FINANCIAL RISKS IMPACT ON JORDANIAN COMMERCIAL BANKS' STOCK RETURNS

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Abstract

This study aims to investigate the impact of various financial risks on stock returns. The annual data has been covered the period from 2008 to 2018. According to the situations for sampling, 13 commercial banks listed in Amman Stock Exchange (ASE) are selected during a period of 10 years (i.e., 130 fiscal years). However, credit risk, solvability risk, and liquidity risk are used as independent variables, while bank size is considered as a control and moderator variable. The hypotheses of the study are tested by implementing two-step Difference generalized method of moments (GMM) of dynamic panel data analysis. All types of financial risks, except credit risk, with the control variable of bank size are indicated to statistical significant relationship with stock returns. Finally, the results of the relationships between financial risks and stock returns are vital to the specialists by presenting the risks that affect bank's returns and permits them to recover their risk management structure. In addition, it also makes available valuable evidence along with supervision for banking organizations to accomplish their returns in the future. The general conclusion of study is detected that financial risks effect commercial banks' stock returns in ASE.

Keywords: Financial risk, Stock returns, Credit risk, Solvability risk, Liquidity risk, Bank size, Difference generalized method of moments

INTRODUCTION

Stock return is the essential valuation of the effectiveness of risks. Hence significant effect of financial risks is there on the stock returns of the bank is a vital program for all financial associations. The balance between risks and returns is well accepted. Therefore, financial decision comprises from a component of risk and a component of return. Generally, all the economic world has a major consequence from financial risks. It is a basic standard of monetary economics that a higher risk leads to a special effect of higher expected returns (Cooper, and Schindler, 2011). Consequently, in order to rise the returns; financial institutions ought to distinguish which risk aspects have a superior outcome on profitability. The conception of the relationship between risk and return, assist investors, participants and analysts to categorize the estimation of assets.

Financial risks were described by Lee et al, (2010) as the surplus risk that the shareholders take when the institution is financed with debt besides with equity. As well as, Sobia and Szabo (2015) defined the financial risks as the prospect of losses that ascending from the defect to accomplish the financial goals. Another sight to risk conception is that the uncertainty of foreign exchange rates, interest rates, service prices, equity prices, credit value, liquidity, and a firm's capacity to financing (Margaret, and Kevin, 2010).

Financial risk gets up from probable fatality rate in financial markets as a result of activities in financial adjustable. It is frequently linked with leverage through the risk that duties and liabilities aren't able to encounter using current assets. Financial risks may well be produced by the discrepancy in market risk, dissimilarity in market prices, default risk and liquidity gap which mark the cash flows (Al-Tamimi, and AlMazrooei, 2007).

The financial concept has set prominence at risk as a significant predictor of stock returns. Giving to the theory of Markowitz (1952), Modern Portfolio Theory (MPT) and Capital Asset Pricing Model (CAPM) Sharpe (1964), and Lintner (1965) financial market investors are worried over a particular level of risk and upon which they correct their returns prospects. Ross (1976) on his Arbitrage Pricing Theory (APT) contended that besides market risk, financial risk is driven by numerous other aspects to regulate expected return on investments. Sayings in the Efficient Market Hypothesis (EMH) compete that stock prices reply to news released to the markets which might be in the system of financial statements, press meetings or insider statistics.

And so, Bhatiand (2012), and Mehri (2015) questioned that financial risk rationally and empirically is renowned to impact stock returns. On the other hand, Sobia et al., (2015) were confirmed that stakeholders in emerging markets are purely herding and noise agents, for instance, they stay fruitless to imitate outdoor and inside principles in their investment grades.

To take full advantage of wealth, financiers need precise and dependable information on the drivers of stock prices. Moreover, Jorion (2007) denoted financial risk as the improbability and possible financial loss to earnings and capital. Haque and Wani (2015) financial risk can be generally categorized into diversifiable risk based on firm detailed risk factors and un-diversifiable risk in line for to macroeconomic aspects. Thus, the significance of commercial banks to an economy is to relationship surplus and deficit units. Yet, as banks intermediary, they facade sequences of financial risks which are unfavorable to the sustainability of a financial organization. Nonetheless, investors will not capitalize on their returns without engaging in risks. Definitely, most of the Jordanian Commercial banks summarize that the greatest vigorous classes of financial risks faced it such as the: credit risk, the liquidity risk, the market risk, the interest rate risk and the foreign exchange risk. Hence, since that this study is attempted to explore the special effects of three sorts of financial risks, specifically, credit, liquidity, and solvability risks with the bank size on the stock returns.

Jordanian Banking Sector

Numerous countries are considered the banking sector is one of the vital supplier of funds. Jordan is one of them. From the time when the discomfiture events ongoing in the beginning of the year 2011 following the Arab spring, remarkably structured banking sector demonstrated elasticity, preserved its development and progress throughout the first half of 2013. By means of developing in Jordanian banking sector, the performance observed an extraordinary enhancement in total assets. The Jordan's banking sector is well systematized by the Central Bank of Jordan (CBJ). Throughout the economic period since 2008 to 2018, the amount of Jordanian banks' total assets raised up from JD 43,357.3 million to JD 58,125.9 million respectively. The Jordanian banking system revel in safe liquidity as per the total highly-liquidity assets estimated to 44.9% of total assets at the end of 2018, compared to 45.8% at the end of 2017. The ratio of non- performing loans to total loans sustained to drop during the period (2012-2017) to range 4.2% at the end of 2017, compared to 7.7% at the end of 2012. Nevertheless, it marginally improved at the end of 2018 to extent 4.9% of total loans.

