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The Relationship between Amman Stock Exchange (ASE) Market and Real Gross Domestic Product (GDP)

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Abstract

Purpose: The purpose of the study is to investigate the relationship between Amman Stock Exchange (ASE) market development and Real Gross Domestic Product (GDP).

Design/Methodology/Approach: The study investigated the relationship between independent variables: ASE market sectors on dependent variable i.e. Real GDP. The study used 14 years data from 1999 to 2012. Statistical techniques such as descriptive statistics, t-test, ANOVA test, correlation, simple and multiple regressions, stepwise regression, were employed.

Findings/Results/Conclusions: Pearson correlation results showed that the four sectors of ASE market are strongly related to each other and are strongly related to ASE general indicator. Among the four ASE sector only industrial sector showed a strong relationship with GDP, while others did not show a significant relationship with GDP including ASE general indicator. Simple regression test showed that there is no effect of ASE general indicator on GDP. While multiple regressions showed that there is a strong effect of the ASE sectors together on GDP, but results did not show any significant effect of each sector when considering the four sectors together on GDP. Furthermore, first stepwise regressions model showed that there is a strong positive significant effect of industries sector on GDP, while second model showed that there is a strong positive significant effect of industries sector on GDP and there is a negative significant effect of insurances sector on GDP. Finally, simple regression showed that when each ASE sector regressed separately against GDP, only industries sector showed a high a significant effect on GDP.

Research Limitations/Recommendations: Limitations to data access refer to the fact that gathering data from ASE market and government institutions reports is restricted to the period of these data, which may limit the quality and quantity of the collected data. Second, the collected data is treated as a package, not as yearly, nor considering crises, which may have different results. Therefore, further empirical studies considering periods and crises are needed. Third, the research findings are based on data collected from ASE market and government institutions only. Collecting data at an organization level and an industry level would provide further robust results. Fourth, the results are limited to Jordan. Generalizing results of a Jordanian setting to other countries may be questionable. Therefore, the results may be carefully interpreted. Further empirical researches involving data collection over diverse countries are needed.

Contributions/Practical Implications: The research makes significant theoretical and empirical contributions to literature regarding influence of stock markets on GDP. The research results might help both academics and practitioners to be more ready to understand the components of stock market and their effect on GDP. The conceptual model of this study represents an integrated view on ASE. It might be not advisable to use parts of the model independently due to the interrelatedness of the components of the model. There is a need to analyze data at an organization level in order to clearly prove the assumptions of the ASE method.

Social Contribution: The current study results may help investors to select their investment sector and may provide stock holders with information about the relationship between stock market and GDP.

Expected Value: The empirical results of this study built on the previous researches on the relationship between stock market and GDP. The results can provide the reference for further researches about the relationship between stock markets and GDP.

Key Words: Amman Stock Exchange (ASE), Banks Sector, Insurances Sector, Services Sector, Industries Sector, Real Gross Domestic Product (GDP).

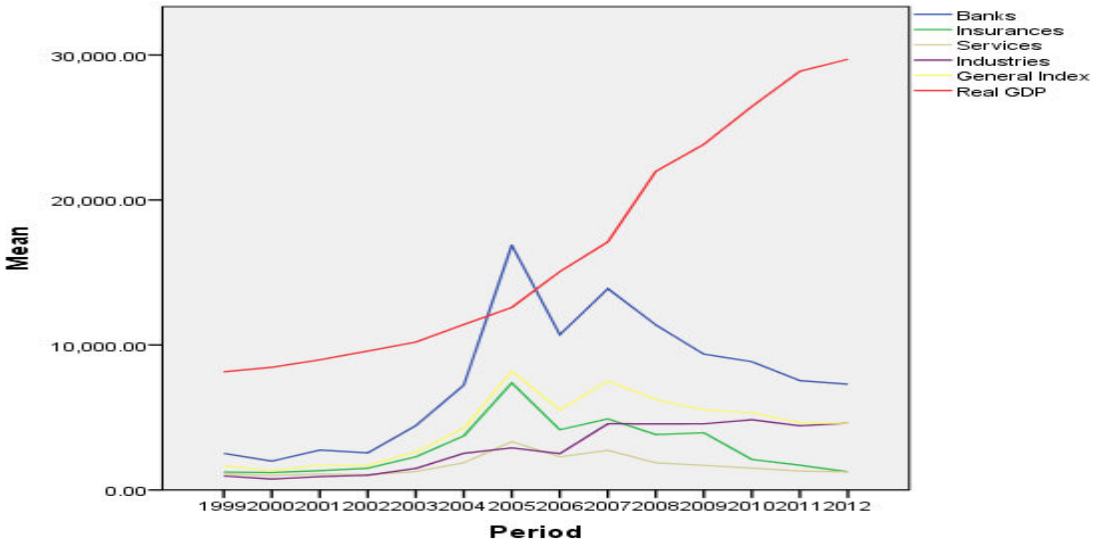
Introduction:

Since decades, the debate about the relationship between stock market development and macroeconomic factors are going on, specially about the relationship between stock market development and economic growth. Many studies measure economic development by GDP, while other studies use many indicators such as consumer price index, exchange rate, inflation rate, money supply, foreign direct investment, population growth, industrial production index, etc. Kumar et al. (2013) stated: For the past few decades, a popular index of welfare has been measures of economic activity in a country or region, like GDP. While GDP is a reasonable measure of economic activity, when measuring welfare in a dynamic setting, some economists prefer using wealth or net national product (NNP) as a measure of economic wellbeing or social welfare.

The current study uses the GDP as an indicator for macro-economical development. Therefore it investigated the relationship between stock market development and GDP as an indicator for economic growth in

Jordan. Sedik and Petri (2006) mentioned among the Arab stock markets, Jordan has the largest market capitalization in terms of percent of GDP. Al-Qudah (2011) said: A large number of empirical studies clearly show that the development of stock markets is strongly and positively correlated with the level of economic development. Li and Wen (2012) stated that: It was generally believed that stock price was mainly influenced by macro-economic factors in the long time. The economic growth rate is undoubtedly an important factor to stock market development. Jiranyakul (2012) pronounced that: Stock market return is one of financial variables that contain information to forecast real activity such as industrial production and real GDP growth. Lee and Law (2013) proclaimed: As predicted by the theory, the rise of the income level and stock market index in Malaysia will lead to the appreciation of domestic currency.

