An Evaluation of the Application of Management-By-Project (MBP) On the Financial Performance of Selected Banks in Ghana

Richard Amponsah[1], Frank Frimpong Opuni[2], Enoch Dzimedo Quarshie[3], Isaac Aidoo[4], Bright Afful[5], Prince Koranteng Kumi[6]

[1]PhD, HoD, Procurement, Logistics and Supply Chain Management Business School, Ghana Communication Technology University (GCTU), Accra, Ghana
[2]PhDMarketing Department, Faculty of Business, Accra Technical University
[3]Consultant, Project Management Dexterity Group (PMDG), Accra, Ghana
[4]PhDAccra Technical University, Department of Building Technology
[5]African University College of Communications, Sam E. Jonah School of Business
[6]Accra Technical University, Department of Accounting and Finance

Abstract

The economies of many developing countries have grown significantly, with many institutions in these countries facing resource constraints. This has resulted in a shift from routine business operations to Management-by-Project (MBP) to effectively deploy organisational resources to produce value and maintain a competitive advantage.

As such, the study aimed to investigate the impact of management-by-project in some selected banks. A cross-sectional study design was employed with a sample size of 151 employees from several Ghanaian banks. A PLS-SEM technique was employed to investigate the dependencies between MBP with Scoping (SCO), Scheduling (TIM), and Costing (COS) as its characteristics (independent variables) and banking goals (loan performance and enhanced customer experience) as dependent variables with improved operational efficiency (moderating the relationships) and regulatory compliance (mediating the relationships).

The study found that Improved Operational Efficiency (IOE) has a direct relationship with Non-Performing Loans (NPL). Furthermore, both COS and TIM were found to be positively and significantly connected to Improved Customer Experience (ECE), with TIM also being positively and significantly related to NPL.

Additionally, it was discovered that Regulatory Compliance (REC) positively moderates the relationship between SCO and NPL but had insignificant associations with TIM and NPL, as well as COS and NPL.

The study emphasizes the importance of REC in reducing NPL. In an area with scarce information, this study offers a new and original perspective on the relationship between TIM and NPL in the banking industry, and the function of REC in moderating SCO and NPL.

1. Introduction

All over the world, governments, government agencies, and private sector development partners embark on projects (Abbasi and Jaafari, 2018). The number of projects across sectors and industries seems to be on the rise (Pollack and Adler., 2015). There is also a growing understanding of the strategic value of managing projects in corporate environments. (PMI, 2015). Due to projects' ability to create economic value, foster competitive advantage, and generate benefits for organizations (Shenhar and Dvir, 2007; Kendall and Rollins, 2003), industries that hitherto were not into projects such as manufacturing, banking, insurance, and tourism are beginning to adopt projects in their operations (Gereis, 1990). Most organizations now use management-by-project, a logical extension of project management (Lanyoh, 2019).

Financial institutions are known to use operations management to provide services. However, in recent times, they are turning their operations into projects and managing them as projects to leverage project management tools and techniques (PMI, 2017). This practice of turning operations into projects and managing it as projects using project management tools and techniques in terms of scoping, scheduling (timing), costing, and so on, to achieve goals is called management-by-project (MBP).

Financial institutions, especially banks, have become popular for using the MBP principle in response to the increasing competition and drop in client interest (Wright et al., 2002; Tran, 2000). However, according to Brown and Hyer (2010), the hierarchical structures and rigid organizational cultures that characterize most traditional financial institutions make it difficult to apply the agile and project-centric nature of MBP. Other studies have suggested that the highly regulated nature of the financial sectors clashes with the adoptive and flexible nature of MBP (Barth et al., 2013).

These perceived hindrance to the application of MBP in financial institutions appear to be no deterrence for the implementation of MBP to improve project delivery and overall performance (Addo, 2019; Mensah, 2020). There are not enough studies examining the impact of applying MBP in financial performance.

2. Literature Review

Operational efficiency is a company's capacity to reduce operating expenses while achieving its target through the utilization of appropriate people, processes, and technology (Shawk, 2008). Operational efficiency in banks can be increased by introducing new product designs and technological development (Dhanapals and Ganeson, 2012). These products are designed to meet the quality expectations of customers (Fortune et al., 2011; Yaghootkar and Gil, 2012). However, the entirety of a customer's interactions with a supplier of products and services throughout their engagement with that supplier is known as the customer experience (CE) which according to Sharma (2008) is impacted by service factors such as diverse services, flexible business transaction hours, accessibility of bank location, professional employee training, and customers' complaint system,

Financial institutions operate in a highly regulated environment with serious repercussions for breaking these rules (Barthet al., 2013; Dhevina et al., 2021; Boateng, 2018). However, adherence to laws, ethical principles, and internal and external rules help to stabilize the market, prohibit illegal activity, foster confidence, and protect the interests of the organization and its stakeholders. This defines regulatory compliance (Edwards, 2005). Meanwhile, loans present a major risk to banks (Bentan, 2011). When loans have not been paid off for a long time, usually ninety days or more it is called a non-performing loan (Kristiastuti, 2017). Non-performing loans are influenced by variables like poor credit policy, shoddy cre-

dit analysis, and insufficient risk management, according to Joseph et al. (2012).

3. Theoretical framework and hypothesis development

This study is primarily based on the Resource-Based View (RBV) introduced by David Ricardo in the 19th century (Wernerfelt, 1984). The theory acknowledges the competitive heterogeneity of firms (Helfat and Peteraf, 2003). It suggests that every company in an industry has distinct strategic resources, which can provide an edge over competitors (Barney, 1991). This is in line with Barney (1991) who has it that financial institutions possess a variety of resources, including financial assets, human capital, technology, and customer relationships which provide a competitive advantage.

