

**RISK MANAGEMENT AND PERFORMANCE OF  
BANKING SECTOR IN UGANDA: A CASE STUDY OF  
PRIVATE COMMERCIAL BANKS**

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**Abstract:**

*This study aimed at examining the risk management practice of private banks in Uganda and the effect of the risk management practice on the performance of banking sector. Theories related to risk management and performance as put forward by the Basel Committee on banking supervision and other scholars were reviewed.*

*A Combination of positivism and phenomological approach was used. A multi-method strategy was used. A representative sample of Eighteen (18) private commercial banks was selected. Data was collected from both primary and secondary sources after which it was analysed. The quantitative data was analysed using SPSS and E-views whereas the qualitative data was analysed using Nvivo..*

*The results from the survey indicated that private commercial banks in Uganda have well-established policies in risk management. Credit risks, market risks and operations are most risk that affect banking sector as represented by 88.9%, 83.3% and 50% respectively. 69% of banks indicated that they use Standardised approach and stress testing to measure risk. 100% of banks indicated that they establish limit for their risks.*

*Basing on the findings above, coupled with the findings from previous studies a gap was identified in the performance management of banking sector. A new model was designed which incorporates board of director, business strategy, risk strategy, internal capital and capital allocation was designed.*

**Key Words: Risk, Risk Management, Performance**

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## Introduction

Managing risk lies at the heart of the financial services industry. Risk management goals relate to the provision of liquidity, the acquisition of assets with an acceptable level of risk and of funds at a low cost in order to achieve the highest profit. Banks search for profits offering liquidity, credit and payment services, transforming assets and processing information. The recent global financial crisis indicates that risk management of the financial institutions was not adequate. This led to the failure of the banks in a highly challenging financial market.

The Bank's risk management framework has evolved significantly over the years. Initially, the Bank's operational activities focused primarily on sovereign lending with limited low volume non-sovereign (private sector) transactions. Treasury activities were equally limited in volume and complexity. Therefore, the risk management framework only focused on the credit risk management. Due to complexity and changes of the banking sector, the risk management framework has changed significantly. Barakova and Carey (2003: 18) state that, narrow approaches to risk management hamper an organization's ability to monitor critical risk interdependencies. This leaves them less prepared to discern the bigger, smarter risks they should take in an increasingly volatile business environment.

Various findings from previous studies have indicated that, one of the major causes of bank failure in Uganda and other parts of the world is the inadequate risk management (BOU 1999, 2000, 2012, 2014), (Mpuga 2002) and (Matama 2006), (KPMG 2010: 28, 2011: 35), (Basel 2009: 104). The lessons learnt from these failures coupled with the recent financial crisis in Europe and USA are to open awareness of the government and banks on the important role of implementing good risk management in the banking sector.

As Hull (2007:60) points out, proper identification of risks does not only lead to better risk management by the bank, but it also helps the bank to determine the amount of capital that the banks need to cover the identified risk. This implies that, if risks are not properly identified it will lead to development of economic capital models that may not capture all the risks. For example if the bank fails to identify all the material risks, the economic capital models developed will understate the amount of capital required to cover those risks. This will affect the performance of the bank since the bank may run out of capital to support their activities which may threaten their solvency situation.

Effective management of risk is critical to any financial institution's survival, especially in today's volatile financial markets and uncertain macroeconomic outlook. A strong, agreed-upon and well communicated risk management framework is critical to the efficient execution of the institution's business strategy. Headlines related to the financial crisis highlighted that significant risk failures persist despite the investments in the risk assessment and risk management disciplines. KPMG (2011) points out that risk management was a contributory factor in the credit crisis.

The diagnostic study carried out by BOU (2010: 30), pointed out the following major causes of the bank failures: unsound risk management practices, weak corporate governance, imprudent banking practice, poor credit underwriting procedures, excessive exposure to insiders, poor internal controls as well as non-disclosure of material off balance sheet items. Most of these causes are related to weak risk management practices. A weak risk management practice affects the banking capital in such way that the unexpected losses from the risky projects may erode away the banking capital.

The perception of risk management is fundamentally changing within today's institutions. It is no longer purely used as a control mechanism but as a critical input into the basic banking business. Risk management is an essential part of helping the bank grows while keeping an eye on the potential consequences if something goes wrong.

## **2. Risk Management and Performance of Banking Sector: A theoretical Framework of Analysis**

Increasing stakeholders' return through maximising performance is one major objective of bank management. This, objective, often comes at the cost of increasing risk of the bank. As indicated by Bank of Uganda (2010), banks face various types of risks such as interest risk, market risk, credit risk, off balance risk, technology and operational risk, foreign exchange risk, country risk, liquidity risk, and insolvency risk.

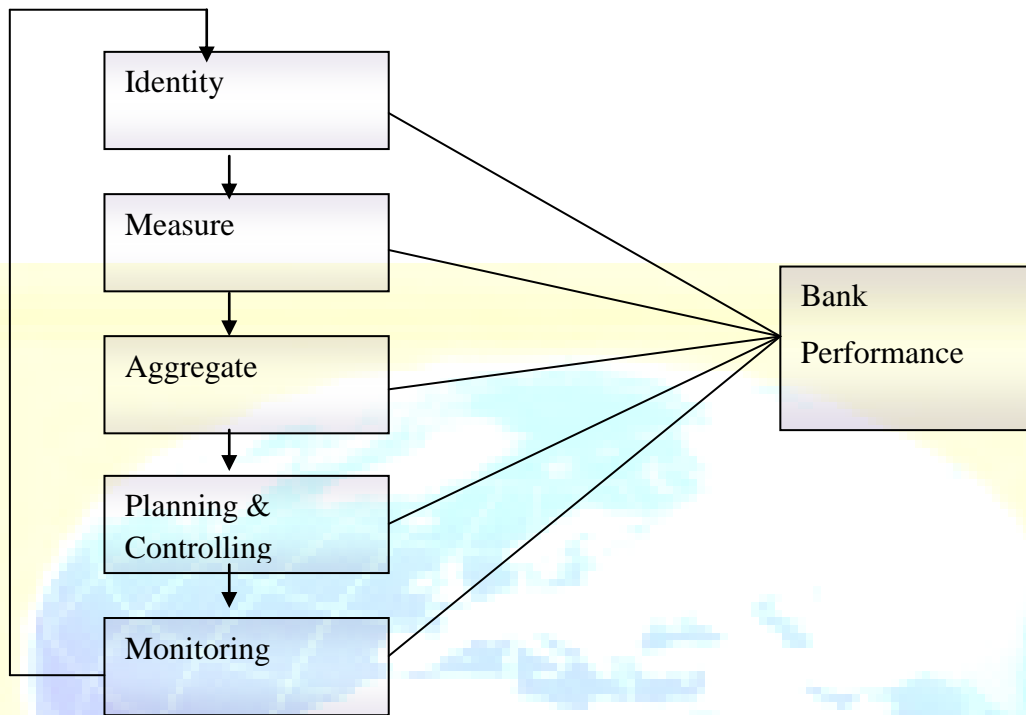
A study by BOU (2010: 43), Basel (2009: 95), KPMG (2011: 16) and Earnest and Young (2012: 34), show that credit risks, market risks and operations risks are the most risks that banks faces. This explains as to why the Basel Committee on Banking Supervision established a whole pillar (Basel II Pillar I) which provides guidelines on the management of these risks .Unlike the Basel

I, which only provided guidelines on the management of credit risks, Basel II provides guidelines on the management of credit risks, market risks and operations risks and other risks that affect the banking sector.

Various models of risk management have been developed by various scholars in the subject (Basel 1999: 408, Nederlandsche bank 2005: 117, Oesterreichische National Bank 2012: 70). None of these models is wrong in trying to define risk management. However, most of the models developed, were developed by scholars in developed economy where the economic environment totally differs with that of Uganda. In addition to that, none of these have tried to incorporate bank customers in their models. The models developed in this study incorporate the theories from the previous research and the findings of the study in trying to bridge the gaps that were left from the previous studies.

According to Basel Committee on the banking supervision (2009: 408), risk management is the process of identifying, measuring and communication of risks. A critical analysis of this analysis of this definition shows that the risk management model comprises of three processes that are risk identification, risk measurement and risk reporting. The De Nederlandsche Bank (2005: 117) developed a risk management framework which is composed of risk identification, risk measurement, risk assessment, risk monitoring and risk evaluation. Basing on those two definitions, risk management is mainly composed of risk identification and classification, risk measurement, risk appetite, risk reporting and risk monitoring. The Oesterreische National bank (2012: 71) defines risk management as a process which involves identification or risks, measurement of risks, integration, reporting, controlling and monitoring of risk. From these definitions, sub theories were developed and related to the findings of the study and theories from previous studies.

