

Investment Management Strategies Under Prolonged Crisis: The Role of Liquidity, Risk Diversification, and Adaptive Financing in Yemeni Commercial Banks

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ABSTRACT

This paper aims to investigate the influence of Liquidity ratio(LR), Risk Diversification (RD), and Adaptive Financing (AF) on the level of Investment Management Strategies (IMS) in Yemeni Commercial banks during a prolonged crisis. We construct a panel dataset using annual reports of ten Yemeni Commercial banks covering the period 2014–2022; the choice of these banks was based on the availability of data. Employing STATA17 for statistical analysis, we apply multiple analytical approaches, including robust standardized regression and panel data analysis. Our findings indicate that Robust standardized regression confirms this hierarchy, with statistically significant effects for all three variables (RD > LR > AF). In addition, Panel data analysis further demonstrates that the combined predictors explain 93% of the variance ($R^2 = 0.93$). Results derived from the pooled panel regression and robust standardized regression consistently indicate that all three dimensions exert a positive and statistically significant influence on Investment Management Strategies (IMS).

Keywords: Investment Management Strategies, Liquidity Ratio, Risk Diversification, Adaptive Financing, Commercial Banks, Panel Data, Crisis Management

INTRODUCTION

Yemen has experienced profound political, social, and economic upheaval since 2014, when severe political unrest disrupted state institutions, weakened governance structures, and initiated a prolonged period of instability. Consequently, the country has faced sustained disruption of trade flows, constrained production capacity, and weakened institutional effectiveness. These disruptions, compounded by external restrictions on commerce and sustained economic fragmentation, have precipitated a severe collapse of the national economy. Among the most severely affected sectors is banking, which serves as a cornerstone for financial stability and economic continuity yet has faced a unique confluence of challenges, including sharp depreciation of the national currency, a severe liquidity crisis, and widespread closures of private and public businesses (Ministry of Planning & International Cooperation, 2016). Given that banking sector failures can trigger systemic economic collapse Bushashe, (2023), Yemeni Commercial banks were thus forced to fundamentally reassess their investment management strategies in an effort to sustain operational continuity and ensure resilience under extreme macroeconomic duress.

In addition to domestic political and security crises, Yemen's banking system has been affected by adverse global developments, including declining oil prices and heightened geopolitical instability across the broader

Middle East, and these international pressures have compounded local vulnerabilities, making it increasingly difficult for Yemeni Commercial banks to maintain stable operations. As a result, the interplay of domestic and external shocks caused severe volatility in the Yemeni Riyal, with sharp depreciation driven by limited foreign currency inflows and dwindling reserves, while instability further intensified as institutional breakdown, ongoing conflict, and restricted foreign exchange flows compounded monetary pressures. Although the authorities attempted to inject liquidity and secure external funding, these efforts proved insufficient, thereby leading to sharp and unpredictable declines in the Riyal's value and further exacerbating economic uncertainty and financial instability (Ministry of Planning & International Cooperation, 2016).

This study seeks to identify the core antecedents of the three fundamental strategies in global banking—Liquidity Ratio (LR), Risk Diversification (RD), and Adaptive Financing (AF)—with the aim of informing the development of effective and practically grounded risk-governance strategies. Notably, existing literature has rarely examined these three essential risk dimensions collectively; the paper therefore pursues two primary objectives. First, to evaluate strategies capable of fostering a risk-resilient banking framework that enables institutions to maintain operational stability during and after financial shocks. Second, to provide empirical and conceptual justification for the adoption of harmonized risk-resilience practices that strengthen long-term banking sustainability.

The interdependence among Liquidity (LR), Risk Diversification (RD), and Adaptive Financing (AF) risks is well established. The recent U.S. banking crisis offers compelling evidence: Silicon Valley Bank's severe liquidity-risk mismanagement rapidly deteriorated its capital position, ultimately leading to its collapse. Similarly, inadequate Risk Diversification (RD) controls at Signature Bank, First Republic Bank, and Credit Suisse led to worsening Adaptive Financing (AF) conditions and eventual distress. These cases clearly demonstrate that Liquidity ratio(LR), Risk Diversification (RD), and Adaptive Financing (AF) risks are not only interconnected but also represent the most pervasive vulnerabilities in modern banking. Given their central role and their strong influence on other banking risks—such as market and interest-rate risk—it is essential for commercial banks to manage these three risks systematically as part of an effective risk-governance framework. Consequently, risk governance can be conceptualized as a function of Liquidity ratio(LR), Risk Diversification (RD), and Adaptive Financing (AF) risks, each of which is shaped by multiple determinants identified in prior literature.

