Volume 23 Issue 19
Originally issued as D2

Global Journal of Management and Business Research: D
Accounting and Auditing
Volume 23 Issue 2 Version 1.0 Year 2023
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

The Impact of Solvency Risk and Asset Quality Risk on the Asset Size of Commercial Banks (An Applied Study on Samples of Commercial Banks Registered on the Iraqi Stock Exchange 2011-2020)

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GJMBR-D Classification: UDC: 336.71, 336.713, 336.717

THEIMPACTOFSOLVENCYRISKANDASSETQUALITYRISKONTHEASSETSIZEOFCOMMERCIALBANKSANAPPLIEDSTUDYONSAMPLESOFCOMMERCIALBANKSREGISTEREDONTHEIRAQISTOCKEXCHANGE20112020

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The Impact of Solvency Risk and Asset Quality Risk on the Asset Size of Commercial Banks (An Applied Study on Samples of Commercial Banks Registered on the Iraqi Stock Exchange 2011-2020)

Mustafa Razzaq Flayyih [α], Mohamed Hassan Wadi [σ] & Hasanain Salim Rasheed [ρ]

Abstract- Assets are economic resources owned by a bank, in the form of tangible or intangible properties that are suitable for repaying debts. In other words, assets are those that can be easily converted into cash within a specific time period. Bank assets must be hedged against numerous risks. This study aims to investigate the impact of solvency risks and asset quality risks on the assets of commercial banks by measuring and analyzing the identified study variables. This study addresses the problem of asset loss in commercial banks, whether fixed or liquid, and offers solutions towards attracting prospective investors and retaining current ones via asset preservation and increment. Researchers can also benefit from this study in terms of variable measurements and key concept identification. The study samples entailed the Commercial Bank of Iraq (BCOI) and the National Investment Bank (BNOI) over the study period from 2011 to 2020. The study employed the descriptive analytical method in describing, measuring and analyzing the data derived from actual financial data available in search for sample pools. The data analysis was subsequently carried out using the SPSS version 26 program. This study reached the conclusion that solvency risks generally have a negative association with the size of assets, while asset quality risks have a positive and direct relationship with the size of assets. The study then offered several recommendations, including that commercial banks should prevent violations and reduce non-performing loans, as well as ensure on-time loan repayments with benefits, thus raising their rating. In addition, commercial banks should work to obtain the expected returns or benefits on an ongoing basis, and increase the size of their assets. Addressing customer inquiries in a timely manner would also ensure customer satisfaction.

Keywords: risk solvency, asset quality risk, and commercial banks.

I. Introduction

Banks are closely linked to economic growth, accelerating it through the mediating role of the financial services they provide. Therefore, the stability of the banking sector is a precondition for economic growth and firmness. The sector's stability depends on the size of its assets which in turn is determined by profitability and capital adequacy as employed in its secured loans, thus leading to greater investments (Ekinci & Poyraz, 2019).

The financial stability of the economy depends to a large extent on the stability and flexibility of the banking system. To achieve banking stability, banks have to maintain high-quality banking assets that help in the achievement of a similar volume of assets. Failure to ensure bank stability can cause financial fragility and may lead to crisis scenarios in the event of market illiquidity and/or bank contagion (Velliscig et al., 2021).

The banking sector is considered one of the most important economic sectors and the most sensitive to changes, which in turn exposes it to various risks due to its dynamic structure and the complex nature of the economic environment. The risks faced by banks can be classified into several categories including solvency risks, asset quality risks, and others (Larya & et al., 2016). The main source of income for the banking sector generally consists of loans granted by commercial companies and banks, which come along with solvency risks and asset quality risks. The Basel identifies the asset quality risks of the Banking Supervision Committee, including the possibility of partial or total loss of the loan outstanding due to failure to repay in a timely manner. An increase in asset quality risk increases the marginal cost of debt and equity, and subsequently the cost of bank financing. As the bank's exposure to asset quality risks increases, the tendency for it to experience financial crisis also heightens (Afriyie & Akotey, 201).

