

# Effect of corporate social responsibility on Jordan pharmaceutical industry's business performance

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## Abstract

**Purpose** – *The purpose of this study is to investigate the effect of implementing corporate social responsibility (CSR) initiatives (social responsibility, economic responsibility and environmental responsibility) on Jordanian Pharmaceutical Manufacturing (JPM) industry's business performance.*

**Design/methodology/approach** – *This study follows a quantitative descriptive design. The data were collected from 116 managers working at seven JPM organizations by questionnaire. After confirming validity and reliability of the tool, the statistical analysis means, standard deviations and t-values were used to test implementation and finally multiple regressions were used to test the hypothesis.*

**Findings** – *Results show that there are relationships between CSR variables, and all the three variables are strongly related to business performance. The results also indicate that the three sub-variables together affect JPM industry's business performance. The environmental responsibility has the highest effect on JPM industry's business performance, followed by the economic responsibility, and then the social responsibility.*

**Research limitations/implications** – *This study was directed toward pharmaceutical industry in Jordan. Generalizing the results to other industries and countries is questionable. Therefore, further research on other industries and countries will help mitigate the issue of generalizing conclusions.*

**Practical implications** – *CSR should be formulated clearly within JPM corporate strategy. The elements of CSR need to be integrated with the present performance management criteria, leadership development programs and organizational development programs, and a champion for CSR needs to be assigned.*

**Social implications** – *The CSR initiatives should be derived from local culture and match with international initiatives because CSR is the responsibility of every person.*

**Originality/value** – *Still the topic of CSR is not well implemented and does not have priority by Jordanian companies; therefore, this study may be considered as one of the few studies dedicated to study this topic and create awareness about it in Jordan.*

**Keywords** *Social responsibility, Business performance, Environmental responsibility, Corporate Social Responsibility (CSR), Jordanian Pharmaceutical Manufacturing (JPM) industry, Economic responsibility*

**Paper type** *Research paper*

## Introduction

Actually, there is neither clear-cut definition nor agreement about the components of sustainable development, sustainability, social responsibility, corporate social responsibility (CSR) and corporate citizenship. All these phrases concerned are about how to behave, act and deal with the society, contribute to economy and protect the environment, whether by using self-motivation or by obeying laws and regulations. However, different authors define these phrases in different ways, but it seems that there is consensus among scholars,

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authors and practitioners about those social, economic and environmental responsibilities that are common components of these phrases.

Sustainability is used by the Brundtland Commission to mean, "Meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 1987). Sustainable development is considered as a process for meeting human goals while maintaining the ability of natural systems to continue to provide the natural resources (Wood, 1991). Social responsibility is a duty every individual has to perform, to maintain a balance between the economy and the ecosystems (Palmer *et al.*, 1995). CSR is a business commitment that supports sustainable economic development and contributes to the quality of life, local community and society in general (The World Business Council for Sustainable Development, 2000). "The 2005 World Summit on Social Development identified sustainable development goals, such as economic development, social development and environmental protection" (United Nations, 2005). Sustainable development ties together concern for natural systems with the social, political and economic challenges faced by humanity (Finn, 2009). Modern CSR has many names, such as corporate citizenship, corporate philanthropy, corporate giving, corporate community involvement, community relations, community affairs, community development, corporate responsibility, global citizenship and corporate social marketing (Dodd and Supa, 2011). Sustainability is the practice of reserving resources for future generation without any harm to the nature and other components of it (Hendrix, 2014; Kahle and Gurel-Atay, 2014). Sustainable development includes three dimensions: economic, environmental and social or ecology, economy and equity (United Nations, 2014). The organizing principle for sustainability is sustainable development, which includes the four interconnected domains: ecology, economics, politics and culture (Bakari, 2014). Social responsibility includes four pillars: social, economic, environmental and cultural (James *et al.*, 2015).

Corporate citizenship is used to describe how business is matching with laws, regulations, ethical, moral and economic responsibilities. Corporate citizenship can be defined as the full range of both internal and external corporate activities that contribute to the well-being of society (Cavanaugh *et al.*, 2005). Corporate citizenship is the establishment and management of company's influence on the society in a way those are benefits for the company and society (Podrug, 2011). Corporate citizenship can be described as a company's responsibility to its community and to the world as a whole (Farlex, 2012). Corporate citizenship is the extent to which businesses are socially responsible for meeting legal, ethical and economic responsibilities (Investopedia, 2015).

