

Corporate Social Responsibility and Company Performance: An Empirical Analysis of Jordanian Companies Listed on Amman Stock Exchange

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Purpose: The purpose of this study is to investigate the relationship between Corporate Social Responsibility (CSR) and company's performance (CP) in Jordanian Companies Listed on ASE.

Place and Duration of Study: The paper was undertaken in emerging economies, 107 companies listed on ASE during the 10-years 2002-2011 were selected as sample for this study.

Design/Methodology/Approach: Data were collected by purposive sampling method, descriptive statistics, regression and correlation analyses were carried out. The techniques that use to analyse the panel data regression models are: fixed effects (FE) and random effects (RE).

Findings: The statistic results reveal that the FE model is more accurate than the RE model since the Hausman test is significant. FE findings showed positive but not significant relationship CSR, accounting-based performance (ROA, ROE, and ROCE), and market-based performance (P/R, EPS, P/V), whilst EPS ratio reported a significant and ROS ratio is a negative relationship. RE model results indicate that there is a negative relationship between CSR, accounting- and market-

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based company performance (ROA, ROS, P/R, and EPS), thus the Hausman test results reject the null-hypothesis. But, for ROE, ROCE, and P/V as the measures for company's performance, are a positive since results of the Hausman test is insignificant. This means the most statistically significant results does not statistically validate result lists.

Originality/Value: Our findings will bring contributions toward CSR literatures and any parties will be beneficial and practical useful implications for listed company's performance in emerging countries.

Keywords: CSR; CP; fixed effects (FE) model; random effects (RE) model; Jordanian corporations.

1. INTRODUCTION

Given the importance of the phenomenon, the economic literature are many studies that present the effect of corporate social responsibility (CSR) in the financial and economic performance of corporate [1,2,3]. Although, the effects very dependent upon institutional, and national factors [4], Gond, (2006), or on the market force like demand and supply for the existence between the CSR in the market activities and financial performance [3]. However, out this relationship and clarifying their distinction is not easy task. Since its introduction in the late 1920s, debate of social responsibilities (SR) of executives and business by research began [e.g.5,6]. In the early 1930s CSR had long and diverse history [7]. According to [8] the modern era of CSR started from 1953 with Bowen's publication. After that CSR has been represented as an umbrella-term covering a diversity of subjects debate, which grown steadily in importance for business performance at a global level. Given the importance of the phenomenon, the CSR can be defined as "a business organisation's configuration of principles of social responsibility, processes of social responsiveness, and policies, programs, and observable outcomes as they relate to the firm's societal relationships" [9, p.693]. [10, p.78] state that, under the scrutiny of government bodies, activist shareholders, CSR is "an inescapable priority for business leaders in every country", which is a way of making CRS applicable and putting it into practical resources for business [11]. [12,p.4] also noted that CSR has "social, environmental, economic, stakeholder, and voluntariness". [13] suggested that in order for CSR to serve the interests of the shareholders, a long-run planning and considerable resources should be dedicated at this direction, given that CSR expenditure pays off only after a threshold of CSP has been reached.

Some authors suggest that CSR "is the continuing commitment by business to behave

ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large" [14,p.3]. Similarly, [15,p.120] suggest that CSR "creates a reputation that a firm is reliable and honest". In particular, this means the main objective of business organisations was to make profits [16], if at the expense of profitability, should be disconnected from a company's fiduciary responsibilities [17]. In addition, [18] has presented that the practice of CSR can yield positive financial results, either by generating new revenue or by protecting existing profit levels. Partly with the aim to provide this existing profit justification, [19] explained that companies "do good" are usually expected to "do well".

For purposes of this definitional review, therefore, it attempts to make sense of the continual flow of information processing on more recent concepts of CSR. Thus, the effect of CSR is reflected on the whole economic and financial system, in line with the stockholder theory [20]. The main idea in stockholder theory is based on examination of groups to which a firm reacts responsibly [21, p.20]. More specifically, building upon the stakeholder framework proposed by [22], in contrast, stakeholder theory can be used as to describe the reasons for which a company may undertake CSR activities such as employees, local community or the environment to gain maximized long-term returns [23]. In this regard, companies that engaged in CSR activities can promote various stakeholder relations [15], as a result reducing the company's business risk [24]. Thus, companies adopting CSR will improve their relation with key stakeholders; increase their trust and companies' competitive advantage [10]. On the other hand, [25] made a clear distinction between stakeholder orientations versus a focus on social issues, and consider only the latter activities as CSR.

Therefore, the primary objective of this study is to draw the development of CSR framework as a concept, or definitional construct, and come to

appreciate what it has meant in the past and still means today. Such a quest is essential business knowledge to provide a solid foundation for further research on the topic of CSR activities and Company Performance.

Our study contributes to theoretical framework and empirical work in several ways. First, most of the number of existing literature on relationship between CSR and company's performance [26,27,28,29,30,31], none specifically has examined the Jordanian company's context when measuring corporate performance using both accounting- and market-based performance measures, and thus evidence should be added about other contexts. Second, there are known a previous empirical study on factors influencing CSR affects company's value, this is the first study to our knowledge to use a large panel of Jordanian companies on their highest market capitalisation listed in ASE to examine the relationship between CSR and company's performance. Third, there are limited studies, which attempted to explore and explain these factors in developing countries, whilst the research take a comprehensive approach that examines five dimensions related to social performance, namely, employee relations, the environmental, community, product quality, and Corporate governance. Finally, another important difference with previous studies in developing countries is that could attempt to better estimate whether company characteristics (company size, company age, leverage and systemic risk) have a potential influence on levels of CSR practices on social performance index as corporate reputation ratings or social indices that maybe provided by Jordanian companies.

The findings of this study will enable academics, societies, regulators, companies, managers, investment analysts, and market participants to identify the importance of CSR and make informed decisions about company's performance accordingly. The following section presents theoretical frameworks regarding the measurement of variables of CSR and the relation between the five CSR dimensions and company's performance CP. Subsequently, the paper explains the methodology of the analysis used in the study and provides its empirical results. This study concludes by offering practical and theoretical implications. A message of this paper is that a fundamental company's performance understanding of CSR is emerging.

In the next section of the research, relevant literature review and conceptual framework is

reviewed and proposed. This is followed by a description of the research design adopted for the exploratory study and the study's findings. In the concluding section of the research, the contribution and limitations of the research are outlined and opportunities for further research are identified.

2. LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Research, scholars, and academicians have empirically analysed the relationship between CSR and performance have argued for a negative relationship. In a related study [32,33,34] have argued that high responsibility results in additional costs that put a company at an economic activities disadvantage compared to other, less socially responsible companies. Other scholars investigating CSR and performance have argued for a positive and statistically significant relation [35], whilst no relationship or mixed results [36,37,38,39]. [38] suggested that those conflicting results may derive, in part, from differences in research methodologies approach regarding empirical models and measures of CFP or corporate performance, but also from failure to control for the financial activity, the use of one measures of CFP or just a few [40]. The discussion has generally indicated that the theories provide different perspectives in relation to the importance and usefulness of the CSR as a mechanism that will secure improved company's performance CP. In addition, this study improved on the methodology used in previous studies by using evaluations of social responsibility made by knowledgeable corporation sources.

2.1 Measurement of Variables

Given the debate over the proper measure in most of the studies on CSR are made in developing countries and the variables used in many studies. In this study, use both accounting- and market-based performance measures include (e.g. ROA, ROE, ROS and ROS) for accounting-based measures, whilst market-based measures (e.g. P/R, EPS, and P/V) to investigate the relationships between concurrently, previously, and sub-sequently measured CSR and company's performance for the companies listed on the ASE in Jordan as demonstrated in Fig. 1. Amongst the two measures, the accounting-based measures are objective and audited, therefore, market-based measures are partly objective. For instance, [41]

use the market measurements, whilst [42] use both the market-based and the accounting-based measures. Generally, the previous reviewed studies tend to combine the different types of measures, either accounting or market based [43,44,45].

