

Business-Continuity Planning in Clearing and Settlement Systems: A Systemwide Approach

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Clearing and settlement systems are interconnected networks that include the operators of these systems, the participants, liquidity providers, and settlement agents. Clearing and settlement systems that transfer large values are essential to the smooth functioning of the financial system and the economy. It is therefore important that these systems function without any significant and prolonged disruption, even when disaster strikes.

The operators and participants in these systems have always viewed business-continuity planning (BCP)¹ as important. However, events such as the 1998 ice storm in Eastern Ontario and Quebec, Y2K, and the terrorist attacks in New York and Washington in September 2001 underscored the interdependencies in these networks and called into question the scope of the scenarios that BCP has traditionally been designed to address. For example, these events have heightened the need to consider scenarios that have regional impacts, rather than focusing on events that affect only single institutions.

The Bank of Canada is therefore encouraging a closer examination of the ability of the financial infrastructure to recover from severe shocks and to continue to provide critical services.² The Bank of Canada's focus is on the systemwide implications of the business-continuity plans developed by individual institutions for various elements of critical clearing and settlement systems. Recent events have made it clear that financial institutions, clearing and settlement

systems, and financial markets depend not only on each other, but also on other key non-financial service providers in a manner that had not been fully appreciated. For example, single points of failure (e.g., two independent telecommunication providers sharing common infrastructure points) or concentrated reliance by many institutions on a common provider for recovery services may result in problems in the event of regionwide difficulties. The Bank consequently felt that there would be benefits from discussing BCP issues with system operators and participants and assessing whether coordination of BCP activities was warranted.

In early 2003, the Bank of Canada met with the operators of Canada's two large-value clearing and settlement systems and some of their participants to discuss a number of systemwide BCP issues. Based on that meeting, it was agreed that some coordination of planning efforts would be worthwhile, and several private sector initiatives are now underway. A follow-up to this initial meeting will be held later in 2003.

Critical Clearing and Settlement Systems in Canada

Canada has two large-value clearing and settlement systems that are judged to be systemically important, both of which are operated by the private sector. The Large Value Transfer System (LVTS), which is operated by the Canadian Payments Association (CPA), accounted for approximately 85 per cent of the value of all payments settled through payments systems in Canada in 2002. CDSX, which is operated by The Canadian Depository for Securities Limited (CDS), holds almost all debt securities issued in Canada and allows debt-securities transactions

1. BCP is a method for managing one aspect of operational risk. For more on managing operational risk, see the article by McPhail in this issue (p. 79).
2. Similar reassessments are being undertaken by other central banks, the Basel Committee on Banking Supervision of the Bank for International Settlements, and the Financial Stability Forum.

to be settled on an intraday basis.³ End-of-day funds positions in CDSX are settled through the LVTS. Both systems have risk-proofing measures that result in transactions being final and irrevocable.

In the event that these systems were unable to operate or to complete a day's activities, serious disruptions would arise in the financial system and the economy. Without a functioning LVTS, settlement of a wide range of important transactions in a risk-free environment would be very difficult. Without CDSX, settlement of almost any security transaction would be impossible. This could severely disrupt the functioning of financial markets. It could also disrupt the operations of the LVTS, since CDSX is used to pledge collateral to support LVTS payments. It is therefore critical that these systems be designed to resist most system interruptions and have the capability to quickly recover operations on the rare occasion when disruptions might occur.

Identifying Important Participants

Not only are some systems critical to the operation of the financial system, but certain system participants may also be critical to the overall stability of clearing and settlement systems.⁴ These institutions could be crucial because they perform certain functions, or because they are a major supplier—or unique supplier—of a particular type of activity. Not all participants will have the same degree of importance, but finding a precise definition for an “important” participant is a challenge. In theory, the definition might be the threshold at which a participant, should it suffer operational difficulties, prevents a critical clearing and settlement system from operating effectively. In such a case, there could be significant strain on the liquidity of the system, such that major transactions could not be completed (McPhail and Senger 2002). It may seem obvious that some larger participants fit

this definition. In practice, however, this determination is not easy to make.

Should participants that are deemed “important” to the stability of critical clearing and settlement systems be held to higher recovery standards than others? If important participants are not held to higher standards, then critical clearing and settlement systems could be affected by a protracted participant disruption. At the same time, requiring important participants to meet higher standards could potentially lead to increased costs. These costs might simply be passed on to clients as a cost of doing such business. However, they might also lead clients to divert their business towards less-well-protected—and systemically less important—participants, if the clients were unwilling to pay higher prices and if other service providers were available.