This study intends to study the relationship between stock market development and economical growth represented by GDP. Moreover, it aimed at investigating the relationship between GDP and each stock market sector in ASE for a period from 1999 to 2012. From the graph below which shows the curves of Amman Stock Exchange (ASE) market development over 14 years indicates that almost there is no relationship between GDP and ASE market sectors except between GDP and industrial sector. But the graph itself is not to prove that if there is a relationship or not. So, further analyses are needed to confirm these conclusions.



Literature Review:

Many authors and academics studied the relationship between stock market development and economic growth. Another group studied the relationship between stock market development and macroeconomic variables such exchange rates, industrial production index, the consumer price index, money supply, inflation rate, foreign direct investment**,** population growth rate and GDP. Most of these studies indicated that there is a relationship between stock market development and economic growth and macroeconomic variables specially GDP. Arestis et. al. (2001) used time series methods and data from five developed economies (Germany during 1973-1997, the United States for 1972-1998, Japan for 1974-1998, the United Kingdom for 1968-1997, and France for 1974-1998) to examine the relationship between stock market development and economic growth, controlling for the effects of the banking system and stock market volatility. Their results supported the view that, although both banks and stock markets may be able to promote economic growth, the effects of the former are more powerful. They also suggest that the contribution of stock markets on economic growth may have been exaggerated by studies that utilize cross-country growth regressions. Beck and Levine (2002) found that both stock markets and banks enter the growth regression significantly, and there are significant links among banks, stock markets and economic growth. Bennett et. al. (2003) study revealed that there is a significant impact of the development of the stock market on GDP growth and economic growth. Liang-ping et. al. (2005) concluded: Compared with the stock market of U.S.A, the stock market of China is still not perfect because the degree of incidence between stock market index and GDP of China is lower than that of United States. NZu (2006) empirical results suggested that, there is a long-run relationship between gross GDP and stock market development. Moreover, there is a unidirectional causality running from stock market development to economic growth.

Sedik and Petri (2006) studied the performance of the ASE as a function of real GDP growth, consumer price index inflation, interest rates, and a proxy for the regional stock market. The results were not robust and are not reported. Moreover, in the case of Jordan, none of the macroeconomic variables was significant once the proxy for the regional stock market was included in the model. Arab Jordan Investment Bank (2007) found that: The services sector contributed 3.6% of the growth rate in GDP, where the estimated contribution of the

industrial sector reached 1.1% of GDP growth. Olowe (2007) results showed that a co-integrating relation exists among macroeconomic variables and stock market development. Lim et. al. (2007) concluded: Market capitalization and GDP, as well as, total value traded and GDP are statistically significant. Duca (2007) indicated: In the case of the US, the bivariate test suggests the presence of a unidirectional causality from the Dow-Jones stock index to GDP i.e. in the US; stock price movements cause movements in GDP. Moreover the results indicated that there is no any causality from GDP to the stock index. A similar tendency emerged for the UK where the leading stock index, namely the FTSE 100, Granger causes GDP. Like US the reverse causality namely from GDP to stock prices does not appear to be present. The analysis for Japan points to the same conclusion derived in the UK and the US, a unidirectional relationship similar to that in the previous two countries is established, whereby the causality runs from stock prices to GDP. Moreover, no causality was found in the reverse direction. In the case of France, the picture that emerges is similar to that prevailing in Japan, the UK, and the US. A unilateral causality is found to exist from the stock index to GDP. On the other hand, no reverse linkage is found from GDP to the stock market. Germany is the only country that does not follow the tendency that emerges from this study. In the case of Germany, movements in stock prices and GDP are found to be independent of one another. For all countries except Germany it has been determined that stock prices Granger cause GDP.

Nurudeen (2009) study covers the period 1981-2007 (Nigerian stock market). It was shown that stock market development (market capitalization) contributes positively to economic growth. In Andrianaivo and Yartey (2009) study stock market development was measured by market capitalization as a percentage of GDP. They found that bank credit; stock market liquidity, gross domestic savings, and GDP per capita are significant and have positive effects on stock market development. Income level was an important determinant of stock market development. Hasan et. al. (2009) overall, at the end of 2008, due to economic crises, the ASE general index closed the yearly session at 2,758.4 pts down by 24.9% from its level in the previous year. All sectors' indices suffered losses at varying degrees, with the ASE industrial index being the least affected losing 11.7%. Meanwhile, ASE services and financial services indices shed 17.7% and 29.7%, respectively. Al-Khadash and Abdullatif (2009) studied Jordanian commercial and investment banks, and covers the period of 2002-2006. They concluded that: The service sector dominates the Jordanian economy making up approximately 70% of GDP. While, Khrawish and Khraiwesh (2010) stated: The industrial sector in Jordan contributes around 24% from GDP. Pagano and Pica (2010) concluded: The relevant coefficient was not statistically significant when financial development is measured by the ratio of stock market capitalization to GDP. Al-Qudah (2011) concluded: Regression results show that the coefficient of real GDP growth is positive and highly significant with stock markets.

Association of Banks in Jordan (2011) reported that: Assets of banks operating in Jordan rose markedly by JD21.5 billion or approximately a 166 percent growth rate between the year 2000 and October 2010. The total assets increased from JD12.9 billion at the end of 2000 to JD34.3 billion at the end of October 2010 at a growth rate of 12 percent annually. Total assets of licensed banks as a percentage of GDP stood at about 213 percent during the period 2000-2009, reflecting the importance and the size of the Jordanian banking sector in relation to the Jordanian economy as a whole. The balance of deposits at the banks operating in Jordan rose gradually from JD8.2 billion in 2000 to JD22.2 billion at the end of October 2010. The JD14 billion increase or 170 percent translate into a 10.5 percent annual growth rate. The percentage of total deposits to GDP at current market prices slipped from 137.1 percent in 2000 to 113.9 percent at the end of 2009. Obiyo and Torbira (2011) paper attempted to empirically examine the impact of stock market capitalization, value of listed securities and all share index on GDP of the Nigeria economy over twenty eight (28) year period. The unit root test and co-integration test were carried out. The result revealed a positive relationship between market capitalization and output level of GDP. The result also showed that the value of listed securities had a positive and significant relationship with the output level of GDP while the all share index has a negative and a significant relationship with the output level of GDP. Laeven and Valencia (2011) found that financial development has an independent growth enhancing effect for financially dependent firms, although this effect is entirely driven by capital market development (as measured by stock market capitalization to GDP), and not banking sector development (as measured by private credit to GDP). Zamil and Areiqat (2011) study used Amman Stock Exchange data 2001-2008 to investigate the relationship between the real estate market and Amman Stock Exchange, through the impact of three macroeconomic factors (GDP, inflation rate, and the population growth rate) and another three factors from the microeconomic indicators (interest rate, remittances of Jordanian expatriates, and the loans provided by the Jordanian banks). The results showed that the stock market is more sensitive to the microeconomic indicators than the real estate market, and responds more rapidly than the real estate market for the changes in the microeconomic indicators. There is a weak relationship between changes in GDP and changes in the weighted prices index of ASE, and the prices of construction companies' stocks, which means that the prices in the two markets do not respond strongly to the changes in GDP.

