

organizations. Firms that play significant roles in the other critical financial markets should strive to achieve a four-hour recovery time capability for clearing and settlement activities in order to ensure that they will be able to meet a within the business day recovery target.⁹

3. *Maintain sufficient geographically dispersed resources to meet recovery and resumption objectives.* Recovery of clearing and settlement activities within target times during a wide-scale disruption generally requires an appropriate level of geographic diversity between primary and back-up sites for back-office operations and data centers. The agencies do not believe it is necessary or appropriate to prescribe specific mileage requirements for geographically dispersed back-up sites. It is important for firms to retain flexibility in considering various approaches to establishing back-up arrangements that could be effective given a firm's particular risk profile. However, long-standing principles of business continuity planning suggest that back-up arrangements should be as far away from the primary site as necessary to avoid being subject to the same set of risks as the primary location. Back-up sites should not rely on the same infrastructure components (e.g., transportation, telecommunications, water supply, and electric power) used by the primary site. Moreover, the operation of such sites should not be impaired by a wide-scale evacuation at or the inaccessibility of staff that service the primary site. The effectiveness of back-up arrangements in recovering from a wide-scale disruption should be confirmed through testing.

Core clearing and settlement organizations have the highest responsibility to develop resources that permit the recovery and resumption of clearing and settlement activities within the business day. Accordingly, these organizations should establish back-up facilities a significant distance away from their primary sites. Core clearing and settlement organizations that use synchronous back-up facilities or whose back-up sites depend primarily on the same labor pool as the primary site should address the risk that a wide-scale disruption could impact either or both of the sites and their labor pool. Such

organizations should establish even more distant back-up arrangements that can recover and resume critical operations within the business day on which the disruption occurs.

Firms that play significant roles in critical financial markets should maintain sufficient geographically dispersed resources, including staff, equipment and data to recover clearing and settlement activities within the business day on which a disruption occurs. Firms may consider the costs and benefits of a variety of approaches that ensure rapid recovery from a wide-scale disruption.¹⁰ However, if a back-up site relies largely on staff from the primary site, it is critical for the firm to determine how staffing needs at the back-up site would be met if a disruption results in loss or inaccessibility of staff at the primary site. Moreover, firms that use synchronous back-up facilities or whose back-up sites depend primarily on the same labor pool as the primary site should address the risk that a wide-scale disruption could impact either or both of the sites and their labor pools. As part of their ongoing planning process, firms with such back-up arrangements should strive to develop even more distant data back-up and operational resources that prove sufficient to recover clearing and settlement activities within the business day on which the disruption occurs. The business continuity planning process should take into consideration improvements in technology and business processes supporting back-up arrangements and the need to ensure greater resilience in the event of a wide-scale disruption. Interim steps a firm may take should be compatible with the objective of establishing even more distant back-up arrangements. The agencies expect that, as technology and business processes supporting back-up arrangements continue to improve and become increasingly cost effective, firms will take advantage of these

¹⁰ Examples of such arrangements range from maintaining a fully operational geographically dispersed back-up facility for data and operations to utilizing outsourced facilities in which equipment, software, and data are stored for staff to activate. Firms are addressing critical staffing issues in various ways, such as cross training, utilizing staff at underused systems to share or shift loads, rotating employees off-site, and establishing work shifts. A number of firms use outsourced back-up solutions for recovering clearing and settlement activities and data storage. However, numerous commenters expressed concern about the small number of recovery facilities, their lack of geographic diversity and the cost of ensuring availability of facilities during a wide-scale disruption. Firms that use outsourced back-up solutions should take into consideration any heightened risks that could affect access to those facilities during a wide-scale disruption.

developments to increase the geographic diversification of their back-up sites.

4. *Routinely use or test recovery and resumption arrangements.* One of the lessons learned from September 11 is that testing of business recovery arrangements should be expanded. It is critical for firms to test back-up facilities with the primary and back-up facilities of markets, core clearing and settlement organizations, and third-party service providers to ensure connectivity, capacity, and the integrity of data transmission. It also is important to test back-up arrangements with major counterparties and customers, as appropriate. Such testing ensures that recovery objectives are achievable and that staff and necessary external parties are sufficiently informed.

Core clearing and settlement organizations should periodically test recovery and resumption plans at all of their back-up sites. Test scenarios should include wide-scale disruptions that affect the accessibility of key staff; demonstrate the ability to recover and resume within the business day; and aim for a two-hour recovery time. Core clearing and settlement organizations should require participants to test connectivity between their primary and back-up sites and those of the core clearing and settlement organizations. They also may wish to consider organizing a broader industry stress test to ensure that recovery systems are consistently robust across critical market participants.

Firms that play significant roles in critical financial markets should routinely use or test their individual internal recovery and resumption arrangements for connectivity, functionality, and volume capacity. Firms that establish back-up sites within the current perimeter of synchronous back-up technology or that rely primarily on staff at the primary site should confirm that their plans would be effective if a wide-scale disaster affects both sites. Firms also are encouraged to take advantage of testing opportunities offered by markets, core clearing and settlement organizations and third-party service providers to ensure connectivity, capacity and the integrity of data transmission. Firms are encouraged to continue to work cooperatively with their core clearing and settlement organizations and trade associations to design and schedule appropriate industry tests to ensure the compatibility of individual recovery and resumption strategies across critical markets.

⁹ As markets and clearance and settlement systems move toward longer operating hours, there may be less flexibility to extend processing hours. This underscores the importance of achieving recovery time objectives within the business day's normal processing periods to the fullest extent possible. It also underscores the importance of ensuring that internal processes can be performed in the event that business hours are extended beyond midnight.