Hypotheses of the Study

Null Hypothesis (H0): There is no a significant relationship between financial risks and the stock returns.

Main Hypothesis H1: The financial risks have a significant effect on the stock returns of the commercial banks.

Sub Hypotheses:

H1a: Credit risk has a significant effect on the stock returns of the commercial banks.

H1b: Liquidity risk has a significant effect on the stock returns of the commercial banks.

H1c: Solvability risk has a significant effect on the stock returns of the commercial banks.

H1d: Bank size as control variable has an important significant impact on the stock returns of commercial banks.

LITERATURE REVIEW

Modern Portfolio Theory (MPT)

Modern portfolio theory (MPT) which formed by Markowitz's exertion, "Portfolio Selection," published in 1952 by the Journal of Finance. It is an investment theory that attempts to handle with a portfolio expected return anticipated for a known amount of portfolio risk of individual assets, and their correlation. The assumption of MPT states that investors are risk averse, and therefore they can create their portfolios to maximize expected return at a particular level of market risk. Since investors are risk averse they will prefer to choose the less risky portfolio at a given level of expected returns. As a result, only if there is a higher expected return compensation of holding a higher risky portfolio; investor will undertake such a portfolio. Thus, an investor can diminish portfolio risk by diversification between altered investments (Markowitz, 1952).

The Capital Asset pricing Model

The Capital Asset Pricing Model (CAPM) relays on the returns of individual assets or to portfolios, to the return on the entire marketplace. It includes unsystematic risk and systematic risk, where systematic risk is connected with the market and can't be diversified. Therefore, investors are compensated for taking systematic risk. CAPM assumes that investors are rational and risk-averse. Also, they are price takers, which means that they can't determine prices. There are no transaction or taxation costs while trading, and all types of information are available to all investors (French, 2003).

Arbitrage Pricing Theory (APT)

Arbitrage pricing theory (APT) is defined as an asset pricing valuation model that terms stock return as a utility of a sequence of risk aspects. The theory was suggested by Ross (1976). The theory is a development of Capital Asset Pricing Model (CAPM) by Sharpe (1964), and Litner (1965) that deal with that stock returns are a role of beta risk solitary. Contrasting CAPM, APT define that stock returns are an issue of a chain of risk factors extending from the firm and

macro risk influences. Compared to CAPM, APT theories are a lesser amount of restricting in its rules. APT theory adopts the markets are without a glitch competitive, Investors choose further wealth to a lesser amount with certainty, and asset return follow a stochastic process articulated a linear function of n risk factors.

Credit Risk and Stock returns

Credit risk occurs when the debtors are not able or ready to refund their duties to the creditors in settlement day. For that, financial organizations which are lending fund have exceptional policies to reduce this risk. For instance, they do not lend all amount of money to a particular business, therefore the loans are not met with unlimited outcome; if there any weakness in this particular firm. Except that they demand adequate guarantees and collateral to be the last options to manage credit risk (Raei, and Saeidi, 2010). In addition, Kithinji (2010) tested the credit risk management on the profitability of commercial banks in Kenya. The study covered the period from 2004 to 2008 concentrating on the volume of credit, level of non-performing loans, and profitability. The study showed that profitability of commercial banks is not impacted thru the number of gross loans and non-preforming loans. The study outcomes implicit that there may perhaps additional influences that impact on bank profitability. Also, Naser et al., (2011) examined the impact of credit and exchange risks on stock returns restricted volatility of banks. The study was applied on Australia by using asymmetrical and symmetrical GARCH models. The outcomes lead to a significant link between credit risk and market risk with stock returns volatility. Janssen (2012) tested the effect of credit risk on stock returns. The study was applied in the German, French and Dutch stock markets from 2004-2012. The results were revealed that there is no significant relationship between excess stock returns and credit risk. Furthermore, Aghababaei et al., (2013) found that credit risk have a significance effect on stockholder's value on commercial banks listed in Tehran Stock Exchange- Iran from 2005 to 2010. Mwaurah et al., (2017) studied the impact of credit risk on stock returns in 9 commercial banks listed at Nairobi securities exchange, for the period 2006 to 2015. Generalized least square regression model are applied. The results showed that ratio of non-performing loans (NPG) was negatively significant to stock returns. Although the ratio of loan loss provisions (LLG) was positively significant to stock returns. In addition, Bank size as moderator variable had a positive outcome with the impact of credit risk on stock returns. Additionally, Khan et al, (2018) examined the following independent variables: Credit Risk, Liquidity Risk, and the controllable variable, Company Size. The purpose was to estimate their influence on the dependent variable, stock returns. The sample covered the 50 non-financial companies that are listed in Pakistan stock Exchange for the period of 2010 to 2015. The outcomes showed that

Credit risk had negatively significant relationship with stock returns, while Liquidity risk and bank size had positively significant relationship with stock returns.