Regmi (2012) examined causal relationship between stock market development and economic growth in Nepal for the period 1994-2011, using unit root test, co-integration, and vector error correction models and developing NEPSE composite index as an indicator of stock market development. The finding suggested that stock market development has significantly contributed to the economic growth in Nepal. Jamshidi et. al. (2012) study focus was to identify relationship between stock market development, improving banking structure and the economic growth in Malaysia. For the purpose of this study data have been collected from 1989 to 2010. The result of the study noted that the Malaysian economy is negatively related to the market capitalization of the stock market while the stock market index has a positive impact on economic growth. International Monetary Fund (2012) report concluded that: Following the global crisis in 2008, financial conditions tightened markedly relative to long-term averages, reflecting a sharp decline in stock prices, significant appreciation of the real exchange rate, and a widening spread to the U.S. policy rate. By the beginning of 2011 this negative contribution of domestic financial conditions to real sector developments had mostly unwound. Li and Wen (2012) studied macro variables as samples which are based on interest rate adjusting (China has adjusted interest for 24 times from 1997 to June 8th, 2012), conducting an in-depth study of the industrial index on the Stock Exchange. The empirical result indicated that the industrial index has a negative correlation with interest rate, PPI, and a positive relation with consumer price index, industrial value added growth rate and international crude oil price. In recent years, the impact of macro economy on stock market grows bigger as their increasingly close relationship. However, the stock price fails to provide a close-reflection for the variations of macro economy. Conclusion: stock market is basically consistent with macro economy, and the share index may reflect the trend and level of their economic development in a certain extent. Al-Jarrah et. al. (2012) aimed to examine the impact of financial development on economic growth in Jordan over the period 1992-2011. The correlation coefficients between financial development indicators and economic growth indicator are observed over the study period and help to clarify those financial development measures that are highly correlated with economic growth and these variables are entered in the forthcoming phases of analysis. All the employed financial ratios are significantly correlated with economic growth indicator.

Mushtaq et. al. (2012) study revealed that the most of macroeconomic variables like consumer price index and foreign direct investment demonstrates the strong statistically significant relationship with stock market volatility, while T-bills rate and exchange rate are negatively associated with stock market volatility in Pakistan. Jiranyakul (2012) used Thailand stock market monthly data from January 1993 to December 2011. The results seem to support the notion that stock market return is a predictor of industrial output growth in the short run. Moreover, the standard Granger causality test using the in-sample data also supports this notion. Arodoye (2012) used quarterly time series data for stock prices covering a period of 25 years (1985 Q1-2009 Q4) from Nigerian stock market. The results showed that there is a long-run relationship between stock prices, inflation rate and real GDP for the period under review. Also the results indicated the sources of stock market price variation are due largely to inflation rates, growth of real GDP, interest rate and "own shocks". Kemboi and Tarus (2012) examined macro-economic determinants of stock market development in Kenya for the period 2000 - 2009, using quarterly secondary data. The results indicated that macro-economic factors such as income level, banking sector development and stock market liquidity are important determinants of the development of the Nairobi Stock market. While, Mohajan et. al. (2012) concluded that empirical investigations of the link between economic development in general and stock markets in particular and growth have been relatively limited. Sabri (2012) concluded: Jordan has been affected by the global financial crisis that began in September of 2008 in general and the industrial sector in particular where the index of the manufacturing sector decreased for the year 2008 by 11.7% compared to 2007.

Usman and Alfa (2013) investigated empirically the impact of stock exchange market on economic growth in Nigeria applying time series data spanning 1981 to 2010. Result indicated a positive relationship between controlled variables of stock exchange market and economic growth in Nigeria. The granger causality test indicates a bi-directional relationship between Market Capitalization and Value Traded in stock market. There is also a unidirectional relation between market capitalization and Real GDP with causality running from Real GDP to Market Capitalization. Babecky et. al. (2013) analysis was based on national and sectoral data spanning the period September 1995 to October 2010. Overall, they find evidence for gradually increasing convergence of stock market returns after the 1997 Asian financial crisis and the 1998 Russian financial crisis. Following a major disruption caused by the 2008/9 global financial crisis, the process of stock market return convergence resumes between Russia and China, as well as with world markets. Notably, the episode of sigma-divergence from the 2008/9 crisis is stronger for China than for Russia. They also find that the process of stock market return convergence and the impact of the recent crisis have not been uniform at the sectoral level, suggesting the potential for diversification of risk across sectors. Ayadi et. al. (2013) found that improving the quality of institutions, increasing per capita GDP, opening further capital account and lowering inflation are needed to enable the financial system in the region to converge with those of Europe. Lee (2013) concluded: The

Malaysian government has made much effort to help the economy recover, as a result the external sector had a good surplus, and the stock market has performed steadily in the past several years. As a result, Malaysian real GDP grew at an accelerated pace of 6–8% from 2003 to 2010. Saeed (2013) said: In Pakistan only short term interest rate has significant impact on oil and gas sectors return where as other macro economic factors GDP, Money Supply and foreign exchange rate have no effect on returns of oil and gas sector. Sinha and Kohli (2013) empirical findings suggested that a significant interaction between the foreign exchange and stock market does not exist for India over the period January 2006 – March 2012. So, it can be said that the stock prices do not influence exchange rates and past values of stock prices cannot be used to improve the forecast of future exchange rates.