This study also attempts to include four variables control for their possible effects on the CSR and company's performance relation of company-specific variables such as a company size (SIZE), company age (AGE), leverage ratio (LVRG) and systemic risk (BETA), in order to improve regression analyses upon the methodology use in previous studies by using evaluations of CSR from knowledgeable external sources. As may be seen from Table 1, provides the definitions and measurement of all the variables analysed or understood empirically as a clearly defined entity compared to one or several other pervious empirical research focusing on CSR and its effect on company's performance in ASE.

2.1.1 CSR measures

There are different measurements of social dimensions or categories that can be used when codifying CSR qualitative information into CSR quantitative format (i.e., coded data). [11] has been acknowledged that the term CSR in itself is not a measurable variable, which is an important way to put CSR into practice. In this regard, the impact of CSR on the company's performance relate to social dimensions, and others focus on stakeholders, several works [46,47,48,49,50] have analysed this relation, focusing on the link between CSR and the corporate financial performance of the economy. [51] concluded that corporate social performance (CSP) has no effect on financial performance under slack resources theory and good management theory. It is obvious from the results that CSP has negative effect on the market value of the share but no relationship to D/E behavior of the firm, significantly. The study also [52] demonstrated that a few studies pointed toward a positive

Table 1. Definitions and measurement of variables

COD	Variables	Definition and measurement
CSR measurements		
CSR	Employee relations (EMP); Environmental (ENV); Community (COM); Product quality (PROQ); and Corporate governance (CORG)	CSR = Dummy variables of 1 or 0 were takes the following values; 0, if the company is not considered to be socially responsible; 1, if the company is considered to be socially responsible
Accounting-based performance measures		
ROA	Return on Assets	ROA ratio = Net income/ Total assets
ROE	Return on Equity	ROE ratio = Net income/ Shareholders' equity
ROS	Return on Sales	ROS ratio = Net income / Sales
ROCE	Return on Capital Employed	ROCE ratio = EBIT/ Capital employed EBIT: Earnings before interest and tax. Capital Employed: Average debt Liabilities + Average shareholders' equity
Market-based performance measures		
P/R	Price Earnings	P/E ratio = Price per share/ Annual earnings per share
EPS	Earnings per Share	EPS ratio = Net income/ Total number of capital stock shares
P/V	Price Book Value	P/V ratio = Market value of equity/ Book value of equity
Control variables measures		
SIZE	Company Size	SIZE = In (Asset) The logarithm of total assets
AGE	Company Age	AGE = Total number of years since listing on the ASE as proxy of the company's ownership (logarithmic values)
LVRG	Leverage	LVRG ratio = Total debt/ Shareholders' equity
BETA	Systemic Risk	BETA = estimated using the CAPM model as a proxy of company' risk

Notes: CSR Index (CSRI): Employee relations (EMP), Environmental (ENV), Community (COM), Product quality (PROQ), and Corporate governance (CORG).

Source: Authors' computation

impact of CSR on financial performance but their relationships had been found to be insignificant. [53,2] stated that understanding the relationship between CSR and value requires models of stakeholder behavior that explain how CSR activities improve/destroy value. Notwithstanding the work of [12], who reviews various definitions of CSR and finds that the social dimensions and the stakeholder receive exactly the same attention.

Alternatively, building upon [22] stakeholder framework - a framework that evaluates how companies manage their relationship with CSR measured using the Kinder, Lydenburg, Domini (KLD) data that reflect corporate attention to different stakeholder issues [47,54,48,50, 55,56,57]. Additionally, a social institutions indices category of the KLD data has been drawn up by the research themselves such as: the natural environment, community relations, product quality, employee relations, human rights, corporate governance, diversity, and other controversial business issues. For instance, [58] used CSR on community development (CD), employee health and safety (EHS) and waste management (WM), whilst [26] used five CSR dimensions on environment, employee, community, customer and supplier.

In particular, the following five dimensions related to the CSR Index (CSRI) data as proxy for CSR, which developed by research, which that drive companies to CSR indicators have been commonly used: Employee relations (EMP); Environmental (ENV); Community (COM); Product quality (PROQ); and Corporate governance (CORG), in order to partially contribute clear picture related to the CSR indicators that can be affected by a company's social behavior responsibility in emerging market. Our second purposes, by using dummy variables of 1 or 0 were takes (0), if the company is not considered to be socially responsible; (1), if the company is considered to be socially responsible, as some variables are statistically different in the CSR dimensions.

One of the key aims of our work consists in building up a CSR index in ASE as proxy for CSR in terms of the CSRI data rates in this study described as follow: firstly, employee relations based on a company's performance related to the employee issues, such as: education/training programs, health and safety, retirement benefits, work force reductions, and union relations. Second, environmental issues represent the level

of corporate support for the natural environment, such as: Environmental financially impact on climate change, sustainability, regulatory problems, use of ozone depleting chemicals, and agricultural chemicals. Third, the community relations scores take into account whether a company supports communities through the education, the arts and culture, economic impact, and investment controversies. Fourth, the product quality scores are evaluated in terms of product safety issues, R&D/innovation, antitrust, and controversial marketing/contracting practices. Finally, the corporate governance is an umbrella term of stakeholders associate the company with transparent and ethical business, managers, board diversity, regulators, market environment, and socially responsible business strategies.

In content, empirical analysis, there are is a positive relationship between CSR and employee commitment [59,60,61,62]. Furthermore, empirical work by [50] found that corporate attention to the environment, and community positively influenced long-term shareholder values, but attention is drawn to the employee relations and product did not. [48] demonstrated that only the community dimension had a positive effect on shareholder values. Furthermore, [63] showed that high corporate participation in the areas of community relations, and environmental issues had greater effects on college students' perceptions of employer attractiveness than the other two categories. However, finding evidence of negative [64,65], insignificant [34,66] and positive [67,68,69] relationships between corporate governance and CSR.

2.1.2 Accounting-based performance measures

In contrast, accounting-based measures like return on assets (ROA), return on equity (ROE), or return on sales (ROS), capture the historical evaluation of company's performance [70,71]. Further, an increasing numbers of scholars use accounting-based profitability variables were used by [72], and [73], used return on assets (ROA), were (ROA), and return on equity (ROE), two most popular measurement employed by [74-80], whilst [34,19,40,81] used ROA, ROE, and return on sales (ROS). [57] Employed ROA and Net Profit Margin (NPM). [82] and [83] considered ROA, and Tobin's Q ratios, [84] used ROA, ROE, and Tobins Q ratios, as well as [85] used ROA, Tobin's Q, and total shareholder returns (TSR), and [86] employed ROA, ROE, and Capital Adequacy Ratios (CAR).

Furthermore, [87] used Return on Equity (ROE), and Return on Capital Equity (ROCE), on this line [88] used ROCE, and [89] used ROA, ROE, ROS, ROCE, and Tobin's Q ratios.

In order to evaluate the relationship between CSR activities and CP have considered accounting-based measures for company performance, respectively the ratios of the return on assets (ROA), the return on owner's equity (ROE), the return on sales (ROS), and the return on capital equity (ROCE), due to their researcher continuous debate and discussion related to the relations between CSR and CF. ROA represents the amount of earnings (before interest and tax) a company can achieve for each dollar of assets in order to controls and is a good indicator of a company's profitability. ROE measures how well a company uses reinvested in order to generate earnings by measuring the shareholders' returns, giving a general indication of the company's efficiency. ROS a ratio used to evaluate a company's operational efficiency, measuring a firm's profit per dollar of sales. ROCE is used in order to measure the return that a company is generating from capital employed to pay back the cost of capital.

