

## **THE RELATIONSHIP BETWEEN AMMAN STOCK EXCHANGE (ASE) SECTOR AND ASE GENERAL INDEX PERFORMANCE**

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**Abstract:** *The purpose of the study is to investigate the influence of Amman Stock Exchange (ASE) sectors on ASE general index performance. To approach the aim of the study, practical data were used in the empirical analysis collected from ASE market for the period 2000 -2012. Statistical techniques used were: statistics, t-test, ANOVA test, correlation, multiple regressions and stepwise regression were employed. To confirm the suitability of data collection instrument, a Kolmogorov-Smirnov (K-S) test, Cronbach's Alpha and factor analysis were used. The results of the study indicated positive significant relationships between Jordanian economic sectors and sub-sectors with ASE market performance. The results also showed that the financial sector has the highest effect on ASE market performance, followed by the industrial sector, then the services sector. The data is limited to Jordan ASE; therefore, generalizing results of a Jordanian setting to other countries may be questionable. Extending the analyses to other settings represent future research opportunities.*

**Key Words:** Amman Stock Exchange (ASE), Economic sectors and sub-sectors, ASE sectors and sub-sectors, ASE general index.

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### **INTRODUCTION**

There exist ample literature on economic growth and stock market development. Among the determinants of economic growth is stock market development which is increasingly becoming an important factor to impact upon it. Prices of individual stock have a strong tendency to move in the same direction as the overall stock market. They also tend to follow the direction of other stocks in the same industry group (sector). The larger the market capitalization of a company, the more likely changes will affect the rest of its peer group. The phenomenal growth of stock markets during recent past years along with the staggering growth in emerging stock markets have turned the focus of new literature towards the linkage between the growth of an economy and its stock market performance. Almost all stock exchange markets have been divided into sectors and sub-sectors, Amman Stock Exchange (ASE) market is not an exception; previously ASE was divided into four main sectors: Banking, Services, Insurance and Industries; later on, ASE has been divided into three main sectors: Financials, Services, and Industries market. Mr. Tarif (2006), manager of ASE elaborated that the new classification is in line with the classification adopted by the American market, Standard & Poor's, but with some minor modifications that render them suitable for the nature of Jordanian companies and contains three main sectors and 23 sub-sectors. As a result of this new classification; the ASE has revised its main indicators and statistics based on the new classification and recalculated these figures for the period 2000-2006. But still some scholars like Al-Zaubia and Al-Nahlehb (2010) believe that

ASE index is divided into four sectors: banking, financial, Insurance, Services, and Industrial. Stock market of different countries, sectors and sub-sectors could vary in number and importance, for instance, Srinivasan (2012) pronounced: there are six major sectors of the Indian economy, namely, Heavy and Manufacturing, Pharmaceutical, Energy, IT and ITES, Infrastructure and Banking. Alkhatib (2013) mentioned that Palestinian Stock Market encompasses five economic sectors: banking, financial services, Insurance, Investment, Industry and Services. Parihar et. al. (2012) stated: there are always some dependencies between different sectors in stock market. Momani and Abu-Al Sondos (2008) figured out that the relationship between ASE market value and the aforementioned factors have the same direction in these sectors, regardless of their business.

This paper intends to argue following statement: are the ASE sectors and sub-sectors having same direction as ASE market. This study is a contribution to the existing literature on effect of stock market sectors and sub-sectors on the performance of stock markets. However, this study will examine the relation between ASE sectors and sub-sectors and ASE general index performance.

#### **LITERATURE REVIEW**

Many literatures indicated that there are different influences of different sectors and sub sector on stock market. El-Quqa et. al. (2005) indicated: During 2004, industrial sector dominated the volume of shares traded on the bourse as it accounted for 47.2% of the total volume, which was followed by services sector (34.2%), banking sector (17.1%) and insurance sector (1.5%). While, El-Quqa et. al. (2006) showed: In terms of sectoral activity on ASE, the services sector had the lion's share of the total market trading value in 2005 accounting for 47.4% of the total trading value followed by the banking sector (35.8%), the industrial sector (15.7%), and Insurance (1.1%). Economic Report (2006) indicated: In terms of companies' performance on ASE, the Arab Bank was by far the winner, accounting for 18.54% of the total trading value, followed by United Arab Investors (11.1%), Union Investment Corporation (8.2%), Arab East Investment (5.7%), and Middle East Complex (4.1%).

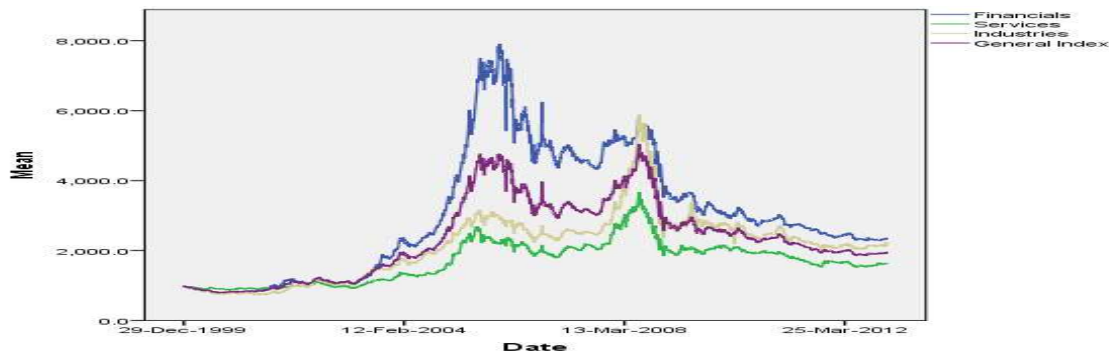
As shown in figure (1), Jordan economy has been suffered from two crises, first one was in 2006, and second one was in 2008. The crises were having different effect on ASE sectors and sub-sectors. Hasan et. al. (2009) overall, at the end of 2008, the ASE general index closed the yearly session at 2,758.4 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. Through the market in 2008, the ASE market capitalization dropped by 13.9% at year-end, as a result of the hefty fall in stock prices during the year. The industrial sector, which makes up 24.7% of the total market capitalization, was the only sector witnessing a slight increase in its market capitalization, rising by a mere 1.2%. Conversely, the financial sector, which constituted 64.8% of total market capitalization, exhibited the greatest drop of 18.1% from its 2007 yearend figure. Sabri (2012) 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. This was

followed by the low profits of industrial companies listed in the first half of 2009 which decreased by 23.74%. Ministry of Finance (2012) report concluded: During 2011, trading volume at Amman Stock Exchange registered a decline of JD 3839.7 million, or 57.4% compared to its level in 2010, reaching JD 2850.2 million. This decline was a result of: (i) a decline in "financial sector volume" by JD 2416.8 million or 57.9%; (ii) a decline in "services sector volume" by JD 1168.7 million or 67% ; and (iii) a decline in "industrial sector volume" by JD 254.3 million or 33%. As for share price developments, the general share price index weighted by market value decreased by 12.6% during 2011 compared to its level in 2010 reaching 4648.4 points. The share price index for "insurance sector", "banking sector", "service sector" and "manufacturing and mining sector" registered a decline by 19%, 14.8%, 13.6% and 8.6%, respectively.

Some authors related the stock market to microeconomic situations such as: Zamil and Areiqat (2011) concluded 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, therefore the stock market responds more than the real estate market to microeconomic indicators. While, Li and Wen (2012) concluded: stock market is basically consistent with macro economy, and the share index may reflect the trend and level of economic development in a certain extent. However, as an emerging market, many insufficiencies are still existed in the stock market, which may restrict the sensitivity of stock index to the economy. A study conducted by Kemboi and Tarus (2012) to examine 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.