On the other hand, important participants could see their competitive positions erode, and some participants might simply choose to exit the business under such circumstances. This could reinforce the concentration of business in the hands of a smaller number of participants, possibly leaving the system as a whole more vulnerable or poorly served. This, in turn, could mean that these participants would face higher recovery standards as they became relatively more important, again setting in train an adjustment process as costs are ultimately shifted to clients. More work is needed to examine the implications of having higher recovery standards for “important” participants in clearing and settlement systems.

Recovery Times: What Is Acceptable?

Even in ordinary times, critical systems and their important participants have plans for rapid business recovery. Currently, a recovery time of two hours or less is seen by many to be the maximum acceptable for critical business functions. The pressure to minimize any downtime continues to increase, pressure that is reinforced by the recent introduction of the CLS Bank. Settlement of foreign exchange transactions through the CLS Bank requires tight deadlines for delivery of Canadian dollars to the CLS Bank. Any significant delay in receiving these funds will result in disruptions to CLS settlement and could create liquidity disruptions in

3. Equities are expected to be included in CDSX later in 2003. For more on CDSX, see the article by McVanel in this issue (p. 59).

4. Thirteen deposit-taking institutions, as well as the Bank of Canada, participate directly in the LVTS. Of these, 11 also participate in CDSX. CDSX has approximately 80 participants, including banks, trust companies, investment dealers, and the Bank of Canada.

the payments systems of a number of countries. While certain steps can be taken to deal with interruptions to the CLS Bank's operations, interruption of essential services for much more than two hours can have very significant undesirable effects.

The Range of Planning Scenarios

Traditionally, the scenarios contemplated when designing a business-continuity plan were limited to a single institution's problems, with the assumption that staff could quickly relocate to backup facilities and that other clearing and settlement participants were not affected. But, as mentioned earlier, recent events have raised the prospect of broader regional events. A broader regional event challenges the typical BCP model that has primary and backup sites located in relatively close proximity and which assumes that employees will always be able to move from a primary to a backup site. If the sites are too close together, a widespread event could prevent the execution of operations at the site to which employees would be expected to relocate.

A very conservative BCP model might call for split parallel operations, with sufficient distance between the two sites and enough staff in each location to take over full operation. Fully staffing and equipping a second site could, however, reduce the benefits of economies of scale and significantly increase operating costs for clearing and settlement systems and their participants. The associated costs make this model difficult to rationalize for many participants. From a systemwide perspective, finding an appropriate balance between benefits and costs so that payments and securities can continue to be exchanged in the event of an outage over a wide area is not a simple task.

Are the Incentives Right?

Do the operators of critical clearing and settlement systems, their important participants, and other key non-financial service providers (such as telecommunications and hydro operators) have the right incentives to implement an appropriate level of recovery capability? The interdependencies involved in these networks create externalities. More robust contingency arrangements at one participant, for example, tend to benefit others and the system as a whole. One

might therefore expect that, acting in isolation, participants would underinvest in BCP to contain the systemwide impact of events. If each participant adopted this attitude, the system as a whole might remain underprotected.

That is why it becomes helpful for system operators, participants, and other key service providers to take a broader look at the issues and to understand the impact that their decisions can have on the system as a whole. A coordinated BCP effort may benefit the whole financial system and, therefore, participants with large stakes in its continued operation.

Next Steps

Private sector operators and their participants must continue to have the key role in assessing whether their BCP is adequate and that their plans provide sufficient resiliency to avoid disruption to their critical operations. The public sector can contribute by bringing a systemwide perspective to this effort. Such coordinated efforts within the Canadian financial system offer benefits beyond those that any single institution can achieve alone. The Bank of Canada will continue to encourage system operators and important participants to work together to achieve robustness for the whole system, so that critical systems will be able to withstand or recover relatively quickly from severe disruptions. A broad systemwide perspective on BCP will provide additional benefits that include understanding the impact that the decisions and actions of individual participants have on the whole system; helping to identify codependencies, such as single points of failure or concentrated reliance by many institutions on a common service provider; helping to enhance standards of technical competency; and establishing a communications strategy both to prepare for an event and to assist in managing an event.

In January 2003, the Bank of Canada met with the operators of Canada's critical clearing and settlement systems and some of their participants. This meeting strengthened a process of communication that will continue throughout 2003. The CPA and the CDS, the operators of the LVTS and CDSX, will take forward the initiative. This initiative will focus on many of the systemwide issues discussed above and will involve the participation of many financial institutions, as well as non-financial service

providers. This approach shows considerable promise in addressing many of the difficult issues associated with systemwide BCP and in contributing to strengthening the capacity of critical clearing and settlement systems and the financial sector to withstand and recover from severe shocks.

References

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- McVanel, D. 2003. "CDSX: Canada's New Clearing and Settlement System for Securities." *Bank of Canada Financial System Review*, this issue.