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The Impact of Corporate Social Responsibility as a Marketing Investment on Firms' Performance: A Risk-Oriented Approach

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Abstract: In light of the growing interest in corporate social responsibility (CSR), there is still controversy regarding its impact on firms' performance. In this paper, we examine the impact of CSR initiatives, as a marketing investment, on firms' performance. We treat CSR initiatives as investment and, consequently, the returns appear over the long term. We use the stochastic frontier analysis (SFA) approach which is a forward-looking financial market-based metric that captures the firm's long-term performance. We focus on the banking industry as it confronts a variety compound of risk. We find that CSR implementation is positively reflected in profit efficiency, regardless of the strategic commitment to implementing CSR and bank size, as these variables do not influence the CSR–performance relationship. However, we find that bank age and competitive positioning have a significant impact on the CSR–performance relationship. Our study provides valuable insights to CSR practitioners and researchers, especially in the banking sector. We provide empirical evidence on the importance of CSR and its positive impact on bank performance in Egypt as one of the emerging markets.

Keywords: corporate social responsibility; profit efficiency; stochastic frontier analysis; banking sector; Egypt

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1. Introduction

Several companies have implemented corporate social responsibility (CSR) strategies, which involves adherence to improving community welfare through voluntary business exercises and corporate resource contributions (Kotler and Lee 2005), as well as company policies for the defense of human rights, to strive against corruption, and to achieve transparency in the notification of CSR initiatives (Hategan et al. 2018). CSR is often considered the most efficient way to address social problems (Gatti et al. 2019).

It is noteworthy that CSR initiatives use different names, classifications, and definitions (Sanclemente-Téllez 2017; Vilanova et al. 2009). Accordingly, (Hamidu et al. 2015) suggested several stages. The first refers to volunteering and involvement in social wellbeing. The second is the duration of increasing interest and consciousness of employees' rights, stakeholder satisfaction, relationship management, organized CSR exercises, and consumer protection. The third is the instrumentality and sustainability duration which deals with CSR as a strategic tool in fulfilling organizational objectives. CSR is robustly institutionalized and standardized presently by various international indicators of accountable investing and sustainability.

The literature indicates that CSR provides numerous corporate strategic utilities, which reduce share price and systematic risks (Albuquerque et al. 2019), as well as the cost of funding (Chava and Purnanandam 2010). It increases sales and price premiums (Loose and Remaud 2013), customer motivation and satisfaction (Lacey et al. 2012), the trust in companies' efforts (Du et al. 2013), and the good image and reputation of firms (Fombrun et al. 2000; Koh et al. 2014; Schnietz and Epstein 2005). Similarly, CSR can enhance employees' performance and productivity (Li et al. 2021), encourages them to take risks without fear of failure (Tonin and Vlassopoulos 2015), positively affects customer attitude and purchase intention (Uhlig et al. 2020; Van Doorn et al. 2017), stimulates corporate sustainability (Han et al. 2020), and gains a competitive advantage for firms (Du et al. 2007). In addition, CSR can create shared value (Agudelo et al. 2019; Slavova 2013), reinforce potential cash flows for firms (Luo and Bhattacharya 2006), foster the wellbeing of stakeholders (Strotmann et al. 2019), produce moral capital or goodwill (Godfrey 2005), and positively impact environmental outcomes (Úbeda-García et al. 2021; Wu et al. 2021).

Important changes have arisen in both practitioners and researchers. These changes have required that each function, activity, and initiative in the organization has a role in maximizing both firm and shareholder value (Gruca and Rego 2005). Indeed, changes have led to a recognition that the relationship between marketing and finance must be managed systematically (Hyman and Mathur 2005). No longer can managers tolerate relying on traditional assumptions that positive marketing initiatives, activities, and efforts will be mechanically reflected in the best financial results (Srivastava et al. 1998). Therefore, managers are required to provide greater accountability for marketing expenditure (Hanssens et al. 2012) and adopt a perspective that considers intellectual capital as assets that must be cultivated and leveraged through initiatives, activities, and efforts that may help companies to measure the financial effect of the decisions pertaining to those forms of intellectual capital.

However, many firms that have adopted and invested in programs based on such drivers have run into financial difficulties (Srivastava et al. 1998) because they spent too lavishly on initiatives that were not ready to pay extra fees; thus, several firms went bankrupt as a result of these experiences. Thus, common sense makes it clear that expenditure on managerial initiatives and orientation programs is subject to the diminishing returns law (Rust et al. 2004), and the companies provided an incorrect assessment of their ability to benefit from such initiatives to generate sustainable positive cash flows (Hogan et al. 2002a).

The most important lesson to be learned from these experiences is that firms require more dynamic ways to understand the bonds between marketing expenditure drivers such as CSR and both firm and shareholder value. The importance of being able to understand and evaluate the expenditure drivers has become widely acknowledged. However, the main problem is represented in the following question: How can we measure the return on CSR investment to leverage the firm's performance?