Using a panel dataset of ten Yemeni Commercial banks over the 2014–2022 period, our findings indicate that all three strategic dimensions significantly influence IMS. Risk Diversification exerts the strongest effect, followed by the Liquidity ratio and Adaptive Financing. While each dimension has a direct impact on IMS, it emerges that balancing liquidity, diversifying risk, and promoting financing adaptability is essential to sustain investment management effectiveness during volatile periods. Moreover, our results suggest that policies promoting diversification, reinforcing liquidity standards, and supporting flexible financing—potentially including currency hedging and inflation-adjustment mechanisms—can enhance bank resilience in fragile financial environments such as Yemen. Overall, although each strategic dimension has a direct influence on IMS, it is important to consider the combined effect of all three dimensions to fully understand their role in investment management under instability.

This paper is structured into six sections. The first section includes the background of our study, including Investment Management Strategies of Yemeni Commercial Banks. The following section deals with a review of the literature based on the most recent empirical data, hypothesis construction, and the Conceptual Model for Investment Management Strategies Commercial Banks design. The third section is Data, Methodology, and regression model design. The fourth section is devoted to Analysis and Findings. The final section of this study provides the concluding remarks, discusses policy implications, and highlights directions for future research.

REVIEW OF RELATED LITERATURE

Liquidity ratio (LR)

Amid Yemen's prolonged economic crisis, liquidity ratio has emerged as a cornerstone of investment management strategies, given the acute financial instability and limited cash flows. Scholars argue that contemporary financial management frameworks must prioritize adaptability, resilience, and agility during

periods of turbulence (Bushashe 2023). Consequently, banks increasingly rely on comprehensive risk management strategies that emphasize maintaining tly, liquidity. Liquidity, defined as the capacity to meet deposit withdrawals and short-term obligations—relies heavily on the availability of liquid assets such as government bonds and central bank reserves (Abbas, Iqbal, and Aziz 2019). International evidence confirms the strategic nature of liquidity maintenance, for instance, Distinguin et al (2025) revealed that European banks adapted liquidity strategies differently across crises, during the Global Financial Crisis (2008), reductions in lending and equity repurchases prevailed, while during the Sovereign Debt Crisis (2010–2012), banks increased deposits and reduced market debt. These findings illustrate that while liquidity strategies are context-dependent, the ability to sustain liquidity continuity remains critical for investment decision-making. Moreover, comparative studies highlight a persistent gap between theoretical frameworks and actual practices, with firms often engaging in hedge timing rather than consistent strategies (Kim and Chance, 2018). Taken together, this body of literature underscores that the liquidity ratio is not merely a technical requirement but a strategic necessity. Overall, financial stability is intrinsically linked to a bank's sustainability, necessitating meticulous management of liquidity, credit, market, and operational risks. Furthermore, effective risk management strategies—such as diversification, hedging, and contingency planning—enhance organizational resilience in the face of financial volatility (Idris, 2024).

Therefore, we propose the first hypothesis in the following manner:

H1: Liquidity positively influences investment management strategies in Yemeni commercial banks.

Risk Diversification (RD)

