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The Impact of Loan Portfolio Returns on Stock Returns: The Moderating Role of Solvency in Jordanian Commercial Banks

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ABSTRACT

The current research **aims** is to test the impact of loan portfolio returns on stock returns in the Jordanian commercial banking sector in the presence of solvency as a conditional variable (moderator). **Set** in the research represents all Jordan's local commercial banks listed on the Amman Stock Exchange for the period of 2013–2020. The **SPSS** program was used to achieve the study's objective and test its hypotheses. The **results** showed significant impact of loan portfolio return on stock returns in the Jordanian banking sector. It means that loan portfolio return growth has an impact on shareholder stock returns as it depends on the bank's financial performance. Solvency is a conditional variable to improve the impact of loan portfolio return on stock returns. Accordingly, the research presents a set of **recommendations**, Bank managers should focus on loan portfolio management and financial solvency in order to have greater profitability and follow the decisions which are passed by the Basel Committee.

Keywords: loan portfolio returns; stock returns; solvency; financial markets; Jordanian commercial banks; SPSS program

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ОРИГИНАЛЬНАЯ СТАТЬЯ

Влияние доходности кредитного портфеля на доходность акций с использованием платежеспособности коммерческих банков Иордании как условной переменной

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АННОТАЦИЯ

Целью данного исследования является проверка влияния доходности кредитного портфеля на доходность акций в коммерческом банковском секторе Иордании при наличии платежеспособности как условной переменной (модератора). Исследуемая **совокупность** представляет собой все местные коммерческие банки Иордании, зарегистрированные на бирже в Аммане в 2013–2020 гг. Для решения задачи автор применяет корреляционный анализ (корреляция Пирсона), использует тест Дарбина-Уотсона на наличие автокорреляции. Применена программа SPSS для достижения поставленной цели и проверки гипотез. Результаты выявили значительное влияние доходности кредитного портфеля на доходность акций в банковском секторе Иордании. Это означает, что рост доходности кредитного портфеля отражается на доходности акций, принадлежащих акционерам, поскольку она зависит от финансовой эффективности банка. Платежеспособность играет роль условной переменной в улучшении влияния доходности кредитного портфеля на доходность акций. В соответствии с полученными результатами автор рекомендует администрации банков концентрироваться на управлении кредитным портфелем и финансовой платежеспособностью, чтобы добиваться большей прибыльности и следовать решениям Базельского комитета.

Ключевые слова: доходность кредитного портфеля; доходность акций; платежеспособность; финансовые рынки; Иорданские коммерческие банки; программа SPSS

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INTRODUCTION

The financial markets are critical means enabling investors to invest in the securities offered or traded for many joint-stock companies for the purpose of gaining profits. In the contrast, the rational investors prefer a high return on their investments with taking into account the balancing between the risks and returns and thus maximizing the profits, more specifically companies, including banks, seek to manage their financial statements and control the capital structure efficiently to announce appropriate returns for each share [1, 2]. Thus, investors seek investment opportunities, the returns of which are greater than the cost of investing in them, including stock investments. Given that the banking sector is the link between the state's monetary and financial policies, attention must be paid to this sector. Furthermore, it should be managed effectively, because this sector has a vital role in providing banking services to various economic activities. J. Afrino and E. Masdupi [3], along with I. Jodeh [4], stated that banks' objectives are divided into general and functional objectives. The general objectives are related to the general policies of the bank, such as achieving profit growth and focusing on other objectives, such as liquidity, profitability, safety, and firm growth. As for the functional objectives, they are represented in providing effective mechanisms and means of payment in economic activities, as well as creating and collecting funds, and then directing them to the community, apart from other financial services.

As the banking sector operates in a competitive environment at the local and international levels, in anticipation of this competition, it is necessary to strengthen the role of the banking administration in maintaining its performance, because this dramatically affects the value of shares in the market. Furthermore, the performance of the loan portfolio returns should be improved, as it is the primary source in achieving high annual net financial returns for the banking sector with a low level of risk through granting loans to several sectors [5, 6].

Solvency, which refers to the relationship between borrowed money and owner's money in the bank's capital structure, is one of the basic principles that guide banking operations and an essential aspect of banking management [7, 8].