Research Purpose and Objectives:

This study investigates the effect of stock market development on GDP. For this purpose, the current study attempts to find the impact of ASE sectors development (Banks, Insurances, Services and Industries) on GDP. In relation to this purpose, the previous empirical researches showed that there are two research challenges: The first challenge is to explore the relationship between each ASE sectors and GDP. Consequently, the second challenge is analyzing ASE market from sectoral point of view. The main objective of this research is to provide sound recommendations about the relationship between ASE market and GDP by identifying and defining the main attributes of ASE that affect GDP.

Research Importance and Scope:

The current study presents the necessary components of ASE definitions. A better understanding of the effect of ASE elements on GDP performance draws conclusions that can be beneficial not only for Jordanian organizations but also to ASE stock holders, and other institutions, as well as, policy makers. The content also may be of an interest to academic studies related to the reporting and decision making concerning the relationship between stock markets and GDP. If this study is put to use in the near future, it could present an important cornerstone that facilitates cross-disciplinary dialogue regarding the relationship between ASE and GDP in Jordan. This research is also an important one, in terms of the analysis of the situation of ASE sectors in Jordan and their relationships with GDP. This study presents the problem at country level, as it is the level of implementing strategies and management.

Research Problem, Questions and Hypotheses:

Almost all studies indicated that there is a relationship between GDP and stock market development; many authors stated that when GDP increases, the stock market prices will be increased. The main question is: Can we do the opposite and investigate the effect of stock market on GDP? Are all ASE market sectors affecting GDP equally? From these questions we can drive the following hypothesis:

H0.1: ASE market general indicator does not affect GDP, at $\alpha \leq 0.05$.

H0.2: ASE market sectors do not affect GDP equally, at $\alpha \leq 0.05$.

According to ASE market sectors second main hypothesis can be sub-divided into the following four hypotheses:

H0.2.1: Banks sector does not affect GDP, at $\alpha \leq 0.05$.

H0.2.2: Insurances sector does not affect GDP, at $\alpha \leq 0.05$.

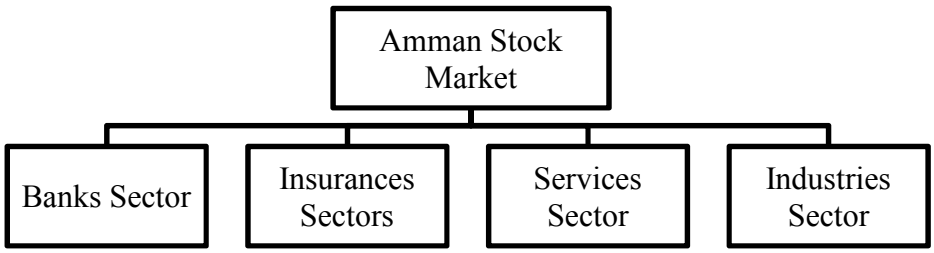
H0.2.3: Services sector does not affect GDP, at $\alpha \leq 0.05$.

H0.2.4: Industries sector does not affect GDP, at $\alpha \leq 0.05$.

Research Model

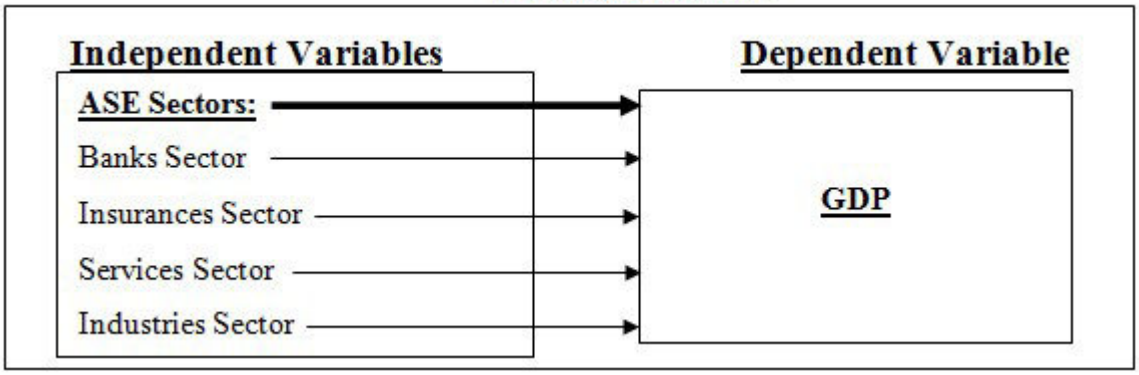
Whatever the classification used in any research or literature, the aim was to understand, measure and manage the ASE market. In most countries, the ASE was divided into three or four sectors. This study uses the most widely used classification model in ASE market that is as follows: Banks, Insurances, Services and Industries Sectors, as shown in figures (1):

Figure (1): Study Basic Model



The current research studies the effect of ASE sectors on GDP as shown in the study model figure (2).

Figure (2): Study Model



Methods and Procedures

The current study is considered as a casual study. It aimed at investigating the cause/effect relationship between ASE sectors and GDP. It started with literature review and experts' interviews to explore the ASE profile of Jordanian ASE. Finally, the primary data were collected from ASE market data base and government institutions data base, the data were covering 14 years from 1999 to 2012. Finally the data analyzed via SPSS 20, and the results were compared with previous researches work.

Population and Sample: The primary data were collected from ASE market data base and government institutions data base, which cover 14 years from 1999 to 2012, to explore the topic of ASE, thus negating any need for sampling.

Study Variables:

Independent variables (ASE sectors): Banks, Insurances, Services and Industries sectors.

Dependent variable: Real Gross Domestic Product (GDP)

Before using simple, multiple and/or any type of regressions following tests should be carried out to confirm data normality, validity and suitability.

1. Normality Test (Kolmogorov-Smirnov Z):

In order to verify the normal distribution of variables, the researcher carried out Kolmogorov-Smirnov (K-S) Z test. All dependent and independent variables were tested for normality. If the significance level was more than 5 percent, normality was assumed.

Table (1) shows that all the independent and dependent variables and sub-variables are normally distributed (Bollen et. al. 2005).

