RISK MANAGEMENT PRACTICES IN THE COMMERCIAL BANKS OF ETHIOPIA

Abera Bayisasahu Nade[*]

Dr. Dhiraj Sharma[**]

Abstract

The purpose of this study is to evaluate the degree to which the commercial banks in Ethiopia use effective risk management practices. Data is collected from 112 respondents mainly from the risk managers, risk experts, and credit analysts that work in the 14 selected commercial banks. A standardized questionnaire is used which contains 51 statements with a 7 point Likert scale categorized into six aspects of risk management practices, namely: Risk Management Practices (RMPs) - the dependent variable; Understanding risk and risk management (URRM); Risk Identification (RI); Risk Assessment and analysis (RAA); Risk Monitoring (RMO); and Credit Risk Analysis (CRA) – the independent variables. The study found that commercial banks in Ethiopia are somewhat efficient in managing their risks. A positive correlation is found between the

Keywords:

Risk;

Risk management practices;

Risk management aspects;

Commercial banks;

Ethiopia;

Credit risk analysis.

[*]**Ph.D Scholar in the School of Management Studies, Punjabi University, Patiala -147002, India**

[**]**Assisstant Professor in the School of Management Studies, Punjabi University, Patiala-147002, India**

five risk management aspects and risk management practices. Moreover, risk monitoring (RMO), risk identification (RI) and credit risk analysis (CRA) are founded as statistically significant and influential variables that affect the risk management practices (RMPs) of commercial banks in Ethiopia. Commercial banks in Ethiopia can improve their risk management practices by giving more emphasis to their risk monitoring practices (RMO), risk identification (RI) and credit risk analysis practices (CRA).

1. Introduction

In the banking perspective, a risk is defined as the condition that raises the chance of losses or gains and the uncertain potential events that could manipulate the success of the bank by impacting its profitability and performance (Khalid and Amjad, 2012; Muhammad, Khan, & Xu, 2018; Subedi, 2018). Due to its considerable exposure to uncertainty, the banking business is hugely connected with risks (Muhammad, Khan, and Xu, 2018; Aneja, Kapoor & Pahuja, 2015). In this regard, Al-Tamimi & Al-Mazrooei (2007) noted that banking is generally a business of risk. In today's volatile business environment, undoubtedly all banks are facing a number of risks. Due to this fact, Carey (2001) stressed that risk management is more important in the banking sector than in other parts of the economy. The loss occurred in the financial sector caused the crisis in the entire economy as it was witnessed during the financial crisis of 2007 and 2008 (Sabato, 2009; Holland, 2010). In modern economies, banking business is all about risk management because the failure in the banking sector could have a catastrophic effect on the entire financial system (Thiagarajan, et al., 2011).

Risk management is considered as a cornerstone of prudent banking practice (Al-Tamimi & Al-Mazrooei, 2007). Moreover, the returns of banks' stocks are affected by the bank's risk management practices (Sensarma and Jayadev, 2009). Likewise, effective risk management can

lead to a more balanced trade-off between reward and risk (Fatemi and Fooladi, 2006). As a result, efficient risk management is absolutely required in the banking sector to control risks there (Hussain and Al-Ajmi, 2012; Carey, 2001; Muhammad et al., 2018). Inadequate and poor risk management, furthermore, could lead to financial losses and thus endangers the safety of the bank's deposits and the entire economy as well. As a result, employing better risk management has greater importance for the long run performance of the bank and keeps the banks well prepared for the future (Rahman et al., 2016). Moreover, it is founded that there existencs a positive correlation between risk management practices and the financial performance of banks (Wanjohi et al., 2017; Muhammad et al., 2018). These points necessitate the adoption of efficient risk management practices by the financial institutions.

Effective risk management is accepted as a major cornerstone of bank management by academics, practitioners and regulators (Hussain and Al-Ajmi, 2012). As a result, in need for a comprehensive approach to deal with bank risk management, the Basel Committee on Banking Supervision (BCBS) adopted the Basel I Accords, followed by the Basel II Accords and Basel III, to deal with the matter. The Basel Committee on Bank Supervision (BCBS) is a committee of the world's bank regulators that meet regularly in Basel, Switzerland. In 1988, the BCBS published the first standard named as The Bank for International Settlement Accord or simply The Accord. Omondi (2015) noted that Basel Accords are some of the most influential and misunderstood agreements in modern global finance. Basel Accords are drafted in 1988, 2004, and 2010 as Basel 1, 2 and 3 respectively, showed the new era of international banking cooperation. All of the three accords attempted to harmonized banking supervision, regulation and capital adequacy standards across the world.