Figure 1: Risk Management Processes.



Source: Basel (1999: 408), Oesterreische National bank (2012: 71), Nederlandsche Bank (2005: 117)

### *Risk Identification and Classification versus Bank Performance*

An important element in the risk management is the identification and classification of risks. Banks should carefully identify and classify all the risks contained in their portfolio. As indicated by Oesterreische National bank (2012: 87), a good identification and classification of risks determines the strategy the bank should take to mitigate the risks. According to the Basel II framework (2007), the classification of the credit risk should be done by assigning an internal rating to each of the relevant credit counterparty which must be developed through internal rating. This rating reflects the likelihood of a counterparty becoming unable to repay the loan or fulfil other debt obligations. This likelihood that counterparty defaults on its payment obligations within a one-year period is expressed as a percentage and referred to as the probability of default (PD).



*Risk Measurement versus Bank Performance*

Another important tool in the management of risks is the risk measurement. In order to address this problem, Basel II framework recommends that banks should measure credit risks either using advanced internal rate approach or the credit value at risk. For market risks, banks should use Value at Risk and operations risks should be measured using the advanced measurement approach (Basel 2004: 65).

More to that, since the credit risk that relates to a derivative product does not remain static over time due to the movement of underlying market factors. In order to address the impact of these changes in market factors banks should measure the Potential Future Exposure (PFE) on derivative financial products using a confidence level of not below 99.5% (Basel 2004: 129). Banks should measure credit exposure as the replacement cost at given moments in time over the life of the transaction under the assumption that market rates move adversely.

A Monte Carlo simulation approach for calculating Potential Future Exposure (PFE) for the majority of the portfolio should be used by banks (Gaeta 2002: 172). For a few smaller portfolios, an add-on approach should be applied. The same Monte Carlo simulation should also be used as the basis of the Internal Model Method (IMM) which is used to calculate Exposure at Default for regulatory and economic capital calculations.

In addition to introducing Monte Carlo simulation to the calculation of PFE, a stress testing framework has to be designed in order to determine the size of counterparty credit risk exposures under more severe market circumstances (Basel 2009:36). The stress testing of counterparty credit risk is a regulatory requirement under the Internal Model Method (IMM) approach. As part of the designed stress testing framework, the wrong-way risk part of stress testing will be addressed for all counterparties by calibrating the parameters on a stressed period with respect to the bank's counterparties. Besides the quantitative wrong-way risk analyses qualitative analyses, for example based on the risk factor stress scenarios and an analysis of the counterparty's profile should also be formed in order to obtain additional insight in the general wrong-way risk towards the counterparties.

The VaR states the maximum loss that will not be exceeded with a certain probability (confidence level) at a given horizon (holding period). According to (Baral 2005: 325), in order

to determine the value at risk, a confidence level should be determined which reflects the probability that the calculated maximum loss will not be exceeded within the holding period. As per Basel framework (2009: 142), the confidence level should be set between 95% and 99.95%. This means that higher losses are possible, but will only occur with a probability of between 5% and 0.05%. The holding period states the horizon during which the losses can occur and is derived from the liquidity of the assets observed.

As indicated by Glantz (2003: 58), to calculate the credit VaR, it is necessary to determine the distribution of potential losses in the credit portfolio. For this purpose, assumptions are made in terms of the future development of the default rate and the exposure at default (credit amount outstanding at the time of default, minus proceeds from collateral and estate). As indicated in the Basel II framework (2004: 136), the value-at-risk analysis has limited explanatory power; while it does state the amount of losses within the confidence level chosen, it does not offer any prediction as to the probability distribution of losses beyond that confidence level. Moreover, it usually does not take into account any extreme market movements as would occur, for example, in an economic crisis with extremely high default rates. Therefore, the VaR analysis should be complemented by stress tests which calculate the value fluctuations based on the assumption of extreme market movements.

Glantz (2003: 62) and Gaeta (2002: 99) point out that the value-at-risk analysis offers the advantage that it allows the comparison of different risks not only across different portfolios, but also across different types of risks such as credit, market, and operational risks. However, this must not distract from the fact that the VaR is based on assumptions and estimates and can thus lead to misinterpretations of the risk. In addition, there are limits to the comparability and aggregation of different types of risks due to the different distribution of the risk types. Another restriction to the calculation of the VaR in credit risk is posed by the historical data which are often not available to a sufficient extent (for example, on probabilities of default, exposure at default, and correlations

In addition to Stress testing, backtesting should be carried out by banks. Backtesting is a risk management technique applied to evaluate the quality and accuracy of internal VaR models (Cossin et al 2000: 71). In essence, back-testing is a routine comparison of model generated risk

measures (daily VaR) with the subsequent trading outcomes (hypothetical or actual P&L). It is expected that the calculated VaR will be larger than all but a certain fraction of the trading outcomes, where this fraction is determined by the confidence level assumed by the VaR measure.

### *Risk Appetite and Limit versus Bank Performance*

Determining the risk appetite, drawing up comprehensive risk analyses for each activity and for the bank as a whole is an important components of the risk management cycle (Bessis 2002: 82). Banks should deploy scarce and valuable resources: its balance sheet, its capital, its knowledge and reputation. Setting a lower risk limit will push the bank to enter very risky projects which can negatively affect its profits and capital. On the other hand, if a bank sets a high limit, the banking activities will only be limited to few operations which in the end will affect its profitability and capital. Therefore, banks should strike a balance of the risk appetite that will not negatively affect its operations.

As Bessis (2002: 91) puts out, banks should avoid risks that conceivably endanger its continuity or negatively affect its business model. The risk appetite framework defines the bank's risk strategy. This risk strategy is based on continuity and focuses on: The risk appetite framework identifies quantitative and qualitative risk criteria for specific risks such as credit risk, balance sheet risk (liquidity risk, interest rate risks and market risk) and operational risks.

In chapter five, participants were asked whether they have risk limit for different risk type and different sectors. According to Basel (2009: 84), banks should clearly define their risk appetite by setting risk limits for different risks and sectors and the risk appetite should be in between 1-5%. This enables the bank not to enter risky projects that can negatively affect it performance through losses which can lead erosion of capital.

One of the main reason for bank failure in many parts of the world as indicated by (BCBS, 2009: 28, 2010: 12, KPMG 2010: 15, 2011: 26, BOU 2000: 17) is the inactive participation of the board of directors in the risk management. In order to ensure effective risk management in the banking sector, each year, the Executive Board should determine the risk appetite and corresponding VaR and event risk limits. These limits should be converted into limits at book level and are monitored daily by the risk management department. The risk position should be



reported to senior management on a daily basis and discussed in the various risk management committees each month. In addition to the VaR limits, an extensive system of trading controls per book should be put in place. These controls include rotation risk, delta profile limits per bucket, nominal limits and the maximum number of contracts, to ensure that risks that offset each other in the VaR system are not overlooked.

Product limits can be defined, among other things, for loans to retail and corporate customers, for real estate loans, as well as for project finance. Banks with an international focus can also define country limits in order to manage their risks arising from transactions in other regions. They must also define industry limits in order to avoid a concentration of risks in individual industries that are subject to a degree of risk depending on the business cycle.

Bessis (2002: 102), points out that, the risk-bearing capacity denotes a bank's ability to cover the risks associated with banking by means of the available financial funds (for example equity, revaluation reserves, or profits). In case risks take effect, the resulting losses should be absorbed by these funds, in the economic capital. The amount of available coverage capital thus limits the extent of unsecured transactions a bank should enter into. The risk-bearing capacity forms the basis for the banks business strategy and risk strategy, as the risk allows only certain transactions to be secured by the coverage capital. The risk-bearing capacity thus has a significant impact on banks behaviour in assuming risks, and thus in focusing and expanding its business.

### *Risk Reporting versus Bank Performance*

Risk reporting is one of the key components in the appropriate management of risks. Risk reports helps to establish whether risks are well managed and are within the established limit and appetite. It is within this context that the Basel Committee on Banking Supervision established whole Pillar (Pillar III) on risk reporting (Basel 2004: 47). The Basel Committee on banking supervision requires banks to report their activities to various stakeholders furtherstill; risk reports will help the bank to establish the quality of its assets and whether it has enough capital to cover-up those risks.