Liquidity Risk and Stock Returns

Generally speaking, liquidity hazard is occurred when the institution can't able to sell their products. Hence it will not obtain cash; therefore the firm's cost of manufacture will be excessively increasing. Consequently, firm's efficiency will decline. Liquidity risk is one of the risks that the banks cope with. Basel Committee on Banking Supervision (1997), well-defined liquidity risk as the lack of ability of the bank to fit in with minimizing in liabilities or else to keep reserving growths in assets. In other words, liquidity risk is developed when a bank is unable to settle up its liabilities and obligations due on the maturity date (Cicea, and Hincu, 2009). This definition indicated to guess that the greater the ratio, the lesser the liquidity risk, other are remain constant. As a result the estimated association with stock returns is negative. Akram (2014) studies the relationship between stock returns and liquidity risk using stage regression. The data of the study was covered on Karachi stock exchange over the period (2005 -2012). The result showed that liquidity risk is negatively correlated with stock returns. Moreover, Chikore et al., (2014) tested the relationship between stock returns and liquidity in Zimbabwe Stock Exchange. The study used Vector Auto Regression Model technique from February 2009 to December 2012. The outcomes point out that liquidity negatively impacted stock returns. As well, Saleh (2014) examined the impact of liquidity risk on performance on Jordanian banks system. The study was proven that loans to deposit ratio, and current ratio holds an important connection on the banks return on equity and return on investments. Over-all the study established that liquidity risk is an endogenous reason for Jordanian banks' performance. Besides that, Mehri (2015) investigated a study on the influence of financial risks on the association between earnings and stock returns. The study was proven a significant positive connection between earnings and stock returns. It is settled a negative significant influence of credit risk and capital risk on stock returns, however it found that the impact of liquidity risk on the stock returns is insignificant. Similarly, Bataineh and Alrabadi (2017) studied the impact of liquidity risk on stock returns for 30 companies which are listed in Amman Stock Exchange over the period (2004-2013). The authors applied fixed effect panel regression analysis. The outcomes indicated to statistically significant impact of liquidity risk on stock returns.

Solvability Risk and Stock Returns

Solvability risk ensues when the corporation is incapable to refund its obligations. Solvency states that the firm's long-run financial ability plus its ability of covering long term debts (Wild et

al., 2007). Other study is measured solvability risk by equating the entirely bank's financial debts as for all of its equity, which is named debt to equity ratio (Cheng and Nasir, 2010). The rule is conducted that: the upper the debt to equity ratio clues to the worse the stock price and financiers' returns; for this reason the great portion of banks' earnings will drive to creditors than to stockholder (Ambarwati, 2008). Consequently, investors will receive lesser return, so that they have lower concern to participate in any investment therefore it leads into diminishing stock prices. Thus banks need to be able to cope with their solvency risk accurately, hence they can create better earnings, acquire superfluous investors' confidence, and rise their stock value. Purnamasari et al. (2012) investigated an experimental study on the influence of financial risks and growth on the relationship between earnings and stock returns. Solvency risk presented a significant relationship to earnings and lastly to stock return. Mehri11 conducted the impacts of financial risks (liquidity risk, credit risk, and solvency risk) on the relationship amongst earnings and stock return. The results show that there is an existence significant positive relationship between stock returns and earnings. Moreover, credit risk and solvency risk have a negative impact on the relationship between earnings per share and stock return. Liquidity risk has irrelevant consequence on the relationship among earnings per share and stock returns. Moreover, Haque and Wani (2015) tested the association between financial risk and financial performance of Indian banks. The study likewise inspected the stimulus of financial risk on financial performance of Indian banks. Financial risks were distinct as interest rate risk, liquidity risk, credit risk, capital risk and solvency risk. The outcomes showed all financial risks studied represented a relationship thru financial performance. The study settled that solvency risk, credit risk and capital risk are significantly affected financial performance whereas interest rate and liquidity risk were insignificant to financial performance. Chasanah and Sucipto (2019) tested the impact of the ratio of liquidity, profitability, and solvency to stock return with a capital structure as a dominant variable. The data covered the company food and beverage sub-sectors listed in Indonesia Stock Exchange. The period was from 2013-2017, by using Partial Least Square (PLS) analysis. The results point out that solvency ratios had no impact on stock returns and capital structure.

Bank size and Stock Returns

In this study, size of the bank is practicality measured by using the year-end natural log of total assets (Angbazo, (1997), (Kosmidou, et al., 2005). Thus, when the demanders increase their claim on loans, smaller banks intend to provide extra loans compared to larger banks by dint of holding additional risky projects thru greater probability of expected returns. Then this will rise the anticipated value of credit risk. So, small banks will bare greater expected credit risk

compared to large banks. Because there is a proof of negativity relationship between credit risk and bank size. According to trade off risk-return theory, which states high risk is associated with high return; at stable economic time large banks realize low return compared to small banks. Therefore, over financial crisis large banks are minor influence compared with small banks (Berger, and Brouwman, 2013). This explains that the effect of risk and return in banks is determined through the state of the economy and bank size is negatively correlated to stock return at financial inflexible time (Shariat, and Khosravi, 2008). Therefore, Berger, and Brouwman (2013) resolute that bank size, market share and capital can be used as a control variable estimated as a log of asset base. They determined that the bulky banks are less affected thru financial crisis compared to the smaller banks, because of the positively correlated relationship between the bank size and to the probability of existence. All through regular times, the enormous banks represent low returns compared to the small banks. This clarifies that the influence of risk and return in banks is determined over the state of the economy. This remark was supported by Shariat and Khosvari (2008) who experimental that firm size is negatively associated to stock returns through times of financial problems. Laeven et al., (2014) they tested the significance of bank size with the range of the bulky bank's profit. Through using the economies of scale which support diversification models and risk declines. Though, large banks were susceptible caused by unbalanced capital and risky market events during the recession. These flaws such as tactic suggestions have been proposed to elevate the paybacks of enormous banks, and minimize the effects of their down decrease. In which, it comprises from capital price, constraint on market centered accomplishments and lessening of too giant to fall bonuses.