Risk management failure is considered one of the main causes of the financial crisis of 2007-2008 (KPMG International, 2009; Sabato, 2009; Holland, 2010). The global economic and financial crisis has erupted in the USA when Lehman Brothers Holdings, Inc. filed for bankruptcy on 15 September 2008 (Hussain and Al-Ajmi, 2012). The spread of the crisis worldwide raised questions about the effectiveness of risk management practices (RMPs) applied by banks, including those applied by well-established banks. After the global meltdown, the

importance of risk management increased over the time and accompanied by the introduction of the Basel II and III accords (Nazir, Daniel and Nawaz, 2012; Al-Tamimi & Al-Mazrooei, 2007).

Al-Tamimi and Al-Mazrooei (2007) stated that analyzing and assessing risk management practices is a popular research subject especially after the financial crisis of 2007 and 2008 and then risk management practice have been widely investigated over the years. Although many studies have been done for RMPs all over the world (Hussain and Al-Ajmi, 2012; Al-Tamimi & Al-Mazrooei, 2007; Nazir et al., 2012; Khali and Ali, 2015; Khalid and Amjad, 2012; Anwarul, Muzahidul & Zaman, 2013; Shafiq and Nasr, 2010; Fernando and Sriyalatha, 2015; Hassan, 2009; Rosman, 2009; Rahman, et al., 2016; Rahman, Rahman and Azad, 2015; Rehman, Benamraoui and Dad, 2018; Muhammad, Khan and Xu, 2018; Rehman, 2016; Subedi, 2018) no study is conducted on the risk management practices of Ethiopian commercial banking sector. This study extends the work of scholars mentioned above particularly Al-Tamimi and Al-Mazrooei (2007) and Hassan (2009) who suggested similar studies in different environments. Thus, the objective of this study is to assess the degree to which the commercial banks in Ethiopia use effective risk management practices (RMPs). Thus, the purpose of this study is to assess the degree to which the commercial banks in Ethiopia use effective risk management practices (RMPs).

Objectives of the Study

• The objective of this study is to investigate empirically the degree to which the commercial banks in Ethiopia use effective Risk Management Practices and techniques in dealing with the different types of risk.

2. Literature Review

A large number of studies have been published about risk management practices of banks in different economies. However, empirical studies on risk management practices of commercial banks in Sub-Saharan countries are relatively small and it is none in Ethiopia. In the following section, an attempt is made to summarize the main findings of some selected studies conducted in different economies across the world.

Al-Tamimi & Al-Mazrooei (2007) examined the degree to which the UAE banks use risk management practices and techniques in dealing with different types of risk. The results of the study revealed that the three most important types of risks facing the UAE commercial banks are foreign exchange risk, credit risk, operating risk. The UAE banks are also found to be somewhat efficient in managing risk. The results of the study further indicated that, in UAE banks, risk identification (RI) and risk assessment and analysis (RAA) are found as the most influencing variables in risk management practices. The study finally reported the existence of a significant difference between the UAE national and foreign banks in their practice of risk assessment and analysis, and risk monitoring and controlling.

Hassan (2009) evaluated the degree to which Islamic banks use risk management techniques and practices in Brunei Darussalam in dealing with different types of risks. The study founded foreign exchange risk, credit risk and operating risk as the three most important risks faced by Islamic banks operating in Brunei Darussalam. The study also founded that Islamic banks were reasonably efficient in managing risk than conventional banks. Moreover, the study founded risk identification (RI), risk assessment and analysis (RAA) as the most significant variables affecting risk management practices (RMPs). Theoretically, Rosman (2009) proposed a research framework on the effects of the risk management aspects on the risk management practices of banks. The four important risk management aspects identified were understanding risk and risk management (URRM); risk identification (RI); risk analysis and assessment (RAA); and risk monitoring RMO. By reviewing both conceptual and empirical literature, Rosman suggested a conceptual model that shows the effects of the four risk management aspects of risk management practices. Finally, Rosman's framework indicated the existence of a positive relationship between the four aspects of risk management and risk management practices. He further suggested for an empirical test of his conceptual model.