Other studies were more specific about the strong relationships between ASE sectors and ASE general market index: Khan (2010) the performance of the mutual funds industry has generally kept pace with the performance of the stock market. Al-Masri et. al. (2010) showed that the correlation between the Pharmaceutical and Medical Industries Index and the ASE General Index declined from 0.29 in 2009 to 0.27 recorded during the first six months of 2010. Furthermore, Al-Masri et. al. (2011) study revealed that the ASE index registered monthly gains of 2.29% at the end of April 2010 driven by a growth in banking, financial services and real estate sectors, registering 3.05%, 11.46% and 5.36% respectively. By the end of the June 2010 banks sector registered quarterly gains of 1.72%, while all other heavy weight sectors such as real estate, financial services, utilities & energy, transportation, and mining sectors posted quarterly losses. Salameh et. al. (2011) added as the sectoral level is concerned, the mean score of corporate governance index (CGI) for the banking sector is 74%, for the insurance sector is 60%, for the industry sector 62%, for the services sector is 65%. This gives us an indication that the best corporate governance is for the banking sector while the worst is for the insurance sector. Moreover, Campello et. al. (2011) indicated that overall market conditions have large effects on the prices of individual stocks, so knowing the important technical levels for the major market indices and the various industry groups can be a valuable tool. Al Jarrah et. al. (2011) study 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 were highly correlated. The effects of the financial sector and its sub-sectors on ASE performance; the effect of the services sector and its sub-sectors on ASE performance; and the effect of the industries sector and its sub-sectors on ASE performance were noticed. 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. Furthermore, Kotis and Rhind (2012) concluded that there exists very little empirical evidence on the causal effect of stock market sectors and sub-sectors on the stock market performance. Jordan's stock market is one of the most regulated and had the most experienced in stock trading among the emerging Middle East stock markets; it was chosen as a case to provide empirical insights on the matter. In this case study, a great interest was focused on the relation between stock sectors with the general index performance. This study concentrates on ASE stock sectors and their relationship with the general market index. Studies pertained the aforementioned relation of Middle East emerging stock markets did not receive much attention. So, no doubt that there are number of studies on this topic, but still there are enough gaps in the previous studies regarding to test the relation between ASE sectors and stock market performance at the present era. Therefore Jordan's ASE market has been selected to test the relationship between ASE sectors and Stock market performance. To achieve research purpose, stock sectors price data of ASE were collected. Sample period is from 2000-2012. Empirical findings of this study would improve our understanding of the relationship between Jordan's sectors and ASE general performance. Hence, this study has both theoretical and empirical contributions to this topic. Many empirical researches have been conducted on the role of indicators of market sectors in the international diversification of investments. The findings of these researches have been well documented in the research literature. It is important to note that investors need to understand the interrelationships between the various Indicators. Moreover, much of the modern referenced literatures worked on the transfer of information and focused mostly on the advanced economies followed by the newly liberated economies in South Asia and Latin America. Due to the impact of the latest global crises and imbalances caused on the economies of emerging markets in these two regions ; investors had to look into other emerging markets such as the markets of the Middle East and North Africa as those markets are characterized by high returns and volatility, low correlation with world markets, and volatility clustering (Lagoarde-Segot and Lucey, 2006). This research allows us to discover the degree of interdependence and the nature of information flow across sectors as well as the relative importance of these sectors in explaining variations of returns in these sectors. The study attempts to fill the gap of examining the information transmission across sectors in the same stock market (Wang et al., 2005). Also, analyzing the interdependence among sub-sector indexes of ASE has not been examined to date and Examining the relative importance of the sectors in ASE also allows better understanding of the dynamics of different sectors in a stock market undergoing significant reforms and regulatory such as ASE.



**Figure (1): ASE Sectors (Financials, Services and Industries) and ASE General Index Performance from 29<sup>th</sup> December, 1999 to 30<sup>th</sup> December, 2012.**

Figure (1) shows the relation between ASE sectors and the general ASE index; graph indicates that the financials sector has the highest graph, followed by the services and finally the industries index. From this graph, we infer that the financial sector is the highest contributor to the general index, while other sectors have depleted the magnitude of the financials index. Also it is inferred that the peaks of all sectors were in the period 2005-2006, other minor peaks were in 2007, 2008. In 2008 ASE general index closed 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 industries index being the least affected. Meanwhile, ASE services and financial services indices had higher drops. Through the market in 2008, the ASE market capitalization dropped at year-end, as a result of the hefty fall in stock prices during the year. The industrial sector, which makes about one quarter of the total market capitalization, was the only sector witnessing a slight increase in its market capitalization, rising very slightly. Conversely, the financial sector, which constituted about 65% of total market capitalization, exhibited the greatest drop from its 2007 year end figure.

#### **Research Problem:**

This study investigates the dynamic effect of ASE economic and financial subsectors on (ASE) general index. This study is designed to investigate the contribution effect of financials, services, industries and their sub-sectors (inclusive) on Jordan's ASE development, by answering the following research questions:

- Do all ASE sectors positively and significantly affect ASE market?
- Do financials sub-sectors positively and significantly affect ASE market?
- Do services sub-sectors positively and significantly affect ASE market?
- Do industries sub-sectors positively and significantly affect ASE market?

#### **Research hypotheses:**

H0.1: ASE sectors (financials, services and industries) do not positively and significantly affect ASE market, at  $\alpha \leq 0.05$ .

H0.1.1: Financials sub-sectors do not positively and significantly affect ASE market, at  $\alpha \leq 0.05$ .

H0.1.2: Services sub-sectors do not positively and significantly affect ASE market, at  $\alpha \leq 0.05$ .

H0.1.3: Industries sub-sectors do not positively and significantly affect ASE market, at  $\alpha \leq 0.05$ .

### Study Model

Amman Stock Exchange (ASE) market has been divided into three main sectors as follows: Financials, Services and Industries

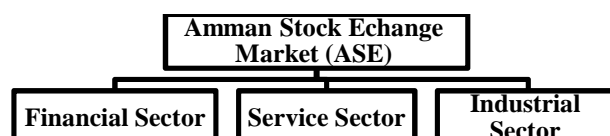


Figure (2): Study Basic Mode:

The current research studies the effect of ASE sectors (sub-sectors) on ASE market, as shown in the study model figure (3).

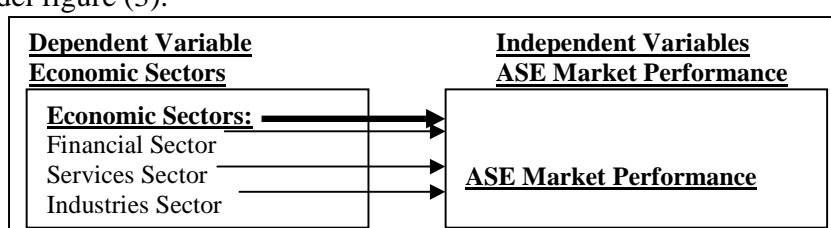


Figure (3): Study Model

### RESEARCH METHODOLOGY: DATA COLLECTION AND ANALYSIS

The data that have been used for fulfilling the purposes of the study is collected from ASE records. The collected data were including the daily record of ASE market from 29th December, 1999 to 30th December 2012. The collected data were coded against SPSS 20. Each variable and sub-variable of the ASE market was tested separately to find out its importance for ASE market.

*Independent Variables (Sectors and Sub-sectors of ASE market):* ASE market has been divided into three sectors: Financials, services and industries. Then, the sectors have been divided into sub-sectors as follows: Financials index: Banks, insurance, financial services, and real estate. Services index: Health care, education, hotels and tourism, transportation, technology and communication, media, universities and energy, and commercial services. Industries index: Pharmaceutical and medical, paper and cartoon, printing and packaging, food and beverages, tobacco, mining and extraction, engineering and construction, electric, textile and clothing, and glass and ceramic.

*Dependent variable:* Dependent variable of the study is related to general index of ASE market. Before testing the hypotheses, following tests were carried out to say that multiple regressions and stepwise regressions are suitable to be used in this study: Normality, reliability, validity and correlation among ASE market sector and sub-sector, then between them and ASE general index. Finally, we tested goodness and fitness of model via the coefficient of determination ( $R^2$ ). The higher the  $R^2$ , the better the independent variable(s) explain(s) that the variation in the dependent variable.

