

# THE ROLE OF INTERNAL CONTROL AS A MODERATOR IN THE RELATIONSHIP BETWEEN OPERATING EFFICIENCY AND NON-PERFORMING LOANS IN JORDANIAN BANKS

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### Abstract

**Relevance:** The purpose of this study is to determine how internal controls affect the link between operating effectiveness and non-performing loans. **Purpose:** The purpose of this study is to determine whether operating effectiveness and the percentage of non-performing loans. The role of internal control regulating in this relationship is then discussed. **Method:** Internal control was assessed using the Likert scale. The researcher examines the impact of operating effectiveness on NPL, and then uses another regression model to moderate internal control on this relationship. **Result:** In all models—those with and without moderating internal control—the result is the same. The model is better able to explain fluctuations in NPL after changing internal control. All other measures, excluding Control Activities Statements and Monitoring Statements, are excluded. The results provide strong support for the model's high appropriateness for describing changes in NPL. As one may anticipate, operations effectiveness has a negative effect on changes in NPL. **Discussion:** The results of the regression models support the research's predictions, which state that operating efficiency will have a detrimental effect on NPL in both models. Control environment statements, risk assessment statements, and information and communication statements all support the association between operation efficiency and NPL. Although, Control Activities Statements and Monitoring Statements nonetheless demonstrate a positive impact on NPL.

**Keywords:** Non-Performing Loans, Operating Efficiency, Banks, Agency theory, Internal Control.

**JEL Classification:** M41

## INTRODUCTION

In 2013, the Committee of Sponsoring Organizations (COSO) introduced a framework for internal control, which has been approved by all organizations seeking to improve the efficiency of compliance, operational, and financial reports. Jordanian banks use the COSO framework, and one of its goals is to improve compliance with basil instructions. Thus, improving compliance with basil instructions should be reflected in evaluating

control quality and operation in banks (IMF, 2014). One of the operational measures in banks is the operating efficiency ratio, which indicates the efficiency of controlling operating expenses to generate operating revenues, in other words, it compares total expenses other than interest expenses to total income. According to McKinsey & Co Consultants, while this ratio has increased to 55%, this indicates that positive indicator of the operation efficiency in banks.

Operational efficiency is often described as the capacity to provide goods and services at a low cost without compromising quality (OlaREWaju & Obalade, 2015). Others see it as the outcome of a successful fusion of people, process, and technology to increase productivity and value (Shawk 2008). The ability of a bank to control its expenses, support its profitability, and survive is indicated by operating efficiency, and one of its operating expenses is non-operating expenses. Previous studies have shown a mixed relationship between internal control strength and the amount of economic gains (Cheng et Al. 2018; Doyle et Al 2007; Bhaskar et Al. 2019). So, when the bank strengthens internal control, operating efficiency will also improve. Operational effectiveness, and non-performing loans are a part of operating effectiveness. Improved internal control should therefore result in a better correlation between operating effectiveness and the ratio of non-performing loans. (Report on Financial Stability, 2021).

This study aims to establish a relationship between operating efficiency and ratio of non-performing loans in Jordanian banks. Then it discuss the role of moderating internal control in this relation. This relationship is crucial because it gauges the effectiveness of the bank's operating costs, including non-operating loans, which leads to a more profitable performance. Thus, by lowering the ratio of non-performing loans utilizing the COSO framework, may offer bank management indicators of how to optimize their operating efficiency using internal control.

## LITERATURE REVIEW

The global banking industry's operational efficiency and non-performing loans (NLP) were intensively discussed in academic literature. OlaREWaju & Obalade (2015), Ma & Fung (2006) in the United States, Barros et al. (2012) in Canada, Soteriou & Zenios (1999) in Cyprus, Koetter (2008) in Germany, and Chaffai (1997) in Tunisia are just a few of the studies that have been highlighted. Even so, Jordan's economy still pays little attention to this sector. The majority of the studies went beyond the factors that influence NPL and the link between NLP and bank operation efficiency. Amer et al. (2011) looked at the relationship between 24 commercial banks' operating efficiency and competitive position in Egypt from 2001 to 2008. They come to the conclusion that each bank's financial policies are designed to differentiate between highly competitive banks and banks with weak competition. Also, they discovered that asset quality, capital sufficiency, credit risk, and liquidity have a favorable and significant impact on operating efficiency. OlaREWaju & Obalade (2015) also examined a sample of Nigerian banks from 2004 to 2013 to evaluate various operational efficiency drivers. Labor costs, total loans, and total deposits have been demonstrated to have a detrimental impact on banks' operational effectiveness.

