

Exploring Bank Syariah Indonesia and It's Customers Perceptions of Cyber Attacks

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ARTICLE INFO

Keywords:

Customer perception; Operational risk; Reputation risk; Risk management; System maintenance

How to cite:

Aisah, Siti, Syarifuddin, & Rahmad Kurniawan. "Exploring Bank Syariah Indonesia and It's Customers Perceptions of Cyber Attacks." *At-Taradhi: Jurnal Studi Ekonomi* 14, no. 2 (2023): 117-132.

ABSTRACT

System maintenance occurred at Bank Syariah Indonesia on May 8, 2023 delaying all activities of Bank Syariah Indonesia branch offices throughout Indonesia, many customers were disappointed with BSI services. Especially mobile banking services and ATM machines that cannot be used for customers to withdraw funds or other transactions. Not only that, employee activities were also delayed due to system maintenance that occurred. This study aims to determine customer perceptions of cyber attacks that occurred at Bank Syariah Indonesia. The research method used is qualitative research using a descriptive approach. Data were collected using field research methods. The results of this study indicate that customer perceptions of cyber attacks, still do not know the information about hacker attacks. Some just know there is a system maintenance disturbance not a hacker attack. However, some customers know about the attack because of the news on social media and newspapers. Many customers also feel anxious and afraid, wondering what is wrong with BSI which has experienced system disruptions for days. This proves that not all customers know about the attack that occurred. The countermeasures taken by Bank Syariah Indonesia are protecting customer data and controlling and preventing operational risks with tighter system supervision, upgrading windows systems, upgrading antivirus systems, conducting limited operations, positive invitations to customers or the public through social media, or direct visits to customers, limited operations and telemarketing.

Pemeliharaan sistem terjadi di Bank Syariah Indonesia tepatnya pada tanggal 8 Mei 2023 menunda seluruh aktivitas kantor cabang Bank Syariah Indonesia di seluruh Indonesia, banyak nasabah yang kecewa dengan layanan BSI. Khususnya layanan mobile banking dan mesin ATM yang tidak dapat digunakan untuk nasabah melakukan penarikan dana atau transaksi lainnya. Tidak hanya itu, aktivitas pegawainya pun juga sempat tertunda akibat pemeliharaan sistem yang terjadi. Penelitian ini bertujuan untuk mengetahui persepsi nasabah

terhadap serangan siber yang terjadi di Bank Syariah Indonesia. Metode penelitian yang digunakan adalah penelitian kualitatif dengan menggunakan pendekatan deskriptif. Data dikumpulkan dengan menggunakan metode penelitian lapangan. Hasil dari penelitian ini menunjukkan bahwa persepsi nasabah terhadap kejadian serangan siber, masih belum mengetahui informasi terjadinya serangan hacker. Sebagian hanya sekedar mengetahui adanya gangguan pemeliharaan sistem bukan serangan hacker. Namun sebagian nasabah mengetahui adanya serangan karena hebohnya pemberitaan di media sosial dan surat kabar. Nasabah juga banyak merasa cemas dan takut, bertanya-tanya ada apa dengan BSI yang mengalami gangguan sistem sehari-hari. Hal tersebut membuktikan bahwa tidak semua nasabah mengetahui mengenai serangan yang terjadi. Upaya penanggulangan yang dilakukan Bank Syariah Indonesia adalah melindungi data nasabah dan mengendalikan serta mencegah terjadinya risiko operasional dengan pengawasan sistem yang lebih ketat, upgrade sistem windows, upgrade sistem antivirus, melakukan operasi terbatas, ajakan positif kepada nasabah atau publik melalui media sosial, atau kunjungan langsung ke nasabah, operasional terbatas dan telemarketing.

Introduction

In 2023, precisely starting on May 8, 2023 Bank Syariah Indonesia (BSI) experienced sudden system maintenance in all branch offices in Indonesia which caused all activities in Islamic banking to be constrained, especially in mobile banking transactions and ATM machines. A number of branch offices located around Jabodetabek, Semarang, Bandung, Yogyakarta and Surabaya on the island of Java. Not only that, a number of regions such as Sulawesi, Maluku, Bali, Nusa Tenggara, Papua and Kalimantan felt the impact of system maintenance.

System maintenance is an activity carried out in the context of maintaining or maintaining factory facilities or equipment and making repairs or adjustments / replacing those that need to be replaced for a better operational state in accordance with what has been planned, then the facilities used to process operations or before the planned time is reached.¹

In addition, the constraints on work services that are usually carried out by employees make employees of Bank Syariah Indonesia unable to carry out their activities as usual. This system maintenance activity is usually carried out at times that have low transaction or service intensity such as at night. In general, banking institutions carry out system maintenance activities above 24.00 to 04.00 WIB. But in reality, system maintenance carried out by Bank Syariah Indonesia takes more than 24 hours and even up to days which causes customer and even employee transactions to be delayed and hampered.

Many customers questioned what was happening with the Bank Syariah Indonesia system so that system maintenance activities could take quite a lot of time. It can be seen that many people comment on BSI's social media accounts expressing their unek-unek on the

¹ Maria Anggraini and Rahmat Maulana, "Pengaruh Pemeliharaan Mesin Terhadap Kualitas Sepatu Pada PT. Nikomas Gemilang," *Sains: Jurnal Manajemen Dan Bisnis* 9, No. 1 (2016): 59-74.

constraints on the BSI transaction system. Not only that, online media both from the news, videos on Instagram, tik tok and so on that are spread about Cyber Crime, namely hackers who hack security at BSI are very crowded. Some continue to defend, some are realistic, some ask for their funds to be returned, until there is anger at the branch office disappointed to compare BSI transactions with other banks. Although it has been informed after a few days that ATM machines and M-Banking services can be done, but overall the existing transactions are not all smooth and normal as usual until now dated May 17, 2023.