*Kolmogorov-Smirnov Z Test for Normal Distribution:* Kolmogorov-Smirnov (K-S) Z test was carried out to test normal distribution of variables and sub-variables. Table (1) shows that all the independent and dependent variables and sub-variables are normally distributed.

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

No.	Sectors' Items	KS	Sig.
1	Banks	8.216	0.000
2	Insurance	6.270	0.000
3	Financial Services	10.566	0.000
	<b>Financials</b>	<b>9.186</b>	<b>0.000</b>
4	Real Estate	6.035	0.000
5	Health Care Services	10.284	0.000
6	Educational Services	8.970	0.000
7	Hotels and Tourism	10.393	0.000
8	Transportation	9.702	0.000
9	Technology and Communications	8.306	0.000
10	Media	6.290	0.000
11	Utilities and Energy	5.436	0.000
12	Commercial Services	6.823	0.000
	<b>Services</b>	<b>6.165</b>	<b>0.000</b>
13	Pharmaceutical and Medical Industries	3.795	0.000
14	Chemical Industries	6.906	0.000
15	Paper and Cartoon Industries	4.290	0.000
16	Printing and Packaging	3.455	0.000
17	Food and Beverages	5.715	0.000
18	Tobacco	3.088	0.000
19	Mining and Extraction Industries	6.884	0.000
20	Engineering and Construction	8.438	0.000
21	Electric Industries	8.065	0.000
22	Textiles, Leather and Clothing	7.292	0.000
23	Glass and Ceramic Industries	8.204	0.000
	<b>Industries</b>	<b>5.505</b>	<b>0.000</b>
	<b>General Index</b>	<b>5.361</b>	<b>0.000</b>

*Reliability Test:* To test the internal consistency and suitability of the measuring tools the Cronbach's Alpha test was carried out. Bollen et. al. (2005) stated: 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, while Bontis (2001) and Sharabati et. al. (2010) stated that Alpha coefficients above 0.7 are accepted. Table (2) shows that all variables and sub-variables were accepted, since Cronbach's Alpha lies between 0.830 and 0.885.

**Table (2): Cronbach's Alpha for ASE Sectors:**

Sector	No. of Items	Alpha
Financials	4	0.885
Services	8	0.837
Industries	11	0.830

*Validity Test:* Validity means to what extent the research items measure what it is supposed to measure. To confirm validity factor analysis (Pearson's Principal Component Analysis) was carried out for all items included in the index. Tables (3&4) show that all dependent and independent variable items were valid, since their factor loading values were more than 0.4. This result matches with previous studies, such; as Bontis (2001), Bollen et. al. (2005) and Bin Ismail (2005).

**Table (3): Factors Loading for ASE Sectors**

Sectors	Factor 1	Extraction
Financials	0.932	0.868
Services	0.989	0.977
Industries	0.968	0.937

**Table (4): Factors Loading for ASE Sectors Items**

No.	Sectors' Items	Financial	Services	Industries
1	Banks	0.937		
2	Insurance	0.987		
3	Financial Services	0.959		
4	Real Estate	0.952		
5	Health Care Services		0.543	
6	Educational Services		0.571	
7	Hotels and Tourism		0.932	
8	Transportation		0.753	
9	Technology and Communications		0.883	
10	Media		0.857	
11	Utilities and Energy		0.711	
12	Commercial Services		0.819	
13	Pharmaceutical and Medical Industries			0.848
14	Chemical Industries			0.961
15	Paper and Cartoon Industries			0.640
16	Printing and Packaging			0.845

17	Food and Beverages			0.900
18	Tobacco			0.511
19	Mining and Extraction Industries			0.564
20	Engineering and Construction			0.963
21	Electric Industries			0.938
22	Textiles, Leather and Clothing			0.858
23	Glass and Ceramic Industries			0.446

*Relationships among ASE Sectors and Sub-sectors and between them and ASE General Index:*

**Table (5): Pearson’s Correlation (r) Among Sectors, Sub-Sectors and between them and ASE Index**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
1 Banks																										
2 Insurance	.95 2* *																									
3 Financial Services	.82 1* *	.92 7* *																								
4 Real Estate	.82 0* *	.90 5* *	.92 6* *																							
5 Financials	<b>.95</b> 7* *	<b>.98</b> 9* *	<b>.93</b> 9* *	<b>.93</b> 5* *																						
6 Health Care Services	.72 2* *	.78 1* *	.76 0* *	.78 1* *	<b>.79</b> 1* *																					
7 Educational Services	.81 2* *	.68 3* *	.44 8* *	.56 9* *	<b>.68</b> 9* *	.37 7* *																				
8 Hotels and Tourism	.93 1* *	.90 1* *	.75 8* *	.76 6* *	<b>.89</b> 6* *	.61 8* *	.76 4* *																			
9 Transportation	.64 1* *	.80 3* *	.92 0* *	.86 6* *	<b>.81</b> 7* *	.75 2* *	.21 9* *	.61 7* *																		
10 Technology and Communications	.93 7* *	.80 5* *	.66 3* *	.56 7* *	<b>.81</b> 8* *	.51 0* *	.54 4* *	.89 7* *	.58 4* *																	



2 5	Glass and Ceramic Industries	.08 5*	.22 4*	.38 4*	.43 7*	.26 0*	.50 5*	.15 3*	.10 4*	.49 9*	.22 8*	.22 9*	.10 0*	.25 0*	.02 6	.71 2*	.39 1*	.50 6*	.64 3*	.10 6*	.43 7*	.21 1*	.30 9*	.27 1*	.04 1*		
2 6	Industries	.88 9*	.79 4*	.63 0*	.69 4*	.81 8*	.52 7*	.80 3*	.85 8*	.47 5*	.79 5*	.86 8*	.95 6*	.76 9*	.97 4*	.51 4*	.82 2*	.30 4*	.53 3*	.89 3*	.28 4*	.93 5*	.83 1*	.79 6*	.85 4*	.03 2	
2 7	General Index	.96 5*	.96 5*	.88 7*	.90 7*	.98 4*	.75 3*	.73 3*	.90 9*	.76 4*	.85 7*	.88 0*	.79 1*	.82 9*	.94 2*	.70 0*	.93 6*	.55 6*	.68 2*	.93 4*	.42 3*	.70 2*	.94 5*	.95 7*	.94 6*	.23 6*	.90 2*

\*\*Correlation is significant at the 0.01 level (2-tailed). \*Correlation is significant at the 0.05 level (2-tailed).

Pearson correlation matrix table (5) shows that the relationships among the Jordanian economical sectors are strong, where r ranges from 0.818 to 0.974. The correlations among financials sub-sectors are strong, where r ranges from 0.820 to 0.952 and the correlations among services sub-sectors are strong, where r ranges 0.219 to 0.897. Finally, the correlations among industries sub-sectors are also strong, where r ranges 0.106 to 0.931. The matrix also shows that the relationship between the total of sectors and sub-sectors with general index are strong, where r ranges from 0.236 to 0.984. The Correlations among all sub-sectors with each others are strong, except between Tobacco industry with Commercial services, and Industries indicator and Glass and ceramic industries; these two relationships were not significant

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

**Table (6): Mean and Standard Deviation of All Sectors, Sub-Sectors and ASE General Index.**

Sectors, Sub-Sectors and ASE General Index	N	Mean	Std. Deviation	t	Sig. (2-tailed)
Banks	319 6	3196.333	1659.4773	29.549	0.000
Insurance	319 6	2516.231	1335.1280	7.930	0.000
Financial Services	319 6	4864.919	4726.8320	30.330	0.000
Real Estate	319 6	4173.569	3311.1068	31.495	0.000
<b>Financials</b>	<b>319 6</b>	<b>3038.651</b>	<b>1776.9078</b>	<b>22.579</b>	<b>0.000</b>
Health Care Services	319 6	967.129	430.4241	-178.866	0.000
Educational Services	319 6	2192.488	799.5857	-9.648	0.000
Hotels and Tourism	319 6	1454.109	577.6517	-85.618	0.000