The role of risk diversification in shaping investment management strategies (IMS) has become increasingly critical, particularly in the context of prolonged economic crises. Evidence from the COVID-19 pandemic underscores that resilient investment management relies heavily on diversification, effective risk mitigation, and sustainable policy integration (Petighin 2024). The pandemic exposed vulnerabilities in strategies concentrated on short-term gains or single sectors, highlighting the necessity for investment policies that manage volatility, maintain liquidity, and safeguard asset values during periods of instability (Acharya et al., 2017; Yan et al., 2020; Chang et al., 2020; Feng & Wu, 2023). Consequently, robust diversification strategies not only mitigate risks but also contribute to broader financial stability and sustained growth. Structurally, resilient investment strategies prioritize diversification across asset classes, sectors, and regions to distribute risks and enhance operational flexibility (Omura et al., 2021). In parallel, Liquidity management complements these strategies by enabling banks to maintain operational continuity amid uncertainty (König and Winkler 2020). Empirical evidence in banking demonstrates an inverse relationship between liquidity and risk-taking, with institutions maintaining higher liquidity adopting more conservative, stability-focused strategies (Rokhim & Min, 2020). Accordingly, diversification functions as a crucial tool for operational risk reduction and performance stabilization, especially during macroeconomic volatility (Hoang et al., 2020). Within finance, diversification serves as a cornerstone of stability and performance, particularly during periods of economic distress. Sukuk markets, owing to their compliant and asset-backed structures, have exhibited notable resilience in crises by providing predictable income streams and mitigating default risk. Furthermore, diversification across sectors and maturities, combined with duration management and credit quality assessment, allows investors to maximize risk-adjusted returns while maintaining protection against market volatility (Bhuiyan et al. 2020; Tan and Mohamad Shafi 2021). The broader banking literature affirms the benefits of diversification, such as reducing idiosyncratic and systemic risks and achieving economies of scope (Berger, Hasan, and Zhou 2010; Meslier, Tacneng, and Tarazi 2014). Nevertheless, excessive diversification without adequate oversight may dilute managerial focus and introduce operational inefficiencies, thereby increasing earnings volatility (Bliss and Rosen 2005; Milbourn, Boot, and Thakor 1999). Despite these nuances, diversification remains widely recognized as a key mechanism for enhancing operational efficiency, competitiveness, and long-term financial resilience (DeYoung & Roland, 2001; Meslier et al., 2014). Lessons from the 2008 financial crisis further illustrate that diversification must be carefully calibrated; while it reduces individual risk, overlapping exposures across institutions can generate systemic vulnerabilities, leading to contagion through fire sales of common assets (Wang, Chen, and Liu 2024). Therefore, effective investment management in Yemen requires balancing diversification with liquidity buffers and contingency planning to strengthen resilience against both idiosyncratic and systemic shocks (Berger et al., 2010; Meslier et al., 2014; DeYoung & Roland, 2001).

Therefore, we propose the second hypothesis in the following manner:

H2: Risk diversification has a significant positive effect on investment management strategies in Yemeni commercial banks.

Adaptive Financing (AF)

While liquidity ensures short-term obligations are met and diversification reduces concentrated risks, adaptive financing provides the flexibility to adjust funding and access alternative capital, reinforcing both liquidity and diversification. Yemeni Commercial banks face limited access to diversified funding sources, compounded by macroeconomic volatility in interest rates, inflation, and exchange rates, which collectively increase borrowing costs and complicate liquidity planning. To address these challenges, banks adopt adaptive financing measures, including interbank borrowing, debt issuance, and contingency funding arrangements, alongside balanced liquid asset portfolios, stress testing, and asset-liability management, which collectively enhance resilience during periods of instability (Veni & Negash, 2019; Davis-Adesegha, 2025). Economic crises further restrict the supply of external finance, leading to declines in corporate investment, particularly for entities with low cash reserves or high short-term debt (Duchin, Ozbas, and Sensoy 2010). This underscores the fragility of financial systems during crises and highlights the urgent need for adaptive financing strategies, especially in vulnerable economies such as Yemen. Even outside crisis periods, banks face persistent liquidity challenges that limit their ability to meet withdrawals and rising credit demands (Chaffai and Dietsch 2015; Susanti, Putra, and Bahtiar 2023); consequently, adaptive financing strategies are essential not only for immediate liquidity management but also for long-term operational continuity. Precautionary cash holdings play a central role, allowing banks to hedge against shocks, maintain investment capacity, and avoid underinvestment risks, consistent with theories of precautionary saving and financial constraints (Opler et al. 1999; Modigliani and Miller, 1958; Faulkender and Wang, 2006; Acharya et al., 2017). The upward trend in corporate cash holdings over recent decades has been attributed to increasing volatility in cash flows (Thomas W. Bates, Rene M. Stulz, and Kathleen M. Kahle, 2009). In this regard, working capital, particularly cash, provides smoothing benefits Fazzari and Petersen (1993) and precautionary advantages during credit tightening, helping firms reliant on external financing maintain resilience.