CSR as a strategic management tool (Porter and Kramer 2006) or as a marketing tool (Astara et al. 2015) is both frittered away and disconnected from business and strategy, concealing many of the greatest opportunities for corporates to benefit society. Many companies deal with investment in social issues as a short-run investment strategy to strive against loss both of image and reputation. Consequently, they practice CSR activities as a random, reflective response to short-run challenges (Werbel and Wortman 2000). It is noteworthy that many companies fail to take into account the economic aspects of CSR initiatives and assess them as expenditure drivers, not as an investment that can generate long-term profits (Murray and Montanari 1986; Rust et al. 2004). To gain a long-term competitive advantage, Porter and Kramer (2006) suggest focusing on the interdependence of corporate financial goals and CSR activities and, as a result, recommend implementing CSR initiatives in the company's strategies and operations.

Measuring the financial impact of CSR initiatives is still an ambiguous matter, due to the paucity of a clear set of metrics, which makes the debate on CSR controversial, and it remains a conflicted issue (Fiori et al. 2015; Izzo and di Donato 2012). Consequently, managers have been unable to rationalize the associated investments and the allocation of rare resources in that area. Studies concerned with the relationship between CSR and profitability have demonstrated conflicting results, whether they found a negative (Aupperle and Van Pham 1989; Jensen 2010; Marcoux 2000; Waddock and Graves 1997) or positive (Acharyya 2008; Alexander and Buchholz 1978; Jo and Harjoto 2011; Mahajan and Golahit 2019) relationship between the two factors. Moreover, even when it is practicable to set up a connection between CSR and financial performance, the relationship between cause and effect between them is not apparent; subsequently, an extra investigation is required (Preston and O'bannon 1997; Waddock and Graves 1997).

In this context, we identified four potential reasons regarding the conflicting results. First, it is necessary to manage these practices as an avoidable cost decreasing shareholders' dividends and firms' value, as well as recognize them as a negative market premium (Fiori et al. 2015), rather than managing them as an investment. Second, inconclusive findings may stem from measurement errors; the nature of the metrics used in measuring firms' performances are gauges that swing between traditional financial measures concentrating on short-term performance and market-based measures which are more suitable because they concentrate on the long term. Third, there may be model misspecification and an insufficient scope of the dataset (Igalens and Gond 2005); the relationship between social and financial performance is affected by different factors represented in moderator variables (Krasnikov et al. 2009), which help to activate the previous relationship and should be integrated into model specification according to the type of industry. Fourth, the relationship between CSR and firm performance may be U-shaped in nature (Udayasankar 2008). In other words, an increase in CSR may push cost resources to be more enlarged, thereby reducing the financial performance. On the other hand, an increase in CSR may align with the other stakeholders (Mints et al. 2020), thereby increasing financial performance.

Overall, the literature has indicated that there are two opposite theoretical perspectives to explain the relationship between CSR and firm performance; the first is based on agency theory, which indicates that there are no direct ties with firm performance, and suggests it may decrease shareholder wealth, while the second perspective adopts stakeholder theory, which points out that CSR positively correlates with stakeholder satisfaction and can generate positive cash flows (Mishra and Modi 2016). However, the studies regarding this point have not resulted in solid feedback (Izzo and di Donato 2012; Margolis and Walsh 2003; McWilliams and Siegel 2001; Vogel 2005). This lack of consensus on the nature of the relationship and the limited number of such studies motivated our research. Consequently, with the current study, we attempted to fill a gap and derive this relationship with a new set of variables and profit efficiency of the banks, in addition to addressing CSR as a marketing investment as suggested by Crane and Desmond (2002). The key challenge we address in this article is measuring the financial impact of CSR on profit functions via a solid metric that helps the banks' decision-making support system, as well as activating marketing accountability (Rust et al. 2004). At the same time, because a limited understanding of CSR in the developing economies poses a pressing challenge for both practitioners and researchers (Li et al. 2010), our study is conducted on an emerging market (Egypt), especially as there has been a dramatic increase in controversial issues associated with CSR in emerging markets (Bogdanich 2008), in one of the most important sectors (the banking sector) that plays a predominant role in the economy (Belasri et al. 2020).

The paper is organized as follows: Section 2 reviews prior research and develops our research hypotheses; Section 3 discusses the conceptual framework; Section 4 discusses the research method; Section 5 reports our findings; Section 6 discusses the findings; Section 7 concludes the study.

2. Relevant Literature and Hypothesis Development

In input–output models, the input function consists of a set of variables represented in the cost of deposits, labor, marketing, and purchased funds, which are measured as ratios. Thus, the cost of deposits is computed as the interest payable divided by the total amount of deposits, the cost of labor is computed as the salary expenses divided by the total number of personnel, the cost of marketing is computed as the marketing cost divided by total assets, and the cost of purchased funds is computed as the total expenses of such funds divided by the total amount of purchased funds.

Meanwhile, banks process these elements to generate preferable outputs including loans, securities, and services, calculating the outputs as prices. The price of loans is calculated as interest income from loans divided by the loan portfolio, the price of securities as revenues from securities divided by securities portfolio, and the price of services revenues from fees divided by total assets. Moreover, we employ both financial equity capital as the total shareholder equity and fixed assets as the total fixed assets, while we measure profit as the difference between a bank's operating revenues and expenses.

According to the literature, we propose a model where we adopt the perspective of stakeholder theory that acknowledges the positive impact of CSR on firm performance. According to behavioral theory, we determine the moderating factors of the model, and, consistent with portfolio theory, we incorporate the risk factor in the body of the model.