Shafiq and Nasr (2010) studied the risk management practices and processes followed by the conventional banks in Pakistan. The study results revealed that there exists a significant difference in the use of risk management aspects amongst local private and public sector banks in Pakistan. Furthermore, the study founded that the financial soundness is different between the sampled commercial banks. The study also concluded that there is a general understanding of

risk and risk management among the risk department staffs of sampled commercial banks. However, the study founded unsatisfying risk training practices for risk department staffs.

Hussain and Al-Ajmi (2012) reported empirically the risk management practices of banks operating in Bahrain. The study concluded that the most important risks facing both conventional and Islamic banks are credit risk, liquidity risk, and operational risk. The study results further indicated that banks in Bahrain are efficient in risk identification, risk assessment analysis, risk monitoring and credit risk analysis. The findings of the study further revealed that Islamic banks in Bahrain are significantly different from their conventional counterparts in understanding risk and risk management and the levels of risks faced by these Islamic banks are found to be significantly higher than those faced by conventional banks. Related to this finding, country, liquidity, and operational, residual, and settlement risks are founded higher in Islamic banks than in conventional banks. Similarly, Khalid and Amjad (2012) in their study evaluated the risk management practices of Islamic banks in Pakistan. The study evaluated the degree to which Pakistan Islamic banks use effective risk management practices and techniques to deal with the different types of risk. The study founded three significant variables, understanding risk and risk management (URM), risk management (RM) and credit risk management (CRM), that affect risk management practices of Islamic banks in Pakistan. The study results further indicated that there is more or less efficient risk management practices in Islamic banks of Pakistan.

Aneja et al. (2015) assessed how far the Indian banks have become successful in achieving their objectives of minimizing the effects risks on the financial results and capital of a bank. The study also attempted to assess the financial health of the Indian commercial banks by analyzing their riskiness and the probability of being insolvent. The findings of the study revealed that insolvency risk of the public sector banks is less as compared to private and foreign banks. In terms of maintaining sound financial health (as shown by Z risk index) the average performance of state banks is showing improved performance as compared to the nationalized banks. As measured by the Z risk, the overall financial health of all Indian banks group seems to be strong except the year 2013/14. Similarly, Rahman, et al., (2016) examined and compared the level of risk management practices between the Islamic banks in Malaysia, and the Islamic banks of Indonesia. The study results revealed the existence of a significant difference in risk management

practices (RMP), risk identification and analysis (RAA), and risk control and monitoring (RCM) of Malaysian and Indonesian Islamic banks. The results of the study, further, revealed that in Malaysia the two significant predictors found significant are risk identification (RI), and risk assessment and analysis (RAA) whereas in Indonesia, risk identification (RI), risk assessment (RAA) and understanding risk management (URM) are found significant predictors of risk management practices.

Rehman (2016) investigated the extent to which banks in Pakistan use effective risk management practices and compared the risk management practices of Islamic and Conventional banks operating in Pakistan. The study results revealed that in risk identification, risk management practices, liquidity risk analysis and risk governance, Islamic banks are found significantly different from their conventional counterparts. Furthermore, risk identification, risk assessment and analysis, credit risk analysis and risk governance are founded the most influencing and contributing variables in the risk management practices of banks operating in Pakistan. Besides, the most important risks that faced both conventional and Islamic banks are identified into credit, liquidity, market and operational risks. Similar to this, Hegde and Subramanian (2016) studied the Risk Management Practices of Indian Banks and their adherence to Basel norms. The study concluded that Indian banks are affected by several risks and the principal ones are credit risk, interest rate risk, liquidity risk, and operational risk and exchange risk. The Indian banks appear to have a robust risk management practices. The study further noted that Basel II is already enforced in Indian banks and Basel III is also under adoption phase by phase.

Muhammad et al. (2018) examined the determinants of risk management practices by taking understanding risk management, risk assessment & analysis, risk identification, risk monitoring and credit risk analysis as explanatory factors in the commercial banks of Pakistan. The study results revealed that understanding risk and risk management (URM), risk assessment and analysis (RAA), risk identification (RI), risk monitoring (RM) and credit risk analysis (CRA) are founded having a positive significant impact on the risk management practices (RMP) of commercial banks in Pakistan. Similarly, Rehman et al. (2018) conducted a comparative study on the risk management practices of Islamic and conventional banks of Pakistan. The study founded a significant difference between the Islamic and conventional banks in their liquidity

risk analysis and risk governance. The study results also revealed that understanding risk management, credit risk analysis and risk governance are founded as the most significant and contributing variables in the risk management practices of conventional banks. On the other hand, risk identification, risk assessment and analysis, credit risk analysis and risk governance are founded as the most efficient and influential variables in explaining the risk management practices of Islamic banks.

