International Journal of Economics and Financial Issues

ISSN: 2146-4138

available at http: www.econjournals.com

International Journal of Economics and Financial Issues, 2023, 13(3), 18-32.

Leading Operational Risk Events For South African Banks: A Reputational Risk Perspective

Suné Ferreira-Schenk*

North West University, South Africa. *Email: 23261048@nwu.ac.za

Received: 26 January 2023 **Accepted:** 09 April 2023 **DOI:** https://doi.org/10.32479/ijefi.14271

ABSTRACT

Banks have been exposed to operational risk for decades. Therefore, there is a strong reason to believe that the exposure to operational risk will only increase in future due to improved transparency as required by regulators as well as the increased reliance on improved technological automation within banks in the digital area. The aim of this article was to identify the leading operational risk events that will most likely lead to reputational risk for South African banks. Primary data were collected from 417 depositors in Gauteng, South Africa, using a self-structured questionnaire where hypothetical operational risk events were employed. External fraud had the highest reputational risk rating, followed by execution and delivery. Six out of the eight events, therefore, were considered severe in terms of the likelihood that depositors will withdraw. Seven out of the eight events, therefore, were considered severe in terms of the percentage of funds that depositors will withdraw. Also, seven out of the eight events were considered severe in terms of the likelihood of creating a negative perception in the minds of depositors. The majority of research in this area has stemmed from developed countries. The significant difference between previous research in the developed regions and South Africa lies in the absence of a deposit insurance scheme in the South African banking sector. Operational risk events that might be severe in developed countries might even be more severe in the South African context without proper banking insurance protecting depositors. Therefore, the novelty of this article lies in the contribution towards empirical evidence from one of the most sophisticated and promising emerging markets by identifying the most severe operational events on the reputational risk for banks.

Keywords: Operational Risk, Reputational Risks, Perception, Reputation, Withdrawal Risk
JEL Classifications: G14, G21, C3

1. INTRODUCTION

"*Who steals my purse steals my trash. But he that filches me my good name, robs me of that which not enriches him and makes me poor indeed*" (Shakespeare, 1622, 3.3:165). Reputational risk remains a corporate threat since no standard definition for this risk exists. Various institutions have attempted to define it, all with the same theme in mind (loss in reputation due to the negative perception by stakeholders), but not yet commonly shared by practitioners (Soprano et al., 2009:159). According to Schreiber (2011:92) and Honey (2012:3), reputational risk is concerned with the expectations of the financial and operational doings of a bank by its stakeholders regarding a bank's performance in these areas. From this definition, it is clear that stakeholders will expect some level of performance from a bank, which they believe they are entitled to receive (Schreiber, 2011:92). These stakeholders are also fully entitled to form any perception, negative or positive based on their current and future expectations regarding the performance a bank (Miklaszewska et al., 2020). Expectations are not general, but rather stakeholder-specific, as these expectations will vary across different stakeholders (Schreiber, 2011:93).

According to BCBS (2009:19), reputational risk is the risk arising from various stakeholder perceptions (depositors, associates, investors, debt-holders or regulators) where these stakeholders and their perceptions, can affect a bank's capacity to preserve

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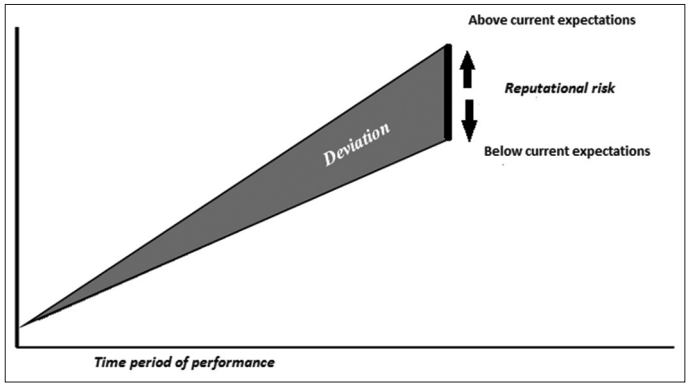
or produce new business relationships. These perceptions are held by various stakeholders, especially depositors (Schreiber, 2011:91). Schreiber (2011:92) extends his definition by stating that reputational risk incorporates the expectations of stakeholders regarding a bank's performance, compared to the performance of other banks in the industry. This adds to the significance of sustaining a sound reputation, where a bank has to live up to the expectations of numerous stakeholders, but has to do so while outperforming its competition. Lange et al. (2011:154) go so far as to say that stakeholders will judge an institution critically or constructively over a period, where after these stakeholders will form a perception. Sweeting (2011:109) expands on these definitions by adding that negative perception in terms of publicity, whether true or untrue, has various consequences. Perception, whether positive or negative, can erode or enhance a bank's reputation. The most important task of a bank is to establish who its key stakeholders are and to prioritise responsibilities according to these stakeholder characteristics, needs, perceptions and behaviour(Louisot and Rayner, 2012:3).

Depositors expect banks to perform financial intermediation to accumulate depositor savings and transfer them to borrowers (Mohr and Fourie, 2008:338). By performing financial intermediation, depositors form certain expectations where they expect the service and performance of the bank to add value as well as give a level of financial satisfaction. Depositors expect banks to manage risk in such a way as to protect their financial assets from harm. At the same time, when these expectations of the depositors are not met by their respective banks, depositors have the power to change services to other banks or completely withdraw their funds (Mostert and Lotz, 2010:10). This is the most undesirable scenario since depositors provide the bank with funds to be able to perform financial intermediation in the first place. The more funds customers deposit, the more funds are available for borrowing, which ultimately leads to a more profitable bank (CIPS, 2014). Avoiding such unwanted scenarios that may lead to bank runs is not always as easy as it sounds due to the extensive risk exposure of banks (Deloitte, 2014:5).

Since reputational risk within a bank stems from operational risk events, such risk events will influence the perception of depositors. However, how banks respond to operational risk events can ultimately determine whether a negative perception of the bank is formed or whether the perception of the bank is enhanced (Deloitte, 2014:5). Hence, operational risk and reputational risk are closely correlated with depositors' subjective perception and behaviour(Zboron, 2006:504). The everyday decisions and activities of the bank can lead to reputational risk where these activities are controversial to depositor expectations (Manjarin, 2012:4). A positive bank reputation is formed where the perception of depositors is proven to be optimistic (Ferreira, 2015:23). On the contrary, a negative bank reputation is formed where depositor perception is proven to be pessimistic (Eccles et al., 2007:4). A connection can also be drawn between depositor's behaviour and the amount of risk that they are willing to tolerate (Jagongo and Mutswenje, 2014:93).

According to Figure 1, reputational risk originates when a bank is performing below the expectations of the stakeholders (internal

Figure 1: The role of depositor expectations and perception



and external) (Deloitte, 2014:5; Ferreira, 2015:43; Miklaszewska et al., 2020). where performance is measured as current and past performance. For this article, however, the perception and expectations of depositors will play the largest role in determining the reputational risk of a particular bank. Hence, the larger the deviation between the actual performance of the bank and the expectation of what the performance should be, the larger the exposure to reputational risk (Honey, 2012). The performance of top management and other key departments and the effectiveness of their communication strategy to the depositors determine whether reputation is eroded or preserved (Deloitte, 2014:5). Every action that a bank takes (what the bank does and what the bank says), as well as every decision that the bank makes, has the likelihood of resulting in reputational risk. If any activity or decision is perceived to be controversial by the depositors, reputational risk will occur (Manjarin, 2012:3). A bank will gain a sound reputation where the perception amongst depositors is positive and where the bank is performing above current expectations (Eccles et al., 2007:4). The level at which the bank performs – below or above expectations – depends on the risk to which the bank is exposed. Reputational risk is therefore defined within this study as "the risk arising from the negative perception of a bank, formed by its depositors due to the bank performing below the expectations of depositors in comparison with the banking industry after the occurrence of operational risk events."

2. LITERATURE REVIEW

Reputational risk dominates the South African financial market as well as the banking industry (Deloitte, 2014). Contradictions exist regarding the existence of reputational risk as some banks regard reputational loss as a result of pure reputational risks while the rest of the banks regard it as a consequence of operational risk (Ferreira, 2015:45). Not only did the past decade expose banks to more eminent operational risks, but it also increased the level of reputational risk exposure. The information age, which erupted during the 1980s and 1990s, further contributed to the exposure by reducing the time it takes for information regarding operational risks within banks to reach external stakeholders (De Jongh et al., 2013:371). Operational risk events attract major media attention, which in turn places bank operations under unexpected levels of media scrutiny concerning its actions or service. Operational risk events result in reputational consequences, hence, managerial

decisions affect reputational risk exposure (Soprano et al., 2009:159) (Figure 2).