Also, Yahaya & Oni analyzed the Nigerian economy in 2016. Nevertheless, this time they concentrated on how macroeconomic issues affect NPL. They agreed that the impact of inflation, foreign exchange rates, and private sector lending on NPL is statistically significant. Fendi & Jaara (2017) investigated twenty banks that were active in Jordan from 2006 to 2014. They demonstrated a negative relationship between the variables they mention (return on assets, GDP, interest rates, inflation, unemployment rate, capital adequacy ratio, management efficiency, and the ratio of income-generating assets to total assets) and operating efficiency by using a regression model. The role of high-quality management in ensuring loan quality and lowering the degree of NPL in Bangladeshi Islamic banks is supported by Khatun & Ghosh (2019). Hosen et al. (2020) identified factors that may affect NPL while keeping evidence from Bangladesh; these factors are credit growth, loans to deposit ratio, capitalization, inefficiency, size, diversity, and economic growth. Twenty-six banks and four Islamic banks were the focus of their study, which covered the years 2014 to 2018. The study finds compelling evidence that inefficiency affects NPL favorably. While some factors have a detrimental impact on NPL. A useful study by Campanella et al. (2020) was published, and it suggests creating a new set of qualitative and quantitative standards to identify credit risk, particularly to lower NPLs in Italian banks. Shonhadji (2020) looked at potential influences on NPL for the years 2014–2019 in Indonesia. Growth, interest rates, currency exchange rates, exports, credit expansion, inflation, return on asset, operational costs to operating income, and capital adequacy ratio are some of the variables. He discovered that NPL is impacted by growth, interest rates, capital adequacy, return on asset, operational costs to operating revenue, currency rates, inflation, and capital adequacy ratio. NPL, on the other hand, is unaffected by growth in the gross domestic product or exports. Moreover, Beardsley & Imdieke (2021) investigated the impact of firms' operational efficiency on the auditors' assessment of internal control over financial reporting for firms. They assert that small businesses with internal control audits do much better overall than those with merely management internal control reports. In order to increase efficiency, they contend that firms should not apply internal control norms. Lastly, compared to enterprises without material deficiencies in internal control, operational efficiency is significantly lower among these organizations (Cheng et Al. 2018). Internal control has received attention in the past four years for its impact on operational effectiveness and non-performing loans. Ben Saada tested the Tunisian banking industry in 2018 to see how much internal control quality affected non-performing loans. He extended the scope of his probe to include 11 banks from 2010 to 2015. His discovery confirmed his hypothesis, proving that the risk committee—a component of internal control—is superior to other committees in terms of lowering NPLs. Wu et al. (2020) and Chen et al. (2020) discuss the impact of managing or internal control functions on operational efficiency in Korea and China, respectively. Following a review of their findings, the management or internal audit function had a favorable impact on operational efficiency.

In conclusion, the researcher hypothesized that:

*H<sub>1a</sub>: There is statistically negative effect of operating efficiency on non-performing loans in Jordanian Banks.*

*H<sub>1b</sub>: There is statistically positive effect of internal control on the relationship between operating efficiency and non-performing loans in Jordanian banks.*

## **THEORETICAL FRAMEWORK**

This study investigates the role of internal control on the relationship between operating efficiency and non-performing loans. Due to agency costs, managers may manipulate the information which may create information asymmetry, which leads to adverse selection by stakeholders (Zogning, 2017). Although, since internal control achieves the primary objectives of the firm, catch and monitor a potential exposure that could result in a significant error, and prevention and detection of fraud (Geleo, 2021), thus; internal control process must avoid agency costs which reduces information asymmetry, and improves operating efficiency which as a result may plays a role on non-performing loans.

Furthermore, the challenges of accounting control have become dominant by adopting the most widely techniques in the modern organizations. Thus, the increasing changes of business environments, competition, consolidations, currency rate sensitivity and technological development caused greater degree of risks and required more control models such as COSO framework (Almasri, 2020). Under contingency theory, no one best way of organizing, and the organizational style is effective in some situations may not be successful in others. Additionally, no one universal appropriate control system that is applicable to all corporations in all circumstances (Otley, 1980).