The most prominent of these risks are those related to financial solvency and asset quality owing to the internal banking system which can be controlled and of which can increase or decrease the bank's asset size. This study hence focuses on the impact of these risks on the asset size of commercial banks over the 2011-2020 period. Accordingly, the theoretical underpinning of this study incorporates the most important concepts of the study variables. Related mathematical equations and the SBSS program output were used to determine the impact of those risks on the banks' asset size so as

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to address the research problem and achieve the research objective. More specifically, these were achieved by measuring the relationship between the independent and dependent variables, testing the hypotheses, and drawing the key conclusions and recommendations.

II. Review of Literature

a) Solvency Risk

i. *The Concept of Solvency Risk*

Financial solvency refers to the ability and durability of the bank capital in facing the failure of investment operations and the absorption of risks, including non-payment risk and investment value depreciation risk (Gatzert, 2018: 3). Solvency in finance generally refers to the ability the bank's revenues, including its return on investment, to cover various costs (Topak et al., 2017: 576). It also entails the bank's ability to fulfill various obligations without resulting in default and bankruptcy. To do so, the banks need to have sufficient assets which is represented by their ability to pay off due obligations. A bank is deemed to be financially insolvent when its usage exceeds the size of its obligations, leading to its inability to fulfill those obligations (Mehrara et al., 2014: 29). This occurs when the market value of the bank's assets falls to a level lower than the market value of its liabilities, i.e., even after liquidating all of its assets, it is still not able to meet all its liabilities thus leading to the loss of its depositors (Odekin et al., 2019: 109).

b) Asset Quality Risk

i. *Asset Quality Concept*

The quality of assets is determined by the assessment of credit risks such as those related to investment portfolios and loans (Boateng, 2019: 44). The extent to which the management is effective in monitoring credit risk can influence the credit rating. Many factors are taken into consideration when evaluating the quality of assets, including whether the portfolio is adequately diversified, the established rules and regulations to reduce credit risk, the operational efficiency, and so on (Alamirew, 2015: 15).

c) Asset Size

i. *The Concept of Asset Size*

Assets entail the money and resources owned by the bank at a specific time. Most banks rely on assets for the purpose of obtaining internal revenues in the future (Alnakee et al., 2022: 147). This includes the commercial banks' use of their resources (Gibson, 2014: 228) including loans and financial investments. In general, these are expected to result in economic benefits, owned or controlled by the corporation as a result of various events (Clark et al., 2012: 8). The main hypothesis of this research is that "there is no significant relationship between solvency risk and asset quality risk with asset size". This hypothesis is further divided into two sub-hypotheses as follows:

H1: There is no significant relationship between solvency risk and the asset size of commercial banks.

H2: There is no significant relationship between asset quality risks and the asset size of commercial banks.

III. Research Methodology

The study sample consists of two commercial banks listed on the Iraqi Stock Exchange namely the Commercial Bank of Iraq and the National Investment Bank. The study period was between 2011 and 2020. Data collection was conducted using the deductive method, focusing on journals and periodicals. The inductive method was also employed focusing on the final accounts of the sampled banks, involving the usage of mathematical equations for measuring the independent variable (credit risk) and dependent variable (profit quality). Next, statistical analysis was employed to determine the relationship between the variables, followed by the hypotheses testing.

IV. Measuring Variables

a) Measuring Solvency Risk

The financial solvency of a bank is linked to its capital adequacy, as the capital adequacy ratio is one of the most important financial and technical indicators for the financial sector and of which serves as a safety valve for protecting the depositors' money and enhancing investor confidence (Mashkour & Fullyh, 2020: 5028). A higher capital adequacy enables the bank to better maintain its solvency, protect its depositors, and increase the confidence of creditors, depositors and supervisory authorities (Psorn, 2013: 20). The capital adequacy ratio is used to determine the solvency of banks (Aspal et al., 2019: 170). It is calculated in accordance with the requirements of the Basel Committee (III) using the following equation (Mashkour & Fullyh, 2020: 5028):

$$CA = = \frac{TC}{RWA\,(CR+MR+OR)} \times 100\% = 8\%$$

Since:

Abbreviation	Full English Term
CA	Capital Adequacy Ratio
TC	Total Capital
RWA	Risks Weighted Assets
MR	Market Risk
CR	Credit Risk
OR	Operational Risk

The total capital can be calculated by summing both the base capital and the auxiliary capital according to the following equation (Agyapong et al., 2019: 4):

$$TC = CCT1 + SCT2$$

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Since:

