the importance of elements such as management oversight, risk measurement, monitoring and management information

³⁷ Banks are of course expected to comply with the Sound Practices for Operational Risk Management (BCBS, 2003), and those banks who wish to apply more complex risk measurement methods are also expected to comply with the Sound Practices, but in addition there are a number of *qualitative* criteria.

³⁸ BCBS (1989).

systems, policies and procedures, internal controls, and the possible role of supervisors. This dialogue with the private sector continued also throughout the preparatory work for Basel II.³⁹

In a note published in 2003,⁴⁰ “Sound practices for the management and supervision of operational risk” the Committee stated “[The] management of specific operational risks is not a new practice ... However, what is relatively new is the view of operational risk management as a comprehensive practice comparable to the management of credit and market risk ...”.⁴¹

Overall, the approach related to operational risk management is to promote first of all identifying the risks, measuring them, monitoring risks and finally control or reduce the risks.

In this, the Committee is not at all prescriptive, but recognises that the exact approach depends on the size, the sophistication, the nature and the complexity of activities. But the ultimate goal is to achieve a strong culture of internal controls and management of operational risks.⁴²

2. The Joint Forum’s “High-level principles for business continuity”

Due to increased integration of business lines and overlap of financial sectors, ie banking, insurance, and securities, the expert committees relating to these sectors, ie, the BCBS, IAIS and IOSCO, created a platform in 1996, the so-called “Joint Forum”,⁴³ to discuss matters of common interest and to harmonise guidance related to similar types of risks that are evident in several business environments. The BCBS Secretariat also provides support to the Joint Forum.⁴⁴

In response to a request from the Financial Stability Forum⁴⁵ in September 2004, the Joint Forum determined that high-level principles on business continuity would contribute beneficially to the resilience of the global financial system. This work was mainly prompted by more recent acts of terrorism, the outbreak of SARS and various widespread natural disasters, as these incidents underlined the substantial risk of major operational disruptions to the financial system. Financial authorities as well as financial industry participants share an interest in promoting the resilience of the financial system to such disruptions.

The recent publication of the Joint Forum⁴⁶ is the first effort to draw together the lessons learnt from major events and translates them into a set of business continuity principles that is relevant across national boundaries and financial sectors.

³⁹ See for instance the report of the Risk Management Group of the Committee on the regulatory treatment of operational risk, BCBS (2001).

⁴⁰ BCBS (2003).

⁴¹ Regarding sound risk management practice for retail payments (on the basis of industry surveys in the US), see Kellogg, p 40.

⁴² See in particular Principle 15 of current consultative document for a revision of the BCBS Core Principles: Principle 15 - “Supervisors must be satisfied that banks have in place risk management policies and processes to identify, assess, monitor and mitigate operational risk. These policies and processes are commensurate with the size and complexity of the bank.”, BCBS CP (2006); the essential criteria for the implementation of this Principle are listed in the Core Principles Methodology, BCBS CPM (2006), p 25-26.

⁴³ <http://www.bis.org/bcbs/jointforum.htm>

⁴⁴ A further formal channel for coordinating with supervisors of non-bank financial institutions is the “Coordination Group”, a senior group of supervisory standard setters comprising the Chairmen and Secretaries General of the Committee, the International Organization of Securities Commissions (IOSCO) and the International Association of Insurance Supervisors (IAIS), as well as the Joint Forum Chairman and Secretariat.

⁴⁵ Created in the aftermath of the Asia Crisis in the mid 1990s. For more information, see <http://www.fsforum.org>.

⁴⁶ BCBS, December 2005.

3. Basel II and operational risk

At this time, the supervisory community as well as many banks and other institutions are confronted with the challenge of implementing “Basel II” or portions of it. This new capital adequacy framework is the result of many years of deliberations in the Committee, and several rounds of public consultations and fine-tuning within the framework itself.

The entire framework is geared towards achieving a greater sensitivity to risk (both in supervisory authorities as well as in supervised institutions), and to achieve a better link between the regulatory capital that banks need to retain and the risks that are part of a bank’s business.

From a supervisor’s perspective, operational risk goes beyond risks that may be linked to the failure of payments or communications systems. Basel II defines operational risk the risk of loss resulting from:

- Inadequate or failed internal processes
- People, and
- Systems, or
- From external events

This definition includes legal risk, but excludes strategic and reputational risk.⁴⁷

How does Basel II deal with operational risk? Let me take a step back.

As you may know, the famous 8% capital adequacy ratio developed by the BCBS in 1988⁴⁸ refers to regulatory capital, ie the *minimum* amount of capital that regulators require a bank to hold, and this is defined both under Basel I and Basel II in terms of a minimum capital ratio of 8% of risk weighted assets.

