THE EFFECT OF SYSTEMATIC RISKS ON COMPANIES` FINANCIAL PERFORMANCE – EMPIRICAL APPROACH

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ABSTRACT

Different economic sectors in the country are exposed to many risks that may reflect a negative impact and threaten their financial performance, thus their existence and sustainability. This study aims at investigating the impact of systematic risks on Jordanian industrial companies' financial performance during the period of (1999-2018) listed at Amman Stock Exchange (ASE). The study employed multi regression analysis to analyze the research data. The analysis results concluded that there is significant and positive impact of all the study systematic risks variables on the dependent variable Return on Equity (ROE) and there is a positive impact of inflation rate and interest rate on cash flow per share (CSF). Additionally, the analyses results indicate that, there is significantly positive impact of companies' size on the impact of interest rates and cash flow per share, but the case was not the same regarding ROE as the moderating variable (company`s size) has adversely impacted the role of independent variables. The research concluded many recommendations of which, the necessity of strengthening the role and responsibility of management in taking precautionary measures to reduce the impact of risks on performance of companies, and to analyses such potential risks in order to mitigate them or eliminate its effect.

Keywords: Systematic, Risks, Performance, Industrial, Impact

INTRODUCTION

Industrial sector considered as the backbone of the Jordanian economy, as it plays a crucial role in reducing unemployment rates by employing 215,000 workers, which is 21% of the total Jordanian workforce. The number of industrial institutions across Jordan is approximately 18,000 entities (Small, Medium and Large) (Jordan Chamber of Industry, 2019). In 2019, the Jordanian industrial sector achieved 25.2% of total Jordanian GDP and it participates up to 96% of Jordanian export volume, so its contributes significantly towards filling the deficit in the trade balance through industrial exports. Furthermore, The Jordanian industrial sector serves local markets, by supplying local products, thus reducing imports and achieving self-sufficiency to certain extent, it's considered as the most attractive sector for foreign investment, where the industrial sector attracted 70% of the total foreign investments in Jordan (Jordan Chamber of Commerce and Industry, 2019). The industrial sector divided into several sections: manufacturing, extractive industries, and electricity and water (ayasreh, 2014), The manufacturing industries sector contributes around 20.1% of Gross Domestic Product (GDP), while the contribution of the extractive industries sector reached 2.3% and remaining sub industrial sector (electricity and water sector) contributed 18% of the Gross Domestic Product (GDP) for the year 2019 (Annual report of the Central Bank of Jordan, 2019).

The industrial sector is also considered as one of the most important sectors that play a major and fundamental role in achieving economic growth. Economic growth rates were between 4%-6% from 2000 to the end of 2004. After that, economic growth rates continued to rise until 2008, reaching 8%, thereafter growth rates began to decline, as a result of the financial crisis and the surrounding political conditions, despite the difficulties and crises that the economy confronted from every now and then, fortunately the Jordanian industrial sector was able to resist and indeed sustain its role in economic development (Jordan Investor's Association, 2019). Different economic sectors in Jordan face a variety of risks as a result of changing economic, political, or social conditions and this may have an adverse effect on the financial performance of these sectors. The industrial sector, such as the banking sector and the service sector, exposed to such risks that may affect its performance. One of the major threatening risks that impact the industrial sector are the systematic vector volatility.

Generally speaking, companies' management aim to improve the company financial position and enhance its profitability. Thus, they use several measures to assess and determine the level of company performance, as these measures allow managers to plan and make the right decisions regarding risk mitigation. Such an assessment management assist in detecting and correcting weaknesses in order to sustain company`s financial position toward achieving its goals.