Therefore, the impact of the loan portfolio's return on stock returns in the presence of solvency as a moderating variable is one of the important issues facing the banking sector. On the one hand, solvency has attracted the attention of shareholders

and stakeholders. On the other hand, it is one of the important indicators that reflect the robustness and efficiency of banking management. Therefore, the study aims to address the following research questions:

Do loan portfolio returns have an impact on the stock returns of local Jordanian commercial banks?

Does solvency have a moderating role in the impact of loan portfolio returns on the stock returns of local Jordanian commercial banks?

The Importance of the Research

The importance of the study is evident in that it deals with three essential variables of banking: loan portfolio returns, stock returns, and solvency. These are important variables, especially given that the banking sector operates in an environment characterized by intense competition in providing banking services.

Furthermore, banking is a critical economic sector through a cycle of directing liquidity towards investments that, in turn, drives economic development. Thus, the importance of the study can be clarified by the following points:

1. It highlights the value of providing optimal returns for loan portfolios in a way that achieves financial stability for banks.
2. It emphasizes the value of achieving high returns on shares, thus increasing banks' market share, and attracting more customers.
3. It presents findings and recommendations that would benefit decision-makers in the banking sector.

Objectives of the Research

The current study aims to test the impact of the loan portfolio returns on the stock returns of the Jordanian commercial banking sector for the period of 2013–2020 in the presence of solvency as a moderating variable.

THEORETICAL FRAMEWORK

Loan Portfolio Returns

The loan portfolio depends on several factors, such as the interest rates earned on the loans, the nature of the loans, and the probability of repayment. It is therefore considered to be one of the main assets owned by the banks. This also refers to loans that are made or purchased and held for repayment. Therefore, banking departments must effectively manage these to achieve the maximum possible profits. This can be achieved by focusing on diversification in bank loan portfolios to avoid future banking crises and expansion of strategies based on the modern portfolio theory of H. Markowitz [9–12].

According to V. Acharya and I. Hasan [13] and P. Howells and K. Bain [14], a loan portfolio indicates the amount of the increase in the capital value of assets that comprise it or the return on investment an investor is expected to obtain from it. Thus, the loan portfolio is the most prominent source of revenue in banks while also posing the greatest risks affecting bank security. Therefore, it is necessary to effectively manage loan portfolios to identify and control those risks to achieve success in the banking industry [15].

Notably, the loan portfolio returns can be measured through one of the accounting profitability indicators, which is the loan portfolio's rate of return. This determines a bank's ability to generate profits from the most profitable areas of investment, as represented by loans and banking facilities. It is calculated using the following equation [16, 17]:

Return on the loan portfolio and credit facilities =
= commissions and interest on loans / total loans.

Stock Returns

Stock returns are the profits or losses in the value of shares during a specific period, during which investors choose investments that can generate returns that are greater than the costs involved. Moreover, the investors who buy shares expect cash profits or capital gains represented by the rise in share prices [18]. The fluctuations in share prices, which is reflected in the level of demand and supply of shares, represent a state of uncertainty for investors [19]. Therefore, the optimistic expectations of banking management with an increase in the shares' rate of return can positively affect the future returns of the shares, while the pessimistic expectations with a decrease in the shares' rate of return can negatively affect the returns on the shares [20].

Consequently, the rise in stock returns will lead to an increase in the market value of assets and a decrease in the debt ratio, which in turn, will negatively affect stock returns. At the same time, if the debt ratio increases, the investors will demand a higher return due to the higher risk of bankruptcy, thereby indicating the positive effect of financial leverage on stock returns [21, 22].

J. Afrino and E. Masdupi [3] insisted on the need to have basic and technical information to analyse stock returns. "Fundamental analysis" refers to the information published by issuers and stock exchange managers, while "technical analysis" relies on historical data of stock prices to estimate prices in the future. The factors that affect stock returns in the event of future uncertainties are macroeconomic factors and internal standards for public companies [23].

Solvency

"Solvency" refers to the ability of a financial institution to meet its short-, medium-, and long-term financial obligations. It is also defined as the ability to meet obligations, including interest and main debts, in the event of liquidation or cessation of activity. In other words, it represents a company's financial structure [24, 25]. K. Devarajan [26] explained that solvency refers to (1) a company's ability to own sufficient assets to cover its obligations, (2) its current condition that enables it to meet its debt obligations, and (3) its ability to meet its long-term expenses and achieve expansion and growth in the long term, considering the notion that the higher the solvency, the better the financial state of the company.