According to the Basel (2009: 122), credit risk reporting should be based on the product administration systems and the rating systems, which hold PD, LGD and EAD information. Risk reporting should be reconciled with financial reporting data at all levels of the bank. The risk management committees should compiles a quarterly report on the developments in the credit

portfolio, which should be distributed to senior management. Key risk indicators in the quarterly credit risk report such as PD, EAD, LGD, EC and EL, should be used to monitor the developments within the portfolio. Furthermore, trends in bad debts costs, allowances for loan losses, impaired loans, number and amount of exposures should be analysed by the asset and liability management committees.

According to Basel II framework (2000: 120), detailed information about the risk at the level of the individual loan and at a portfolio level are required to manage the credit risk effectively. It is the task of risk reporting, a unit that should be independent to consolidate and process the information related to risk controlling and to aggregate it into a risk report covering the following areas: the development of the total portfolio and the sub portfolios in terms of risk; furthermore, important individual positions have to be elaborated on; the need for action, that is mainly risk mitigation measures, results from the assessment of future market trends, the coordination with risk-bearing capacity and risk strategy, as well as findings from analysing the competition; to show how the measures will affect the bank's risk situation, who is responsible, and what the deadline for the implementation of the measures is.

A Credit Portfolio Management (CPM) function has to be established. This provides insight into the risk at portfolio level, in order to make it possible for the bank to optimise the balance between credit risk, capital usage and returns. CPM should be a centre of competence for all activities in which risk-return considerations play a role.

The report's level of detail has to be adapted to the information required by the recipient in each case. This would require an analysis as to the needs of the respective decision-making levels, resulting in the preparation of reports in accordance with those needs. In its full version, the risk report should contain all levels of detail to ensure that the data communicated within the bank are consistently available for all levels of detail should those data be required in the decision-making process.

### *Risk Monitoring Versus Bank Performance*

In order to guarantee effective risk management, it is essential to monitor risks continuously and to initiate clear control processes in time. Therefore, credit decision and credit portfolio management should be closely linked to limit monitoring. Although the Basel framework does

not provide the specific time for monitoring risks, but since the environment is very dynamic, banks should continuously monitor their risk levels.

According to Alain and Lucy (2005: 15), monitoring and limiting the concentration of exposures in certain risk classes is necessary to be able to detect a deterioration of the portfolio in time, and thus to be able to avoid losses as far as possible by withdrawing from certain exposures. Therefore, many banks apply limits to the distribution of the portfolio to their internal rating classes. Risk limits are usually observed in combination with other limits. These combined limits allow more accurate risk controlling by means of stipulated limits.

Breuer et al, (2008: 201), point out that, the definition of limits for unsecured portions restricts loans that are granted without the provision of collateral or which are collateralized only partly. These limits allow banks to manage their maximum risks efficiently, as it is easy to determine and monitor unsecured portions. The control effect of limits on unsecured portions can be increased further by differentiating in terms of rating classes. This is done by defining the limits for unsecured portions in the lower rating classes more narrowly than in the higher classes. Limiting the unsecured portions sends a clear signal to sales and risk analysis to strive for the highest possible collateralization based on collateral of value, especially for loans of lower rating.

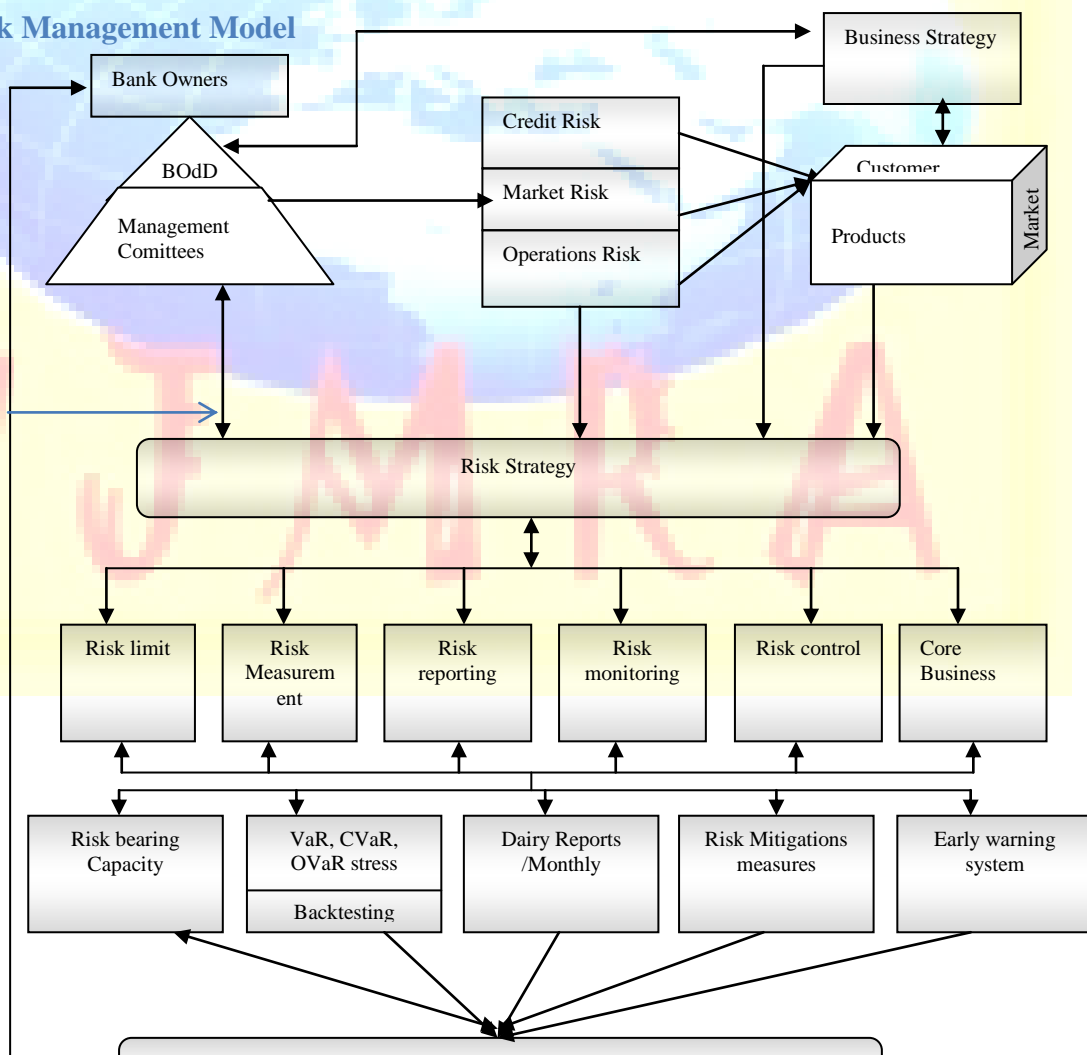
The main purpose of monitoring as indicated by Basel (2009: 164) and Glantz (2003: 34) is the prevention of cluster risks in the credit portfolio. The more precisely risks are monitored; the more likely they are to yield control impulses that can be taken into account already at the time of approval of individual loans. If the bank is able to define and monitor limits at the level of the individual borrower that implicitly already include all other limits, then the credit approval decision after analysing the credit rating can be taken already after examining these limits without the need to check the other limits explicitly.

Risk monitoring helps banks in checking compliance with the risk strategy, and ensuring effectiveness of counter measures. Banks should install early warning systems that are compatible with the Basel II framework. As Bessis (2002: 56) indicates, early warning helps banks to detect situations in which limits are exceeded or marked changes in the risk position be it at the level of the total portfolio or individual loans, in time and it is used to generate warning signals for risk controlling.

The earlier risks are detected, the more effectively they can be countered. In the individual loan segment, for example, the (partial) repayment of the exposure or the proceeds from the realization of collateral is usually higher the earlier the loans risk of default is detected. The same is true at a portfolio level: The earlier it is realized that the portfolio's risks reach the limits defined under the risk strategy, the more effectively it will be reacted on. Warning signals should be generated before the limits are fully reached in order to make it possible to make use of all (levels of) risk mitigation measures. If the warning is generated in time, limits are not exceeded, and there will be no need to approve such exceeding of limits in retrospect.

The information itself, however, is not sufficient; it is also necessary to trigger risk controlling processes in time. Thus, the requirements on risk monitoring and early warning system are, on the one hand, the timely, automated generation of warning signals, and the triggering of processes for increased risk monitoring or risk mitigation on the other.