Transportation	319 6	1007.051	432.8278	-172.658	0.000
Technology and Communications	246 2	1783.56	468.853	-57.718	0.000
Media	319 6	2090.772	921.2325	-14.616	0.000
Utilities and Energy	319 6	3219.329	1647.3837	30.555	0.000
Commercial Services	319 6	1321.881	343.7033	-165.645	0.000
<b>Services</b>	<b>319 6</b>	<b>1685.672</b>	<b>585.3328</b>	<b>-62.130</b>	<b>0.000</b>
Pharmaceutical and Medical Industries	319 6	2102.550	720.3200	-17.769	0.000
Chemical Industries	319 6	1489.497	423.7175	-112.001	0.000
Paper and Carton Industries	319 6	844.233	366.4243	-229.067	0.000
Printing and Packaging	319 6	1698.574	506.2420	-70.396	0.000
Food and Beverages	319 6	1524.379	565.6535	-80.411	0.000
Tobacco	319 6	2593.136	939.7336	15.893	0.000
Mining and Extraction Industries	319 6	2825.036	1875.9684	14.950	0.000
Engineering and Construction	319 6	2172.266	860.8471	-10.290	0.000
Electric Industries	319 6	4407.338	3311.1016	35.486	0.000
Textiles, Leather and Clothing	319 6	1680.098	751.8002	-48.792	0.000
Glass and Ceramic Industries	319 6	1511.397	742.3081	-62.264	0.000
<b>Industries</b>	<b>319 6</b>	<b>2130.905</b>	<b>943.9038</b>	<b>-11.861</b>	<b>0.000</b>
<b>General Index</b>	<b>319 6</b>	<b>2328.950</b>	<b>1107.1378</b>	<b>0.000</b>	<b>0.000</b>

Table (6) indicates that index data was compiled for the period 2000-2012, or 3196 readings for all sectors and sub-sectors except for the "technology and communication" sub-sector as this sub-sector was started to value at a later date. Table(6) shows that the average means of financials sub-sectors were ranging from 2516.231 for Insurance sub-sector to 4864.919 for Financial Services sub-sector, with standard deviation that ranges from (1335.1280 to 4726.8320). This indicates that the financials sectors performance is higher than the general ASE

market. The overall result indicates that financials sector performance were more than the average of ASE market, the average mean of financials sectors is 3038.651, standard deviation 1776.9078 ( $t=22.579 > 2329$ ). While, general index mean was 2328.950 and standard deviation is 1107.138. For the services sector, the average means of services sub-sectors were ranging from 967.129 for Health Care Services to 3219.329 for Utilities and Energy, with standard deviation that ranges from (343.7033 to 1647.3837). This indicates that almost all services sub-sectors were below the average mean of ASE market general index, except Utilities and Energy, where the average mean is 3219.329. The overall result indicates that services sector performance were below the average mean of ASE market, the total average mean for services sectors is 1685.672, standard deviation 585.3328 and ( $t=-62.130 < 2329$ ). Finally the average means of industries sub-sectors were ranging from 844.233 for Paper and Cartoon Industries to 4407.338 for Electric Industries, with standard deviation that ranges from (366.4243 to 3311.1016). The overall result indicates that almost all industries sub-sectors performance were below the average mean of ASE market, where the total average mean for industries sub-sectors is 2130.905, standard deviation 943.9038 and ( $t=-11.861 < 2329$ ), except Tobacco (2593.136), Mining and Extraction Industries (2825.036) and Electric Industries (4407.338) were higher than the average. It is worth to note that the highest sub-sector index is the financial services followed by the electric industries and real estate the third. From the data we can infer that high index sub-sectors were the contributors of increasing sector index and consequently the general index. It is worth to note that most researchers believe that the use of market weighted index reflects a better representative index for the stock market as it gives higher weight for the high traded stocks.

*Hypotheses Testing:* To test hypotheses, a multiple regression analysis was used to analyze the relationship between the economical sectors (sub-sectors) and ASE performance. The coefficient of determination ( $R^2$ ) indicates the goodness and fitness of the model. The higher the  $R^2$ , the better the independent variable(s) explain(s) that the variation in the dependent variable.

H0.1: ASE sectors (financials, services and industries) do not positively and significantly affect ASE market, at  $\alpha \leq 0.05$ .

Multiple Regressions: The R square value is 0.997; therefore, the model is regarded as being suitable to be used for multiple regressions with the data.

**Table (7): Results of Multiple Regression Analysis: Regressing ASE Sectors against ASE General Index**

Sector	r	$R^2$	ANOVA F- Value	Sig.
Economical Sectors	0.999	0.997	365827.961	0.000

The results of the multiple regression analysis that regress the three economical sectors are shown on table (7). It shows that the three sectors together explained 99.7 percent of the variance, where ( $R^2 = 0.997$ ,  $F=365827.961$ ,  $Sig. = 0.000$ ). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that the economical sectors affect ASE market performance, at  $\alpha \leq 0.05$ . The following table shows the significant effect of each sub-sector within the all sectors.

**Table (8): Un-standardized and Standardized Coefficients of Multiple Regression Model for All ASE Sectors**

Sectors	Un-standardized Coefficients		Standardized	t-value	p
	B	Std. Error	Beta		
<b>(Constant)</b>	<b>137.598</b>	<b>5.027</b>		<b>27.371</b>	<b>0.000</b>
Financials	0.454	.001	0.728	340.61	0.000
Services	0.117	0.010	0.062	11.376	0.000
Industries	0.289	0.005	0.247	54.884	0.000

The conclusion of table (8) shows that the financial sector has the highest effect on ASE market performance, where (Beta=0.728, sig. =0.000). Thus, it indicates that the financial sector is the most significant, and it positively and directly regresses to the ASE market performance, followed by the industries sector, where (Beta=0.247, sig.=0.000), then the services sector, where (Beta=0.062, sig.=0.000). The relationship between the dependent and independent variables derived by this model can thus be expressed as:

$$ASE\ market = 137.598 + 0.454 (Financials) + 0.117 (Services) + 0.289 (Industries)$$

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

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

Model	r	R <sup>2</sup>	F	Sig.	Sectors
1	0.984(a)	0.968	97938.691	0.000	Financials
2	0.998(b)	0.997	527462.711	0.000	Financials and Industries
3	0.999(c)	0.997	365827.961	0.000	Financial, Industries and Services

From table (9) above, the first model of stepwise regression (ANOVA) shows the importance of the financial sector, where (R<sup>2</sup> =0.968, F=97938.691, Sig. =0.000). The second model of stepwise regression shows the importance of the financials sector plus industries sector, where (R<sup>2</sup> =0.997, F=527462.711, Sig. =0.000). Therefore, it is concluded that the second model increases R<sup>2</sup> with 0.029, this means that the financials sector alone explains 96.8% of the variance in the ASE market performance. While the second model explains 99.7% of the variance, this means that industries sector adds only 2.9% to the first model. While the third model, though it included the third model, but it will not add any extra significant explanation of the variance. The following table (10) shows the relation between the ASE sectors and ASE market performance:

**Table (10): Stepwise Regressions Model for ASE Sectors**

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	<b>(Constant)</b>	<b>465.795</b>	<b>6.896</b>		<b>67.542</b>	<b>0.000</b>
	Financials	0.613	0.002	0.984	312.952	0.000
2	<b>(Constant)</b>	<b>186.423</b>	<b>2.670</b>		<b>69.826</b>	<b>0.000</b>
	Financials	0.463	0.001	0.743	439.629	0.000
	Industries	0.345	0.002	0.294	173.853	0.000
3	<b>(Constant)</b>	<b>137.598</b>	<b>5.027</b>		<b>27.371</b>	<b>0.000</b>
	Financials	0.454	0.001	0.728	340.616	0.000
	Industries	0.289	0.005	0.247	54.884	0.000
	Services	0.117	0.010	0.062	11.376	0.000

From table (10) above, the first model of stepwise regression shows that there is a positive direct relation between the financials sector and ASE market performance, where beta equals 0.984. The second model of stepwise regression shows that there is a positive direct relation between the financials sector and industries sector with ASE market performance, where beta equals 0.743 and 0.294, respectively. Third model of stepwise regression shows that there is a positive direct relation between the financials sector and industries sector plus services sector with ASE market performance, where beta equals 0.728, 0.247 and 0.062 respectively. Such results indicate that the financials sector is the most important sector, followed by the industries sector, while the services sector has very low significant impact on ASE market performance. The following sub-hypotheses encompass the study variables and answer the questions that were raised earlier in the study problem:

#### Sub Hypothesis 1-1:

H0.1.1: Financials sub-sectors do not positively and significantly affect ASE market, at  $\alpha \leq 0.05$ . Multiple Regressions: The results of the multiple regression analysis that regress the financials sub-sectors are shown on table (11). It shows that the four sub-sectors together explained 97.3 percent of the variance, where ( $R^2 = 0.973$ ,  $F=28567.988$ ,  $Sig. = 0.000$ ). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that the financials sub-sectors affect ASE market performance, at  $\alpha \leq 0.05$ . The following table shows the significant effect of each sub-sector within the financial sector.