2.1. CSR Initiatives and Firm Performance

The literature indicates that traditional marketing and accounting studies are interested in static profit metrics, such as return on investment, equity, and assets (Hogan et al. 2002b). In this context, managers are concerned about whether the organizations boost their performance, and how far they do this compared to their competitors having adopted CSR initiatives. Therefore, our study deals with profit efficiency, which measures the extent to which the organization is close enough to generate maximized profits under specific price inputs and outputs, compared with the best practice frontier.

Profit efficiency means the percentage of profits that an organization could have achieved compared with the profits it generated (Krasnikov et al. 2009). In other words, this means the largest percentage of profits the most efficient bank could have achieved, compared with the actual profit of the bank (Maudos and De Guevara 2004).

Previous studies have suggested that CSR is a driver of both tangible benefits, represented, for instance, in better financial performance, an increase in share price, a price premium, and superior performance (Reinartz et al. 2004), and intangible benefits, represented in stakeholder satisfaction, investor trust, enhanced brand image, and a source of competitive advantage (Slavova 2013). Even if organizations adopting CSR initiatives suffer rising costs, their power to deliver offers that satisfy their stakeholders ensures that they can generate higher levels of profitability (Krasnikov et al. 2009). According to stakeholder theory, we, therefore, formulate our first hypothesis as follows:

Hypothesis 1 (H1). *CSR initiatives have a positive impact on profit efficiency.*

2.2. Moderating Factors of the Effect of CSR on Profit Efficiency

In line with the behavioral theory of the firm, the motivation of a firm to follow a specific strategic action and its ability to take advantage of the action may influence the impact of the action on its performance (Jayachandran and Varadarajan 2006). The literature states that there are two important types of factors—firm-level factors and adoption-related factors (Krasnikov et al. 2009)—which may influence the impact of CSR initiatives on firms' performance.

2.3. CSR Strategic Commitment (Firm-Related Factor)

It appears that firms that endorse a formal approach to strategic commitment are likely to develop deep sound into the request of social responsibility, thus achieving empowerment and boosting CSR policy and practice (Kalyar et al. 2013).

Companies that adopt CSR initiatives differ in their level of commitment to using the CSR strategy. Implementing CSR with the proper strategic focus is important for companies, so that they can take advantage of building a strong image and reputation (Jia 2020), as well as generating value for various stakeholders (Sanclemente-Téllez 2017). Moral duty aside, this increasing commitment to CSR is motivated, at least partially, by the growing sense that consumers—a key stakeholder group—reward good corporate citizens through greater, more sustained sponsorship (Du et al. 2007).

The literature suggests that, when firms connect their CSR initiatives to stakeholders' potential preferences (Mints et al. 2020) and channel resources to these initiatives, they become qualified to maximize CSR efforts in order to improve firms' performance (Peloza 2006). We, therefore, set our second hypothesis as follows:

Hypothesis 2 (H2). *Banks that are committed to CSR initiatives receive a higher increase in profit efficiency.*

2.4. Firm Age (Adoption-Related Factors)

It is widely recognized that involvement in CSR initiatives increases as firms become older, given that CSR initiatives lead to improvements in a firm's image on the market, increasing sales, profitability, and financial performance (Badulescu et al. 2018). This is because of the increasing learning and experience curve, and the fact that long-established firms are constantly under stakeholder scrutiny (Gautam et al. 2016). On the other hand, some authors claim that older firms may depend on their reputation instead of CSR campaigns and are, subsequently, less involved in CSR, while young firms may need to build their reputation through CSR involvement and, consequently, try to benefit from CSR initiatives (Withisuphakorn and Jiraporn 2016). It is worth mentioning that research results indicate that a firm's age affects CSR; in other words, firms that have a long enough experience in the business pay attention to aspects of CSR, due to improvements in business reputation which are reflected in firms' profitability (Michelon et al. 2015; Waluyo 2017) On the basis of this discussion, we set our third hypothesis as follows:

Hypothesis 3 (H3). *Older banks feature a higher effect of CSR initiatives in increasing profit efficiency.*

2.5. Competitive Positioning (Firm-Related Factor)

Effective CSR initiatives need to take into consideration the competitive context in which a particular set of CSR actions are likely to be executed. Meanwhile, a key element of the competitive context is the relative firm positioning along the CSR dimension (Bhatnagar and Ghose 2004). It is noteworthy that competitive positioning plays an important role in both the formation of consumers' CSR beliefs about these brands, in other words, the belief that the company or brand is socially responsible, and the extent to which these beliefs are linked to both brand choice and the set of longer-term brand advocacy behaviors, such as positive referral behavior and elasticity concerning negative brand information (Du et al. 2007). Weber (2008) also identified one of the greatest potential benefits of CSR for companies as increased revenue from higher sales and market share. Therefore, we set our fourth hypothesis as follows:

Hypothesis 4 (H4). *A higher increase in competitive positioning of banks which adopt CSR initiatives leads to a higher increase in profit efficiency.*

3. Conceptual Model: Linking CSR Initiatives to Financial Performance

Figure 1 shows a broad overview of the conceptual model that we used to evaluate the influence of CSR on profit efficiency. CSR is viewed as a marketing investment (Du et al. 2010; Crane and Desmond 2002; Srivastava et al. 1998) that produces an improvement in profit efficiency. We consider three important types of factors that represent CSR drivers: firm-level factors (strategic commitment and competitive positioning), adoption-related factors (firm age), and control variables (size, foreign or local, mergers and acquisitions, and economic conditions). These factors are likely to drive CSR and activate the relationship between CSR and profit efficiency.

