

## **Abstract**

This research investigates the relationship between liquidity and profitability among top market-capitalized firms listed on the Amman Stock Exchange (ASE) from 2021 to 2023. Unlike traditional studies that utilize broad indicators such as the current ratio or return on assets, this study adopts a more focused approach by using the cash ratio as a strict measure of liquidity and gross profit margin as a measure of operational profitability. The research is grounded in the Trade-Off Theory and Keynesian Liquidity Preference Theory, both of which highlight the importance of balancing short-term solvency with long-term performance. The study uses descriptive statistics, normality tests, Spearman's correlation, and linear regression analysis based on actual firm data analyzed via SPSS software. Results indicate a weak and statistically insignificant relationship between the cash ratio and gross profit margin. Thus, the null hypothesis is accepted, suggesting that liquidity, as measured by the cash ratio, does not significantly influence profitability in the selected firms. This research contributes to the financial literature by addressing methodological gaps in prior studies and offering insights applicable to both scholars and financial practitioners in emerging markets.

**Keywords: Liquidity, Profitability, Cash Ratio, Gross Profit Margin, Amman Stock Exchange, SPSS, Financial Analysis, Trade-Off Theory**

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## Introduction

### Background

Drawing upon principles commonly emphasized in financial accounting and corporate finance, liquidity and profitability are recognized as two fundamental pillars of a company's financial strength. Liquidity generally reflects a firm's ability to meet its short-term obligations, whereas profitability indicates the efficiency with which the firm generates earnings from its resources. In practice, both elements are closely connected and significantly influence the firm's financial management and decision-making processes. Insufficient liquidity can disrupt operations despite underlying profitability, while excessive liquidity may reflect underutilized resources.

Financial ratios play a key role in evaluating both liquidity and profitability. Liquidity ratios, for instance, help stakeholders assess whether the firm can settle its short-term liabilities without risking its operations (**Brigham & Houston, 2021**). Meanwhile, profitability ratios reflect how effectively a company manages its assets and liabilities to generate profit, which is a key concern for investors and managers alike. Both creditors and investors examine these ratios closely to determine the firm's overall financial health and its ability to sustain long-term operations (**Gitman & Zutter, 2018**).

From a financial management perspective, maintaining an appropriate balance between liquidity and profitability is crucial for sustaining long-term business stability. A proper equilibrium can serve as an indicator of either potential financial distress or robust operational performance.

Managers typically aim to optimize this balance to maintain solvency while supporting competitive growth. Given the challenges posed by dynamic and uncertain economic conditions, the investigation of the relationship between liquidity and profitability remains highly relevant.

### Problem Statement

While liquidity and profitability are widely recognized as indicators of financial health, the relationship between them remains a subject of ongoing debate. Most existing research relies heavily on traditional financial ratios such as the current ratio and return on assets (**Gleim, 2021**) , which may not provide a precise picture of a firm's operational or liquidity status, especially in specific market contexts like Jordan.

Based on observations and experiences within the Jordanian market, it is common for firms to encounter difficulties with accounts receivable that have extended maturities, sometimes leading to write-offs or legal proceedings. Additionally, liquidity measures that include items such as prepaid expenses may not accurately represent a firm's true short-term financial flexibility (**Gleim, 2021**) . Considering these realities, this study adopts the cash ratio which is a stricter and more conservative measure that focuses exclusively on cash and cash equivalents relative to current liabilities.

Similarly, when measuring profitability, this research avoids broader metrics such as return on assets or net profit margin, which can be influenced by temporary or non-operational items. Instead, it uses gross profit margin, which focuses purely on operational efficiency by examining profit after accounting for the cost of goods sold.

By applying these more focused financial indicators, this study seeks to explore whether a meaningful relationship exists between liquidity and profitability in the context of companies listed on the Amman Stock Exchange.

### Research Objectives

1. To examine the level of liquidity and profitability among companies listed on the Amman Stock Exchange using cash ratio and gross profit margin.
2. To investigate whether a statistically significant relationship exists between liquidity and profitability in the selected firms.
3. To assess the effectiveness of using the cash ratio as an alternative to traditional liquidity measures in the Jordanian market context.
4. To evaluate the relevance of gross profit margin in reflecting operational profitability, compared to broader profitability indicators.