These insights align with broader research emphasizing adaptive strategies as responses to external shocks, illustrating how firms and banks safeguard investment capacity under crisis conditions (Duchin et al. 2010; Tong and Wei 2008), and reinforcing the idea that cash becomes especially valuable when markets are not frictionless (Hatefi Majomerd et al. 2013). Moreover, diversified funding sources reduce reliance on any single channel, improving flexibility and enabling banks to continue lending, meet operational obligations, and comply with prudential norms even under severe economic pressure (Davis-Adesegha, 2025; Veni & Negash, 2019). The literature emphasizes that adaptive financing extends beyond reactive liquidity measures, encompassing strategic capital management, regulatory compliance, and risk hedging to optimize investment management. Effective integration of capital, liquidity, and credit risk management allows banks to maintain operational continuity and enhance long-term stability, with empirical studies demonstrating that sufficient capital buffers, combined with diversified funding and precautionary liquidity holdings, improve bank resilience, safeguard stakeholder interests, and sustain investment performance during prolonged crises (Vovchenko 2021).

Therefore, we propose the third hypothesis in the following manner

H3: Adaptive financing has a significant positive effect on investment management strategies in Yemeni commercial banks.

Based on the preceding theoretical discussion, this study develops the conceptual framework of the research (see **Figure 1**). The framework illustrates how key the influence of Liquidity ratio(LR), Risk Diversification (RD), and Adaptive Financing (AF) is on the level of Investment Management Strategies (IMS) in Yemeni Commercial banks during a prolonged crisis.

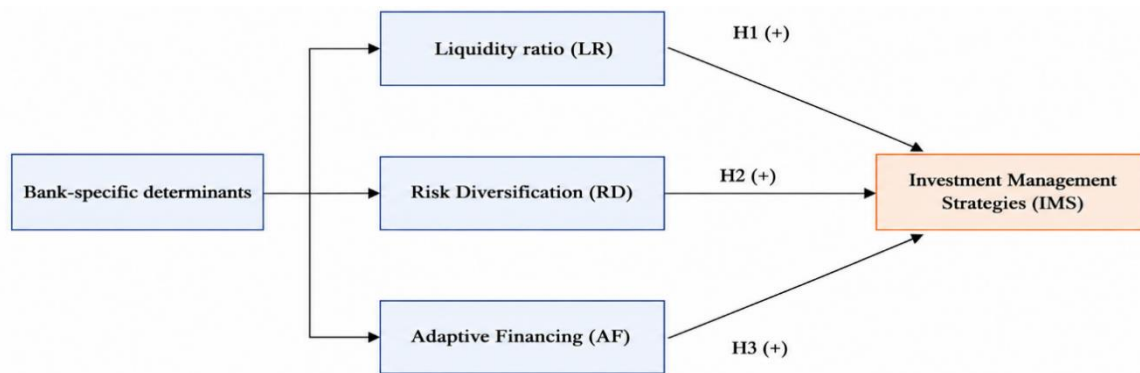


Figure 1. Expected research model. Source: Authors' construct

DATA AND METHODOLOGY

Data collection

This study draws on annual report data from 10 Yemeni Commercial banks over the period 2014–2022, with bank selection determined by data availability and representativeness. The empirical framework focuses on three strategic dimensions—Liquidity ratio (LR), Risk Diversification (RD), and Adaptive Financing (AF)—and their collective impact on Investment Management Strategies (IMS).

A comprehensive summary of all variables and their measurement is presented in **Table 1**. Together, these variables represent the mechanisms through which Yemeni Commercial banks adjust their investment strategies to balance risk, profitability, and resilience in the face of prolonged crises. We have used the Purposive Sampling Technique. We have considered almost 53 percent of the market-listed Yemeni Commercial banks. Out of 19 listed commercial banks, we have performed the analysis with a sample of 10 banks. Due to the unavailability of data and intending to make a balanced panel rest nine listed banks have been kept away from consideration in this paper.