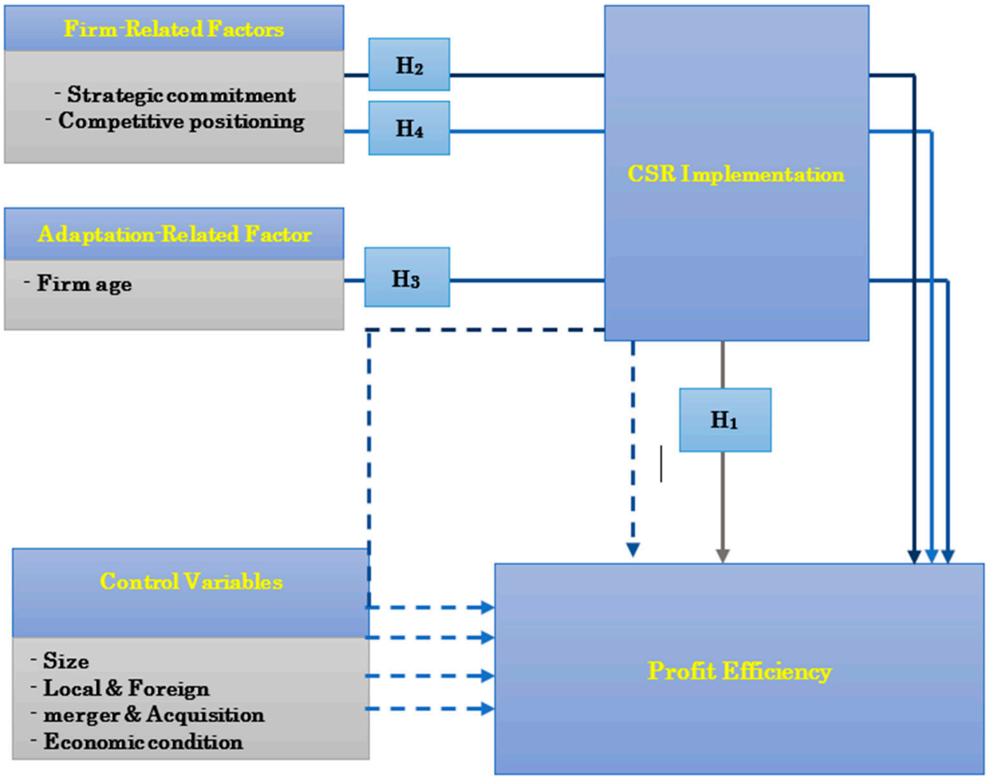

Figure 1. Conceptual model of CSR effects and its drivers on profit efficiency. Notes: Solid lines represent measured constructs and empirically tested relationships; dotted lines represent theorized constructs and control variables.

4. Research Method

The testing of hypotheses included a sample of listed banks from the Egyptian commercial banking sector and was carried out by employing the frontier efficiency analysis (FEA) approach to estimate profit efficiency by measuring to what extent a bank's outputs or profit are distant from the efficient frontier or "best practice" for a given set of banks (Bauer et al. 1993).

Applying FEA in estimating profit efficiency is becoming increasingly popular in the marketing literature streams (Grewal and Slotegraaf 2007; Luo and Donthu 2006). Overall, we implemented three steps to explore the effects of CSR on profit efficiency. First, we estimated profit function for listed banks. Second, we employed the residuals from the regression equations to calculate efficiency scores. Third, we estimated the impact of CSR implementation on profit efficiency.

The literature has indicated that many bank characteristics should be taken into consideration when examining the CSR–profitability relationship (Luo and Bhattacharya 2009). Therefore, we incorporated this into the analysis of different control variables, which, in theory, express the construct of both financial metrics and social performance. In this context, we included various bank- and country-level controls in the analysis known to affect the CSR–profitability relationship. We took into consideration bank size because of its potential impact on the CSR–efficiency relationship. We also considered whether the bank being foreign or local may reflect on the cost of funds, and whether it operates in mergers and acquisitions (M&As), where successful merger-and-acquisition deals increase firm profitability. The CSR–profitability relationship could be due to improvements in operations, in addition to increasing efficiency. Lastly, economic conditions may help determine the overall CSR level of firms (Hamidu et al. 2015), as well as influence firms' performance, and the probability of CSR implementation was taken into account. Table 1 shows the definition and measurement of each variable.

Table 1. Moderator measures to predict CSR impact on profit functions.