What has changed under Basel II, basically, is the way how these 8% are derived.

The calculation of the ratio is now more risk sensitive and takes into account the increased sophistication of banking business, the globalisation of financial activity and in particular best practices developed over time in the banking industry, in particular by internationally active banks.

This includes, as a new element in the formula to arrive at 8%, an explicit charge for operational risk.

In essence, it has been calibrated to result in roughly 12% of regulatory capital for an average, internationally active bank being dedicated to cover operational risks.

$$\frac{\text{Tier 1} + \text{Tier 2} + \text{Tier 3}}{\text{CR} + 12.5 (\text{MR}) + 12.5 (\text{OR})} = \geq 8 \%^{49}$$

Without going into the details of the calculations, let me just mention that Basel II provides a range of options for determining the capital requirements for operational risk to allow banks and supervisors to select approaches that are most appropriate for their operations and their financial market infrastructure.

⁴⁷ BCBS, Basel II, para 644.

⁴⁸ BCBS, “International convergence of capital measurement and capital standards”, BIS, July 1988 (updated to 1998 at <http://www.bis.org/publ/bcbasc111.htm>).

⁴⁹ Tier (capital); CR= credit risk; MR= market risk; OR= operational risk; 8% = minimum capital adequacy ratio.

Basel II allows for several levels of sophistication within an institution to arrive at the amount that must be set aside. The simplest way, under the “Basic Indicator Approach”, is a fairly easy quantitative method. Under the so-called “standardised approach”, risks are allocated to banks’ activities are divided into eight business lines: corporate finance, trading and sales, retail banking, commercial banking, payment and settlement, agency services, asset management, and retail brokerage.⁵⁰ The “simplified standardised approach” is a derivation of the “standardised approach”, designed to address the possibility that the “standardised approach” might double-count credit risk in banks in certain markets.

The most sophisticated approach, the so-called “Advanced Measurement Approach” (AMA),⁵¹ allows banks to use their internal loss experience, supplemented with other elements such as the experience of other banks, scenario analysis, and factors reflecting the business environment and the quality of the bank’s internal controls, as the basis for estimating their operational risk capital requirements. To be approved to use the AMA, a bank must satisfy its supervisor that it meets the quantitative and qualitative criteria defined in the Framework. One of the requirements, in particular, is the existence of an operational risk management system, to be implemented by an “independent risk management function responsible for developing and implementing strategies, methodologies and risk reporting systems ... to identify, measure, monitor and control/mitigate operational risk”.

However, a bank may use the AMA only if supervisors are convinced of the quality of the risk management.⁵² And this will require that a bank must meet stringent qualitative standards:⁵³

- An independent operational risk management function
- An operational risk management system that is closely integrated into the day-to-day risks management process of the bank
- Regular reporting of operational risk exposures to business units, senior management, and the Board, with procedures for appropriate action
- The operational risk management system must be well documented
- Regular reviews of the operational risk management processes/systems by internal and/or external auditors
- Validation of the operational risk measurement system by external auditors and/or supervisory authorities, in particular, making sure that data flows and processes are transparent and accessible.

As mentioned above, the entire Framework is geared towards achieving a greater sensitivity to risk. This is also recognised by the main rating agencies who are placing an increasing importance on operational risk when they assess a bank’s credit ratings.⁵⁴ In designing the new capital adequacy rules, the Committee took however great care to assure that the

⁵⁰ BCBS, Basel II, Annex 11, para 67-69: “The simplified standardised approach for operational risk is the Basic Indicator Approach under which banks must hold capital equal to a fixed percentage (15%) of average annual gross income, where positive, over the previous three years. ... Banks using this approach are encouraged to comply with the Committee’s guidance on *Sound Practices for the Management and Supervision of Operational Risk* (February 2003).” See also Basel II, para 649 ff.

⁵¹ BCBS, Basel II, para 655-659, and 664-679.

⁵² See, for instance, Banco de España (2006), p 89-93 on the validation of AMA models of operational risk.

⁵³ Listed in BCBS, Basel II, para 666. See also: Mc Conell.

⁵⁴ Schmidt Bies.

overall minimum amount of regulatory capital required in the financial system, including taking account of the new operational risk charge, will not be above what is required now.⁵⁵

But as I said at the outset, it is up to the regulators to decide the timing of an implementation, the extent of application (ie all or only certain elements, and in particular which of the various approaches) and the scope of application (ie all banks or only certain types or sizes of financial institutions).⁵⁶

Implementation of Basel II in Latin America

Allow me now to inform you briefly about the situation regarding Basel II implementation.