3.1 Improved Operational Efficiency and Management-by-Project characteristics

In separate studies, Nahry (2000) and Kuznetsov (2018) emphasized the importance of scheduling optimization in reducing wait times and increasing resource usage. Chan (2013) and Sana (2021) mentioned the importance of schedules in improving system stability, resource allocation, and task management. However, Berger (1997) highlights the need for consistent and precise efficiency approaches in connection with costing, arguing that better processes can lead to more dependable results. This is reinforced by Berger (1992), who discovers that larger banks are more efficient, implying a possible relationship between size and operational efficiency. Meanwhile, Maudos (2002) emphasizes the prioritization of cost and profit efficiency. This feeds into Altunbas's (1996) assertion that the opportunity for cost savings increases by decreasing managerial inefficiencies. Based on the ongoing discussion, we posit the following:

H_1: Costing (COS) correlates with improved operational efficiency (IOE).

H_3: Scheduling (TIM) correlates with improved operational efficiency (IOE).

3.2 Enhanced Customer Experience and Management-by-Project characteristics

Customer experience management (CEM) is crucial for improving customer happiness and loyalty in the banking industry (Suvarchala, 2018; Botha, 2010; Kumar, 2021). Through its effect on customer service, e-CRM has been shown to have a major impact on customer satisfaction and loyalty (Kumar, 2021). However, to deploy E-CRM and improve customer experience successfully, financial institutions must concentrate on scoping, which entails comprehending and outlining the customer journey (Botha, 2010).

H_2: Scoping (SCO) correlates with enhanced customer experience (ECE).

3.3 Non-performing Loans and Management-by-Project Characteristics

The effect of scheduling on non-performing loans is a complicated subject with several variables at play. According to Ghosh (2015) and Swami et. al (2019), bank size, asset quality, liquidity, operational cost efficiency, and profitability capabilities impact NPL levels. Ari et. al (2020) and Ari et. al (2019) accentuated the significance of addressing NPL issues quickly, particularly during a crisis, to reduce the severity of post-crisis recessions while Bonato (2017) cautioned that aggressive NPL sales can negatively affect banks' capital ratios and would make the banks less likely to sell. Based on the preceding discourse in literature, we propose the following hypothesis:

H_4: Scheduling (TIM) correlates with non-performing loans (NPL).

3.4 Improved Operational Efficiency and Non-performing Loans

Quadt (2016) found a causal relationship between non-performing loans and decreased efficiency, particularly in the Nordic banking sector. Benthem (2017) also discovered that an increment in operational efficiency is accompanied by greater levels of non-performing loans, implying that management behavior drives this relationship. Lastly, a study by Karim (2010) found that larger non-performing loans decrease

cost efficiency, whereas lower cost efficiency leads to an increase in non-performing loans. Based on these findings, we posit that:

H5: Improved Operational Efficiency (IOE) correlates with Non-performing Loans (NPL)

3.5 The Moderating Role of Regulatory Compliance (REC) on Non-Performing Loans and Management-By-Project Characteristics

In line with scoping, Erdinc (2015) observed that sophisticated risk management strategies, a critical component of REC, considerably lowered the number of non-performing loans (NPLs) in European banks. According to Miglionico (2019), to resolve non-performing loans (NPLs) private agreements and securitization techniques are necessary. This is further supported by Muller (2021) and Manz (2020) who underscored the significance of REC in mandating banks to create efficient plans for cutting NPLs. Pointing to the possibility of regulatory actions to encourage the decrease of NPLs, Yang (2017) indicates that a focused strategy, like Plan 4, might optimize the banking sector's effectiveness in managing bad debts as it was most successful in lowering NPLs in Taiwan's banking sector. Based on the ongoing discussions in literature, the study posits that:

H6: Regulatory Compliance (REC) moderates scoping and non-performing loans.

3.6 Mediation Role of Improved Operational Efficiency (IOE) on Non-Performing Loans and Management-By-Project Characteristics

Evidence in the literature points to the possibility of IOE mediating and lowering NPLs in the banking industry. For instance, both Erdnic (2015) and Mbaidin (2024) emphasize the importance of IOE in reducing credit risk and improving the performance and resilience of banks. This is further supported by Preeti (2022), which shows a connection between NPLs in Indian banks and operational effectiveness. According to the report, reducing NPLs is essential to raising operational effectiveness. Also, IOE has been discovered to play a vital role in reducing intermediation costs and enhancing financial soundness, which can reduce non-performing loans (Abel, 2018; Ali, 2011). Consolo (2018) expands on this by highlighting insolvency frameworks' role in the NPL reduction process and argues that improved frameworks can result in faster NPL reductions.

Additionally, Abel (2018) and Ali (2011) discovered that cost efficiency had an adverse Granger effect on non-performing loans (NPLs), implying that subpar credit management and elevated intermediation expenses may contribute to a rise in NPLs. In a similar vein, Chan (2018) and Erdinc (2015) discovered that increased non-performing loans (NPLs) lower cost efficiency and that enhanced risk management strategies can dramatically lower NPLs.

Based on these findings, we posit the following:

H7: Improved operational efficiency (IOE) is a mediator between Costing (COS) and non-performing loans (NPL).

H8: Improved operational efficiency (IOE) mediates scheduling (TIM) and non-performing loans (NPL).

H9: Improved operational efficiency (IOE) is a mediator between scoping (SCO) and non-performing loans (NPL).

4. Methodology

Research design serves as a framework for directing a study. It ensures that the right data are gathered using the appropriate devices to address the research questions (Asenahabi, 2019). Thus, it serves as a blueprint for data collection and analysis (Puarungroi, 2020).