To ensure the reliability of the data, it is essential to clearly outline the sources and procedures used in the data collection process. With regard to bank-specific variables, and in line with previous studies (Abdulhafedh et al. 2025; Ahamed 2021; Ashik-Uz-Zaman, Abedin, and Hossain 2025; Duijm and Schoenmaker 2020), data on individual banks' balance sheets and income statements were collected from the published annual reports of the selected banks. The data of the banks have been accumulated from the annual reports of the sampled commercial banks. We have considered the financial data of 9 years of published annual reports of the sampled commercial banks for the period starting from 2014 to 2022 with a view to formulating a data panel for analysis. Thus, a total of 90 bank-year observations have been included in the sample. We have used Stata 17 for performing quantitative analysis.

Table 1. Summary of variable, expected relationship with the dependent variable, and data source.

Variables type	Variable Name	Variable type	Proxy/Measurement	Expected effect	Sources
Dependent variable	Investment Management Strategies	IMS	Total Investments -to- Total Assets	=====	annual report
Independent variable	Liquidity ratio	LR	Liquidity ratio = Cash -to- Total Assets	Positive	annual report
	Risk diversification	RD	Noninterest income -to- Total income	Positive	annual report
	Adaptive Financing	AF	Adaptive Financing is operationalized through the balance between internal and external.	Positive	annual report

Notes: IMS: Grounded in strategic asset allocation and portfolio theory; the investments-to-assets ratio is a standard proxy in banking literature. LR: Grounded in liquidity risk theory (Diamond & Dybvig, 1983) and Basel III liquidity standards; cash-to-assets is a widely used liquidity measure. RD: Grounded in Markowitz's portfolio theory and the bank diversification literature (Stiroh, 2004; Laeven & Levine, 2007); non-interest income share is an established proxy for income diversification. AF: Grounded in dynamic capabilities theory (Teece et al., 1997) and financial flexibility literature (Gamba & Triantis, 2008); the internal-external financing balance captures adaptive capacity. Source: Inferences drawn from the review of literature.

METHODOLOGY

The analysis was carried out in STATA using a structured sequence of descriptive and inferential procedures. Descriptive statistics were first employed to summarize the characteristics of IMS and its key determinants across banks, followed by a correlation matrix to examine initial associations and assess potential multicollinearity. Empirical estimation began with pooled panel regression models using robust standard errors to address heteroskedasticity and provide reliable coefficient estimates. Ultimately, regression estimates were interpreted to evaluate the magnitude, direction, and statistical significance of the effects, offering a comprehensive understanding of how the three predictors shape investment management strategies within the analyzed banking context.

Econometric Model

Our empirical analysis considers that Liquidity ratio(LR), Risk Diversification (RD), and Adaptive Financing (AF) may affect Investment Management Strategies (IMS) simultaneously, and that certain channels—such as liquidity adjustments or risk exposure—may indirectly influence IMS. To control for potential endogeneity and simultaneous dependence among these strategic factors, we adopt a panel data analysis estimation procedure.

$$IMS_{it} = \alpha_0 + \alpha_1 LR_{it} + \alpha_2 RD_{it} + \alpha_3 AF_{it} + \varepsilon_{it} \quad (1)$$

Where:

- IMS_{it} = Investment Management Strategies of bank i at time t
- LR_{it} = Liquidity ratio
- RD_{it} = Risk Diversification
- AF_{it} = Adaptive Financing
- ε_{it} = idiosyncratic error term

ANALYSIS AND FINDINGS

Descriptive statistics

Before starting the quantitative estimation, it is necessary to understand the nature of the data through descriptive analysis, which provides an initial overview of the distribution of variables, their homogeneity, and the presence of any outliers or missing values that may affect the results.

Table 2. Summary statistics

Variables	IMS	LR	SRD	AF
Mean	45.98	36.27	38.75	50.02
Median	45.00	36.67	36.86	50.00
Maximum	56.00	51.15	52.88	50.20
Minimum	42.00	25.31	32.72	49.80
Std. Dev.	3.53	4.97	5.94	0.07
Skewness	1.55	0.21	0.94	1.14
Kurtosis	4.45	3.97	2.71	6.78
Jarque-Bera	26.48	2.48	8.12	43.88
Probability	0.000	0.289	0.017	0.000
Observations	90	90	90	90

Note: IMS is the Investment Management Strategies of the bank, LR is the Liquidity ratio, RD is the Risk Diversification, and AF is the Adaptive Financing. Source: Author's calculations using STATA 17.