Table (1): Normality Test: One-Sample Kolmogorov-Smirnov (Z) Test

Variables	(K-S)Z	Sig.
Banks	0.543	0.630
Insurances	0.754	0.620
Services	0.750	0.627
Industries	0.938	0.343
General Index	0.614	0.845
Real GDP	0.718	0.681

2. Reliability Test (Cronbach's Alpha):

Reliability test was used also to test the consistency and suitability of the variables. The reliability was evident by strong Cronbach's alpha coefficients of internal consistency. If Alpha Coefficients were above 0.80, they were considered high, and if they were above 0.75, they were accepted, while if they were below 0.60, then results indicated weak internal inconsistency (Bollen et. al. 2005), while Bontis (2001) states that Alpha

coefficients above 0.7 are accepted. As shown in table (2), the results of Cronbach's alpha for research was registered acceptable according to Cronbach's Alpha reliability Coefficients. Thereby, these results could indicate high statistical reliability of the variables, which might explain that the ASE variables employed by the study measure what the researcher expected to measure.

Table (2): Cronbach's Alpha for Pilot and Research Studies:

Variables	Alpha	No. of Variables
ASE market sectors	0.761	4

3. Validity Test (Factor Analysis Principal Component Analysis):

Factor analysis was used to measure the validity of each variable (loading) within its variables. The factor loading value below 0.4 should be removed. All variable and sub-variable items were valid, since their factor loading values were more than 0.4 as shown in the following tables. This result matches with previous studies, such; as Bontis (2001), Bollen et. al. (2005) and Bin Ismail (2005).

Table (3): Factors Loading for Intellectual Capital Variables

Variables	Factor 1	Extraction
Banks	0.991	0.994
Insurances	0.858	0.977
Services	0.886	0.989
Industries	0.754	0.982
General Index	0.999	0.998
Real GDP	0.484	0.986

This section analyzes and describes the independent and dependent variables from statistical point of view including means, standard deviations, and t-values.

Table (4): Mean, Standard Deviation and One-Sample T-Test Results for Independent Variables.

Variables	Mean	Std. Deviation	t	Sig. (2-tailed)
Banks	7671.393	4565.047	6.288	0.000
Insurances	2895.921	1830.031	5.921	0.000
Services	1669.586	699.059	8.936	0.000
Industries	2902.236	1651.716	6.574	0.000
General Index	4346.029	2243.058	7.250	0.000
Real GDP	16600.000	8003.220	7.761	0.000

Before testing the hypotheses, Pearson correlation (r) was carried out to test the correlation among the variables and between them and GDP.

Table (5): Pearson's Correlation (r) Among Independent Variables, Sub-variables and With Dependent Variable

Sectors	Banks	Insurances	Services	Industries	General Index	Real GDP
Banks	1					
Insurance	0.758**	1				
Services	0.802**	0.780**	1			
Industry	0.538**	0.385*	0.385*	1		
General Index	0.978**	0.736**	0.780**	0.560**	1	
Real GDP	0.390	-0.006	0.039	0.907**	0.501	1

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

ASE Sectors:

The relationship between banks sector with other ASE sectors is very strong, where r ranges from 0.538 to 0.802. Its relationship with general indicator is very strong, where r equals 0.978, while it has positive but not significant relationship with GDP. The relationship between Insurances sector with other sectors is strong, where r ranges from 0.385 to 0.780. Its relationship with general indicator is very strong where r equals 0.736, while it has negative but not significant relationship with GDP. The relationship between services sector with other ASE sector is strong, where r ranges from 0.385 to 0.802. Its relationship with general indicator is very strong, where r equals 0.780, while it has slight positive but not significant relationship with GDP. Finally, the relationship between Industries and other ASE sectors is strong, where r ranges from 0.385 to 0.538. Its relationship with general indicator is strong, where r equals 0.560, while it has a very strong positive relationship with GDP. At the end, the relationship between general indicator and GDP is positive but not significant.

Hypotheses Testing

First Hypothesis:

H0.1: ASE market general indicator does not affect GDP, at α ≤ 0.05.

Table (6): Results of Simple Regression Analysis: Regressing ASE General Indicator against GDP

ASE General Indicator	r	R^2	ANOVA F- Value	Sig.
General Indicator	0.501	0.251	4.019	0.068

The results of the simple regression analysis that regress the ASE general indicator against GDP is shown on table (6). It shows that the ASE general indicator explained 25.1 percent of the variance at significant level less than α≤0.1, but does not significantly affect the GDP at α≤0.05, where (R2 =0.251, F=4.019, Sig. =0.068). Therefore, the null hypothesis is accepted, which states that the ASE market general indicator does not affect GDP at α ≤ 0.05.

Second Hypothesis:

H0.2: ASE market economic sectors do not affect GDP equally, at α ≤ 0.05.

Multiple Regressions:

Table (7): Results of Multiple Regression Analysis (ANOVA): Regressing ASE Sectors against GDP

ASE Sectors	r	R^2	ANOVA F- Value	Sig.
ASE Sectors	0.977	0.955	47.231	0.000

The R square value is 0.955; therefore, the model is regarded as being suitable to be used for multiple regressions with the data.

The results of the multiple regression analysis that regress the four sectors of ASE are shown on table (7). It shows that the four sectors together explained 95.5 percent of the variance, where (R2 =0.955, F=47.231, Sig. =0.000). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that the ASE market economic sectors affect GDP. The following table shows the significant effect of each sector within the ASE sectors on GDP.

Table (8): Un-standardized and Standardized Coefficients of Multiple Regression Model for Human Capital Sub-variables:

ASE Sectors	Un-standardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t-value	p
(Constant)	15502.268	4392.707		3.529	.006
Banks	2.283	1.064	1.302	2.146	.060
Insurances	-1.701	1.308	-.389	-1.300	.226
Services	-11.375	5.726	-.994	-1.987	.078
Industries	2.585	1.183	.533	2.184	.057

***Calculated less than 0.05.**

The conclusion of table (8) shows that the industries sector has the highest effect on GDP, but not significant at $\alpha \leq 0.05$, where (Beta=0.533, sig.=0.057). Thus, it indicates that the industries sector has the highest effect but not significant, followed by the banks sector, where (Beta=1.302, sig.=0.060) also it has positive effect but not significant, then the insurances sector which has negative but not significant effect, where (Beta=-0.389, sig.=0.226). Finally, the services sector has a strong negative but not significant effect, where (Beta=-0.994, sig.=0.078).

According to ASE market sectors second main hypothesis can be sub-divided into the following four hypotheses:

H0.2.1: Banks sector does not affect GDP, at $\alpha \leq 0.05$.

From table (8), it is concluded that there is a positive but not significant effect of the banks sector on GDP, where (Beta=1.302, sig.=0.060). Since (t=2.146, $p > 0.05$), the null hypothesis is accepted, which indicates that the banks sector does not affect GDP, at $\alpha \leq 0.05$.