2.1.2.1 ROA (Return on assets)

It is a measure of profit per dollar of assets, and shows the rate of return for both creditors and investors of a company to the revenue. A higher ROA is considered "better" then indicates the company is more efficient in using assets to generate profit for that year. However, a high ROA does not necessarily mean high cash flow over "profit", for instance your company might have a ROA because of high "accrued" sales and not cash sales; and/or may be paid the cash too far into the future, while low ROA may be the result of previous years' intense profitability, and you're just taking a "breather" for this year [90], and is expressed as a percentage:

$$ROA_{it} = \frac{\text{Net Income}_{it}}{\text{Total Assets}_{it}}$$

Many attempts have been made to classify the factors which influence the ROA of CSR through the literature. For further reference, see [37,91,92,34,15,93-98]. For instance, [99] found that there is insignificant relation between CSR and company's ROA.

2.1.2.2 ROE (Return on equity)

Is one of the most important financial ratios and profitability metrics, since it tells investors what

kind of (% return) they are getting on their invested money. It measures how profitability of a company is for the owner of the investment, and how profitability of a company employs its equity for that year, and is expressed as a percentage:

$$ROE_{it} = \frac{\text{Net Income}_{it}}{\text{Total Equity (excluding preferred shares)}_{it}}$$

Therefore, a higher ROE is considered "better" then indicates the company is more efficient in given more profit to the company's owners compared to owners' investment for that year [90]. However, a high ROE does not necessarily mean high cash flow over "profit", for instance your company might have a ROE due to the high "accrued" sales and not cash sales; and/or may be paid the cash too far into the future, while low ROE may be the result of high asset value from previous years' intense profitability, and you're just taking a "breather" for this year. So, equity is based on asset value's book value, not real market value [90]. The previous literature available concerning this measure is very most widely used, see [e.g.,100,101,102,34,92, 94,95,98,103]. [76] result's, showed a positive correlation between CSR and ROE through simple regression statistics.

2.1.2.3 ROS (Return on sales)

It is measure for the enhancement of business performance of a company's operating activity in relation to its customers. Several authors have used the return on sales to enhance the profitability of the company efficiency in relation to CSR activates [71,104,92,34,35,105,106]. For instance, [107] found a negative relationship between CSR and ROS. ROS is calculated as follows:

$$ROS_{it} = \frac{\text{Net Income}_{it}}{\text{Sales}_{it}}$$

2.1.2.4 ROCE (Return on Capital Employed)

It is widely used in order to measure the return that company profitability and the efficiency with which its capital is employed [108], and is commonly employed in making intra- and inter-organisational comparisons [109,110]. However, a higher ROCE indicates more efficient use of a company its capital for that year, and is expressed as a percentage:

$$ROCE_{it} = \frac{EBIT \text{ (earnings before interest and tax)}_{it}}{\text{Capital Employed}_{it}}$$

$$PER (P/R)_{it} = \frac{\text{Price Per Share}_{it}}{\text{Annual Earnings Per Share}_{it}}$$

The results obtained from academic research have formed the EBIT is a measure of a company profitability that excluded interest and income tax expenses [92,111].

Furthermore, PER relates investors how much they are paying for each dollar of a company's earning, as well as how 'cheap' or 'expensive' a stock is comparative to another benchmark such as an index or industry comparison.

2.1.3 Market-based performance measures

Market-based measures focus on how company earnings respond to different policies in corporate financial performance literature [96,112]. For instance, price-earnings (P/E), or earning per share (EPS) ratios are commonly used measures of market returns [113]. It has been suggested that shareholders are the most important stakeholder group, a group whose satisfaction determines the firms' destiny [36]. [107] used market-based measures: the price earnings ratio (P/E), the earnings per share ratio (EPS), and the price book value ratio (P/V). According to [71], market-based ratios have several advantages relative to accounting-based measures are: less susceptible to differential accounting procedures and managerial manipulation and represent investors' evaluations of a firm's ability to generate future economic earnings rather than past performance. Given the debate over the proper measure of financial performance, in this study use market-based measures to investigate the relationships between concurrently, previously, and subsequently measured CP and CSR as follows.

2.1.3.2 EPS (Earnings per share ratio)

It is show the earning of a company's that how much profit is earned during the period of one year on behalf of each outstanding share of common stock. EPS serve as an indicator of a company's profitability. It is calculated as follows:

$$EPS_{it} = \frac{\text{Net Income}_{it}}{\text{Total Number of Capital Stock Shares}_{it}}$$

Empirical study by [107] found a positive relationship between CSR and EPS and by estimating fixed effects panel data regression models, the positive relationship between CSR and EPS was reinforced, whilst EPS has a significant positive coefficient in the [117] model in some years (and a negative coefficient in 2003), it is always subsumed by including industry controls. Earnings are never significant in the Hand and Landsman model once industry dummies are included [118].

2.1.3.1 P/R (Price earnings ratio)

According to [114], EPS calculation is regarded as an important piece of information for the investment community. Similarly, studies by [115] illustrated that EPS is a significant indicator for both outside investors (investors use these forecasts as a basis to form profitable investment portfolios) and internal managers (managers use these forecasts for a host of critically important decisions). However, [116] confirmed that financial analysts often focus on EPS as a simple and easy to use indicator of the overall performance of a public company. They went further to state that EPS identified the relationship between net income and issued shares, thus a handy basis for comparing different company's performance regardless of their relative size [115]. P/R ratio is calculated as follows:

2.1.3.3 P/V (Price book value ratio)

The price-to-book ratio reflects the investor's future expectations towards and confidence in a company [119], which gives an idea of whether an investor is paying too much for what would be left if the company went bankrupt immediately. However, if the ratio is above 1 then the stock is undervalued; if it is less than 1, the stock is overvalued. When the stock is undervalued, its price is expected to rise in the future. P/V ratio is calculated as follows:

$$PBV (P/V)_{it} = \frac{\text{Market Value of Equity}_{it}}{\text{Book Value of Equity}_{it}}$$

[120] reported that beginning in the 1980's, market values of companies began to go up faster than the book values, and market value began to be less and less related to earnings.

2.1.4 Control variables measures

In order to investigate the relationship between CSR and CP measures based in the economic

and financial literature Following prior studies [83,121,39,122,123,87,124,89,79] in specifying controls shown to affect the CP. Control variables used in this study consisted of: company size (SIZE), measured as the natural logarithm of total assets; company age (AGE) measured as the natural logarithm of total number of years since listing on the ASE as proxy of the company's ownership; Leverage ratio (LVRG) computed as the ratio of total debt to the shareholders' equity; beta (BETA), estimated as a proxy of company' risk using the (CAPM) model.

2.1.4.1 Size (Company size)

The size of the company plays an important role due to the different evidence, whilst small companies connote easily adopt the CSR activates. It is measured by the number of employees, the total assets value or the total sales. For instance, [125] use both the sales value and the total assets value, although [91] use the natural logarithm of the sales net value. Thus, the study measured company size by the natural logarithm of total assets, as demonstrated by [102,126,124]. The research of [127] confirms that the size of a company affects the relation between CSR certification and performance. [122] found a positive relation between company size and financial performance, and between company size and CSR. However, some empirical studies provide evidence that company size has an impact on the amount of CSR [46,128,129,130,131]. In a similar manner, [132,129] and [133] conformed that the amount of CSR in big companies is hear than the smaller ones. This happens because large companies are more likely to be conscious of the importance of their relationship with the public (and external stakeholders) from large companies than small companies.