The company's ability to efficiently use its assets to achieve returns can be determined by the following equations: Return on Equity (ROE), Return on Assets (ROA), profit margin ratio, these indicators is known as profitability measures (Purdy & Langemeier, 1995). Companies exposed too many risks that may affect their performance, and the inability of a company to control the risks that they face, will definitely affect overall stability of institution at all levels negatively. Thus, the Company or the financial institution may incur financial losses and consequently their performance will decline. Therefore, companies in general must control these risks in order to maintain their financial performance and eventually achieve their main goal, which is to maximize the wealth of owners (Noor & Abdalla, 2014).

Increased competition at both local and international levels has increased the risk exposure faced by various companies in different sectors, one of these risks are systematic risks. So, measuring tools and preventive procedures must be considered, analysed and interpreted in order to reduce the impact of such risks on companies` financial performance (Fesinsties et al., 2016). Accordingly, this study aims at identifying the effect of macroeconomic factors on Jordanian industrial companies` performance. The effect of market interest rate, inflation rate, and GDP volatility on the performance of Jordanian industrial companies will be investigated and analysed, also, companies' total assets as a proxy for companies' size will be employed as a moderator variable and its impact on the nature and magnitude of the relationship between macroeconomic factors and the financial performance indicators. Return on Equity (ROE) and Cash Flow per Share (CFS) will be used as a proxy for industrial companies' financial performance.

LITERATURE REVIEW

The issue of systematic risks and its impact on company`s financial performance has been widely discussed by various researchers in different domain and sectors, and it's obvious that there was no general consensus on the nature of systematic risks effect on company's financial performance, and this is may be attributed to the country characteristics or study period or may be due to economic conditions.

Kavussanos, et al., (2002) aimed to discover the risks faced by international industries and their impacts on returns. The study found that there is a significant impact of systematic risks on international industries financial performance. Staikouras & Wood (2004) examined the effect of macroeconomic and microeconomic variable on performance. The results showed that macroeconomic risks have major impact on profitability, while there is negative

impact of interest rate on profitability. However, Njoroge (2013) found in a study on the correlation of interest rate with financial performance that there is a positive correlation between interest rate and financial performance but this correlation is insignificant.

Hyde (2007), study revealed that there is a positive correlation between beta and all industries, it also concluded that the interest rate and the exchange rate have a major impact on stock future return. Scordis, et al., (2008) found that risk management has an effective impact and role in determining the direction of the relationship between systematic risks and companies cash flow. Malawi and Bader (2010) incline that there is an inverse relationship between the interest rate and the investment volume in stock market. Jawad & Haq (2012) study detect that there is an adverse relationship between the interest rate and stock market price. Al-Qaisi (2011) on his investigation on macroeconomic factors on industrial companies, find out that financial variables that affect systemic risks are the same in developed and emerging markets, and that company`s size plays a major role toward macroeconomic variables. Iqbal & Shah (2012) conclude that there is a direct correlation between company size, profitability, and liquidity with systematic risks, while Iqbal et al., (2015) showed that there is a negative correlation between systematic risk and liquidity, the results of the analysis also showed that there is a positive correlation between company`s returns and systematic risks.

Al-Omari & Azzam (2017), Ramadan (2016) reveals that there is a positive relation between Gross Domestic Product (GDP) and performance. Zulfiqar & Din (2015) on their study on the impact of systematic risk on financial performance indicated that there is an impact of inflation and interest rate on return on asset. While Aboul Soud (2018); Ngumo (2012) exposed that real interest rate and inflation rate have a great impact on stock market price. This is in contrary to Yogaswari, et al., (2012) study which concluded that, inflation rate has an adverse impact on the stock market price. Al-Majali & Al-Assaf (2014) found that there is an observable link the performance of Amman stock exchange and the macroeconomic variables. Astuty (2017) also proclaim that stock price greatly affected by systematic risks, and that share price is adversely and significantly affected by macroeconomic risks.