Figure 2: Risk Management Model



Source: Researcher 2015

### 3. RESEARCH METHODOLOGY

#### Research Design

The study design was based on a multi-method strategy which used both qualitative and quantitative research approaches. A case study and a survey strategy were used in this study. This helped the researcher to have a triangulation of different strategies. According to Bryman and Bell (2003:25), a multi-method strategy occurs when more than one research strategy and data source are used in a study of social phenomena. A multi-method approach can be undertaken within a single research strategy by using multiple sources of data or across research strategies (Bryman and Bell, 2003:25; Marlow and Carter 2006:15). The combination of qualitative and quantitative design strategy has been recommended and used by researchers in situations where one of the approaches is insufficient to reveal all that is needed.

#### Study Population

Kasomo (2006: 51) define the population as the aggregate of all cases that conform to some designated set of specification. On the other hand, Mugenda (2008: 98) defines it as the set of all elements in the universe. In this research, the researcher made a survey on the financial institutions. According to the Uganda Financial institution Act 2004, financial institutions in Uganda are divided into four tiers. Tier one is composed of commercial banks, and investment banks, Tier two is composed of credit institutions, tier three is composed of MFDTI and nonfinancial institutions that do not take deposit belong to tier four. The study was based on Tier one financial institutions. Currently, Tier one has twenty four banks two government banks, twenty foreign banks and two domestic or local banks (BOU 2012).

#### Sample design

A sample is a sub set of the population being investigated by the researcher, whose characteristics will be generalised to represent the whole population (Kasomo 2006). According to Kothari (2000) a sample design is the technique or the procedures the researcher would adopt in selecting the items from the population. A sample design includes a sample size and sampling procedures.



**Sample Size and procedures**

A sample size is the number of items to be selected from the universe to constitute a sample (Kothari 2000). In selecting a sample an optimum sample size will be considered. According to Kothari (2000) an optimum sample is the one which fulfils the requirement of efficiency, representativeness, reliability and flexibility. The sample size was determined using a Rao Software calculator as below.

**Sample design**

A sample is a sub-set of the population being investigated by the researcher, whose characteristics will be generalised to represent the whole population (Kasomo 2006:65). According to Kothari (2000:105) a sample design is the technique or the procedures the researcher would adopt in selecting the items from the population. A sample design includes a sample size and sampling procedures.

**Sample Size**

A sample size is the number of items to be selected from the universe to constitute a sample (Kothari 2000: 185). The sample selected should be optimum to represent the entire population. According to Kothari (2000: 185) an optimum sample is the one which fulfils the requirement of efficiency, representativeness; reliability and flexibility. The sample was selected from twenty (22) privatecommercial.

The sample size was determined using the formula of Krejciea and Morgan (1960: 99). Since the study contains two stratums one with a known population size and another with unknown population size, two different formula of determining the sample size as provided by Krejciea and Morgan were used. According to BOU (2012: 10) there are twenty two (22) private banks in Uganda. The formula for determining a sample size of a known population size as Krejicea and Morgan is given by:

$$n = \frac{X^2NP(1-p)}{d^2(N-1) + X^2P(1-P)}$$

Where: n is the sample size,  $X^2$  is the Chi square, N is the total population size, P is probability of success and  $d^2$  is the degree of freedom. According to Krejicea and Morgan(1970), at the

degree of freedom ( $d^2$ ) of 1% (0.01), the Chi square ( $X^2$ ) is 6.64. The probability of success (P) is 50% (0.5)

Substituting in the formula:

$$n = \frac{6.64 \times 22 \times 0.5 (1 - 0.5)}{0.01 \times 21 + 6.64 \times 0.5 \times 0.5}$$
$$n = 19$$

### Sample selection Procedure

The respondents within the selected population were selected purposively. Since the study requires people with technical knowledge about the study, the respondents within each sample will be selected using purposive judgement. Purposive sampling is that technique in which you select a sample basing on your judgement on how that sample will enable you to answer your questions and to meet your objectives (Saunders et al 1999)

### Data Collection

This section entails on how data will be collected from respondents. It shows how the qualitative data, quantitative and secondary will be collected quantitative.

### Qualitative Data Collection

In order to address the objectives of the study, primary data was collected by holding in-depth interviews using interview guide with financial institutions manager on their coverage. These in-depth interviews involved discussions between the researcher and the respondents on deposits, credits, health insurance and mobile money. This approach was consistent with the work of Kothari (1998) and Saunders *et al.* (1999) who argued that in-depth interviews constitute one of the vital approaches for understanding phenomena that have not been significantly studied.

### Quantitative Data Collection

The quantitative was collected using one sets of questionnaire, was given to the community. The questionnaire was designed using a five point likert scale, both closed and open ended questions were used. Open ended questions were seeking the views of respondents on the subject matter. In this study the researcher used both the structured and the unstructured self-administered questionnaires. The researcher decided to use this type questionnaires in the study because of the advantages it has over other instruments as sited by Saunders et al (1999), Kothari (2000), Kasomo (2006) and Mugenda (2008), it is relatively cheap to collect data through the use of

questionnaires since it involves only spending money in preparing the questionnaire and mailing it to the respondents. In addition, when the study involves both deductive and inductive approach, questionnaire is best suit in the study. Furthermore when the study involves identifying a relationship between variables, the questionnaires helps to get data that describe a relationship between different variables.

### **On Desk Research**

The last approach that was used in data collection is the documentation of literature search. This was done in order to establish the financial inclusion coverage. Secondary data is the data which may be used by raw data if there has been little if any processing or compiled data that have been received some of selection or summarising (Saunders et al 1999). It can also be defined as the data which have already been collected by someone else and which have been passed through statistical process (Kothari 2000).

The documentation of data helped the researcher to provide a contextual and comparative data. In addition to that it also helped the researcher in comparing that data that was collected with the secondary data (Saunders et al 199). This therefore this makes it inevitable for the researcher to use secondary data in this study.

### **Qualitative Data Analysis**

The data that was collected through interview was edited and imported into SPSS through rich text format. Data was classified and organised into themes using mother and child nodes as indicated by Kakuru (2008). Themes were merged and modified as meaning will be attached to the data being analysed. The coding resulted into concepts that were used to identify the emerging relationships amongst the different variables. The process of coding was repetitive and consistent with the work of kakuru (2008).

### **Quantitative Data Analysis**

The survey data that was generated from the questionnaires was analysed using both exploratory and confirmatory statistical techniques. After receiving the completed questionnaires from the field, a data entry capture template was designed in the Statistical Package for Social Scientists (SPSS) which was used for data entry. After data entry and cleaning up, exploratory statistical data analysis was conducted using frequency distribution tables to summarise and display the respondents' views on the questions under study

#### 4. Presentation and discussion of results

**Table 4.1:** Do You Encounter Some Risks As You Do Business

Responses		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agree	8	44.4	44.4	44.4
	Strongly Agree	10	55.6	55.5	100.0
	<b>Total</b>	<b>18</b>	<b>100.0</b>	<b>100.0</b>	

Source: Survey Data 2015

Risk is part- and parcel of the activities of the bank. Under this, the researcher wanted to confirm with the existing literature on the existence of risks in private banking activities. Results from the table 5.1 above show that 44.4% agreed that they encounter risks as they do their businesses and 55.5% strongly agreed on encountering risks in their business activities.

The findings agree with the present literature. Previous studies by McNeil, et al, (2005) and Rane (2008), indicates that all banking activities are risky and, therefore, managers should monitor their activities very well. A more interesting comment was done by Frey and McNeil (2003) in their study Bank and risks. They state that “bank and risk are synonymous, therefore, managers should critically analyse their business activities”.