According to past studies [27, 28], following the financial turmoil of 2007, interest in the performance of banks increased. At the same time, there has been an increased focus on solvency and liquidity to ensure the proper functioning of the global financial system, as banks are considered solvent if total assets exceed total liabilities and vice versa. Meanwhile, a bank is technically insolvent if it is unable to meet its long-term financial obligations or pay the depositors. Furthermore, the solvency of commercial banks can be measured through the cash flow and capital adequacy indexes, which expresses the short-term and long-term solvency, respectively.

The research [27] reported that there are two ways for banks to enhance financial solvency and meet capital requirements. The first method is by increasing a bank's owned capital, which is achieved by issuing new shares or retained earnings. The second method is to change the uses of funds from risky assets to less risky ones. The debt-to-equity ratio is one of the leading financial ratios used to measure a bank's solvency, as it indicates the degree of financial leverage used by the bank, including short- and long-term debts [28–31].

PREVIOUS STUDIES

The current research seeks to test the impact of loan portfolio returns on stock returns in the presence of solvency as a moderating variable. However, many studies linking these variables have been conducted differently from the current research.

For example, Huynh and Dang [32] found that increasing the loan portfolio diversification reduces bank returns, but not to the same extent for all banks. They also reported that banks relying on non-interest activities are affected to a lesser degree

by diversifying their loan portfolios, and that the strength of the banking market can mitigate the harmful effects of diversifying the loan portfolio on banks' returns. B. Abu Khalaf and S. Alajlani [33] concluded that the diversification of loans affects the performance of Jordanian commercial banks. In particular, individual lending, corporate lending, and mortgage loans positively affect banks' performance. In contrast, there is a negative impact on performance in the case of loans to small- and medium-sized enterprises and government loans. H. K. Anaya and H. N. Otinga [34] similarly found a significant impact of loan portfolios on the financial performance of companies.

Q. M. Hammod [35] also found a negative impact relationship between loan portfolio concentration and one bank's return indicators (with statistically significant return indicators) as well as a positive relationship between loan portfolio concentration and the return indicators for another bank in the same study sample. They also found that there is a positive influence between focusing on loan portfolios and risk indicators in the research community. Meanwhile, H. Al-Khalidi [6] reported positive relationships between loan portfolio returns and banking facilities, on the one hand, and bank size, capital adequacy rate, current cash flow, advertising spending rate, and the age of the bank, on the other hand. They also found a negative relationship between return loan portfolio and banking facilities and deposit employment rate. T. Siudek [36] similarly reported a positive effect of net loans to total assets on the solvency ratio of Polish banks.

One of the most important findings presented by N. Chasanah and A. Sucipto [5] is that liquidity ratios negatively impact stock returns, while profitability and solvency ratios do not affect stock returns. J. Afrino and E. Masdupi [3] reported that the return on assets (ROA), capital adequacy ratio, and debt to equity ratio do not affect stock returns in the sample banks, while the ratio of share price to profit has a positive effect on the stock returns in banks. Meanwhile, D. B. Yousouf [37] concluded that a positive relationship exists between interest rates and corporate capital with stock returns. M. Halaq [38] found direct and statistically significant relationships between the degree of capital adequacy in banks, on the one hand, and interest rate risk, liquidity risk, capital risk, rate of revenue strength, and ROA, on the other hand. Moreover, A. A. Mohammad [39] noted a relationship between solvency variables and earnings per share,

with the exception of equity to deposits and equity to assets.

Contributions of the Study

Although this work is based on previous efforts, to the best of the researcher's knowledge, this is the first study that links three variables, namely, loan portfolio return, stock returns, and solvency, and examines them simultaneously. At the outset, these variables seem separate, but they are actually interrelated in their content. Therefore, they can be used to guide administrative leaders to make sound decisions that would maximize stock returns. This research also examined the Jordanian commercial banking sector, which is subject to the decisions of the Basel Committee and the Banks and Companies Law simultaneously.

RESEARCH METHODS

The researcher used the descriptive-analytical method to study the impact of the loan portfolio returns on stock returns in the presence of solvency as a moderating variable for the period 2013–2020. Several data sources were used. From the primary sources, we extracted financial data and indicators from the Company Directory found on the Amman Stock Exchange website. For the secondary sources, we used books, periodicals, and previous studies related to the subject of research.