During the system maintenance period that has lasted for almost 1 week, of course, it has caused several risks that have arisen at Bank Syariah Indonesia. these risks are certainly related to the operational development and reputation of Islamic banks in Indonesia. Not only the head office is experiencing problems but all branch offices are experiencing system maintenance which hampers bank activities including customers and employees.

Risk is an event that has the potential to cause a loss to a company.² Risk in banking is an event that has the potential risk that can be measured or not measured. These risks will have a negative impact on bank activities that cannot be avoided, but can be managed and controlled by banks with a series of procedures used to identify, measure, monitor and control risks arising from banking activities.³ The risks that occur during system maintenance are operational risk and reputation risk of Bank Syariah Indonesia. Operational risk is a form of loss that occurs due to human error, systems, failure of internal processes, inadequate internal banking procedures or also due to the fault of external parties.⁴

While reputational risk is a risk that is the impact or result of poor operational activities that have the consequence of decreasing customer confidence stemming from negative views of Islamic banks. This risk arises due to negative media coverage of Islamic banks. Problems related to news on social media require a different approach so that banks must pay close attention to the problems that occur outside in order to get effective solutions.⁵ The success of Islamic banks today is largely determined by the ability of institutional management to deal with the ever-growing revolution of the times such as globalization, the development of information technology, creativity and financial innovation. The current situation has the potential to increase the risks that occur in Islamic banks where risks must be managed properly. If operational and reputational risks are not managed properly with the bank, it will have a broad impact on business performance.⁶

The quality of products and services is the key to banking. One of the points of delivery service of financial institutions is certainty and timeliness. This was not informed by BSI. System maintenance activities that take more than 24 hours and without notice when

² Ifelda Nengsih And Dina Meidani, "Strategi Manajemen Menghadapi Risiko Operasional Pada Pt Bank Pembiayaan Rakyat Syariah (Bprs) Haji Miskin Pandai Sikek," *Jurnal Manajemen Dan Profesional* 2, No. 1 (2021): 12-31.

³ Afrizal, Saparuddin Siregar, and Sugianto, "Studi Literatur Kritis Risiko Reputasi Pada Manajemen Risiko Perbankan Syariah," *Jurnal Emt Kita* 6, No. 1 (2022): 147-157.

⁴ "Manajemen Risiko Operasional Pada Pt Bank Pembiayaan Rakyat Syariah (Bprs) Jabal Nur Tebuireng Di Surabaya," *Falah: Jurnal Ekonomi Syariah* 4, No. 1 (2019): 69.

⁵ C Nisa And N Nawasiah, "Determinants Of Reputation Risk Management In Islamic Banks In Indonesia," *Inquisitive* 1, No. 1 (2020): 1-13

⁶ Dodi Eka Nugraha, "Manajemen Risiko Reputasi Perbankan Syariah," *Eksisbank* 3, No. 2 (2019): 100-107.

maintenance is complete and transactions will return to normal. The fact that has happened outside many people are suspicious whether the problems that occur are caused by maintenance or from other parties.

As research conducted by Rini Fitriani states that the death of the information system that occurred at BSI on May 8, 2023 was caused by a hacker attack but the information technology risk mitigation efforts carried out by BSI in dealing with the attack case are still running slowly because they do not realize the importance of risk mitigation.⁷

Although previous research has provided a lot of knowledge about the efforts made by BSI in dealing with hacker attacks from the bank's perspective, it should be noted that very little or no research has been found that examines or wants to understand the point of view of customers that occurred during the attack. Understanding the perception or point of view of customers is also very important because it can help researchers and practitioners to know more about customer perceptions. In addition, it is also material for bank correction, in order to know what the customer's view is regarding the attack event that occurred so that it can formulate a good strategy to improve the security system.⁸ Based on the above problems, the researcher will examine how customer perceptions of cyber attacks that occur at Bank Syariah Indonesia pose a risk to customers.

Theoretical Framework

A. Customer Perception

Perception is a process of understanding in humans that is important to respond to events in the surrounding environment.⁹ According to Solomon in Syahputra, perception is a procedure that arises because of a sensation, where this sensation is in the form of an activity that feels or causes an exciting emotional state. The process includes the body's senses, awareness, and finally the thinking process that brings up information that is processed and explained into a perception. Perception is influenced by factors of experience, learning process, insight and knowledge.¹⁰ According to Wied Harry, information will affect customer understanding. Even if someone has a low education, if they get information from various sources it will increase their

⁷ Rini Fitriani, Rokhmat Subagiyo, And Binti Nur Asiyah, "Mitigating It Risk Of Bank Syariah Indonesia: A Study Of Cyber Attack On May 8, 2023," *Al-Awwal: Journal of Sharia Economics and Banking* 15, No. 1 (2023): 86.

⁸ Mohana Shanmugam Et Al, "Understanding Customer Perceptions Of Internet Banking: The Case Of The Uk," *Journal Of Enterprise Information Management* 28, No. 5 (2015): 622-636.

⁹ Dea Vona Dimitha, Azharsyah Ibrahim, and Israk Ahmadsyah, "Analisis Persepsi Nasabah Terhadap Strategi Pemasaran Bank Aceh Syariah Di Kota Banda Aceh," *Journal Of Sharia Economics* 2, No. 1 (2021): 42-58.