According to Singh (2015), the quantitative method uses inquiry strategies like surveys and experiments

to gather numerical data that can be statistically examined. As a result, the findings are reliable and can be extrapolated to a wider population. However, the validity and dependability of the study's conclusions are affected by the population, making the right population crucial (Brackbill, 1974).

Considering the descriptive cross-sectional was used in the study. The study employed quantitative techniques - utilizing questionnaires with structured questions for the collection of crucial primary data from respondents in accordance with study objectives. For this study, personnel of financial institutions, specifically banks that utilize the MBP approach to solve challenges were the primary source of information.

The information gathered via the questionnaire was meticulously edited, coded, categorized, tabulated, and reviewed for appropriateness and consistency before data analysis was performed. For this study, primary data was analysed quantitatively. Both descriptive and inferential analyses were performed. Also, Statistical Package for Social Sciences (SPSS) was used to code data for analysis after which PLS-SEM was performed using SMART-PLS. Model assessment was done following reliability, convergent validity, and discriminant validity requirements. Furthermore, the structural model assessment was done to test the hypothesis and was preceded by a mediation and moderation analysis.

5.0 Results and Discussion

5.1 Demographics

A total of 151 (100%) respondents consisting of 74 (49%) males, 76 (53.3%) females, and 1(0.7%) unspecified staff of various banks were involved in the study. Out of this number, 68(45%) had 1-3 years of experience in banking, 48(31.8%) 4-6 years of experience, 20(13.2%) 7-10 years of experience and 13(8.6%) more than 10 years of experience in banking.

5.2 Measurement Model Assessment

The suitability of the measurement model was evaluated according to reliability, convergent validity, and discriminant validity criteria. According to Hair et. Al. (2014), the measurement model is considered reliable if Cronbach's alpha and composite reliability figures for all constructs are above 0.7. This study confirmed model reliability ECE, NPL, and NPL with COS and IOE recording near reliability. However, SCO and TIM did not meet the reliability test (See Table 1). Secondly, the measurement model was tested for convergent validity. According to Carlson and Herdman (2012), convergent validity is demonstrated when the average variance (AVE) extracted for all constructs is larger than 0.5. Table 1 gives evidence that the AVEs for all the constructs except for SCO and TIM have been met.

Lastly, the study assessed the discriminant validity of the measurement model by relying on the Fornell-Larcker (Opuni et. Al, 2022) criterion, heterotrait-monotrait (HTMT) standards, and cross-loadings. According to Fornell and Larker (1981), the square root of the AVE for each construct should be higher than the correlations between the construct and all other constructs in the model if discriminant validity is to be determined. Since the criterion is satisfied for the model utilized above, the Fornell-Larcker criterion for discriminant validity was deemed confirmed (see Table 1).

The HTMT criterion demands that the values of HTMT should be ≤ 0.90 (Opuni *et. Al*, 2022). As shown in Table A1, were lower than n ≤ 0.90 for all except REC and TIM; as such it can be concluded that the respondent understood that all the constructs apart from REC and TIM were unique. The criterion for cross-loading demands that all items load the highest on their corresponding construct. Evidence from Table A2 suggests that this requirement for discriminant validity is regarded to be fulfilled.

Construct	Cronbach's alpha	CR	AVE		COS	ECE	IOE	NPL	REC	SCO	TIM
COS	0.533	0.763	0.517		0.719						
ECE	0.819	0.872	0.544		0.146	0.737					
IOE	0.695	0.867	0.766		-0.088	0.438	0.875				
NPL	0.851	0.890	0.575		0.216	0.702	0.507	0.758			
REC	0.744	0.885	0.794		-0.034	0.410	0.837	0.470	0.891		
SCO	0.359	0.697	0.451		0.201	0.380	0.080	0.271	0.051	0.672	
TIM	0.062	0.289	0.24		0.180	0.493	0.313	0.457	0.256	0.303	0.490

Table 1: Measurement model and Fornell-Larcker Results

5.3 Structural model assessment

Criteria	Saturated model	Estimated model
SRMR	0.131	0.160
d_ULS	6.008	9.034
d_G	1.472	1.918
Chi-square	1236.265	1393.437
NFI	0.440	0.369

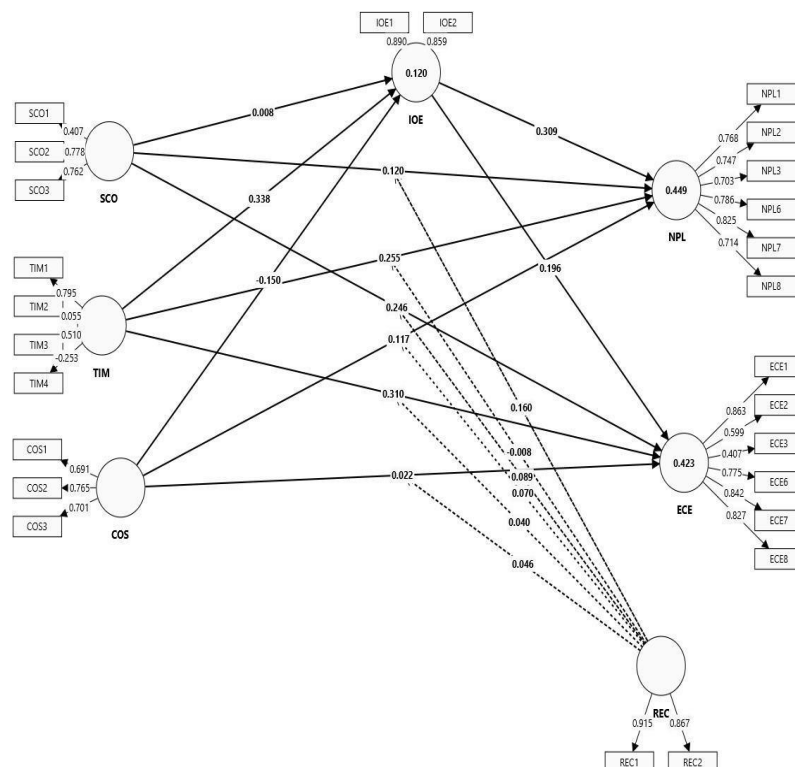**Table 2: Model fit indices**

5.4 Path Analysis

Figure 1: Structural model displaying path coefficient values.

