

Contemplation of Risk Management for Internet Banking System

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Abstract

Next Generation internet banking service for important role of banking business

competitive power separates service function of individual banking and should equip various service that coincides in each special qualities these are customer management, portfolio management, global corporation support etc.

The past few years have been characterized by rapid changes in technology and the introduction of corporate and retail banking services through the Internet. the integration of e-banking platforms with legacy systems and the increasing dependence of banks on third party information service providers, all dramatically amplify the magnitude of risks to which banks are exposed. Risk management disciplines have not evolved at the same speed and many institutions, especially the smaller ones, have not been able to incorporate Internet banking risk controls within their existing risk management structures. This article provides an overview of the various risks which are heightened with Internet banking, and a holistic approach to managing these risks. In addition, the presentation will explain the different risk areas and the controls to be adopted to mitigate these risks.

Keywords : Internet Banking System(IBM), Risk management, Information technology

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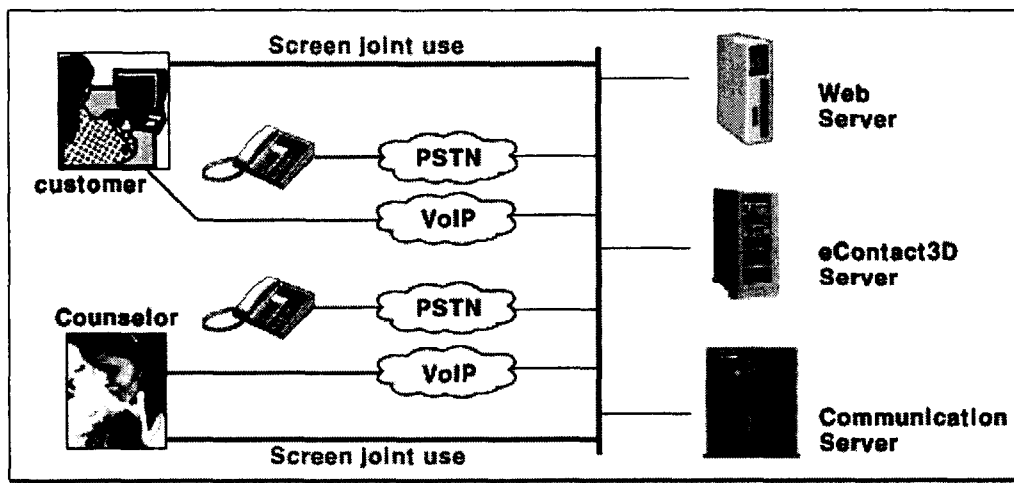
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1. Introduction

Internet Banking System(IBM) is anywhere you have Internet access, so it's never been more convenient to manage your finances. With Online Banking, you can quickly and easily. but, It is only regulatory and symbolic barriers that prevent information technology from completely replacing most financial intermediation services, because IBM is the representative of On-line Banking Service. Also it is recognized as a core IT Infrastructure for various e-Business. So many financial institutions are constructing independently this service by much money and risk. I



[figure 1. IBS Configuration]

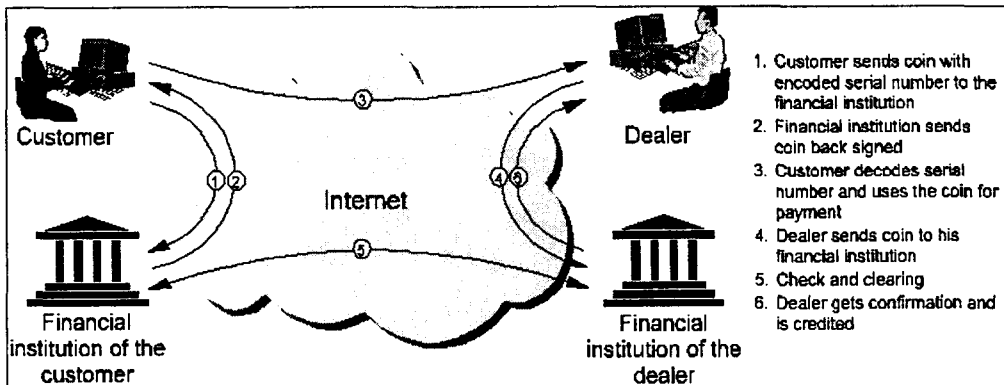
1.1 Key Functionality of Internet Banking

