Undersea Cables and International Telecommunications Resiliency

Important to the Evolution of Global Financial Services

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The information presented and the views expressed in this presentation are those of the author and do not necessarily reflect the position of the Board of Governors of the Federal Reserve System.
Overview of the U.S. Financial System

Financial system: private-sector controls and trade groups

Audit, public disclosure, rating agencies, etc.

Associations
ABA, SIA, BMA FIA ICBA, ACB, etc.

Financial system: components, participants, and instruments

Components: credit, debt & equity, exchange-traded derivatives, and insurance

U.S. Financial System:
Applicable laws and regulations

Central bank and Treasury functions (Federal Reserve and the Department of the Treasury)

Supervision:
Fed, SEC, OCC, CFTC, FDIC, OTS, OFHEO, NCUA, SROs and state authorities.

Financial system:
controls and trade groups

Audit, public disclosure, rating agencies, etc.

Critical public utilities and services: ICT, power, transportation, public safety, insurance companies as recovery agents

Source: Steve Malphrus, Chair, Financial Sector Assessment Task Force
President’s Working Group on Financial Markets
Technology and Telecommunications in a U.S. Commercial Bank

Online Links
- Branch Platform and Teller Systems
- Backup Data Centers
- Retail Customers
- Wholesale Customers
- Management Information Systems: reports for executives, risk mgmt., boards of directors, etc.
- External Information Providers: Dun & Bradstreet, Credit Bureaus, etc.

Environmental Systems
- Security, and Vault Control Systems
- Home & Telephone Banking Systems
- Treasury, Money Market & Trade Fin. Systems, etc.

Back Office Systems
- Currency Sorters
- Item Processing, Check Sorters & Image Systems
- DDA, Loans, CIS General Ledger, MIS, etc.

Security Monitoring Company
- Phone Switches and Voice Response Systems
- Call Centers

Computer & Communications Systems
- ATM & Credit Card Systems
- Payments Systems
- Correspondent and Clearing Systems

External Links to Financial Services Firms, Payment Systems & Utilities
- Correspondent Banks, Clearing Houses, etc.
- Financial Markets: NYSE, CME, NASDAQ, CBT, etc.
- Fedwire, SWIFT, CHIPS, ACH, etc.
- ATM, Credit & Debit Card Networks
- Regulatory Agencies

External Service Providers
- Payroll Service Bureau
- Trust Services Company

Example of IT systems and internal data flows supporting the lending process
- Loan Underwriting and Review
- Loan Funding
- Records Systems
- Loan Servicer
- Loan Administration

Note: FBO transactions are often performed on IT Systems located in home countries

Source: Steve Malphrus, Chair, Financial Sector Group, Presidents Council on Year 2000 Conversion
Banks are Required to Manage Operational Risk to Operate in a Safe and Sound Manner

• U.S. banks are required by law to operate in a safe and sound manner.

• Banks, therefore, manage risks as an enterprise activity. Banks are also subject to examinations by Federal and State authorities to ensure they are managing risks to operate in a safe and sound manner.

• Under international rules developed by the Basel Committee on Banking Supervision that apply to the largest banks in the world, capital must now be held for operational risk in addition to the capital held for traditional financial risks. The Basel Accord applies to the largest U.S. banks.

• Operational risk is defined as “the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events.” Operational risk includes the “physical infrastructure” such as telecommunications and information services.

Banks are Required to Manage Operational Risk to Operate in a Safe and Sound Manner

(continued)

• All U.S. depository institutions including banks, thrifts, credit unions and technology service providers are examined to ensure their risk management processes address the availability of critical financial services that depend on telecommunications.

• Depository institution’s board and senior management are responsible for overseeing the business continuity planning process which includes establishing:
  (1) how the institution will manage and control identified risks,
  (2) ensuring business continuity is regularly tested, and
  (3) ensuring that business continuity planning is continuously updated to reflect the current operating environment.

• Federal Financial Institutions Examination Council  [http://www.FFIEC.gov](http://www.FFIEC.gov)
  Business Continuity Planning and Information Security.

• In the United States, the Financial System utilizes key resiliency services provided by the Department of Homeland Security’s National Communications System such as the Telecommunications Service Priority (TSP) program.
Examples of International Financial Transactions Conducted Via Undersea Cables

• Financial markets are increasingly electronically connected and interdependent around the world.

• Increased globalization provides for expanded market opportunities and efficiencies and at the same time increases critical dependencies on telecommunications that provide new challenges. For example, a large U.S. bank operates in over 100 countries around the world.

• The Society for Worldwide Interbank Financial Telecommunications (SWIFT) transmits approximately 15 million payment messages per day to over 8,300 banking organizations, securities institutions and corporate customers in 208 countries.

• The Continuous Linked Settlement (CLS) Bank located in the U.K., is a critical market infrastructure that relies on SWIFT. The CLS Bank provides global settlement of 17 currencies with an average daily value in US dollar equivalent of approximately $3.9 trillion.

• The U.S. Clearing House Interbank Payment System (CHIPS) processes over $1 trillion a day to over 22 countries for investment companies, securities and commodities exchange organizations, and banks and other financial institutions.
An Area of Continued Focus

- Several important studies of the undersea telecommunications cable infrastructure have been undertaken by the President’s National Security Telecommunications Advisory Committee (NSTAC), Department of Defense, and others.

- An international technical meeting sponsored by the Institute of Electrical and Electronics Engineers (IEEE) Communications Society that was held in Dubai, U.A.E in October 2009 focused on a comprehensive analysis of the intrinsic vulnerabilities of the undersea cable infrastructure, and significant trends affecting these vulnerabilities. Suggested guidance on addressing latent and emerging infrastructure availability, resilience, robustness, and security challenges was developed. The report can be accessed at: http://www.ieee-rogucci.org/

- In order to address resiliency in undersea cables, the study recommended that:
  - Countries work together to address the risks of undersea cable outages and to restore operations when outages occur. Agreements among governments to support improved resiliency and rapid restoration efforts are important.

  - Consideration should be given to prioritize critical international traffic transported over the undersea cable infrastructure, similar to the Telecommunications Service Priority (TSP) program offered by the Department of Homeland Security’s National Communications System in the U.S. for terrestrial cable systems.
Resilient International Telecommunications Guidelines for the Financial Services Sector

As the international financial community and its operational structures continue to expand globally, the Financial Services Sector Coordinating Council (FSSCC) with support of the Financial and Banking Information Infrastructure Committee (FBIIC), completed work on an initial version of voluntary guidelines for financial services firms that use the undersea cable infrastructure. In August 2009 a guidelines document was published and it is available on the FSSCC website (www.fsscc.com)
Way Ahead: International Cooperation

- International cooperation at times when restoration of services is required is increasingly important today because of the growing dependencies on the undersea telecommunications cables.

- The “Law of the Sea Convention” is intended to provide improved protection and resiliency of the undersea cable infrastructure including the establishment of international laws to protect the rights of undersea cable owners and operators. ([http://www.unlawoftheseatreaty.org/](http://www.unlawoftheseatreaty.org/))

- Public and private sector cooperation will continue to be important.
Questions ?