Following the verification of the measurement model suitability (Figure 1), the structural model was confirmed. Based on the fit indices such Chi-square and NFI the saturated models fit the data best than the estimated models (See Table 2)

In the structural model assessment, the path significance of coefficients was tested. The effect and significance of each path were confirmed through the application of bootstrapped t-values (10000 sub-samples). The findings of the final path analysis used for hypotheses testing are recorded in figure 1. After bootstrapping analysis was performed in PLS-SEM for the structural model, COS was discovered to have a positive and notable effect on IOE (b=0.246, $p < 0.05$). However, TIM was discovered to have a positive and significant effect IOE (b=0.338, $p < 0.05$) and NPL (b=0.255, $p < 0.05$). Also, IOE was found to have a positive and significant influence on NPL (b=0.309, $p < 0.05$). Thus, hypothesis H_2, H_3, H_4 and H_5 were supported. Additionally, a positive and significant relationship was discovered between REC, SCO, and NPL as represented by (REC x SCO -> NPL) (b=0.160, $p < 0.05$). Thus, hypothesis H_6 was also supported. However, for COS and IOE, a negative and near significant value was recorded (b= -0.150, $P>0.05$) as shown in table 3 below.

Hypothesis	Path	Path coefficients	P values	Results
H_1	COS -> IOE	-0.150	0.053	Not Supported
H_2	SCO -> ECE	0.246	0.018	Supported
H_3	TIM -> IOE	0.338	0.023	Supported
H_4	TIM -> NPL	0.255	0.021	Supported
H_5	IOE -> NPL	0.309	0.003	Supported
H_6	REC x SCO -> NPL	0.160	0.049	Supported

Table 3: Structural Model Assessment Results

Mediation Analysis

This study investigated the mediation effects of Improved Operational Efficiency between Scoping, Scheduling, and Costing and Non-performing Loans and also enhanced customer experience.

Moderation analysis

This study included an evaluation of the moderation effects of REC between COS, TIM and SCO and NPL and also ECE.

Table 4: Specific Indirect Effects

Hypothesis	Path	Path coefficients	P values	Results
H_6	**REC x SCO -> NPL**	**0.160**	**0.049**	Supported

REC was found to be positively moderating the relationships and significance between SCO and NPL (REC x SCO -> NPL) in Table 5 (b=0.160, $p < 0.001$). Hence, hypothesis H_6 as presented in Table 5 is supported.

Slope Analysis

PLS- SEM slope analysis examines how changes in one variable affects changes in another. It provides

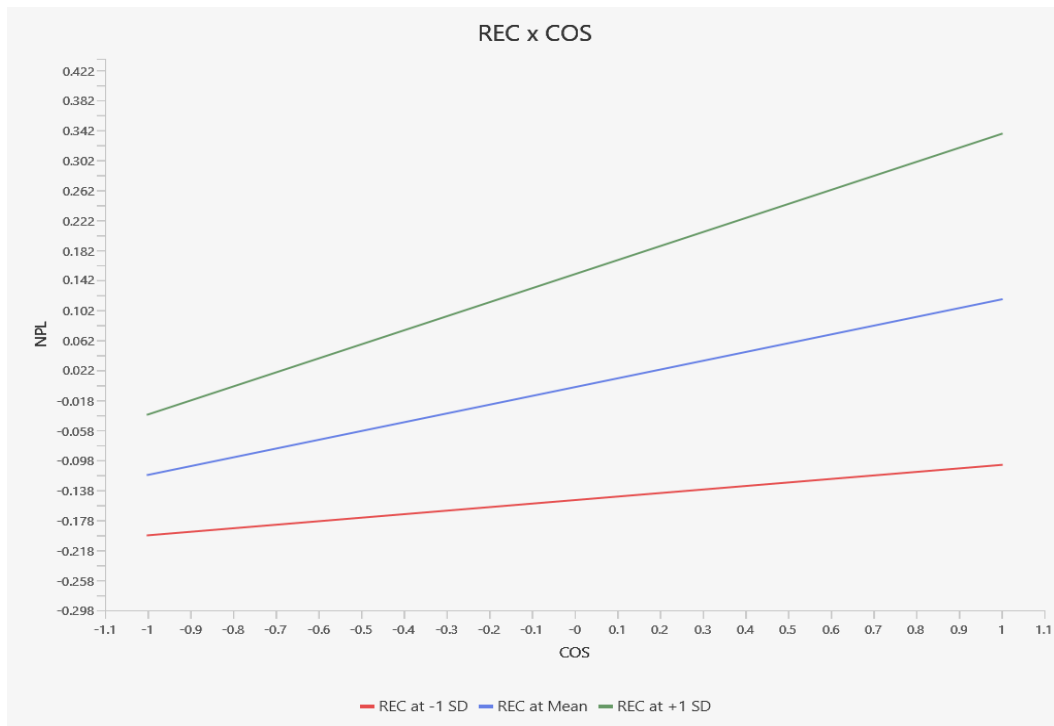data on the degree and direction of relationships between constructs (Hair et. al, 2016).