As mentioned earlier, the functions of a bank can expose it to risk and uncertainties where these need to be managed and mitigated. Banks have always been exposed to operational risks, yet there is a strong reason to believe that the exposure to operational risk will only increase in future (De Jongh et al., 2013). Chernobai et al. (2021) states that operational risk for banks will also increase as banks become more versatile and expand into non-banking activities which may increase the complexity of the operational risks. Berger et al., (2022) suggest that operational risk, normally seen as idiosyncratic can become systemic in nature leading to other types of risks if not well managed. Based on the BCB (2006) Accord on the global convergence of capital measurements for operational risk, the following operational events were categorised and defined. Operational events such as the ones mentioned below have predominantly increased due to improved transparency as required by regulators as well as the increased reliance on improved technological automation within banks (Cummins et al., 2006). Banks should therefore employ tighter internal controls to minimise events such as operational risks that have now become more visible to the outside world.

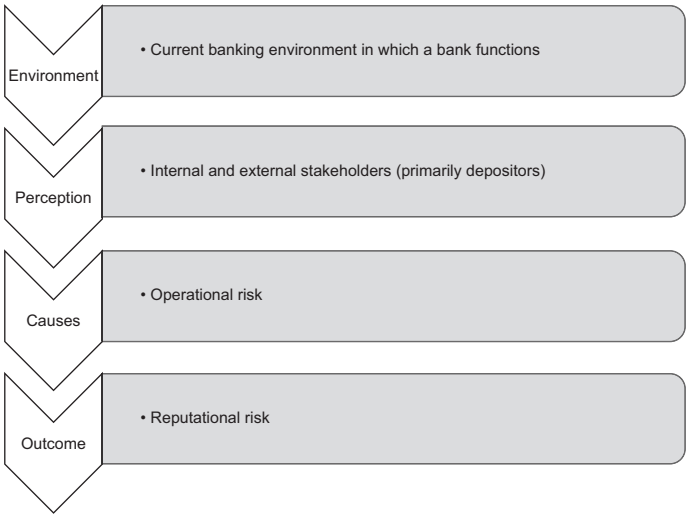
2.1. Internal Fraud

Internal fraud takes place due to the deliberate embezzlement of bank assets, theft, insider trading or the evasion of laws by any internal party in the bank. Such operational events may include cases of unauthorised trading where transactions were intentionally not reported or unauthorised. Mismarking of a bank's position (i.e. the bank is not as financially sound as reported) is also classified among internal fraud and theft. According to the studies by Ruspantini and Sordi (2011) as well as Moosa and Li (2013), cases of internal fraud were found to be the most severe operational events experienced by banks.

2.2. External Fraud

External fraud includes a breach of system security due to the deliberate embezzlement of the bank's assets or by evading laws and regulations. It encompasses sub-categories such as theft of information or hacking. Hacking in the form of cyber-attacks as well as other technology-driven crimes is considered a form of fraud instead of information damage (Soprano et al., 2009:17). External fraud events in this case may include a breach in customer information due to third-party hacking, cloning of bank cards, or any online and mobile fraud.

Figure 2: The origin of reputational risk



Source: Ferreira (2019)

2.3. Employment Practice and Workplace Safety

Employment practice and workplace safety include three subcategories of activities giving rise to operational risks, namely employee relations in the workplace, health and safety as well as any form of discrimination. The majority of studies regarding operational risk found this event category to be the least severe (Gillet et al., 2010:225). The reason is that information regarding this event is usually internal and confidential and is seldom fully disclosed to the public (Soprano et al., 2009:18).

2.4. Clients, Products and Business Practices

Clients, products and business practices are also seen as some of the most severe types of operational risk events (Soprano et al., 2009:14). This event consists of both the intentional and unintentional failure to act per the obligations to bank clients, inadequate products or from the wrongful intent of a product. According to the BCBS (2006), five subcategories exist within this event category, the first being suitability, disclosure and fiduciary breaches. This may include any activities where a client's privacy was breached, disclosure or client guideline violations, aggressive loan extensions or severe cases of lender liability (Crouhy et al., 2014:510). Improper bank or market practices may include insider trading, money laundering or any form of market manipulation by manipulating currencies or interest rates. A third sub-category includes product flaws such as model errors in how a bank structures a product. Selection, sponsorship and exposure are where a bank failed to investigate its clients per guidelines or exceeded the exposure level of a client. The last sub-category includes advisory activities related to disputes over performance advisory activities (BCBS, 2006:305; BCBS, 2013).

2.5. Damage to Physical Assets

Damage to physical bank assets encompasses losses due to natural disasters or due to human-made events such as terrorism or vandalism. The exposure level of this event is calculated by accounting for the aggregate real estate value of a bank. Such events may involve a single local branch or the headquarters of a bank (Crouhy et al., 2014:510).

2.6. Business Disruptions and System Failures

Business disruptions and system failures include losses due to the disruption in the normal course of business or due to system failures (Chernobai et al., 2007:24). System failures may be due to the failure of hardware or software or due to power failures. The severity of this event is often challenging to quantify, as a firm-wide event may be associated with the failure of a single unit within the bank (i.e. power outage due to faulty wire on the ground floor).

2.7. Execution Delivery and Process Management

Execution delivery and process management encompass the failures associated with transactions, monitoring and reporting

processes, customer documentation and management as well as losses from traders, vendors and suppliers. The majority of these events occur at a high frequency with a lower severity level (i.e. miscommunication, data entries, accounting errors, missing documents). On the other hand, sub-categories such as monitoring and reporting, where a bank failed to comply with their mandatory reporting obligations, occur at a lower frequency, but at a higher severity level meaning larger losses (i.e. fines or penalties) (Cummins et al., 2006) (Table 1).

A few previous researchers have analysed depositor behaviour in terms of deposit insurance schemes, bank relationships, performance, perception, trust and bank switching costs. According to Murata and Hori (2006) the level of sensitivity of depositors has changed over time per changes in regulation, more specifically, deposit insurance schemes. Brunettia et al. (2016) analysed Italian household depositors and their respective banks over some time. Within this sample, the event of bank switching (moving from one bank to another) was quite prevalent, where 25% of depositors changed from one bank to another at least twice a year. The study indicated that bank switching is dependent on the bank relationship as well as the distinctive characteristics of the depositors, as well as the bank. It was furthermore found that the number of banking services used and the extent of the services used also contribute to depositors' decisions to switch banks. Results indicated that if depositors are making use of more than one banking service at the current bank, they are 4% less likely to switch banks. However, depositors are 8% more likely to switch to other banks if they are making use of more than one bank. Similar results were found in an annual banking research study conducted by Accenture (2015) using a 15,000 global sample. Results indicated that 18% of bank depositors decided to switch to another bank whereas, 27% added additional services from alternative banks. Reasons for the switch from one bank to another included bank performance, perception and trust. Iyer et al. (2016) examined the diversity in depositor responses following solvency risk during two different bank failure scenarios. The results showed significant findings that suggested that depositors paying off loans at a specific bank, depositors with older accounts as well as current staff members at the bank are less likely to withdraw their funds and switch banks during a minor solvency risk scenario. These customers were found to be highly likely to withdraw and switch banks during a major solvency risk scenario. Depositors without deposit insurance were found to be more sensitive to solvency risk. The results of this study suggest that the fragility of a bank during solvency risk is influenced by the structure of the bank's depositor base. Boyle et al. (2015) researched the levels of risk perception of depositors regarding a set of hypothetical banking failures and the role that deposit insurance plays towards risk mitigation during a banking failure. The study also considered the risk tolerance levels of 349 student depositors based in the United States, Europe and New Zealand, which indicated how much risk student depositors are willing to take concerning their country's deposit insurance schemes. Depositors without deposit insurance were found to be more sensitive to risk. Previous studies, such as Boyle et al. (2015), indicate that countries without an explicit DIS face greater withdrawal risk (deposits being largely withdrawn from bank accounts). Hence, an explicit DIS improves depositor confidence regarding the safety of deposits and will most likely reduce the probability of a bank run. At the same time, it reduces time and effort depositors may have spent monitoring the risky activities of their bank, creating an incentive for future bank failures.

Further studies by Demirgüç-Kunt et al. (2014) also found that countries that had an explicit DIS implemented before the GFC of 2008, experienced fewer depositor-led bank runs. In South Africa, an implicit DIS is adopted where the National Treasury and the SARB protect deposits in the event of banking failure. Several proposals have been made to introduce an explicit deposit insurance scheme in South Africa, however, SARB opposes these proposals due to the cost involved with an explicit DIS (Coetzee and De Beer, 2016, p. 91). Many countries such as South Africa may only consider the implementation of an explicit DIS after a systemic bank crisis. This option, however, assumes that a newly implemented DIS will be just as effective as an established DIS (Boyle et al., 2015, p. 590).