The descriptive statistics **Table 2** shows that all four variables—IMS, LR, SRD, and AF—have stable central values, with means and medians that are close together. SRD and LR display the highest variability, while AF is nearly constant across banks. IMS, SRD, and AF are positively skewed, whereas LR is almost symmetrical. Kurtosis values indicate that IMS, LR, and especially AF have sharper peaks than a normal distribution. The Jarque–Bera test confirms that LR is normally distributed, while IMS, SRD, and AF deviate significantly from normality.

Correlation matrix

The correlation matrix is used to understand the linear relationships between variables and to determine if there is a multicollinearity problem that might affect model estimates. The matrix was calculated using the pairwise correlation method.

Table 3 . Correlation Matrix

Strategies		IMS	LR	RD	AF
IMS		1			
LR		0.530**	1		
RD		0.560**	0.110	1	
AF		0.106**	0.202	-0.031	1

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

Note: The study period extends from 2014 to 2022. Observations were made on a sample of 10 commercial banks in Yemen. IMS is the Investment Management Strategies of the bank, LR is the Liquidity ratio, RD is the Risk Diversification, and AF is the Adaptive Financing. Source: Author's calculations using STATA 17.

Table 3 reports the correlation matrix for all study variables. The results show that the majority of the correlation coefficients are below the commonly accepted multicollinearity threshold of 0.80, suggesting that multicollinearity is unlikely to pose a serious concern or to bias the regression estimates (Kennedy 1998).

Pooled Panel Regression with Robust Standard Errors

The pooled panel regression model, estimated using Pooled Panel Least Squares on a balanced sample of 90 observations from 10 Yemeni commercial banks over the period 2014–2022, examines the influence of Liquidity Ratio (LR), Risk Diversification (RD), and Adaptive Financing (AF) on Investment Management Strategies (IMS). The model exhibits excellent explanatory power, with an R^2 of 0.93 indicating that the independent variables collectively account for 93% of the variation in IMS.

Table 4. Using pooled model models

Dependent Variable: IMS				
Method: Panel Least Squares				
Sample: 2014 2022				
Periods included: 9				
Cross-sections included: 10				
Total panel (balanced) observations: 90				
Strategies	Coefficient	Std. Error	t-Statistic	Prob.
LR	0.307	0.027	11.522	0.000
RD	0.484	0.022	22.157	0.000
AF	0.293	1.946	0.15056	0.044
C	-98.610	97.173	-1.015	0.315
R-squared	0.93	Mean dependent var		45.981
Adjusted R-squared	0.93	S.D. dependent var		3.531
S.E. of regression	0.94	Akaike info criterion		2.779
Sum squared resid	43.92	Schwarz criterion		2.927
Log likelihood	-71.05	Hannan-Quinn criter.		2.836
F-statistic	234.15	Durbin-Watson stat		0.455
Prob(F-statistic)	0.000			

Note: This table presents the results of the panel least squares estimation for the relationship between Liquidity Ratio (LR), Risk Diversification (RD), and Adaptive Financing (AF) on Investment Management Strategies (IMS). Coefficients represent the estimated effects of each variable; p-values below 0.05 indicate statistical significance. R^2 shows the explanatory power of the model, while the F-statistic tests overall model validity. Source: Author's calculations using STATA 17.

The results show **Table 4** that the liquidity ratio has a positive and statistically significant effect on IMS, as evidenced by its coefficient of 0.307 and a highly significant p-value of 0.000, implying that higher liquidity levels enhance banks' ability to allocate resources effectively, absorb shocks, and maintain more stable investment strategies during periods of crisis. This outcome is consistent with the outcome of (Kurniawan, Maulana, and Iskandar 2023).

Risk Diversification also demonstrates a strong, positive, and highly significant impact on IMS, with a coefficient of 0.484 and a p-value of 0.000, making it the most influential predictor in the model; this suggests that banks that diversify across assets, markets, or products achieve better investment performance, reduce exposure to idiosyncratic risks, and enhance resilience during prolonged economic disruptions. This outcome is consistent with the outcome of (König and Winkler 2020; Rokhim and Min 2020).

Adaptive Financing, with a standardized coefficient of 0.293 and a p-value of 0.044, exhibits a statistically significant positive effect, though it is modest compared to the Liquidity ratio and Risk Diversification. This indicates that flexible financing mechanisms—such as adaptive loan terms and dynamic funding structures—do contribute to improved investment management. This outcome is consistent with the outcome of (Veni & Negash, 2019; Davis-Adesegha, 2025). However, the relatively smaller effect may reflect structural constraints or limited access to flexible funding instruments within the Yemeni banking sector.