Abbreviation	Full English Term
TC	Total Capital
CCT1	Tier Capital Core1
SCT2	Supplementary Capital Tier 2

Assets weighted with credit risks is calculated by gathering the assets weighted with credit risks inside and outside the balance sheet, according to the following equation (Salgotra et al., 2015: 57):

$$RWA\ (CR) = WBCRWA + OBCRWA$$

Since:

Abbreviation	Full English Term
CR (RWA)	Risk Weighted Assets
WBCRWA	Within-Balance Credit Risk Weighted Assets
OBCRWA	Off-Balance Credit Risk Weighted Assets

In keeping with the international standards for banking regulation, the Central Bank of Iraq has developed a mechanism for calculating solvency risks. Banks operating in the Iraqi banking sector, except for foreign bank branches, must maintain a percentage of solvency risk not less than 10%. This ratio represents the relationship between the capital base and the assets weighted with specific weights to offset credit risk and risk laborer and market risks (Central Bank of Iraq, 2018: 3).

b) Measuring the Quality of Assets

Credit risk can be interpreted in its broadest sense as the risk of financial loss due to the borrower's failure to cover his obligations. Among the bank's activities in providing credit and others are trading activities and capital markets (Mashkour & Fullyh, 2020: 5031). In most cases, the ratio of loan loss provisions to total loans is used as a variable substitute for measuring credit risk (Alnakee et al., 2022: 147).

Several studies had measured the quality of assets by dividing the provision for loan losses by the total loans, which represents the ability of banks to bear losses from bad loans (Mashkour & Fullyh, 2020: 5031). This study measures the quality of assets by using the following equation (Ekinci et al., 2019: 981):

$$NPLLR = \frac{NPL}{L} \times 100\%$$

Since:

Abbreviation	Full English Term
NPLLR	Ratio Non-Performing Loans to Loans
NPL	Non-Performing Loans to Total Loans
L	Laws

A high ratio signifies a decrease in the quality of assets, which is reflected in the asset size of the bank, due to the increase in the volume of loans subject to non-payment. A low ratio indicates high quality assets; in short, a lower ratio is better for the banks and the banking establishment (Sufian, 2011: 49).

c) Measurement of Asset Size

The assets are arranged in the balance sheet according to the degree of their liquidity. The result for the cycle is determined by the difference between the assets and liabilities in the balance sheet. In the case of dividing the assets from the liabilities at the end of the period, additional assets are realized with the same primary resources. This addition expresses the profits and is recorded positively under liability. To balance it out, it is recorded under negative assets. When the opposite happens, it indicates that the company has the same requirements priority finance less than the assets. This difference expresses the loss, as it is recorded under assets as positive and under liabilities as negative. The size of the assets can be measured according to the equation below (Lucy et al., 2018: 22):

$$AS = L + PR$$

Since:

Abbreviation	Full English Term
AS	Asset Size
L	Liabilities
PR	Property Rights

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V. Results and Discussion

a) Quantitative Analysis of the Research Variables

i. *The Results of Measuring Solvency Risk (Capital Adequacy)*

Capital Adequacy Ratio (CAR) is calculated by dividing the total capital in the banks by the total risk-weighted assets using the following equation:

$$CAR = TC/RWA \times \%100$$

Since:

TC= Total Capital

RWA= Total risk weighted assets

Table 1 clarifies the calculation of the capital adequacy ratio for banks, based on the equation above:

Table 1: Comparison of the Capital Adequacy Ratio (CA) Measurement Results (million dinars)

T	Value / Year	TC (1)	RWA (2)	CA (3) = (1/2)
A	Commercial Bank of Iraq			
1	2011	116695	949447072.984	0.012
2	2012	158239	1794987.864	0.088
3	2013	173680	730223.91	0.238
4	2014	232816	76423421.25	0.003
5	2015	322841	3679027.76	0.009
6	2016	309150	2176314.534	0.142
7	2017	292404	180731.682	0.618
8	2018	302004	540572.994	1,789
9	2019	293419	645867.324	2.183
10	2020	281900	776343.312	2.753
Average				0.7835%
B	Al Ahly Investment Bank			
1	2011	52914	164429.46	0.322
2	2012	105417	137403.108	0.767
3	2013	154660	110544.044	1.400
-4	2014	168541	486905.94	0.346
5	2015	286242	155885	1.836
6	2016	294108	149002	1.974
7	2017	306172	153412	1.995
8	2018	312819	165866	1.9
9	2019	269050	90813	2.964
10	2020	274295	189152	1.5
Average				1.5004%