A systematic literature review by Adeabah et al., (2022) on the analysis of the effects of operational risk and reputational risk on banks led to the discovery that the majority of research in this area stems from developed countries. Hence, this identifies a gap in the emerging and developing world. This suggests that the topic under study has not yet gained the active momentum it deserves in these regions. The significant difference between previous research in the developed regions and South Africa lies in the absence of a deposit insurance scheme in the South African banking sector. Operational risk events that might be severe in developed countries might even be more severe in the South African context without proper banking insurance protecting depositors. This article, therefore, contributes to the identification of operational risk events to confirm which will be contributing variables that will likely influence depositors' withdrawal behaviour in an emerging country. From a methodological contribution, an operational risk scale was developed using 24 hypothetical operational risk event scenarios. This will be done by performing CFA on the seven broad operational risk events as classified by BCBS (2006) and one pure reputational risk event. The second contribution of the article will lie in the descriptive analysis where the article aims to indicate how likely depositors will be to withdraw their funds, the percentage withdrawal based and individual perception (negative) after each hypothetical operational event exposure. This will give practitioners and regulators an idea of the severity and likelihood of a possible bank run as a consequence of reputational risk exposure. The third contribution lies in identifying which operational risk events would be explanatory towards reputational risk for a bank. Participants had to indicate for each operational event, whether the event would negatively influence the participants' perception of the bank indicating Reputational risk.

3. METHODOLOGY

The methodological process, research purpose and design, sample and data collection, as well as the statistical analysis, is descried in this section.

Table 1: Operational risk event types

Risk type category	Sub-category	Activity
Internal fraud	Unauthorised activity	Transactions not reported (intentional)
		Transaction type unauthorised
		Mismarking of position (intentional)
	Theft and fraud	Fraud, credit fraud, worthless deposits
		Theft, extortion, embezzlement, robbery
		Misappropriation of assets
		Malicious destruction of assets
		Forgery
		Account take-over or impersonation
		Tax non-compliance, evasion (wilful)
		Bribes, kickbacks
		Insider trading (not on the firm's account)
External fraud	Theft and fraud	Theft/Robbery
		Forgery
		Check kiting
	Systems security	Hacking damage
		Theft of information (monetary loss)
Employment practice and workplace safety	Employee relations	Compensation, benefit, termination issues
		Organised labour activity
	Safe environment	General liability (slips and fall, etc.)
		Employee health and safety rules events
		Workers compensation
	Diversity and discrimination	Any level of discrimination towards employees (gender or race)
Clients, products and business practices	Suitability, disclosure and fiduciary	Fiduciary breaches, guideline violations
		Suitability, disclosure issues (know your client principle)
		Retail customer disclosure violations
		Breach of clients' privacy
		Aggressive sales (loans)
		Account churning
		Misuse of confidential information
		Lender liability
	Improper business or market practices	Antitrust
		Improper trade, market practices
		Market manipulation (currency or interest rates)
		Insider trading (on firm's account)
		Unlicensed activity
		Money laundering
	Product flaws	Product defects (unauthorised)
		Model errors
	Selection, sponsorship and exposure	Investigate client per guidelines
		Exceeding client exposure limits
	Advisory activities	Disputes over performance advisory activities
Damage to physical assets	Disasters and other events	Natural disaster losses
		Human losses from external sources (terrorism, vandalism)
Business disruptions and system failures	Systems	Hardware and software
		Telecommunications
		Utility outages or disruptions
Execution, delivery and process management	Transaction capture, execution and maintenance	Miscommunication by bank
		Data entry, maintenance or loading error
		Missed deadline or responsibility
		Model, system miss-operation
		Accounting error, entity attribution error
		Other task miss-performance
		Delivery failure by the bank
		Collateral management failure
		Reference data maintenance
	Monitoring and reporting	Failed mandatory reporting obligation
		Inaccurate external report (loss incurred)
	Customer intake and documentation	Client permissions, disclaimers missing
		Legal documents missing, incomplete
	Customer, client account management	Unapproved access given to accounts
		Incorrect client records (loss incurred)
		Negligent loss or damage of client assets
	Trade counterparties	Non-client counterparty
		Mis-performance
		Misc. non-client counterparty disputes
	Vendors and suppliers	Outsourcing of services
		Vendor disputes or supplier disputes

Source: BCBS (2006)

3.1. Research Purpose and Design

A quantitative research approach was followed whereby a self-structured questionnaire was implemented. The research aim and design contributed to the primary objective of the article to aid in the exploration of operational risk events to confirm which will be explanatory variables that will likely influence depositors' withdrawal behaviour in an emerging country. Furthermore, a positivistic research paradigm was followed to test the theory and enhance the predictive understanding of the phenomena in question (Myers, 2013). In the study, the researcher was concerned with human behaviour in terms of financial behaviour and decision-making when exposed to hypothetical operational events that can be controlled and determined by the external environment.

3.2. Study Area and Sample

Due to the gap in research identified by Adeabah et al., (2022) which indicated that the majority of analysis focusing on the effects of operational risk and reputational risk on banks stems from developed countries, the targeted study area included an emerging country region for the investigation. The population for the study included all bank depositors in Gauteng, South Africa which included customers from 28 registered banks. Due to the extensive number of small, medium and large banks registered in South Africa, a decision was undertaken to only use the top five banks as these represent most of the population. The top five banks in terms of market share (largest customer database) included Standard Bank, Absa Bank, Capitec Bank, First National Bank and Nedbank. To capture the correct sample that will be able to comprehend the questions inclusion criteria were applied. This limited the sample to those individuals who were older than 18 years, had some form of formal education (matric certificate or further), loyal bank depositors for more than 5 years, and our bank customers at one of the top five banks included in the sample frame. The final sample of 417 bank depositors was collected using non-probability purposeful sampling (snowball sampling). The sample size met the statistical requirements needed to conduct the factor analysis (FA) for this article. The collected sample was also similar to conventional studies conducted previously (Mäenpää et al., 2008; Zhu and Chen, 2012; Zarvrsnik and Jerman, 2012; Vazifedoost, et al., 2013; Boyle et al., 2015, and Ozkan-Tektas and Basgoze, 2017).

3.3. Survey Design and Procedure Method

Quantitative data were gathered from participants who completed a self-administered questionnaire consisting of five sections. The questionnaire was introduced to participants by means of a cover page, explaining the significance of the study as well as the role of the participants. The questionnaire consisted of the following sections: (A) operational risk scenarios. Section A consists of a 24-item scale, which includes seven operational risk events and one pure reputational risk event where depositors were required to indicate the likelihood that they will withdraw their current deposits. These operational risk events were constructed based on the BCBS (2006) guidelines on operational risk events faced by banks. The following statements represent the operational risk scenarios used to elucidate participants' responses regarding the source of information:

1. Hackers have stolen valuable client information leading to financial losses to customers, how likely are you to withdraw?
2. Your bank is under investigation for the unfair employee benefits and unfair termination of some of the employees, how likely are you to withdraw?
3. Your bank is under investigation for credit card fraud committed by someone within the bank, how likely are you to withdraw?
4. Your bank is under investigation for evading laws due to mismarking of their position (i.e. the bank is not as financially strong as reported), how likely are you to withdraw?
5. Your bank has been accused of reckless lending by extending high volumes of loans exposing the bank to liquidity problems, how likely are you to withdraw?
6. An external party from outside the bank has managed to forge a cheque and withdraw large amounts of money from your account, how likely are you to withdraw?
7. Bank employees are under investigation for stealing depositors money, how likely are you to withdraw?
8. Your bank is under investigation for having health and safety issues regarding employee workplace safety, how likely are you to withdraw?
9. Your bank is under investigation for the market manipulation of interest rates and the South African currency, how likely are you to withdraw?
10. Your bank has been accused of discrimination in terms of gender, how likely are you to withdraw?
11. External parties have managed to steal millions by means of credit card and debit card fraud, how likely are you to withdraw?
12. External auditors have accused your bank of failing to deliver accurate annual reports (losses were hidden from customers), how likely are you to withdraw?
13. Your bank has sustained damage to physical assets due to vandalism, how likely are you to withdraw?
14. Your bank has frequent disruptions in business due to system failures as a result of outdated software, how likely are you to withdraw?
15. Your bank has frequent disruptions in the normal course of business due to power outages, how likely are you to withdraw?
16. The bank has been providing misleading information resulting in financial losses, how likely are you to withdraw?
17. Your bank has sustained damage to physical assets by means of a natural disaster (loss resulting in the destruction of an institution or affecting it), how likely are you to withdraw?
18. Your bank has been accused of financial losses in client funds and assets, how likely are you to withdraw?
19. Your bank has been accused of extending loans to people who cannot afford them, exposing the bank to possible bankruptcy, how likely are you to withdraw?
20. Your bank has sustained damage to physical assets due to a terrorist attack, how likely are you to withdraw?
21. Your bank has frequent disruptions in banking applications (such as the unavailability of mobile and internet banking), how likely are you to withdraw?
22. Your bank's performance is not meeting your expectations and financial desires, how likely are you to withdraw?

23. The manner in which your bank handles public matters is not according to your expectations, how likely are you to withdraw?
24. Your bank's activities are not creating a good reputation in your mind, how likely are you to withdraw?

Section B measured Reputational risk after operational events where the same hypothetical statements were used to ask participants in these events what percentage (%) of their money they are likely to immediately withdraw. Also, they had to state how likely the event will negatively influence their perception of the bank. A withdrawal of more than 50% of funds and a high likelihood of a negative perception was an indication of reputational risk, guided by theory.

For example:

3.4. Hypothesis

The null hypothesis (H_{01}) for this article states that depositors' behaviour to withdraw during operational risk events does not influence reputational risk. The alternative hypothesis (H_{a1}) states that depositors' behaviour to withdraw during operational risk events does indeed influence reputational risk.