## **METHOD**

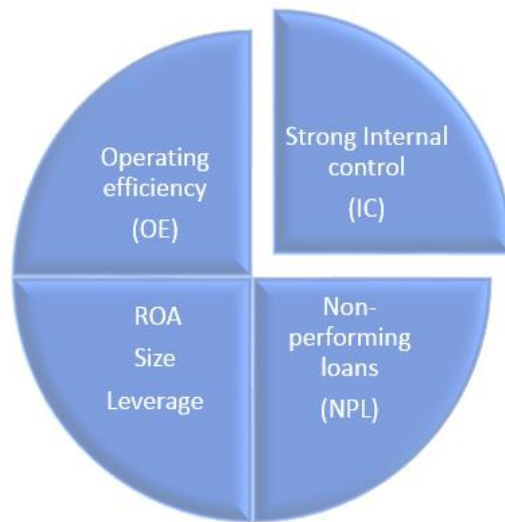
The researcher used primary (questionnaire) data to measure internal control and secondary data to measure operating efficiency and NPL to achieve the research goal. A correlation model was used to test the relationship between operating efficiency and the ratio of non-performing loans. The researcher then investigates the role of internal control as a moderating (control) variable in this relationship. The regression model was then used to demonstrate the effect of operational efficiency on non-performing loans in light of the application of the COSO framework. The banking sector was chosen because it accounts for approximately 95% of Jordan's financial sector. The period from 2008 to 2018 was used by the researcher because it covers the period from the financial crisis in 2008 until the required variable for the research is available. Internal control was measured using the Likert model in this study. As a result, 23 surveys were collected from 23 banks in Jordan. The survey includes five axes, each of which measures internal control from one side, and as a result, all axes represent the level of internal control used in the bank. Control Environment Statements, Risk Assessment Statements, Control Activities Statements, Information and Communication Statements, and Monitoring Statements are among the axes.

In conclusion, the researcher used the following research models:

$$NPL = \alpha_0 + \alpha_1 OE_{y,i} + \alpha_2 ROA_{y,i} + \alpha_3 Leverage_{y,i} + \alpha_4 Size_{y,i} \dots \dots \dots (1)$$

$$NPL = \alpha_0 + \alpha_1 OE_{y,i} + \alpha_2 CEV_{y,i} + \alpha_3 RAS_{y,i} + \alpha_4 CAS_{y,i} + \alpha_5 CT_{y,i} + \alpha_6 MS_{y,i} + \alpha_7 ROA_{y,i} + \alpha_8 Leverage_{y,i} + \alpha_9 Size_{y,i} \dots (2)$$

**Schematic Diagram**



**Figure 1: Research Model**

**RESULTS**

**1. First Model**

$$NPL = \alpha_1 OE_{y,i} + \alpha_2 ROA_{y,i} + \alpha_3 Leverage_{y,i} + \alpha_4 Size_{y,i}$$

The first model's results show that it explains about 36% of changes in the dependent variable. The F-score indicates that the model is suitable at the 0.00% level of significance. Table (3) shows that operating efficiency has a statistically significant negative effect on NPL at the 0.000% level of significance. As a result, a 100% increase in operating efficiency reduces NPL by 27%. ROA and leverage have a statistically significant effect at the 0.000% level of significance. ROA support the research expectation of a negative effect on NPL. Thus, a 100% increase in ROA reduces NPL by 800%. A 100% increase in leverage, on the other hand, will result in a 130% increase in NPL. Nonetheless, at the 5% level of significance, size has a statistically significant positive effect on the dependent variable. Any increase of size by 100% will increase NPL by 1%.