METHODOLOGY

This study investigates into the effect of systemic risks on the performance of industrial companies listed at the Amman Stock Exchange for the period 1999-2018. Regression analysis will be adopted to find out the effect and correlation matrix between the studies variables. Inflation rates, interest rates and gross domestic product are the proxy for independent variables (systematic risks) while the return on equity and cash flow per share represents the dependent variables proxy. Regarding, the study sample will consist of all the industrial companies listed at Amman Stock Exchange – (ASE), and their full financial data are available for the study period.

Variable Details

Table 1 STUDY VARIABLES CALCULATION AND TYPE			
Variable	Calculation	Source	Type
Return on equity – ROE	Net Profit after Tax/Total Equity Rights	Gitman, (2013)	Dependent
Cash Flow per Share - CFS	Operating cash flow/No. of outstanding shares	Gitman,2013	Dependent
Gross Domestic Product -GDP	Market value of goods and services manufactured in a particular period	Delong, (2002)	Independent
Inflation Rate – INR	(Current Period CPI − Prior Period CPI)/ Prior Period CPI	Delong, (2002)	Independent

Interest Rate – IR	Weighted average of interest rates related to loans and advances	Mishkin, Eakins, (2015)	Independent
Size of company – Total Assets	LN (Total Assets)	Mumtaz, et al., (2013)	Moderator

EMPIRICAL RESULTS

Descriptive Statistics

Table (2) below demonstrates descriptive statistic of dependent and explanatory variable of the study sample. Positive (ROE) with a mean of (0.101), indicates that it implies an added value on equity shareholders, with a standard deviation of (0.059), with a minimum value of (0.010) and a maximum value of (0.250), this suggests a huge fluctuation in industrial sector returns, as this may be attributed to volatile economic condition during the study period and the effect of political unrest in the surrounding countries. On the other hand, (CFS) has a mean of (0.323), with a standard deviation of (0.105), with a minimum value and maximum value of (0.140) and (0.510) respectively. This elucidates that operational cash flow within the industrial sector is instable and this may expose this sector to liquidity problem if it is not controlled and managed efficiently.

Table 2 DESCRIPTIVE STATISTICS OF DEPENDENT AND EXPLANATORY VARIABLES				
Variables	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
ROE	0.01	0.25	0.101	0.059
CFS	0.14	0.51	0.323	0.105
Annual GDP Growth rate	0.019	0.086	0.044	0.022
Annual Inflation Rate - INR	-0.01	0.15	0.034	0.035
Annual Interest Rate - IR	0.08	0.1	0.088	0.006
Size log (Total Assets)	9.3	9.63	9.507	0.126

As for the independent variables, it is noticeable that GDP growth rate and annual INR are depicting a high variation between minimum value and maximum, and this may be referred to the reason of instability in the Jordanian Govt. monetary and financial policies. We can conclude in this regard that the Jordanian economy is experiencing a high inflation rates during certain periods and this may affect companies' performance adversely and low GDP and this also impact demand negatively. IR and Assets values are relatively stable with a slight variance between minimum and maximum values.

Regression Analysis

For the purpose of realizing the study objectives, multiple regression analysis is adopted to examine the association between the independent variables and the dependent variable, to test the impact of independent variables (GDP, Inflation and Interest Rate) on (ROE) and on (CFS), with and without the moderator variable (Log Size of Total Assets). Thus, some assumptions have to be satisfied before running data analysis: normality, multi-collinearity and autocorrelation.

Multi-Collinearity

A multi-collinearity problem occurs if the correlation among independent variables is

above 80% (Hair et al., 2010); (Tabachnick and Fidell, 2007). Two methods are used to discover multi-collinearity problems of the study model: Pearson Correlation (correlation matrix) and Variance Inflation Factor (VIF).

Table 3 VARIABLES` PEARSON CORRELATION				
Independent variables	**GDP**	**Inflation**	**Interest Rate**	**Size Log**
GDP	1			
INR	0.152	1		
IR	-0.148	0.193	1	
Size log – Total Assets	-0.291	0.307	-0.323	1

Table (3) shows the Pearson Correlation of the study variables. It is noticeable that all the correlation coefficients among the independent variables in the correlation matrix are less than 80%. This implies that multi-collinearity does not exist between independent variables (Hair et al., 2010).