3. Methodology

3.1 The Instrument

A standardized questionnaire is used to collect data from 112 sampled respondents. The questionnaire contained 51 questions related to the six aspects of risk management: understanding risk and risk management (URRM); risk identification (RI); risk assessment and analysis (RAA); risk monitoring (RMO); risk management practice (RMP); and credit risk analysis practice (CRA). The questionnaire invited the respondents to indicate their level of agreement based on an interval scale, a 7 point Likert scale where 11 statements are related to URRM; 5 for RI; 7 for RAA; 5 RMO; 15 for RMP; and 8 for CRA.

3.2 Sample

The study chosen 14 banks purposefully then 130 questionnaires were distributed to the risk managers, risk experts and credit analysts that work in the headquarters of the selected banks. Out of the total 130 questionnaires distributed, 112 workable questionnaires were collected and used for the analysis.

3.3 Reliability

The reliability of the instrument is checked by the Cronbach's alpha coefficient. As a rule of thumb, a Cronbach's alpha coefficient greater than 0.7 is considered acceptable (Nunnally, 1978). The overall Cronbach's alpha score for the six aspects of risk management is 0.927 which indicates that the instrument is reliable enough to be used for further analysis. Regarding the individual reliability score for each aspects of risk management, URRM=0.768; RI=0.642; RAA=0.799; RMO=0.816; RMP=0.853; and CRA=0.711, all of which are indicating a reliable aspects.

3.4 Variables and the Model

The six important aspects of the risk management process mentioned in the questionnaire are categorized as dependent and explanatory variables. The study used the variables and the model used by other similar studies conducted by different scholars in different countries (such as Al-Tamimi and Al-Mazrooei, 2007; Hassan, 2009; Shafiq and Nasr, 2010; Hussain and Al-Ajmi, 2012; Khalid and Amjad, 2012; and Bilal et al., 2013). Regression and correlation analysis techniques were used to achieve the objective of the study.

The Model

RMPs = ƒ (URRM, RI, RAA, RMO, CRA)

Where,

Dependent variable

- Risk management practices (RMP) is taken as dependent variable. It is measured with the help of risk management practices and specifically their degree of usage within the commercial banks of Ethiopia.

Independent variable

The independent variables include five main aspects of risk management. These are;

- Understanding risk and risk management (URRM);
- Risk identification (RI);
- Risk assessment and analysis (RAA);
- Risk monitoring (RMO); and
- Credit risk analysis (CRA) are taken as independent variables for this study.

4. Data Analysis and Conclusion

4.1 Coefficient Correlations

Spearman's correlation is used to check the existence of a high correlation between the independent variables for ordinal types of data and when the data is not normally distributed.

Table I below shows the result of correlation coefficient among independent variables (URRM, RI, RAA, RMO, and CRA). According to Anderson et al. (1990), the rule of thumb to see if there exists a correlation between independent variables is when a correlation coefficient exceeding 0.70 indicates a potential problem. The test results revealed that there exists a positive relationship among all independent variables. Moreover, the results of Spearman's correlation test indicates there is no strong correlation between independent variables (where a correlation coefficient between URRM and RI (r=.623), URRM and RAA (r=.459), URRM and RMO (r=.566), URRM and CRA (r=.172), RI and RAA (r=.506), RI and RMO (r=.525), RI and CRA (r=.112), RAA.

Table I: Correlation Matrix on the different aspects of Risk Management Process

	URRM	RI	RAA	RMO	CRA
URRM	1.00				
RI	.623	1.00			
RAA	.459	.506	1.00		
RMO	.566	.525	.495	1.00	
CRA	.172	.112	.16	.242	1.00
Where, URRM= Understanding risk and risk management, RI= Risk Identification, RAA= Risk Assessment and analysis, RMO= Risk Monitoring, CRA= Credit Risk Analysis					

Source: Author's survey result

4.2 Model Summary

RI, RMO, and CRA are found significant variables at 5% significant level, affecting the risk management practices. As indicated in Table II, the model is also found significant because a high R squared (R^2) is obtained (adjusted R^2=0.576) where 57.6 % of the variation in RMPs is explained by the variables incorporated in the model. The most significant variables that affected RMP are RI, RMO, and CRA. In addition, URRM is found a slightly significant variable that affects RMP at 10% significant level. But, RAA is found insignificant variable on the RMPs of commercial banks in Ethiopia. Thus, commercial banks in can improve their risk management practices by improving their RI, RMO, and CRA as well as their URRM practices, since these variables are found significant. Thus, the findings are highly significant.

