REGULATORY ASPECTS OF CYBER-SECURITY IN FINANCE: EXISTING APPROACHES AND FUTURE CHALLENGES

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OUTLINE

1. Relevance of cybersecurity in finance
2. Distinct nature of cyber threats
3. Designing cybersecurity regulation
4. Future challenges

RECENT SUCCESSFUL CYBER ATTACKS

- January 2016: DDoS attack on HSBC UK
- February 2016: $101 million stolen from Bangladesh Bank
- ??? 2016: hackers gain access to SEC's EDGAR data
- ??? 2017: website vulnerability exposes the data on 147.9 million consumers held by Equifax

INCREASING DIGITISATION IN FINANCE

- Replacing paperwork with direct electronic communication via secure channels
- Fast payments systems
- Paperless documentary operations and other services
- Smart contracts
- Biometric data
- In the long run: reporting by providing data, not forms

RELEVANCE FOR THE FINANCIAL SECTOR

- Systemic importance
- IT-intensive
- Dependent on information inputs
- Interconnected via the payment systems
- Time-critical services
- Banks have the most points of contact with third parties

DISTINCT NATURE OF CYBER THREATS

- Information asymmetry
- Inefficiency of measures preventing operational disruption
- Different nature of threat: (i) dynamic, (ii) intelligent, (iii) adaptive
- Do not respect national borders
- Not limited to technology

"ASSUME BREACH" ATTITUDE: expect that not all attacks can be prevented => the key is to identify and respond to threats

TWO APPROACHES TO CYBERSECURITY REGULATION

- Hands-off/soft approach
- Compliance-based approach
  - Benefit: increase board/management attention to cyber risks
  - Challenge: can be too prescriptive

G7 FUNDAMENTAL ELEMENTS OF CYBERSECURITY FOR THE FINANCIAL SECTOR

- Cybersecurity strategy and framework
- Governance
- Risk/control assessment
- Monitoring
- Response
- Recovery
- Information sharing
- Continuous learning

EXISTING TECHNICAL STANDARDS

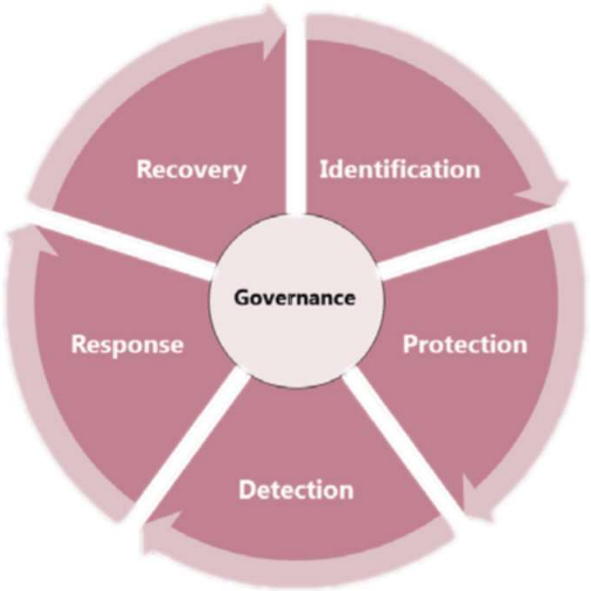
- NIST (National Institute of Standards and Technology)
  - Framework for Improving Critical Infrastructure Cybersecurity
- CIS (Center for Internet Security)
  - Controls
- ISO (International Organisation for Standardisation/IEC (International Electrotechnical Commission)
  - 27000 family of standards

COMMON ELEMENTS OF NATIONAL CYBERSECURITY FRAMEWORKS

- Documented cybersecurity programme/policy
- Self-assessment by financial institutions
- Vulnerability testing
- Reporting cyber events
- Cyber threat intelligence sharing
- Increasing cybersecurity expertise
- Cybersecurity of third party providers

CYBERSECURITY POLICY

- General framework
- Accountability regime
- May include appointment of a *Chief Information Security Officer* (CISO)



Source: BIS (2017)

SELF-ASSESSMENT BY FINANCIAL INSTITUTIONS

- Identification of Critical Information Assets
- Starting point – generally data protection rules
- Can be multi-phase to address industry concerns

Case study:

- Hong Kong's Cybersecurity Fortification Initiative (2016)

VULNERABILITY TESTING

- CBEST program in the UK (voluntary)
- Penetration Testing Guidelines For the Financial Industry in Singapore (2015)
- iCAST (intelligence-led Cyber Attack Simulation Testing) in Hong Kong

NB: some banks perform tests without regulatory guidance

REPORTING CYBER EVENTS

Different approaches:

- Special reporting rules for cyber events having a material effect
- Cyber reporting is already covered by existing reporting requirements

CYBER THREAT INTELLIGENCE SHARING

- Not a common requirement
- Part of G7 ‘fundamental elements’
- Hong Kong’s Cybersecurity Fortification Initiative (2016)
- Private initiatives

INCREASING CYBERSECURITY EXPERTISE

- Hong Kong: certification and training for C-RAF
- UK: CBEST accreditation for professionals involved in CBEST testing

CYBERSECURITY OF THIRD PARTY PROVIDERS

Different approaches:

- Duty of banks to ensure adequate levels of cybersecurity of third parties engaged by them
- Regulator's authority to regulate third parties directly
- A requirement to include in contracts with third parties a clause allowing the regulator to examine their systems

SUPERVISORY TOOLS AND METHODS

- Spreading protected data across different databases
- Using trusted parties to handle/store protected data
- Thematic reviews on cybersecurity
- Intelligence-led vulnerability testing
- No single approach to designing the framework

FUTURE CHALLENGES

- RegTech
- Protecting Digital ID databases
- Raising the level of regulators' cybersecurity expertise
- Understanding cyber risks across entire financial sector
- International supervisory cooperation
- Regulation of decentralised technologies

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THANK YOU