Figure 2: Slope analysis diagram showing REC as a moderator between COS and NPL

From Figure 2, REC is a positive moderator between COS and NPL. The lower levels (-ve SD) of the moderator, REC is shown in red, the higher levels (+ve SD) are shown in green and the mean is represented by blue. The gentle nature of the slope (red line) means changes in the independent variables does not bring changes in the dependent variables. Thus, at lower levels of REC changes in the independent variable (SCO) does not lead to significant changes in the dependent variable (NPL). The steep sloping (green line) curve means that at higher levels of REC, changes in the independent variable (SCO) leads to significant changes in the dependent variable (NPL). The foregoing analysis shows that positively moderates the relationship between SCO and NPL. This is to say, an increase in the moderator (REC) strengthens the relationship between SCO and NPL.

Direct Relationships

This study proposed six hypotheses and used a structural modelling equation with PLS to explore the links. Five hypotheses were supported and one recorded near significance.

First, the study found a direct correlation between SCO and IOE. Several studies in the literature support this finding (Suvarchala, 2018; Botha, 2010; Kumar, 2021). Although the reason for this relationship is not unfounded, the findings indicate that financial institutions must focus on scoping, which comprises understanding and describing the customer journey (Botha, 2010).

Positive and significant p-values were recorded for TIM and IOE indicating that improved scheduling, improves operational efficiency. In operations management, Pargar (2017) and Merkel (2010) emphasize the importance of scheduling in maximizing resources and reducing idle time, thereby improving operational efficiency. The conclusions are based on the theory of constraint (TOC) and queuing theory

(QT) which sheds light on how effective scheduling aids in the identification and mitigation of these restrictions, thereby improving operational efficiency (Goldratt, 1990).

Thirdly, a positive association implying that better scheduling practices may lead to fewer non-performing loans was established. Even though evidence in literature does specifically address the influence of TIM on NPL (Ari, 2020), the findings can be linked to agency theory, which posits that a principal-agent relationship exists between lenders (the principal) and borrowers (the agents). The theory, suggests that efficient and effective scheduling may indicate better management and oversight by the principal (lenders), leading to reduced risk-taking behaviour by the agent (borrower) and consequently, lower instances of non-performing loans. The finding is distinct and novel, and it establishes that scheduling has a direct relationship with non-performing loans. The findings do not negate any findings in literature but contributes to the body of knowledge.

Furthermore, the finding of the regression analysis favours the hypothesis that improved operational efficiency is associated with non-performing loans (NPL). Similar findings in literature provide evidence for this link. (Mamatzakis and Remoundou, 2013). The rationale behind this relationship is that banks with improved levels of operational efficiency tend to have lower NPL ratios because they tend to have a more robust credit risk management framework and better loan quality. This finding is of significance theoretically since it has implications for the agency theory described by Jensen and Meckling (1976) and the efficiency wage theory by Shapiro and Stiglitz (1984). The current findings imply that enhancing operational efficiency can help banks mitigate credit risk, improve loan quality, and enhance financial stability.

Contrary to expectation, a direct relationship between cost and improved operational efficiency was not supported but recorded a near significance. This is consistent with literature as recent studies do not clearly establish a relationship between cost and improved operational efficiency (Rahman, 2017; Pasiouras et al., 2009). However, the hypothesis of COS -> IOE nearing significance suggests that there may be a relationship or correlation between two variables, COS and IOE and that this relationship is becoming stronger or more apparent as more data is collected or analysed. This finding could guide further research that aims to explore and understand the specific factors influencing cost and efficiency within the banking sector.

Moderation Analysis

The study found an indirect link between regulatory compliance, scoping, and non-performing loans suggesting that regulatory compliance moderates the relationship between scope and non-performing loans. This means that the impact of scoping on NPLs is contingent upon the level of regulatory compliance within financial institutions. This finding can be linked to several theories such as the agency theory, stakeholder theory, and financial intermediation theory (Jensen and Meckling, 1976; Diamond and Dybvig, 1983; Freeman, 1984). These theories establish that regulatory compliance enhances stakeholder trust and confidence in banks by promoting transparency, accountability, and ethical conduct, thereby contributing to financial stability and mitigating NPLs. The implications of the findings are multifaceted and have significant ramifications for various stakeholders within the banking sector and the broader economy. This finding is unique and novel because it establishes an indirect link between regulatory compliance, scoping, and non-performing loans within the banking sector.

Mediation Analysis

The findings of the hypothesis for TIM -> IOE -> NPL recorded near significance. This suggests that improved operational efficiency plays a mediating role between Schedule and Non-Performing Loans. The indirect relationship discovered may become stronger or more apparent as more data is collected or analysed. The finding could serve as a guide for research aimed at exploring and understanding the specific factors influencing the mediation role of improved operational efficiency on the association between scheduling and non-performing loans within the context of the study.

The second contribution is that regulatory compliance moderates the relationship between scoping and non-performing loans. Again, this study uniquely establishes a relationship between regulatory compliance, scoping, and non-performing loans. The finding was one of positive moderation, in that at lower levels of regulatory compliance changes in scope do not lead to significant changes in non-performing loans. This is supported by theories such as agency theory, stakeholder theory, and financial intermediation theory (Jensen and Meckling, 1976; Diamond and Dybvig, 1983; Freeman, 1984).