H0.2.2: Insurances sector does not affect GDP, at $\alpha \leq 0.05$.

From table (8), it is concluded that there is a negative but not significant effect of the insurances sector on GDP, where (Beta=-0.389, sig.=0.226). Since (t=-1.300, $p > 0.05$), the null hypothesis is accepted, which indicates that the insurances sector does not affect GDP, at $\alpha \leq 0.05$.

H0.2.3: Services sector does not affect GDP, at $\alpha \leq 0.05$.

From table (8), it is concluded that there is a negative but not significant effect of the services sector on GDP, where (Beta=-0.994, sig.=0.078). Since (t=-1.987, $p > 0.05$), the null hypothesis is accepted, which indicates that the services sector does not affect GDP, at $\alpha \leq 0.05$.

H0.2.4: Industries sector does not affect GDP, at $\alpha \leq 0.05$.

From table (8), it is concluded that there is a positive but not significant effect of the industries sector on GDP, where (Beta=0.533, sig.=0.057). Since (t=2.184, $p > 0.05$), the null hypothesis is accepted, which indicates that the industries sector does not affect GDP, at $\alpha \leq 0.05$.

Stepwise regression:

To determine which sectors are important in this model, the researcher used stepwise regression. The results are shown on table (9):

Table (9): Stepwise Regressions (ANOVA) for ASE Sectors

Model	r	R2	F	Sig.	ASE Sectors
1	.907[a]	.823	55.695	0.000	Industries
2	.965[b]	.930	73.448	0.000	Industries and Insurances

From table (9) above, the first model of stepwise regression (ANOVA) shows the importance of the industries sector, where (R2 =0.823, F=55.695, Sig. =0.000). The second model of stepwise regression shows the importance of the industries sector plus insurances sector, where (R2 =0.930, F=73.448, Sig. =0.000). Therefore, it is concluded that the second model increases R2 with 0.107, this means that the industries sector alone explains 82.3% of the variance in the GDP. While the second model explains 93.0% of the variance, this means that insurances sector adds only 10.7% to the first model. The following table (10) shows the relation between the ASE sectors and GDP:

Table (10): Stepwise Regressions Model for ASE sectors

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3844.660	1949.312		1.972	.072
	Industries	4.395	.589	.907	7.463	.000
2	(Constant)	6618.055	1442.859		4.587	.001
	Industries	4.958	.409	1.023	12.120	.000
	Insurances	-1.522	.369	-.348	-4.122	.002

***sig. <0.05**

From table (10) above, the first model of stepwise regression shows that there is a positive direct relation between the industries sector and GDP, where beta equals 0.907. The second model of stepwise regression shows that there is a positive direct relation between the industries sector and GDP, where beta equals 1.023, however insurances sector shows a negative direct relation with GDP, where beta equals -0.348. Such results indicate that only industries sector has a positive direct effect on GDP. While insurances sector has a negative and direct effect on GDP.

Simple Regression of ASE Sectors:

Now, if we regresses each ASE sector alone against GDP, we may see different results:

Table (11): Regressing Banks Sector against GDP:

Sector	r	R^2	ANOVA F- Value	Sig.	Beta	t	Sig
Banks	0.390	0.152	2.148	0.168	0.390	1.466	1.68

Table (11) shows that if we regresses banks sector alone against GDP, both r and $\mathbf{R^2}$ show positive but not significant effect of banks sector against GDP.

Table (12): Regressing Insurances Sector against GDP:

Sector	r	R^2	ANOVA F- Value	Sig.	Beta	t	Sig
Insurances	0.006	0.000	0.000	0.983	-0.006	-0.022	0.983

Table (12) shows that if we regresses insurances sector alone against GDP, both r and R2 do not show any significant effect on GDP.

Table (13): Regressing Services Sector against GDP:

Sector	r	R^2	ANOVA F- Value	Sig.	Beta	t	Sig
Services	0.039	0.002	0.019	0.894	0.039	0.137	0.894

Table (13) shows that if we regresses services sector alone against GDP, both r and R2 do not show any significant effect on GDP.

Table (14): Regressing Industries Sector against GDP:

Sector	r	R^2	ANOVA F- Value	Sig.	Beta	t	Sig
Industries	0.907	0.823	55.695	0.000	0.907	7.463	0.000

Table (14) shows that if we regresses industries sector alone against GDP, both r and R2 show positive significant effect of industries sector on GDP.

Results Discussions:

Pearson correlation results showed that the four sectors of ASE market are strongly related to each other and are strongly related to ASE general indicator. Among the four ASE sector only Industrial sector shoed a strong relationship with GDP, while others did not show a significant relationship with GDP including ASE general indicator. Simple regression test showed that there is no effect of ASE general indicator on GDP. While multiple regressions showed that there is a strong effect of the ASE sectors together on GDP, but results did not show any significant effect of each sector when considering the four sectors together on GDP. First stepwise regressions model showed that there is a strong positive significant effect of industries sector on GDP, while second model showed that there is a strong positive significant effect of industries sector on GDP and there is a negative significant effect of insurances sector on GDP. Finally, simple regression showed that when each ASE sector regressed separately against GDP, only industries sector showed a high a significant effect on GDP. Arestis et. al. (2001) and beck and levine (2002) indicated that both banks and stock markets may be able to promote economic growth. Also Bennett et. al. (2003) stated there is significant impact of stock market development on GDP, and NZu (2006) stated in the long run r-there is a relation between GDP and stock market development. Olowe (2007) showed that the relationship exist among macro-economic variables and stock market development, and Lim et. al. (2007) found there is a significant correlation between market capitalization and GDP. Duca (2007) concluded that there is a unilateral causality from stock index to GDP in US, UK, Japan and France, but no relationship between stock market and GDP in Germany. Nurudeen (2009) found that stock market development contributes positively to economic growth. Andrianaivo and Yartey (2009) found that there is a positive effect for macro-economic variables including GDP on stock market development. Al-Qudah (2011)

concluded that GDP growth is positively and significantly related to GDP. Obiyo and Torbira (2011) revealed that there is a positive relationship between stock market and GDP. Zami and Areiqat (2011) found that there is a weak relationship between GDP and ASE market index. Regmi (2012) study suggested that stock market development significantly affect economic growth. Jamshidi et. al. (2012) found that stock market index has a positive impact on economic growth. Li and Wen (2012) stated stock prices failed to provide a close reflection for variations of macro economy. Arodoye (2012) showed that there is a long run relationship between stock prices and real GDP. Mohajan et. al. (2012) study revealed that the relationship between economic development and stock market is relatively limited. Usman and Alfa (2013) found that there is a positive relationship between stock market and economic growth. Sinha and Kohli (2013) suggested that there is no significant interaction between foreign exchange and stock market. While Sedik and Petri (2006) concluded in case of Jordan none of macro-economic variables was having significant effect on ASE market.