**Table 1: regression result for First Model**

Model	Unstandardize d Coefficients B	Std Error	Standardized Coefficients Beta	T	Sig.
<b>(Constant)</b>	<b>0.043</b>	<b>0.031</b>		<b>1.385</b>	<b>0.167</b>
<b>OE</b>	<b>-0.272</b>	<b>0.050</b>	<b>-0.483</b>	<b>-5.428</b>	<b>0.000</b>
<b>ROA</b>	<b>-8.070</b>	<b>1.785</b>	<b>-0.401</b>	<b>-4.521</b>	<b>0.000</b>
<b>Size</b>	<b>0.017</b>	<b>0.007</b>	<b>0.190</b>	<b>2.541</b>	<b>0.012</b>
<b>Leverage</b>	<b>1.307</b>	<b>0.103</b>	<b>0.656</b>	<b>12.717</b>	<b>0.000</b>
<b>Adjusted R<sup>2</sup></b>	<b>0.363</b>		<b>F-Value</b>	<b>41.608</b>	<b>.000</b>

## 2. Second Model

$$NPL = \alpha_1 OE_{y,i} + \alpha_2 CEV_{y,i} + \alpha_3 RAS_{y,i} + \alpha_4 CAS_{y,i} + \alpha_5 CT_{y,i} + \alpha_6 MS_{y,i} + \alpha_2 ROA_{y,i} + \alpha_3 Leverage_{y,i} + \alpha_4 Size_{y,i}$$

47% of changes in the dependent variable are explained by the model (NPL). The model is fit because the F-value is 29% at the 0.00 level of significance. Table (3) summarizes the effect of each independent variable on NPL. The efficiency of operations has a negative impact on NPL. As a result, when operational efficiency increases by 100%, NPL decreases by 27%. This result is consistent with the research hypothesis. In terms of controls, ROA has a negative impact on NPL. As a result, when ROA increased by 100%, NPL decreased by 800%. Size and leverage both have a positive impact on NPL. As a result, when the size or leverage increases by 100%, the NPL increases by 1% or 100%, respectively. When leverage is increased, risk rises, which has a positive impact on NPLs. Despite this, it is not expected that size has a positive relationship with NPL. There are five measures for the moderate variable (Internal Control).

Control Environment Statements, Risk Assessment Statements, and Information and Communication Statements are three internal control measures that have a negative impact on the relationship between operating efficiency and NPL. Thus, increasing one of those internal control measures by 100% reduces NPL by 5%, 3%, and 6%, respectively. These outcomes are anticipated given that the presence of a strong internal control system promotes strong operational effectiveness and a reduction in internal control.

Even Nevertheless, there is evidence that two internal control measures have a favorable impact on the relationship between operating effectiveness and NPL. These findings do not match what was anticipated by the research. NPL increase by 8% for every 100% increase in Control Activities Statements and/or Monitoring Statements. This finding demonstrates that internal control systems do not actually complement one another and affect how effectively a corporation operates.



The favorable outcome reveals that Jordanian banks employ fictitious internal control systems to mislead customers. Lastly, the significance level for each variable is less than 5%. Yet, the risk assessment statement is significant at a level of 9%.

**Table 2: Regression Result for Second Model**

Model	Unstandardized Coefficients B	Std Error	Standardized Coefficients Beta	T	Sig.
<b>(Constant)</b>	<b>0.043</b>	<b>0.031</b>		<b>1.385</b>	<b>0.167</b>
<b>OE</b>	<b>-0.272</b>	<b>0.050</b>	<b>-0.483</b>	<b>-5.428</b>	<b>0.000</b>
<b>ROA</b>	<b>-8.070</b>	<b>1.785</b>	<b>-0.401</b>	<b>-4.521</b>	<b>0.000</b>
<b>Size</b>	<b>0.017</b>	<b>0.007</b>	<b>0.190</b>	<b>2.541</b>	<b>0.012</b>
<b>Leverage</b>	<b>1.307</b>	<b>0.103</b>	<b>0.656</b>	<b>12.717</b>	<b>0.000</b>
<b>IC</b>	<b>-0.052</b>	<b>0.018</b>	<b>-0.296</b>	<b>-2.921</b>	<b>0.004</b>
<b>IC2</b>	<b>-0.034</b>	<b>0.020</b>	<b>-0.162</b>	<b>-1.669</b>	<b>0.096</b>
<b>IC3</b>	<b>0.087</b>	<b>0.027</b>	<b>0.454</b>	<b>3.286</b>	<b>0.001</b>
<b>IC4</b>	<b>-0.062</b>	<b>0.021</b>	<b>-0.239</b>	<b>-3.025</b>	<b>0.003</b>
<b>IC5</b>	<b>0.087</b>	<b>0.014</b>	<b>0.400</b>	<b>6.107</b>	<b>0.000</b>
<b>Adjusted R<sup>2</sup></b>	0.474		<b>F-Value</b>	29.481	<b>.000</b>

## DISCUSSION

The findings of the regression models are consistent with the predictions made by the research, which are that operating efficiency will have a negative impact on NPL in both models. Moreover, the outcome is the same in both the models with and without moderating internal control. Controls also fail to distinguish between the two models. The two models are presented as fitting and suitable for explaining changes in NPL in the discussion of the results. However, after modifying internal control, the model has a stronger capacity for explaining variations in NPL.