- Account balances for deposit and loan accounts
- Extensive transaction history (12 months)
- Bill payment through BPay, both immediate and future dated
- Immediate and future dated funds transfer to any Suncorp Metway account, along with funds transfers to accounts at other financial institutions

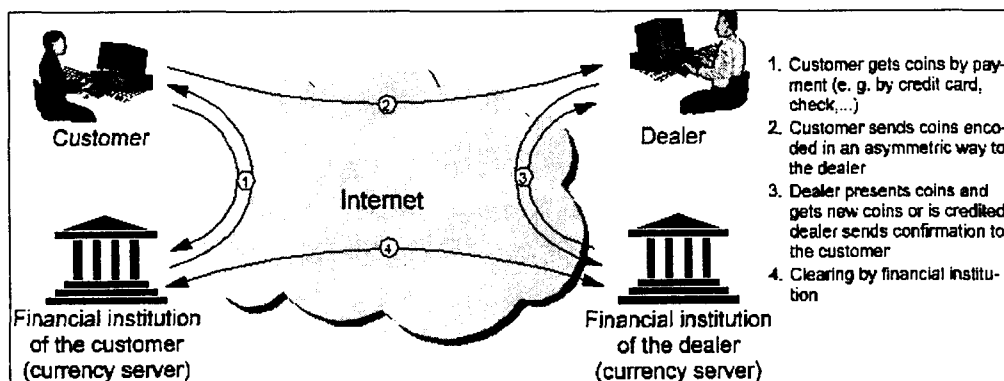
- Business payments (single debit/ multiple credits) particularly handy for a small business payroll
- Process transactions that require two signatures
- Set up third parties with View Only Access (eg Accountants), so they can see your accounts but not transact
- Balance notifications to advise you when your accounts reach specific limits Secure messages to be able to discuss your finances with us in secure manner
- Create profiles - a convenient way of managing and viewing different groupings of all your Suncorp Metway accounts, especially useful for business customers
- Check interest earnings for the current and previous financial year
- Personalise account names (eg. Jane's account, John's credit card) and adjust the order they are displayed
- Search for specific types of transactions using the Advanced Search feature
- Download transaction history details into standard accounting packages
- Change your renewal instructions on term deposits.

1.2 Application Scope

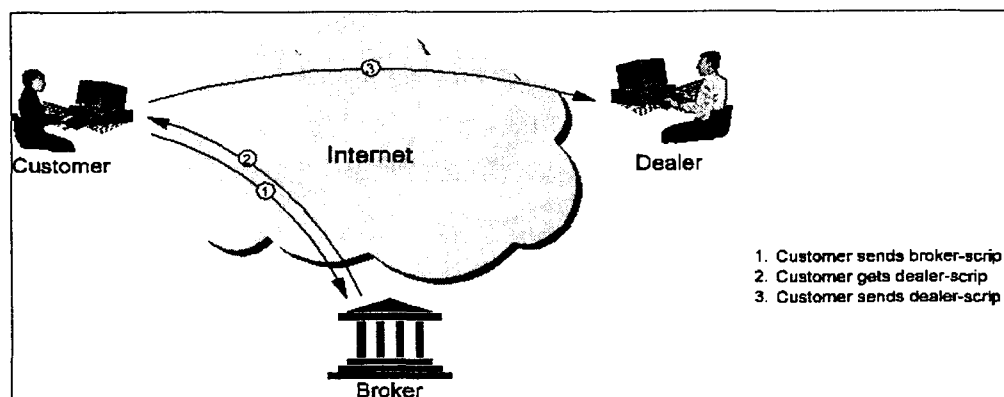
- General Finance Transaction Service like Banks, Retail Savings & Finance Institutions and Investment Trust Banks
- Security Corporations, Insurance Companies, Shopping Malls, Many other things
- Cases is briefly introduced below : [figure 2-4]