Table II: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.771	.595	.576	.50430

Source: Author's survey result

The finding that RI is a significant variable is consistent with the findings of Hussain and Al-Ajmi (2012); Al-Tamimi & Al-Mazrooei (2007); Nazir, Daniel and Nawaz (2012. The finding that RMO is a significant variable is consistent with the findings of Hussain and Al-Ajmi (2012); Kumah and Sare (2013); and Rosman (2009). In addition, the finding that CRA is a significant variable is consistent with the findings of Hussain and Al-Ajmi (2012); Nazir, Daniel and Nawaz (2012); Khalid and Amjad (2012); Shafiq and Nasr (2010). Moreover, the finding that URRM is a significant variable is consistent with the findings of Hussain and Al-Ajmi (2012); Nazir, Daniel and Nawaz (2012); Khalid and Amjad (2012).

4.3 Analysis of Variance (ANOVA)

In order to analyze the goodness of fit of the regression line, the Analysis of Variance (ANOVA) is used. The ANOVA table, Table III results showed that the multiple regression models are highly significant for overall model. The total sum of square of deviation of individual observation is 66.545. The regression sum of square or explained sum of square is 39.588 and residual or unexplained sum of square is 26.958. The total degree of freedom is 111.

Table III: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	39.588	5	7.918	31.133	.000
	Residual	26.958	106	.254		
	Total	66.545	111			

Source: Author's survey result

4.4 OLS Regression

Table IV shows the regression results of all independent variable. It shows the existence of a positive relationship between the independent variables (URRM, RI, RAA, RMO, and CRA) and the dependent variable (RMPs) where, Beta (the standardized coefficient) compares the contribution of each independent variable in order to explain the dependent variable, RMPs. In Table IV, RMO has largest Beta coefficient of 0.483, which means that this variable makes the unique and strongest contribution to the explanation of the dependent variable RMPs. RMO is significant at 1 percent as significant value (p-value) is 0.000. Hence, there is a positive relationship between RMO and RMPs.

Table IV: OLS Regression of the Relationship between RMPs and its Explanatory Variables

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.029	.553		.053	.958
	URRM	.156	.090	.143	1.737	.085
	RI	.180	.080	.190	2.253	.026
	RAA	.039	.080	.039	.492	.624
	RMO	.369	.062	.483	5.921	.000
	CRA	.220	.087	.161	2.542	.012

Source: Author's survey result

RMO, RI and CRA have beta coefficients of 0.483, 0.190 and 0.161, respectively. Table IV shows that the three independent variables RMO, RI and CRA have positive and significant impact on the dependent variable RMPs. RMO, RI and CRA are significant at 5 percent as their p-values are 0.000, 0.026 and 0.012, respectively. There is a positive relationship between RMO and RMPs; RI and RMPs; and CRA and RMPs. On the basis of the aforementioned results, it can be concluded that the test results of this study is valid. There is a positive relationship between all the independent variables and RMPs.

Conclusion

From the results and analysissecton presented above,the following conclusions can be made;

- Because the data are nonparametric in nature, a spearman's correlation is calculated between independent variables and dependent variable and results shows that there exists a positive relationship between independent variables such as URRM, RI, RAA, RMO, CRA and RMPs, the dependent variable.

- The RMO, RI and CRA are founded as the most important and influential variables in the RMPs.

- Linear regression model is used to access the effect of independent variables on dependent variable, RMPs. In the regression model, R^2 indicates that the five independent variables explain 57.6 percent of the variations in RMPs. The estimated coefficients of three independent variables were positive and statistically highly significant at five percent significance level in the case of RMO, RI and CRA and 10 percent significant in the case of URRM. The estimated coefficients of RMO, RI and CRA had significant positive impact on the RMPs.

- Commercial banks in Ethiopia can improve their risk management practices by giving more emphasis to their risk monitoring practices (RMO), risk identification (RI) and credit risk analysis practices (CRA).

