

The performance of socially responsible investments in the eyes of stakeholders

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ABSTRACT

Most previous studies on the financial performance of socially responsible investments have focused on measuring profitability in relation to conventional investments. The purpose of this studies is analyzed in details the nature of this profitability in regards to the expectations of the company's stakeholders. Using stakeholder theory, this study examines the impact of socially responsible investment on the perspectives of the company's main stakeholders through three measures: the ROE ratio to identify managers interested in Return on Equity, the payout ratio for shareholders who expect dividends, and finally the Price to Book Ratio (PBR) which is of great interest to speculators who can compare the book value of the company's assets with its market price in order to identify undervalued companies. The results obtained highlight positive impact of Very Engaged SRI on ROE was confirmed (+0.29), while the CGEM CSR labeling negatively influences the dividend payment rate granted to shareholders, with a small difference noticed between the CSR labeled SRIs and those named Top Performer (-0.24 vs. -0.21). The interest of the managers for this type of investment, then they locate an important aversion on behalf of the speculators and shareholders considering that the SRI impacts negatively their business.

ملخص

ركزت معظم الدراسات السابقة بشأن الأداء المالي للاستثمارات المسؤولة اجتماعيا على قياس الربحية فيما يتعلق بالاستثمارات التقليدية. ويتمثل الغرض من هذه الدراسات في تحليل طبيعة هذه الربحية بالتفصيل فيما يتعلق بتوقعات أصحاب المصلحة في الشركة المعنية. وباستخدام نظرية

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أصحاب المصلحة، تبحث هذه الدراسة في تأثير الاستثمار المسؤول اجتماعيا على وجهات نظر أصحاب المصلحة الرئيسيين في الشركة من خلال ثلاثة مقاييس: نسبة العائد على حقوق المساهمين لتحديد المديرين المهتمين بالعائد على حقوق المساهمين (ROE)، ونسبة الدفع للمساهمين الذين يتوقعون أرباحا، وأخيرا نسبة السعر إلى القيمة الدفترية (PBR) والتي تعتبر ذات أهمية كبيرة للمضاربين الذين يمكنهم مقارنة القيمة الدفترية لأصول الشركة مع سعر السوق من أجل تحديد الشركات المتدنية القيمة. وأبرزت النتائج التي تم الحصول عليها أن التأثير الإيجابي للاستثمار المسؤول اجتماعيا (SRI) الشديد على العائد على حقوق المساهمين بلغ (+0.29)، في حين أن تصنيف علامة المسؤولية الاجتماعية للاتحاد العام لمقاولات المغرب (CGEM CSR) يؤثر سلبا على معدل دفع الأرباح الممنوحة للمساهمين، مع ملاحظة اختلاف بسيط بين علامة المسؤولية الاجتماعية للاستثمار المسؤول اجتماعيا وتلك المدرجة ضمن الأفضل أداء (-0.24 مقابل -0.21). فيما يتعلق بمصلحة المديرين لهذا النوع من الاستثمار، هناك عزوف مهم نيابة عن المضاربين والمساهمين بالنظر إلى أن الاستثمار المسؤول اجتماعيا يؤثر سلبا على أعمالهم.

ABSTRAITE

La plupart des études précédentes sur la performance financière des investissements socialement responsables se sont concentrées sur la mesure de la rentabilité par rapport aux investissements conventionnels. L'objet de cette étude est d'analyser en détail la nature de cette rentabilité au regard des attentes des parties prenantes de l'entreprise. En utilisant la théorie des parties prenantes, cette étude examine l'impact de l'investissement socialement responsable sur les perspectives des principales parties prenantes de l'entreprise à travers trois mesures : le ratio ROE pour identifier les gestionnaires intéressés par le retour sur capitaux propres, le ratio de distribution pour les actionnaires qui attendent des dividendes, et enfin le ratio Price to Book (PBR) qui est d'un grand intérêt pour les spéculateurs qui peuvent comparer la valeur comptable des actifs de l'entreprise avec son prix de marché afin d'identifier les entreprises sous-évaluées. Les résultats obtenus mettent en évidence l'impact positif de l'ISR Very Engaged sur le ROE (+0.29), tandis que l'étiquetage RSE de la CGEM influence négativement le taux de paiement des dividendes accordés aux actionnaires, avec une faible différence constatée entre les ISR étiquetés RSE et ceux nommés Top Performer (-0.24 vs. -0.21). L'intérêt des dirigeants pour ce type d'investissement, puis qu'ils situent une aversion importante de la part des spéculateurs et des actionnaires considérant que l'ISR impacte négativement leur activité.

Keywords: Econometric study, social responsibility, Profitability, Stakeholders, Morocco.

JEL Classification: G32, G11, M14, Q56.

1. Introduction

SRI translates the commitment of the company in parallel to its main economic mission to respect the environment, society, and to integrate its various stakeholders in the decision-making process.

Several studies have tried to quantify the links between SRI and financial performance using meta-analyses in order to identify a generalized trend, but they give opposite results regarding the impact of SRI on financial performance. Scientific research on social responsibility, from the pioneering work to the present day, has focused more on the study of profitability as the key determinant of financial performance, while few studies have explored and detailed the nature of this profitability in relation to the intentions and interests of the company's stakeholders.