Table 4 TEST OF MULTI-COLLINEARITY USING VIF AND TOLERANCE		
Independent variables	**Tolerance**	**VIF**
GDP	0.723	1.382
INR	0.69	1.45
IR	0.681	1.469
Size log - Total Assets	0.577	1.732

Table (4) results implies that VIF values of all independent variables are lower than 10, and their tolerance values are higher than 0.1, confirming Hair, et al., (2010) and (Gujarati, 2009) criteria. So, the study results reveal no issue of multi-collinearity for running regression analysis. Moreover, in order to examine normality amongst regression variables, Kolmogorov Semirnov test was employed, and the following results were depicted – table (5):

Table 5 TEST OF KOLMOGROV-SMIRNOV		
Kolmogorov-Smirnov		
Variables	**Statistical value**	**Sig.**
ROE	0.152	0.2
CFS	0.105	0.2
GDP Rate	0.168	0.142
INR	0.148	0.2
IR	0.184	0.075
Size log – Total Assets	0.185	0.072

Based on (Hair et al., 2010), the normality problem exists when the probability in the Kolmogorov Semirnov test is lower than 5%, as shown in table (5), the study variables in regression are normally distributed, as all variables Sig. Value is more than 5%.

Autocorrelation

The existence of autocorrelation problem means that an error exists in certain period, and then it will affect the errors of subsequent periods in a way that leads to the repetition of the same error more than once. In order to know this, the Durbin-Watson autocorrelation test

was used. Table (4.5) indicates that the value of (Durbin-Watson) test is equal to (2.078) and (2.043) for ROA and CFS respectively, which indicates that there is no autocorrelation between errors, due to the approach of the test value should be below value 2 (Hair et al., 2010).

Table 6	
TEST OF DURBIN-WATSON AUTOCORRELATION	
Study Models	**Durbin-Watson value**
Residuals of the first study model ε (ROA)	2.078
Residuals of the second study model ε (CFS)	2.043

Regression Analysis

In order to examine the impact of Systematic risk on the performance of Jordanian industrial companies, using ROE as financial performance proxy:

a. Before adding company size as moderator variable:

$$ROE = \beta_0 + \beta_1\, GDP + \beta_2\, INR + \beta_3\, IR + \varepsilon_{it}.$$

Table 7			
REGRESSIONS ANALYSIS TEST RESULTS RELATED TO (ROE) AS DEPENDENT VARIABLE			
Variables	**B**	**T-Value**	**Sig**
(Constant)	-0.027	-2.431	0.025
GDP	0.009	2.873	0.01
INR	0.868	2.597	0.019
IR	0.694	1.982	0.062
R		65%	
R^2		43%	
Adjusted R^2		37%	
F		13.932	
Sig.		0	

As presented in Table (7), the regression analysis outcome, indicate that the R^2 for the model is 43%, which indicate that the independent variables incorporated in the model, explain 43% of the ROE variation and the remaining 57% is due to some other variables such as internal factors and other systematic variables such as unemployment. Independent variables, GDP and INR are positively and significantly correlated with ROE as a proxy of financial performance of industrial companies listed in ASE with sig. Equal to (0.010, 0.019) respectively.

$$CFS = \beta_0 + \beta_1\, GDP + \beta_2\, INR + \beta_3\, IR + \varepsilon it.$$

Table 8			
REGRESSIONS ANALYSIS TEST RESULTS RELATED TO (CFS) AS DEPENDENT VARIABLE			
Variables	**B**	**T-Value**	**Sig**
(Constant)	0.113	3.279	0.004
GDP	0.003	0.237	0.816
INR	0.407	3.531	0.002
IR	2.077	2.459	0.024
R		40%	
R^2		16%	