**Table 4.2:** Types of Risks and how they Impact on the Banking Activities

Risk Type	Very Low	Low	Medium	High	Very High	Total
Credit Risk	0	0	2	7	9	18
Market Risk	0		3	7	8	18
Operation Risk	0	4	5	6	3	18
Liquidity Risks	3	5	3	5	2	18
Concentration Risks	5	4	3	4	2	18
Reputation Risk	7	6	4	1	0	18
Strategic Risks	6	5	3	3	1	18
Ownership Risks	4	10	3	1	0	18

Source: Survey Data 2015

Table 4.2 above shows the main types of risk and how they impact the banking activities. The table show that 9 banks out of 18 indicated very high for credit risks, 7 banks indicated high and 2 indicated medium. On market risk, 8 indicated very high, 7 indicated high and three bank

indicted medium. None of the banks indicated low or very low. Information from the banks on operations risks shows that three banks out of eighteen indicated very high, six indicated high, five indicated medium and four banks indicated low. None of the banks indicated very low. Information of the banks on liquidity risks shows that two banks indicated very high, five indicated high, three banks indicated medium, five indicated low and three banks indicated very low. Information from the banks on concentration risks shows that two banks indicated very high, four indicated high, three banks indicated medium, four banks indicated low and five banks indicated very low. Banks' information on reputation risk shows that one bank indicated high, four banks indicated medium, six banks indicated low and seven banks indicated very low. None of the banks indicated very high. Strategic risk is another risk that affects the banking activities. Banks were asked on how this type of risk affects their activities. One bank indicated very high, three banks indicated high, three banks indicated medium, five banks indicated low and six banks indicated very low. Another important risk that affects the banking industry, especially, the private banks is the ownership risk. Banks were asked on how this type of risk affects their banking activities. Responses from the bank show that one bank indicated high, three banks indicated medium, and ten banks indicated low and four banks indicated very low.

A clear analysis shows that credit risk is the highest risk that affects the banking activities followed by market risk and operation risk. Some of the findings from table three above agree with the existing literature. The findings from the study carried out by Hussein et al (2007) shows that credit risk is the highest risk which affects the banking activity in Egypt. Hull (2007), asserts that poor credit risk management is one of the major causes of financial crises in Europe and USA in 2008-2010. Similar studies also show that credit risk is the highest followed by market risk and operation risks (Josef and Kurt 2006)

**Table 4.3: Types of Credit Risks and how they Impact on Banking Activities**

Risk Type	W1	W2	W3	W4	W5	TOTAL
Counterparty	1	2	0	7	8	18
Credit Equivalent	0	2	4	5	7	18
Settlement Risks	1	4	3	4	6	18
Exposure Risks	2	3	4	5	4	18
Concentration Risks	4	2	1	6	5	18

Source: Survey Data 2015



Table 4.3 above shows the main types of credit risks and how they impact on the banking activities. Banks were asked to rank the different types of credit risks by giving weight on how a particular type of risk affects their banking activities. On average 83.3% indicated counterparty, another 66.7% indicated credit equivalent, 55.6% indicated settlement risks, 50% indicated exposure risks and 61.1% indicated concentration risks. Results show that counterparty risks and credit equivalent risks are the highest followed by concentration risks and settlement risks.

Results of the findings are similar to other findings from the previous studies. The study carried out by Uwuigbe (2011) in Nigeria shows that counterparty and credit equivalent are the highest credit risk exposures to the banking activities. Similar results have also been shown in the study carried out by (Barnhill and Maxiwell 2002). Concentration risk is most in small banks and it is most likely to affect their activities. The study carried out by Martin (1998) shows that concentration risk is likely to affect many small banks in developing countries due to small capital base. Ricardo and Stephanie (2006) shows that many small banks in Developing Countries provide credit to retail and wholesale sectors which are very prone to risks.

**Table 4.4: Indicators of Credit Risk**

Indicator	WEIGHT					TOTAL
	1	2	3	4	5	
Ratio of Available Collateral to Unsecured Loan	0	0	2	6	10	18
Collateral in Relation to the Loan	0	0	2	8	8	18
Volume of the Portfolio and the Size of the Exposure	0	3	4	6	5	18
Share of Foreign Currency Loan in Relation to the Portfolio	0	3	7	4	4	18
Exposure in Relation to the industry	0	2	4	4	8	18
Share of Equity Investment in Total Assets	3	6	2	3	4	18

Source: Survey Data 2015

Results in table 4.4 above show the indicators used by private banks in identifying credit risks in the banking activities. Both Ratio of available collateral to unsecured loan and collateral in relation to loans were rated high by 88.8% of the banks followed by exposure in relation to the industry which was rated by 66.7% of the banks followed by the volume of the portfolio and the size of exposure rated by 61.1% of the banks. The share of foreign currency loan in relation to

the portfolio was rated next by 44.4% of the banks and the last indicator used is the share of equity investment in total assets as indicated by 38.9% of the banks.

The survey indicates that many banks use various techniques in identifying credit risk exposures. However, the most used techniques in identifying credit risk as indicated in table five above are ratios of available collateral to unsecured and collateral in relation to the loan. The findings are in line with theories from the previous studies.

Previous studies on credit risk indicators shows that in practice, banks use various techniques in identifying risks. Josef and Kurt (2006), studied credit risk management in Sweden and found out that banks in Sweden used various techniques when identifying credit risks in the banking activities. The study carried out by Hussein, et al, (2007), shows that banks in Egypt use different techniques in identifying credit risks in the banking activities. Kenji, et al, (1998) in their study on risk management in Asian countries found out that bank in Asian countries uses different risk indicators in identifying credit risks.

**Table 4.5: Sectors and their Level of Risk**

ELEMENT	WEIGHT					TOTAL
	1	2	3	4	5	
Corporate Lending	2	6	3	3	4	18
SME Lending	1	1	6	4	6	18
Retail Lending	0	1	2	1	14	18
Agricultural				1	17	18
Personal	1		1	5	11	18

*Source: Survey Data 2015*

Different sectors have different risk levels. Some sectors are more risky than the others. Understanding the type of sector the bank's clients are in is an important aspect of credit risk management. In this question, banks were asked to give weight to sector that are more risky and the following responses were obtained. Results in table 5.7 above show that retail lending and agricultural lending were considered by 100% of the banks as the most risky sectors followed by

personal lending as indicated by 88.9% of the banks, SMEs lending 83.3% and the last is the corporate lending represented by 38.8%.

Results from the findings agree with the present literature. The study carried out by Ricardo and Stephanie (2006) shows that Retail, and SMES lending as the more risky sectors. Findings from the study carried out by Josef and Kurt (2006) on bank risk management show that agriculture and retail lending as the most risky sector for lending.

**Table 4.6: Minimum level of nonperforming assets as a percentage of loan portfolios outstanding that is acceptable by banks.**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 2%	5	27.8	27.8	27.8
	2-4%	10	55.6	55.6	83.4
	4-6%	3	16.6	16.6	100.0
	<b>Total</b>	<b>18</b>	<b>100.0</b>	<b>100.0</b>	

Source: Survey Data 2015

The ratio of non-performing assets to the total percentage of outstanding loan portfolio has a great impact on credit risk management. Research shows that a high level of nonperforming assets to the total assets indicates high credit risks (McNeil, et al, 2005: 32). The study done by Hein, et al, (2009: 50), shows a positive correlation between nonperforming assets and bank's profitability. In this context, participants were asked the minimum level nonperforming assets that are acceptable by their banks. Results show that 27.8% of the participants accept a ratio that is below 2%, 55.6% indicated that they accept a ratio which is between 2-4% and 16.6% indicated that they accept a ratio which is between 4-6%. The results in table 5.8 above confirm the findings in the previous research and benchmark guidelines provided by Basel.

**Table 4.5: Established portfolio limit exposure for different Sectors of the industry**

Element	WEIGHT					Total
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	
Individual Borrowers	0	0	1	8	9	18
SME Business	0	0	2	6	10	18
Retail	0	0	0	9	9	18
Corporate	0	0	1	7	10	18

Source: Survey Data 2014

Portfolio exposure limit defines the risk appetite of the credit risk of the banking institution. The higher the limit, the higher the risk appetite the higher the risks the bank is facing. Participants were asked whether the bank has a well-established portfolio exposure limit for different sectors. Survey data in table 4.7 above indicates that nearly 94.4% of the participants agreed about individual borrowers, 88.9% of the surveyed participants agreed about SME business, 100% agreed about the retail business and nearly 94.4% of the surveyed participants agreed for the corporate sector.

Nearly 100% of the participants agreed on the existence of a well-established portfolio limit exposure for the different sector. The results reveal that banks have an established risk appetite for different sector of the industry. Although the results in table 4.7 above confirm to the existing theories, the same results also contradict with the results found in table 4.7 above. The table above reveals that retail and agriculture are the most risky sectors. Therefore one could expect to find high percentages of banks confirming the existence of limit exposures in this sector. However, table 4.7 above, reveals that high confirmation is found in personal borrowing and corporate lending.