### Research Questions

1. Does a significant relationship exist between liquidity and profitability among companies listed on the Amman Stock Exchange?
2. To what extent does the cash ratio, as a strict measure of liquidity, correlate with gross profit margin, as a measure of operational profitability?
3. How effective are the cash ratio and gross profit margin in explaining the financial behavior of firms in the Jordanian market?

## Literature Review

The purpose of this chapter is to review and analyze previous studies that have explored the relationship between liquidity and profitability in different business environments. A variety of financial ratios have been used in the literature to measure these two key financial indicators, with most studies focusing on traditional measures such as the current ratio, quick ratio, return on assets, and return on equity. This review aims to highlight the key findings, methodologies, and gaps in the existing research. By doing so, it establishes a foundation for the current study, which adopts a different approach by using cash ratio and gross profit margin as the primary variables.

Several studies have examined the relationship between liquidity and profitability in the Jordanian context, each employing various financial ratios and focusing on different sectors. **(Al Nimer et al., 2015)** explored this relationship within the banking sector by using the quick ratio as a measure of liquidity and return on assets (ROA) as a measure of profitability. Their analysis, based on financial reports from Jordanian banks listed on the Amman Stock Exchange during the period 2005–2011, revealed a statistically significant positive impact of the quick ratio on ROA ( $F = 9.117$ ,  $p = 0.010$ ), suggesting that better liquidity improves profitability in the banking sector.

In the industrial sector, **(Zaitoun & Alqudah, 2020)** conducted a study on 54 manufacturing firms listed in Jordan, covering the years 2015–2018. The study applied a quantitative regression model using the current ratio (CR) and debt-to-equity ratio (D/E) as independent variables and ROA as the dependent variable.

The findings indicated a significant positive effect of the current ratio on profitability ( $t = 2.928$ ,  $p = 0.006$ ), while financial leverage showed a negative relationship ( $t = -9.383$ ,  $p = 0.000$ ). The model explained 20% of the variation in ROA ( $R^2 = 0.20$ ), supporting the view that higher liquidity, when balanced properly, can enhance firm performance.

A contrasting result was found by **(Omari, 2020)** in her study of pharmaceutical companies in Jordan over the period 2005–2018. The analysis used the current ratio and debt-to-equity ratio as independent variables and return on equity (ROE) as the profitability measure. The results indicated a negative relationship between liquidity and profitability ( $\beta = -2.188$ ), with the regression model being statistically significant ( $F = 5.156$ ,  $p = 0.029$ ) and explaining 50.8% of the variation in profitability ( $R = 0.713$ ,  $R^2 = 0.508$ ). These findings suggest that, in specific sectors such as pharmaceuticals, excess liquidity might hinder profitability rather than support it.

**(DAHIYAT, 2016)** also analyzed the banking sector using data from 2012 to 2014. This study employed both the quick ratio and debt ratio to test their effect on ROA. The findings showed that the quick ratio had a significant negative impact on ROA ( $B = -0.440$ ), while the debt ratio had no statistically significant influence. These mixed results underline the complexity of the liquidity-profitability relationship and the potential influence of industry-specific factors.