3.5. Statistical Analysis

After the quantitative data were collected, it was coded and captured through the use of the Statistical Packages of Social Sciences (IBM SPSS) version 27 and AMOS 26. To test the self-developed operational risk scale including the 24 hypothetical operational risk event scenarios, FA was conducted to confirm the variables and test their internal reliability. Descriptive analysis was then used to indicate how likely depositors will be to withdraw their funds, the percentage withdrawal based and individual perception (negative) after each hypothetical operational event exposure. Correlation and regression analysis was further employed to identify the contributing operational risk events towards reputation risk for a bank.

4. EMPIRICAL RESULTS

This section reports the results of the collected and analysed data. Firstly, the factor analysis is reported for all operational risk events including the measurement model. Secondly, the descriptive analysis is provided for the amount that depositors will withdraw during each risk event and the likelihood of having a negative perception outcome. Lastly, the correlation and regression analysis will be reported.

4.1. Factor Analysis of Operational Risk Events

Confirmatory Factor Analysis (CFA) is conducted for two reasons, the first being to obtain the estimates or factor loadings, correlation, covariance and residual errors of the parameters in the model. The second reason is to estimate whether the model itself is a good fit for the data (Hox and Becher, 1998:356). Figure 3 below indicates the specified measurement model for the eight operational risk events.

4.1.1. Reliability and validity of measurement model

As can be noted in Table 2 Cronbach alpha values for all eight factors were calculated. According to Cronbach (1951) the reliability of a scale is dependent on the number of items in a scale, hence value around 0.7 are acceptable in terms of internal reliability consistency. Since the factors grouped well together and had high Cronbach alpha values >0.7, it can be assumed that all eight of the initial factors were deemed reliable. Since no multicollinearity was experienced, it was decided that no item would be removed. As seen in Table 2 all eight operational risk events indicated factor loadings >0.05 and these loadings were significant ($P < 0.01$) for all eight variables, which indicates that the data are a good fit for SEM. Since these factors all loaded into eight factors and had high reliability >0.7 it can now be determined whether they fit the specified model. Figure 3 indicates the hypothesis regarding the factor structure of the model.

4.1.2. Assessment of goodness-of-fit indices

Three types of goodness of fit indices, namely absolute, incremental and parsimony are required to evaluate how well the data fit the hypothesised model. The first goodness-of-fit index, the absolute index specifies how well the empirical data fit the hypothesised measurement model. This model makes a distinction between goodness-of-fit and badness-of-fit indices. The CFI was also performed where a value of 0.87 was obtained. This was followed by the incremental fit index (IFI) and the TLI where values of 0.87 and 0.83 were obtained. Values that are closer to one indicate a better fit; whereas, those closer to zero indicate that the data do not fit the model (Malhotra et al., 2012:230). The values close to 0.9 indicate a marginal goodness-of-fit (Mueller, 1996:204). Absolute badness-of-fit indices require values that are lower since these measures measure error or deviation, for example, the chi-square test X^2, the RMSR, the SRMSR and the RMSEA (Malhotra et al., 2012:874). The chi-square value was obtained by dividing the minimum sample discrepancy by the degrees of freedom (CMIN/DF). Mueller (1996:204) argues that ratios between three and five are still acceptable as a good model fit. In this case, a value of 3.96 was obtained and this value is still acceptable indicating a goodness-of-fit. A RMSEA of 0.08 was found. The model is regarded as a good fit where RMSEA is <0.05. An adequate model is regarded where values are <0.08 (Blunch, 2008). On the other hand, according to Blunch (2008) values >0.10 should not be accepted.

Internal fraud						
a) Your bank is under investigation for evading laws and regulations due to mismarking of their position (i.e. the bank is not as financially sound as reported)	0	1-19%	20-39%	40-59%	60-79%	80-100%
b) State how likely this event will negatively influence your perception of the bank	Very unlikely	Unlikely	Some-what unlikely	Some-what likely	Likely	Very likely

Figure 3: Specified measurement model

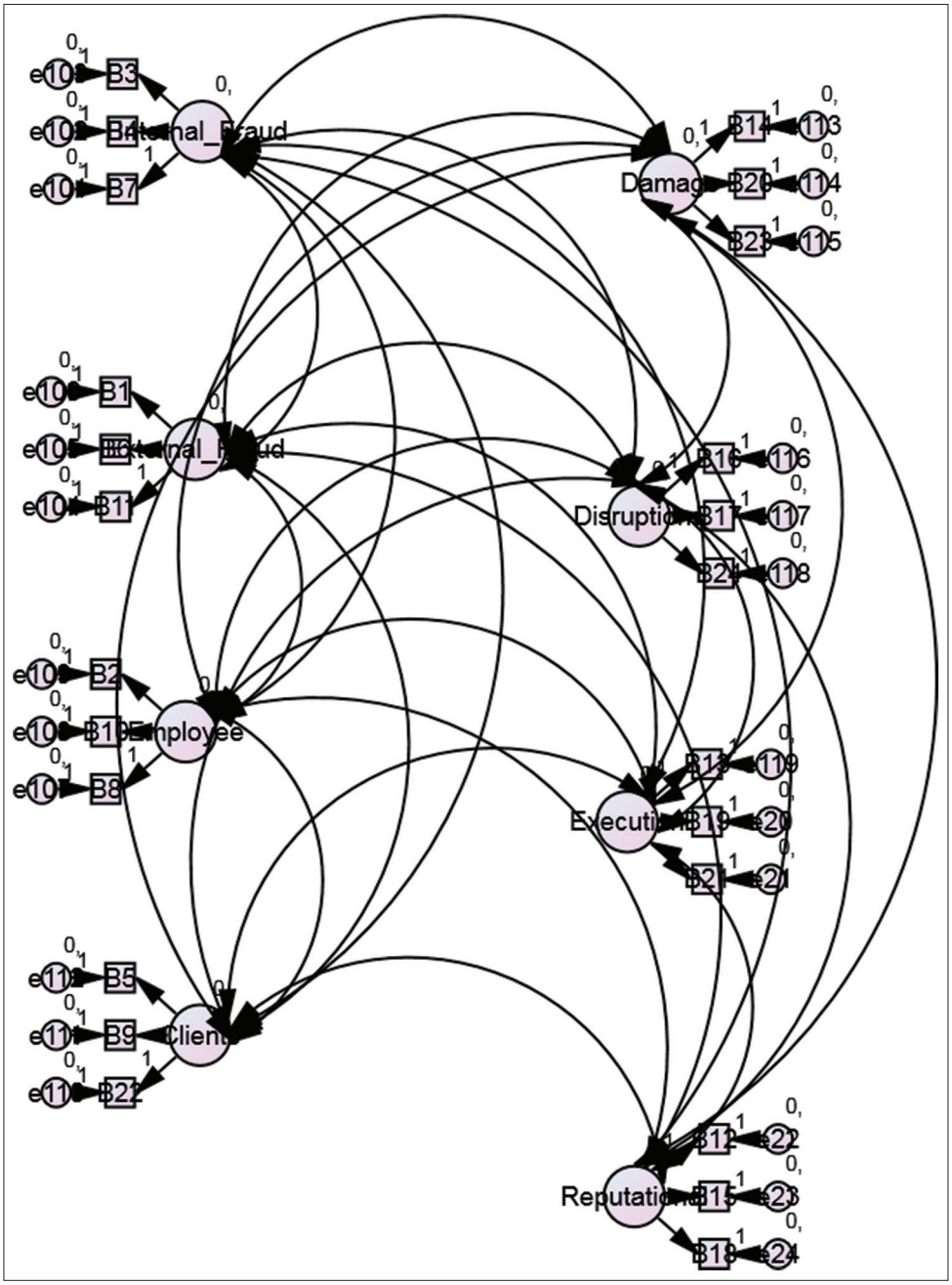


Table 2: Standardised regression weights

Operational risk event	Cronbach alpha	Estimate	P-value
Internal fraud	0.763	0.788	0.000***
External fraud	0.681	0.750	0.000***
Employment practice	0.795	0.575	0.000***
Clients, products and business practice	0.730	0.853	0.000***
Damage to physical assets	0.855	0.474	0.000***
Business disruptions	0.776	0.586	0.000***
Execution and delivery	0.771	0.838	0.000***
Reputational event	0.713	0.752	0.000***

4.2. Descriptive Analysis

Section B asked participants to indicate how likely they will withdraw their funds from their bank account based on seven operational risk events and a pure reputational risk event. Participants answered on a six-point Likert scale ranging from very unlikely to very likely. Those events that had a mean score higher than the median score of 3.5 for the likelihood to withdrawal were considered severe events. This scale allowed depositors to indicate how likely they are to withdraw their funds after an operational event as well as how much (in percentage form) of their funds they will most likely withdraw. This information can give banks an indication of possible liquidity challenges or in more severe cases, possible bank runs. It was not possible to ask for a specific amount since it will depend on the depositors' annual income level. Those events that had a mean score higher than the median score of 3.5 were considered severe events based on the percentage withdrawal. The mean scores are also given for the operational risk events and their likelihood to create a negative perception in the

mind of the depositor. Those events that had a mean score higher than the median score of 3.5 were considered severe events since they have a high likelihood of leading to a negative perception of the bank in the mind of the stakeholder (depositor). Those operational risk events which had mean scores >3.5 for all three variables (the likelihood to withdraw, mean percentage to withdraw and the mean negative perception) were considered events that would likely lead to reputational risk for a bank. Hence, these three variables combined were used as a proxy for reputational risk in the following sections. Note that when a negative perception of a bank is formed and depositors are willing to withdraw more than 40% of their funds, reputational risk exists (Honey, 2012; Boyle et al. 2015) (Table 3 and Figure 4).