Neither the BIS nor the Basel Committee check or pass judgment on whether a country is implementing Basel II or not. But, given the general interest in this matter, the Financial Stability Institute of the BIS (FSI) undertook a survey in 2004.⁵⁷

Just a few weeks ago the FSI updated the survey on Basel II. This survey was undertaken not only among the member institutions of the Basel Committee, but 98 non-Basel Committee member countries participated in the latest survey. The overall result is that there is hardly a change in the results of the last survey, that showed that in the next years, over 80% of all banking assets will be subject to supervision based on Basel II principles.

Given this strong support by supervisory authorities, Basel II implementation will be very significant in all regions.⁵⁸

⁵⁵ BCBS, Introductory note, June 2004, para. 14, <http://www.bis.org/publ/bcbs107.htm>; and updated note, November 2005, para 14, <http://www.bis.org/publ/bcbs118.htm>. Based on analysis of major US processing banks, the competitive effects of the Basel II operational risk charge will be, at most, modest: de Fontnouvelle, p 45.

⁵⁶ On current implementation challenges, Le Pan.

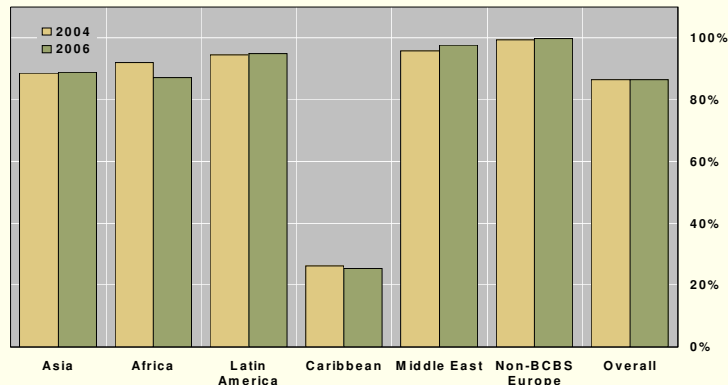
⁵⁷ <http://www.bis.org/fsi/fsipapers04.htm>; The FSI was created by the BIS and the BCBS in order to provide training for bank and insurance supervisors. See <http://www.bis.org/fsi>.

⁵⁸ The comparatively low numbers in the Caribbean are due to a major offshore centre not having finalised its plans regarding Basel II implementation.



2006 Basel II Implementation Survey

Percentage of Banking Assets to be Subject to Basel II by Region



1

There are of course challenges in implementing Basel II and some of them have an astounding resemblance to challenges faced by operational risk in general: In a recent presentation, the Chairman of the Basel Committee's Accord Implementation Group (AIG), Nick Le Pan, said:⁵⁹

“One of the biggest challenges in implementing Basel II is dealing with the uncertainty of impacts. It is not possible to precisely pan the impacts, push the green start button and expect that there will be no surprises. ... we want the risks to be understood ... We want protection against surprises, and we want confidence in our ability to react ... is up to the task.”

V. Conclusions

Risk, including operational risk, is of concern to payment systems oversees, bank regulators, banking institutions and payment service and infrastructure providers alike.

Therefore, further improving the awareness of risks and their management is an ongoing task. Positive economic developments in Latin America should not distract from the need to be constantly aware of risks. Higher income and better management of public funds could also create a positive environment for further investment in the management of risk.

Raising awareness and management of risks is also a cooperative task, and increased integration and consolidation of institutions, business lines and services - both at national as well as at cross-border level, makes the need for cooperation ever more necessary. Cross-border mergers of banks, cross border service providers such as SWIFT,⁶⁰ or the creation of

⁵⁹ Le Pan (2006).

⁶⁰ As regards oversight of SWIFT, the central banks of the Group of Ten countries (G10) agreed that SWIFT should be subject to cooperative oversight by central banks. The National Bank of Belgium (NBB) is lead overseer, as SWIFT is incorporated in Belgium. As lead overseer, the NBB conducts the oversight of SWIFT

integrated supervisory authorities or joint work of supervisory groupings in structures such as the Joint Forum are just a few examples.

Also the creation of international standards and reports developed under the auspices of CPSS or the BCBS is the result of extensive discussions with stakeholders. Such discussions were both direct, for instance in the form of surveys or meetings with private sector participants,⁶¹ as well as indirect, for instance in the form of public consultations that allow everyone to comment on published drafts. Before Basel II was finalised, for instance, there were three rounds of public consultations, and several so-called “quantitative impact studies” in which banks could test the effect of applying the rules and report back to the Committee or their national authorities.