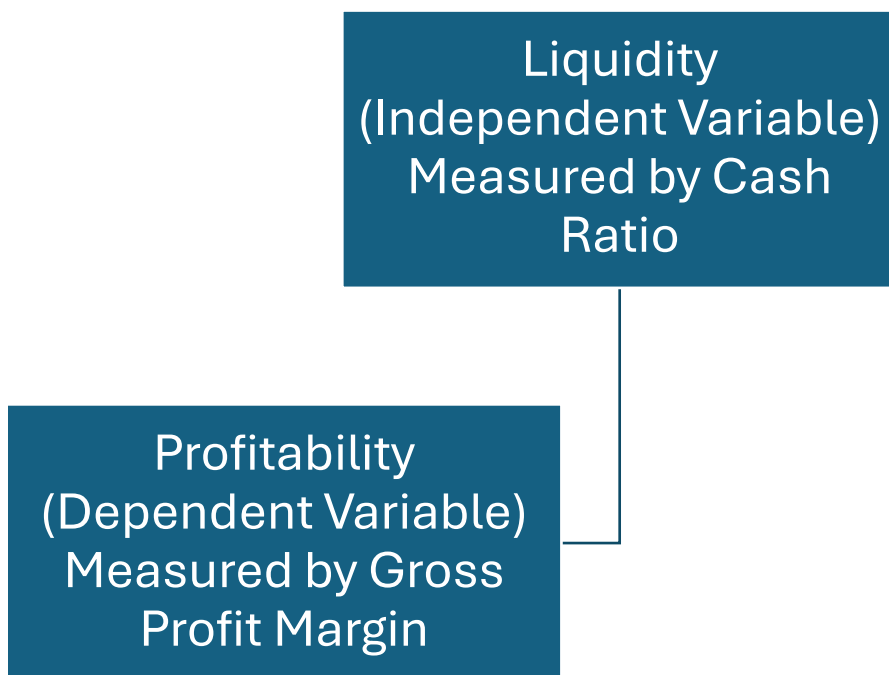
Across the reviewed studies, a common pattern emerges: the use of traditional liquidity indicators such as the current ratio and quick ratio, and profitability metrics like ROA and ROE. While these ratios are widely used, they may not fully capture a firm's operational efficiency or real short-term solvency, especially in markets like Jordan where issues such as delayed receivables and non-liquid current assets are prevalent. Moreover, most studies focus on a single sector rather than offering a cross-sectoral view.

This research aims to fill these gaps by adopting a more conservative and focused liquidity measure—the cash ratio, and a more operationally accurate profitability indicator—the gross profit margin (GPM). By examining the top market-capitalized companies across multiple sectors in Jordan, this study provides a broader and deeper understanding of the liquidity-profitability relationship, using a methodology that addresses the limitations of prior research.

### Theoretical Framework

This study is grounded in the Trade-Off Theory of Liquidity and Profitability (**Panigrahi et al., 2023**), which suggests that firms must strike a balance between maintaining adequate liquidity and achieving higher profitability. Holding more liquid assets provides a buffer against financial distress and short-term obligations, but it may also lead to lower returns if these assets are not reinvested efficiently. On the other hand, prioritizing profitability without sufficient liquidity increases the risk of insolvency. This theory supports the central question of this research: whether a significant relationship exists between liquidity and profitability in Jordanian firms.

Additionally, the Liquidity Preference Theory, developed by Keynes (**Glahe & Keynes, 1991**) , offers further insight into firms' behavior regarding liquidity. It proposes that firms and investors prefer liquidity to avoid uncertainty, even though it may come at the cost of forgoing potentially higher returns. Applying this theory, the study investigates whether firms holding higher levels of liquid assets (as measured by the cash ratio) demonstrate any trade-offs in their profitability (as reflected in gross profit margin). These theoretical foundations justify the selection of the study's variables and guide the interpretation of the findings.



*Figure 1 : Theoretical Framework Matrix*

## Methodology

### Research Design

This study adopts a quantitative, descriptive, and correlational research design. It seeks to investigate the relationship between liquidity and profitability among top market-capitalized firms listed on the Amman Stock Exchange (ASE) for the period 2021–2023. The research emphasizes a cause-effect association by using historical financial data to identify whether a statistically significant relationship exists between the cash ratio (as a measure of liquidity) and the gross profit margin (as a measure of operational profitability).

### Population and Sample

The target population for this research consists of all companies listed on the Amman Stock Exchange. However, to maintain focus and enhance the reliability of results, the study uses a purposive sampling method to select a sample of the top 17 companies by market capitalization across multiple sectors for the years 2021, 2022, and 2023 according to Amman Stock Exchange ranking. These companies are selected based on their size, availability of financial data, and relevance to the research objectives as below:

*Table 1: Sample Chosen*

| Symbol | Name   | Sector                           | Market Weight |
|--------|--|----------------------------------|---------------|
| JOPH   | Jordan Phosphate Mines                             | Mining and Extraction Industries | 9.5           |
| ARBK   | Arab Bank  | Banks                            | 9.5           |
| JOPT   | Jordan Petroleum Refinery                          | Utilities and Energy             | 9.5           |
| JTEL   | Jordan Telecom                                     | Technology and Communication     | 2.6           |
| AIEI   | The Arab International For Education & Investment. | Educational Services             | 1.34          |
| JDFS   | Jordanian Duty Free Shops                          | Commercial Services              | 0.89          |

|      |   |                                 |      |
|------|---|---------------------------------|------|
| MBED | The Arab Pesticides & Veterinary Drugs Mfg. Co. | Chemical Industries             | 0.88 |
| DADI | Dar Al Dawa Development & Investment            | Industrial                      | 0.85 |
| AEIV | Arab East Investment                            | Diversified Financial Services  | 0.77 |
| TAJM | Al-Tajamouat For Touristic Projects Co Plc      | Real Estate                     | 0.48 |
| RMCC | Ready Mix Concrete And Construction Supplies    | Engineering and Construction    | 0.41 |
| JOWM | The Jordan Worsteds Mills                       | Textiles Leathers and Clothings | 0.39 |
| TIIC | The Islamic Insurance                           | Insurance                       | 0.36 |
| UCIC | United Cable Industries                         | Electrical Industries           | 0.33 |
| SHIP | Jordan National Shipping Lines                  | Transportation                  | 0.3  |
| AIHO | Arab International Hotels                       | Hotels and Tourism              | 0.24 |
| UMIC | Universal Modern Industries                     | Food and Beverages              | 0.18 |

### Data Collection Methods

This study relies on secondary data obtained from the audited financial statements of the selected companies. The financial reports were sourced directly from the Amman Stock Exchange official website and corporate disclosures. The key statements used for analysis include the Balance Sheet and Income Statement, from which the relevant variables cash and cash equivalents, current liabilities, cost of goods sold, and revenue were extracted.

### Variables and Measurement

Two key financial ratios were used to measure the construction of liquidity and profitability:

Independent Variable (Liquidity): Cash Ratio

$$\text{Cash Ratio} = \frac{\text{Cash \& Cash Equivalents}}{\text{Current Liabilities}}$$

This ratio provides a strict assessment of the firm's short-term liquidity by considering only the most liquid assets.

Dependent Variable (Profitability): Gross Profit Margin (GPM)

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit ( Net Revenues – Cost of Goods Sold)}}{\text{Net Revenues}}$$

GPM focuses on core operational profitability and eliminates distortions caused by indirect expenses and extraordinary items.

### Hypothesis

- H<sub>0</sub> (Null Hypothesis): There is no significant relationship between cash ratio and gross profit margin among top market-capitalized firms listed on the Amman Stock Exchange.
- H<sub>1</sub> (Alternative Hypothesis): There is a significant relationship between cash ratio and gross profit margin among top market-capitalized firms listed on the Amman Stock Exchange.

### Statistical Tools and Analysis

The data collected will be processed and analyzed using IBM SPSS Statistics. The statistical analysis will be aimed at examining the nature and strength of the relationship between liquidity and profitability. The approach includes applying appropriate descriptive and inferential statistical methods based on the characteristics of the data. These methods will help assess the correlation between the selected financial ratios and support testing of the study's hypotheses

## Data Analysis

### Descriptive Statistics

Table 2: Descriptive Statistics

| <i>Cash Ratio</i> |             | <i>Gross Margin</i> |             |
|-------------------|-------------|---------------------|-------------|
| Mean              | 1.133971494 | Mean                | 0.322706184 |
| Standard Error    | 0.201461403 | Standard Error      | 0.034524231 |
| Median            | 0.560663152 | Median              | 0.342608273 |
| Mode              | #N/A        | Mode                | 1           |
| Standard          |             | Standard            |             |
| Deviation         | 1.438722188 | Deviation           | 0.246552324 |
| Sample Variance   | 2.069921536 | Sample Variance     | 0.060788049 |
| Kurtosis          | 1.351482023 | Kurtosis            | 1.519723485 |
| Skewness          | 1.511047113 | Skewness            | 0.974112979 |
| Range             | 5.310385512 | Range               | 1.147099302 |
|                   |             |                     | -           |
| Minimum           | 0.006306754 | Minimum             | 0.147099302 |
| Maximum           | 5.316692266 | Maximum             | 1           |
| Sum               | 57.83254621 | Sum                 | 16.4580154  |
| Count             | 51          | Count               | 51          |