Adjusted R^2	15%
F	20.175
Sig.	0

The above results suggest that the independent variable can explain only 16% of the change in CFS (R^2=16%). Independent variables, INR and IR are positively and significantly having an impact on Cash Flow per Share (CFS) related to Jordanian industrial companies listed in Amman Stock Exchange (ASE) with a beta values (0.407) and (2.077) respectively, as interest rate displayed more impact on CFS than inflation rates. This, suggest that any increase in inflation rate and in market interest rate will lead to an increase in the companies` operational cash flow. Results also show that the GDP does not impose an impact on CFS with B value of (0.003).

b. After adding the company size as a moderator variable:

The model below was employed to examine the moderating role of company size on the impact of Systematic risk on performance (ROE) related to Jordanian industrial companies.

$$ROE=\beta_0+\beta_1\ GDP+\beta_2\ INR+\beta_3\ IR+\beta_4\ COM.SIZE+\beta_5 GDP*COM.SIZE+\beta_6 INR*COM.SIZE+\beta_7 IR*COM.SIZE+\varepsilon it.$$

Table 9
REGRESSIONS ANALYSIS TEST OF (ROE) AS DEPENDENT VARIABLE

Variables	Step 1			Step 2			Step 3		
	B	T-Value	Sig.	B	T- Value	Sig.	B	T-Value	Sig.
(Constant)	-0.027	-2.431	0.025	0.039	2.301	0.033	-2.66	-2.644	0.016
GDP	0.009	2.873	0.01	0.008	2.37	0.029	0.169	2.79	0.012
INR	0.868	2.597	0.019	0.879	2.193	0.044	0.098	0.776	0.453
IR	0.694	1.982	0.062	0.63	2.625	0.017	-3.073	-2.841	0.01
Size log – Total Assets				-0.006	-3.052	0.007	0.278	2.525	0.021
GDP * Size Co.							-0.016	-2.935	0.008
INR * Size Co.							-0.001	-2.033	0.056
IR * Com. Size.							0.323	3.454	0.003
R	65%			68%			76%		
R^2	43%			47%			57%		
Adjusted R^2	37%			40%			48%		
F	13.932			12.783			12.892		
Sig.	0			0			0		

According to the table (9) above, there is significantly negative impact of the moderator variable company size on the impact of (GDP) on industrial companies' financial performance (ROE) with beta value equal to (-0.016). The results also disclosed that there is no significant impact of company size on the impact of INR on (ROE) with B coefficient value of (-0.001). Additionally, companies` size reflected a significant and positive effect on the impact of interest rates on the (ROE) with beta coefficient value equal to (0.323).

Table 8 outcomes also prove that, that there is at least one relationship between the independent and ROE as dependent variable were R correlation for the models is 65%, 68% and 76% respectively. On the other hand, R^2 of the model is 43%, 47% and 57% respectively which imply that the independent variables explain 43%, 47% and 57% of ROE fluctuation. Regarding the role of company size as a moderating variable on the impact of Systematic

Risks on the financial performance represented by (CFS) of Jordanian industrial companies, the following model is adopted:

$$CFS= \beta_0+\beta_1\ GDP+\beta_2\ INR+\beta_3\ IR+\beta_4\ COM.SIZE+\beta_5 GDP*COMPANYSIZE+\beta_6 INR*COM.SIZE+\beta_7\ IR*COM.SIZE+\varepsilon it.$$