METHODOLOGY

In recent years, this study explores the relationship effect of various financial risks and stock returns. However, this paper focuses on the liquidity, credit, solvability risks with controllable variable (bank size) and stock returns. The target secondary data comprised of 13 Jordanian commercial banks listed in ASE. Bank's balance sheet data and income statements are attained from the Amman Stock Exchange database. The sample period covered from 2008 to 2018. It is essential to indicate that the period of the study started from 2008; which was considered the global financial crisis was taking place. The global financial crisis leaves a trail over the years until now. Therefore, its sequences on all the world specifically on emerging market as Joran. As an emerging market, Jordan before the crisis had been growing very well by financing its growth through borrowing in global capital markets. But unfortunately, when the crisis started, Jordan's market faced a severe credit resulted from developed countries with advanced

economics; which became very problematic to country like Jordan to continue its financing of foreign debt. To be more vibrant; all sectors in Jordan were affected by the crisis, even banks. They faced several kind of risks and its shares were declined eventually. Thus, the study will examine this particular period, to realize what the effect of diverse financial risks will be remark on the commercial Jordanian banks, and its sequences on stock returns.

The banks are namely as follows: Arab Bank, Bank of Jordan, Cairo Amman Bank, Capital Bank, Jordan Commercial Bank, Jordan Kuwait Bank, Jordan Ahli Bank, , Arab Jordan Investment Bank, Arab Banking Corporation Jordan, Societe Generale De Banque – Jordanie, Invest Bank, Bank al Etihad, and The Housing Bank for Trade & Finance.

However, Econometric dynamic generalized method of moment (GMM) of panel data is employed, for the measurement of banks' financial risks and their interface effects on stock returns. This approach is an applicable analysis that gives unbiased and consistent estimate parameters. Rather than the alternative traditional panel data estimators; which may yield to a bias and unreliable estimations. The GMM estimation was developed by Arellano and Bover (1995), and Blundell and Bond (1998). As following Windmeijer (2005); this paper is applied the two-step estimation system with determinate sample corrected standard errors. For given a lesser amount of biased measurement assessments and supplementary correct standard errors. The model is as follows:

$$R_{it} = \beta_0 + \beta_0 R_{it-1} + \beta_1 CR_{it} + \beta_2 LR_{it} + \beta_3 SR_{it} + \beta_4 Z_{it} + \varepsilon_{it}$$

Where; **R$_{it}$** denotes the variable used to measure stock returns of bank i in year t; it is calculated by Natural Logarithm of estimation index for commercial banks. The index is estimated by multiplying the closing price with number of shares. Then the following calculation is applied $Ln\left(\frac{PI_t - PI_{t-1}}{PI_{t-1}}\right)$, to measure stock returns. Where (PI) is the Price Index for commercial banks, PI$_t$ is the price index at the end of the period, PI$_{t-1}$ is the stock price at the end of the previous period. ; R$_{it-1}$ represents their lagged values; **CR** represent a ratio of provision for credit facilities to net direct credit facilities, measuring Credit risk, **LR** and **SL** denote, respectively, ratio of total deposit to total assets, measuring Liquidity risk, and ratio of total assets to total liabilities measuring Solvability Risk, **Z$_{it}$** denotes to size of bank, in which it is the log value of total assets, **ε**: is the error term, and finally **β**: is the coefficient of independent variables.

Bank's particular aspects which are determining bank's returns and risks can be endogenous. For instance, in order to increase the market interest rate; some banks will expose credit risk, at same time banks will gain great profit (Rose et al, 2013). Likewise, banks would shield themselves from uncertain liquid assets that lead to early withdrawals of reserves; by having an inducements to rise their stocks value's (Köhler, 2015). Moreover, some features that

influence bank's returns, other than the selected financial risks in this research, are problematic to measure or to recognize, hence it calls unobserved heterogeneity. To be more vibrant, if the effect of such features is not measured, then correlations between some of the coefficients will detected and the error terms will bias these coefficients. In this paper, the problem of endogeneity of regression is noticeably. Therefore, the dynamic generalized method of moment (GMM) is applied to estimate appropriate instruments. Consequently, there is no serial correlation between variables showed by error terms. That means; the independent variables and predetermined variables will be essentially weakly exogenous. Though, the difference GMM resolves unobserved heterogeneity since it presences of the fixed effects. In addition, Econometric methods are used to designate the impact of financial risks on stock returns. The data is firstly exposed to Descriptive Statistics, Augmented Dickey Fuller test, and Correlation.

ANALYSIS AND DISCUSSION

Descriptive Statistics

At descriptive level, as shown in table (1) is summarized the descriptive statistics such as: mean, standard deviation, skewness, kurtosis, minimum and the maximum of the study variables. The results indicate to Negative and low average stock returns for 10 years was obtained (-0.264985) with a standard deviation of (1.503487). While, the average of credit risk positively measured (0.049523) with a standard deviation of (0.019066). Continuously, the liquidity risk bank's mean is (0.655564) with a standard deviation of (0.068851). While solvability risk mean value is (1.166934) and its standard deviation is (0.036459). Finally, bank size mean is (21.42690), which is considered the natural log of asset size (Z) with a standard deviation of (0.984582).