Measure	Definition	Measurement
Institutional commitment to social initiatives (SI)	The extent to which the banks are committed to using CSR programs	Measured by accessing the percentage of the corporate budget allocated to CSR and using the average as a cutoff point; accordingly, we generated two categories of banks after checking all information: banks with high (above the average: SIi = 1) and low (under the average: SIi = 0) degrees of implementing CSR initiatives
Bank size SIZ_i	Total assets of the listed banks	The order of banks according to the number of total assets
Type of ownership LOC_i	Types of ownership	Local bank = 1; foreign bank = 0
Competitiveness positioning CP_i	The strength of the bank in comparison with the rest of its rivals in the marketplace	The rank of the banks according to their market share
Firm age FG_i	The number of years since bank inception in the marketplace	Measured in natural log of years: the younger the bank, the less entrenched its culture
Mergers and acquisitions M&As	The merger-and-acquisition policies that affect bank profit structure if they occur in the previous period	Occurrence of mergers and acquisitions = 1; if not = 0
Economic conditions λ_i	The changes in economic conditions that affect bank profit structure if they occur in the previous period	The 30 day Egyptian treasury bill interest rate

4.1. Sample Selection and Data

We focused on commercial banks listed on the Egyptian Stock Exchange. In this study, we considered 7 years; thus, the investigated period was from the first quarter of 2013 to the fourth quarter of 2019, for 12 out of the 13. This yielded a balanced dataset of 336 observations. We content analyzed the narrative sections of banks' annual reports (e.g., notes to financial statements, chairman statements, and CEO statements) and the banks' websites the narrative to collect information on companies' budgets allocated to CSR activities.

4.2. Profit Efficiency Estimation

Because we treat CSR initiatives as investment and, consequently, the returns appear over the long term, we adopted the SFA approach which is a forward-looking financial market-based metric that captures the firm's long-term performance. At the same time, our approach is similar to that used by Krasnikov et al. (2009), which was previously supported by Berger and De Young (1997) and Berger and Mester (1997). The SFA approach can support the assessment of the operational performance of CSR banks from a multi-period perspective, and it enables a large number of variables to interact, thus providing a multidimensional analysis of the bank's performance (Belasri et al. 2020).

We adjusted the SFA by risk, according to Basel committee requirements, and employed moderator variables to assess profit efficiency through profit functions that constitute operating profits grounded on the prices of inputs and outputs. Table 2 provides a procedural description of items for profit function used in the measurement model. We then summarized the profit function for each bank at time t (Equation (1)), which models the log of a bank's operating profit Vp_{it}.

$$\ln(Pr_{it} + \Delta) = f\left(\ln P_{it}, \ln I_{it}, \ln Z_{it}, \ln R_{it}, \ln v^{p}_{it}\right), \tag{1}$$

where Pr_{it} refers to the operating profits of the bank, I_{it} refers to the prices of outputs (loans, securities, and services), P_{it} refers to the variable input prices (deposits, labor, purchased funds, and marketing), Z_{it} refers to the fixed inputs (financial equity and fixed assets), and R_{it} are the categories of banking risk according to the Basel II pillar 1 (credit risk, market risk, and operational risk). It is noteworthy that the relationship of CSR to risk, incorporating adjusted returns for risk, can help managers to make returns comparable from one firm to another (Husted 2005).

Table 2. Description of items for profit function.

Item	Description
1. Profit	Difference between bank's operating revenues and expenses
2. Price of deposits	The ratio of interest paid/total deposits portfolio
3. Price of labor	The ratio of salary expenses/total number of employees
4. Price of purchased funds	The ratio of expenses of purchased funds (borrowed and federal funds)/total amount of purchased funds
5. Price of marketing	The ratio of marketing and advertising expenses/total assets
6. Amount of loans	The total amount of loan accounts
7. Quantity of securities	Securities portfolio
8. Amount of services	Revenues from service fees
9. Price of loans	Interest income from loans/loans portfolio
10. Price of securities	Revenues from securities/securities portfolio
11. Price of services	Revenues from fees/total assets
12. Financial equity capital	Total shareholder equity
13. Fixed assets	Total fixed assets
14. Nonperforming loans and advances	The proportion of loans past due >90 days
15. Market risk	Value at risk (VaR) 95% confidence level

Following previous studies, we added a constant, Δ, to the operating profits of all banks in the sample to ensure that the values were positive (Berger et al. 1993; Krasnikov et al. 2009). Higher values of ln (vp_{it}) refer to higher profit efficiency because this reflects the bank's ability to gain profit exceeding the industry average.

To calculate profit efficiency $PEFF_{it}$, we deemed the bank with extreme residual to refer to the efficient frontier (Equation (2)), and then we compared the distance between the residual of a focal bank and the higher residual for a given period from the profit function (Equation (1)).

$$PEFF_{it} = e^{(\ln V^{p}_{max} - \ln V^{p}_{it})}. \tag{2}$$

4.3. Using a Two-Level Hierarchical Linear Model

The third step aimed to estimate the effect of CSR initiatives on profit efficiencies, through a two-level hierarchical model for profit efficiency to interpret the variance of profit efficiency.

$$\mathrm{FEFF_{it}} = \beta_{0i} + \beta_1 \times \mathrm{FEFF_{it-1}} + \beta_{2i} \times \mathrm{CSR_{it-1}} + \beta_3 \times \mathrm{M\&A_{it-1}} + \beta_4 \times \lambda_{it-1} + \xi^{c}_{it}, \quad (3)$$

where

$$\beta_{0i} = \gamma_{00} + \gamma_{01} \times \mathrm{LOC_i} + \gamma_{02} \times \mathrm{SIZ_i} + r_{0i},$$
$$\beta_{2i} = \gamma_{20} + \gamma_{21} \times \mathrm{CP_{it}} + \gamma_{22} \times \mathrm{SI_i} + \gamma_{23} \times \mathrm{SIZ_i} + \gamma_{24} \times \mathrm{FG_i} + r_{2i},$$
$$\xi^{c}_{it} \sim N\left(0, \textstyle\sum_i\right),$$
$$r_{0i} \sim \mathrm{iid}(0, \tau_{oo}), \text{ and}$$
$$r_{2i} \sim \mathrm{iid}(0, \tau_{22}).$$