The concern about CSR is continuously increasing worldwide. CSR has gained momentum worldwide (Marquina, 2010). Sustainable development is a key theme in policymaking in Norway (O'Brien, 2010). Corporate citizenship and organizational citizenship have been important issues in business management (Lin *et al.*, 2010). Globalization and sustainable development are nowadays the buzzwords in socio-economic discussions (Leeuw and Scheerlinck, 2011). Companies start to engage in CSR activities to respond to an external demand (Stancu *et al.*, 2011). The concept of sustainable development holds that business organizations should not only stress on their economic and business outcomes but also pay their attention toward environment, society and community (Khan and Majid, 2013). CSR concept is organization's commitment to meet the needs and demands of society (Heydarian *et al.*, 2013). The trend of CSR is continually growing and businesses are struggling to comply and maximize on its benefits (Razafindrambinina and Sabran, 2014). The common goal of the domestic and international business community is to bring forth wealth in a socially and environmentally responsible way (Sawant, 2014). The role of responsible leadership is creating the necessary transitions to a sustainable global

economy (de Jongh, 2014). Today, CSR of organizations and management is most important thing to count (Rafiei and Fard, 2015).

Focuses perhaps too much on reputation as a key driver may be seen as “green-washing”. More beneficially, if seen fundamentally as a business opportunity for long-term stability and a mechanism to integrate with the community and environment. Companies implement CSR to establish a positive business image and reputation and enhance corporate brand name by taking actions that lead to develop competitive advantage (The World Business Council for Sustainable Development, 2000). CSR activities improve a company’s image (Yoon *et al.*, 2006; Papadopoulos *et al.*, 2011; Junipriansa and Damayanti, 2014). CSR means to operate business in favor of society and to achieve its objectives in a competitive environment (Aga *et al.*, 2012). The importance of CSR initiatives is due to their relation to competitive advantage, financial result, customer behavior and corporate reputation (El-Garaihy *et al.*, 2014). CSR is viewed as an organizational function and a mean to establish stakeholder relations and reputations (Ghorbani *et al.*, 2013), and to promote company’s interaction with society, which enhance their reputation and credit (Mousavi, 2013). Contemporary organizations are required to be responsible to their shareholders, customers, employees, communities and ecology in all aspects of their operations to gain a competitive advantage (Yahya and Ha, 2014). CSR activity has become a new indicator of consumer satisfaction (Hsieh, 2014), and has a direct effect on the job satisfaction and organizational commitment of employees (Tuzcu, 2013). Finally, CSR activities can result in a better performance and can generate more profits and growth (Lakra, 2014).

Finally, Jordan is considered as a regional leader and hub of the pharmaceutical manufacturing industry in the MENA region (ICIEC, 2016). In 2016, Jordan exported 80 per cent of its pharmaceutical products to 82 countries including Arab countries; exports of pharmaceutical products comprised 11 per cent of national exports (Al Emam, 2016). Dr Mohammad Shahin stated that the “Jordan’s Pharmaceutical industry’s contribution to the export bill was about \$1 billion in 2016 and about \$0.2 billion for the domestic market, totaling \$1.2 billion” (Shahin, 2017). Pharmaceutical Industry is a highly regulated industry global. Regulations are at global level (Leeuw and Scheerlinck, 2011). Moreover, there is a growing interest in CSR disclosure by the pharmaceuticals industry (Azim and Azam, 2013). Finally, Jordanian people call on Jordanian companies to do more as acts of social responsibility (Hawkins, 2004). In summary, CSR has many names (such as social responsibility, sustainability, sustainable development and corporate citizenship), which used to indicate the responsibility of individuals or organizations toward society, economy and environment. The aim of any responsible business is to improve quality of life, increase standards of living and make profit for stakeholders, but without compromising future generation needs. CSR practices are essential for today’s business activities, and they have many benefits for organizations, such as improving organizations’ business performance, increasing customer’s satisfaction and employee’s engagement, helping to develop competitive advantage and improving organizations’ image and reputation. Therefore, the purpose of the current research is to investigate the effect of implementing CSR (social responsibility, economic responsibility and environmental responsibility) on Jordanian Pharmaceutical Manufacturing (JPM) industry’s business performance and to encourage JPM organizations to participate more in social activities, contribute to economic development and increase their awareness to be more environment friendly. Moreover, its objective is to provide sound recommendations to JPM industry, to other industries operating in Jordan and to decision-makers concerned about this topic. In addition, its objective is to encourage more researches about CSR implementation and to increase the awareness of public and organizations about this hot topic. Finally, this research may be considered as an initiative research that dedicated to investigate the effect of CSR on JPM industry’s business performance. Its results may be beneficial not only to JPM industry but also to other industries and decision-makers.