**Table 4.8: Information from banks on challenges they face in the successful implementation of credit risk management**

Challenge	RANK					Total
	Very Low	Low	Medium	High	Very High	
Difficulties in Quantifying Risk		0	2	8	8	18
Timeliness and Quality of Information	0	1	2	7	8	18
Difficulties in Integrating Risk Management and Other Business Processing	0	2	2	5	9	18
Business Priorities are Often Conflicting	2	1	4	6	5	18
Calculation of Parameters		1	2	5	10	18
Difficulties for the Bank to Separate Banking and Trading Books		3	1	9	5	18
Lack of Technical Knowledge and Trained Personnel	2	1	4	5	6	18
High Cost of Information Technology	1	2	4	2	9	18

Source: Survey Data 2015

Data in table 4.8 above reveals that the most encountered challenges in the implementation of the credit risk management culture are difficulties in the quantification of risks represented by 88.9% of the banks followed by calculations parameter 83.3% of banks. Timeliness and quality of information and conflicting business priorities were both indicated by 83.3% of the participants, followed by difficulties in integrating risk management and other business priorities represented by 77.7% of the banks. Difficulties in separating banking and trading bank ware indicated by 77.7% of the banks and lack of technical knowledge and trained personnel was backed-up by 61.1% of the participants. Cost of information of technology also indicated by nearly 61.1% of the participants.

The results surveyed in table 4.8 above agree with the present literature and theories. The study by KPMG (2011), Martin (1998) and Ricardo and Stephanie (2006) show that the most challenging factor in risk management is the quantification of risks and establishing of parameters on which risk is calculated.

**Table 4.9: Approaches Used by Banks in Measuring Credit Risk.**

Approach	Frequency	Percentage
Simplified Standard Approach	4	23.1
Standardised Approach	13	69
Foundation Internal Based Rating Approach	3	15
Advanced Internal Rating Based Approach	1	8
Moody's Kvm	1	8
Credit Metrics Approach	4	23.1
Credit Metric+	1	8
Credit value at Risk	3	15

Source: Survey Data 2015

Credit risk measurement is one of the key components in the credit risk management process. The Basel committee on the banking supervision and other scholars provides various techniques that can be used to measure the credit risks. Results in table 4.9 above show that 23.1% of the participants use simplified standard approach by Basel, 69% indicated that they use standardised approach by Basel, 15% of the participants use foundation based rating approach by Basel, 8% of participants use advanced internal rating based approach by Basel, 8% indicated that they use Moody's KVM, 23.1% of the banks indicated that they use credit metrics approach by Morgan



and 8% indicated that they use Credit metric<sup>+</sup> by JP Morgan and 15% indicated that they use credit value at risk.

Results in table 4.9 above show that the most banks in Uganda follow the Basel guidelines techniques in measuring credit risk. Findings further shows that most banks still use the basic Basel techniques to measure credit risks. Although the Basel technique can efficiently measure the risks, these techniques cannot capture the tailed and the fat tailed behaviour of the risks. The study by Ricardo and Stephanie (2006) shows that use of standardised approach to measure the credit risks may provide misleading results since they cannot capture the tails and fat tails of the risks. This, therefore, implies that the techniques used cannot capture the economic capital. The findings in table 4.9 above correspond to theories and practice in the banking sector in the most developing countries. The study carried out by Martin (1998) shows that most banks in the developing countries still use techniques of Basel I.

**Table 4. 10: Opinions on what should be done by BOU in the Efficient Management of Credit Risks**

Opinion	OPINION RATING					Total
	Very Low	Low	Medium	High	Very High	
Make an Official Translation of the Basel II and III Related to Credit Risk	0	0	3	8	7	18
Produce a Consultative Paper on The Credit Risk Management on IRBA and Allocation Model	0	0	1	6	11	18
Implement Some Parts of Basel II	0	0	4	9	5	18
Produce Recommendations on how Bank Should Develop their Own Rating System	0	1	1	8	8	18
Simple Model to Estimate PD and LGD Correlation	0	2	5	5	6	18
Main Types of Data to be Collected	3	2	4	4	5	18

Source: Survey Data 2015

Bank of Uganda is the regulatory organ for all banks in Uganda. This, therefore, means that for any policy to be effective, it must be supported by the Bank of Uganda. In this context, banks were asked to give their opinions on how the above theoretical policies may be useful in credit

management framework by ranking how the statement is important. Seventeen out eighteen (83.3%) banks indicated that it will be very important if the bank of Uganda makes an official translation of the Basel II and Basel III related to credit risk management guidelines. Fifteen out of eighteen (94.4%) banks indicated that it is important for the bank of Uganda to produce a consultative paper on the credit risk management on internal rating based approach (IRBA) and allocation model. Furthermore, fourteen out eighteen banks (77.8%) indicated that it is important for BOU to implement some parts of Basel II. On whether the bank should produce recommendations on how banks should develop their own rating systems, sixteen out of eighteen banks (88.9%) confirmed with the statement. Information from the banks, on development of simple models to estimate the probability of default (PD) and loss give default (LGD), results show that eleven out of eighteen banks (61.1%) agreed with the statement. Last but not the least, information from the banks on the main data to be collected shows that nine banks out of eighteen (50%) ranked high to the statement.

Results in the table above reveal that most banks recommended for the bank of Uganda to produce a consultative paper on the internal rating based approach and allocation model, followed by recommendations on how the banks should develop their own rating system and making an official transfer of Basel II and III on credit risk management.

**Table 4.11: Information on the types of Operations Risks the bank Faces**

Operation Risk Resource	OPINION RATING					Total
	Very Low	Low	Medium	High	Very High	
New Products	0	1	1	8	8	18
Employee Turnover	0	1	2	8	7	18
Transaction Breaks	0	1	2	6	9	18
System Down Time	0	0	3	9	6	18
Activities Of The Branch	0	1	2	8	7	18
Banking Group Integration	1	3	4	5	5	11

Source: Survey Data 2015

Table 4.11 above shows the main types of operations risks. Banks were asked to rank the risks on how they affect their banking activities. Nearly sixteen out of eighteen banks (88.9%) indicated high on introduction of new products. fifteen banks out of eighteen (83.3%) indicated high on employee turnover as causes of operation risk. Transaction breaks is another source of

operations risks, fifteen out of eighteen (83.3%) banks indicated that they are highly affected by this type of risk. On system down time, fifteen banks (83.3%) indicated that they are highly affected by this risk and 16.7% indicated medium. More still, fifteen banks (83.3%) indicated high on the existence of this risk, 16.3 % indicated medium. Furthermore, on banking group integration seven banks out of thirteen (55.6%) indicated high as a source of risk to the bank, 22.2% indicated medium, 16.7% indicated low and 5.6% indicated very low.

Results in the table 4.11 above show that introducing new products as the main causes of operations risks in the banking sector. This is followed by employee turnover, transaction breaks, system down time, activities of the branch and banking integration. The findings in the table 4.11 above are related to the previous studies. The study carried out by Chalupka and Tepl (2008) shows that introducing new products creates new risks for banks and, therefore, banks should take care to prevent risks during the introduction stage of the new product. Ivana (2007) shows that employee turnover creates operations risks for banks.

**Table 4.12: Information on the Tools used to Manage Operations Risks**

Tools	OPINION RATING					Total
	Very Low	Low	Medium	High	Very High	
Business Process Description	0	2	4	7	5	18
Loss Events Data Collection	0	0	2	7	9	18
Self-Assessment Survey	2	1	7	3	5	18
Balance Sheet	2	5	4	5	2	18
Balance Scorecard	0	4	8	2	4	18
Risk Mapping	1	1	9	5	2	18
Key Risk Indicators	1	5	7	1	4	18
BIA	0	0	1	2	3	6
ASA	0	0	1	1	0	2
AMA	0	1	1	1	5	8
Operation Risk Limit	1	1	1	2	4	9
Stress Testing	0	4	2	1	2	9
Contingency Planning	2	1	3	2	0	8

Source: Survey Data 2015

Table 4.12 above shows the theoretical tools that can be used in the management of operations risks. Banks were asked to rank the technique the way they are used in the management of operations risks. Results show that nearly twelve banks (66.7%). Loss event data collection is another technique that can be used to manage operations risks. Information from the banks shows that nearly sixteen participants (88.9%) indicated that the technique is highly used and 11.1% indicated medium.