**Table (11): Results of Multiple Regression Analysis: Regressing Financials Sub-Sectors against ASE General Index**

Sector	r	R <sup>2</sup>	ANOVA F- Value	Sig.
Financials Sub-Sector	0.986	0.973	28567.988	0.000

The conclusion of table (12) shows that the banks sub-sector has the highest effect on ASE market performance, where (Beta=0.663, sig.=0.000). Thus, it indicates that the banks sub-sectors is the most significant, and it positively and directly regresses to the ASE market performance, followed by the real estate sub-sector, where (Beta=0.323, sig.=0.000), then the

financial services sub-sector, where (Beta=0.036, sig.=0.001). While the relationship between insurance sub-sector and ASE market performance was weak and not significant, where (Beta=0.008, sig.=0.664).

**Table (12): Un-standardized and Standardized Coefficients of Multiple Regression Model for Financials Sub-Sectors:**

Financials Sub-Sectors	Un-standardized Coefficients		Standardized Coefficients	t-value	p
	B	Std. Error	Beta		
(Constant)	406.786	9.547		42.611	0.000*
Banks	0.442	0.008	0.663	58.875	0.000*
Insurance	0.006	0.014	0.008	0.434	0.664*
Financial Services	0.009	0.002	0.036	3.484	0.001*
Real Estate	0.108	0.003	0.323	39.376	0.000*

Stepwise regression: To determine which financials sub-sectors are important in this model, the researchers used stepwise regression. The results are shown on table (13):

**Table (13): Stepwise Regressions (ANOVA) for Financials Sub-Sectors**

Model	r	R <sup>2</sup>	F	Sig.	Sub-Sectors
1	0.965(a)	0.932	43442.774	0.000	Banks
2	0.986(b)	0.973	56735.111	0.000	Banks and Real Estate
3	0.986(c)	0.973	38100.277	0.000	Banks, Real Estate and Financial Services

From table (13) above, the first model of stepwise regression (ANOVA) shows the importance of the banks sub-sector, where (R<sup>2</sup> =0.932, F=43442.774, Sig. =0.000). The second model of stepwise regression shows the importance of the banks sub-sector plus real estate sub-sector, where (R<sup>2</sup> =0.973, F=56735.111, Sig. =0.000). Therefore, it is concluded that the second model increases R<sup>2</sup> with 0.041, this means that the banks sector alone explains 93.2% of the variance in the ASE market performance. While the second model explains 97.3% of the variance, this means that real estate sub-sector adds only 4.1% to the first model. While the third model, though it included three sub-sectors, but financial services sub-sector will not add any significant explanation of the variance. The following table (14) shows the relation between the financials sub-sectors and ASE market performance:

From table (14) below, the first model of stepwise regression shows that there is a positive direct relation between the banks sub-sector and ASE market performance, where beta equals 0.965. The second model of stepwise regression shows that there is a positive direct relation between

the banks sub-sector and real estate sub-sector with ASE market performance, where beta equals 0.675 and 0.354, respectively. Third model of stepwise regression shows that there is a positive direct relation between the banks sub-sector and real estate sub-sector plus financial services sub-sector with ASE market performance, where beta equals 0.667, 0.324 and 0.039 respectively. Such results indicate that the banks sub-sector is the most important sub-sector, followed by the real estate sub-sector, then financial services sub-sector, while the insurance sub sector has been excluded because it does not add any extra explanation to ASE market performance.

**Table (14): Stepwise Regressions Model for Financials Sub-Sectors**

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	<b>(Constant)</b>	<b>270.801</b>	<b>11.126</b>		<b>24.340</b>	<b>0.000</b>
	Banks	0.644	0.003	0.965	208.429	0.000
2	<b>(Constant)</b>	<b>395.923</b>	<b>7.263</b>		<b>54.515</b>	<b>0.000</b>
	Banks	0.450	0.003	0.675	131.877	0.000
	Real Estate	0.118	0.002	0.354	69.260	0.000
3	<b>(Constant)</b>	<b>409.214</b>	<b>7.735</b>		<b>52.906</b>	<b>0.000</b>
	Banks	0.445	0.004	0.667	125.530	0.000
	Real Estate	0.108	0.003	0.324	40.146	0.000
	Financial Services	0.009	0.002	0.039	4.869	0.000

Sub Hypothesis 1-2:

H0.1.2. Services sub-sectors do not positively and significantly affect ASE market, at  $\alpha \leq 0.05$ .

Multiple Regressions: The results of the multiple regression analysis that regress the eight services sub-sectors are shown on table (15). It shows that the eight sectors together explained 98.4 percent of the variance, where ( $R^2 = 0.984$ ,  $F=18406.809$ ,  $Sig. = 0.000$ ). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that the services sub-sectors affect ASE market performance, at  $\alpha \leq 0.05$ . The following table shows the significant effect of each sub-sector within the services sub-sectors.

**Table (15): Results of Multiple Regression Analysis: Regressing Services Sub-Sectors against ASE Market Performance.**

Sector	r	R <sup>2</sup>	ANOVA F- Value	Sig.
Services Sector	0.992	0.984	18406.809	0.000

The conclusion of table (16) shows that the transportation sub-sector has the highest effect on ASE market performance, where (Beta=0.521, sig.=0.000). Thus, it indicates that the transportation sub-sectors is the most significant, and it positively and directly regresses to the ASE market performance, followed by the utility and energy sub-sector, where (Beta=0.216, sig.=0.000), then the commercial services sub-sector, where (Beta=0.213, sig.=0.000), and technology and communication sub-sector, where (Beta=0.202, sig.=0.000), and education

services sub-sector, where (Beta=0.094, sig.=0.000), and health care services sub-sector, where (Beta=0.071, sig.=0.000), and hotels and tourism sub-sector, where (Beta=0.043, sig.=0.000), respectively. While the relationship between media sub-sector and ASE market performance was significantly negative, where (Beta=-0.083, sig.=0.000).

**Table (16): Un-standardized and Standardized Coefficients of Multiple Regression Model for Services Sub-Sectors**

Services Sub-Sectors	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
<b>Constant</b>	<b>-876.767</b>	<b>19.273</b>		<b>-45.492</b>	<b>0.000*</b>
Health Care Services	0.156	0.010	0.071	15.277	0.000*
Educational Services	0.166	0.007	0.094	22.170	0.000*
Hotels and Tourism	0.074	0.014	0.043	5.221	0.000*
Transportation	1.014	0.014	0.521	73.417	0.000*
Technology and Communications	0.421	0.019	0.213	22.104	0.000*
Media	<b>-0.099</b>	0.007	<b>-0.083</b>	<b>-13.478</b>	0.000*
Utilities and Energy	0.142	0.004	0.216	37.816	0.000*
Commercial Services	0.548	0.018	0.202	31.188	0.000*

Stepwise regression: To determine which services sub-sectors are important in this model, the researchers used stepwise regression. The results are shown on table (17):