## Problem statement and hypothesis development

The implementation of CSR and its effect on company's performance have been investigated on many organizations, industries and countries, but only few researches have been conducted in Jordan and very limited researches have been performed on Jordanian Pharmaceutical industry. Many authors recommended conducting researches related to measuring and evaluating the implementation of CSR. Despite the claim that internal CSR plays an important role, the understanding of this phenomenon has been neglected (Ferreira and Oliveira, 2013). The past three decades have witnessed the emergence of CSR as a field of research and a framework for the role of business corporations and financial institutions in society (Senthikumar *et al.*, 2011), and the number of academic contributions that examine the link between CSR and financial performance has been increased (Belascu and Horobet, 2013). Though the literature review focuses on the concepts of CSR and its relationship with corporate performance (Gathungu and Ratemo, 2013; Dzhavdatovna *et al.*, 2015), there have been many variations in the results (Mumtaz and Pirzada, 2014); therefore, the relationship between CSR and corporate performance is needed to be studied extensively by scholars (Nguyen *et al.*, 2015). Sustainability measurement is a term that denotes the measurements used as the quantitative basis for the informed management of sustainability (Ball, 2002). People, planet and profit known as the triple bottom line form one way to evaluate CSR (Kanj and Chopra, 2010). The metrics used for the measurement of sustainability are evolving: these include indicators, benchmarks, audits, sustainability standards and certification systems (Dalal-Clayton and Sadler, 2009). Finally, Betianu (2010) stated, "The Global Reporting Initiatives (GRI 2000, 2002 and 2006) are international institution, which their duties are to establish guiding lines for the publishing of nonfinancial information regarding sustainable development". Pharmaceutical industry is an international and highly regulated industry; to be able to compete internationally, companies have to consider CSR within their context (Leeuw and Scheerlinck, 2011).

In light of the justification mentioned above, the current research is dedicated to investigate the effect of CSR (social responsibility, economic responsibility and environmental responsibility) on JPM industry via testing the following null hypothesis:

- H0.* Corporate social responsibility (social, economic and environmental) does not affect Jordanian Pharmaceutical Manufacturing industry's business performance, at  $\alpha \leq 0.05$ .
- H0a.* Social responsibility does not affect Jordanian Pharmaceutical Manufacturing industry's business performance, at  $\alpha \leq 0.05$ .
- H0b.* Economic responsibility does not affect Jordanian Pharmaceutical Manufacturing industry's business performance, at  $\alpha \leq 0.05$ .
- H0c.* Environmental responsibility does not affect Jordanian Pharmaceutical Manufacturing industry's business performance, at  $\alpha \leq 0.05$ .

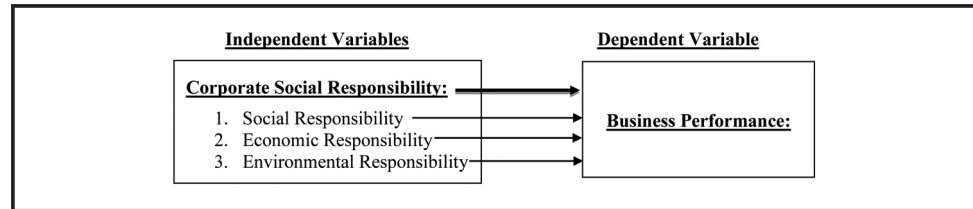
## Research model

### *Literature review*

There are many research works on the implementation of CSR and its effect on different aspects such as corporate reputation and image, customer satisfaction, employee engagement, financial including companies' value and organizations' performance in general (Figure 1).

Companies that concentrate on CSR dimensions are perceived as legal and ethical companies (Lin *et al.*, 2010) and corporate citizens (Servaes and Tamayo, 2013). The dimensions of CSR have positive effect on corporate reputation (Chao *et al.*, 2010; Servaes and Tamayo, 2013; Mousavi, 2013), corporate image (Junipriansa and Damayanti, 2014;

**Figure 1** Research model



Togun and Nasieku, 2015), customer purchasing intention (Chao *et al.*, 2010; Hsieh, 2014), consumers' behavior in purchasing (Marquina, 2010) and consumers' perceptions and behavioral intention (Papadopoulos *et al.*, 2011). They influence customer satisfaction (Senthikumar *et al.*, 2011; Azizi *et al.*, 2014), customer delight and loyalty (Rafiei and Fard, 2015; Kazemi and Omidi, 2015), perceived service quality (Rashid *et al.*, 2013), brand equity (Rashid *et al.*, 2013), brand preference (Mirabi *et al.*, 2014), brand awareness (Chirimubwe, 2015) and organizational attractiveness (Zaid and Al-Manasra, 2013). Consumers are more likely to purchase from firms that are engaged in CSR activities (Nguyen *et al.*, 2015).

Many authors studied the relationship between CSR and employee engagement and motivation; the employees' rights, fair wages and safety at work were the most prevalent dimensions in the image of a responsible employer (Stancu *et al.*, 2011). Employees' positive perception toward organizations' social ethics and social services influences their attitudes and performance, which in turn affects productivity of organizations (Bashir *et al.*, 2012). The CSR practices have positive effect on employees' engagement (Ferreira and Oliveira, 2013; Kweyama *et al.*, 2015), and facilitate staff motivation (Kim and Scullion, 2013). CSR programs have to meet the expectations of employees, investors and local communities (Gathungu and Ratemo, 2013). CSR also affects employee behavior and attitude toward the environment (Mumbunan *et al.*, 2015).