5.5 Theoretical Implication

This research also provides two unique theoretical contributions. The first contribution is that there is a direct link between scheduling and non-performing loans. This finding from the current study is unique, and novel and is grounded in the agency theory where there is a principal-agent relationship between the lender (the principal) and borrowers (the agents) (Jensen and Meckling, 1976). In the context of scheduling, efficient and effective scheduling may indicate better management and oversight by the principal (lender), leading to reduced risk-taking behaviour by the agent (borrower) and consequently, lower instances of non-performing loans (Ari, 2020)

The second contribution is that regulatory compliance moderates the association between scoping and non-performing loans (NPL). This study uniquely establishes a relationship between regulatory compliance, scoping, and non-performing loans. This finding was one of positive moderation, which is lower levels of regulatory compliance weakens the relationship between SCO and NPL. This is supported by theories such as agency theory, stakeholder theory, and financial intermediation theory (Jensen and Meckling, 1976; Diamond and Dybvig, 1983; Freeman, 1984). The current study also has significant application of the Resource Based Theory in management-by-project.

6.0 Managerial and Practical Applications

Managers of financial institutions and academicians should take due cognizance of the direct relationship between scheduling and non-performing loans. Findings in this study suggest that efficient and effective scheduling could lead to reduced risk-taking behaviour by the borrower and consequently, lower instances of non-performing loans. Additionally, industry players must ensure that scheduling is done to reduce non-performing loans and provide security for financial institutions. Furthermore, findings from this study suggest that regulatory compliance enhances or promotes the reduction of non-performing loans. As such, beyond scoping, complying with regulations within the financial industry should be encouraged to reduce non-performing loans.

7.0 Limitations and Future Research

The study's limitations include a potential lack of generalizability to all financial institutions due to the variation in size, objectives, and operational models within the sector. Also, the study does not delve into

an exhaustive examination of all project management methodologies, as that would require a separate and extensive research endeavour. Instead, it focuses on the broader concept of MBP and how it may be adapted to fit the unique needs and contexts of financial institutions. The researchers recommend a longitudinal study to improve the reliability of the findings. Further research in other countries with different regulations, cultures, and practices would be beneficial for improving the basis of this work theoretically as we only worked with Ghanaian banks. Studies on the relationship between cost and improved operational efficiency in banks aimed at exploring and understanding the specific factors influencing cost and efficiency are highly recommended. Lastly, we recommend studies on the potential role of improved operational efficiency in the relationship between schedule and non-performing loans.

8.0 Conclusion

This research concludes that there is a direct relationship between some management-by-project characteristics and some banking goals in the banking sector. This is demonstrated in the direct relationships between scope and enhanced customer experience; schedule and improved operational efficiency; schedule and non-performing loans; and operational efficiency and non-performing loans. Additionally, the study concludes that regulatory compliance positively moderates scoping and non-performing loans while improved operational efficiency does not mediate MBP characteristics (scope, schedule, and cost) and enhanced customer experience and non-performing loans.

Reference

1. Abbasi A., Jaafari A., 2018. Evolution of Project Management as a Scientific Discipline. Data and Information Management, 2(2), pp. 91-102.
2. Abel, S. (2018). Cost efficiency and non-performing loans: An application of the Granger causality test. Journal of Economic and Financial Sciences, 11, 8.
3. Abyanta, P. (2020). Non-performing loan dan faktor-faktor yang mempengaruhi. Advanced Transportation, 34, 297-323.
4. Agarwal, A., Ganesan, B., Gupta, A., Jain, N., Karanam, H.P., Kumar, A., Madaan, N., Munigala, V., & Tamilselvam, S.G. (2017). Cognitive Compliance for Financial Regulations. IT Professional, 19, 28-35.
5. Ali, A. (2011). Intermediation Cost and Non-Performing Financing:
6. Altunbaş, Y., Gardener, E.P., Molyneux, P., & Moore, B.J. (1996). Efficiency in European Banking.
7. Altunbaş, Y., Gardener, E.P., Molyneux, P., & Moore, B.J. (1996). Efficiency in European Banking.
8. Amponsah, R. (2010). Improving project management practice in Ghana with focus on agriculture, banking and construction sectors of the Ghanaian economy (Doctoral dissertation, RMIT University).
9. Ari, A., Chen, S., & Ratnovski, L. (2019). The Dynamics of Non-Performing Loans During Banking Crises: A New Database. Econometric Modeling: International Financial Markets - Volatility & Financial Crises eJournal.
10. Ari, A., Chen, S., & Ratnovski, L. (2020). COVID-19 and Non-Performing Loans: Lessons from past Crises. HEN: Health & Economic Development (Topic).
11. Asenahabi, B.M. (2019). Design : A Guide to selecting appropriate research design.
12. Bargal, Sharma, Role of Service Marketing in Banking Sector, The Icfai Journal of Services Marketing VI (2008), no. 1, 62.

13. Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. Journal of Management, 17(1), 99-120.
14. Barth, J. R., Caprio, G., & Levine, R. (2013). Bank regulation and supervision in 180 countries from 1999 to 2011. Journal of Financial Economic Policy, 5(2), 111–219.
15. Bentan, G. (2011). Credit Risk Management: A Case Study on Maybank Automobile Financial Services.
16. Benthem, C.S. (2017). The relation among non-performing loans, operating efficiency, and capitalization in commercial banking.
17. Berger, A. N., & Humphrey, D. B. (1997). Efficiency of financial institutions: International survey and directions for future research. European Journal of Operational Research, 98(2), 175-212.
18. Berger, A.N., & Humphrey, D.B. (1997). Efficiency of Financial Institutions: International Survey and Directions for Future Research. Banking & Financial Institutions eJournal.
19. Berger, A.N., & Humphrey, D.B. (1997). Efficiency of Financial Institutions: International Survey and Directions for Future Research. Banking & Financial Institutions eJournal.
20. Berger, A.N., Hancock, D., & Humphrey, D.B. (1993). Bank efficiency derived from the profit function. Journal of Banking and Finance, 17, 317-347.
21. Berger, A.N., Hancock, D., & Humphrey, D.B. (1993). Bank efficiency derived from the profit function. Journal of Banking and Finance, 17, 317-347.
22. Bonato, L., Cascarino, G., & Franceschi, F. (2017). Notes on Financial Stability and Supervision.
23. Botha, J., Kruger, P.S., & de Vries, M. (2010). Enhancing customer experience through business process improvement: An introduction to the Enhanced Customer Experience Framework (ECEF). The 40th International Conference on Computers & Indutrial Engineering, 1-6.
24. Brackbill, Y. (1974). Test-retest reliability in population research. Studies in family planning, 5 8, 261-6 .
25. Carlson, K.D., & Herdman, A.O. (2012). Understanding the Impact of Convergent Validity on Research Results. Organizational Research Methods, 15, 17 - 32.
26. Chan, H.K., & Chung, S.H. (2013). Optimisation approaches for distributed scheduling problems. International Journal of Production Research, 51, 2571 - 2577.
27. Chan, H.K., & Chung, S.H. (2013). Optimization approaches for distributed scheduling problems. International Journal of Production Research, 51, 2571 - 2577.
28. Claessens, S., & Klingebiel, D. (2001). Competition and scope of activities in financial services. World Bank Research Observer, 16, 19-40.
29. Claessens, S., & Klingebiel, D. (2001). Competition and scope of activities in financial services. World Bank Research Observer, 16, 19-40.
30. Consolo, A., Malfa, F., & Pierluigi, B. (2018). Insolvency frameworks and private debt: an empirical investigation. European Economics: Political Economy & Public Economics eJournal.
31. Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. Journal of Political Economy, 91(3), 401-419.
32. Edwards, J., & Wolfe, S. (2005). Compliance: A review. Journal of Financial Regulation and Compliance, 13, 48-59.
33. Erdinç, D., & Gurov, A. (2015). The Effect of Regulatory and Risk Management Advancement on Non-Performing Loans in European Banking, 2000–2011. International Advances in Economic Research, 22, 249-262.

34. F. Hair Jr, J., Sarstedt, M., Hopkins, L., & G. Kuppelwieser, V. (2014). Partial least squares structural equation modeling (PLS-SEM) An emerging tool in business research. European business review, 26(2), 106-121.

35. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of marketing research, 18(1), 39-50.

36. Freeman, R. E. (1984). Strategic management: A stakeholder approach. Boston: Pitman.

37. Ghosh, A.K. (2015). Banking-industry specific and regional economic determinants of non-performing loans: Evidence from US states. Journal of Financial Stability, 20, 93-104.

38. Goldratt, E.M. (1990). The Haystack Syndrome: Sifting Information Out of the Data Ocean. North River Press.

39. Helfat, C.; Peteraf, M. (2003). The dynamic resourceǦ based view: capability lifecycles. Strategic Management Journal, 2003, Vol.24, pp.997-1010

40. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3(4), 305-360.

41. Joseph, M.T., Edson.G, Manuere, F., Clifford, M., & Michael, K. (2012). Non-Performing Loans in Commercial Banks: A case of CBZ Bank Limited in Zimbabwe. Interdisciplinary Journal of Contemporary Research in Business, Volume 4.

42. Karim, M.Z., Chan, S., & Hassan, S. (2010). Bank efficiency and non-performing loans: Evidence from Malaysia and Singapore.

43. Kendall G, Rollins S. (2003). Advanced Project Portfolio Management and the PMO: multiplying ROI at Warp Speed. Fort Lauderdale, Florida: J. Ross Publishing Inc; 2003.

44. Kerzner, H. (2003). Project Management. A systems approach to planning, scheduling and controlling. 8th Edition. John Wiley and Sons Inc, Hoboken, New Jersey.

45. Kerzner, H. (2017). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons.

46. Kountouris, Y., & Remoundou, K. (2013). Is there a cultural component in tax morale? Evidence from immigrants in Europe. Journal of Economic Behavior & Organization, 96, 104-119.

47. Kristiastuti, F. (2017). Pengaruh non-performing loan terhadap rentabilitas bank umum konvensional.

48. Kumar, P., & Mokha, A.K. (2021). Relationship between E-CRM, Customer Experience, Customer Satisfaction and Customer Loyalty in Banking Industry: A Review of Literature. Research Review International Journal of Multidisciplinary.

49. Kuznetsov, E., & Klimanov, V. (2018). Efficiency of an Algorithm of Scheduling. 2018 International Multi-Conference on Industrial Engineering and Modern Technologies (FarEastCon), 1-4.

50. Kuznetsov, E., & Klimanov, V. (2018). Efficiency of an Algorithm of Scheduling. 2018 International Multi-Conference on Industrial Engineering and Modern Technologies (FarEastCon), 1-4.

51. Lado, A., Boyd, N., Wright, P. & Kroll, M. (2006). Paradox and Theorizing within the Resource-Based View. The Academy of Management Review, 2006, Vol.31(1), pp.115-131

52. Loader, D. (2004). What is regulation? https://doi.org/10.1016/B978-075065487-6.50002-2

53. Mamatzakis, E. (2013). Are there any animal spirits behind the scenes of the Euro area sovereign debt crisis?

54. Manz, F., Müller, B.S., & Schiereck, D. (2020). The pricing of European non-performing real estate loan portfolios: evidence on stock market evaluation of complex asset sales. Journal of Business Economics, 90, 1087 - 1120.