The first operational risk event, Internal fraud, obtained a mean value of 4.25 for the likelihood to withdraw on the 6-point Likert scale. As mentioned in the literature in Section 2, events that are classified as internal fraud are such as the mismarking of the banks' position (where the bank is reported to be more financially sound than in reality), credit card fraud committed by bank employees, insider trading, or a loss in customer funds due to employee misconduct (BCBS, 2011). Considering the percentage to withdraw, a mean value of 4.77 was obtained while 40.8% of depositors indicated that they are likely to withdraw 80-100% of their deposits. Another 23% indicated that they are willing to withdraw 60-79% of their deposit value. These values already indicate that 63.8% of depositors will withdraw more than 60% of their funds in the event of internal fraud. Considering stakeholder perception, 40.3 and a further 30.7% of depositors indicated that an internal fraud event will very likely and likely influence their perception of the bank negatively. Hence, without taking those into account who indicated somewhat likely, this already equates to 71% of depositors who indicated that internal fraud would cause a negative perception of the bank. A mean value of 4.92 was obtained for internal fraud events higher than 3.5, which is indicative of reputational risk.

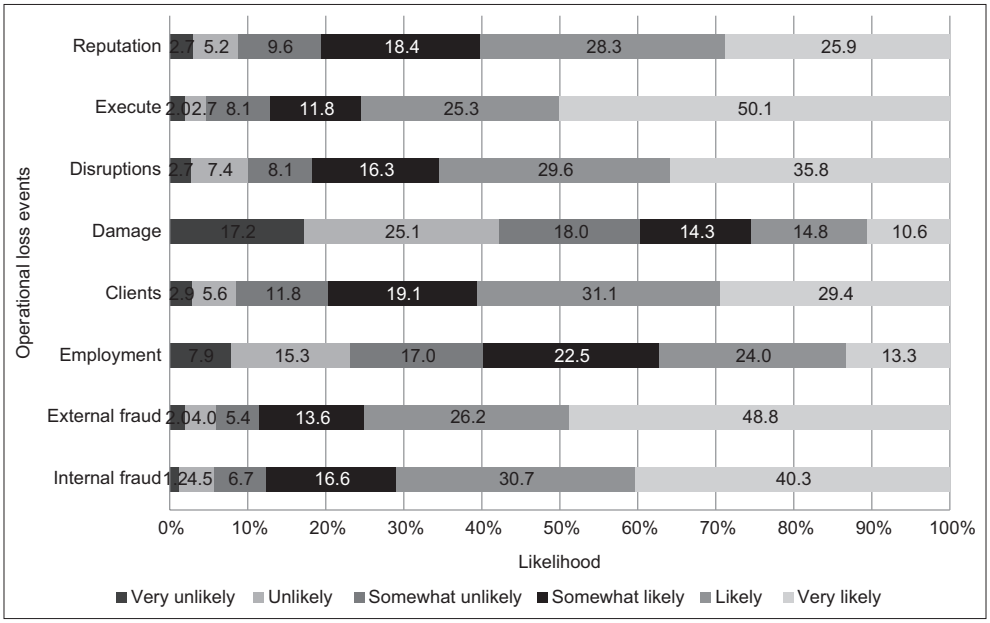
External fraud had the highest mean score (4.51) indicating that the majority of depositors will likely withdraw their funds when exposed to external fraud. External fraud events may include a breach in bank accounts by external parties, where bank customers are at risk of losing their funds, forging of cheques, as well as credit and debit card fraud(BCBS, 2006). External fraud indicated more severe results as 53% of depositors are likely to withdraw more than 80% of their funds. Concerning the percentage to withdraw, a mean score of 5.08 was recorded. A further 20.1% are likely to withdraw between 60% and 79% of their funds in the event of external fraud. This indicates that 70.1% of depositors will likely withdraw more than 60% of their deposits in the event of external fraud. Almost 50% of depositors indicated that external fraud would lead to a negative perception of the bank in the eyes of its most important stakeholders (depositors). Another 26.2% and 13.6% of depositors indicated that this event will likely and somewhat likely cause a negative perception.

Inadequate employment practices as an operational event had a low mean value (3.31) indicating that this event will also cause depositors to be somewhat unlikely to somewhat likely to

Table 3: Descriptive analysis of operational risk events

Operational risk events	Percentage to withdraw						Mean Likelihood to withdraw	Mean % to withdraw	Mean negative perception	Mean reputational risk	Reputational risk index score
	0%	1-19%	20-39%	40-59%	60-79%	80-100%					
Internal fraud	2.8	5.1	8.9	19.4	23.0	40.8	4.25	4.77	4.92	4.65	77.4%
External fraud	2.0	3.0	6.1	15.7	20.1	53.0	4.51	5.08	5.04	4.88	81.3%
Employment practices	18.2	10.5	16.9	21.7	19.9	12.8	3.31	3.53	3.79	3.54	59.1%
Clients, products and business practices	5.6	5.3	11.6	18.9	28.8	29.8	4.39	4.49	4.58	4.49	74.8%
Damage to physical assets	21.4	16.8	18.1	16.0	14.8	13.0	3.03	3.25	3.16	3.15	52.4%
Business disruptions	3.1	9.5	7.9	16.4	28.4	34.8	4.25	4.62	4.70	4.52	75.4%
Execution and delivery	1.3	4.1	9.0	13.3	22.5	49.9	4.48	5.01	5.06	4.85	80.8%
Reputation risk event	4.6	5.3	10.4	17.0	25.6	37.1	4.21	4.65	4.72	4.53	75.4%

Figure 4: Negative perception after operational risk event



withdraw their funds. Bad employment practices may include unfair terminations of employees, discrimination in all forms, or any health and safety issues in the working environment (BCBS, 2001). Concerning the percentage to withdraw similar results were found with a lower mean value of 3.53 where only 12.8% were likely to withdraw more than 80% of their funds. Nevertheless, 54.4% of deposits were likely to withdraw more than 40% of their funds. This would leave a bank with only half of the depositors who would only have 60% and less left in the bank. Employment practice had a mean value of 3.79, which was just slightly higher than the median of 3.5. More than 50% of the depositors indicated that bad employment practices will still lead to a negative perception.

Damage to physical assets (3.03) in the event of a natural disaster, terrorism attack or vandalism meaning that depositors will be somewhat unlikely to withdraw their money. Depositors were not as keen to withdraw large amounts in the event of a natural disaster or terrorist attack considering the mean score of 3.25. This can be expected, as such events are completely external and are not created by the bank itself. Only 13% of depositors were likely to withdraw more than 80%, while another 14.8% were willing to withdraw between 60% and 79%. Furthermore, 16% were likely to withdraw 40% to 59% of their deposits. Although these percentages are substantially lower compared to the other events, it still indicates that 43.8% of depositors are willing to withdraw more than 40% of their funds. This could still have a significant effect on a banks' liquidity. Damage to physical assets was the only operational event with a mean value (3.16) below 3.5, indicating very low reputational damage to banks. Only 10.6% of depositors indicated that damage to physical assets will most likely lead to a negative perception.

Clients, products and business practices obtained a mean value of 4.39, which indicates that depositors will be somewhat likely or likely to withdraw their funds from the bank. This is true in the event that the bank might be exposed to liquidity risk, credit risk and bankruptcy due to high loan volumes and exceeding customer limits. This category also includes market manipulation on the banks' account such as currency fixing or interest rate fixing (Chernobai et al., 2007:35). Clients, products and business practices indicated that almost 30% of depositors would withdraw more than 80% of the funds. Another 28.8% would withdraw more than 60% of their funds. This indicates that almost 60% of depositors will withdraw more than 60% of their funds due to clients, products and business practice failures. In terms of stakeholder perception, Clients, products and business practices, had a higher mean value of 4.58 with almost 30% of depositors indicating that a negative perception will likely be created due to poor client, product or business practices. Another 31.1% indicated likely while 19.1% indicated somewhat likely. This equates to 80% of the responses on the reputational risk side of the continuum.