References

[1]   Al-Tamimi, H. A. & Al-Mazrooei, F. M. (2007). Banks' risk management: A comparison study of UAE national and foreign banks. *The Journal of Risk Finance, 8*(4), 394-409. doi:http://dx.doi.org/10.1108/15265940710777333

[2]   Anderson, R. A., Sweeney, D. J. and Williams, T. A. (1990). *Statistics for Business and Economics* (4th ed.). St Paul, MN: West Publishing Company.

[3]   Aneja, S. R., Kapoor, B. and Pahuja, A. (2015).Risk Management in Indian Banks: An Evaluation through Z Risk Index. *Asian Journal of Research in Banking and Finance, 5*(11), 47-58. doi: 10.5958/2249-7323.2015.00133.9

[4]   Anwarul, K.M., Muzahidul, M. & Zaman, M. (2013). An empirical study on risk management in some selected conventional and Islamic banks in Bangladesh: A Comparative Study. *Beykent University Journal of Social Sciences, 6*(2), 105-124.

[5]   Bryman, A., and Cramer, D. (1994). *Quantitative Data Analysis for social Scientists.* London, England: Routledge.

[6]   Buttimer, R. J., Clark, S. P., and Ott, S. H. (2008). Land development: Risk, return and risk management. *The Journal of Real Estate Finance and Economics, 36*(1), 81-102. doi:10.1007/s11146-007-9077-z

[7]   Carey, A. (2001). Effective risk management in financial institutions: The turnbull approach. *Balance Sheet, 9*(3), 24-27. doi:http://dx.doi.org/10.1108/09657960110696014.

[8]   De Vaus, D. (2002). *Surveys in Social Research* (5th ed.). London, England: UCL Press.

[9]   Fatemi, A., and Fooladi, I. (2006). Credit risk management: A survey of practices. *Managerial Finance, 32*(3), 227-233. doi:10.1108/03074350610646735

[10]   Fernando, K.P. & Sriyalatha, M.A. (2015). Risk management practices of banks: Evidence from Sri Lanka. Proceedings of 12th International Conference on Business Management, 7th and 8th December 2015, Colombo, Sri Lanka. Retrieved from http://ssrn.com/link/12th-ICBM-2015.html

[11]   Field, A. (2009). *Discovering statistics using SPSS* (3rded.). London, England: SAGE Publications Ltd London.

[12]   Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Prentice Hall

[13]   Hassan, A. (2009). Risk management practices of Islamic banks of Brunei Darussalam. *The Journal of Risk Finance, 10*(1), 23-37. doi:https://doi.org/10.1108/15265940910924472.

[14]   Ho, S. M., & Wong, K. R. (2001). A Study of the relationship between corporate governance structures and the extent of voluntary disclosure. *Journal of International Accounting, Auditing, and Taxation, 10*(2), 139-156.

[15]   Holland, J. (2010). Banks, knowledge and crisis: a case of knowledge and learning failure. *Journal of Financial Regulation and Compliance*, *18* (2), 87-105. doi: 10.1108/13581981011033961

[16]   Hussain, H. A. & Al-Ajmi, J. (2012). Risk management practices of conventional and Islamic banks in Bahrain. *The Journal of Risk Finance, 13*(3), 215-239. doi:http://dx.doi.org/10.1108/15265941211229244

[17]   Judge, G. G., Griffiths, W. E., Hill, R. C., Lutkepohl, H., and Lee, T. (1985). *The Theory and Practice of Econometrics* (2nded.). New York, NY: John Wiley & Sons.

[18]   Khalid, S. & Amjad, S. (2012). Risk management practices in Islamic banks of Pakistan. *The Journal of Risk Finance, 13*(2), 148-159. doi:http://dx.doi.org/10.1108/15265941211203198.

[19]   Khalil, S. & Ali, L. (2015). Risk management practices in the conventional Banks working in Peshawar. *International Journal of Academic Research in Accounting, Finance and Management Sciences, 5*(2), 53–58. doi:10.6007/IJARAFMS/v5-i2/1562

[20]   KPMG International (2009), *Never Again? Risk management in banking beyond the Credit Crisis.* Berne, Germany: KPMG International.

[21]   Kumah, S. P. & Sare, Y. A. (2013). Risk management practices among commercial banks in Ghana. *European Journal of Business and Management, 5*(20), 185-191.