Source: Prepared by the Researcher based on the Final Accounts of the Sampled Banks

As illustrated in Table 1, the capital adequacy ratio (CAR) for the sampled banks varies from year to year, due to the variance in the total capital and the increase or decrease in the risk-weighted assets in relation to the total capital. This ratio shows the extent to which the banks are able to use the total capital in facing losses that may occur as a result of dealing with risky assets; this ratio is called the margin of safety ratio (security margin). The decrease in this ratio indicates a rise in banking risks and vice versa, i.e., an inverse relationship. In addition, there is a direct relationship between the increase in capital adequacy and the increase in total capital. The capital adequacy ratio for the Commercial Bank of Iraq and the Al-Ahly Bank for Investment for the entire research period is greater than the minimum permissible percentage (i.e., 8%) under the Basel Committee Requirements (III). As noted, the ratios increased significantly in the sampled banks, indicating that the banks maintain their financial resources as a result of the risks involved in their investment activities, which prompted them to significantly increase the size of their capital relative to the risk-weighted assets. In short, there is an inverse relationship between the capital adequacy ratio and the risk-weighted assets, whereby an increase in risk-weighted assets indicates a decrease in the capital adequacy ratio and vice versa.

Table 1 shows that the capital adequacy ratio for the Commercial Bank of Iraq reached a higher limit with a percentage of (2.753) in year 2020, at a minimum of (0.003) in year 2014 and an annual average of (0.7835). The increase in the adequacy rate was due to two main reasons: 1) the continuous growth in capital, and 2) the investment policy of the bank, i.e., avoiding

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risky investments and directing most of its financial resources to invest in risk-free treasury transfers. As for the National Bank for Investment, the capital adequacy ratio varied in growth for the period between 2011 and 2020. This is due to the continuous growth in total capital for the mentioned period, as the capital adequacy ratio reached a higher limit by (2.964) in year 2019 with a minimum of (0.322) in year 2011 and an annual average of (1.5004). The high adequacy ratio was due to two main reasons: 1) the continuous growth in capital, and 2) the investment policy of the bank, i.e., by avoiding risky investments and directing most of its financial resources to invest in balances in the absolute account with the Central Bank, which is free of risks.

In order to assess the capital adequacy of the sampled banks, the general average of the capital adequacy ratio in the Commercial Bank of Iraq during the research period was (0.7835). This ratio is detrimental as a result of the inverse relationship between the capital adequacy ratio and the financial risks. The Al-Ahly Bank for Investment had the highest average percentage during the research period (1.5004). This increase in capital adequacy ratio above the minimum limits set by the Basel Committee (III) requirements indicates that the banks should follow a conservative investment and credit policy in terms of employing their financial resources. In addition, it expresses the strength of the financial position of the sampled banks in terms of the ability of their capital in facing the risks that they may be exposed to, as well as their ability to cover the possible losses.

ii. *Assets Quality Analysis of the Sampled Banks*

This percentage indicates the poor quality of the assets of the bank and vice versa, that is, when the ratio of non-performing loans to the total loans decreases, the quality of the assets of the bank is good, as calculated using the following equation:

$$AQ = NPL/TL^* \%100$$

Since:

NPL= bad loans

T= total loans

Table 2 below shows the calculation for the asset quality of the sampled banks using the above equation:

Table 2: Comparison of the Asset Quality Risk Calculation Results (million dinars)

T	Value / Year	NPL (1)	T (2)	AQ (3)= (1÷2)
A	Commercial Bank of Iraq			
1	2011	13485	35965	0.37
2	2012	12060	82914	0.15
3	2013	428	2311	0.19
4	2014	1004	3956	0.25
5	2015	2525	7154	0.35
6	2016	8632	9102	0.95
7	2017	19468	29,245	0.665
8	2018	20314	30932	0.65
9	2019	13950	31242	0.44
10	2020	6707	11447	0.59
Average				0.4605%
B	Al-Ahiyinvestment Bank			
1	2011	11910	36973	0.322
2	2012	8828	49054	0.248
3	2013	9129	67493	0.186
4	2014	79,593	115538	0.689
5	2015	176467	165327	1.067
6	2016	81611	184042k	0.443
7	2017	5040	124683	0.04
8	2018	5057	134356	0.037
9	2019	4018	76828	0.052
10	2020	7585	168965	0.045
Average				0.3129%