Table 10
REGRESSIONS ANALYSIS TEST OF (CHS) AS DEPENDENT VARIABLE

Variables	Step 1			Step 2			Step 3		
	B	T- Value	Sig.	B	T- Value	Sig.	B	T- Value	Sig.
(Constant)	0.113	3.279	0.004	2.231	3.773	0.001	-2.537	-3.606	0.002
GDP	0.003	0.237	0.816	-0.002	-2.154	0.044	0.303	2.616	0.017
Inflation	0.407	3.531	0.002	0.748	3.827	0.001	-0.011	-4.004	0.001
interest Rate	2.077	2.459	0.024	0.017	4.003	0.001	-0.07	-3.008	0.007
Size log – Total Assets				-0.203	-3.741	0.001	0.283	2.675	0.015
GDP * Size Co.							-0.03	-1.604	0.135
INR * Size Co.							0.01	5.191	0
IR * Size Co.							0.1	7.195	0
R	40%			48%			73%		
R2	16%			23%			54%		
Adjusted R2	15%			20%			53%		
F	20.175			18.629			19.696		
Sig.	0			0			0		

Regression analysis results (table 10) assert that, R correlation for the models is 40%, 48% and 73% respectively, which incline that there is at least one relationship between the independent and dependent variable of CFS. Moreover, R2 for the models is 16%, 23% and 54% respectively which indicate that the independent variables explain 16%, 23% and 54% of CFS changes. Where, the models adjusted R2 is 15%, 20% and 53% respectively which suggest that, the independent variables explain a portion of the changes in CFS when the error term is adjusted. Furthermore, the results demonstrate that the beta value of (0.10) for the interest rate moderated by company size, which means that there is a significantly and positive impact of companies' size on the impact of interest rates on the cash flow per share of Jordanian industrial companies listed in ASE. On the other hand, the results show that there is no significant impact of companies' size on the impact of GDP and CFS, with beta equals to (-0.030).

DISCUSSION AND CONCLUSION

The industrial sector plays a fundamental role in the Jordanian economy, the industrial sector is exposed to many unexpected circumstances and risks that may negatively affect its financial performance. Therefore, this study aimed to investigate the impact of systemic risks on Jordanian listed industrial companies' financial performance. The study outcomes show that, that the Independent variables, GDP, Inflation Rate and Interest rate are positively and significantly correlated with ROE as a proxy of financial performance (Al-Omari & Azzam, 2017; Ramadan, 2016). Moreover, there was no impact of gross domestic product (GDP) on industrial companies' Cash Flow per Share (CFS). While interest rate imposed more impact on CFS than inflation rate, which imply that, low interest rate will generate more cash flow for companies, as increase in prices will limit products demand lowering CFS (Zulfiqar & Din, 2015).

It's worth mentioning in this context that, Jordanian industrial sector has undergone many regulatory adjustments to increase foreign ownership and enhance competitiveness. Thus, the inflow and outflow of foreign capital have a significant impact on Jordan. The results also disclosed that there is no significant impact of company size on the impact nature of inflation rate on ROE (Yogaswari, et al., 2012), this means that the moderator variable has reflected an adverse impact of inflation rate on ROE. On the other hand, regression analysis outcome shows that, the moderating variable depicted a significant and positive impact of interest rate ROE; which means that if interest rate moderated by companies' size, it will lead to increase of the ROE.

Moreover, both inflation rate and interest rate moderated by company size have significant and positive impact on CFS, while GDP moderated by company size has a no significant impact on CFS. Regarding GDP and ROE, the results show that there is significantly negative impact of the moderator variable of GDP on return on equity as a proxy of industrial companies' financial performance.

Finally, the results affirm that, there is a significant impact of systemic risks variables on industrial companies` financial performance (Hyde, 2007; Al-Majali & Al-Assaf, 2014). Based on that, the study suggests strengthening the role and responsibility of management in taking precautionary measures to reduce the impact of systematic risks on companies` financial performance, hence Companies' management should take into consideration and analyses all systematic risk that may impact their financial performance, especially factors that displayed a positive impact such as interest rate and inflation rate (Scordis el. at, 2008). The industrial sector is considered one of the main sectors and has a major role in economic development. Government should direct financial institution to reduce lending rate in order to encourage borrowing, ultimately escalating demand on product, which definitely will have a positive effect on industrial companies' financial performance and this is so regarding inflation rate.

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