Then the industry itself of course undertakes studies, evaluations and surveys relating to risk management, at times explicitly acknowledging that Basel II is a driving force behind this.⁶²

Finally, international organisations also had - and continue to have - an important role in the creation and implementation of several of the documents I mentioned above. For instance, the IMF and the World Bank participated in the working group that elaborated the CPSS Core Principles, and both IMF and the World Bank as well as the IADB are members of the Core Principles Liaison Group of the Basel Committee, a forum where revisions of the BCBS Core Principles as well as issues related to Basel II implementation are currently being discussed together with representatives from a number of emerging markets.⁶³

While the IMF and the World Bank will not assess a country on the basis of whether they comply with Basel II, these international organisations do have an important role to play in assessing compliance with the core principles related to systemically important payment systems or the supervision of banks.⁶⁴ And many countries actually use assessments by peer groups or international organisations as a starting point for a thorough reform of their payment and settlement infrastructure. International organisations are also important in helping to identify the need for technical assistance that countries might request in order to better identify or apply best practices.

Improving systems and reducing risks is not an end in itself but a continuous process.

in cooperation with the other G10 central banks. See also National Bank of Belgium, Press Release 28 June 2006, www.nbb.be.

⁶¹ For instance in Germany, report on industry consultation and survey by Deutsche Bundesbank and BaFin.

⁶² For instance, AIM, surveying in particular the dependency between reference data management and risk management in financial institutions, and evaluating whether STP - straight through processing is “trend or hype”. Over 1000 financial institutions from 88 countries were approached to provide feedback. 63% of respondents have put in place a strategy for operational risk.

⁶³ From Latin America, for instance, the supervisory authorities of Argentina, Brazil, Chile, and Mexico. Furthermore, the Operational Risk Subgroup (AIGOR) of the BCBS's Accord Implementation Group (AIG), comprising of BCBS member institutions and four non-members, is the dedicated forum for supervisors to share experience in domestic implementation of the Basel II operational risk approach and to promote consistency in its interpretation and implementation.

⁶⁴ The results of such assessments are available, for instance, at http://www.worldbank.org/ifa/rosc_mexico.htm. Even though the publication of ROSCs is voluntary, a large number of countries have decided in favour of such publication. A complete list of ROSCs is available at <http://www.worldbank.org/ifa/rosc.html>. The list of published FSAP reports is at <http://www.imf.org/external/np/fsap/fsap.asp>.

Annex: Examples of operational failure in the payment system⁶⁵

There have been a number of incidents in recent years that illustrate the vulnerability of payment systems to operational failure. In Norway, there was an operational disruption at EDB Fellesdata on 2 August 2001, causing considerable problems in relation to ATMs, balance checks, internet banking, account information, telebanking and company terminals. The clearing and settlement system for a number of small and medium-sized savings banks was also affected. This incident had an impact on 114 savings banks and an estimated 1 million users, and systems were not fully restored to normal until 9 August. In this case, it was possible to reconstruct transaction data, which helped to limit the financial consequences of the disruption in operations. Banks were able to limit the consequences for their customers by providing services through their branch networks. The disruption at EDB Fellesdata must nevertheless be regarded as an example of major operational failure.

In Sweden, Nordbanken's computer system failed on 27 December 2000 and the problem was not fully rectified until 3 January 2001. Parts of the system functioned during this period, limiting the adverse effects of the failure. However, some solutions for customer payment were affected. In some cases, it was not possible to make debit card purchases and withdrawals from ATMs, and the bank was no longer able to execute giro payments in the normal way. To mitigate the adverse effects for customers, the withdrawal limits for credit cards were raised and it was possible to make giro payments at other banks at no extra cost. The consequences of the operational failure at Nordbanken were therefore not serious.

In Denmark, the IT systems at Danske Bank failed on 10 March 2003, and they were not restored to normal operational status until 17 March. The operational failure affected the bank's systems for foreign exchange, equity, bond and money market trading, and Internet banking was only partially operative. For ordinary customers, the most noticeable effect was delayed payments to and from the bank, resulting, among other things, in the delay of some wage payments. However, other private banks provided assistance so that wage payments could be effected with limited delays. The operational failure at Danske Bank also had an impact on Fokus Bank in Norway, which is a subsidiary of Danske Bank. Branches and subsidiaries in other countries were also affected. The failure at Danske Bank is thus an example of how operational problems can spread to other countries.

⁶⁵ Quoted from Norges Bank (2003).

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