Overall, all three predictors significantly enhance IMS. Risk Diversification provides the strongest support for investment resilience, Liquidity ratio strengthens the bank's capacity to manage investments effectively, and Adaptive Financing contributes positively by enabling flexibility in funding. These findings confirm all three research hypotheses (H1, H2, H3) and align closely with prior literature on crisis-era banking strategies, which emphasizes liquidity, risk diversification, and adaptive financing as key determinants of resilient investment management.

Regression Estimates and Interpretation

The study examines the impact of three key independent variables—Liquidity Ratio (LR), Risk Diversification (RD), and Adaptive Financing (AF)—on the dependent variable, Investment Management Strategies (IMS), in Yemeni commercial banks. Standardized regression coefficients (β) were employed to measure the strength and direction of each variable's effect while removing unit differences, allowing for a direct comparison of which predictor exerts the greatest influence on IMS.

Table 5. Robust Standardized Regression Output

Dependent Variable: IMS						
Standardized	Coefficient	Robust std. err.	z	P>z	[95%conf.interval]	
LR	0.223	0.086	2.600	0.009	0.055	0.391
RD	0.643	0.079	8.110	0.000	0.488	0.799
AF	0.157	0.037	4.190	0.000	0.083	0.230
_cons	6.682	0.500	13.370	0.000	5.702	7.662

Notes: The purpose is to show the strength and direction of relationships → through the standardized coefficients (β), you can see which predictors have the strongest impact (RD, LR, AF). Source: Author's calculations using STATA 17.

The results in **Table 5** reveal that the liquidity ratio has a standardized coefficient (β) of 0.223, with a z-value of 2.600 and a p-value of 0.009, indicating a statistically significant positive relationship with IMS. The confidence interval, ranging from 0.055 to 0.391, confirms the robustness of this effect. This suggests that as banks maintain higher liquidity—through stable funding, sufficient liquid assets, and controlled cash ratios—their investment management strategies improve moderately. The implication is clear: stronger liquidity positions enable banks to allocate funds more strategically, particularly during crises, supporting the hypothesis that liquidity directly and indirectly enhances IMS (H1). This outcome is consistent with the outcome of (Chang et al., 2020; Feng & Wu, 2023).

Risk Diversification exhibits the strongest influence among the three variables, with a standardized coefficient of 0.643, a z-value of 8.110, and a highly significant p-value of 0.000. The confidence interval of 0.488 to 0.799 further reinforces the reliability of this effect. The positive coefficient demonstrates that banks that diversify their risk portfolios across sectors, products, and asset classes are better able to develop resilient investment strategies during prolonged crises. By mitigating exposure to any single failing sector, risk diversification enables sustained investment performance, confirming (H2), which posits that risk diversification has both direct and indirect effects on IMS. This outcome is consistent with the outcome of (Omura et al., 2021).

Adaptive Financing also shows a positive and statistically significant effect on IMS, with a standardized coefficient of 0.157, a z-value of 4.190, a p-value of 0.000, and a confidence interval between 0.083 and 0.230. Although its effect is weaker than LR and RD, AF's role remains important, indicating that flexible loan terms, crisis-responsive credit policies, and dynamic funding structures contribute to improved investment management. This outcome is consistent with the outcome of (Duchin et al. 2010). While AF's impact is supportive rather than dominant, it aligns with the literature suggesting that adaptive financing enhances investment stability during crises, confirming (H3).

Overall, these findings are consistent with prior research on crisis-era banking strategies. Previous studies highlight that strong liquidity improves investment resilience, which matches the observed effect of LR. Similarly, the literature identifies risk diversification as the primary buffer against instability, aligning with RD's strongest effect. Finally, adaptive financing is acknowledged as a secondary but meaningful stabilizing factor, consistent with AF's observed influence.