Moreover, the wide-ranging gap between maximum and minimum value (max; 6.136305, min; -3.100545) of stock returns shows that there is a high volatility fluctuations in the ASE market. Meanwhile because the mean of all variables, except liquidity and solvability risks, are greater than the median, the distributions are positively skewed. Since the skewness of the variables are stand higher values than a normal skewness value of (0), unless liquidity risk. It represents a long right tail of distribution, which inferring that the data are fairly asymmetry. On the other hand, liquidity risk has a negative skewness demonstrating a long left tail of distribution. Conferring to Kurtosis which measure the degree of sharpness of the distribution of the series. The rule of thumb states that the values of kurtosis should be at value 3 to have a normal distribution, Mesocratic. Table (1) presented that stock returns, and bank size have positive kurtosis (sharply peaked with heavy tails) Leptokurtic distribution. Their kurtosis estimation values as (4.710288, 4.025360) respectively. While, credit risk, liquidity, and

solvability risks have a lower value of Mesocratic normal distribution (2.588545, 2.490603, 2.758017<3) respectively; so it is a platykurtic (flatted peak with lighter tails). According to Jarque-Bera test the p-values of stock return, and bank size are below (0.05); therefore reject the null hypothesis that states the data is normally distributed. However, credit, liquidity, and solvability risks are given a clue that we can't reject the null hypothesis.

Table 1. Descriptive Statistics

	R_{it}	CR	LR	SR	Z
Mean	-0.264985	0.049523	0.655564	1.166934	21.42690
Median	-0.573616	0.047217	0.657086	1.167802	21.38614
Maximum	6.136305	0.091015	0.809582	1.281459	23.97595
Minimum	-3.100545	0.007838	0.484358	1.081137	19.43534
Std. Dev.	1.503487	0.019066	0.068851	0.036459	0.984582
Skewness	0.945563	0.063970	-0.199886	0.202809	0.989725
Kurtosis	4.710288	2.588545	2.490603	2.758017	4.025360
Jarque-Bera	38.73775	1.106249	2.498347	1.329198	29.61046
Probability	0.000000	0.575150	0.286742	0.514480	0.000000
Sum	-37.89280	7.081778	93.74571	166.8715	3064.047
Sum Sq. Dev.	320.9870	0.051618	0.673142	0.188760	137.6552
Observations	143	143	143	143	143

Diagnostic Test

As mention before, Jarque - Bera test conducted that the data is not normally distributed for all types of variables. To test for stationarity, the research used Augmented Dickey Fuller test with lag Schwarz Information Criterion (SIC). Results in table (2) show the estimation T-Statistics and P-Value (Probability) at First Difference with constant and without Constant and Trend. Stationary was determined at a point where ADF probability is lower than the critical values at 1%, 5% and 10% significance levels. Outcomes indicate that at order (1), First Difference, with constant and with constant and trend; stock return, liquidity risk, solvability risk, and bank size were significant at different critical values. Thus the test result is stationary, therefore reject the null hypothesis which inferring that variables have a unit root. Whereas, credit risk seems to be insignificant therefore unit root is existed between values and non-stationary. However, at without constant and trend, all the variables, except bank size, are significant.

Table 2. Unit Root Test (ADF) Results

		At First Difference				
		d(R_{it})	d(CR)	d(LR)	d(SR)	d(Z)
With Constant	t-Statistic	0.0013	0.4025	0.0098	0.6429	0.0217
	Prob.	0.0091	0.1484	0.0098	0.0352	0.0024
		***	n0	***	**	***
With Constant & Trend	t-Statistic	0.0021	0.4586	0.0508	0.6462	0.0763
	Prob.	0.0437	0.3544	0.0196	0.0278	0.0183
		**	n0	**	**	**
Without Constant & Trend	t-Statistic	0.0001	0.0727	0.0005	0.2040	0.0139
	Prob.	0.0004	0.0210	0.0012	0.0034	0.2619
		***	**	***	***	n0

Notes:

a: (*)Significant at the 10%; (**)Significant at the 5%; (***) Significant at the 1% and (no) Not Significant

b: Lag Length based on SIC

c: Probability based on MacKinnon (1996) one-sided p-values.

Correlation Test

Roldan-Valadez et al., (2013) described a method of assessing the strengths of the relationship between variables namely the Pearson Correlation analysis. Hair et al., (2010) submitted that the correlation value of 0 evidences that no relationship among variables, however the correlation ± 1.0 indicates to a perfect negative/ positive relationship. Despite the fact that inferred the correlation within the value (0, 1) elucidates: first the correlation between (± 0.1, ± 0.29) show a slightly relationship, second the correlation between (± 0.30, ± 0.49) point out to an average relationship, and lastly the correlation with more than (± 0.50) presents a strong/solid relationship amongst variables. Pearson correlation test was prepared to approve the degree of multicollinearity between the variables. Table (3) points out that stock returns are negatively correlated to credit risk, solvability risk, and bank size. While stock returns are positively correlated to only solvability risk. The test held correlations coefficients of stock returns with credit risk, liquidity risk, solvability risk, and bank size as (-0.147056, -0.038058, 0.084460, and -0.494020) respectively. The highest positive correlation value is with stock returns and solvability risk (0.084460) while the highest negative correlation with stock returns and bank size (-0.494020). The highest level of correlation is between liquidity risk and credit risk (0.299376) indicating to a strong relationship between them.