With the exception of two measures—Control Activities Statements and Monitoring Statements—internal control measures align with the research expectation. Findings offer compelling evidence of the model's high appropriateness for explaining variations in NPL. Operations effectiveness, as one might assume, has a detrimental impact on changes in NPL. The function of internal control supports this outcome. The relationship between operation efficiency and NPL is supported by Control Environment Statements, Risk Assessment Statements, and Information and Communication Statements. Despite the fact that Control Activities Statements and Monitoring Statements did not exceed expectations, they do, nevertheless, show a favorable impact on NPL, which suggests that NPL will rise as long as there are Control Activities Statements and/or Monitoring Statements.

This research used a questionnaire to gather internal control variables, which may provide erroneous conclusions based on the sample used, this result may require further

discussion in further literature, particularly given that this study used a questionnaire to gather internal control variables, which could bring erroneous results based on the sample selected. As anticipated, ROA and leverage have a negative and positive influence on NPL, respectively. Nonetheless, the size of the bank in Jordan has a beneficial impact on NPL, maybe as a result of the expansion of operating operations. Internal control has an impact on the relationship between operational effectiveness and NPL, and Jordanian banks must take this into account to get the best NPL ratio.

## CONCLUSION

The purpose of this research is to determine the relationship between operating efficiency and the ratio of non-performing loans in Jordanian banks. The role of moderating internal control in this relationship is then discussed. The regression models' findings are consistent with the research's predictions, which are that operating efficiency will have a negative impact on NPL in both models. Furthermore, the results are the same in both models with and without moderating internal control. Controls are also unable to differentiate between the two models.

## References

1. Alshebmi, A; Adam, M; Mustafa, A; Thomran, M & Fathelbab, O. (2020). Assessing the Non-Performing Loans and their Effect on Banks Profitability: Empirical Evidence from the Saudi Arabia Banking Sector. **International Journal of Innovation, Creativity and Change**. 11(8):69-90.
2. Amer, H; Moustafa, W; Eldomiaty, T. (2011). Determinants of Operating Efficiency for Lowly and Highly Competitive Banks in Egypt. **Cambridge Business & Economics Conference**. ISBN: 9780974211428.
3. Arena, M., & Arnaboldi, M. (2014). Risk and performance management: are they easy partners?. **Management Research Review**, 37(2), 152-166.
4. Barros, C. P., Managi, S., & Matousek, R. (2012). The technical efficiency of the Japanese banks: non-radial directional performance measurement with undesirable output. **Omega**, 40(1), 1-8.
5. Beardsley, E. L., Imdieke, A. J., & Omer, T. C. (2021). The distraction effect of non-audit services on audit quality. **Journal of Accounting and Economics**, 71(2-3), 101380.
6. Ben Saada, M. (2018). The impact of control quality on the non-performing loans of Tunisian listed banks. **Managerial Auditing Journal**, 33(1), 2-15.
7. Bhaskar, L. S., Schroeder, J. H., & Shepardson, M. L. (2019). Integration of internal control and financial statement audits: Are two audits better than one?. **The Accounting Review**, 94(2), 53-81.
8. Campanella, F., Gangi, F., Mustilli, M., & Serino, L. (2020). The effects of the credit selection criteria on non-performing loans: evidence on small and large banks in Italy. **Meditari Accountancy Research**, 28(2), 251-275.
9. Chaffai, M. E. (1997). Estimating input-specific technical inefficiency: The case of the Tunisian banking industry. **European Journal of Operational Research**, 98(2), 314-331.
10. Chen, Y., Lin, B., Lu, L., & Zhou, G. (2020). Can internal audit functions improve firm operational efficiency? Evidence from China. **Managerial Auditing Journal**, 35(8), 1167-1188.