Furthermore, results show that eight banks (44.4%) indicated high on the use self-assessment survey. On the use of balance sheet as operations risk management technique, results show that seven banks (38.9%) indicated high on the use of the technique. Risk mapping is another tool that is used in the management of operation risk. Results show that seven banks (38.9%) indicated high on the use of the technique and 23.1% indicated medium

More still, banks were asked to give their opinion on the use of Key risk indicator as an operations risk management tool, results in the table 4.12 above show that five bank (27.8%) indicated high. Based indicator approach (BIA), advanced standardised approach (ASA) and advanced measurement approach (AMA) are operations risk measurement techniques provided in the Basel II. Banks were asked to rank how they use these techniques in the management of operations risks. Results show that five banks (27.8%) indicated high on the use of BIA, six banks (33.3%) indicated high on the use of AMA and one bank (5.6%) indicated high on the use of ASA and other banks did not provide information to the question.

Furthermore, banks were asked to rank the use of operations risks limit, stress testing and contingency planning as operations risk management tools in their banks. Results in the table 4.12 above show low use of these techniques in the operations risk management. Findings show that six banks (33.3%) indicated high, one bank (5.6%) indicated medium, one bank (5.5%) indicated low and another one bank (5.5%) indicated very low. On the use of stress testing, three banks (16.7%) indicated high, two banks (11.1%) indicated medium and four banks (27.8%) indicated low. Information from the banks on the use of contingency planning shows that two banks (11.1%) indicated high, three banks (16.7) indicated medium; one bank (5.6%) indicated low and two banks indicated very low. Other banks did provide information to the questions.

**Table 4.13: Measurement Approaches of Operations Risks.**

Approach	Frequency	Percentage
Basic Indicator	8	44.4
Standardised Approach	10	55.6
Alternative Standardised	0	0
Advanced Measurement	0	0

Source: Survey data 2015

Table 4.13 above shows the approach used by Basel II in the measurement of operations risks. Banks were asked to select the approach they use in the measurement of operations risks. Results show that 44.4% they use basic indicator approach, 55.6% use standardised approach and none the banks use the alternative standardised approach or advanced measurement approach. Results in the table above show a contradiction with results in the table 5.23 above where 33.3% of the banks indicated that they use advanced measurement approach in the management of operations risk.

Results further show that, banks in Uganda use the first approaches of Basel to measure operations risks. The study carried out by Ivana (2007) shows that these techniques may not provide a full picture of operations risks in the banking sector. Findings from the study carried out by McNeil (2005) show that the use of Basel approaches to measure operations risks does not capture the tail and the fat tail of the operations risk.

**Table 4.13: Opinions on the Measures to be introduced by Regulatory Authority for the Efficient Management of Operations Risks**

Measure	WEIGHT/RANK					Total
	Very Low	Low	Medium	High	Very High	
Turn More Stringent Regulation on Operation Risk Management	0	0	2	6	10	18
Increase the Scope And The Frequency of the Reporting Operations Risk Exposures	0	0	4	8	6	18
Produce Guideline on Making Simple Internal Model and Data Collection Template	1	2	3	5	7	18
Produce Consultative Material on	1	0	2	5	8	18



Operation Risk Management						
Develop Opportunities For Hedging Operations Risks by the Bank	0	7	5	4	2	18
Main Types of Data to be Collected	1	2	8	3	4	18

*Source: Survey Data 2015*

Table 4.13 above shows the theoretical measures that can be used regulatory authority in enhancing operations risk management. Banks were asked to rank these policies in their order of importance where possible. Results show that nearly sixteen banks (88.9%) indicated high on turning more stringent regulations on operations risk management and two banks (11.1%) indicated medium. On increasing the scope and frequency of reporting operations risks exposures, information from of the banks shows that nearly fourteen banks (77.8%) highly supported this measure, four banks (22.2%) indicated medium on this measure, none of the banks indicated low or very low.

More still, information from the banks on production of guidelines on making simple internal models and data collection templates shows that twelve banks (66.7%) highly support this measure; three banks (16.7%) indicated medium support for this measure. Information from of the banks further shows that nearly thirteen banks (77.2%) indicated high in the support of producing a consultative material on operation risk management, two participants (11.1%) indicated medium.

Furthermore, information from the banks in table 4.13 above shows that six banks (33.3%) indicated high in the support of developing opportunities for hedging operations risks, five banks (27.8%) indicated medium. On the main type of data to be collected, seven (38.9%) indicated high in the support of this measure, eight banks (44.4%) indicated medium in the support of the measure.

Results in the survey reveals that, for proper management of operations risks regulatory authority must implement different measures to support the banking industry. The results show the most influential measures ranging from stringent regulations on operations risks, increasing the scope of reporting, guidelines on making simple internal models and data collection templates. Measures also include producing a consultative material for operations risk; provide the main data to be collected and developing opportunities for hedging the operations risks.

The findings in the table above produce two theories. One theory confirms the existing literature and another theory contradict with previous studies. The study carried out by Mpuga (2002) shows that regulatory authority should provide stringent guidelines to support banks' operations risk management policies. Similar findings are also seen in the study carried out by (Ivana 2007). On the other hand, the study carried out by Chalupka and Tepl (2008) shows that the data base for operations risk is the most challenging part of risk management and therefore the regulatory authority should provide guidelines data collection to support operations risk management. Similar studies show that banks should establish a data base for risk management (KPMG 2011, 2010 and Elisabeth 2009).

**Table 4.14: Information on types of Market Risks**

Risk Type	WEIGHT/RANK					Total
	Very Low	Low	Medium	High	Very High	
Liquidity Risks	3	1	2	4	8	18
Currency Risks	0	1	1	7	9	18
Price Risk	0	2	3	6	7	18
Interest Risk	0	0	1	10	7	18

*Source: Survey Data 2015*

Table 4.14 above shows the main types of market risks. In this table banks were asked to rank the type of market risk which affects their activities most. Results show that nearly twelve banks (66.7%) indicated that they are highly affected by liquidity risks; two banks (11.1%) indicated that the risk is medium, and nearly four banks (22.2%) indicated low to existence of liquidity risk. For currency risk, nearly 16 banks (88.9%) indicated they are highly affected by currency risk, one bank (5.6%) indicated that the risk is medium and one bank (5.6%) indicated the risk is low. Information from the banks on price risk shows that thirteen banks (72.2%) indicated that the risk is high; two banks (16.7%) indicated that the risk is medium and another two banks indicated (11%) the risk is low. More still, information from the banks on interest risks show that nearly seventeen banks (94.4%) indicated that the risk high, one bank (5.6) indicated medium.

Results in the table above reveal, that banks are affected by multiple market risks. Findings further shows that the highest market risk which affects the banking sector is interest risk

followed by currency risk, price risk as well as liquidity risks. Two theories develop from this analysis. The first theory confirms the existing literature and another contradicts with the existing literature. The study carried out by Burtschell, et al, (2007: 26) show that interest risks and price risks as the major causes of market risks. Similar findings are also seen in the study carried out by (Chalupka and Tepl 2007, KPMG 2011). On the other hand, Basel Committee on Banking Supervision (2011) shows that liquidity risk is one of the major causes of financial crisis in Europe and USA. It was in this context that Basel III provided new ways of managing liquidity risk.

**Table 4.15: Information from the Banks on Techniques used to Measure Market Risk**

Techniques	Frequency	Percentage
Historical Simulation	3	15.4
Parametric Value At Risk	0	0
Scenario Analysis	8	46.2
Grid Approach	3	15.4
Standard Deviation	4	23.4
Monte-Carlo Simulation	4	23.4
Back Testing	1	7.7
Stress Testing	8	46.2
Standardised Measurement	5	30.7
Sensitivity To Market	1	7.7
Internal Model Approach	3	23.4
Earning At Risk	1	7.7

*Source: Survey Data 2015*

Table 4.15 above shows theoretical techniques that are used to measure market risks in the banking sector. Banks were asked to select the techniques they use in measuring the market risk. Results shows that 15.4% of banks use historical simulation, 15.2% use grid approach, 23.4% use standard deviation, 23.4% use Monte-Carlo simulation, 7.7% use backtesting, 46.2% use stress testing, 30.7% indicated that they use standardised measurement approach, results further show that 46.2 of the bank use scenario analysis, 7.7% indicated that they use sensitivity to

market approach, 23.4 indicated that they use internal model approach, 7.7% use earning at risk and no bank was found using parametric value at risk.

Results from survey show that banks use various techniques in measuring market risks. However the most used technique in measuring are stress testing and scenario analysis. Results further shows that techniques which can capture unexpected loss like historical simulation and parametric simulation are not commonly used. This implies that the model used may not capture economic capital.