¹⁰ Dicky Setiawan, Risma Wira Bharata, And Supanji Setyawan, "Current Advanced Research On Sharia Finance And Economic Worldwide (Cashflow) Volume 2 Issue 1 (2022) Current Advanced Research On Sharia Finance And Economic Worldwide | Cashflow <https://ojs.transpublika.com/index.php/cashflow/> Customer Perceptions Of Bank Syariah Indonesia Magelang Sudirman Sub-Branch Office For Teller Transaction Services Using Digital Systems" 2, No. 1 (2022): 244-250, <https://ojs.transpublika.com/index.php/cashflow/>.

understanding.¹¹

Perception is also defined as a view or response to an event that occurs in the surrounding environment.¹² Customer perception is a condition in which customers interpret and determine useful information when determining the actions that will be determined afterwards.¹³

In this case the technique used in measuring customer perception is to use the MDS (Multi Dimensional Scaling) technique. This technique is one of the processes used to map customer perceptions based on visual similarities in geometric maps. In general, this technique can support in determining the dimensions that are often used by respondents in assessing an object, the number and nature of customers used, the relative relationship of each dimension and the relationship of the object under study with perceptual. The technique used to obtain perception data is to use a direct approach by directly asking customers to assess the brand.

B. Risk Management

Risk management is an effort made to control the risks that occur by implementing systematic ways so that losses can be avoided or reduced.¹⁴ Risk management is an effort made by identifying risks, measuring risks, designing prevention strategies.¹⁵ Risk management is an approach taken by managing uncertainties that can jeopardize the process of human activities including risk assessment.¹⁶

According to Setyobudi, risk management is a culture or chart that is directed at effectively managing potential adverse impacts so as to increase profit opportunities and reduce losses.¹⁷ According to COSO risk management is a process influenced by the board of directors, management and employees who do it throughout the organization by setting strategies and objectives to identify potential events that may have an impact on all organizations and control the risks.

Risk management in Islam is a very important activity to do, good management according to Islam by trying to maintain the trust of Allah over wealth. As commanded by Allah SWT in Q.S Al-Baqarah verse 195 that every human being should be careful

¹¹ Jevi Saputra, "Analysis Of Public Perceptions About Islamic Banking Case Study In Sekamis Village" 8, No. 1 (2023): 91-103.

¹² Rachmatina Rachmatina and Dedi Sufriadi, "Persepsi Nasabah Terhadap Praktik Produk Pembiayaan Murabahah Bni Syariah Cabang Banda Aceh," *Pamator Journal* 13, No. 1 (2020): 143-150.

¹³ Cleanita Imra'atul Khasanah and Nur Huri Mustofa, "Analisis Persepsi Nasabah, Kepercayaan Dan Brand Image Terhadap Minat Dan Keputusan Nasabah Menabung," *Jurnal Ilmu Ekonomi Dan Bisnis Islam* 4, No. 2 (2022): 93-111.

¹⁴ Dewi Junia Mawarni, Finda Indah Safitri, and Priatmojo Suryo Kuncoro, "Institut Agama Islam Sunan Kalijogo Malang Manajemen Resiko Pada Bank Syariah Indonesia (Bsi) Di Masa Pandemi Covid-19" 3 (2022): 105-117.

¹⁵ A Yulianto Et Al., "Risk Management Disclosures: An Investigation Using Risk Management Committee As A Moderating Variable," *Journal of Accounting Dynamics* 13, No. 1 (2021): 93-105.

¹⁶ Hendry Setiawan and Nasar Buntu Laulita, "Perancangan Dan Penerapan Sistem Manajemen Resiko Pada Umkm Menantea Mitra Dua," *Jurnal Pengabdian Kepada Masyarakat Nusantara (Jpkmm)* 3, No. 2 (2023): 1860-1866.

¹⁷ Rizki Musidatun Bakdiyah, Umi Barokah, And Mei Tri Sundari, "Risk Management In The Production Of Sugar In Mojo Sugar Factory, Sragen Regency," *Indonesian Management Journal* 20, No. 1 (2020): 13-21.

in carrying out risk management, in addition to avoiding losses as well as practicing the commands of Allah SWT:¹⁸

وَأَنْفِقُوا فِي سَبِيلِ اللَّهِ وَلَا تُلْقُوا بِأَيْدِيكُمْ إِلَى التَّهْلُكَةِ . وَأَحْسِنُوا . إِنَّ اللَّهَ يُحِبُّ الْمُحْسِنِينَ

Meaning: *And spend (your wealth) in the way of Allah, and do not bring down (yourselves) to destruction with your own hands, and do good. Indeed, Allah loves those who do good.*

C. Operational Risk

Operational risk is a risk that comes from internal problems within the company, which is caused by a weak control system carried out by the internal parties of a company. Examples of operational risks are computers attacked by viruses, damage to company maintenance, accidents from work, errors in purchasing and the absence of an agreement that purchased goods can no longer be exchanged and so on.¹⁹

Operational risk is the risk of loss as a result of inadequate processes, procedures, human factors, systems and external parties.²⁰ Operational risk is also related to the failure or damage of technology, systems or capital analysis within the institution.²¹ Sources of risk can cause events that negatively impact the bank's operations. Operational risk is also a risk that is influenced by several factors, namely human factors, internal processes, systems and externals. But not only that, operational risk can also be influenced by whether or not the management quality of banking managers is good.²²

Operational risk can cause losses for banks from several causes including:²³

1. Internal Process

In the internal process, banks have various internal processes that are used to sell products and services to customers. Each internal process certainly has potential risks to operations. For example, sending the wrong documents, errors in the account opening process and customer transactions, delays in making adjustments to changes in regulations or policies, unexpected increases in transaction volumes that result in errors in handling business transactions, diverse new products that fail to launch, or increased customer demand but the bank's system cannot handle it. In addition, the impact of increased business competition can cause bank employees to compromise to speed up services.