Conclusions

Pearson correlation results showed that the four sectors of ASE market are strongly related to each other and are strongly related to ASE general indicator. Among the four ASE sector only Industrial sector shoed a strong relationship with GDP, while others did not show a significant relationship with GDP including ASE general indicator. Simple regression test showed that there is no effect of ASE general indicator on GDP. While multiple regressions showed that there is a strong effect of the ASE sectors together on GDP, but results did not show any significant effect of each sector when considering the four sectors together on GDP. First stepwise regressions model showed that there is a strong positive significant effect of industries sector on GDP, while second model showed that there is a strong positive significant effect of industries sector on GDP and there is a negative significant effect of insurances sector on GDP. Finally, simple regression showed that when each ASE sector regressed separately against GDP, only industries sector showed a high a significant effect on GDP.

Research Limitations/Recommendations

This research is specifically assigned to investigate the effect of ASE sectors on GDP at a country level that should be studied in the light of the following limitations: First, limitations to data access refer to the fact that data gathering about ASE market and government institutions reports is restricted to the period of these data, which may limit the quality and quantity of the collected data. Second, the collected data is treated as a package, not as yearly, nor considering crises, which may have different results e.g. from the curve above one can say that during the period from 1999 to 2005, there was a strong relationship between stock market development and GDP, even more there is sarong relationship between each sector and GDP. Therefore, further empirical studies considering periods and crises are needed. Third, the research findings are based on data collected from ASE market and government institutions. Collecting data at an organization level and an industry level would provide further robust results. Fourth, the results are limited to Jordan. Generalizing results of a Jordanian setting to other countries may be questionable. Therefore, the results of this study may be carefully interpreted. Further empirical researches involving data collection over diverse countries are needed. Finally, the conceptual model of this study represents an integrated view on ASE. It might be not advisable to use parts of the model independently due to the interrelatedness of the components of the model. Also, there is a need to analyze data an organization level in order to clearly prove the assumptions of the ASE method. The significant differences between organizations and/or industries could be explored by further studies. It is also recommended to work out research that compares results with other developing countries' under similar assessment and measurement.

References:

Al-Jarrah, I.D., Al-Zubi, M.F., Jaara, O.O., and Alshurideh, M. (2012). Evaluating the Impact of Financial Development on Economic Growth in Jordan, *International Research Journal of Finance and Economics,* Issue 94 (2012), pp. 123-139. Available at: http://www.internationalresearchjournaloffinanceandeconomics.com.

Al-Khadash, H.A., and Abdullatif, M. (2009). Consequences of Fair Value Accounting for Financial Instruments in the Developing Countries: The Case of the Banking Sector in Jordan. *Jordan Journal of Business Administration,* Vol. 5, No. 4, pp. 533-551.

Al-Qudah (2011). The Operating Efficiency and Market Value of Jordanian Privatized Firms: Fixed and Random Effects Analysis. *Interdisciplinary Journal of Research in Business,* Vol. 1, Issue 7, pp. 99-116.

Andrianaivo, M., and Yartey, C.A. (2009). Understanding the Growth of African Financial Markets. *IMF Working Paper WP/09/182*. International Monetary Fund. African Department. Available at: http://www.imf.org.

Arab Jordan Investment Bank (AJIB) (2007). *Jordan's Economic Report for 2007.* Available at: www.ajib.com.

Arestis, P., Demetriades, P.O., and Luintel, K.B. (2001). Financial Development and Economic Growth: The Role of Stock Markets. *Journal of Money, Credit and Banking,* Vol. 33, No. 1, pp. 16-41.

Arodoye, N.L. (2012). An Econometric Analysis of the Impact of Macroeconomic Variables on Stock Prices in Nigeria: A Vector Autoregressive (VAR) Model Approach. *International Review of Business and Social Sciences,* Vol. 1, No 8, pp. 63-77. www.irbss.org.

Association of Banks in Jordan (2011). *Development of the Jordanian Banking Sector (2000 – 2010).* Available at: www.ABJ.org.jo.

Ayadi, R., Arbak, E., Ben-Naceur, S., and De Groen, W.P. (2013). Benchmarking the Financial Sector in the Southern and Eastern Mediterranean Countries and Projecting 2030 Financial Sector Scenarios. *MEDPRO Technical Report No. 31/March 2013.* MEDPRO (Mediterranean Prospects). Available at: www.medpro-foresight.eu, and www.ceps.eu websites.

Babecky, J., Komarek, L., and Komarkova, Z. (2013). Convergence of Returns on Chinese and Russian Stock Markets with World Markets: National and Sectoral Perspectives. *National Institute Economic Review,* No. 223, pp. 16-34.

Beck, T., and Levine, R. (2002). Stock Markets, Banks, and Growth: Panel Evidence. *NBER Working Paper Series, Working Paper 9082.* National Bureau of Economic Research. Massachusetts Avenue. Cambridge. Available at: http://www.nber.org/papers/w9082.

Bennett, J., Estrin, S., Maw, J., and Urga, G. (2003). Does the Method of Privatization Matter: The Case of Transition Economies. *Discussion Paper Series No. 31.* Centre for New and Emerging Markets. London Business School. www.london.edu/cnem.

Duca, G. (2007). The Relationship between the Stock Market and the Economy: Experience from International Financial Markets. *The Bank of Valletta Review,* No. 36, pp. 1-12.

Hasan, F., Juma, M., and Al-Muhtadi, D. (2009). Amman Stock Exchange Performance 2008. *Global Research, March 2009.* Global Investment House KSCC. http://www.globalinv.net.

International Monetary Fund (2012). Jordan: Selected Issues. *IMF Country Report No. 12/120.* International Monetary Fund, Washington, D.C. Available at: http://www.imf.org.