We determined the 1 year lagged value of profit efficiency ($\mathrm{FEFF_{it-1}}$) to explain inertia in operational or profit efficiency. The expression $\mathrm{CSR_{it-1}}$ refers to CSR implementation lagged by a time to reflect the notion that its effect on efficiency could not be shown instantly. Moreover, we used a lagged value for both mergers and acquisitions and economic conditions. In addition, we took into consideration the influence of the bank's type, i.e., whether it is local or foreign, as well the effect of size on profit efficiency in the level 1 equation (β_0). On the other hand, the slope for CSR implementation was modeled (β_2) as a function of four variables: institutional commitment (SI), competitiveness positioning ($\mathrm{CP_i}$), bank size ($\mathrm{Siz_i}$), and firm age, $\mathrm{FG_i}$.

Table 3 shows the descriptive and correlation analyses. The correlation analysis did not show any serious problem of multicollinearity as all correlations were lower than 80%.

Table 3. Descriptive statistics.

Variable	Mean	SD	CSR Initiatives Implementation	PEEF	Lambda	M&As	SIZ	LOC	FG	SI	CP
CSR initiatives implementation	225.27	998.12	1								
PEEF	6.51	3.47	0.062	1							
Lambda	13.35	2.81	−0.156 **	−0.034	1						
M&As	0.25	0.43	0.235 **	0.128 *	0.000	1					
SIZ	17.07	5.41	0.404 **	0.075	0.034	0.131 *	1				
LOC	0.08	0.08	0.188 **	0.109 *	0.000	0.781 **	0.082	1			
FG	0.01	0.01	−0.286 **	−0.090	0.188 **	0.241 **	−0.180 **	0.437 **	1		
SI	0.51	0.501	0.385 **	0.067	−0.128 *	0.226 **	0.306 **	0.283 **	−0.290 **	1	
CP	0.17	0.373	−0.375 **	−0.026	0.000	−0.236 **	−0.714 **	−0.175 **	0.070	−0.249 **	1

Notes: Observations = 336. ** = Significant at the 1% level; * = Significant at the 5% level

4.4. Computing Truncated Measures

To reduce the impact of outliers, the results were examined for validation by computing with varying levels of truncation (5% and 10%), and we found no significant differences in the results, or in their direction; furthermore, the boxplot indicated no outliers in the values of the profit efficiency.

5. Findings

The hierarchical model was implemented to estimate the impact of implementing the CSR initiatives by using its two models of variation as detailed in Equation (3). The results indicate that the explanatory power of the model was 22% of the variance in profit efficiency scores when estimating the model's unstructured covariance matrix. The Akaike information criterion was (AIC) = 3978.689, and the Bayesian information criterion was (BIC) = 4024.058. Table 4 shows the final results of hypothesis testing. The intercept (Υ_{00}) in Equation (3) refers to medium profit efficiency for our sample.

Table 4. The final results of model estimation hypothesis testing.

Predictor Variables	Hypotheses	β (t-Value)	Model with 1 Year Lagged Profit β (t-Value)	Model with 2 Year Lagged Profit β (t-Value)
(Intercept) (Y_{00})		5.94 (30.57) ***	4.09 (19.45) ***	6.67 (24.76) ***
Loc (Y_{o1})		0.505 (2.294)	0.5687 (2.134)	0.601 (2.345)
Size (Y_{02})		−0.13 (−0.25)	−0.09 (−0.14)	−0.15 (−0.34)
Lagged profit efficiency (β_1)		−0.00017 (−947) ***	−0.00023 (−9.67) ***	−0.00024 (−9.913) ***
CSR initiatives implementation (Y_{20})	H1	−0.1753 (−5.349) **	−0.1689 (−5.987) **	−0.1654 (−5.067) **
$CP_{IT} \times$ CSR (Y_{21})	H4	−4.933 (−4.657) ***	−5.123 (−4.879) ***	−5.087 (−4.543) ***
SI × CSR (Y_{22})	H2	−13.792 (−0.812)	−14.098 (−0.982)	−13.675 (−0.798)
Size × CSR (Y_{23})		0.051 (1.063)	0.067 (1.167)	0.069 (1.145)
FG × CSR (Y_{24})	H3	−0.12 (−23.506) ***	−0.143 (−22.987) ***	−0.156 (−23.034) ***
Mergers and acquisitions (β_3)		0.921 (13.62) ***	0.879 (12.45) ***	0.906 (13.453) ***
Lambda (β_4)		−0.069 (−7.905) ***	−0.071 (−8.234) ***	−0.089 (−7.876) ***

** $p < 0.05$, *** $p < 0.01$.

CSR had a significant effect on profit efficiency ($Y_{20} = -0.1753$, t-value = −5.349): i.e., CSR initiatives increased profit efficiency, in support of H1. The results reveal that, after implementing CSR initiatives, profitability relative to the most profitable bank in the industry increased by 2.95% (0.1753/5.94), a result that is consistent with Kang et al. (2016). However, the impact of CSR on profit efficiency did not vary for different levels of CSR strategic commitment ($Y_{22} = -13.79$, t-value = 0.812); hence, H2 was not supported.