¹⁸ Fatin Fadhilah Hasib; Fachri Akbar, "Operational Risk Management Process In Sharia Bni Kc Mikro Rungkut Surabaya," *JURNAL NISBAH VOL. 3* (2017): 326-335.

¹⁹ Isra Misra, Sofyan Hakim, And Agus Pramana, *Manajemen Risiko: Pendekatan Bisnis Ekonomi Syariah*, 2020.

²⁰ Zakiyyah Ilma Ahmad Yunia Aprilia, Aqif Khilmia, "Manajemen Risiko Operasional Pada Perbankan Syariah : Bibliometrik," *Iqtishadia: Jurnal Ekonomi Dan Perbankan Syariah Vol. 09* No. 1 (August 21, 2022): 193-203.

²¹ Abdullah Jarir, "Manajemen Risiko Operasional Pada Perbankan Syari'ah," *Phys. Rev. E* Vol. 13 No. 1 (2017): January-June 2017 (2017): 1-15,

²² Heftika Nur Fauziah, Aini Nur Fakhriyah, and Abdurrohman, "Analisis Risiko Operasional Bank Syariah Pada Masa Pandemi Covid-19," *Al Intaj, Jurnal Ekonomi Dan Perbankan Syariah* 6, no. 2 (2020): 38-45.

²³ Miftachus Surur, Muhammad Deni Putra, And Firnanda Ayu Widiyanita, "Operational Risk Management Of An Independent Islamic Bank," *Imara Journal* 5, No. 1 (2021): 33-45.

2. Human Factors

Internal controls are often the reason for the failure of a bank's operational processes. But in reality, the main cause of losses in bank operations is often human error. Operational risks caused by human factors are usually caused by lack of training and inadequate management, human error, unclear division of tasks and authority, dependence on key people and low integrity and honesty.

3. Systems and Technology

The increasing dependence of companies or banks on information technology is a major source of operational risk. Data or system corruption is a common cause of bank operational errors that result in losses that must be borne by the bank. Examples include technology-related operational errors, external collisions or disruptions, computer viruses, system failures and system maintenance.

4. External Events

Banks have little control over events that occur outside or even no control at all, but external problems must also be managed. External risks are sudden and unexpected in nature which definitely creates risks. Examples include changes in consumer rights laws and physical threats such as robbery, terrorist attacks and natural disasters such as fires, floods and so on.

D. Reputational Risk

Reputation risk is a risk due to public perception of the actions or deeds carried out by a bank. Reputational risk occurs due to negative publications related to the bank's activities. Reputational risk is a risk that cannot stand alone, but must occur due to other risks such as operational risk, credit risk and other risks.²⁴ The reputation of a bank will occur when customers feel disappointed with the Islamic bank to protest either directly to the bank or indirectly through the media.

The implementation of sharia principles must be carried out consistently so as not to raise negative assessments of the application of the sharia system which can have an impact on the emergence of negative publications or news that can increase reputational risk.²⁵ Failure to manage reputational risk can result in customer withdrawals, liquidity problems, and bank closures by the authorities.²⁶ The indicators of reputational risk are the influence of the reputation of bank owners and stakeholders, violations of business ethics, product complexity and business cooperation, news and customer complaints.

E. System Maintenance

The term system maintenance is used and interpreted as maintenance or care. The purpose of maintenance is to prevent, reduce, avoid damage by ensuring equipment reliability and readiness and minimizing maintenance costs. Maintenance or maintenance is a series of activities carried out to maintain machines and tools in

²⁴ A Arsyadona Et Al., A Arsyadona Et Al., "Manajemen Risiko Reputasi Pada Bank Syariah," *Seminar Nasional Teknologi Komputer & Sains (Sainteks)* (2020): 658-661.

²⁵ Muhammad Iqbal Fasa, "Manajemen Risiko Perbankan Syariah Di Indonesia," *Li Falah Jurnal Studi Ekonomi Dan Bisnis Islam* I, No. 2 (2016): 36-53.

²⁶ Nasrul Amanu, "Kajian Fiqih Berbasis Margin Murabahah Dan Kaitannya Dengan Risiko Reputasi," *Jurnal Ilmiah Ekonomi Islam* 7, No. 1 (2021): 501.

operational and safe conditions and in the event of damage can be controlled.

Maintenance occurs due to obstacles that may occur in the system, these obstacles are divided into general obstacles and criminal obstacles. Common barriers include hardware failure, malware, computer viruses and human error. Criminal barriers include hacking, data manipulation, attacks on the system and data theft.²⁷

Research Methods

This type of research is field research using a qualitative descriptive approach. This research focuses on current events, namely customer perceptions of cyber attacks at Bank Syariah Indonesia. The research subjects are employees and customers of Bank Syariah Indonesia located in BSI KC Palangkaraya Diponegoro. The source of data used in this research is primary data, namely data collected from respondents obtained from interviews in the field to employees and customers of Bank Syariah Indonesia. Secondary data obtained in this study in the form of books, journals and articles related to the research.

The data collection technique used in this research is by means of observation, interview sources and documentation related to customer perceptions of cyber attacks that pose a risk to Bank Syariah Indonesia customers. The data analysis used in this research uses the Miles and Huberman interactive method, namely reduction, presentation of data and drawing conclusions. The questions asked during the interview were:

First, to sharia bank: obstacles that occur during system maintenance, operational risks and reputational risks that occur during system maintenance, factors that cause risk and efforts to control the risks that occur.

Second, to Customers: responses or perceptions of cyber attacks, perceived obstacles during system maintenance, responses to solutions provided by Bank Syariah Indonesia during system maintenance and expectations of Bank Syariah Indonesia.