[figure 2. ECash Transaction]



[figure 3. NetCash Transaction]



[figure 4. Millicent Transaction]

2. Types of Internet Banking

Financial institution Internet offerings can be broadly classified into three groups with distinct risk profiles:[1]

- ***Informational*** - Offers information about the bank's products and services ("brochureware") and is low risk
- ***Communicative*** - Offers account-related information and possibly offers updates to static data (such as address).
- ***Transactional*** - Allows customers to execute financial transactions and carries the highest risk. Some transactional models carry higher risks,

3. Internet Banking System(IBS) Risks

IBS does not open up new risk categories, but rather accentuates the risks that any financial institution faces. The board and senior management must be cognizant of these risks and deal with them appropriately. These risks, which often overlap, are briefly described below:

3.1 *Strategic risk*

This is the current and prospective risk to earnings and capital arising from adverse business decisions. Many senior managers do not fully understand the strategic and technical aspects of Internet banking. Spurred by competitive and peer pressures, banks may seek to introduce or expand internet banking without an adequate cost-benefit analysis. The organization structure and resources may not have the skills to manage Internet banking.

3.2 *Transaction risk*

This is the current and prospective risk to earnings and capital

arising from fraud, error, negligence and the inability to maintain expected service levels. A high level of transaction risk may exist with Internet banking products, because of the need to have sophisticated internal controls and constant availability.

3.3 Compliance risk

This is the risk to earnings or capital arising from violations of, or nonconformance with, laws, regulations and ethical standards. Compliance risk may lead to diminished reputation, actual monetary losses and reduced business opportunities. Banks need to carefully understand and interpret existing laws as they apply to Internet banking and ensure consistency with other channels such as branch banking. This risk is amplified when the customer, the bank and the transaction are in more than one country. Conflicting laws, tax procedures and reporting requirements across different jurisdictions add to the risk. The need to keep customer data private and seek customers' consent before sharing the data also adds to compliance risk.

Customers are very concerned about the privacy of their data and banks need to be seen as reliable guardians of such data. Finally, the need to consummate transactions immediately may lead to banks relaxing traditional controls, which aim to reduce compliance risk.

3.4 Reputation risk

This is the current and prospective risk to earnings and capital arising from negative public opinion. A bank's reputation can be damaged by Internet Banking services that are poorly executed. Customers are less forgiving of any problems and thus there are more stringent performance expectations from the Internet channel. Hypertext links could link a bank's site to other sites and may reflect an implicit endorsement of the other sites.

3.5 Information security risk

This is the risk to earnings and capital arising out of lax information security processes, thus exposing the institution to malicious hacker or insider attacks, viruses, denial-of-service attacks, data theft, data destruction and fraud. The speed of change of technology and the fact that the Internet channel is accessible universally makes this risk especially critical.

3.6 Credit risk

This is the risk to earnings or capital from a customer's failure to meet his financial obligations, Internet banking enables customers to apply for credit form anywhere in the world. banks will find it extremely difficult to verify the identity of the customer, if they intend to offer instant credit through the Internet. Verifying collateral and perfecting security agreements are also difficult. Finally, there could be questions of which country's jurisdiction applies to the transaction.

3.7 Interest rate risk

This is the risk to earnings or capital arising from movements in interest rates. Internet banking can attract loans and deposits from a larger pool of customers. Also, given that it is easy to compare rates across bank, pressure on interest rates is higher, accentuating the need to react quickly to changing interest rates in the market.

3.8 Liquidity risk

This is the risk to earnings or capital arising from a bank's inability to meet its obligations. Internet banking can increase deposit and asset volatility, especially from customers who maintain accounts solely because they are relationship if they get a slightly better rate elsewhere.

3.9 Price risk

This is the risk to earnings capital arising from changes in the value of traded portfolios or financial instruments. Banks may be exposed to price risk, if they create or expand deposit brokering, loan sales or securitization programs as a result of Internet banking activities.