2.1.4.2 Age (Company age)

Another most important variable that can affect level of CSR and company age, a number of studies used in particular [36,134,135]. In the studies of [36], the capital age of the company is measured as gross and net capital, which means if this index tends towards (1), then the company is relatively young. Therefore, the result conform that the age of capital is inversely correlated within the CSR factor. Some studies revealed that there is a positive and significant relationship between CSR and company age [134], while [131] found a negative relationship

between CSR and company age. The study measured age by the number of years since listing on the ASE as proxy of the company's ownership.

2.1.4.3 LVRG (Leverage)

It is measure how leveraged a company's is, and use the ratio between total debt and shareholders' equity is often a measure of risk. The ratio indicates how much debt company is using to finance its assets relative to the amount of value represented in shareholders' equity, where shareholders' equity = assets – liabilities. [136] show that leverage is correlated with firm size and growth. Recently, [137] confirmed that if managers engage in CSR to hide bad news and divert shareholder scrutiny, then CSR would be associated with higher crash risk. According to [138] and its followers, the company tends to increase its social information in order to reduce rising monitoring costs from high leverage. Furthermore, [139] argue that highly leveraged companies may have closer relations with their creditors and hence these firms disclose more CSR information in their annual report narratives. The results by [140] and [141] found that there is a significant positive relation between CSR index defined by social disclosure and financial leverage. [142] also found insignificant association between CSR disclosure and leverage. In the same context, [143] showed a positive causal relationship is shown between leverage and certain CSR measures and a lower cost of debt financing for firms with strong levels of CSR. However, study by [91] found negative correlation. In this study, use the ratio of total debt and shareholders' equity to evaluate the relationship between leverage and CSR activities.

2.1.4.4 Beta (Systematic risk)

Beta is seen as a proxy of company' risk, therefore the company's risk is another factor that may influence CSR activities. Based on previous empirical studies by by [144,124] a good CSR performance lessen the cost of capital determined by the reduction of the company's risk and therefore a larger company's investor base. Thus, the companies with a good CSR performance reduce asymmetric information and then the cost of capital [145,146,147]. However, Low levels of CSR may result in greater exposure to financial risk as investors may believe firms with less CSR are more risky since they perceive the management

of those firms to possess poor skills [148,101]. In terms of understanding this effect, [149] provide evidence that for the overall indicator; high CSR firms have significantly lower exposures to both market risk (as captured by beta) and the Fama-French HML factor. They found that high CSR stocks neither out-perform nor underperform low CSR stocks on a risk adjusted basis. Previous studies on the relationship between CSR and risk have also produced mixed results. [101] found that firms rated high on social performance, as measured by pollution control issues, had lower total and systematic risk than less socially responsible firms. In addition, [150] find that a firm's beta is positively associated with its expected stock return. Likewise, to see how the results on profits translate to systematic risk and the expected excess return, the research obtains the usual pricing condition in a consumption-CAPM model, based on daily stock returns:

$$\beta_s = \frac{E(r_{st}) - r_f}{E(r_{mt}) - r_f}$$

Accordingly, β_s is the systematic risk of security (BETA), r_{st} is the return on security for day t , r_{mt} is the return on the market m for day t and r_f is risk-free rate. Thus, taking a risk measure (BETA) that compares the returns of the asset to the market over a period of time and to the market premium ($r_{mt} - r_f$), which equals the daily market index minus risk free rate.

2.2 The Panel Data

Panel data (also known as longitudinal or cross-sectional time-series data) is a dataset in which the behavior of entities is observed across time. Empirically, the relationship between CSR and company's performance will be investigated using theoretical contentions relying on regression models and taking advantage of the panel data structure of our sample, [151,152,153,154]. According to social sciences citation index in 1986, when [152] first edition of panel data analysis was published, there were 29 studies listing the key words: "panel data or longitudinal data". However, most panel data applications have been limited to a simple regression with error components disturbances as shown below:

$$y_{it} = \alpha + \beta X_{it} + \mu_{it} \quad (1)$$

$$i = 1, \dots, N; t = 1, \dots, T$$

where y_{it} is the dependent variable, whilst i is the individual dimension which denotes the selected companies listed on the ASE, and t denotes the time dimension, respectively the period of time (2002 – 2011). Furthermore, i subscript depicts the cross-section dimension involving N cross-sectional unites, $i = 1, \dots, N$, over T time periods. The parameters α and β may be different for different cross-sectional units, although they stay constant over time. X_{it} is a scalar observation on K exogenous variable is said to be explanatory variables, without a const term. The remainder $\beta \equiv (\beta_1, \beta_2, \dots, \beta_k)$ is a $K + 1$ vector. μ_{it} is the error term with mean zero and constant variance σ_u^2 , in case of heteroscedastic errors, $\sigma_i^2 \neq \sigma^2 (= \sigma_u^2)$, individuals with large errors will dominate the fit. Although, most of the panel data employ a one-way error component model for the disturbances as below:

$$\mu_{it} = \mu_i + v_{it} \quad \mu_i \sim \text{i.i.d.N}(0, \sigma_\mu^2),$$

$$v_{it} \sim \text{i.i.d.N}(0, \sigma_v^2), \quad (2)$$

where μ_i indicates the unobservable individual-specific effect (the cross-section error component), and v_{it} is a zero mean random disturbance with variance σ_v^2 (combines the cross-section and time series error component). The random effects (RE) model assumes in addition that μ_i has mean 0, is homoscedastic and not serially correlated, and that is the two error components are independent from each other. Thus allows RE to generalise the inferences beyond the sample used in the model. Although, if μ_i denote fixed parameters to be estimated, this model is known as the fixed effects (FE) model. The population model is the standard single-equation linear model with possibly endogenous explanatory variables is derived by writing:

$$y_{it} = \alpha + \beta X_{it} + \mu_i + v_{it} \quad (3)$$

$$i = 1, \dots, N; t = 1, \dots, T$$

The (Eq. 3) can be rewritten as:

$$\text{Company_performance} = \text{constant} + \alpha_{it} \text{CSR} + \beta X_{it} + \mu_i + v_{it} \quad (4)$$

where *Company_performance* measures financial ratios based on accounting performance (ROA, ROE, ROS, and ROCE) and the variables regards market-based company performance measures (P/R, EPS, and P/V) denotes the dependent variables in separate regression equations. The term labeled “constant” (often labeled the “intercept”) denotes the expected mean value of the measured variable when all the explanatory variables equals zero. X_{it} the terms *CSR* is dummy

variable for ASE company *i* at time *t*, based on the five dimensions of the CSR social performance Index include (EMP, ENV, COM, PROQ, and CORG), if adopted CSR (1) otherwise (0), and control variables (SIZE, AGE, LVRG, BETA) are considered as explanatory variable, whilst $\mu_i + v_{it}$ error term of the regression. To confirm this panel data model, it is useful to test the relation connecting the dependent and explanatory variables for the companies listed on the ASE in Jordan to determine the relationship between CSP and company’s performance CP. In light of these variables, the present study is guided by the following question:

Is there any relationship between the level of CSR practices and CP in Jordanian Companies Listed on Amman Stock Exchange?