As expected in H3, banks that existed in the market from early on were more profit-efficient than those that arrived later ($Y_{24} = -0.12$, t-value = −23.506), where the positive impact of the long-standing banks on profit efficiency grew over time. In addition, the positive impact of CSR initiatives on profit efficiency increased as competitive positioning increased ($Y_{21} = -4.933$, T-value = −4.657), in support of H4

We also found that mergers and acquisitions had a significant effect on profit efficiency ($\beta_3 = 0.921$ with T-value = 13.62). Meanwhile, the impact of CSR initiatives on profit efficiency did not differ for various sizes of banks ($Y_{23} = 0.051$, t-value = 1.063); therefore, the effects of bank size were insignificant in general ($Y_{02} = -0.13$, t-value = −0.25). Moreover, local and foreign banks were found to not affect profit efficiency ($Y_{01} = -0.505$, t-value = 2.294). Lastly, the Lambda variable that measures the macroeconomic conditions had a significant negative impact on profit efficiency ($\beta_4 = -0.069$ with T-value = −7.905).

5.1. Sensitivity Analysis

Previous models have shown that investment in various areas of marketing expenditure may have extended effects on diverse types of organizational performance (Rust et al. 2004). Moreover, it is necessary to take into consideration the effects of investment that have been conducted in previous periods in the long run; these may lead to changes in profit efficiency. The results were examined by tracking the sensitivity of the model as follows: estimations of the profit functions were made using lagged values (1 year, 2 years) in relation to investments spent in the field of CSR through the components of profit functions in the balance sheet statements and income statements to alleviate endogeneity concerns (Chang et al. 2014).

5.2. Profit Efficiency Scores Were Derived Using Equation (2)

Lastly, re-estimations of the profit efficiency models were conducted by using the profit efficiency scores. The detailed results in Table 4 show that the sensitivity analysis results were largely consistent with the previous results.

6. Discussion

The current study examined the influence of CSR initiatives implementation on firms' performance. Although the literature shows that the relationship is not altogether clear, the results provide evidence that CSR initiatives as a marketing investment proposal have positive effects on profit efficiency, and it is worth mentioning in this context that a number of researchers have found a positive and significant relationship between CSR initiatives and accounting-based static financial gauges (ROI, ROE, and net interest income) in the banking sector (Inoue and Lee 2011; Wu and Shen 2013). Hence, this result is consistent with stakeholder theory.

On the other hand, other authors maintain that firms aim to maximize profit, not their value, which includes the welfare of society, and that imposed CSR initiatives puts pressure on the firms' profits, as these have no relation to the economic role of firms (Brammer et al. 2006; Jensen 2010; Sundaram and Inkpen 2004). The findings indicate that firms that are committed to keeping track of CSR initiatives are not able to gain profit efficiency. This may be because CSR is considered as an array of core policies to adopt a corporate position and orientation to meet the needs and expectations of multiple stakeholders (Cheng et al. 2014).

We found that higher the competitive positioning led to higher profit efficiency in firms that implement CSR initiatives, since expectations of stakeholders may probably increase. This result is consistent with the study of (Bai and Chang 2015). The results do not boost the conception that larger firms are more likely to reflect positively on profit efficiency in firms that implement CSR initiatives, in contrast with the findings of Godfrey et al. (2009) and the notion of enjoyment of economies of scale that increase profitability. This finding may be because the relationship is U-shaped in nature (Udayasankar 2008).

It is noteworthy that the results boost the concept that firms with higher competitive positioning are more likely to receive many advantages from implementing CSR initiatives. This may be due to increased expectations of stakeholders from leading companies in the marketplace, in line with the findings of (Mishra and Modi 2016), which indicated that superior marketing capability as a moderating factor plays a stronger role in maximizing firm value through activating CSR initiatives. This also coincides with the findings of prior research (Bai and Chang 2015; Cegliński and Wiśniewska 2016), which showed financially positive outcomes of implementing CSR initiatives.

However, our findings point to the older firms in the marketplace being more likely to enjoy higher profit efficiency than the younger ones, because they have more experience. This finding supports the conjecture that older firms may need to differentiate their CSR orientations (Singh and Agarwal 2011) to benefit from implementing CSR initiatives and to become much more responsible in terms of diversity and environmental awareness (Robbins et al. 2000; Withisuphakorn and Jiraporn 2016), in contrast with the findings of Badulescu et al. (2018), who indicated that the relationship was not linear, although young firms were less involved in social responsibility actions.

7. Conclusions

The results of the present study offer some insightful implications for practitioners in the banking sector who implement CSR initiatives. Thus, the study should attract close attention and interest from policymakers and corporate managers.