Most of the authors indicated that there are strong relationships between CSR dimensions and company's financial performance (Mishra and Suar, 2010; Sahin *et al.*, 2011; Wang and Zhang, 2012; Belascu and Horobet, 2013; Heydarian *et al.*, 2013; Mwangi and Jerotich, 2013; Bidhari *et al.*, 2013; Basuony *et al.*, 2014; Murtaza *et al.*, 2014; Ding, 2014; Mujahid and Abdullah, 2014; Rahmawati *et al.*, 2014; Mumtaz and Pirzada, 2014; Dzhavdatovna *et al.*, 2015).

Others related CSR activities to profitability (Dabbas and Al-rawashdeh, 2012; Persic and Markic, 2013; Khan and Majid, 2013; Malik and Nadeem, 2014; Jamali *et al.*, 2015; Jamali *et al.*, 2015; Kaur, 2015; Emezi, 2015). Moreover, some related CSR to shareholders' wealth (Mujahid and Abdullah, 2014; Dzhavdatovna *et al.*, 2015), market share and performance (Khan and Majid, 2013; Al-Ani and Jamil, 2015), operating performance (Razafindrambina and Sabran, 2014), credit, company's success and position (Mousavi, 2013), employee satisfaction and increased productivity and profitability (Togun and Nasieku, 2015) and to all financial performance measurements, such as return on assets, return on equity and return on sales (Bidhari *et al.*, 2013) and total assets (Abdulrahman, 2014). Furthermore, some authors studied the relationship between CSR dimensions and company's value, and found a positive effect of CSR on company's value (Susanti *et al.*, 2012; Mandasari and Hanif, 2013; and Estiasih *et al.*, 2015).

Finally, some authors studied the relationship between CSR and companies' business performance and economy in general and concluded that among European countries, the Baltic region has the highest significant correlation between environmental

indicators and GDP (Lapinskiene and Peleckis, 2009). The three dimensions of CSR were having significant influence on organization's performance (Abdullah and Abdul Rashid, 2012; Manyasi and Masinde, 2014; Yahya and Ha, 2014). CSR had a significant contribution to productivity and stability of companies (Ukpabi *et al.*, 2014). There was a strong relationship between the initiatives of CSR and competitive advantage (Al-Sukkar *et al.*, 2013; and El-Garaihy *et al.*, 2014). Sustainable development has significant impact on environmental integrity, economic prosperity, social equity and overall sustainability (Mani, 2013). Social responsibility has a great impact on the society by adding to the infrastructures and development of the society (Richard and Okoye, 2013). CSR had a positive influence on economic results (Hyks, 2015).

Few research works indicated that either there is no relationship between CSR and business performance or CSR does not affect business performance, such as CSR performance having no effect on corporate financial performance (Iqbal *et al.*, 2012). There was no significant mediating effect of CSR on the relationship between market orientation and firm performance (Arshad *et al.*, 2012). There was an insignificant relation between organizational commitment and job satisfaction, and perceptions of CSR (Tuzcu, 2013).

Moreover, only few research works have been carried out on pharmaceutical industry, which showed different effects of CSR on business performance. Mehar and Rahat (2007) concluded that there was an insignificant relationship between CSR and firm's financial performance in pharmaceutical industry in Karachi. Leeuw and Scheerlinck (2011) concluded that sustainable development was a driver of companies' awareness of sustainability issues of Belgium-based pharmaceutical companies. Aga *et al.*'s (2012) result indicated that CSR had a positive impact on firms' productivity, reputation and customer loyalty to pharmaceutical companies in Peshawar, Pakistan.

In summary, several research works were carried out on the implementation of CSR, and its impact on business performance in different industries and countries. Most of the previous research works indicated that CSR has a positive effect on many aspects such as corporate reputation, image, customer satisfaction, employee engagement, financial performance, firms' value and organizations' performance in general, whereas very limited research works indicated that there is no effect. Furthermore, only few research works were carried out in Jordan and very few performed on pharmaceutical industry; therefore, investigating the effect of CSR on JPM industry's business performance is important. This study will consider the following indicators to measure the dependent variable: productivity, cost, employee turnover, quality, sales increase, profit, market value, return on assets, return on investment and company position.