The mean Cash Ratio was 1.134, while the median was 0.561. The considerable gap between the mean and median, along with a positive skewness of 1.511, indicates a right-skewed distribution. This suggests that although most firms maintain relatively moderate cash reserves, a few firms hold exceptionally high levels of liquid assets, pulling the mean upward. The standard deviation of 1.439 supports this conclusion, reflecting a high degree of dispersion around the mean. Furthermore, the data exhibited a wide range of values from 0.0063 to 5.3167, which further underscores the variability of liquidity across firms in the sample. The kurtosis value of 1.351 suggests a slightly leptokurtic distribution, indicating a moderate presence of extreme values.

In contrast, the Gross Profit Margin showed a mean of 0.323 and a median of 0.343, with a relatively small difference between the two, suggesting a fairly symmetrical distribution. The skewness value of 0.974 confirms a slight right skew. The standard deviation was 0.247, which is considerably lower than that of the cash ratio, indicating more consistency and less variability in profitability among the sampled firms. The gross margin ranged from -0.147 to 1.000, showing that while some firms experienced gross losses, others achieved very high operational profitability. The kurtosis of 1.520 similarly points to a modest presence of extreme values.

Overall, these descriptive results reveal that liquidity (as measured by cash ratio) varies greatly among firms, while gross profitability tends to be more stable and centered. These insights lay the foundation for deeper inferential analysis in the following sections.

### Normality Test

*Table 3: Univariate Test*

|   | Variable    | Test             | Statistic | P Value |
|---|-------------|------------------|-----------|---------|
| 1 | CashRatio   | Anderson-Darling | 4.6839    | <0.001  |
| 2 | GrossMargin | Anderson-Darling | 1.2891    | 0.0021  |

The Anderson-Darling (AD) test was applied to each variable individually. The Cash Ratio yielded an AD statistic of 4.684 with a p-value of  $< 0.001$ , while the Gross Profit Margin showed a test statistic of 1.289 with a p-value of 0.0021. Since both p-values are less than the commonly used significance level of 0.05, the null hypothesis of normality is rejected for both variables. These findings are visually supported by the density histograms, which shows that the Cash Ratio is highly right-skewed, while Gross Margin is mildly right-skewed, aligning with earlier descriptive statistics.