11. Cheng, Q., Goh, B. W., & Kim, J. B. (2018). Internal control and operational efficiency. **Contemporary Accounting Research**, 35(2), 1102-1139.
12. Demerjian, P. R., Lev, B., Lewis, M. F., & McVay, S. E. (2013). Managerial ability and earnings quality. **The accounting review**, 88(2), 463-498.
13. Doyle, J., Ge, W., & McVay, S. (2007). Determinants of weaknesses in internal control over financial reporting. **Journal of accounting and Economics**, 44(1-2), 193-223.
14. Gangi, F; Serino, M. (2020). The Effects of the Credit Selection Criteria on Non-Performing Loans: Evidence on Small and Large Banks in Italy. **Meditari Accountancy Research**. 28(2):251-275.
15. Geleo, W. (2021). The Impact of Internal Control on The Operational Performance Of Selected Private Commercial Banks In Ethiopia. **Thesis: St. Mary's University**.
16. Jordanian Financial Stability Report (2020). **Central Bank of Jordan**. <https://www.cbj.gov.jo/EchoBusv3.0/SystemAssets/PDFs/2020/JFSR-A-2020%2010-2021%20V1.7%20final%20.pdf>
17. Fendi, U & Sawalha, I. (2017). Early Warning Indicators for Monitoring Non-Performing Loans in Jordanian Banking System. **International Journal of Business and Social Science**. 8(6): 104-114.
18. Hosen, M; Broni, M; & Uddin, M. (2020). What Bank Specific and Macroeconomic Elements Influence Non-Performing Loans in Bangladesh? Evidence from Conventional and Islamic Banks. **Green Finance**. 2(2):212-226.
19. International Monetary Fund (2014). Annual Report. From Stabilization to Sustainable Growth: Annual Report of the Executive Board for the Financial Year Ended April 30, 2014 (imf.org).
20. Khatun, A. (2019). Corporate Governance Practices and Non-Performing Loans of Banks Sector of Bangladesh: A Panel Data Analysis. **International Journal of Accounting and Financial Reporting**. 9(2):12-28.
21. Koetter, M. (2008). The stability of bank efficiency rankings when risk preferences and objectives are different. **European Journal of Finance**, 14(2), 115-135.
22. Ma, G., & Fung, B. S. (2006). Using asset management companies to resolve non-performing loans in China. **Journal of Financial transformation**, 18, 161-169.
23. Olarewaju, O; & Obalade, A. (2015). Evaluation of the Determinants of Operational Efficiency in Nigerian Deposit Money Banks. **International Journal of Economics, Commerce and Management**. III(2):1-13.
24. Otley, D. T. (1980). The contingency theory of management accounting: achievement and prognosis. **Accounting, organizations and society**, 5(4), 413-428.
25. Lotto, J. (2019). Evaluation of factors influencing bank operating efficiency in Tanzanian banking sector. **Cogent Economics & Finance**, 7(1), 1664192.
26. Shonhadji, N. (2020). What Most Influence on Non-Performing Loan in Indonesia? Bank Accounting Perspective with Mars Analysis. **Journal of Accounting and Strategic Finance**. 3(2):136-153.
27. Soteriou, A., & Zenios, S. A. (1999). Operations, quality, and profitability in the provision of banking services. **Management science**, 45(9), 1221-1238.
28. Thabit, T., Solaimanzadah, A., & Al-abood, M. T. (2017). The effectiveness of COSO framework to evaluate internal control system: the case of kurdistan companies. Cihan **International Journal of Social Science**, 1(1), 44.

29. Tuan, N. (2016). Studying the Impact of Internal Control on Performance and Risks of Vietnam Commercial Banks. **International Research Journal of Finance and Economics**. Issue 151:90-101.
30. Wu, J., Hou, Z., Shen, J., & Lian, Z. (2020). Quantitative effect on work performance considering interactions among multiple indoor environmental factors. *Building and Environment*, 185, 107286.
31. Yahaya, K & Oni, O. (2016). Impact of Macroeconomic Factors on Non-Performing Loans in the Nigerian Deposit Money Banks. **Amity Global Business Review**. 69-78.
32. Younas, A., & Kassim, A. A. M. (2019). Essentiality of internal control in Audit process. *International Journal of Business and Applied Social Science*, 5(11), 1-6.
33. Zogning, F. (2017). Agency theory: A critical review. **European Journal of Business and Management**, 9(2), 1-8