Population

The study population consists of all 13 local Jordanian commercial banks (2013–2020) listed on the Amman Stock Exchange.

Measuring study variables

The study variables were measured according to several variables, listed below.

The independent variable [6]:

- Loan portfolio returns = commissions and interest on loans / total loans.

The dependent variable is the stock return [18]:

- Stock Return = $(P_t - P_{t-1}) / (P_{t-1}) \times 100\%$

The moderate variable is solvency [28, 30]:

- Solvency = Debt ratio / Equity Ratio.

Study Model and Hypotheses

The following model reflects the perceptions of the current study related to the impact of the loan portfolio returns on stock returns in the presence of solvency as a moderating variable in the context of the Jordanian commercial banking sector for the period 2014–2020 (Fig.).

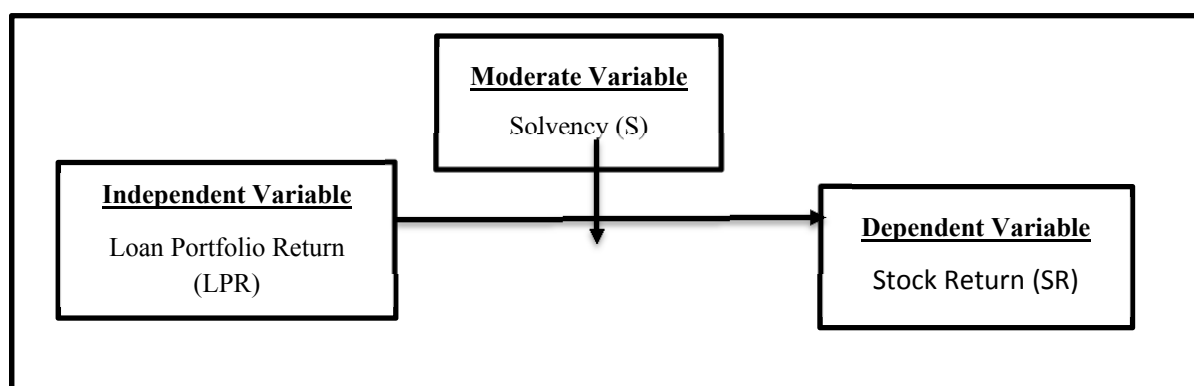


Fig. Study Model

Source: Compiled by the author.

Hypotheses

H₁: Loan portfolio returns have no statistically significant effect on the stock returns of local Jordanian commercial banks.

H₂: Solvency has no statistically significant effect in moderating the impact of loan portfolio returns on the stock returns of local Jordanian commercial banks.

RESULTS AND HYPOTHESIS TESTING

Pearson's Correlation

Table 1 shows the Pearson's correlation coefficients between the study variables (loan portfolio returns, stock returns, and solvency). As can be seen, there is no problem of multiple linear correlations between the variables, given that the values of the correlation coefficients between all variables reached less than 80%, with positive relationships and statistical significance at the 0.01 level.

Hypothesis Test

H₁: Loan portfolio returns have no statistically significant effect on the stock returns of local Jordanian commercial banks.

The results in Tables 2 and 3 refer to simple linear regression analysis to test the first hypothesis, in which we set the value of R² to 0.476, and therefore the loan portfolio returns explained 47.6% of the change in stock returns. Moreover, the value of R was 0.690, indicating a positive correlation between the loan portfolio returns and stock returns.

The results also revealed that the Durbin-Watson value was within the acceptable test limits, indicating the absence of an autocorrelation problem between the errors in the regression equation. Based on the F value of 104.361 and the t-value of 10.216 at a significant level less than 0.05, the first main hypothesis is rejected, and the alternative hypothesis is accepted, which states that loan portfolio returns have a statistically significant effect on the stock returns of Jordanian local

Table 1

Correlation

	LPR	SR	S
LPR	1	.690**	.375**
SR	.690**	1	.469**
S	.375**	.469**	1
N	117	117	117

Source: Compiled by the author.

Note: ** Correlation is significant at the 0.01 level (2-tailed).

commercial banks for the period under examination and analysis.