In order to be able to answer the study question from the scope of CSR practices and company performance, the first hypothesis will therefore expect to find an association between CSR and operating company performance as shown in Fig. 1. Thus, give us a clearer picture to test the following hypotheses are made:

H_1 : *CSR will be a positive, significantly related to company performance CP.*

H_2 : *At least one of the CSR will be a positive, significantly related to company performance CP.*

To decide between fixed or random effects you can run a Hausman test where the null-hypothesis is that the preferred model is random effects vs. the alternative the fixed effects [see, 155,Ch.9]¹. Consider the panel data model presented in Eq.4. The Hausman test investigates the presence of specification errors of the form $Cov(x_{it}, \mu_i) \neq 0$. [174] shows that if the null-hypothesis is accepted (*p*-value is larger than 0.05 under the Chi-square distribution with *g* degree of freedom, where *g* is rank of the matrix $[Var(B_{fixed}) - Var(B_{random})]$, that is $g = k$ if all those variance are independent) then it is safe to use random effects. If a significant *P*-value is found, however, fixed effects should be considered. If the null-hypothesis is not rejected, the pooled OLS is preferred; otherwise, the random effect model is better. In this research, want to test the hypothesis as shown in Table 2.

Table 2. Summary of Hausman test

Hypothesis	Fixed effects	Random effects
$H_0 : Cov(x_{it}, \mu_i) = 0$	Consistent and inefficient	Consistent and efficient
$H_1 : Cov(x_{it}, \mu_i) \neq 0$	Consistent	Inconsistent

Source: Authors’ developed from Eq. 4

Although, if the *p*-value is less than 0.05 or $p < 0.001$, would suggest that reject the null-hypothesis, this means the correlation coefficient is statistically significant different from zero. Conversely, if the *p*-value is 0.05 or large, would suggest that not reject the null-hypothesis, and could conclude that the correlation is statistically non-significant. Thus, resulting in a positive relationship between CSR and CP, whereas, a negative or statistically insignificant coefficient would suggest that there is a negative or no relationship between the variables tested respectively.

Why do we use panel data? [152]. According to [156] and [157], there are several benefits from using panel data such as: panel data give more (informative data, variability, degrees of freedom, and efficiency); controlling for individual heterogeneity; less collinearity among the

¹ This approach is also used by [172] and [173]. For this reason, tests based on the comparison of two sets of parameter estimates are also called Durbin-Wu-Hausman tests, or DWH. For simplicity of exposition we will refer to the [174] set up.

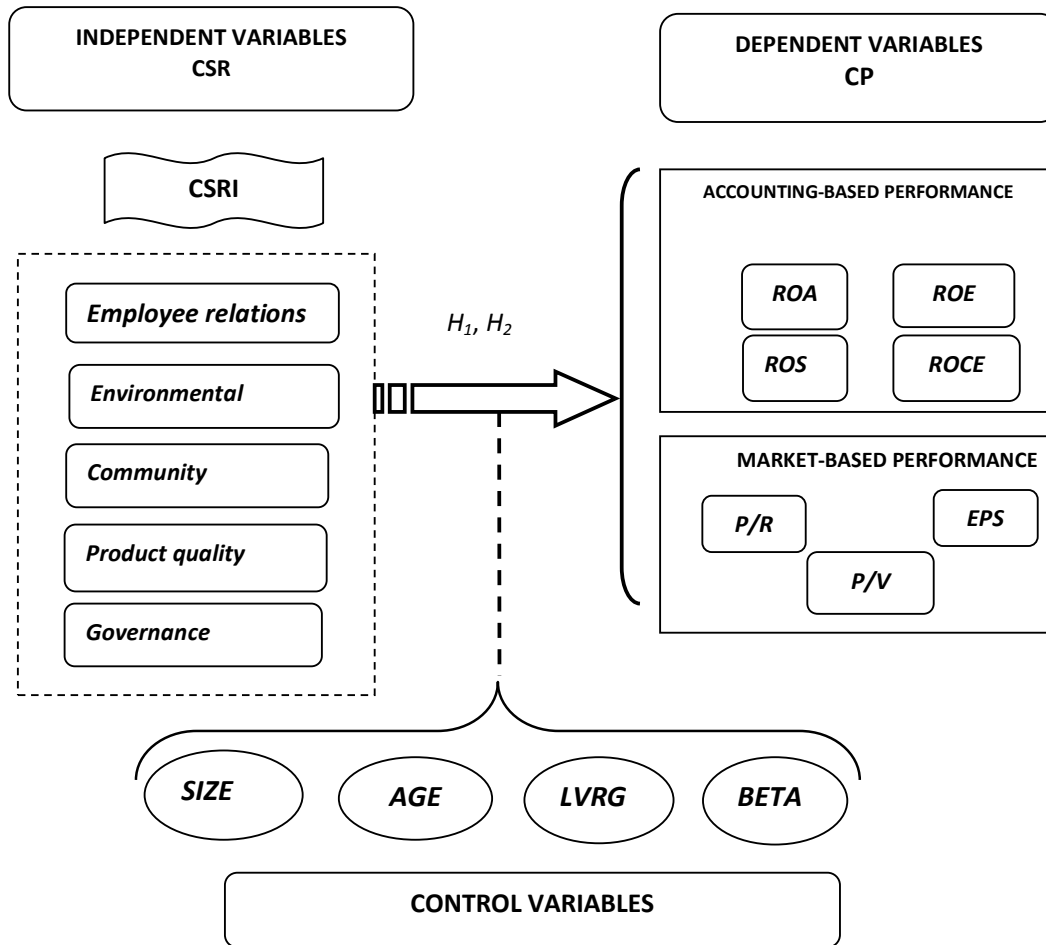


Fig. 1. Conceptual model
 Source: Authors' developed from Table 1

variables; measurement errors; panel data are better able to (study the dynamics of adjustment, identify and measure effects that are simply not detectable in pure cross-section or pure time-series data). With panel data models allow us to construct and test more complicated behavioral models than purely cross-section or time-series data. Finally, panel data usually contain more sample variability and degrees of freedom than cross-sectional data which may be viewed as a panel with $T = 1$, or time series data which is a panel with $N = 1$, hence improving the efficiency of econometric [158]. However, the use of panel data model allows overcoming some of the limitations include: Large parts of panel data are unbalanced; design and data collection problems; measurement errors; most existing estimation techniques are for panel data with short-time horizon; Limited dimension of time series [159,160].

3. RESEARCH DESIGN

3.1 Data Considerations

The purpose of the present study is therefore to investigate the CSR activities and its relationship with company's performance. Data for these companies and their CSR was collected from a panel of 107 companies included in the ASE index during the ten-years-period 2002-2011. This time span is selected for three main reasons: First, this period is the recovery period from the financial crisis that hit emerging countries and particularly the Jordanian capital market. Second, the availability of accounting- and market-based measures in terms of the study's variables. Finally, CSR practices and company's performance is in its infancy period in the emerging capital markets [161,162]. Data is collected from the companies' annual reports,

downloaded through the ASE website; the sample data for CSR measures relies on the ASE index database.

3.2 Sample

The initial sample in this study consists of the 107 largest companies, which are taken on their highest market capitalisation ranking listed in ASE index over the ten-years-period (2002-2011). Therefore, the financial sector of (22) selected companies is multifarious as following: banks, insurance Islamic insurance, diversified financial services, and real estate. Services sector consists of (47) included: commercial services, educational services, health care services, hotels and tourism, media, technology and communication, transpiration, and utilities and energy. Industrial sector consists of (38) as following: chemical industries, electrical industries, engineering and construction, food and beverages, glass and ceramic industries, mining and extraction industries, paper and cardboard industries, pharmaceutical and medical industries, printing and packaging, textiles, leathers and clothing, and tobacco and cigarettes. This selection criterion is consistent with previous studies on CSR practice [163,164,162]. According to [165] a higher proportion of large and medium-sized companies disclosed social information compared to small companies. Initially, companies wishing to increase business have larger responsibilities and principles [166].