## Methods and procedures

### *Methodology*

This research follows a quantitative descriptive design to describe the CSR implementation and its effect of JPM industry's business performance. Two sources of data are used in this research: secondary and primary data. Secondary data are collected from literature review such as previous researches, thesis, dissertations, articles, books, annual reports and the internet. Whereas, primary data are collected through the questionnaire that is built on the basis of previous research works and developed with the help of referee committee, which constitutes from 13 academicians and 3 managers from 3 JPM companies. The questionnaire contains three sections: demographic, independent variables and dependent variables. Independent variables are CSR elements (social, economic and environmental responsibilities), whereas dependent variable is industry's business performance and evaluated by ten indicators (productivity, cost, employee turnover, quality, sales increase, profit, market value, return on assets, return on investment and company position). The

questionnaire used five-point Likert scale (rated from 1 = very low implementation and 5 = very high implementation) to test the perception of managers regarding each item. While carrying out this research, 14 JPM organizations were registered in Jordanian Pharmaceutical Manufacturers Association, all of them are targeted, and this negates any need for sampling. The data are collected from 116 managers working at seven JPM organizations because other companies did not allow their managers to participate, so managers were used as a unit of analysis.

After verification of the filled questionnaires, they were coded against SPSS 20, and then validity and reliability tests were carried out. Content validity is insured by using previous research works, thesis, dissertations, articles, books, annual reports and internet, and the referee committee (panel of judge) confirmed face validity. Construct validity is tested by factor analysis (principal component correlation analysis). As shown in [Table I](#), all items rated Component 1 more than 40 per cent and all variables rated Component 1 more than 70 per cent, and Kaiser-Meyer-Olkin (KMO) more than 60 per cent; therefore, validity is assumed. Cronbach's alpha is used to test the reliability. As all variables rated more than 60 per cent, reliability is confirmed.

### **Data analysis**

*Statistical analysis.* To examine the implementation of CSR and business performance items, the means, standard deviations and *t*-value are used. The level of implementation is measured on the basis of the means and divided into three levels based on the following criteria: interval  $(5 - 1)/3 = 1.33$ : low implementation (from 1 to 2.33), medium implementation (from 2.34 to 2.66) and high implementation (from 2.67 to 5).

### **Independent and dependent variables**

[Table II](#) shows that the means of CSR variables are ranging between 4.090 and 4.122, with standard deviation rated from 0.464 and 0.495. This indicates that there is an agreement among respondents on high implementation of CSR variables. Environmental responsibility has rated the highest mean 4.122, followed by economic responsibility with mean 4.090, and finally social responsibility rated 4.011. The average mean for CSR is 4.074, which points out that CSR is highly implemented. At the same time, [Table II](#) shows that the mean for business performance is 4.080 with standard deviation 0.314, which mean there is an agreement on high implementation of business performance indicators. This indicates that there is an agreement among respondents on high implementation of both CSR and business performance indicators.

### **Relationship between variables**

Bivariate Pearson correlation is used to test the relationship between research variables. [Table III](#) shows that the relationships between CSR variables are medium, where *r* ranges from 0.271 to 0.429. Each CSR variable has a strong relationship with total CSR, where *r* ranges from 0.725 to 0.790, which means that all the three variables are related to each other and strongly related to the total of CSR. Furthermore, all the three variables are strongly related to business performance, where *r* ranges from 0.539 to 0.656, and total CSR is strongly related to business performance, where *r* equals 0.779.

### **Hypothesis testing**

$R^2$  indicates the goodness and fitness of the model. The higher  $R^2$  value, the better explanation of the variation of independent variable on the dependent variable. The *F* and *t*-values indicate the significance of the relationships and effects.

**Table I** Cronbach's alpha and principal component factor analysis for all variables and items

Paragraphs	Factor 1	Alpha	KMO	Bartlett's test	Sig.
<i>Social responsibility</i>					
The company is hiring people with special needs	0.571				
The company owns programs help support education in the community	0.632				
The company owns a budget for social work as a financial support such as community donating to charity	0.740				
The company has binding laws for moral behavior	0.534				
The company has plans for a health awareness to the community courses	0.631				
The company follows the binding laws to ensure the safety of workers from the product	0.624	0.683	0.724	15	0.000
<i>Economic responsibility</i>					
The company is committed to government laws related to economic aspect	0.789				
The company is seeking to pay tax dues on time specified	0.848				
The company contributes to the local economy by bringing hard currency	0.661				
The company helps in building infrastructure such as bridges . . . etc.	0.578				
The company contributes to the employment of local labor	0.459	0.666	0.611	10	0.000
<i>Environmental responsibility</i>					
The company is interested in reducing the environmental pollution	0.520				
The company achieved an optimum exploitation of resources, especially non-renewable resources	0.820				
The company owns a variety of means to deal with the surrounding environment-friendly products	0.759				
The company provides guidance on the use of products and ways to get rid of them and their residues	0.654				
The company uses non-harmful products (eco-friendly) and set forth in the good manufacturing	0.589				
The company recycles some materials	0.623	0.746	0.666	15	0.000
<i>Business performance</i>					
The company gets the best productivity of the individual	0.473				
The company has the least cost to produce per unit compared with competitors	0.591				
The company has the least work rotation (staff)	0.647				
The quality of products match with competitors	0.425				
The company has continually increase in sales	0.440				
The company achieves better profit compared with competitors	0.610				
The market value of the company's shares increases on an annual basis	0.547				
Return on investment commensurate with return on the industry	0.682				
The Company manages cost effectively	0.522				
The company has an exceptional position among competitors	0.497				
The company gets the best productivity of the individual	0.473	0.739	0.634	45	0.000
<i>Corporate social responsibility</i>					
Social responsibility	0.815				
Economic responsibility	0.748				
Environmental responsibility	0.708	0.627	0.623	3	0.000