Results and Discussion

A. Operational Risk and Reputational Risk during System Maintenance at BSI KC Palangkaraya Diponegoro

In general, operational risk is caused by several factors, namely failure of internal processes, people, systems, external events. Identification of operational risk during system maintenance there are several parts that appear in Bank Syariah Indonesia (BSI), especially BSI KC Palangkaraya Diponegoro.

The results of research on operational risk that the author asked one of the employees of BSI KC Palangkaraya Diponegoro can be described as follows:

"The risks that occur during system maintenance at Bank Syariah Indonesia as we can see and feel, there are restrictions on services to customers, customers cannot carry out service transactions on BSI Mobile, cannot withdraw and deposit money at ATMs, register for online account opening. Until negative news outside and customer complaints because they cannot transact. You know yourself also

²⁷ I Putu Agus Eka Pratama and Made Toby Sathya Pratika, "Manajemen Risiko Teknologi Informasi Terkait Manipulasi Dan Peretasan Sistem Pada Bank Xyz Tahun 2020 Menggunakan Iso 31000:2018," *Jurnal Telematika* 15 No. 2 (2020): 63-70.

when you are an intern, many activities are hampered starting from teller operations, customer service, pawning and business work, for example financing units, business control, and BFO. The head of operations has also said earlier that the security alarm at the center went off because a hacker wanted to hack into BSI's security, thank God we have shut down the system in advance as a whole."

From the results of the research interviews, it can be concluded that the identification of operational risks that occur due to system maintenance at Bank Syariah Indonesia (BSI) is as follows:

Table 1. Operational Risks that Occur to Banks and Customers

Risk	Types of risk
Bank operational risk	Inhibit the work business process of employees starting from the operational section (teller, customer service and pawning) and work business units such as financing units, business control units and BFO.
Risk to customers	<ul style="list-style-type: none"> a. Restriction of services to customers including services to Customer Service and Teller. b. Customers also cannot perform service transactions on BSI Mobile. c. Unable to withdraw and deposit money at ATMs d. No online account opening registration and all service activities to Teller and Customer Service.

Source: Processed by Author (2023)

The following interview regarding the reputational risk experienced by Bank Syariah Indonesia when system maintenance occurs is as follows:

"Customer complaints about system maintenance that takes quite a lot of time which causes customers to be unable to make transactions on BSI Mobile and ATMs and negative news about BSI which has an impact on all branches so that there are customers who complain, withdraw funds, get angry at the office and that makes BSI's reputation go down".

Meanwhile, the factors that cause operational and reputational risk in Bank Syariah Indonesia we compiled of our interview are as follows:

Table 2. Operational Risk Factors during System Maintenance

Component	Risk factors
Internal	There were improvements and upgrades to the BSI service system which ultimately led to the inability to use BSI Mobile and ATM Machines even to business activities.
External	There was an attempted hacker attack but it failed.

Source: Processed by Author (2023)

Table 3. Reputational Risk Factors During System Maintenance

Component	Risk factors
Frequency of News	Negative publicity about services

Frequency of Customer Complaint Materiality	Customer complaints about not being able to make transactions at ATMs and BSI Mobile
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Source: Processed by Author (2023)

B. BSI KC Palangkaraya Diponegoro's efforts to mitigate operational and reputational risks.

The solution taken in minimizing the occurrence of operational and reputational risk is to understand and know what factors cause operational risk and reputational risk to occur.²⁸ The way to control risk in a company is the same as managing risk in a company. The approach that can be taken in controlling operational risk is to increase risk awareness capabilities for all company employees or by increasing the risk culture for all employees. So that with this, employees will realize the importance of carrying out the mandate by paying attention to risk properly based on the level of risk that can be accepted by the bank.²⁹ The way to control reputational risk in banking institutions is by conducting anticipation and *preventive action* programs and programs in reputation maintenance. The existence of customer complaints can increase the exposure of reputational risk so it is necessary to communicate to avoid legal problems.³⁰

The steps taken by Bank Syariah Indonesia based on interviews with employees, things that are done to overcome operational risk and reputation risk are:

Table 4. Efforts to Mitigate Operational Risk and Reputational Risk

Operational Risk Mitigation Efforts	Efforts to Mitigate Reputational Risk
a. Routinely conduct morning prayers and provide education/briefing and support to employees so that they can continuously approach customers by inviting and conveying conditions during the maintenance period to keep their funds in BSI.	a. Provide positive posts or invitations to customers or the public through social media
b. Upgrading Windows 7 to Windows 10 in order to improve service quality and anticipate virus entry attempts by experimental cyber attacks.	b. Silaturahmi or direct visit to customers who withdraw funds and provide an explanation of the disturbance that occurred as well as an apology.
c. Employees use computers that have been updated with Windows 10 in turns with other employees.	c. Ensure customers do not experience transaction problems
d. Upgrading the antivirus on each employee's computer.	d. Submit an official letter regarding information on BSI system problems
	e. Follow up on things that need to be done according to the results of the visit

²⁸ Yunia Aprilia, Aqif Khilmia, "Manajemen Risiko Operasional Pada Perbankan Syariah : Bibliometrik."

²⁹ Andrianto and M. Anang Firmansyah, "Manajemen Bank Syariah (Implementasi Teori Dan Praktek)," *Cv. Penerbit Qara Media* (2019): 536.

³⁰ Islamiyah Dita Anis Zafani, "Penilaian Kesehatan Likuiditas Bank Syariah Melalui Financing To Deposit Ratio (Fdr) Dan Dampaknya Pada Reputasi Bank (Studi Kasus Bank Bca Syariah)," *Iqtisadie: Journal Of Islamic Banking And Shariah Economy* Volume (2022): 150-166.