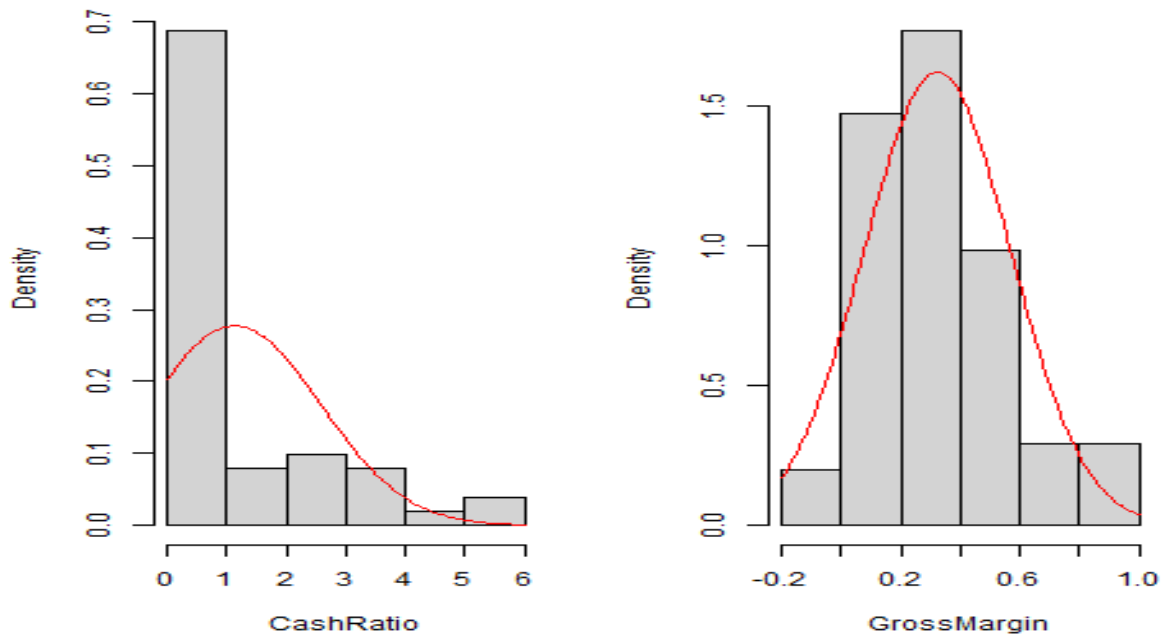


Figure 2: Density Histogram

Table 4: Multivariate Normality Test

| Test          | Statistic | P Value |
|---------------|-----------|---------|
| Henze-Zirkler | 3.743     | <.001   |

To assess the joint distribution of the two variables, the Henze-Zirkler's test was performed. The test returned a statistic of 3.743 with a p-value of  $< 0.001$ , leading to a rejection of the multivariate normality assumption. This result confirms that the combined behavior of the Cash Ratio and Gross Margin deviates significantly from a multivariate normal distribution.

Both univariate and multivariate tests suggest that the data do not follow a normal distribution. Accordingly, this study will proceed with non-parametric statistical techniques in subsequent analyses, including Spearman Rank Correlation and Robust Regression, to ensure reliable results despite the lack of normality.

Spearman's Test**Correlations**

|                |              | Cash Ratio              | Gross Margin |
|----------------|--------------|-------------------------|--------------|
| Spearman's rho | Cash Ratio   | Correlation Coefficient | 1.000        |
|                |              | Sig. (2-tailed)         | .354*        |
|                |              | N                       | 51           |
|                | Gross Margin | Correlation Coefficient | .354*        |
|                |              | Sig. (2-tailed)         | 1.000        |
|                |              | N                       | 51           |

\*. Correlation is significant at the 0.05 level (2-tailed).

The results of the Spearman correlation test are summarized in Table 4.1. A statistically significant positive correlation was found between Cash Ratio and Gross Profit Margin, with a correlation coefficient of 0.354 and a p-value of 0.011. This indicates a moderate and significant relationship between the two variables at the 5% significance level.

These findings suggest that companies with higher levels of liquidity, as measured by the cash ratio, tend to demonstrate better operational profitability, as reflected by gross profit margin. However, the moderate strength of the correlation implies that while liquidity is a contributing factor, it is not the sole determinant of profitability.

### Linear Regression Analysis

#### Model Summary

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .148 <sup>a</sup> | 0.022    | 0.002             | 0.246324316420637          |

a. Predictors: (Constant), Cash Ratio

#### ANOVA<sup>a</sup>

| Model        | Sum of Squares | df | Mean Square | F     | Sig.              |
|--------------|----------------|----|-------------|-------|-------------------|
| 1 Regression | 0.066          | 1  | 0.066       | 1.093 | .301 <sup>b</sup> |
| Residual     | 2.973          | 49 | 0.061       |       |                   |
| Total        | 3.039          | 50 |             |       |                   |

a. Dependent Variable: Gross Margin

b. Predictors: (Constant), Cash Ratio

#### Coefficients<sup>a</sup>

| Model        | Unstandardized Coefficients | Std. Error | Standardized Coefficients | t     | Sig.  |
|--------------|-----------------------------|------------|---------------------------|-------|-------|
| 1 (Constant) | 0.294                       | 0.044      |                           | 6.669 | 0.000 |
| Cash Ratio   | 0.025                       | 0.024      | 0.148                     | 1.045 | 0.301 |

a. Dependent Variable: Gross Margin

To further examine the relationship between liquidity and profitability, a simple linear regression analysis was conducted. The objective was to determine whether Cash Ratio (independent variable) has a statistically significant effect on Gross Profit Margin (dependent variable).