Source: Prepared by the Researcher based on the Final Accounts of The sampled Banks

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It is clear from the table above that the quality of the assets in the sampled banks varies from year to year. This is due to the increase in non-performing loans in addition to the decrease in total loans relative to the non-performing loans. The ratio of non-performing loans to total loans shows the quality of the bank's assets, and subsequently the ability of banks in managing their financial assets. The high ratio of non-performing loans to total loans is evidence of the high percentage of amounts at risk and the failure to collect them. Meanwhile, the decrease in this percentage indicates that the loans had been collected according to their maturity dates. Hence, it is clear that there is an inverse relationship with the quality of assets and a positive relationship with non-performing loans. This means that the ratio of non-performing loans to total loans rises as a result of the rise in non-performing loans, while the rise in the ratio of non-performing loans to total loans is due to the bank's low asset quality. Table 3 indicates the classification of each of the sampled banks:

Table 3: Asset Quality Classification of the Sampled Banks

Bank	Quality of Realized Assets %	Asset Quality Ratio for Rating Arbitration	Overall Rating Percentage	Rating Score
Al-Ahly Investment Bank	4.34%	Less than 5	Less than 20	Strong
		From 5 to 15	From 50 to 20	Patients
Baghdad Bank	34.25%	From 35 to 15	From 80 to 50	Good
Commercial Bank	54%	From 60 to 35	From 100 to 80	Borderline
		More than 60	More than 100	Unsatisfactory

It is clear from the table that the ratio of the quality of assets is different for the Commercial Bank of Iraq. The quality of the assets reached (0.665%) in year 2017, which is unsatisfactory, with a minimum of (0.15) in year 2012 and an annual average of (0.4605%). The increase in this ratio during the research period indicates the low asset quality of the bank. It is noted that the ratio of non-performing loans to total loans had exceeded the set threshold of 60%. This indicates a bad loan, which leads to large losses in the bank's capital. Therefore, there is a need to reduce the volume of non-performing loans. As for the National Investment Bank, it reached the highest percentage of (0.689) in year 2015. The lowest level of (0.04) was recorded in year 2018, with an average of (0.3129). This indicates an unsatisfactory loan, thus requiring the bank to reduce its volume of non-performing loans. The risk quality of the sampled banks' assets was evaluated by comparing the general average. The general average for the Commercial Bank of Iraq is (0.4605), followed by the National Investment Bank at (0.3129), and the Bank of Baghdad at (0.235) which is the lowest degree of non-payment risk.

iii. *Analysis of Asset Size for the Sampled Banks*

The size of a bank is often measured by the amount of assets that it owns. As an increase in the commercial banks' volume of assets increases their ability to invest, the increase in the volume of the banks' assets is typically expected to result in an increase in their profitability. In the event that the size of the commercial banks is measured with the property rights they own (paid capital, reserves and undistributed profits), the banks with larger property rights have greater funds available to them hence increasing their ability to invest. In addition, the increase in property rights increases the confidence of investors, which may be reflected in the volume of customer deposits. Thus, by increasing the financial leverage, the rate of return on equity can be maximized. The following equation was adopted to measure the size of the commercial banks' assets:

$$AS = L + PR$$

Since:

Abbreviation	Full English Term
AS	Asset Size
L	Liabilities
PR	Property Rights

Table 4 presents the results of the basic capital measurements of the sampled banks:

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Table 4: Comparison of the Asset Size Measurements (million dinars)

T	Value / Year	L (1)	PR (2)	AS (3) 1)=+2)
A	Commercial Bank of Iraq			
1	2011	109624945	94538893	204163838
2	2012	112261767	135184629	247446396
3	2013	160236268	143200259	303436527
4	2014	138264072	196579178	334843250
5	2015	164887327	284385241	449272568
6	2016	140687855	274201298	414889153
7	2017	141878	281941	423819
8	2018	168808	291809	460617
9	2019	159987	283958	443945
10	2020	177848	271929	449777
Average				195582989%
B	Al-AhlyInvestment Bank			
1	2011	546448	529135	1075583
2	2012	792475	105417	.897892
3	2013	182588	154660	337248
4	2014	542237446	168480	542405926
5	2015	614971643	263429	615235072
6	2016	534745388	260539	535005927
7	2017	291008	287839	578847
8	2018	317509	285705	603214
9	2019	267182	257766	524948
10	2020	276161	256642	532803
Average				169719746%