4. EMPIRICAL RESULTS

4.1 Descriptive Statistics

Table 3 provides the descriptive statistics summary for the variables in ten-years from 2002 to 2011 for the sample size of 107 company observations for a given statistical testing. This table provides a statistical overview of depend, independent, and control variables that are used in this study. The mean of accounting-based performance measures shows a relatively low mean value, which indicating poor performance. These values explain that there is a decrease in profitability measures (ROA, ROE, ROS, and ROCE) of listed companies with (-0.0019, -0.1017, -0.0208, -0.0100) respectively. The mean of market-based performance measures (P/R, EPS, and P/V) of listed companies with (37.1598, 0.3380, 0.7240) respectively within positive values, which indicating that most listed companies a relatively

better performance. Regarding the CSR has a mean value corresponding to CSR is 0.2714 reflects that most listed companies in ASE has a low level (27%) of company's performance regard their CSR activities as strategic. These initial results are not consistent with previous studies [167,168], who also examined the CSRD of Jordanian manufacturing company's reports a low level (13%) upon (39%) respectively.

The mean of BETA as a proxy of company' risk has a mean of 0.9801. This value explains that a beta coefficient greater than (1) means that offering the possibility of a higher rate of return, but also could be posing more risk; therefore, a beta lower than (1) shows a defensive security [87]. The mean, maximum and minimum values of the other variables are reported by the descriptive statistics. The variance and standard deviation are a more precise and comprehensive estimate of dispersion since an outlier can strongly affect the series.

Table 4 reveals summary frequencies of companies implementing CSR for sample data considered in this study. The principal findings are that the number of companies implementing CSR has increased from 2 in 2002 to 7 companies in 2011, and therefore there is decreased in companies in the non-CSR. Nevertheless, this result is still incomplete, because it is unable to provide on the incipient stage of socially responsible of this gap within the listed companies on the ASE or on its variability.

Table 5 presents the summary Pearson's correlation statistics for the dependent, independent and controlled variables used for the regression analysis. The correlation coefficient denotes that CSR social performance index CSRI is positively and significantly correlated with two profitability measures (ROA and ROCE), with being significant at the 5% and 1% significance level respectively, as well as positively and significantly correlated with one market-based performance measures EPS at the 5% significance level. The positive correlation between CSR and the ROA supports the general idea that the more company carries out CSR activities, the more profitable the company will eventually become. In this case, therefore, the more the company initiates, develops and implements CSR activities, the more the returns on its assets. However, ROE and ROS are positively but not significantly correlated with CSPI which may mean that there is no direct relationship between the social

reporting and company's profitability. The negative Pearson correlation indicates that the use of CSR by companies decreases the P/R. Apart from CSR, company size too has positively but not significantly correlated with ROA and ROE. This may suggest that if the companies expand more their assets, the more profitable they become. To further findings correlated coefficient indicates that market-based performance measure EPS is significantly and positively associated with accounting-based performance measures ROA at the 1% significance level and (ROS and ROCE) at the 5% significance level respectively, but market-based performance measures P/V is negatively correlated with ROE and ROE at the 5% and 1% significance level respectively.

More importantly, CSP is highly and positively correlated to control variables measures SIZE at the 1% significance level and (AGE and LVRG) at the 5% significance level respectively. The age and size are obviously correlated negatively and significantly at the 5% significance level. Further, the BETA systematic risk registers mixed results. It is found to be related negatively but not significantly correlated with CSPI which may mean that there is no more investment in CSR, where ROA and ROE these variables were reported positively significant correlated with systematic risk at the 5% and 1% significance level respectively. As pointed out by [175] companies with higher levels of cash holdings display higher systematic risk.

4.2 Regression Results

The objective of our analysis is to illustrate the key empirical findings to determine the relationship between CSR activities and company's performance based on OLS statically approaches points raised in Eq. 4 with fixed and random effect models, in order to test the developed hypothesis. Table 6 provides the results of panel data regression models (fixed analysis effects) as regards the influence of CSR on both accounting- and market-based measures company performance. All the dependent variables and the explanatory variable are measured at time t . The ANOVA F-test evaluates the null-hypothesis that all regression coefficients in the research models are significant different from zero ($p < 0.001$), if significant it signals that R^2 is reliable whereas

signs of independent variables have mixed findings. R^2 , should be evaluated in connection to an F-test assessing the reliability of result, which takes into account the relationship between company performance and CSR, alongside company-level control variables, is statistically reliable.

For clarifying the Fixed Effects (FE) model indicate that there is a negative relationship between five dimensions of the CSR social performance index (EMP, ENV, COM, PROQ, and CORG), and accounting-based company performance when ROS ratio was employed as dependent variable (Model 3: -0.1612), therefore, the results support null-hypothesis, as there is no evidence for a significant relationship between ROS and CSR. In fact, the FE model results for other three models shows that the Hausman test result accepts the hypothesis that there is a positive but not significant relationship between CSR and the company performance profitability (ROA, ROE, and ROCE). With the positive association, the results from the FE model indicate a positive relationship between CSR and market-based company performance, whilst EPS ratio reported a significant (Model 6: 1.6272, $p < 0.05$). Findings also showed positive relationship between the dependent and independent variables used in the study, thus the Hausman test results support the hypothesis that the individual effect is related to the independent variables.

Among the control variables, there is a significantly negative relationship between company size (measured by log total assets) and market-based company performance (Models 6 and 7) at a level of a p -value $p < 0.001$, and a significantly positive relationship between P/R ratio and company size (Model 5: $p < 0.05$). The relationship between company size and accounting-based company performance (Models 1, 2, 3 and 4) is also a positive but insignificant. Furthermore, LEVER tends to negatively associate with accounting- and market-based company performance. As for the results in a panel data regression setting, BETA as a proxy of company' risk is always negative and significant in many cases. The model's R -sq. is a measure of the goodness-of-fit of the model, known as the "coefficient of determination", where the Adj R -sq. is a modified version of R -sq. that has been adjusted for the number of predictors in the model.

Table 3. Summary of descriptive statistics

COD	N	Mean	Median	Min.	Max.	Variance	Std. Dev.
CSR measurements							
CSR	107	0.2714	0	0	1	0.2181	0.3371
Accounting-based performance measures							
ROA	107	-0.0019	0.0145	-1.2639	0.2918	0.0186	0.1562
ROE	105	-0.1017	0.0219	-11.0115	0.5678	0.9077	0.9588
ROS	107	-0.0208	0.2001	-4.4155	4.0121	0.1463	0.3992
ROCE	107	-0.0100	0.0109	-9.1207	2.0019	0.9285	0.9539
Market-based performance measures							
P/R	107	37.1598	6.4990	-289.0662	2655.0992	39,077.520	199.8901
EPS	107	0.3380	0.0194	-8.9011	29.3387	11.3955	4.5410
P/V	107	0.7240	0.3375	-14.0081	19.9551	4.1003	2.8812
Control variables measures							
SIZE	107	1.05E+19	80,801.00	1253.000	1.26E+00	2.1801E+2	1.04E+40
AGE	107	11.3021	13.2	1.000	15.01	12.6671	4.1105
LVRG	107	0.3911	0.2998	0.0112	1.7701	0.0599	0.2688
BETA	107	0.9801	0.9272	0.2565	2.3414	0.8905	0.2931

Note: The description of the variables is provided in Table 1.

Source: Authors' computation

In fact, the regression results of the FE model for the values of Adj *R*-sq. reveal that the total variation in the accounting- and market-based company performance as dependent variables (ROA: 32.92%, ROE: 17.70%, ROS: 10.38, ROCE: 7.08%, P/R: 11.09%, EPS: 14.99%, and P/V: 10.53%) can be explained by the model. The result of *R*² from the Table 6, shows positive which Clemson, (2002; cited by [176] have suggested that if $R^2 \geq 0$, then a positive relationship exists. Statistical analysis clearly indicates that there is relationship between CSR indicators and CP.