55. Manz, F., Müller, B.S., & Schiereck, D. (2020). The pricing of European non-performing real estate loan portfolios: evidence on stock market evaluation of complex asset sales. Journal of Business Economics, 90, 1087 - 1120.

56. Manz, F., Müller, B.S., & Schiereck, D. (2020). The pricing of European non-performing real estate loan portfolios: evidence on stock market evaluation of complex asset sales. Journal of Business Economics, 90, 1087 - 1120.

57. Maudos, J., Pastor, J.M., Pérez, F.J., & Quesada, J. (2002). Cost and profit efficiency in European banks. Journal of International Financial Markets, Institutions and Money, 12, 33-58.

58. Maudos, J., Pastor, J.M., Pérez, F.J., & Quesada, J. (2002). Cost and profit efficiency in European banks. Journal of International Financial Markets, Institutions and Money, 12, 33-58.

59. Maudos, J., Pastor, J.M., Pérez, F.J., & Quesada, J. (2002). Cost and profit efficiency in European banks. Journal of International Financial Markets, Institutions and Money, 12, 33-58.

60. Mbaidin, H.O. (2024). The dynamic role of the Internet of Things (IoT) on the excel performance of Islamic banks in United Arab Emirates. Decision Science Letters.

61. Merkel, A., Stoess, J., & Bellosa, F. (2010). Resource-conscious scheduling for energy efficiency on multicore processors. European Conference on Computer Systems.

62. Miglionico, A. (2019). Restructuring Non-Performing Loans for Bank Recovery: Private Workouts and Securitisation Mechanisms. European Company and Financial Law Review, 16, 746 - 770.

63. Nahry, S.S. (2000). Optimal scheduling of public transport fleet at network level. Journal of Advanced Transportation, 34, 297-323.

64. Opuni, F. F., Snowden, M., Winful, E. C., Hyams-Ssekasi, D., Halsall, J. P., Quaye, J. N. A., Afriyie, E. O., Ocloo, E. C., Opoku-Asante, F.(2022). The Nexus between entrepreneurial education and entrepreneurial self-competence: a social enterprise perspective. Sustainability, 2022, 14, 1275. https://doi.org/10.3390/su141912725

65. Pargar, F. (2017). Resource optimization techniques in scheduling : applications to production and maintenance systems.

66. Pasiouras, F., Tanna, S., & Zopounidis, C. (2009). The impact of banking regulations on banks' cost and profit efficiency: Cross-country evidence. International Review of Financial Analysis, 18, 294-302.

67. Pessoa, A. (2008). Public–private partnerships in developing countries: are infrastructures responding to the new ODA strategy?. Journal of International Development: The Journal of the Development Studies Association, 20(3), 311-325.

68. PMI, 2015. Capturing the Value of Project Management, Newton Square: PMI.

69. Pollack, J. and Adler, D., 2015. Emergent trends and passing fads in project management research: A scientometric analysis of changes in the field. International journal of project management, 33(1), pp. 236-248.

70. Preeti, & Roy, S. (2022). Operational Performance Modelling of Indian Banks: A Data Envelopment Analysis Approach. Paradigm: A Management Research Journal, 26, 29 - 49.

71. Project Management Institute (2017), A Guide to the Project Management Body of Knowledge (PMBOK Guide) –Sixth Edition. Project Management Institute, Inc.

72. Puarungroj, W. (2020). A Framework for Collecting and Analyzing Massive Community Data. 2020 1st International Conference on Big Data Analytics and Practices (IBDAP), 1-4.

73. Quadt, V., & Nguyen, T.L. (2016). The Relation between Efficiency, Non-Performing Loans and Capitalization in the Nordic Banking Sector.

74. Rahman, M.M., Ashraf, B.N., Zheng, C., & Begum, M. (2017). Impact of Cost Efficiency on Bank Capital and the Cost of Financial Intermediation: Evidence from BRICS Countries. International Journal of Financial Studies, 5, 32.

75. Ristolainen, K. (2018). Getting Better? The Effect of the Single Supervisory Mechanism on Banks' Loan Loss Reporting and Loan Loss Reserves. Risk Management & Analysis in Financial Institutions eJournal.

76. Sana, M.U., & Li, Z. (2021). Efficiency aware scheduling techniques in cloud computing: a descriptive literature review. PeerJ Computer Science, 7.

77. Shenhar Suvarchala, M.B., & Rao, P. (2018). Customer Experience Management in Banking Sector - A Brief Review. International Journal of Research -Granthaalayah.

78. Shenhar Suvarchala, M.B., & Rao, P. (2018). Customer Experience Management in Banking Sector - A Brief Review. International Journal of Research -Granthaalayah.

79. Singh, B., & Singh, A. (2015). STRATEGIES FOR ANALYZING QUANTITATIVE DATA IN RESEARCH.

80. Srivannaboon S, Milosevic D. A two-way influence between business strategy and project management. International Journal of **Project** Management 2006; 24: 493-505.

81. Swami, O.S., Nethaji, B., & Sharma, J.P. (2019). Determining Risk Factors that Diminish Asset Quality of Indian Commercial Banks. Global Business Review, 23, 372 - 384.

82. Wengerek, S.T., Hippert, B., & Uhde, A. (2019). Risk Allocation Through Securitization – Evidence From Non-Performing Loans. European Economics: Macroeconomics & Monetary Economics eJournal.

83. Yang, C. (2017). Reduction of non-performing loans in the banking industry: an application of data envelopment analysis. Journal of Business Economics and Management, 18, 833-851.