Source: Prepared by the Researcher based on the Final Accounts of the Sampled Banks

It is clear from the tables above that the sampled banks' size of assets as measured by the total liabilities and the right of ownership varies in proportion from year to year (449272568). The highest ratio is recorded in year 2015, with a minimum of (423819) in year 2017 and an annual average of (195582989). The highest limit was recorded by the National Investment Bank (615235072) in year 2015, with a minimum of (524948) in year 2019 and an annual average of (169719746).For the purpose of evaluating the volume of assets in the sampled banks during the research period, the general average of the sampled banks was used. The general average for the Commercial Bank of Iraq is (195582989), followed by the National Investment Bank at (169719746) which is the lowest percentage.

b) Statistical Analysis of the Baath Sample Variables

i. *Statistical Analysis of the Commercial Banks*

General Statistics

With the goal of identifying the general characteristics of the studied data, Table 5 presents the general statistics depicting the lowest and highest values, the arithmetic mean, and the standard deviation for all the studied variables:

Table 5: General Statistics for the Variables

Descriptive Statistics					
	N	Minimum	Maximum	Meaning	Std. Deviation
x1	10	0.003	2.753	0.78350	1.047378
x2	10	0.150	0.950	0.46050	0.251401
Y1	10	423819	449272568	195582989	182135146.6

Based on the table above, the variable of Solvency Risk x1 recorded a minimum value of (0.003) and a maximum value of (2.753). Its arithmetic mean recorded a value of (0.78350) and standard deviation of

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(1.047378). Meanwhile, Asset Quality Risk X2 recorded a minimum value of (0.150) and maximum value of (0.950). Its arithmetic mean is (0.46050) with a standard deviation of (0.2514010). Asset Size recorded a minimum value of (423819) and maximum value of (449272568). Its arithmetic mean is (195582989) with a standard deviation of (182135146.6).

ii. *Relationships between Solvency Risk, Asset Quality Risk, and Asset Size (x1, x2, and y1)*

The correlations between the independent variables and the dependent variable are henceforth discussed:

1. Correlations between Solvency Risk, Asset Quality Risk, and Asset Size (x1, x2 and y1)

The researcher developed null and alternative hypotheses for the purpose of testing the significance of the association between the variables, as follows:

The First Null Hypothesis:

H0: There is no significant correlation between Solvency Risk and Asset Size (x1 and y1).

Against the Alternative Hypothesis:

H1: There is a significant correlation between Solvency Risk and Asset Size (x1 and y1).

The Second Null Hypothesis:

H0: There is no significant correlation between Asset Quality Risk and Asset Size (x2 and y2).

Against the alternative hypothesis:

H1: There is a significant correlation between Asset Quality Risk and Asset Size (x2 and y1).

For the purpose of verifying and testing the above hypotheses, the researcher used the statistical program SPSS version 26 to obtain the correlation values and their statistical significance, as shown in Table 6 below:

Table 6: Correlation between the Two Independent Variables and Variable y1

Correlations			
		X1	X2
Y1	Pearson Correlation	- 0.797**	- 0.229
	Sig. (2-tailed)	006 0	.525 0
	N	10	10
**. Correlation is significant at the 0.01 level (2-tailed).			

The table above shows that Solvency Risk (x1) and Asset Size (y1) have a significant inverse correlation (-0.797) below the significance level of 5%. Meanwhile, Asset Quality Risk (x2) and Asset Size (y1) have a non-significant correlation (-0.229) below the significance level of 5%. From the foregoing, it appears that Asset Size has a higher correlation with Solvency Risk than with Asset Quality Risk.

2. The Effect and Significance of the Relationship between Solvency Risk, Asset Quality Risk, and Asset Size (x1, x2, and y1)

The researcher investigated the effect of the independent variables on the dependent variable based on the null hypotheses developed:

The First Null Hypothesis:

H0: Solvency Risk (x1) has no statistically significant effect on Asset Size (y1).