The most remarkable result was the positive effect of CSR initiatives on profit efficiency in general; this provides evidence that the implementation of CSR initiatives improves profit efficiency by 2.95%. Intrinsically, the results introduce solid support for the ability of CSR to grow banks' operational profit. Consequently, CSR initiatives should be an integral part of companies' business strategy rather than what drives them (Bhattacharya and Sen 2004; Donaldson and Preston 1995) to set a normative framework (Slavova 2013; Vilanova et al. 2009), thus enabling managers to create sound CSR initiatives for business and to make them work (Jones and Wicks 1999; Joyner and Payne 2002; McWilliams and Siegel 2001; McWilliams et al. 2006). Furthermore, it should provide benefits to businesses and be a source of innovation and competitive advantage (Kjeldsen 2013).

In addition, these actions should be disclosed not only according to mandatory requirements but also by disclosing detailed additional information. This should be promoted especially across social media and through public relations, rather than only by corporate advertising or corporate releases (Morsing and Schultz 2006), in addition to empowering stakeholders to become engaged in putting the priorities of its aspects of investments.

In other words, CSR initiatives should be viewed not merely as a marketing tool, but rather as a means to create dual customer value: customer trust (Cegliński and Wiśniewska 2016) loyalty, retention and acquisition, market share, and customer equity (Kotler and Armstrong 2016).

The findings indicate that managers should take into consideration the conditions which can activate the impact of CSR initiatives on firms' profit efficiency, and they should be patient because the outcomes of implementing CSR—as investments—do not appear immediately. They need a time to be positively reflected in firms' performance, as it improves over time. Managers should be aware of the responsibility placed on old firms in their markets and the high expectations of stakeholders toward them regarding social responsibility. Our results show that old firms in the marketplace which implement CSR enjoy higher levels of profit efficiency compared to young ones.

The findings of this study can address many concerns, including the complexity and uncertainty associated with the implementation of social responsibility programs as long-term investment proposals rather than cost drivers (Heugens and Dentchev 2007; McWilliams et al. 2006), as well as enrich the function of chief marketing officers (CMOs) in leading firms to keep tracing CSR initiatives. Low awareness of firms' CSR initiatives is a crucial obstruction in their endeavors to maximize business interest from their CSR investment (Du et al. 2007). Thus, the present findings can help firms to overcome the communication gap between chief marketing officers and management teams, especially that of chief information officers (CIOs). The relationship between these two parties is crucial to reap strategic benefits from their CSR initiatives (Du et al. 2007), but it suffers from contradictory goals and misperceptions; while CMOs perceive CIOs as giving attention to efficiency with little knowledge of marketing, CIOs believe CMOs are not interested in the resource planning required to invest in CSR initiatives (Commander 2008; Krasnikov et al. 2009). Positive results can be exploited in the area of effectiveness. Therefore, CMOs can illustrate the need for the importance of supporting the implementation of CSR initiatives, but without ignoring the CIOs' points of view (Krasnikov et al. 2009; Mishra and Modi 2016). Building strong CSR strategic commitment could drive a firm to reap profits from CSR initiatives more quickly than if they do it as just a set of initiative policies (Peloza and Shang 2011).

It is noteworthy that our findings also provide a support that reflects the higher competitive positioning of increasing profit efficiency, since expectations of stakeholders may probably also increase, to signal better market performance (Singh and Agarwal 2011).

Our approach is different from that of much existing research in the area of measuring quantitative effects of CSR initiatives on firm performance, as outlined below.

To the best of our knowledge, in the context of measuring the financial impact of CSR initiatives, our study is the first to adjust stochastic frontier analysis by taking into account the requirements of portfolio theory literature, which states the need to have two conditions to apply the efficient frontier that leads to maximizing the expected utility return and minimizing the risk for varying levels of expected return (Sharpe et al. 1998; consequently, that value cannot be created without sustainable risk taking (Acharyya 2008). It adds to the area of the marketing–finance interface by centering on integrating across the CSR initiatives as one of the marketing investment proposals in finance and accounting literature, in addition to identifying moderators of the effect of CSR on profit efficiency, thus attracting attention to a phenomenon that is increasingly gaining momentum amongst stakeholders. It provides a calibrated mechanism that is considered a microeconomic measure of productivity to measure the marketing expenditure drivers as investments and calculates their return, consequently developing benchmarks for marketing impact and rationalizing the marketing decisions. The research provides empirical evidence on the importance of CSR and its positive reflection on firms' performance in emerging markets, especially the banking sector, which might mean increasing awareness of CSR in emerging markets.

As with other empirical studies, the current research has some limitations which in turn open doors for future research in the area. First, it would be of significance to examine the research model in other industries, because the service industry is process-oriented, and each sector has its unique characteristics. Second, the study has been conducted in an emerging market (Egypt) where social situations may require special and immediate attention. Thus, it should be replicated in different countries with different cultures, especially developed ones that are more sensitive to social responsibility matters, in order to create a kind of enrichment and knowledge accumulation in the area of the impact of marketing assets on improving firms' performance. Third, the study aimed to find out the impact of CSR initiatives on the profit function according to the risk components as in the Basel Committee. It may be deemed appropriate to investigate the impact of CSR initiatives on the cost function within the context of industry-specific risks.

Lastly, in the context of quantitative studies, it may be useful to supplement this research with a series of studies that include researching the impact of CSR initiatives on customers' referral behavior, such as cross-selling and up-selling.

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