H₂: Solvency has no statistically significant effect in moderating the impact of loan portfolio returns on the stock returns of local Jordanian commercial banks.

The results presented in Tables 4 and 5 refer to a hierarchical multiple linear regression test to validate the hypothesis of the second study. The value of R² in the second model was 0.527. This indicated that the portfolio returns explained 52.7% of the changes in stock returns in the presence of solvency as a moderating variable. By introducing the moderator variable represented by solvency in the regression equation, the interpretation of the independent variable on the dependent increased by 5.1% over the first model.

In addition, we noticed an increase in the value of R by 0.036, indicating the absence of an autocorrelation problem between the errors involved in the regression equation according to the Durbin-Watson value. Based on the value of F (12.440), with a level of significance less than 0.05, we accept the alternative hypothesis that solvency has a statistically significant effect in improving the impact of loan portfolio returns on the stock returns of Jordanian commercial banks for the period under examination and analysis.

Table 2

Model Summery

Model	Model Summery					
	R	R ²	Adjusted R square	F Change	Sig. F Change	Durbin-Watson
1	0.690	0.476	0.471	104.361	0.000	1.832

Source: Compiled by the author.

Table 3

Coefficients

Independent Variable: Loan Portfolio Return (LPR)	Model	Coefficients				
		B	Std. Error	Beta	t	Sig
	1	0.698	0.068	0.690	10.216	0.000
Dependent Variable: Stock Returns (SR)						

Source: Compiled by the author.

Table 4

Model Summery

Model	Model Summery					
	R	R ²	Adjusted R square	F Change	Sig. F Change	Durbin-Watson
1	0.690	0.476	0.471	104.361	0.000	1.832
2	0.726	0.527	0.519	12.440	0.001	1.681
Change (*Δ)	0.036	0.051				

Source: Compiled by the author.

Table 5

Coefficients

Model / Variable		Coefficients				
		B	Std. Error	Beta	t	Sig
1	Independent Variable: Loan Portfolio Return (LPR)	0.698	0.068	0.960	10.216	0.000
2	Independent Variable: Loan Portfolio Return (LPR)	0.605	0.070	0.598	8.609	0.000
	Moderate Variable: Solvency (S)	0.287	0.081	0.245	3.527	0.001
Dependent Variable: Stock Returns (SR)						

Source: Compiled by the author.

DISCUSSION

The results of the first hypothesis test revealed a significant effect of the loan portfolio returns on the stock returns in the Jordanian commercial banking sector. This means that when loan portfolio returns increase, this will be reflected in the returns on the

shares owned by the shareholders, because existing stock returns reflect the bank's financial performance ability. Although no study has been able to directly link these two variables, to the researcher's knowledge, this result is partially consistent with past studies [6, 8, 36].

The second hypothesis revealed the role of solvency as a moderating variable in improving the impact of loan portfolio returns on stock returns. Notably, when solvency was included in the regression equation, the effect on the value of R^2 increased by 5.1%. This indicates the role of solvency in improving the performance of banks, especially in their loan portfolios, which is reflected in their ability to pay short-term financial obligations. In turn, this increases the confidence of stakeholders, especially investors, thus creating more demand for investments in bank shares that achieve positive returns — something that all investors seek to do. As no study has combined the three variables, according to the researcher's knowledge, this result is partially consistent with [37, 39] and inconsistent with [3, 5].

RECOMMENDATIONS

1. Banks should focus on diversifying their loan portfolios, especially long-term lending, to achieve more profits and enhance their financial solvency.
2. Loan portfolios and bank solvency should be optimally managed through a specialized department

that achieves more profitability while following the decisions of the Basel Committee.

3. Future researches must be conducted and other variables must be introduced, such as the structure of bank deposits, banking risks, and the size of the bank.

LIMITATIONS

1. This research was limited to the Jordanian commercial banking sector. Therefore, generalizing the results to other sectors, such as the foreign banking sector inside Jordan or foreign branches of Jordanian banks, is not recommended.
2. The research period was limited to the years 2013–2020. Therefore, it is difficult to adapt it to other periods due to the significant changes that occur at the economic level.
3. Finally, the study was limited to three variables represented by the loan portfolio returns as an independent variable, stock returns as a dependent variable, and solvency as a moderating variable. Therefore, the results can change, especially when other variables are considered.

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