Table 3. Correlation Matrix

	R_{it}	CR	LR	SR	Z
R_{it}	1	-0.147056	0.038058	0.08446	-0.494020
CR	-0.147056	1	0.299376	0.050595	0.141394
LR	-0.038058	0.299376	1	-0.35541	0.142800
SR	0.084460	0.050595	-0.355413	1	-0.116693
Z	-0.494020	0.1413946	0.1428001	-0.116693	1

Baseline Model Results and Discussion

In this section, stock returns are examined as a dependent variable with the different types of financial risks, by employing two-step Difference generalized method of moments (GMM) of dynamic panel data analysis; because it is efficient. However, Sargan test or Hansen test is applied to test the model's instruments, if they have correlation with error term or not. The Null Hypothesis of Sargan test states that the over-identification restrictions are valid with satisfying the orthogonality conditions, and the instruments are validly exogenous. In this paper, the Sargan test fails to reject the null hypothesis, and the model satisfied that at AR (2) there is no serial correlation between independent variables.

Table 4. Difference GMM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STOCK RETURN(-1)	-0.135670	0.040532	-3.347242	0.0011
CREDIT RISK	-0.842540	13.68468	-0.061568	0.9510
LIQUIDITY RISK	-8.081060	2.421737	-3.336886	0.0012
SOLVABILITY RISK	-17.44823	8.415757	-2.073281	0.0404
BANK SIZE	-1.569464	0.779210	-2.014175	0.0464

Table 5. Effects Specification

Cross-section fixed (first differences)

Mean dependent var	-0.057880	S.D. dependent var	1.461067
S.E. of regression	1.395468	Sum squared resid	218.1012
J-statistic	6.826382	Instrument rank	13
Prob(J-statistic)	0.555475		

Table 6. Arellano-Bond Serial Correlation Test

Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	NA	-87.303750	NA	NA
AR(2)	0.150875	9.704498	64.321370	0.8801

Table (4) represents the results of stock returns with credit, liquidity, solvability risks and bank size using two-step difference GMM estimation. The results show that, all types of financial risks are negatively correlated with stock returns. For more clarifying, all variables are statistically significant except credit risk. Though, stock returns and liquidity risk are significant at 1% level, while solvability risk and bank size are significant at 5% level.

The first sub-hypothesis which states that there is a significant relationship between credit risk and stock returns is tested. The result points to that credit risk has a negative coefficient insignificantly relationship with stock return with a p-value (0.9510); which is higher than α =0.05. Therefore the null hypothesis can't be rejected. The result of this study is confirmed with the study by Naser et al., (2011) who found a negatively relationship with stock returns. In contrast with the study by Alshatti (2015) who found a positively correlation between credit risk and stock returns.

The second hypothesis is examined for the relationship between the liquidity risk and stock returns. The result represents that liquidity risk has negative significant relationship with stock returns, estimated value of a probability (0.0012) which is lower than 1% level of significance. Thus, the null hypothesis is rejected, and accepted the alternative hypothesis. Which states that liquidity risk has significant effect on the stock returns of commercial banks listed ASE. The result of this study is adapted to liquidity preference theory that assumes liquidity must be recompensed with a premium below constant economic circumstances, else the link will be negative. Moreover, the result fit in the other study by Aga et al. (2013), Dick-Nielsen et al., (2013), and Cheng and Nasir (2010). In Contrast, Mehri (2015), Purnamasari et al., (2012), and Haque and Wani (2015) recognized that liquidity risk was insignificant to stock returns.

The third hypothesis tested the influence of solvability risk on the stock returns. Here, solvency risk has negative and significant impact on the stock returns at level 5%. Which means that with increase in solvability risk, stock returns will decrease. And because investors are worried about the ability of banks to meet all its financial commitments, so in this case they will agree to take lower returns rather than investing their money in insecure banks. As a result, the third sub-hypothesis is accepted. It ought to state that the result of this study are consistent with

the result of Soh et al., (2009), and Purnamasari et al., (2012) Besides the outcome is unreliable with the result of Cheng and Nasir (2010).

Last but not least, in order to test the fourth hypothesis, we determine the moderating influence of bank size on the impact of stock returns. The result shows a negative significant relationship between bank size and stock returns with a p-value of (0.0464), which lower than 0.05 level of significant. Which means that small banks are more exposed to several types of risks than bulky banks, as a result they gain higher stock returns. Therefore, the null hypothesis is rejected; which states that bank size has irrelevance effect on stock returns in commercial banks are listed in ASE. Generally speaking, it means that small banks can definitely be able to manage their financial issues related with risks compared with large banks particularly during recession's period. These conclusions are consequently associated with study by Shariat and Khosvari (2008). Nevertheless, it reverses by the studies of Aga et al., (2013), and Laeven et al., (2014) who illuminated their results to the fact that large banks are permitted to diversify their portfolio; subsequently they diminish their whole risks on their investments.

Therefore, all the independent variables in the full model regressed are jointly approved negative signs; representing a systemic influence that when any rising in risks mark into a reduction in stock returns. Furthermore, for rendering to control variable of bank size which has a negative coefficient of (-1.569464); it is signifying that large banks are expected to be more affected by risk; henceforward great return. Overall, bank size is considered a critical factor for investors when they make an investment decisions.

CONCLUSION AND LIMITATIONS

This paper empirically analyzes and inspects the impact of several kind of risks on the stock returns of Jordanian commercial banks. . Precisely, the study includes 13 commercial banks listed in ASE. The sample of the study is comprised a panel data set of 143 observations from 2008 to 2018, taking in consideration the influence of the global financial crisis on the Jordanian banking system. Since prior studies have submitted that the regression could be impacted by endogeneity, unnoticed heterogeneity and the stability of dependent variables. Therefore, empirically, this study is accomplished the research purposes via applying Difference generalized method of moments (GMM). Three types of risks are examined: credit risk, liquidity risk, and solvability risk.