Note: Extraction method: principal component analysis

Before conducting multiple regressions, the following assumptions have been confirmed:

- *Linearity test:* To test the linearity, we depend on plotting of studentized residual against the predicted value. As shown in Figure 2, there is no relation between the predicted and residual values; therefore, linearity is assumed.



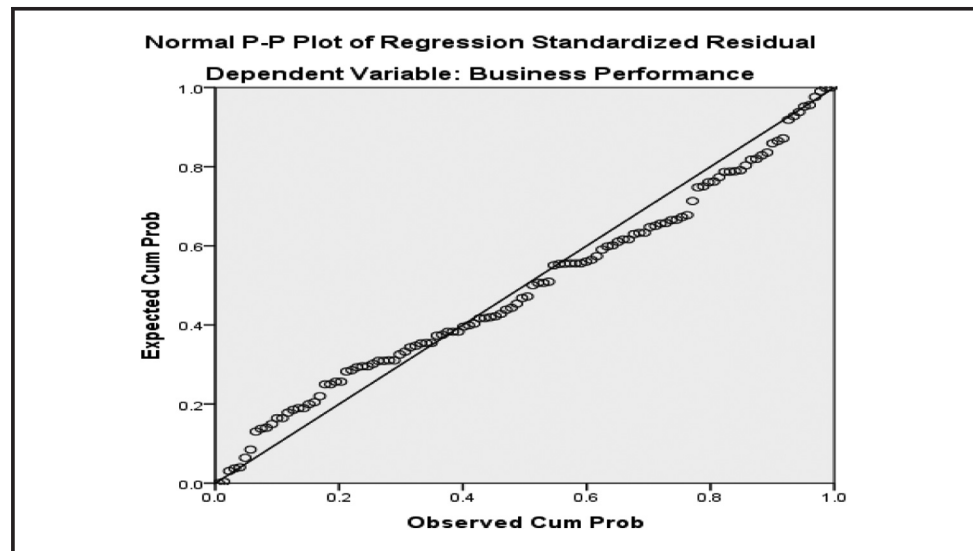
**Table II** The mean, standard deviation, *t*-value and implementation of all variables

Item	Mean	Standard deviation	<i>t</i>	Sig.	Implement
Social responsibility	4.011	0.464	23.477	0.000	High
Economic responsibility	4.090	0.495	23.705	0.000	High
Environmental responsibility	4.122	0.477	25.354	0.000	High
Corporate social responsibility	4.074	0.362	31.935	0.000	High
Business performance	4.080	0.314	37.002	0.000	High

**Table III** Bivariate Pearson correlations matrix for research variables

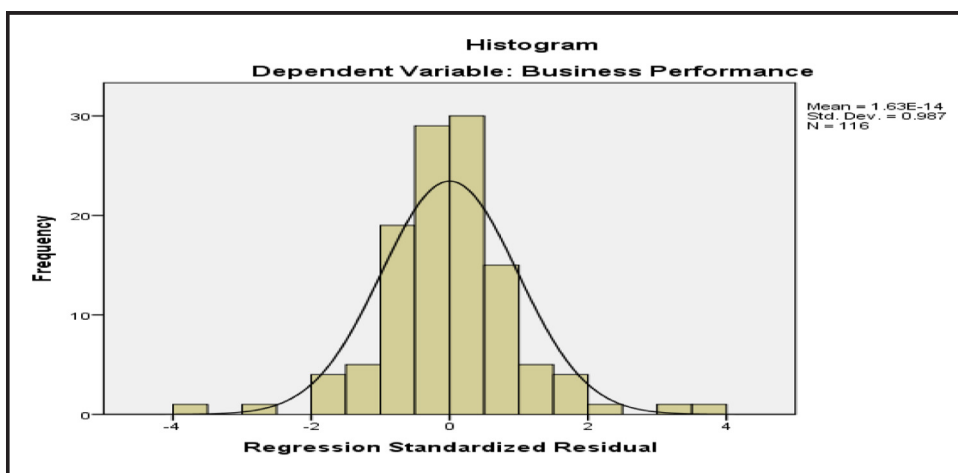
No.	Variables	1	2	3	4	5
1	Social responsibility					
2	Economic responsibility	0.429**				
3	Environmental responsibility	0.381**	0.271**			
4	Corporate social responsibility	0.790**	0.758**	0.725**		
5	Business performance	0.577**	0.539**	0.656**	0.779**	