[22]   Muhammad, B., Khan, S. and Xu, Y. (2018, spring).Understanding risk management practices in commercial banks: The case of the emerging market. *Risk Governance and Control: Financial Markets & Institutions, 8*(2), 54-62.

[23]   Nazir, M. S., Daniel, A. & Nawaz, M. M. (2012). Risk management practices: A comparison of conventional and Islamic banks in Pakistan. *American Journal of Scientific Research, 10*(68), 114-122.

[24]   Neuman, W.L. (2007). *Basics of Social Research Methods: Qualitative and Quantitative Approaches* (2[nd]ed.). Boston: Allyn and Bacon.

[25]   Nunnally, J. and Bernstein L. (1994). *Psychometric theory* (3[rd]ed.). New York, NY: McGraw-Hill, Higher.

[26]   Nunnally, J. C. (1978). *Psychometric Theory* (2[nd]ed.). New York, NY: McGraw-Hill.

[27]   Omondi, O. G. (2015). Basel Accords on Risk Management: A Survey of Kenya s Commercial Banks. *Journal of Global Economics, 3*(4), 1-9. doi:10.4172/2375-4389-1000164

[28]   Punch, F.K. (2005). *Introduction to social research: quantitative and qualitative approaches* (2[nd]ed.). London, England: Sage publications.

[29]   Rahman, M. M., Rahman, A., and Azad, A. K. (2015). Risk Management Practices in Islamic and Conventional Banks of Bangladesh: A Comparative Analysis. Asian Social Science, 11(18), 153-163. doi:10.5539/ass.v11n18p153

[30]   Rahman, R. A., Ibrahim, Z., Tohirin, A., Muhammad, A. D. and Suryaputri, R. V. (2016). Risk management practices in Islamic banking institutions: A comparative study between Malaysia and Indonesia. *International Journal of Sciences and Research, 72*(12), 207-220.

[31]   Rahman, R. A., Noor, S. B., and Ismail, T. (2013). Governance and risk management: empirical evidence from Malaysia and Egypt. *International Journal of Finance & Banking Studies IJFBS, 2*(3), 21-33.

[32]   Rehman, A. A. (2016). Comparative Study of Risk Management Practices between Islamic and Conventional Banks in Pakistan (Doctoral thesis, Cardiff Metropolitan University, Cardiff, UK). Retrieved from https://repository.cardiffmet.ac.uk/handle/10369/7915?show=full

[33]   Rehman, A. A., Benamraoui, A. and Dad, A. M. (2018). A comparative study of Islamic and conventional banks' risk management practices: empirical evidence from Pakistan. *Journal of Banking Regulation, 19*(3), 222-235.

[34]   Rosman, R. (2009). Risk Management Practices and Risk Management Processes of Islamic Banks: A Proposed Framework. *International Review of Business Research Papers, 5*(1), 242-254.

[35]   Sabato, G. (2009). Financial crisis: where did risk management fail? *SSNR*. Retrieved from http://ssrn.com/abstract=1460762.

[36]   Selltiz, C., Wrightsman, L. S. and Cook, S. W. (1976). *Research Methods in Social Relations* (3rd ed.). Galway, Ireland: Holt Rinehart and Winston.

[37]   Sensarma, R. and Jayadev, M. (2009). Are Bank Stocks Sensitive to Risk Management? *The Journal of Risk Finance, 10*, 7-22. doi:10.1108/15265940910924463

[38]   Shafiq, A. & Nasr, M. (2010). Risk management practices followed by the commercial banks in Pakistan. *International Review of Business Research Papers, 6*(2), 308-325.

[39]   Subedi, P. P. (2018). Risk management practices: Evidences from commercial banks of Nepal. *Kaav International Journal of Law, Finance & Industrial Relations, 5*(1), 82-91.

[40]   Thiagarajan, S., Ayyappan, S., & Ramachandran, A. (2011). Credit Risk Determinants of Public and Private Sector Banks in India. *European Journal of Economics, Finance and Administrative Sciences, 34*, 111-132.

[41]   Wanjohi, S. M., Wanjohi, J. G., and Ndambiri, J. M. (2017). The effect of financial risk management on the financial performance of commercial banks in Kenya. *International Journal of Finance and Banking Research, 3*(5), 70-81. doi:10.11648/j.ijfbr.20170305.12

[42]   Yamane, T. (1973). *Statistics: An Introductory Analysis* (3rd ed.). New York, NY: Harper and Row.