In assessment results obtained, we provide evidence that financial risks have an impact on stock returns except credit risk. However, our study finds that credit risk has insignificant negatively relationship with stock returns even when considering a financial crisis period. This demonstrates that credit risk is not influence stock returns. The negatively relationship may

perhaps be due to the increase in the provision credit facilities which decreases stock returns. However, it can be inferred that liquidity, solvability risks, and bank size, except credit risk, are significant and therefore have serious impact on stock returns.

This paper highlights the significance of monitoring and regulatory assessments to reconsider the size of banks. Banks play an important role in economic resourceful. However, large banks with excessive transactions are realized higher returns, and in the same time they definitely are holding greater risks (Maudos and Solís, 2009). However, Jordanian commercial banks are recommended to have greater concentration and more improved polices to reduce the effects of solvability and liquidity risk because of their significant impact on banks stock returns.

Through concerns to the implications of this study, the outcomes are vital to bankers, managers and strategy makers in Jordan mainly during a fast progressing in markets. It may perhaps be inspiring them to keep an eye on the effective risk controlling plans in Jordanian commercial banks. Henceforward, it will avoid banks the opportunity of threating bankruptcy. This study affords a resilient way for the academics to inspect the financial risks and bank's stock returns of other Middle East countries. This study has quite a few limitations. The main one is the sample consist of only 13 commercial banks listed in ASE. Henceforth, the sample is considered in some extent small. Essentially, there are numerous financial risks face the banks, therefore prospect research may possibly offer a consideration on the other financial risks for instance: interest rate risk, market risk, and foreign exchange risk.

REFERENCES

Aga, B.S., Mogadam, V.F., & Samadiyan, B. (2013). Relationship between Liquidity and Stock Returns in Companies in Tehran Stock Exchange. Applied Mathematics and Engineering, Management and Technology, 1(4), 278-285.

Aghababaei, H.R., Ataei, S., & Azizkhani, H. (2013). Effects of Credit Risk Indicators on Shareholders' Market Value of Commercial Banks in IRAN. International Research Journal of Applied and Basic Sciences, 6, 1143-1149.

Akram, N. (2014). The Effect of Liquidity on Stock Returns: Evidence from Pakistan. IOSR Journal of Business and Management, 16 (2), 66-69.

Arellano, M., & Bover, O. (1995). Another look at the instrumental-variable estimation of error-components models. J. Econ, 68, 29–52.

Alshatti, A. (2015). The effect of credit risk management on financial performance of the Jordanian commercial banks. Investment Management and Financial Innovations, 12, 338-345.

Al-Tamimi, H., & AlMazrooei, F. (2007). Banks' Risk Management: A Comparison Study of UAE National and Foreign Banks. Journal of Risk Finance, 8 (4), 394-409.

Ambarwati, S. (2008). Earnings Response coefficient. Jurnal Akuntabilitas, 7 (2), 128-134.

Angbazo, L. (1997). Commercial Bank Net Interest Margins, Default Risk, Interest Rate Risk, and Off-Balance Sheet Banking. Journal of Banking and Finance, 21, 55-87.

Basel Committee on Banking Supervision (BCBS). (1997). Working Paper on the Regulatory Treatment of Operational Risk, Bank for International Settlement. Bank for International Settlements, BCBS Publications, (8), Switzerland.

Bataineh, M. & Alrabadi, D. (2017). The Effect of Liquidity Risk on Stock Returns: The Case of Amman Stock Exchange during (2004-2013). Arab Journal of Administration, 37 (1).

Berger, A. N., & Brouwman C, H. (2013). How Does Capital Affect Bank Performance During Financial Crisis? Journal of Financial Economics, 146–176.

Bhati, V. and Sultan, J. (2012). Leverage Risk, Financial Crisis and Stock Returns: A Comparison among Islamic, Conventional and Social Responsible Stocks. Islamic Economic Studies, 20 (1).

Blundell, R.W.; & Bond, S.R. (1998). Initial conditions and moment restrictions in dynamic panel data models. J. Econ, 87, 115–143.

Central Bank of Jordan. http://www.cbj.gov.jo

Chasanah,N. & Sucipto, A. (2019). Liquidity Ratio, Profitability, and Solvency on Stock Returns with Capital Structure as an Intervening Variable (Study on Food and Beverage Sub Sector Listed In Indonesia Stock Exchange (Idx) Period 2013-2017). Jurnal Bisnis dan Manajemen, 3 (1), 52-68.

Cheng, F. F., & Nasir, A. (2010). Earning Response Coefficients and the Financial Risks of China Commercial Banks. International Review of Business Research Papers, 6 (3), 178–188.

Chikore, R., Gachira, W., Nkomo, D., & Chiwanza, W. (2014). Stock Liquidity and Returns: Evidence from the Zimbabwe Stock Exchange. Journal of Contemporary Research in Business, 6 (3).

Cicea, C., & Hincu, D. (2009). Performance evaluation methods in commercial banks and associated risks for managing assets and liabilities. Communications of the IBIMA, 7, ISSN: 1943-7765.

Cooper, D.R., & Schindler, P.S. (2011). Business Research Methods (11th ed.). McGraw-Hill Higher Education, New York.

Dick-Nielsen, J., Gyntelberg, J., & Lund, J. (2013). From Funding Liquidity to Market Liquidity: Evidence from Danish Bond Markets. Journal of Economic Literature, E43, G12, G21.