Note: \*\*Correlation is significant at the 0.01 level (two-tailed)

**Figure 2** Linearity test

- **Normality:** To test the normality, we depend on the histogram of residuals. Figure 3 shows that the errors are normally distributed around X, and the shape follows the normal distribution, so the model does not violate this assumption.
- **Equal variance (homoscedasticity):** To test the equal variance, we depend on the plot of studentized residual against the predicted value. Figure 3 shows that the errors are constant for all the value of independent variables. Therefore, there is no relation between the predicted and residual values, so this assumption is not violated.
- **Independence of errors:** Table IV shows that Durbin–Watson value  $D = 1.709$ , which is about two, indicates that the errors are independent from one another; hence, this assumption is not violated.

**Figure 3** Histogram of residuals



**Table IV** Collinearity statistics and Durbin–Watson

Variables	Collinearity statistics		Durbin–Watson
	Tolerance	VIF	
(Constant)			1.709
Social responsibility	0.740	1.352	
Economic responsibility	0.802	1.247	
Environmental responsibility	0.840	1.190	

- **Multicollinearity:** Table IV shows that the variance inflation factor (VIF) value is less than 10 and tolerance value is more than 0.2 for each sub-variable, so collinearity assumption is not violated.

## Multiple regressions

*H0.* Corporate social responsibility (social, economic and environmental) does not affect Jordanian Pharmaceutical Manufacturing industry's business performance, at  $\alpha \leq 0.05$ .

Table V shows the results of the multiple regression analysis that regress the three sub-variables of CSR against industry's business performance. It shows that the three sub-variables together explained 62.5 per cent of the variance, where  $R^2 = 0.625$ ,  $F = 62.142$ , Sig. = 0.000. Therefore, the null hypothesis is rejected and the alternative hypothesis is accepted, which states that CSR (social, economic and environmental) affects JPM industry's business performance, at  $\alpha \leq 0.05$ .

Table VI shows the significant effect of each sub-variable of CSR on business performance. It shows that the environmental responsibility has the highest effect on JPM industry's business performance, where Beta = 0.473,  $t = 7.487$ , Sig. = 0.000, followed by the economic responsibility, where Beta = 0.294,  $t = 4.551$ , Sig. = 0.000, and then the social responsibility, where Beta = 0.271,  $t = 4.022$ , Sig. = 0.000. Therefore, the three sub-hypotheses are rejected and the alternative hypotheses are accepted, which state:

**Table V** Results of multiple regression analysis (ANOVA): regressing CSR sub-variables against business performance

r	R <sup>2</sup>	Adjusted R <sup>2</sup>	F	Sig.
0.790	0.625	0.615	62.142	0.000

**Table VI** Results of multiple regression analysis (ANOVA): regressing CSR sub-variables against business performance

Variables	Unstandardized coefficients		Standardized coefficients		Sig.
	B	Std. error	Beta	t	
(Constant)	1.296	0.206		6.302	0.000
Social responsibility	0.183	0.046	0.271	4.022	0.000
Economic responsibility	0.187	0.041	0.294	4.551	0.000
Environmental responsibility	0.312	0.042	0.473	7.487	0.000

1. Social responsibility initiative affects Jordanian Pharmaceutical Manufacturing industry's business performance, at  $\alpha \leq 0.05$ ;
2. Economic responsibility initiative affects three sub-hypotheses industry's business performance, at  $\alpha \leq 0.05$ ; and
3. Environmental responsibility initiative affects three sub-hypotheses industry's business performance, at  $\alpha \leq 0.05$ .

Results show that environmental responsibility has the highest effect, followed by economic responsibility, and finally social responsibility.

### Results discussion

Results show that there is an agreement among respondents on high implementation of CSR variables. Environmental responsibility has rated the highest implementation, followed by economic responsibility, and finally social responsibility. In addition, there is agreement on high implementation of business performance indicators. These results are in line with those of [Abdullah and Abdul Rashid \(2012\)](#), which concluded that CSR–environment was having highest influence on organizational citizenship behavior, followed by CSR–employee and CSR–customer, respectively.

Results also show that the relationships between CSR variables are medium. Each CSR variable has strong relationship with total CSR, which means that all three variables are correlated to each other, and strongly related to the total of CSR. Furthermore, all the three variables are strongly related to business performance, and the total CSR is strongly related to business performance. These results are supported by [Lapinskiene and Peleckis \(2009\)](#); [Marquina \(2010\)](#); [Aga et al. \(2012\)](#); [Wang and Zhang \(2012\)](#); [Khan and Majid \(2013\)](#); [Belascu and Horobet \(2013\)](#); [Tuzcu \(2013\)](#); [Mwangi and Jerotich \(2013\)](#); [Yahya and Ha \(2014\)](#); [Mumtaz and Pirzada \(2014\)](#); [Abdulrahman \(2014\)](#); [Malik and Nadeem \(2014\)](#); [Dzhavdatovna et al. \(2015\)](#); [Manyasi and Masinde \(2014\)](#); [Murtaza et al. \(2014\)](#); [Mumtaz and Pirzada \(2014\)](#); [Kaur \(2015\)](#) and [Emezi \(2015\)](#). It seems that three dimensions of CSR are highly related to each other and all of these are related to business performance.