Against the Alternative Hypothesis:

H1: Solvency Risk (x1) has a statistically significant effect on Asset Size (y1).

The Second Null Hypothesis:

Asset Quality Risk (x2) has no statistically significant effect on Asset Size (y1).

Against the Alternative Hypothesis:

H1: Asset Quality Risk has a statistically significant effect on Asset Size (y1).

The hypotheses testing was conducted using the SPSS program. The results are summarized in Table 7 below:

Table 7: The Effect of the Independent Variables (x1 and x2) on the Dependent Variable (y1)

Dependent Variable	Independent Variable	The Coefficient of Determinatior	Corrected Determinatio n Coefficient	Test Value	Morale Test	Impact Parameter Value	Test Value	Moralizing t test	Moral of the Variable
Y1	X1	.64 0	.59 0	13.949	006 0	- 0.797	-3.735	006 0	The variable is inverse
	X2	.05 0	.05 0	0.441	.525 0	- 0.229	-0.664	.525 0	The variable is not significant

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From the table above, the coefficient determination for Solvency Risk (x1) is 0.64 with a corrected determination coefficient of 0.59. This value indicates that the regression model used by the researcher explains 64% of the total differences. Meanwhile, the value of the test F is 13.949 moral value sig. equal to 0.006, below the significance level of 5%. This indicates the significance of the model to trace Solvency Risk (x1) on Asset Size (y1). Additionally, the effect parameter value of -0.80 is equal to -3.735, indicating an inverse moral significance, since the value of the moral sig. is below the significance level of 5%. Thus, it can be concluded that a one-unit increase in Solvency Risk (x1) leads to a decrease in Asset Size (y1) by 0.80. The moral value sig. to trace Asset Quality Risk (x2) on Asset Size (y1) is greater than the significance level of 5%. This means that Asset Quality Risk (x2) has no statistically significant effect on Asset Size (y1).

iii. *Statistical Analysis for Al-Ahly Investment Bank General Statistics*

The general characteristics of the studied data are presented in Table 8 below, detailing the lowest and highest values, the arithmetic mean, and the standard deviation for all the studied variables:

Table 8: General Statistics for the Variables

Descriptive Statistics					
	N	Minimum	Maximum	Meaning	Std. Deviation
X1	10	0.322	2.964	1.50040	0.826813
X2	10	0.037	1.067	0.31290	0.339587
Y1	10	337248	615235072	169719746	273029330.5

It can be seen from the table above that Solvency Risk (x1) has a minimum value of (0.322) and maximum value of (2.964). Its arithmetic mean is (1.50040) with a standard deviation of (0.826813). Meanwhile, Asset Quality Risk (x2) has a minimum value of (0.037) and maximum value of (1.067). Its arithmetic mean is (0.31290) with a standard deviation of (0.339587). As for Asset Size (y1), it has minimum value of (337248) and maximum value of (615235072). Its arithmetic mean is (169719746) with a standard deviation of (273029330.5).

iv. *Relationships between Solvency Risk, Asset Quality Risk, and Asset Size (x1, x2, and y1)*

The correlations between the independent variables and the dependent variable are henceforth discussed:

1. Correlations between Solvency Risk, Asset Quality Risk, and Asset Size (x1, x2, and y1)

The researcher developed null and alternative hypotheses for the purpose of testing the significance of the association between the variables, as follows:

The First Null Hypothesis:

H0: There is no significant correlation between Solvency Risk and Asset Size (x1 and y1).

Against The Alternative Hypothesis:

H1: There is a significant correlation between Solvency Risk and Asset Size (x1 and y1).

The Second Null Hypothesis:

H0: There is no significant correlation between Asset Quality Risk and Asset Size (x2 and y1).

Against the Alternative Hypothesis:

H1: There is a significant correlation between Asset Quality Risk and Asset Size (x2 and y1).

For the purpose of verifying and testing the above hypotheses, the researcher used SPSS version 26 to obtain the correlation values and their statistical significance, as shown in Table 9 below:

Table 9: Correlations between the Independent and Dependent Variables

Correlations			
		X1	X2
Y1	Pearson Correlation	-0.082	.883** 0
	Sig. (2-tailed)	0.821	.001 0
	N	10	10
**. Correlation is significant at the 0.01 level (2-tailed).			