As shown in the model summary, the R value is 0.148, indicating a weak positive relationship between the two variables. The  $R^2$  value is 0.022, which suggests that only 2.2% of the variation in gross profit margin is explained by changes in the cash ratio. The adjusted  $R^2$  is even lower at 0.002, reinforcing the minimal explanatory power of the model.

The ANOVA table indicates that the regression model is not statistically significant. The F-value is 1.093 with a p-value of 0.301, which is much greater than the 0.05 threshold. This result implies that the model does not significantly predict gross profit margin based on cash ratio alone.

From the coefficients table, the unstandardized coefficient (B) for cash ratio is 0.025 with a p-value of 0.301. Since this value exceeds 0.05, it confirms that the cash ratio does not have a statistically significant effect on gross profit margin. The constant term is 0.294 ( $p < 0.001$ ), which represents the expected gross margin when the cash ratio is zero.

Although the Spearman's correlation test earlier showed a moderate positive correlation, the linear regression analysis revealed no statistically significant causal relationship between cash ratio and gross profit margin. This suggests that while liquidity may be associated with profitability, it may not be a direct predictor in the context of the sampled companies. Other variables and external factors may play more substantial roles in shaping profitability.

### Conclusion and Summary

This chapter presented the results of the statistical analysis conducted to examine the relationship between liquidity and profitability among top market-capitalized firms listed on the Amman Stock Exchange for the period 2021–2023. The analysis utilized the cash ratio as a measure of liquidity and the gross profit margin as a measure of profitability.

The descriptive statistics revealed that the mean cash ratio was 1.13, with a median of 0.56, indicating a positively skewed distribution. This was supported by a skewness value of 1.51 and a wide range, suggesting high variability in firms' liquidity positions. The gross profit margin exhibited a mean of 0.32 and a median of 0.34, with lower dispersion and a skewness value of 0.97, reflecting a more balanced distribution across the sample.

Normality testing confirmed that the data for both variables deviated significantly from a normal distribution. The Anderson-Darling test produced p-values below 0.05 for both the cash ratio and gross margin, and the Henze-Zirkler multivariate test also indicated non-normality. These results, along with visual inspection of the distributions, justified the use of non-parametric tests for correlation analysis.

The Spearman correlation coefficient ( $\rho = 0.354$ ,  $p = 0.011$ ) indicated a statistically significant but modest positive association between the cash ratio and gross profit margin.

This suggests that firms with relatively higher liquidity tended to report stronger profitability at an ordinal level.

However, the simple linear regression analysis did not find sufficient evidence to confirm a significant predictive relationship between the variables. The model yielded an  $R^2$  of only 0.022, indicating that the cash ratio explained just 2.2% of the variation in gross profit margin. The p-value for the regression coefficient was 0.301, which is above the 0.05 significance threshold, leading to the conclusion that the relationship is not statistically significant in a linear model.

Based on these results, the study accepts the null hypothesis ( $H_0$ ), which states:

*$H_0$  (Null Hypothesis): There is no significant relationship between cash ratio and gross profit margin among top market-capitalized firms listed on the Amman Stock Exchange.*

These findings highlight that while a positive trend may exist between liquidity and profitability, liquidity as measured by the cash ratio does not significantly predict profitability in this context.

## Conclusion

The findings partially align with previous literature. For example, studies such as Zaitoun & Alqudah (2020) reported a significant relationship between liquidity and profitability using traditional ratios like the current ratio. However, our results support Al Omari (2020), who found that liquidity may not always positively contribute to profitability in certain sectors or under specific financial strategies.

This research contributes to the literature by introducing a conservative liquidity ratio and a focused profitability metric that better suit the Jordanian market, where traditional ratios may not capture operational and financial realities accurately.

For financial managers and policymakers in Jordan, the results suggest that simply maintaining high cash reserves may not lead to higher profitability. Over-reliance on liquidity buffers might divert funds from productive investments. Therefore, firms should balance liquidity and operational efficiency based on their specific industry dynamics and cash flow cycles.

Furthermore, since the cash ratio does not significantly explain profitability in a linear model, profitability strategies should consider broader operational factors, such as inventory management, cost control, and revenue diversification.

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