3.10 Foreign exchange risk

This arises when assets in one currency are funded by liabilities in another. Internet banking may encourage residents of other countries to transact in their domestic currencies. Due to the ease and lower cost of transacting, it may also lead customers to take speculative positions in various currencies. Higher holdings and transactions in nondomestic currencies increase foreign exchange risk.

4. Risk Management Principles

Managing the risks and implementing controls for Internet banking initiatives follows the same principles as other risk management processes. The most dangerous thing is to treat this as a technical problem and leave it to IT management to manage. As the previous enumeration of the risks has shown, this is a general management issue which needs attention from senior management. A general framework of risk management is set forth below.[3]

4.1 Board and Management Oversight

The board and senior management should establish effective management control over the risks associated with e-banking activities, including specific accountability, policies and controls to manage these risks. Future, management should clearly understand the role of Internet banking in meeting the institution's overall strategic objectives. The business should

set specific objectives for Internet banking, such as revenues, profits, transaction costs and service levels. An unambiguous objective sets the tone for a robust risk posture.

Internet banking project may have a significant impact on the bank's risk profile and should be reviewed and approved by senior management. They should undergo appropriate strategic and cost/reward analysis. In addition, senior management should ensure that they do not engage in e-banking projects unless they have necessary technical and risk management oversight expertise at all levels.

Senior management should set the tone in managing risk by establishing key delegations and reporting mechanisms, separation of duties and escalation procedures. Management should set up a formal risk assessment process in the organization, so line management is responsible for, and directly involved in, risk identification and mitigation. Finally, management should ensure that ongoing due diligence and risk analysis are performed as the bank initiates or expands Internet banking activities.

4.2 Security Controls

Security controls need special attention because of the open nature of the Internet and the pace of technological change. Specific focus areas include :

- **Authentication**
- **Nonrepudiation**
- **Segregation of duties**

Banks should ensure that there are appropriate measures to protect the data integrity of e-banking transactions, records and information. All e-banking transactions should generate clear audit trails, which should be archived. It is also vital to generate and protect records of customer instructions in a legally acceptable format.

Banks should strengthen information security controls to preserve the confidentiality of customer data. Firewalls, ethical hacking test, physical and logical access controls are some of the methods available.

4.3 Legal and Reputational Risk Management

Legal and reputational risk management can be broken down into the following:

- **Privacy** - Banks should articulate a privacy policy and should communicate this to customers. Customers must be allowed opt-out options, and great care must be exercised before sharing customer information with outside entities. If customers are from a different jurisdiction, then the strongest privacy law may apply.

- **Availability** - Banks should have business continuity and contingency planning processes to help ensure continuous availability of Internet banking services. This is challenging because of the potential for high transaction volume and the demand for 24-hour, seven-day-a-week availability.

- **Incident response** - banks should formulate appropriate incident response plans to detect, manage, contain and minimize problems arising from internal and external attacks. There should be clear escalation paths, a communication strategy for customers and the press and a documented chain of command. Finally, there should be a process for collecting and preserving forensic evidence after an adverse event.

5. Conclusion

The risks arising from Internet banking are not restricted to information security areas, but span across all the traditional banking areas. Risk management for Internet banking should be directed by senior management and incorporated within existing risk management and incorporated within existing risk management disciplines in the organization. Control procedures need to keep pace with rapid change in technology.

Currently most financial institutions use the Internet have to decide on their Internet presence. Waiting too long may be extremely harmful and expensive. A good strategy should be to build up know-how by means of small or medium pilot projects. Actions of competitors should be monitored closely.

6. Reference

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주요 관심분야 : e-Biz 분석 및 평가, SCM, 품질공학, Data-Mining, OR.

박 명 규 : 한양대학교 산업공학과 학사, 미국 일리노이 공대 산업공학 석사, 건국대학교 대학원 산업공학 박사학위 취득, 현재 명지대학교 산업시스템공학부 교수로 재직중이다.

주요 관심분야 : TQM, QE, METHODS ENG, 재고 물류관리, 확률모형, FORECASTING, e-Biz 분석/평가