The table above shows that Solvency Risk (x1) and Asset Size (y1) have a significant and inverse relationship (-0.082) with a significance level below 5%. Meanwhile, Asset Quality Risk (x2) and Asset Size (y1) has a significant direct correlation (0.883) with a level of significance below 5%.

From the foregoing, it appears that Asset Size (y1) has a higher correlation with Asset Quality Risk (x2) than with Solvency Risk (x1).

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2. The Effect and Significance of the Correlation between Solvency Risk, Asset Quality Risk, and Asset Size (x1, x2, and y1)

The researcher investigated the effect of the independent variables on the dependent variable asset size based on the developed null hypotheses below:

The first null hypothesis:

H0: Solvency Risk (x1) has no statistically significant effect on Asset Size (y1).

Against the Alternative Hypothesis:

H1: Solvency Risk (x1) has a statistically significant effect on Asset Size (y1).

The second null hypothesis:

H0: Asset Quality Risk (x2) has no statistically significant effect on Asset Size (y1).

Against the Alternative Hypothesis:

H1: Asset Quality Risk (x2) has a statistically significant effect on Asset Size (y1).

The hypotheses testing was conducted using the SPSS program. The results are summarized in Table 10 below:

Table 10: The Effect of the Independent Variables on the Dependent Variable

Dependent Variable	Independent Variable	Coefficient of Determination	Corrected Determination Coefficient	Test Value F	Morale Test F	Impact Parameter Value	Test Value t	Morale sig. t test	Moral of the Variable
Y1	X1	0.007	-0.117	0.054	0.821	-0.082	-0.233	0.821	The variable is not significant
	X2	0.780	0.752	28,323	0.001	0.883	5.322	0.001	The variable is insignificant

It is clear from the results that the value of the moral sig. to trace Solvency Risk (x1) on Asset Size (y1) is greater than the significance level of 5%. This means that Solvency Risk (x1) has no statistically significant effect on Asset Size (y1).

Meanwhile, the coefficient of determination for Asset Quality Risk (x2) is 0.78 with a corrected determination coefficient of 0.75. This indicates that the regression model explains 78% of the total differences. The value of the test F is 28,323 with a moral value sig. equal to 0.001, which is below the significance level of 5%. This indicates the significance of the model for tracing Asset Quality Risk (x2) on Asset Size (y1). The value of the effect parameter is 0.88, while the test value is equal to 5.322. This value indicates direct moral significance, since the value of the morality sig. is below the significance level of 5%. From this, it can be concluded that a one-unit increase in the value of Asset Quality Risk (x2) would result in an increase in Asset Size (y1) by 0.88.

VI. Conclusions and Recommendations

a) Conclusions

Through the results and analysis, a set of conclusions was reached as follows:

1. In the commercial banks, Asset Quality Risk and Asset Size have a non-significant and inverse correlation with a significance level below 5%. While in the National Bank, Solvency Risk and Asset Size have a non-significant correlation below the significance level of 5%, whilst Asset Quality Risk and Asset Size have a morale value below the significance level of 5%.
2. In the commercial banks, Asset Size has the highest correlation with Solvency Risk followed by Asset Quality Risk. While in the National Bank, Asset Size has the highest correlation with Asset Quality Risk followed by Solvency Risk.

b) Recommendations

This study proposes the following recommendations:

1. Commercial banks need to work on eliminating and reducing bad loans. They need to guarantee timely loan repayments along with benefits, which would raise their ratings and increase the size of their assets.
2. Commercial banks should work on increasing their capital and reducing potential asset risks. They need to increase their investments and reduce risks in order to make continuous profits and increases the size of their assets.
3. Commercial banks should have high quality assets to be able to enjoy high ratings and thus increase the size of their assets.

Acknowledgements

All thanks and appreciation to the organizing committee of the 4th International Conference on Business, Management, and Finance. I also wish to thank Dr. Abbas Jumaah Al-waeli for the encouragement, and support, which helped me to complete this study in due time. I also extend my sincere thanks to the Dean of Mazaya University

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College, Prof. Dr. Imad Ibrahim Daoud, for supporting scientific research in this institution.

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