**Table (17): Stepwise Regressions (ANOVA) for Services Sub-Sectors**

Model	r	R <sup>2</sup>	F	Sig.	Sub-Sectors
1	0.867(a)	0.752	7473.482	0.000	Hotels and Tourism
2	0.965(b)	0.931	16681.170	0.000	Plus Transportation
3	0.985(c)	0.970	26411.876	0.000	Plus Utilities and Energy
4	0.987(d)	0.975	23655.176	0.000	Plus Educational Services
5	0.988(e)	0.977	20523.135	0.000	Plus Health Care Services
6	0.989(f)	0.979	18652.070	0.000	Plus Commercial Services
7	0.991(g)	0.982	19569.756	0.000	Plus Technology and Communications
8	0.992(h)	0.984	18406.809	0.000	Plus Media

From table (17) above, the first model of stepwise regression (ANOVA) shows the importance of the hotels and tourism sub-sector, where (R<sup>2</sup>=0.752, F=7473.482, Sig. =0.000). Second model of stepwise regression shows the importance of the hotels and tourism sub-sector plus transportation sub-sector, where (R<sup>2</sup>=0.931, F=16681.170, Sig. =0.000). Therefore, it is concluded that the second model increases R<sup>2</sup> with 0.179, this means that the hotel and tourism

sub-sector alone explains 75.2% of the variance in the ASE market performance. While the second model explains 93.1% of the variance, this means that transportation sub-sector adds 17.9% to the first model. While the third model adds 0.039 to second model, then each model adds 0.005, 0.002, 0.002, 0.003 and 0.002 to previous model, respectively. The following table (18) shows the relation between the economical sectors and ASE market performance:

**Table (18): Stepwise Regressions Model for Services Sub-Sectors**

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	<b>(Constant)</b>	<b>278.364</b>	<b>29.930</b>		<b>9.300</b>	<b>0.000</b>
	Hotels and Tourism	1.502	0.017	0.867	86.449	0.000
2	<b>(Constant)</b>	<b>97.724</b>	<b>15.922</b>		<b>6.138</b>	<b>0.000</b>
	Hotels and Tourism	0.939	0.012	0.542	81.337	0.000
	Transportation	1.039	0.013	0.534	80.075	0.000
3	<b>(Constant)</b>	<b>-100.865</b>	<b>11.121</b>		<b>-9.070</b>	<b>0.000</b>
	Hotels and Tourism	0.541	0.010	0.312	51.842	0.000
	Transportation	1.190	0.009	0.611	132.189	0.000
	Utilities and Energy	0.181	0.003	0.275	56.125	0.000
4	<b>(Constant)</b>	<b>-396.672</b>	<b>17.109</b>		<b>-23.185</b>	<b>0.000</b>
	Hotels and Tourism	0.373	0.012	0.216	30.305	0.000
	Transportation	1.290	0.009	0.663	136.111	0.000
	Utilities and Energy	0.181	0.003	0.276	61.337	0.000
	Educational Services	0.181	0.008	0.103	21.538	0.000
5	<b>(Constant)</b>	<b>-514.409</b>	<b>18.402</b>		<b>-27.955</b>	<b>0.000</b>
	Hotels and Tourism	0.329	0.012	0.190	26.913	0.000
	Transportation	1.208	0.011	0.621	112.133	0.000
	Utilities and Energy	0.188	0.003	0.286	65.271	0.000
	Educational Services	0.214	0.008	0.121	25.428	0.000
	Health Care Services	0.156	0.011	0.071	14.259	0.000
6	<b>(Constant)</b>	<b>-636.405</b>	<b>19.475</b>		<b>-32.678</b>	<b>0.000</b>
	Hotels and Tourism	0.301	0.012	0.174	25.283	0.000
	Transportation	1.088	0.013	0.559	82.536	0.000
	Utilities and Energy	0.183	0.003	0.278	65.753	0.000
	Educational Services	0.195	0.008	0.111	23.974	0.000
	Health Care Services	0.221	0.011	0.101	19.428	0.000
	Commercial Services	0.207	0.014	0.077	14.774	0.000
7	<b>(Constant)</b>	<b>-847.548</b>	<b>19.843</b>		<b>-42.713</b>	<b>0.000</b>
	Hotels and Tourism	0.068	0.015	0.039	4.653	0.000
	Transportation	0.948	0.013	0.487	70.891	0.000
	Utilities and Energy	0.123	0.004	0.187	34.105	0.000

	Educational Services	0.149	0.008	0.085	19.553	0.000
	Health Care Services	0.174	0.010	0.079	16.555	0.000
	Commercial Services	0.439	0.016	0.162	27.161	0.000
	Technology and Communications	0.454	0.020	0.230	23.222	0.000
	<b>(Constant)</b>	<b>-876.767</b>	<b>19.273</b>		<b>-45.492</b>	<b>0.000</b>
8	Hotels and Tourism	0.074	0.014	0.043	5.221	0.000
	Transportation	1.014	0.014	0.521	73.417	0.000
	Utilities and Energy	0.142	0.004	0.216	37.816	0.000
	Educational Services	0.166	0.007	0.094	22.170	0.000
	Health Care Services	0.156	0.010	0.071	15.277	0.000
	Commercial Services	0.548	0.018	0.202	31.188	0.000
	Technology and Communications	0.421	0.019	0.213	22.104	0.000
	Media	<b>-0.099</b>	0.007	<b>-0.083</b>	<b>-13.478</b>	0.000

From table (18) above, the first model of stepwise regression shows that there is a positive direct relation between the hotels and tourism sub-sector and ASE market performance, where beta equals 0.867. The second model of stepwise regression shows that there is a positive direct relation between the hotels and tourism sub-sector and transportation sub-sector with ASE market performance, where beta equals 0.542 and 0.534, respectively, and so on. The eight and final model shows that all sub-sectors have positive significant effect on ASE market performance, except media which has negative significant effect on ASE market performance, where beta equals **-0.083** and ( $t=-13.478 < 1.645$ ).

### 1.1.1. Sub Hypothesis 1-3

H0.1.3: Industries sub-sectors do not positively and significantly affect ASE market, at  $\alpha \leq 0.05$ .

Multiple Regressions: The results of the multiple regression analysis that regress the eleven industries sub-sectors are shown on table (19). It shows that the eleven sub-sectors together explained 99.4 percent of the variance, where ( $R^2 = 0.994$ ,  $F=51498.137$ ,  $Sig. = 0.000$ ). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that the industries sub-sectors affect ASE market performance, at  $\alpha \leq 0.05$ . The following table shows the significant effect of each sub-sector within the industry sub-sector.

**Table (19): Results of Multiple Regression Analysis: Regressing Industries Sub-Sectors against ASE Market Performance**

Sector	r	R <sup>2</sup>	ANOVA F- Value	Sig.
Industries Sector	0.997	0.994	51498.137	0.000

The conclusion of table (20) shows that the textiles, leader and clothing sub-sector has the highest effect on ASE market performance, where (Beta=0.338, sig.=0.000). Thus, it indicates that the textiles, leader and clothing sub-sectors is the most significant, and it positively and directly regresses to the ASE market performance, followed by the electrical industries sub-sector, where (Beta=0.312, sig.=0.000), then the mining and extraction industries sub-sector, where (Beta=0.213, sig.=0.000), and technology and communication sub-sector, where

(Beta=0.240, sig.=0.000), and paper and cartoon industries sub-sector, where (Beta=0.117, sig.=0.000), and tobacco sub-sector, where (Beta=0.084, sig.=0.000), and pharmaceutical and medical industries sub-sector, where (Beta=0.087, sig.=0.000) and engineering and construction sub-sector, where (Beta=0.075, sig.=0.000), and chemicals industries sub-variable, (Beta=0.039, sig.=0.000), respectively. While the relationship between food and beverages sub-sector and ASE market performance was significantly negative, where (Beta=-0.038, sig.=0.000), and between printing and packaging with ASE market performance was also significantly negative, where (Beta=-0.045, sig.=0.000).