In conclusion, the analysis confirms that all three predictors—Liquidity Maintenance, Risk Diversification, and Adaptive Financing—significantly enhance Investment Management Strategies in Yemeni commercial banks during crises, $RD > LR > AF$. Risk Diversification offers the strongest support for investment resilience, while Liquidity remains essential for strengthening investment capacity. Adaptive Financing provides a positive contribution by ensuring stable and flexible funding structures. All research hypotheses (H1, H2, and H3) are fully supported, and the results align closely with previous empirical evidence on crisis-based banking strategies.

The Results of the Hypothesis Tests

Table 6 presents a summary of the comparison between the expected and actual signals of the independent variables affecting Investment Management Strategies (IMS). The results of the hypothesis tests and the statistical significance levels are also shown in the table.

Table 6. Summary of the research hypothesis test

Strategies	Independent variable	Hypothesis	Expected result	Actual result	Significant level	Validation of the hypothesis
Strategies	LR	H1	Positive	Positive	Significant at 1%	Validated
	RD	H2	Positive	Positive	Significant at 1%	Validated
	AF	H3	Positive	Positive	Significant at 1%	Validated

Source: Author Inferences drawn from the regression analysis. IMS is the Investment Management Strategies of the bank, LR is the Liquidity ratio, RD is the Risk Diversification, and AF is the Adaptive Financing. Source: Author's calculations using STATA 17.

CONCLUSION

The findings of this study provide valuable insights into how Yemeni Commercial banks have strategically managed their investments during the prolonged crises through Liquidity ratio(LR), Risk Diversification (RD), and Adaptive Financing (AF). Results derived from the pooled panel regression and robust standardized regression consistently indicate that all three dimensions exert a positive and statistically significant influence on Investment Management Strategies (IMS).

Specifically, as shown in **Table 4**, the pooled model ($R^2 = 0.93$) confirms that LR, RD, and AF collectively explain most of the variation in IMS, with RD showing the highest coefficient (0.484), followed by LR (0.307) and AF (0.293), thereby demonstrating that diversification and liquidity assurance serve as the core mechanisms through

which banks stabilize investment behavior under uncertainty. These patterns suggest that, in the face of systemic instability, banks rely primarily on risk-spreading mechanisms—such as portfolio rebalancing and sectoral diversification—to maintain stability, while liquidity buffers and reserve adjustments ensure short-term operational resilience, and adaptive financing enhances long-term flexibility by aligning financing instruments with shifting market and regulatory conditions.

Consistent with these results, the robust regression analysis presented in **Table 5** confirms that RD (0.643) remains the dominant determinant of IMS, followed by LR (0.223) and AF (0.157), reinforcing the hierarchy of effects ($RD > LR > AF$). Collectively, these outcomes imply that Yemeni Commercial banks adopt a defensive diversification strategy supported by liquidity management to cushion short-term shocks and by adaptive financing to navigate evolving credit constraints. This outcome is consistent with the outcome of (Meslier et al. 2014; Susanti et al. 2023). Overall, the convergence of results across analytical models underscores the complementarity between risk diversification, liquidity assurance, and financing adaptability, highlighting an integrated strategic orientation that enhances investment efficiency and resilience during crises.

From a policy perspective, the study emphasizes the need for banks to prioritize risk diversification while simultaneously strengthening liquidity frameworks and adaptive financing practices. Furthermore, policymakers and regulators should foster an enabling environment that supports innovation in financial risk management and provides access to tools that enhance flexibility and stability. Ultimately, these coordinated measures would not only reinforce the resilience of the Yemeni banking sector but also enhance its capacity to support broader economic stability and recovery amid prolonged crises.

This study is subject to several limitations. First, the analysis is constrained by the selection of variables, particularly the limited inclusion of macroeconomic factors. Second, the relatively small sample—10 banks with 90 observations—reflects the structural constraints of the Yemeni banking sector under conditions of conflict and institutional fragility. This may reduce the statistical power of the estimations and limit the generalizability of the findings beyond similar contexts. Accordingly, the results should be interpreted with caution, especially when extending them to more stable or diversified banking systems.

Future research is encouraged to broaden the analytical framework by incorporating additional bank-specific and macroeconomic variables, examining more diverse banking environments, and applying alternative estimation techniques to enhance robustness. Despite these limitations, the study provides useful insights for policymakers, bank managers, and shareholders, emphasizing the role of both bank-specific and macroeconomic factors in managing liquidity risk and mitigating potential liquidity stress.

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