Jamshidi, D., Hussin, N., and Pirzadeh, Z. (2012). Political Linkage between Stock Market Development and Banking Structure Improvement on Economic Growth of Malaysia. *Interdisciplinary Journal of Contemporary Research in Business,* Vol. 4, No. 6, pp. 325-333. www.ijcrb.webs.com

Jiranyakul, K. (2012). The Predictive Role of Stock Market Return for Real Activity in Thailand. *MPRA Paper No. 45670.* Munich Personal RePEc Archive (MPRA). Universiti Putra Malaysia. http://mpra.ub.uni-muenchen.de/45670/.

Kemboi, J., and Tarus D. (2012). Macroeconomic Determinants of Stock Market Development in Emerging Markets: Evidence from Kenya. *Research Journal of Finance and Accounting,* Vol. 3, No 5, pp. 57-68.

Khrawish, H.A., and Khraiwesh, A.H. (2010). The Determinants of the Capital Structure: Evidence from Jordanian Industrial Companies. *JKAU: Econ. & Adm.,* Vol. 24 No. 1, pp: 173-196.

Kumar, P., Esen, S.E., and Yashiro, M. (2013). Linking Ecosystem Services to Strategic Environmental Assessment in Development Policies. *Environmental Impact Assessment Review*, Vol. 40 (2013), pp. 75–81. Available at: www.elsevier.com/ locate/eiar.

Laeven, L., and Valencia, F. (2011). The Real Effects of Financial Sector Interventions During Crises. *IMF Working Paper WP/11/45.* International Monetary Fund. Available at: http://www.imf.org.

Lee, C. (2013). The Role of Macroeconomic Fundamentals in Malaysian Post Recession Growth. *MPRA Paper No. 44808.* Munich Personal RePEc Archive (MPRA). Universiti Putra Malaysia. http://mpra.ub.uni-muenchen.de/44808/.

Lee, C., and Law, C.H. (2013). The Effects of Trade Openness on Malaysian Exchange Rate. *MPRA Paper No. 45185.* Munich Personal RePEc Archive (MPRA). Universiti Putra Malaysia. http://mpra.ub.uni-muenchen.de/45185/.

Li, H., and Wen, Z. (2012). Causal Relationship between Macroeconomy and Industrial Index Based on Regression Analysis. *Journal of Theoretical and Applied Information Technology,* Vol. 46, No.2, pp. 754-760. Available at: www.jatit.org.

Liang-ping, G., Si-fengMi, L., and Chuan-min (2005). Empirical Study on Relationship between GDP and Stock Index: Based on the Degree of Grey Incidences. *Proceedings of the International Conference on Information and Automation,* December 15-18, 2005, Colombo, Sri Lanka, pp. 53-56.

Lim, K.P., Brooks, R.D., and Hinich, M.J. (2007). Nonlinear Serial Dependence and the Weak-form Efficiency of Asian Emerging Stock Markets. *Int. Financial Markets, Institutions and Money,* xxx (2007) xxx–xxx, pp.

Mohajan, H., Islam, J.N., and Datta, R. (2012), Emerging Equity Market and Economic Development: Bangladesh Perspective, *Int. J. Eco. Res.,* Vol. 3, Issue 3, pp. 126 – 143.

Mushtaq, R., Ali Shah, S.Z, and Rehman, M.Z. (2012). The relationship between Stock Market Volatility and Macroeconomic Volatility: Evidence from Pakistan. *African Journal of Business Management* Vol. 6, No.

24, pp. 7387-7396. Available at http://www.academicjournals.org/AJBM.

Nurudeen, A. (2009). Does Stock Market Developments Raise Economic Growth? Evidence from Nigeria. *The Review of Finance and Banking,* Vol. 01, Issue 1, pp. 015—026.

NZu, F.F. (2006). Stock Market Development and Economic Growth: Evidence from Cˆote D'Ivoire. African Development Bank 2006, *Journal Compilation,* pp. 123-143.

Obiyo, O.C., and Torbira, L.A. (2011). The Impact of Stock Market Operations on the Nigerian Economy: A Time Series Analysis (1981-2008). *IJEMR,* Vol. 1, Issue 5, pp. 1-12. http://www.exclusivemba.com/ijemr.

Olowe, R.A. (2007). The Relationship between Stock Prices and Macroeconomic Factors in the Nigerian Stock Market. *African Review of Money Finance and Banking*, pp. 79-98.

Pagano, M., and Pica, G. (2010). Finance and Employment. *7th ECB/CEPR Labour Market Workshop "Unemployment Developments after Crises" European Central Bank.* Center for Economic Policy Research.

Regmi, U.R. (2012). Stock Market Development and Economic Growth: Empirical Evidence from Nepal. *Administration and Management Review,* Vol. 24, No. 1, pp. 1-28.

Sabri, T.B. (2012). The Impact of Working Capital on the Value of the Company in Light of Differing Size, Growth, and Debt. *Business and Economic Horizons (BEH),* Vol. 7, Issue 1, pp. 27-41.

Saeed, S. (2013). Impact of Macro Economic Factors on the Returns of Oil and Gas Sector in Pakistan. International Journal of Contemporary Business Studies, Vol. 3, No. 2, pp. 15-25. Available online at http://www.akpinsight.webs.com.

Sedik, T.S., and Petri, M. (2006). The Jordanian Stock Market—Should You Invest in It for Risk Diversification or Performance? *IMF Working Paper WP/06/187.* International Monetary Fund Middle East and Central Asia Department.

Sinha, P., and Kohli, D. (2013). Modeling Exchange Rate Dynamics in India using Stock Market indices and macroeconomic variables. *MPRA Paper No. 45816.* Munich Personal RePEc Archive (MPRA). Universiti Putra Malaysia. http://mpra.ub.uni-muenchen.de/45816/.

Usman, U.A., and Alfa, A.B. (2013). Nigeria Stock Exchange Market and Economic Growth: A Johansen Co-Integration and Causality Approach. *International Journal of Advanced Research in Management and Social Sciences,* Vol. 2, No. 1, pp. 74-83. Available at: www.garph.co.uk.

Zamil, A.M., and Areiqat, A.Y. (2011). The Relationship between the Real Estate Market and the Stock Market and Its Impact on the Strategic Planning Process in the Jordanian Organizations. *Journal of Modern Accounting and Auditing,* Vol. 7, No. 8, pp. 841-858.

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