French, Craig W. (2003). The Treynor Capital Asset Pricing Model. Journal of Investment Management, 2 (1), second quarter, 60–72. Available at http://www.joim.com

Gujrati, D.N. (2004). Basic Econometric (4th ed.). The McGraw-Hill Companies, NewYork.

Haque, S.M. & Wani, A. A. (2015). Relevance of Financial Risk with Financial Performance: An Insight of Indian Banking Sector. Pacific Business Review International, 8 (5).

Hair Jr., J.F., Black, W.C., Babin, B.J. & Anderson, R.E. (2010). Multivariate Data Analysis: A Global Perspective, (7th ed.). Pearson Education, Upper Saddle River.

Janssen, L. (2012). The Effect of Credit Risk on Stock Returns. Tilburg University, Netherlands.

Jorion, P. (2007). Financial Risk Manager (4th ed.). John Wiley & Sons, Inc, New Jersey.

Kithinji, A. (2010). Credit Risk Management and Profitability of Commercial Banks in Kenya. School of Business, University of Nairobi, Nairobi.

Köhler, M. (2015). Which banks are more risky? The impact of business model on bank stability. J. Financ. Stab., 16, 195–212.

Kosmidou, K., Tanna, S., & Pasiouras, F. (2005, June). Determinants of profitability of domestic UK commercial banks: Panel evidence from the period 1995-2002. Money Macro and Finance (MMF) Research Group Conference, 45, 1-27.

Laeven, L., Ratnovski, L., & Tong, H. (2014). Bank Size and Systemic Risk. IMF Staff Discussion Note 14/04.

Lee, C. F., Finnerty, J. E., & Chen, H. Y. (2010). Risk-Aversion, Capital Asset Allocation, and Markowitz Portfolio-Selection Model. Handbook of Quantitative Finance and Risk Management, Springer, Boston, MA, 69-92.

Lintner, J. (1965). The Valuation of Risk Assets and the Selection of Risky Assets in Stock Portfolios and Capital Budgets. The Review of Economic and Statistics, 47 (1), 13-37.

Maudos, J., & Solís, L. (2009). The determinants of net interest income in the Mexican banking system: an integrated model. Journal of Banking and Finance, 33, 1920-1931.

Margaret, W., & Kevin, D. (2010). Financial Risk Management for Management Accountants. The Society of Management Accountants of Canada (CMA Canada), the American Institute of Certified Public Accountants, Inc. (AICPA) and the Chartered Institute of Management Accountants (CIMA).

Markowitz, H. (1952). Portfolio Selection, Efficient Diversification of Investments. Journal of Finance, 12, 77-91.

Mehri, A. B. (2015). The Effects of Financial Risks on the Relationship between Earnings and Stock Returns. International Journal of Organizational Leadership, 4, 154-169.

Mwaurah, I. Muturi, W. & Waititu, A. (2017). The Influence of Financial Risk on Stock Returns. International Journal of Scientific and Research Publications, 7, Issue 5.

Naser, S., Mohammad, E., Mohammad, R. H., & Akbar, A.T. (2011). Designing and identifying the model to investigate the Effect of Credit and Exchange Risk on Stock Returns of Banks (GARCH Approach). Australian Journal of Basic and Applied Sciences, 5 (11), 1519-1532.

Purnamasari, K., Herdjiono, I., & Setiawan, E. (2012). Financial Risk, Growth, Earnings and Stock returns Relationship: The Case of Indonesia. International Review of Business Research Papers, 8 (7), 79-93.

Raei, R. & Saeidi, A. (2010). The principles of financial engineering and risk management (5th ed.). Tehran, Iran: SAMT.

Roldan-Valadez, E., Rios, C., Suarez-May, M.A., Favila, R., & Aguilar-Castañeda, E. (2013). Main effect and interactions of brain regions and gender in the calculation of volumetric asymmetry indices in healthy human brains: ANCOVA analyses of in vivo 3T MRI data. The Anatomical Record, 296 (12), 1913-1922.

Rose, P, S. & Hudgins, S. (2013). Bank Management and Financial Services (9th ed.). McGraw, New York.

Ross, S. A. (1976). The Arbitrage Theory of Capital Asset Pricing. Journal of Economic Theory,13, 341-360.

Saleh, A. (2014). Bank Liquidity Risk and Performance: An Empirical Study of the Banking System in Jordan. Journal of Finance and Accounting, 5 (12).

Shariat, P., & Khosravi, F. (2008). Relationship Between Shares Returns with Firm Size, the Ratio of Market Value to Book Value Benefit Ratio Stock Prices in Tehran Stock Exchange. Journal of Accounting Research, (20).

Sharpe, F. (1964). Capital Asset Prices: A Theory of Market Equilibrium under Conditions of Risk. Journal of Finance, 19 (3), pp. 425-442.

Sobia, Q., Arshad, H., & Szabo, Z. (2015). Financial Risk & Share behavior. International Journal of Scientific & technology Research, 4 (4).

Soh, W. N., Cheng, A., & Nassir, A. (2009). The effect of financial risk on the earnings response in Thailand bank stock. International Research Journal of Finance and Economics, 31, 55–6.

Wild, J., Subramanyam, k., & Halsey, R. (2007). Financial Statement Analysis (10th ed.). McGraw Hill, Boston.

Windmeijer, F. A. (2005). Finite sample correction for the variance of linear efficient GMM estimators. J. Econ.,126, 25–51.