**Table (20): Un-standardized and Standardized Coefficients of Multiple Regression Model for Industries Sub-Sectors:**

	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
<b>Constant</b>	<b>-338.443</b>	<b>13.919</b>		<b>24.315</b>	<b>0.000</b>
Pharmaceutical and Medical Industries	0.134	0.006	0.087	20.774	0.000
Chemical Industries	0.101	0.014	0.039	7.094	0.000
Paper and Cartoon Industries	0.354	0.010	0.117	34.046	0.000
Printing and Packaging	<b>-0.099</b>	0.009	<b>-0.045</b>	<b>11.537</b>	<b>0.000</b>
Food and Beverages	<b>-0.075</b>	0.013	<b>-0.038</b>	<b>-5.982</b>	<b>0.000</b>
Tobacco	0.099	0.003	0.084	28.656	0.000
Mining and Extraction Industries	0.142	0.002	0.240	90.935	0.000
Engineering and Construction	0.096	0.008	0.075	12.706	0.000
Electric Industries	0.104	0.002	0.312	44.802	0.000
Textiles, Leather and Clothing	0.497	0.008	0.338	61.804	0.000
Glass and Ceramic Industries	0.039	0.005	0.026	8.233	0.000

Stepwise regression: To determine which sub-sectors are important in this model, the researchers used stepwise regression. The results are shown on table (21):

**Table (21): Stepwise Regressions (ANOVA) for Industries Sub-Sectors**

Model	r	R <sup>2</sup>	F	Sig.	Sub-Sectors
1	0.957(a)	0.916	34683.998	0.000	Electronic industries
2	0.981(b)	0.963	41749.907	0.000	Textiles, Leather and Clothing
3	0.987(c)	0.974	40382.767	0.000	Mining and Extraction Industries
4	0.994(d)	0.989	71715.697	0.000	Pharmaceutical and Medical Industries
5	0.995(e)	0.991	69418.197	0.000	Tobacco
6	0.997(f)	0.994	81779.632	0.000	Paper and Cartoon Industries
7	0.997(g)	0.994	75401.603	0.000	Glass and Ceramic Industries
8	0.997(h)	0.994	67101.129	0.000	Engineering and Construction
9	0.997(i)	0.994	61569.616	0.000	Printing and Packaging
10	0.997(j)	0.994	56032.506	0.000	Chemical Industries
11	0.997(k)	0.994	51498.137	0.000	Food and Beverages

From table (21) above, the first model of stepwise regression (ANOVA) shows the importance of the electronic industries sub-sector, where ( $R^2 = 0.916$ ,  $F=34683.998$ ,  $Sig. = 0.000$ ). The second model of stepwise regression shows the importance of the electronic industries sub-sector plus textiles, leader and clothing sub-sector, where ( $R^2 = 0.963$ ,  $F=41749.907$ ,  $Sig. = 0.000$ ). Therefore, it is concluded that the second model increases  $R^2$  with 0.047, this means that the electronic industries sub-sector alone explains 91.6% of the variance in the ASE market performance. While the second model explains 96.3% of the variance, this means that electronic industries sub-sector adds 4.7% to the first model. While the third model adds 0.011 to second model, then each model adds 0.015, 0.002, and 0.003, to previous model, respectively. The models from model 6 to model 11 they will not add any extra significant value for explanation. The following table (22) shows the relation between the economical sectors and ASE market performance:

**Table (22): Stepwise Regressions Model for Industries Sub-Sectors**

Model		Un-standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	<b>918.763</b>	<b>9.470</b>		<b>97.016</b>	<b>0.000</b>
	Electric Industries	0.320	0.002	0.957	186.236	0.000
2	(Constant)	<b>378.378</b>	<b>10.493</b>		<b>36.059</b>	<b>0.000</b>
	Electric Industries	0.185	0.002	0.553	77.278	0.000
	Textiles, Leather and Clothing	0.676	0.011	0.459	64.166	0.000
3	(Constant)	<b>403.308</b>	<b>8.787</b>		<b>45.896</b>	<b>0.000</b>

	Electric Industries	0.194	0.002	0.581	96.50 6	0.000
	Textiles, Leather and Clothing	0.491	0.010	0.333	48.57 3	0.000
	Mining and Extraction Industries	0.087	0.002	0.147	37.25 1	0.000
	<b>(Constant)</b>	<b>-34.285</b>	<b>8.838</b>		<b>-3.879</b>	<b>0.000</b>
4	Electric Industries	0.142	0.002	0.425	92.16 4	0.000
	Textiles, Leather and Clothing	0.513	0.007	0.349	77.47 5	0.000
	Mining and Extraction Industries	0.109	0.002	0.185	70.09 9	0.000
	Pharmaceutical and Medical Industries	0.269	0.004	0.175	65.23 1	0.000
	<b>(Constant)</b>	<b>-8.135</b>	<b>8.106</b>		<b>-1.004</b>	<b>0.000</b>
5	Electric Industries	0.171	0.002	0.510	95.45 2	0.000
	Textiles, Leather and Clothing	0.382	0.008	0.260	48.50 0	0.000
	Mining and Extraction Industries	0.121	0.001	0.205	81.21 5	0.000
	Pharmaceutical and Medical Industries	0.181	0.005	0.118	35.84 9	0.000
	Tobacco	0.085	0.003	0.072	25.76 0	0.000
	<b>(Constant)</b>	<b>-314.337</b>	<b>10.874</b>		<b>-28.90 7</b>	<b>0.000</b>
6	Electric Industries	0.117	0.002	0.351	55.73 6	0.000
	Textiles, Leather and Clothing	0.497	0.007	0.337	67.55 3	0.000
	Mining and Extraction Industries	0.141	0.001	0.239	102.8 29	0.000
	Pharmaceutical and Medical Industries	0.138	0.004	0.090	31.31 6	0.000
	Tobacco	0.114	0.003	0.097	39.50 9	0.000
	Paper and Cartoon Industries	0.363	0.010	0.120	36.17 5	0.000
7	<b>(Constant)</b>	<b>-320.871</b>	<b>10.496</b>		<b>-30.57 2</b>	<b>0.000</b>

	Electric Industries	0.115	0.002	0.344	56.37 3	0.000
	Textiles, Leather and Clothing	0.535	0.008	0.363	71.25 5	0.000
	Mining and Extraction Industries	0.142	0.001	0.241	107.3 94	0.000
	Pharmaceutical and Medical Industries	0.097	0.005	0.063	19.41 1	0.000
	Tobacco	0.100	0.003	0.085	34.53 4	0.000
	Paper and Cartoon Industries	0.337	0.010	0.112	34.40 7	0.000
	Glass and Ceramic Industries	0.061	0.004	0.041	15.51 7	0.000
	<b>(Constant)</b>	<b>-334.869</b>	<b>10.578</b>		<b>- 0.000</b> <b>31.65</b> <b>9</b>	
8	Electric Industries	0.108	0.002	0.324	49.11 5	0.000
	Textiles, Leather and Clothing	0.532	0.007	0.361	71.32 6	0.000
	Mining and Extraction Industries	0.138	0.001	0.234	96.82 0	0.000
	Pharmaceutical and Medical Industries	0.093	0.005	0.061	18.63 6	0.000
	Tobacco	0.094	0.003	0.080	31.59 3	0.000
	Paper and Cartoon Industries	0.326	0.010	0.108	33.17 2	0.000
	Glass and Ceramic Industries	0.060	0.004	0.040	15.42 2	0.000
	Engineering and Construction	0.043	0.006	0.034	7.417	0.000
	<b>(Constant)</b>	<b>-314.843</b>	<b>10.597</b>		<b>- 0.000</b> <b>29.71</b> <b>1</b>	
9	Electric Industries	0.108	0.002	0.322	49.55 8	0.000
	Textiles, Leather and Clothing	0.506	0.008	0.344	65.20 8	0.000
	Mining and Extraction Industries	0.139	0.001	0.235	98.62 9	0.000
	Pharmaceutical and Medical Industries	0.119	0.006	0.078	21.48 4	0.000