Business disruptions which include operational events such as frequent disruptions in banking applications (internet banking and mobile banking), outdated software, or frequent utility outage also obtained a high mean value (4.25) indicating that depositors will be somewhat likely to likely to withdraw their funds from the bank. Hence, if bank customers experience frequent downtime on banking applications, they will be likely to withdraw their money from the bank. Business disruptions indicated that 34.8% of depositors will likely withdraw more than 80% of funds while a further 28.4% will withdraw between 60-79% of their funds. This equates to more than 63% of depositors that will likely withdraw more than 60% of their funds due to business disruptions. Almost 82% of depositors indicated that business disruptions will cause a negative perception and hence reputational risk for a bank since a 4.70 mean value was obtained.

The second highest mean value (4.48) was found for execution and delivery, which may include events such as the bank failing to deliver accurate annual reports, misleading information regarding

bank losses or losses in client funds. This indicates that bank depositors will be somewhat likely or likely to withdraw their funds from the bank. Execution and delivery also had extreme results, indicating that almost 50% of depositors will withdraw more than 80% of their funds while another 22.5 will withdraw more than 60%. This results in 72.4% of depositors that will withdraw more than 60% of their deposits. Execution and delivery had the highest mean value of 5.06 with 50.1% of the depositors indicating that this operational event will very likely lead to a reputational risk.

The last event related to reputational risk, where the participants were asked to indicate how likely they will be withdrawing their money in the case of three reputational events. Amongst these included when the bank's performance is not meeting the depositors' expectations and financial desires, does not handle public matters according to expectations and when the banks' activities are not creating a good reputation in the mind of the depositor. A total mean score for a pure reputational event of 4.21 was obtained indicating that depositors will also cause depositors to be somewhat unlikely to withdraw their funds. This information can be very significant for depository institutions since it will give banks an idea of how likely depositors are to withdraw their funds in the event of operational risk as well as reputational risk. In terms of a pure reputational event, 37.1% of depositors indicated that they will be likely to withdraw more than 80% of the deposits. Furthermore, 25.6% indicated that they will withdraw between 60% and 79% of their deposits. Another 17% of depositors were willing to withdraw between 40% and 59%. This equates to a devastating total of almost 80% of depositors that will withdraw more than 40% of their deposits. These results are similar to that of previous studies. Iyer et al. (2016:15) found that for banks who has explicit deposit insurance schemes implemented, only 4% of deposits liquidate their accounts and the majority only withdrew 19% of their money. South Africa on the other hand has an implicit deposit insurance scheme and results indicated more significant withdrawal by depositors. This is similar to Boyle et al. (2015) who indicated that countries without an explicit DIS face greater withdrawal risk (deposits being largely withdrawn from bank accounts).

Six out of the eight events, therefore, were considered severe in terms of the likelihood that depositors will withdraw. Seven out of the eight events, therefore, were considered severe in terms of the percentage of funds that depositors will withdraw. Also, seven out of the eight events were considered severe in terms of the likelihood of creating a negative perception in the minds of depositors with damage to physical assets being the exception in these cases. Low and Kalafut (2002:260) and Aula (2010:44) indicates that reputational risk as the risk of losing reputation due to people's perception of the bank. Hence, a negative perception has the possibility to erode or enhance a bank's reputation (Schreiber, 2011:91).

Figure 5 concludes with the reputational risk rating index, ranking all eight hypothetical operational risk events. From this figure, external fraud had the highest reputational risk rating, followed by execution and delivery. Internal fraud also scored high on the reputational risk index whereafter business disruptions and pure reputational risk scored similar. Employee practices and damage to physical assets can be seen on the lower side of the reputational risk index.

4.3. Correlation and Regression Results

The following section elaborates on the relationship between depositor behaviour during operational risk events and the negative perception of a bank as viewed by the depositors. The first step was to establish an association between the amount that depositors are willing to withdraw during operational risk events and negative perception (reputational risk exposure) using non-parametric Spearman correlation. Secondly, to see how depositor behaviour during operational risk events predicts a negative perception of a bank by means of regression analysis.

4.3.1. Correlation analysis

Table 4 below indicates the non-parametric correlation between the behaviour of depositors during operational risk event and the negative perception of a bank. A two-tailed significance level can be assumed at a 1% significance level.

The correlation coefficients amongst the amount that depositors are willing to withdraw during an internal fraud event and negative bank perception indicated a significant positive linear association ($r = 0.780$). Results further indicated that a strong relationship exists between depositors' behaviour during external fraud and bank perception. A positive coefficient ($r = 0.787$), was observed which was indicative of a strong effect significant at 1% significance level ($P < 0.01$). These results indicate that a high withdraw behaviour by depositors in the event of internal and external fraud will have a significant association with a negative perception (reputational risk exposure) of the bank in the mind of the main stakeholders (depositors).

Figure 5: Reputational risk index ranking

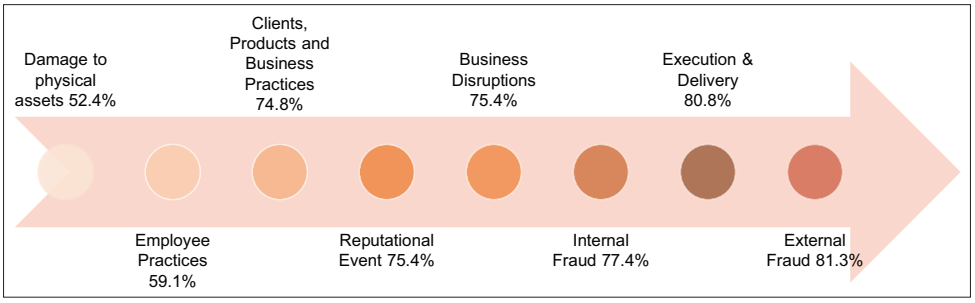


Table 4: Association between operational risk and negative bank perception

Operational loss event	Spearman correlation	Bank perception
Internal fraud	Correlation coefficient	0.780
	Sig. (2-tailed)	0.000**
External fraud	Correlation coefficient	0.787
	Sig. (2-tailed)	0.000**
Employment practice and workplace safety	Correlation coefficient	0.827
	Sig. (2-tailed)	0.000**
Clients, products and business practice	Correlation coefficient	0.815
	Sig. (2-tailed)	0.000**
Damage to physical assets	Correlation coefficient	0.873
	Sig. (2-tailed)	0.000**
Business disruptions and system failure	Correlation coefficient	0.799
	Sig. (2-tailed)	0.000**
Execution and delivery	Correlation coefficient	0.827
	Sig. (2-tailed)	0.000**
Reputational event	Correlation coefficient	0.883
	Sig. (2-tailed)	0.000**

**Correlation is significant at 0.01 level (2-tailed)

Depositor behaviour during employment practice and workplace safety had a strong positive association (r = 0.827) with negative bank perception which was also significant (P < 0.01). Clients, products and business practices also had a strong positive association (r = 0.815) which was indicative of a significant positive linear relationship at the 1% significance level (P < 0.01). Damage to physical assets also resembled similar results to the previous events by indicating a positive linear relationship (r = 0.873) significant at 1% (P < 0.01). Business disruptions and system failures yet again indicated a positive linear association (r = 0.799) between how depositors behave during this event and reputational risk. Execution and delivery had obtained a positive linear association (r = 0.827) between reputational risk and the amount which depositors are willing to withdraw. The result was followed by a significance at 1% (P < 0.01) which further supports the relationship. A pure reputational event (characterised by rumours, true or false, which could impact the reputation of a bank) (Honey, 2012:13) achieved the highest linear association (r = 0.883) between the amount that depositors are willing to withdraw during a reputational event and reputational risk. The result was significant at 1% (P < 0.01).

A strong effect exists between the behaviour of depositors during operational events (in terms of the amount that they are willing to withdraw) and the negative reputation of a bank since r = 0.50-1.00 was obtained for all operational risk events. This indicates that the higher amount of money that depositors are likely to withdraw the more a banks reputation will be negatively influenced. These results are also contrary to that of previous studies. Iyer et al. (2016:15) found that for banks who has explicit deposit insurance schemes implemented, only 4% of deposits liquidate their accounts and the majority only withdrew 19% of their money. South Africa, on the other hand, has an implicit deposit insurance scheme and results indicated more significant withdrawals by depositors. This is similar to Boyle et al. (2015) who indicated that countries without an explicit DIS face greater withdrawal risk (deposits being largely withdrawn from bank accounts). Overall, these results concur with other international research. Murata and Hori (2006) also found depositors to withdraw their funds from a bank if there is any doubt in the bank's operations or soundness. It is therefore, important to establish whether operational risk events will influence a negative bank perception in a regression analysis.

4.3.2. Regression analysis

Depositor behaviour during each operational event negatively influenced the reputation of a bank, a linear regression analysis was performed. Participants had to indicate for each operational event, whether the event would negatively influence the participants' perception of the bank (Reputational risk). Since banks categorise, identify and manage each operational event on its own, the influence of each event on a banks' reputation had to be determined individually.