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- e. Limited operations on Saturday and Sunday.
 - f. Stricter monitoring of the system.
 - f. Providing the latest update on BSI Mobile and ATM transaction features that have gradually normalized.
 - g. Socialization and education on products and services
 - h. Telemarketing to customers is by approaching customers by means of communication.
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Source: Processed by Author (2023)

Bank Syariah Indonesia focuses on two internal and external factors. In operational risk, especially internal factors, the bank optimizes controlling the system to improve services in operations. While on external factors, Bank Syariah Indonesia's reputation risk focuses on controlling by optimizing social media with positive posts and invitations and conducting socialization and silaturahmi to customers. In addition, the center also controls, monitors and reviews the BSI branch office to continue monitoring the risks that occur. So that the existing steps are ways that Bank Syariah Indonesia can overcome operational and reputational risks when there is a system maintenance disruption.

The research discussion shows that the optimization and control carried out by BSI is still running slowly because after the attack on May 8, the next few days there are still customers who still experience operational risks that occur such as BSI Mobile which is still interrupted. It also proves that risk management is still not well managed until the attack on its security system. These findings highlight that banks need to improve the security system within the bank and the need to manage a crime. Research by Muhammad Khairul Faridi, offers a solution in overcoming the problem of hacker attacks by implementing triple authentication, namely using passwords, tokens and biometrics. It can also do security with big data to process unusual financial transactions.³¹

C. Customer Perception of Cyber Attacks

The analysis of this research starts from looking at the response pattern of each interview question. The summary of responses or responses from the results of interviews and telemarketing between the author and several customers who experienced interference during the system maintenance period at Bank Syariah Indonesia is as follows:

Table 5. Customers' Responses to BSI's Cyber Attacks

Summary of Customers' Responses

1. I feel disappointed with the BSI system that I couldn't withdraw my funds because I needed money at that time so I borrowed funds from my friend first. If possible, the system should be better managed, especially the security.
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³¹ Muhammad Khairul Faridi, "Kejahatan Siber Dalam Bidang Perbankan," *Cyber Security Dan Forensik Digital* 1, No.2 (2019): 57-61.

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2. I moved my funds to another bank that is more secure because I was afraid that my funds would be lost, I hope that BSI's security will be further improved.
 3. I had trouble with transactions, starting with ATMs that could not be used to withdraw and deposit funds. Mobile Banking that could not be accessed during system maintenance, BSI Mobil showed the loading process but immediately exited the application.
 4. I feel confused about transacting during the disruption at BSI, the notification that the request cannot be processed continues to appear, I thought it was only a short time of disruption but it turned out to be for days, I only have 1 account at BSI. Because I heard that BSI was attacked by hackers, I hope for BSI to better maintain bank security.
 5. I continue to transact at BSI but when system maintenance occurs my funds are moved. Maybe when BSI is normal I will return to transact again to BSI, Hopefully it will be resolved quickly, many obligations are delayed because of this event.
 6. I feel sad because I cannot transact on BSI Mobile to see balance information, even when BSI informs that the system is back to normal, but my BSI Mobile still cannot be accessed. So please improve the security system more because if there is a long interruption like this we can move to another bank that is more secure.
 7. I am afraid of the news on social media. I saw viral news on tik tok that there were hackers attacking BSI security, leaking personal data. So I moved my funds to another bank for fear of losing my funds.
 8. At the time of the disruption, the problem I felt was that I wanted to make a transfer transaction but the funds were delayed in entering the recipient's account. I am confused why I am wondering what is wrong with Bank Syariah Indonesia. Hope to be able to prevent incidents like this in advance
 9. The disruption lasted so long that I preferred to transfer funds to the bank, because I was afraid that my funds would be lost due to the news. But I am still transacting at BSI waiting for things to return to normal.
 10. I continue to transact at BSI but I move funds from BSI to other banks for household needs as well as just in case I am afraid that the funds in BSI will decrease when system maintenance occurs. It is hoped that the risk management of Islamic banks can be improved to prevent the impact of disruptions like this.

Source: Processed by Author (2023)

Based on the findings, it shows that customers' perceptions of cyber attacks, only just know that there is a system maintenance so that there is a disruption in the system at Bank Syariah Indonesia. However, they were confused why this system disruption occurred for days. The incident became a customer question that made customers feel anxious, disappointed, afraid and confused.

However, the results also show that some customers are aware of hacker attacks where information is obtained from various kinds of information ranging from social media to newspapers. So that this makes customers scared enough to move their funds to other banks.

Other findings also show that the most obstacles experienced by customers are ATM machines that cannot be used for transactions ranging from withdrawals, deposits to other purchase transactions. BSI Mobile that cannot be accessed, every time you try to access BSI Mobile, a notification that the request cannot be processed always appears.

Based on the findings all customers felt the same constraints at the time of the attack. However, BSI's notification that the system has gradually returned to normal, some customers are still gradually able to access BSI Mobile, some have not been able to access BSI Mobile.

Some of the efforts made by Bank Syariah Indonesia, asked by the author to customers whether the efforts made by BSI make customers return to transact with BSI. The findings show that there are customers who return to BSI but they also transact with other banks because when maintenance moves their funds to other banks. There are also customers who choose to transfer their funds to other banks and are hesitant to return to BSI.

Another question to ask customers is whether they are satisfied with the services provided by BSI during system maintenance. The author's findings show that customers are not satisfied with the services provided because the system maintenance disruption makes customers unable to make any transactions. So that the overall optimization carried out is still not optimal.

The findings show that Bank Syariah Indonesia customers hope that in the future BSI can improve the security system more consistently. Bank Syariah Indonesia needs to convince customers that Islamic banks are safe during system maintenance so that customers do not move to other banks.