As can be seen from Table 6, the statistic value of Durbin-Watson test statistic was used to test the independent of errors (auto-correlation). The significance test was acceptable (Durbin-Watson values: 1.3 to 2.5), indicating that there is no evidence of auto-correlation from any problem with the data. This finding supports the idea previously expressed that the hypothesis of the lack of correlation between the errors cannot be rejected and multiple-linear regression can be used. Further, in order to evaluate the degree of multi-collinearity, this calculated variance inflation factors (VIFs), which ranged from 1.01 to 1.23. The range of VIFs falls within the conventional threshold of 10 [169] thus our statistical analysis does not seem to have multi-collinearity issues in our data.

Table 7 provides the results of panel data regression models (random analysis effects) as regards the influence of CSR on both accounting- and market-based measures company performance. All the dependent variables and the explanatory variable are

measured at time *t*. The results in the Random Effects (RE) model indicate that there is a negative relationship between five dimensions of the CSR social performance index and both accounting- and market-based company performance (Models 1, 3, 5, and 6), thus the Hausman test results reject the null-hypothesis. But, for (Models 2, 4 and 7) as the measures for company's performance, are a positive since results of the Hausman test is insignificant. This means the most statistically significant results does not statistically validate result lists. In this case, the estimated relationship between CSR indicators and company performance could not be statistically validated based on F-test. The F-test evaluates the null-hypothesis that all regression coefficients are equal to zero relative to the alternative that at least one dose not. The findings also confirm that there is evidence could not be statistically validated based on relationship between CSR and company performance among the control variables with random effects panel data regression models.

The regression results of the RE model for the values of Adj *R*-sq. reveal that the total variation in the accounting- and market-based company performance as dependent variables (ROA: 24.30%, ROE: 12.53%, ROS: 6.26, ROCE: 4.75%, P/R: 8.33%, EPS: 10.88%, and P/V: 4.26%) can be explained by the models. One possible reason for these results is that accounting-based performance had a higher explanatory value than market-based performance. In contrast, accounting performance may better capture social responsibility.

Table 4. Summary of the frequently companies implementing CSR

Year company	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
CSR companies	2	3	3	4	5	5	6	6	6	7	47
Non-CSR companies	9	6	7	8	6	6	5	5	4	4	60

Source: Authors' computation

Table 5. Summary of Pearson's correlation matrix

COD	CSR	ROA	ROE	ROS	ROCE	P/R	EPS	P/V	SIZE	AGE	LVRG	BETA
CSR	1.0000 p = ---											
ROA	0.1529* p = 0.028	1.0000 p = ---										
ROE	0.0451 p = 0.337	0.3933** p = 0.000	1.0000 p = ---									
ROS	0.0201 p = 0.703	0.5940** p = 0.000	0.1231 p = 0.088	1.0000 p = ---								
ROCE	0.3216** p = 0.008	0.1220 p = 0.055	0.0314 p = 0.560	0.0833 p = 0.140	1.0000 p = ---							
P/R	-0.0558 p = 0.350	-0.0072 p = 0.801	0.0225 p = 0.690	0.0081 p = 0.796	-0.0311 p = 0.571	1.0000 p = ---						
EPS	0.1839* p = 0.021	0.1901** p = 0.009	0.0558 p = 0.362	0.1522* p = 0.029	0.1227* p = 0.020	-0.0148 p = 0.801	1.0000 p = ---					
P/V	0.0193 p = 0.698	-0.2013* p = 0.005	-0.8920** p = 0.000	-0.0582 p = 0.339	0.0045 p = 0.901	-0.2122 p = 0.598	-0.0075 p = 0.883	1.0000 p = ---				
SIZE	0.3940** p = 0.000	0.0483 p = 0.377	0.0196 p = 0.698	0.0950 p = 0.402	0.8920** p = 0.001	-0.0298 p = 0.603	0.0663 p = 0.387	0.0237 p = 0.673	1.0000 p = ---			
AGE	-0.1029* p = 0.068	-0.0275 p = 0.553	-0.0076 p = 0.806	-0.0779 p = 0.159	-0.1104 p = 0.153	0.0544 p = 0.386	-0.2781** p = 0.000	0.0144 p = 0.760	-0.1702* p = 0.019	1.0000 p = ---		
LVRG	-0.1133* p = 0.077	-0.3802** p = 0.000	-0.3493** p = 0.003	-0.0743 p = 0.291	-0.0457 p = 0.422	-0.1450* p = 0.022	-0.1427* p = 0.014	0.2113** p = 0.000	0.0123 p = 0.711	0.0530 p = 0.365	1.0000 p = ---	
BETA	-0.0952 p = 0.122	0.1446* p = 0.025	-0.2609** p = 0.009	-0.0682 p = 0.306	-0.2976 p = 0.338	-0.2270* p = 0.049	-0.1992* p = 0.054	0.2446* p = 0.078	-0.5233** p = 0.000	-0.0667 p = 0.182	-0.1352* p = 0.011	1.0000 p = ---

Notes: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). The description of the variables is provided in Table 1.

Source: Authors' computation

Table 6. Summary of fixed effects (within) regression analysis results

Dependent Var → Independent Var ↓	Accounting-based performance measures				Market-based performance measures		
	ROA (Model 1)	ROE (Model 2)	ROS (Model 3)	ROCE (Model 4)	P/R (Model 5)	EPS (Model 6)	P/V (Model 7)
Constant	-0.0693** (3.0289)	-0.3993* (-2.0720)	-0.1752 (-1.0912)	-0.1582 (-1.1009)	-0.5689 (-1.0841)	-2.5900*** (3.0464)	-0.4135 (0.0215)
CSR	0.0610 (0.8915)	0.0192 (0.1928)	-0.1612 (-1.9012)	0.0148 (0.4987)	1.7743 (0.0490)	1.6272* (2.5020)	0.3301 (0.6010)
SIZE	5.79E-12 (0.9257)	2.65E-12 (0.0539)	3.58E-11 (0.8950)	2.90E-09 (0.3008)	4.40E-11* (2.4032)	-6.17E-10*** (-3.4427)	-4.13E-10*** (-3.3025)
AGE	0.0015 (1.0660)	-0.0041* (-0.1168)	-0.0007 (-0.1465)	-0.0039 (-0.0549)	0.0022 (0.0454)	-0.1985** (-3.3517)	0.0033 (0.1045)
LVRG	-0.1942*** (-9.2650)	-1.3840*** (-4.8816)	-0.4065*** (-4.8830)	-0.2461** (-2.6970)	-0.2049 (-0.3712)	-1.1624 (-1.5948)	0.4743 (1.1857)
BETA	-0.1702*** (-0.0241)	-0.2880*** (-0.0318)	-0.0996*** (0.0122)	-0.2360** (-0.0289)	-0.1321 (-0.1670)	-0.1804* (-0.0552)	0.1109 (0.1388)
F-stat.	18.3912***	9.3312***	3.5460***	6.0018***	8.1012***	11.4421***	33.5023***
Prob (F-stat.)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R-sq.	0.3332	0.1933	0.1209	0.0998	0.1366	0.1722	0.1233
Adj R-sq.	0.3292	0.17702	0.1038	0.0708	0.1109	0.1499	0.1053
DW stat.	1.8288	2.4720	2.2320	1.3466	1.7290	1.9410	1.7729
VIF	1.2292	1.0145	1.1907	1.0355	1.2012	1.1210	1.1667
No of obs.	107	105	107	107	107	107	107