Table 5 indicates how well each of the independent variables (operational risk events) predict the dependent variable, reputational risk of a bank. The R^2 explains the variation in the dependent variable due to the change in the independent variable (Hardy and Bryman, 2004:209). The significant F-ratio for all models infers that operational risk events will predict a negative bank perception amongst depositors (reputational risk exposure) significantly well. The results above indicate that all of the independent variables significantly influence the reputation of a bank. Each of the independent variables had beta coefficients which were larger than 0.78. Taking the mean values into account, all mean values were higher than 3 indicating a higher likelihood to influence the perception of a bank negatively, leading to reputational risk. Execution and delivery (M =5.06) had the highest mean value, followed by external fraud (M =5.04), internal fraud (M =4.92) and reputational events (M =4.72). These events will have the highest influence on the reputational risk of a bank.

The R^2 value for the model internal fraud suggests that depositors' behaviour during an internal fraud event explains 60.8% of the variance in reputational risk for a bank. The significant F-ratio (P < 0.01) of internal fraud suggests that depositors' behaviour during this event influence reputational risk significantly well. The high beta coefficient of 0.780 indicates that a unit change in depositors' likelihood to withdraw will lead to a 0.780 change in the scale variable of reputational risk. These results are similar to Perry and De Fontnouvelle, (2005:30) where a large market

Table 5: Regression results

Operational risk events	Mean	R^2	F	P-value	Standardised beta coefficient
Internal fraud	4.92	0.608	587.434	0.000***	0.780
External fraud	5.04	0.619	617.329	0.000***	0.787
Employment practice	3.79	0.684	821.211	0.000***	0.827
Clients, products and business practices	4.58	0.664	763.021	0.000***	0.815
Damage to physical assets	3.16	0.762	1223.378	0.000***	0.873
Business disruptions and system failures	4.70	0.638	667.401	0.000***	0.799
Execution, delivery and process management	5.06	0.684	823.505	0.000***	0.827
Reputational event	4.72	0.780	1359.855	0.000***	0.883

***Significant at 0.1 level

response was found for in internal fraud. Depositors' behaviour during an external fraud event explains 62% of the variance in reputational risk for a bank. The significant F-ratio ($P < 0.01$) for external fraud suggests that depositors' behaviour during this event predicts reputational risk significantly well. The high beta coefficient of 0.787 indicates that a unit change in depositors' likelihood to withdraw will lead to a 0.787 change in the scale variable of reputational risk.

Employment practice suggests that 68.4% of the reputational risk of a bank is explained by depositors' willingness to withdraw during employment practice and workplace safety. The high beta coefficient of 0.827 indicates that a unit change in depositors' likelihood to withdraw will lead to a 0.827 change in the scale variable of reputational risk. Depositor behaviour during clients, products and business practice suggests that an external fraud event explains 66.4% of the variance in reputational risk for a bank. The high beta coefficient of 0.815 indicates that a unit change in depositors' likelihood to withdraw will lead to a 0.815 change in the scale variable of reputational risk.

Damage to physical assets explains the highest (76.2%) variance in the reputational risk for a bank. Damage to physical assets had a mean value of 4.92, which indicates that such an event will somewhat likely influence the perception of a bank negatively. The significant F-ratio ($P < 0.01$) for damage to physical assets suggests that depositors' behaviour during this event predicts reputational risk significantly well. Damage to physical assets will make the strongest contribution due to the highest beta coefficient (0.873) towards explaining depositors' behaviour towards the reputation of a bank. These results are contrary to those found by Perry and De Fontnouvelle, (2005:30) in a market analysis study where a larger market response was found for in internal fraud compared to all other operational events.

Depositors' behaviour during business disruptions and system failure explains 63.8% of the variance in reputational risk for a bank. The high beta coefficient of 0.799 indicates that a unit change in depositors' likelihood to withdraw will lead to a 0.799 change in the scale variable of reputational risk. Execution and delivery as an operational risk event will explain 68.4% of the variance in the reputational risk for a bank. The high beta coefficient of 0.827 indicates that a unit change in depositors' likelihood to withdraw will lead to a 0.827 change in the scale variable of reputational risk. A pure reputational event such as rumours or allegations regarding the financial soundness of a bank also explains 78% of the variance in a banks reputation. The significant F-ratio ($P < 0.01$) for business disruptions and system failure suggests that depositors' behaviour during this event predicts reputational risk significantly well. Pure reputational events will make the strongest contribution due to the second highest beta coefficient (0.883) towards explaining depositors' behaviour towards the reputation of a bank.

Previous studies such as Boyle et al. (2015), Accenture (2015), Brunettia et al. (2016) and Iyer et al. (2016) all examined depositor behaviour and withdrawal risk when exposed to various banking risks. However, none of these studies linked the behaviour of depositors with reputational risk. Hence, the association between depositor behaviour in terms of their likelihood to withdraw during operational risk and reputational risk is a significant contribution of this study. The findings have managerial implications for banks, as these events are classified by BCBS (2009). As seen from the above results execution and delivery will require intensive identification, mitigation and management as depositors were more likely to withdraw their money from the bank and form a negative perception of the bank afterwards. It is also seen from the pure reputational event that false rumours or allegations that have no substantial grounds will still cause depositors to withdraw their money and form a negative perception of the bank.

5. CONCLUSION AND RECOMMENDATIONS

Although banks have been exposed to operational risk for decades, there is a strong reason to believe that the exposure to operational risk will only increase in future due to improved transparency as required by regulators as well as the increased reliance on improved technological automation within banks in the digital area. Banks should therefore employ tighter internal controls to minimise events such as operational risks that have now become more visible to the outside world.

Previous research on the analysis of the effects of operational risk and reputational risk on banks led to the discovery that majority of research in this area stems from developed countries. Hence, this identifies a gap in the emerging and developing world. This suggests that the topic under study has not yet gained the active momentum it deserves in these regions. Therefore, this article aimed to identify the leading operational risk events which are likely to lead to reputational risk for banks, using an emerging country as the sample. The significant difference between previous research in the developed regions and South Africa lies in the absence of a deposit insurance scheme in the South African

banking sector. Operational risk events that might be severe in developed countries might even be more severe in the South African context without proper banking insurance protecting depositors. Overall, the results were similar in terms of the most significant operational loss events.

Primary data were collected from 417 depositors in Gauteng, South Africa, using a self-structured questionnaire and a self-developed operational risk exposure scale. Through the statistical analysis employed in this article, several contributions were noticeable.

This article, therefore, contributed to the exploration of operational risk events to confirm which will be explanatory variables that will likely influence depositors' withdrawal behaviour in an emerging country. From a methodological contribution, an operational risk scale was developed using 21 hypothetical operational risk event scenarios based on the original risk categories established in theory. This was done by performing FA on the seven broad operational risk events and one pure reputational risk event. All eight risk events were deemed reliable factors to include in the analysis.

The second contribution of the article lies in the descriptive analysis where the article aims to indicate how likely depositors will be to withdraw their funds, the percentage withdrawal based and individual perception (negative) after each hypothetical operational event exposure. Six out of the eight events, therefore, were considered severe in terms of the likelihood that depositors will withdraw. Seven out of the eight events, therefore, were considered severe in terms of the percentage that depositors will withdraw. Results indicated that depositors were very willing to withdraw a large amount of their funds safeguarded by their bank. Also, seven out of the eight events were considered severe in terms of the likelihood of creating a negative perception in the minds of depositors with damage to physical assets being the exception in these cases. This gave practitioners and regulators an idea of the severity and likelihood of a possible bank run as a consequence of operational risk exposure.

The third contribution lay in identifying which operational risk events would be explanatory towards reputation risk for a bank. Participants had to indicate for each operational event, whether the event would negatively influence the participants' perception of the bank indicating Reputational risk. Since banks categorise, identify and manage each operational event on its own, the influence of each event on a bank's reputation had to be determined individually. The significant models inferred that all eight operational risk events will predict a negative bank perception amongst depositors (reputational risk exposure) significantly well.

The final contribution of the article lies in the destruction of the conventional conceptualisation of operational risk and reputational risk as "stand-alone" risks, rather than the one risk as a consequence of the other.

Therefore, the practical implication of this article for academics, researchers, practitioners, regulators and policymakers lies in the baseline conceptualisation of operational risk and its effects on reputational risk for emerging markets and future research. As mentioned earlier, future research endeavours can extend this research beyond developed markets and attract more global attention towards emerging and developing banking and financial sectors. The limitation of this article might be its subjective nature since it portrays the irrational behaviour and financial decisions of depositors. It does not depict the actual events and outcomes taking place within a bank. Actual outcomes after real operational risk events, not hypothetically like in this case will depend on the reaction and risk management and mitigation by banks. Further studies can back up these results by employing non-survey methods and evidence from banking institutions.

However, it paints a picture of understanding stakeholder behaviour and how depositors might view their bank in the event of severe operational risk events without any mitigation or risk management by the bank. This further emphasises the importance of proper risk management within banks.

REFERENCES

Accenture. (2015), Banking Customer 2020: Rising Expectations Point to the Everyday Bank. Available from: https://www.accenture.com/t20150710T130243__w__/us-en/_acnmedia/accenture/conversion-assets/dotcom/documents/global/pdf/dualpub_17/accenture-banking-consumer-pulse.pdf [Last accessed on 2022 Oct 14].

Adeabah, D., Andoh, C., Asongu, S., Gemegah, A. (2022), Reputational risks in banks: A review of research themes, frameworks, methods, and future research directions. Journal of Economic Surveys, 2022, 1-30.