From the findings, it shows that when a cyber attack occurs, customers' perceptions of the cyber attack event only know that the incident experienced by Bank Syariah Indonesia was only a disturbance due to system maintenance. However, there are also customers who know about the attack because of the excitement of the news on social media and newspapers.

The findings of this study are important to clarify customer perceptions and attitudes during system maintenance, this contributes to banking, especially to Indonesian Islamic banks to improve security systems for banking services consistently. Bank Syariah Indonesia must also strive to maintain and improve its good reputation to customers by preventing and eliminating potential security threats.

Conclusion

Based on the above events, it can be concluded that the customer's perception is only just knowing that there is system maintenance so that there is a disruption in the system at Bank Syariah Indonesia. The incident became a customer question, which made customers feel anxious, disappointed, afraid and confused. Some customers are aware of hacker attacks where information is obtained from various kinds of information ranging from Tik Tok, Instagram and news newspapers.

The obstacles experienced by customers are BSI Mobile activities that cannot be accessed and ATM machines that cannot make withdrawals and deposits. The factor for the disruption in accordance with operational risk is due to an attempted hacker attack on BSI

but failed so that system maintenance occurred. While in reputational risk, the factors that occur are news and customer complaints about the disruption that occurs.

Efforts made by Bank Syariah Indonesia in protecting customer data and controlling and preventing operational risks from occurring include tighter supervision of the system, upgrading the windows system, upgrading the antivirus system and conducting limited operations. Meanwhile, in controlling reputational risks that occur and preventing the re-occurrence of risks, Bank Syariah Indonesia does several things including providing positive posts or invitations to customers or the public through social media, silaturahmi or direct visits to customers who withdraw funds and provide an explanation of the disruption that occurs as well as an apology, telemarketing to ensure customers do not experience transaction problems, submitting official letters regarding information on BSI system constraints, submitting the latest updates on BSI Mobile and ATM transaction features that have gradually normalized and socialization and education about products and services. Steps taken to protect customers focus on system control (internal) and focus on optimizing controlling for customers (external).

So that the contribution of this research is in addition to clarifying customer perceptions and attitudes towards attacks that occur, it can also be a reference for banks, especially Indonesian Islamic banks to continue to improve maintenance or periodic system upgrades on the security side. Another contribution of this research is also expected to add to the literature of further researchers regarding customer perceptions of hacker attacks at Bank Syariah Indonesia.

Future studies can explore how the optimization of risk management carried out by Bank Syariah Indonesia, from good management governance can prevent attacks on the security system so that it is important so that there are no more attacks. And finally, further researchers can also add other risks that occur during hacker attacks in the next study.

References

- Abdullah Jarir, 2017. "Manajemen Risiko Operasional Pada Perbankan Syari'ah." *Phys. Rev. E* Vol. 13 No. 1 (2017): Januari-Juni 2017 (2017): 1–15. <https://doi.org/10.37035/ajh.v13i1.1750>.
- Afrizal, Saparuddin Siregar, and Sugianto. "Studi Literatur Kritis Risiko Reputasi Pada Manajemen Risiko Perbankan Syariah." *Jurnal EMT KITA* 6, no. 1 (2022): 147–157.
- Amanu, Nasrul. "Kajian Fiqih Berbasis Margin Murabahah Dan Kaitannya Dengan Risiko Reputasi." *Jurnal Ilmiah Ekonomi Islam* 7, no. 1 (2021): 501.
- Andrianto, and M. Anang Firmansyah. "Manajemen Bank Syariah (Implementasi Teori Dan Praktek)." *CV. Penerbit Qiara Media* (2019): 536.
- Anggraini, Maria, and Rahmat Maulana. "Pengaruh Pemeliharaan Mesin Terhadap Kualitas Sepatu Pada Pt. Nikomas Gemilang." *Sains: Jurnal Manajemen dan Bisnis* 9, no. 1 (2016): 59–74.
- Arsyadona, A, S Siregar, I Harahap, and Sugianto. "Manajemen Risiko Reputasi Pada Bank Syariah." *Seminar Nasional Teknologi Komputer & Sains (SAINTEKS)* (2020): 658–661. <http://seminar-id.com/prosiding/index.php/sainteks/article/view/519><https://seminar-id.com/prosiding/index.php/sainteks/article/download/519/517>.