Notes: (i) * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$ levels or better, based on t -statistics for each coefficient is reported in parentheses. (ii) DW statistic is Durbin-Watson d test for autocorrelation. (iii) Variance inflation factors (VIF's) is greater than 1.0. It indicates that there is no multi-collinearity in each variable. (iv) The description of the variables is provided in Table 1

Source: Authors' computation

Table 7. Summary of random effects (within) regression analysis results

Dependent Var → Independent Var ↓	Accounting-based performance measures				Market-based performance measures		
	ROA (Model 1)	ROE (Model 2)	ROS (Model 3)	ROCE (Model 4)	P/R (Model 5)	EPS (Model 6)	P/V (Model 7)
Constant	-0.2725 (-3.3894)	-1.2536** (-2.5960)	-0.4057 (-1.1442)	-0.1228 (-0.3182)	-0.9021** (0.3522)	-0.3047 (-0.3973)	-0.0482 (0.0831)
CSR	-0.0066 (-0.1782)	0.1289 (0.3553)	-0.1350 (1.2436)	0.1780 (0.0148)	-0.0445 (-0.0882)	-1.3371** (-3.0585)	0.2660 (0.0883)
SIZE	2.55E-11 (1.1422)	-5.40E-12 (-0.0348)	-2.95E-08 (-0.4035)	3.87E-10 (1.2280)	3.09E-06 (-1.1553)	2.66E-09 (1.1981)	-3.99E-05*** (0.0556)
AGE	-0.0050 (-0.7900)	-0.0908 (-1.9214)	-0.2159 (-2.3319)	-0.0801 (-1.9003)	0.0019 (0.1588)	0.0527 (0.9063)	0.0992 (1.4558)
LVRG	-0.5360*** (-9.3365)	-3.8230*** (-5.1945)	-2.4265*** (-5.2245)	-0.2360** (-2.3320)	-0.4310 (3.1263)	-1.1416 (-1.7892)	-0.3628* (0.1901)
BETA	-0.0671 (-0.0443)	-0.0682 (-0.0518)	-0.3081*** (-0.0251)	0.1652** (0.0739)	-0.2879 (-0.2240)	-0.0866** (-0.0348)	-0.0664 (0.0390)
F-stat.	4.7783***	5.2908***	3.1140***	5.3149***	4.6009***	6.5920***	1.6022*
Prob (F-stat.)	0.0000	0.0009	0.0005	0.0002	0.0000	0.0000	0.0144
R-sq.	0.2576	0.1421	0.0882	0.0680	0.1026	0.1194	0.0671
Adj R-sq.	0.2430	0.1253	0.0626	0.0475	0.0833	0.1088	0.0426
DW stat.	1.6215	2.0982	2.1182	1.2278	1.7260	1.8893	1.6735
VIF	1.3518	1.0920	1.2834	1.1001	1.2618	1.0662	1.2164
No of obs.	107	105	107	107	107	107	107

Notes: (i) * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$ levels or better, based on t -statistics for each coefficient is reported in parentheses. (ii) DW statistic is Durbin-Watson d test for autocorrelation. (iii) Variance inflation factors (VIF's) is greater than 1.0. It indicates that there is no multi-collinearity in each variable. (iv) The description of the variables is provided in Table 1

Source: Authors' computation

As evidenced in Tables 6 and 7, in order to clarify the coefficients of the variables remain relatively constant when changing from fixed effects to random effects. The statistic results reveal that the fixed effects model is more accurate than the random effects model since the Hausman test is significant. This suggests that the results of the Hausman test are rejection of the hypothesis there are no fixed effects in existence in any company's performance measures, or cross sectional unit may have specific characteristics of its own, while under null-hypothesis that both models are correctly specified and, therefore, with accept the hypothesis all μ_{it} are equal to zero. In panel data analysis, and other scenarios where the regression assumption can be taken to hold, it is reasonable to use this test to choose between the fixed or random effects approaches.

5. DISCUSSION AND CONCLUDING REMARKS

The purpose of this study is to examine the relationship between CSR and CP in Jordanian companies Listed on ASE index based on 107 companies as sample size over the ten-years-period (2002-2011). Through our empirical work, the research tried to answer the main question of this research two hypothesis were formulated. Since many researches and academics [including 38,170,92,34] have required to test whether there is a relation between CSR and company's performance. From one standpoint, it is argued that the basic problem with the social responsibility is with associated lack of consensus on measurement [171]. Given this concern, this study developed a conceptual model builds on previous empirical studies mentioned in the theoretical framework (see Fig. 1) based on the five dimensions of the CSR social performance index (EMP, ENV, COM, PROQ, and CORG); and CP using both accounting-based performance (ROA, ROE, ROS, and ROCE) and the market-based performance (P/R, EPS, P/V) denotes the dependent variables, and control variables that cover company's characteristics (SIZE, AGE, LVRG, and BETA) are considered as explanatory variable. Regarding the CSR has a mean value corresponding to CSR is 0.2714 reflects that most listed companies in ASE has a low level (27%) of company's performance regard their CSR activities as strategic.

The techniques that have been used to analyse the panel data regression models are: fixed

effects (FE) and random effects (RE). The statistic results reveal that the FE model is more accurate than the RE model since the Hausman test is significant. FE findings showed positive but not significant relationship CSR, accounting-based performance (ROA, ROE, and ROCE), and market-based performance (P/R, EPS, P/V), whilst EPS ratio reported a significant and ROS ratio is a negative relationship. The finding is in line with the study of [26,29] that there is a significant relationship between CSR and firms' performance. [30] also found the same result as this study by establishing a relationship between corporate social responsibility and return on assets however; this relationship seemed to be insignificant.

RE model results indicate that there is a negative relationship between CSR, accounting- and market-based company performance (ROA, ROS, P/R, and EPS), thus the Hausman test results reject the null-hypothesis. But, for ROE, ROCE, and P/V as the measures for company's performance, are a positive since results of the Hausman test is insignificant. Furthermore, the study finds that not all five dimensions of the CSR social performance index (EMP, ENV, COM, PROQ, and CORG) are related to the company's performance. This means the most statistically significant results does not statistically validate result lists.

Contribution to knowledge, this study developed a conceptual model builds on previous empirical studies mentioned in the theoretical framework include several contributions to the existing body of knowledge as following: first, in this paper, use the descriptive aspect for identifying the key stakeholder theory that an effect the relationship between CSR and company's performance. Second, it presents the first empirical data related to the results of previous studies by supporting a better understanding of the association relationship between CSR and CP in Jordanian companies Listed on ASE index. Finally, the outcome of this study can contribute to the literature of CSR from the perspective of ASE listed companies, especially the development of CSR in emerging market countries.

6. LIMITATIONS AND FUTURE RESEARCH

The results of this study suggest several limitations and avenues for future research. Firstly, it seems that the rather than investigate

the relationship between CSR and company's performance in the study, future research should investigate the influence of prior company performance. In essence, it may be more fruitful to consider financial performance as a variable influencing social responsibility than the reverse. It can secondly be observed that this study is emerging market based "Jordan", hence the statistic results and implications thereof may not generalise to other countries. For instance, economic and financial factors difference might influence the effects of company performance characteristics on organisational outcomes might have little impact in other emerging countries. Further research could explore these factors and relationships, including whether these respective set of characteristics are associated with national context variations. Finally, this study is based on data from a single country, and the sample size in this study, taken from the 107 highest market capitalisations of companies listed in ASE, is also a limitation as it imposes certain limitations on the generalisation of the findings to other emerging economies. The inclusion of medium-sized firms and industry characteristics in the future research might improve the results.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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