Aula, P. (2010), Social media, reputation risk and ambient publicity management. Journal of Strategy and Leadership, 36(6), 43-49.

BCBS. (2001). Consultative document: operational risk. Available from: https://www.bis.org/publ/bcbsca07.pdf [Last accessed on 2022 Jun 19].

BCBS. (2006), Basel II: International Convergence of Capital Measurement and Capital Standards-Revised Framework. Available from: https://www.bis.org/publ/bcbs128.pdf [Last accessed on 2022 Jun 10].

BCBS. (2009), Enhancements to the Basel II Framework. Available from: https://www.bis.org/pub/bcbs157.pdf [Last accessed on 2022 Jun 21].

BCBS. (2011), Principles for the Sound Management of Operational Risk. Available from: https://www.bis.org/pub/bcbs195.pdf [Last accessed on 2022 Jun 30].

BCBS. (2013), A Brief History of the Basel Committee. Available from: https://www.bis.org/bcbs/history.pdf [Last accessed on 2022 Jun 05].

Berger, A.N., Curti, F., Mihov, A., Sedunov, J. (2022), Operational risk is more systemic than you think: Evidence from US bank holding companies. Journal of Banking and Finance, 143, 106619.

Blunch, N.J. (2008), Introduction to Structural Equation Modelling using SPSS and AMOS. London: SAGE.

Boyle, G., Stover, R., Tiwana, A., Zhylyevskyy, O. (2015), The impact of deposit insurance on depositor behavior during a crisis: A conjoint analysis approach. Journal of Financial Intermediation, 24(4), 590-601.

Brunettia, M., Cicirettic, R., Djordjevic, L.J. (2016), The determinants of household's bank switching. Journal of Financial Stability, 26(1),175-189.

Chartered Institute of Purchasing & Supply (CIPS). (2014), Internal, Connected and External Stakeholders. Available from: https://www.cips.org/documents/knowledge/procurement-topics-and-skills/2-

procurement-organisation/stakeholders/stakeholders.pdf [Last accessed on 2022 Mar 20].

Chernobai, A., Ozdagli, A., Wang, J. (2021), Business complexity and risk management: Evidence from operational risk events in U.S. bank holding companies. Journal of Monetary Economics, 117, 418-440.

Chernobai, A.S., Rachev, S.T., Fabozzi, F.J. (2007), Operational Risk: A Guide to Basel II Capital Requirements, Models, and Analysis. New Jersey: John Wiley.

Coetzee, J., De Beer, J. (2016), Financial regulation in the South African banking industry. In: Coetzee, J., editor. Bank Risk Management in South Africa - a Risk-Based Perspective. Cape Town: Juta. p63-92.

Crouhy, M., Galai, D., Mark, R. (2014), The Essentials of Risk Management. 2nd ed. United States: McGraw-Hill.

Cummins, J.D., Lewis, C.M., Wei, R. (2006), The market value impact of operational risk events for US banks and insurers. Journal of Banking and Finance, 30(10), 2605-2634.

De Jongh, E., De Jongh, D., De Jongh, R., Van Vuuren, G. (2013), A review of operational risk in banks and its role in the financial crisis. South African Journal of Economic and Management Sciences, 16(4), 364-382.

Deloitte. (2014), Reputation@Risk. Available from: http://www2.deloitte.com/content/dam/deloitte/pl/documents/reports/pl_reputation_risk_survey_en.pdf [Last accessed on 2022 Mar 29].

Demirgüç-Kunt, A., Kane, E., Laeven, L. (2014), Deposit Insurance Database. World Bank Policy Research Working Paper 6934.

Eccles, R.G., Newquist, S.C., Schatz, R. (2007), Reputation and its risks. Harvard Business Review, 85(2), 104.

Ferreira, S. (2015), Measuring Reputational Risk in the South African Banking Sector. North-West University. (Dissertation-MA).

Ferreira, S.J. (2019), Reputational Risk: Depositor Behaviour in South Africa (Doctoral Dissertation, North-West University (South Africa). Vanderbijlpark Campus).

Gillet, R., Hübner, G., Plunus, S. (2010), Operational risk and reputation in the financial industry. Journal of Banking and Finance, 34(1), 224-235.

Hardy, M., Bryman, A. (2004), Handbook of Data Analysis. London: SAGE.

Honey, G. (2012), Reputational Risk: Challenges for the Insurance Market. In: Paper Presented at the Airmic Annual Conference at the Arena and Convention Centre (ACC), Liverpool.

Hox, J.J., Becher, T.M. (1998), An introduction into structural equation modelling. Family Science Review, 11(1), 354-373.

Iyer, R., Ryan, N., Puri, M. (2016), A tale of two runs: Depositor responses to bank solvency risk. The Journal of Finance, 14(6), 2687-2726.

Jagongo, A., Mutswenje, V.S. (2014), A survey of the factors influencing investment decisions: the case of individual investors at the NSE. International Journal of Humanities and Social Science, 4(4), 92-102.

Lange, D., Lee, P.M., Dai, Y. (2011), Organizational reputation: A review. Journal of Management, 37(1), 153-184.

Louisot, J. & Rayner, J. (2012). Managing risks to reputation–From theory to practice. An Economist Intelligence Unit White Paper Sponsored by Ace, Cisco Systems, Deutsche Bank, IBM and KPMG», www. eiu. com, 5, p.14.

Low, J., Kalafut, P. (2002), Invisible Advantage: How Intangibles are Driving Business Performance. New York: Perseus Publishers.

Mäenpää, K., Kaleb, S.H., Kuusela, H., Mesirantaa, N. (2008), Consumer perceptions of Internet banking in Finland: The moderating role of familiarity. Journal of Retailing and Consumer Services, 15(1), 266-276.

Malhotra, N.K., Birks, D.F., Wills, P. (2012), Marketing Research: An Applied Approach. 4th ed. England: Pearson.

Manjarin, R. (2012), Reputational Risk Management. Paper Presented at the GARP Chapter Meeting, Geneva, Switzerland. p27. Available from: https://www.garp.org/media/1106495

Miklaszewska, E., Kil, K., Pawłowska, M. (2020), Is reputational risk important for bank performance? Evidence from CEE-11 countries. Argumenta Oeconomica, 2020(2), 31-51.

Mohr, P., Fourie, L. (2008), Economics for South African Students. 4th ed. Pretoria: Van Schaik Publishers.

Moosa, I., Li, L. (2013), An operational risk profile: The experience of British firms. Applied Economics, 45(17), 2491-2500.

Mostert, P., Lotz, O. (2010), Marketing Management: Changes and Challenges in South Africa. Noordbrug: Mustard House Marketing.

Mueller, R.O. (1996), Basic Principles of Structural Equation Modeling: An Introduction to LISREL and EQS. New York: Springer.

Murata, K., Hori, M. (2006), Do depositors exit from bad banks? Evidence from small financial institutions in Japan. The Japanese Economic Review, 57(2), 260-278.

Myers, M.D. (2013), Qualitative Research in Information Systems. Available from: http://www.misq.org/skin/frontend/default/misq/MISQD_isworld/index.html [Last accessed on 2022 Oct 22].

Ozkan-Tektas, O., Basgoze, P. (2017), Pre-recovery emotions and satisfaction: A moderated mediation model of service recovery and reputation in the banking sector. European Management Journal, 35(3), 388-395.

Perry, J., De Fontnouvelle, P. (2005), Measuring Reputational Risk: The Market Reaction to Operational Risk Announcements. Boston: Federal Reserve Bank of Boston.

Ruspantini, D., Sordi, A. (2011), The Reputational Risk Impact of Internal Frauds on Bank Customers: A Case Study on. Italy: UniCredit Group.

Schreiber, E.S. (2011), A holistic approach to stakeholder relations to build reputation and mitigate reputation risk. In: Hiles, A., editor. Reputation Management: Building and Protecting Your Company's Profile in a Digital World. London: Bloombury. p92-102.

Shakespeare, W. (1622), Othello. London, Penguin: Royal Shakespeare Company. p165.

Soprano, A., Crielaard, B., Piacenza, F., Ruspantini, D. (2009), Measuring Operational and Reputational Risk: A Practitioners's Approach. England: John Wiley.

Sweeting, P. (2011), Financial Enterprise Risk Management. New York: Cambridge University Press.

Vazifedoost, H., Ansar, M. & Yekezare, A. (2013). How customer satisfaction changes behavior: a case study of the banking industry. Management Science Letters, 3(6):1587-1892.

Zarvrsnik, B., Jerman, D. (2012), Reputation of banks in Slovenia. Scientic Annuals of the Alexandru Loan Cuza, 59(2), 219-230.

Zboron, M. (2006). Reputational Risk in the context of AM best's rating analysis. The Geneva Papers on Risk and Insurance Issues and Practice, 31(3):500-511.

Zhu, Y., Chen, H. (2012), Service fairness and customer satisfaction in internet banking: Exploring the mediating effects of trust and customer value. Internet Research, 22(4), 482-498.