- Bakdiyah, Rizki Musidatun, Umi Barokah, and Mei Tri Sundari. "Risk Management in the Production of Sugar in Mojo Sugar Factory, Sragen Regency." *Jurnal Manajemen Indonesia* 20, no. 1 (2020): 13–21.
- Cleanita Imra'atul Khasanah, and Nur Huri Mustofa. "Analisis Persepsi Nasabah, Kepercayaan Dan Brand Image Terhadap Minat Dan Keputusan Nasabah Menabung." *Jurnal Ilmu Ekonomi dan Bisnis Islam* 4, no. 2 (2022): 93–111.
- Dimitha, Dea Vona, Azharsyah Ibrahim, and Israk Ahmadsyah. "Analisis Persepsi Nasabah Terhadap Strategi Pehamasaran Bank Aceh Syariah Di Kota Banda Aceh." *Journal of Sharia Economics* 2, no. 1 (2021): 42–58.
- Dita Anis Zafani, Islamiyah. "Penilaian Kesehatan Likuiditas Bank Syariah Melalui Financing to Deposit Ratio (FDR) Dan Dampaknya Pada Reputasi Bank (Studi Kasus Bank BCA Syariah)." *IQTISADIE: Journal Of Islamic Banking And Shariab Economy* Volume 2 N (2022): 150–166.
- Faridi, Muhammad Khairul. "Kejahatan Siber Dalam Bidang Perbankan." *Cyber Security dan Forensik Digital* 1, no. 2 (2019): 57–61.
- Fasa, Muhammad Iqbal. "Manajemen Risiko Perbankan Syariah Di Indonesia." *Li Falah Jurnal Studi Ekonomi dan Bisnis Islam* I, no. 2 (2016): 36–53.
- Fatin Fadhilah Hasib; Fachri Akbar. "Operational Risk Management Process In Sharia Bni Kc Mikro Rungkut Surabaya." *J u r n a l N i s b a h V o l . 3* (2017): 326–335. <https://ojs.unida.ac.id/JN/article/view/782/pdf>.
- Fitriani, Rini, Rokhmat Subagiyo, and Binti Nur Asiyah. "Mitigating IT Risk of Bank Syariah Indonesia: A Study of Cyber Attack on May 8, 2023." *Al-Ammal: Jurnal Ekonomi dan Perbankan Syari'ah* 15, no. 1 (2023): 86.
- Hendry Setiawan, and Nasar Buntu Laulita. "Perancangan Dan Penerapan Sistem Manajemen Resiko Pada UMKM Menantea Mitra Dua." *Jurnal Pengabdian kepada Masyarakat Nusantara (JPkMN)* 3, no. 2 (2023): 1860–1866.
- Jelita, Wienanda Rizka Sukma, and Atina Shofawati. "Manajemen Risiko Operasional Pada PT Bank Pembiayaan Rakyat Syariah (BPRS) Jabal Nur Tebuireng Di Surabaya." *Falah: Jurnal Ekonomi Syariah* 4, no. 1 (2019): 69.
- Junia Mawarni, Dewi, Finda Indah Safitri, and Priatmojo Suryo Kuncoro. "Institut Agama Islam Sunan Kalijogo Malang Manajemen Resiko Pada Bank Syariah Indonesia (Bsi) Di Masa Pandemi Covid-19" 3 (2022): 105–117.
- Misra, Isra, Sofyan Hakim, and Agus Pramana. *Manajemen Risiko: Pendekatan Bisnis Ekonomi Syariah*, 2020.
- Nengsih, Ifelda, and Dina Meidani. "Strategi Manajemen Menghadapi Risiko Operasional Pada Pt Bank Pembiayaan Rakyat Syariah (Bprs) Haji Miskin Pandai Sikek." *Jurnal Manajemen dan Profesional* 2, no. 1 (2021): 12–31.
- Nisa, C, and N Nawasiah. "Determinant of Reputation Risk Management in Islamic Banks in Indonesia." *Inquisitive* 1, no. 1 (2020): 1–13. <http://journal.univpancasila.ac.id/index.php/INQUISITIVE/article/view/1857>.
- Nugraha, Dodi Eka. "Manajemen Risiko Reputasi Perbankan Syariah." *Eksisbank* 3, no. 2 (2019): 100–107.

- Nur Fauziah, Heftika, Aini Nur Fakhriyah, and Abdurrohman. "Analisis Risiko Operasional Bank Syariah Pada Masa Pandemi Covid-19." *Al Intaj, Jurnal Ekonomi dan Perbankan Syariah* 6, no. 2 (2020): 38–45.
- Pratama, I Putu Agus Eka, and Made Toby Sathya Pratika. "Manajemen Risiko Teknologi Informasi Terkait Manipulasi Dan Peretasan Sistem Pada Bank XYZ Tahun 2020 Menggunakan ISO 31000:2018." *Jurnal Telematika* 15, no. 2 (2020): 63–70.
- Rachmatina, Rachmatina, and Dedi Sufriadi. "Persepsi Nasabah Terhadap Praktik Produk Pembiayaan Murabahah BNI Syariah Cabang Banda Aceh." *Pamator Journal* 13, no. 1 (2020): 143–150.
- Saputra, Jevi. "Analysis of Public Perceptions About Islamic Banking Case Study in Sekamis Village" 8, no. 1 (2023): 91–103.
- Setiawan, Dicky, Risma Wira Bharata, and Supanji Setyawan. "Current Advanced Research On Sharia Finance And Economic Worldwide (Cashflow) Volume 2 Issue 1 (2022) Current Advanced Research On Sharia Finance And Economic Worldwide | Cashflow <https://Ojs.Transpublika.Com/Index.Php/Cashflow/> Customer Perceptions Of Bank Syariah Indonesia Magelang Sudirman Sub-Branch Office For Teller Transaction Services Using Digital Systems" 2, no. 1 (2022): 244–250. <https://ojs.transpublika.com/index.php/CASHFLOW/>.
- Shanmugam, Mohana, Yen Yao Wang, Hatem Bugshan, and Nick Hajli. "Understanding Customer Perceptions of Internet Banking: The Case of the UK." *Journal of Enterprise Information Management* 28, no. 5 (2015): 622–636.
- Surur, Miftachus, Muhammad Deni Putra, and Firnanda Ayu Widiyanita. "Operational Risk Management Of An Independent Islamic Bank." *Jurnal Imara* 5, no. 1 (2021): 33–45.
- Yulianto, A, A N F Yanti, B Solikhah, and S Ali. "Risk Management Disclosures: An Investigation Using Risk Management Committee as a Moderating Variable." *Jurnal Dinamika Akuntansi* 13, no. 1 (2021): 93–105.
- Yunia Aprilia, Aqif Khilmia, Zakiyyah Ilma Ahmad. "Manajemen Risiko Operasional Pada Perbankan Syariah : Bibliometrik." *Iqtishadia: Jurnal Ekonomi dan Perbankan Syariah Vol. Vol. 09 No, no. 1 (August 21, 2022): 193–203. <http://journal.sties-purwakarta.ac.id/index.php/EKSISBANK/article/view/14>.*