Finally, the results indicate that the three sub-variables together affect JPM industry's business performance, at  $\alpha \leq 0.05$ . The environmental responsibility has the highest

effect, followed by the economic responsibility, and then the social responsibility. These results are supported by [Chao et al. \(2010\)](#); [Lin et al. \(2010\)](#); [Susanti et al. \(2012\)](#); [Bashir et al. \(2012\)](#); [Persic and Markic \(2013\)](#); [Mousavi \(2013\)](#); [Mandasari and Hanif \(2013\)](#); [Heydarian et al. \(2013\)](#); [Mujahid and Abdullah \(2014\)](#); [Basuony et al. \(2014\)](#); [Ukpabi et al. \(2014\)](#); [Ding \(2014\)](#); [Kaur \(2015\)](#); [Estiasih et al. \(2015\)](#); [Al-Ani and Jamil \(2015\)](#) and [Hyks \(2015\)](#). Very few research works indicated that CSR does not have effect on business performance, such as the works of [Iqbal et al. \(2012\)](#) and [Arshad et al. \(2012\)](#). It is logical that people are aware of good CSR practices and reward companies that contribute to society and protect the environment.

In Jordan, the results of the current research is matching with the results of [Dabbas and Al-rawashdeh \(2012\)](#); [Al-Sukkar et al. \(2013\)](#) and [Zaid and Al-Manasra \(2013\)](#); In addition, results are on line with some researcher works conducted on pharmaceutical industry, such as the works by [Leeuw and Scheerlinck \(2011\)](#) and [Aga et al. \(2012\)](#); however, the results contradicted with those of [Mehar and Rahat \(2007\)](#), which concluded that there is no significant relationship between CSR and firm's financial performance.

Finally, nowadays, people are more aware of the CSR activities and support the companies that contribute more to community in general. This will improve companies' business performance by improving their reputation and image.

## Conclusion

The results show that there is an agreement among respondents on high implementation of CSR variables. Environmental responsibility has rated the highest implementation, followed by economic responsibility, and finally social responsibility. In addition, there is agreement on high implementation of business performance indicators; this indicates that JPM companies are aware of the benefits of implementing CSR dimensions.

The results also show that the relationships between CSR variables are medium, and each CSR variable has strong relationship with total CSR, which means that all three variables are related to each other and strongly related to the total of CSR, which means that improving any variable may affect other CSR variables. Furthermore, all the three variables are strongly related to business performance, and the total CSR is strongly related to business performance.

Moreover, the results indicate that the three sub-variables together affect JPM industry's business performance, at  $\alpha \leq 0.05$ , and each CSR variable affects JPM industry's business performance. The environmental responsibility initiative has the highest effect on JPM industry's business performance, followed by the economic responsibility initiative, and then the social responsibility initiative; this means that customers are aware about the companies that implement CSR dimensions and reward them.

Finally, the companies that pay much attention to society, support economy and protect the environment will perform better than do not do at local and international levels.

## Limitation/recommendations

This research was directed toward the managers of JPM organizations. To test the robustness of the findings, further research including employees and supervisors is recommended. This research was also directed toward pharmaceutical industry. To test the degree to which the findings can be generalized to other industries, further empirical work is needed. Therefore, further testing with cross-sectional group from a wide variety of industries will help mitigate the issue of generalizing conclusions on other industries. This research was conducted on Jordanian organizations. Generalizing results of Jordanian setting to other countries is questionable. Further empirical research works involving data collection over diverse countries are needed.

In the light of research results, the following recommendations can be suggested for pharmaceutical industry: CSR should be formulated clearly within JPM corporate strategy. The elements of CSR need to be integrated with the present performance management criteria, leadership development programs, organizational development programs, and a champion for CSR needs to be assigned. The optimal procedure for JPM industry is to focus on all three components of CSR to increase JPM Industry's business performance. Managers should design systems and set up appropriate programs for monitoring and managing CSR and related databases. Finally, JPM companies should carry out CSR programs including philanthropy.

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### Further reading

Honggowati, S. and Supriyono, E. (2014), "The effect of corporate social responsibility on financial performance with real manipulation as a moderating variable", *International Journal of Management, Economics and Social Sciences*, Vol. 3 No. 2, pp. 59-78.

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