**Table 4.16: Opinions of the Banks on Measurements that need to be introduced by Regulatory Authority**

Instrument	WEIGHT/RANK					Total
	Very Low	Low	Medium	High	Very High	
Admit The VAR Based Internal Model in the Capital Adequacy Requirements	0	2	2	8	6	18
Provide a Clear Criterion of Splitting the Trading and Banking Book	0	1	2	7	8	18
Turn to More Stringent Regulation on Intraday Market Risk Management	0	5	3	8	2	18
Produce a Detailed Guideline on Stress Testing and Tools of Market Risk Management	2	0	3	5	8	18
Improve Legislation to Develop Hedging Opportunities on Market Risk Exposure	0	4	4	5	5	18

Source: Survey Data 2015

In the table 4.16 above, banks were asked to rank the instrument or measurement if the regulatory authority introduces would make the banking sector more resilient to market risks. On admitting the value at risk (VAR) based Internal Model in the Capital Adequacy Requirement, nearly fifteen banks (77.8%) highly supported the instrument, two banks (11.1%) indicated medium to the instrument and another two banks (11.1%) indicated low. Information from of the banks further indicates that nearly fifteen banks (83.3%) highly supported an instrument of providing a clear criterion of splitting the Trading and Banking Book, two banks (11.1%) indicated medium, one bank (5.6%) indicated low.

More still, on introducing more stringent regulations on intra-day market risk management, results show that nearly ten banks (55.6%) highly support in this measure, three banks (16.6%) indicated medium in the support of the measure. On producing a detailed guideline on stress testing and tools of market risk management, thirteen banks (72.2%) indicated high in the support of the instrument and three banks (16.7%) indicated medium in the support of the measure. Furthermore, information from the banks on improving legislations to develop hedging opportunities on market risk exposure show that ten banks (55.6%) indicated high in the support of the instrument and four banks (22.2%) indicated medium.

Results in table 4.16 reveals that a number measures need to be implemented in order to make banks more resilient to market risks. Information from banks shows that turning more stringent regulations on intra-day market risk management as the highest instrument supported by banks. This is followed by providing a clear criterion of splitting the trading and banking book, followed by admitting the VAR based Internal Models in Capital Adequacy requirements, followed by producing a detailed guideline on stress testing and tools of market risk management and improving legislations to develop hedging opportunities on market risk exposure. Similar findings are seen in the study carried out by (Elisabeth 2009: 17, Frey and McNeil 2003: 10, Fiori and Iannotti 2007: 26).

## 5. Conclusion

Managing risk is a core activity in a bank and therefore fundamental to long-term profitability and stability of the banking sector. Risk is closely related to business activities and business strategy and, therefore, to customer needs. Of the various risks that banks should assume in providing its customers with financial solutions and products, credit risk is the most significant.

The profitability of the bank is directly dependent upon its ability to evaluate, manage and price the risks encountered, while maintaining an adequate capitalisation and liquidity to meet unforeseen events. To secure the financial stability of the banking sector, risk and capital-related issues should be identified, monitored and managed at an early stage. This should form an integral part of the long term strategic and business planning process.

In order to understand the financial consequences of business decisions on all levels and how they affect shareholder value over time, banks should proactively manage three main aspects: (1) the growth, mix and risk of business volumes, (2) capital, funding and liquidity requirements



driven by the business and (3) profitability. Targets should be set and reviewed on a regular basis to manage and optimize resources in respect of these three aspects. Risks should only be taken where banks have the ability to understand, evaluate and manage the outcomes within the regulatory and economic capital limits.

### References

- Bank of Uganda (2010) Annual Report on Financial Stability
- Bank of Uganda (2012): Press Release on the Closure of National Bank of Commerce
- Barakova, I., Carey, M. (2003): *How Quickly Do Troubled Banks Recapitalize? With Implications for Portfolio VaR Credit Loss Horizons*: Working Paper, Federal Reserve Board.
- Baral, K.J. (2005): *Health Check-Up of Commercial Banks in the Framework of CAMEL: A Case Study of Joint Venture Banks in Nepal*. The Journal of Nepalese Business Studies 2(1) 14-35
- Basel Committee on Banking Supervision (1999): *Credit Risk Modelling: Current Practices and Applications*: Basel Committee on Banking Supervision Basel
- Basel Committee on Banking Supervision (2004): *Principles for the Management and Supervision of Interest Rate Risk*: Basel Committee on Banking Supervision
- Basel Committee on Banking Supervision (2009): *Guidelines for Computing Capital for Incremental Risk in the Trading Book*: Bank for International Settlements.
- Bessis, J. (2002): *Risk Management in Banking*: 2nd ed. Wiley.
- Bryman and Bell, (2003): *Business Research Methods*: Oxford University Press. New York
- Burtschell, X., J. Gregory and J P Laurent (2007): *Beyond the Gaussian Copula: Stochastic Capital, Risk and Efficiency in European Banking*: Journal of European Financial Management Vol13 No 1.
- Chalupka, R. and Tepl, P. (2008): *Operational Risk Management and Implications for Bank's Economic Capital: A Case Study*. IES Working Paper 17/2008. Charles University.
- Cossin, A., Didier. W. and Hugues. P (2000): *Advanced Credit Risk Analysis: Financial Approaches and Mathematical Models to Assess, Price and Manage Credit Risk*.
- De Nederlandsche Bank (2005): *Guidelines on Interest Rate Risk in the Banking Book*:
- Elisabeth V. Bart, B. (2009): *Regulatory and Economic Capital: Theory and Practice Evidence from the Field*: England Working Paper 339.
- Ernest and Young (2010): *Understanding Customer behaviour in Retail Banking: The Impact of Credit Crisis across Europe*
- Fiori, R and S Iannotti S (2007): *Scenario Based Principal Component Value-At-Risk: An Application to Italian Banks' Interest Rate Risk Exposure*", Journal of Risk, Vol 9, No 3, Pp 63-99.

- Glantz, M. (2003): *Managing Bank Risk: An Introduction to Broad-base Credit Engineering*: Academic Press
- Hussein A.H., Al-Tamin F. and Mohammed A. (2007): *Bank Risk Management a Comparison Study of UAE National and Foreign Bank*: Journal of Risk Finance
- Ivana, M. (2007): *Mathematical Models for Estimation of Operation Risk Management*: Master Thesis
- Josef, C. and Kurt, P. (2006): *Bank Risk Management: Internal Capital Adequacy Assessment Process*: Oesterreichische National Bank
- Kakuru, J. (2008): *The Supply Demand Factors Interface and Credit Flow to Small and Medium Enterprises in Uganda*: Ph.D Thesis
- Kasomo, D. (2006): *Research Methods in Humanities*: 1<sup>st</sup> Edition: Egerton University Press Publishers.
- Kenji, N., Hirosh, I. K. and Takanori ,S. (1998): *Capital Allocation and Bank Management Based on the Quantification of Credit Risk*: Frbny Economic Policy Review Tokyo.
- Kothari, C.R. (2000): *Research Methodology, Methods and Techniques*: Wiley East Limited
- KPMG (2011): *Basel III Issues and Implication*. KPMG
- Kenji, N., Hirosh, I. K. and Takanori ,S. (1998): *Capital Allocation and Bank Management Based on the Quantification of Credit Risk*: Frbny Economic Policy Review Tokyo.
- Martin, B. B. (1998): *The Causes of Financial Distress in Local Banks in Africa Implementation for Prudential Policy*: UNCTADS
- Mcneil, A, R. Frey, and Embrechts, (2005): *Quantitative Risk Management; Concepts, Techniques and Tools*: Princeton Series in Finance.
- Mugenda, A.G. (2008): *Social Science Research Theory and Principles*: Arts Press
- Oesterreichische National Bank (2012): *Guideline on Credit Risk Management: Credit Approval Process and Credit Risk Management*: Oesterreichische Bank
- Rane, D. (2008): *Defining and Measuring Business Risk in Economic Capital Framework*: Journal of Risk Finance Vol9 Iss4.
- Ricardo, G. and Stephanie, G.J. (2006): *Review of the Basel II Implementation in Low Income Countries*: Institute of Development Studies of Sussex Brighton
- Saunders, L.M.K., Philip, L. And Thornhill, A. (1999): *Research Methods for Business Students*: 2<sup>nd</sup> Edition Pearson Publishers
- Uwuigbe O.R. (2011): *Corporate Governance and Financial Performance of Banks: A Study of Listed Banks in Nigeria* Covenant University