	Tobacco	0.106	0.003	0.090	33.62 4	0.000
	Paper and Cartoon Industries	0.326	0.010	0.108	33.66 9	0.000
	Glass and Ceramic Industries	0.062	0.004	0.041	16.12 3	0.000
	Engineering and Construction	0.083	0.007	0.064	11.92 4	0.000
	Printing and Packaging	-0.087	0.009	-0.040	- 10.15 9	0.000
	<b>(Constant)</b>	<b>-364.004</b>	<b>13.319</b>		<b>- 27.32 9</b>	<b>0.000</b>
	Electric Industries	0.103	0.002	0.307	44.16 0	0.000
	Textiles, Leather and Clothing	0.493	0.008	0.335	61.18 0	0.000
	Mining and Extraction Industries	0.138	0.001	0.233	97.44 8	0.000
	Pharmaceutical and Medical Industries	0.115	0.006	0.075	20.50 3	0.000
1	Tobacco	0.107	0.003	0.091	34.22 2	0.000
0	Paper and Cartoon Industries	0.350	0.010	0.116	33.56 6	0.000
	Glass and Ceramic Industries	0.051	0.004	0.034	12.30 2	0.000
	Engineering and Construction	0.078	0.007	0.061	11.19 5	0.000
	Printing and Packaging	-0.096	0.009	-0.044	- 11.16 8	0.000
	Chemical Industries	0.085	0.014	0.032	6.036	0.000
	<b>(Constant)</b>	<b>-338.443</b>	<b>13.919</b>		<b>- 24.31 5</b>	<b>0.000</b>
1	Electric Industries	0.104	0.002	0.312	44.80 2	0.000
1	Textiles, Leather and Clothing	0.497	0.008	0.338	61.80 4	0.000
	Mining and Extraction Industries	0.142	0.002	0.240	90.93 5	0.000

Pharmaceutical and Medical Industries	0.134	0.006	0.087	20.774	0.000
Tobacco	0.099	0.003	0.084	28.656	0.000
Paper and Cartoon Industries	0.354	0.010	0.117	34.046	0.000
Glass and Ceramic Industries	0.039	0.005	0.026	8.233	0.000
Engineering and Construction	0.096	0.008	0.075	12.706	0.000
Printing and Packaging	-0.099	0.009	-0.045	11.537	0.000
Chemical Industries	0.101	0.014	0.039	7.094	0.000
Food and Beverages	-0.075	0.013	-0.038	-5.982	0.000

From table (21) above, the first model of stepwise regression shows that there is a positive direct relation between the electronic industries sub-sector and ASE market performance, where beta equals 0.957. The second model of stepwise regression shows that there is a positive direct relation between the electronic industries sub-sector and textiles, leader and clothing sub-sector with ASE market performance, where beta equals 0.553 and 0.459, respectively, and so on. The ninth and tenth models show that printing and packaging sub-sector was having negative effect of ASE market performance, while eleventh and final model show that printing and packaging sub-sector and food and beverage sub-sector have negative significant effect on ASE market performance.

## FINDINGS

The main purpose in this study tries to find out the effect of ASE sectors: Financials, services, and industries on ASE market performance. Study had adopted a set of econometric tools such as: Reliability Test, Validity Test, Pearson's Correlation test, Multiple Regressions, Stepwise regressions. The results of the multiple regressions analysis that regress the three ASE sectors together explained 99.7 percent of the variance, where ( $R^2 = 0.997$ ,  $F = 365827.961$ ,  $Sig. = 0.000$ ). Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that the economical sectors affect ASE market performance, at  $\alpha \leq 0.05$ . Multiple regressions also showed that financials sector has the highest effect on ASE market performance, where ( $Beta = 0.728$ ,  $sig. = 0.000$ ), followed by the industries sector, where ( $Beta = 0.247$ ,  $sig. = 0.000$ ), then the services sector, where ( $Beta = 0.062$ ,  $sig. = 0.000$ ). Stepwise regression (ANOVA) reinforced the results above and first model showed the importance of the financials sector, where ( $R^2 = 0.968$ ,  $F = 97938.691$ ,  $Sig. = 0.000$ ). The second model of stepwise regression showed the importance of financial sector and industrial sector combined, where ( $R^2 = 0.997$ ,  $F = 527462.711$ ,  $Sig. = 0.000$ ). While the third model, though it included the three sectors, but it did not add any extra significant explanation of the variance. Research results revealed that ASE general index closed the 2008 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 by losing 11.7%. Meanwhile, ASE services and financial services

indices shed 17.7% and 29.7%, respectively. Through the market in 2008, the ASE market capitalization dropped by 13.9% at year-end, as a result of the hefty fall in stock prices during the year. The industrial sector, which makes up 24.7% of the total market capitalization, was the only sector witnessing a slight increase in its market capitalization, rising by a mere 1.2%. Conversely, the financial sector, which constituted 64.8% of total market capitalization, exhibited the greatest drop of 18.1% from its 2007 yearend figure. Our findings coincided with Hasan et. al. (2009). The correlation coefficients between financial development indicators and economic growth indicator were high. Research results found that there were effects of the financial sector and its sub-sectors on ASE performance; effect of the services sector and its sub-sectors on ASE performance; and effect of the industries sector and its sub-sectors on ASE performance were noticed. Our research results confirm the results reached by Al Jarrah et. al. (2011).

## CONCLUSIONS

Many studies tried to find the effect of stock exchange development on economic growth, but very little were concerned with the effect of economic sectors and sub-sectors on the general stock index. Also study results revealed that Market Sector Indices summarize the performance of stocks belong to the specific market sector. Also market sector indices reflect the contribution of each specific index to the general index.

This study, investigated the dynamic effect and contribution of economic and financial sectors and sub-sectors on the general economic growth over the period of 2000-2012. The multiple regression test suggests that the three stock price indices share one long-run equilibrium relationship in the long run, while in the short-run, indices show an existence of co-movements among each other, which means that fluctuations of prices in one stock index can be determined or predicted to some extent using a part of the information set provided by the other stock indices. Based on the regression analyses, we found that the financial sector performance is the major component (3038.651) of the general index as it exceeded the general average (2328.95), followed by the industrial sector (2130.905), and services sector comes the last (1685.672).

## RECOMMENDATIONS

This result enhances us to look at the causes of these figures and how economic sectors can be advocated by authorities to flourish:

- 1-Some of the services sub-sector such as Health Care Services has the lowest index which needs to be modified up to the international level; the same for Hotels and Tourism sub-sector needs modification as Jordan is full with historical and religious places of most nations.
- 2- Some sub-sectors of the Industries sector, which forms the spinal cord of the national economy, need innovation and development such as Paper and Carton Industries, Leather, Textile and clothing, Chemicals, and Food and Beverages, these industries are looked down by consumers as compared by imported products.
- 3- ASE authorities have to introduce modifications to trading process to assist investor's trade in the stock market and build confidence with investors.
- 4- Encourage more researches on ASE with different variables: This Research used data limited to Jordan, ASE; therefore, generalizing results of a Jordanian setting to other countries may be questionable. Extending the analyses to other settings represent future research opportunities,

which can be done by the following ways: Further testing of other countries' stock markets will help mitigate the issue of generalizing conclusions on other stock markets. Moreover, further empirical researches involving data collection over diverse countries especially Arab countries are recommended.

5- Study results allow researchers and investors to benchmark the performance of a particular stock market sector or industry. Based on the study results, investors who incline to diversify their portfolios across sectors in ASE should expect only modest portfolio advantages from applying this strategy, in the light of significant causality linkages and high correlations found among sector returns. In this context, the services sector in the ASE offers the best diversification opportunities within ASE since this sector is the least integrated with other sectors.

### **SOCIAL CONTRIBUTION**

The current research may be an expected value and be considered as an initiative study which highlights the effect of economical sectors and sub-sectors on ASE market in Jordan. It could be a pioneer study that would investigate the relation between the economical sectors and stock markets in the Arab world. The empirical results of this study were built on previous researches of the relationship between economic sectors and stock market performance. This study also extends prior research's viewpoint about the linear relationship between economic sectors and stock market performance.

### **EXPECTED VALUE**

The research makes significant theoretical and empirical contributions to literature regarding influence of economical sectors on stock markets performance. The research results might help both academics and practitioners to be more ready to understand the components of ASE and provide insight into developing and increasing them within their countries.

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