The relevance of this article is seen in its new vision to treat a question already treated by others researches. Indeed our objective is to enrich the debate on this problem, from a different point of view which will give more insights on the nature of this link between SRI and financial performance (Q1) to managers (Q1.1), shareholders (Q1.2) and speculators of the SRI (Q1.3) in a specific context which is the Moroccan economy. From the above, our research is interested in the impact study of SRI on the financial performance of Moroccan companies listed on the stock exchange. From the above, this research about the impact of SRI on the financial performance of Moroccan listed companies on the stock exchange leads mainly to the following research question:

“How can the application of extra-financial criteria on investments impact the financial performance of listed Moroccan companies and subsequently influence the attitude of their stakeholders?”

This main question will be divided into three sub-questions depending on the level of influence SRI has on stakeholder attitudes, as financial performance can be interpreted from different perspectives. Firstly for managers, the "ROE" measures the profitability of capital employed. It indicates the ability of managers to use the resources provided by shareholders.

Q1.1: How can the application of extra-financial criteria on investments impact the ROE of listed Moroccan companies?

Secondly, the "payout ratio" represents the share of the company's profit paid out to shareholders in the form of dividends, because maximizing the company's profitability necessarily involves making profits for the shareholders.

Q1.2: How can the application of extra-financial criteria on investments impact the Payout of listed Moroccan companies?

Finally, the Price to Book Ratio is a measure if a stock's price accurately reflects its financial value. Speculators use it to determine if the purchase price of a company reflects its true book value in the market.

Q1.3: How can the application of extra-financial criteria on investments impact the PBR of listed Moroccan companies?

2. Literature Review

SRI has attracted the interest of several academic studies that have treated the question of the financial profitability of SRI. The objective is determine whether the integration of social criteria in the investment choice creates value or destroys it. The period between 1972 and 2019 has generated several studies with opposite conclusions.

Markowitz (1952) through his pioneering work concluded that socially responsible investments generate profitability and earnings. For modern portfolio theory Markowitz (1952) SRI limits investment opportunities and allows for less diversification capacity because of the selection problems it imposes.

In the same context, Milton Friedman (1962) in his book, "Capitalism and freedom" criticizes SRI, and concludes that there is no compatibility between socially responsible investment and profitability. Taking social and environmental concerns into account can lead to additional external costs that must be internalized and lead to a loss of corporate value. However Clow (1999) shows that SRI, by its selective approach, would cause a sectoral bias by limiting itself to a small number of investment sectors, thus is increasing its risk while decreasing its profitability. Nevertheless, SRI, according to modern portfolio theory, causes a competitive disadvantage because it will generate costs for the company that must be borne by the state (Brammer and al., 2006). Girerd-Potin and al. (2014) used scores from Vigeo reports between 2003 and 2010 to

express the CSR dimensions of companies. These are the "business actors" dimension namely employees, customers and Suppliers..., "social actors" dimension represented by the environment and society, and the "financial actors" dimension which are shareholders and creditors. The authors integrated the three dimensions into the Fama and French (1993) model after measuring the performance gap for all dimensions. The results highlight an additional risk premium is required by investors to have a stock with a low CSR rating.

On the other hand, the stakeholder theory proposes an integrative approach in which all stakeholders participate in defining the strategy. Freeman (1984) was the first to use this term, believes that a stakeholder is a "person or group of people without whose support the company would not exist". The authors who have been interested in this theory have identified several classifications of the company's stakeholders, whether internal/external, legitimate/non-legitimate, primary/secondary, or influencer/non-influencer. For the "information effect" theory, Kurtz (2002) asserts that SRI generates value in the long run in the sense that the extra-financial rating can be interpreted as a reflection of a certain control of the risks faced by the company. This positive correlation between financial performance and SRI is justified by Margolis and Walsh (2003) who identified only 08 studies out of the 127 that found a negative correlation between the two dimensions. Adeneye and Ahmed (2015) tried to determine the nature of correlation between CSR and MBV index based on 500 British companies. They found that there is a positive effect between MBV and CSR but a neutral effect between CSR and firm size. Platonova and al. (2016) concluded that socially responsible stocks outperform conventional stocks in terms of performance, when they measured the CSR of 24 Islamic banks matched with other conventional firms using the content analysis method.

Same results obtained by adopting the methodology of Maqbool and Zameer (2017) who opted for content analysis study and they found a positive effect between CSR and financial performance of 28 Indian banks listed in Bombay Stock Exchange. For Schönborn (2019) and al. also found a positive effect between CSR measured by questionnaires that define socially responsible business culture on financial performance.

On the other side, Marsat and al (2013) find that the firm is not socially committed does not impact its financial performance. Also, Xiao and al

(2013) measured the impact of a sustainability score on the financial performance of companies by integrating a social responsibility factor into the Fama and French (1993) model, the authors measure the weighted return differential of socially rated portfolios and those with poor ratings. The study concludes that returns on socially responsible stocks are similar to returns on conventional stocks. The same results are confirmed by the works of Adeneye and Ahmed (2015), based on 500 UK companies. The authors found a neutral impact between CSR and firm size effect.

Indeed, the heterogeneity of the results concerning the impact of SRI on the financial performance of companies is mainly attributable to the different angles from which the authors have approached this question. The originality of this article lies in its global vision which takes into account the financial performance under several facets, namely, managerial by aiming at the capacity of the managers of the SRI funds to carry out returns, without forgetting the expectations of the shareholders and the speculators, which will make it possible to better define our problem.

3. Data and Methodology

First we will provide a detailed discussion of the variable selection process.

3.1. Independent variable: Socially Responsible Investment (SRI)

The SRI is the result of a cross combination between the Vigeo-Eiris Morocco ranking which names the top performers each year and the CGEM CSR label to distinguish between three categories in terms of social responsibility: Very committed investments "Very. Eng" named by Vigeo-Eiris as "Top Performer", "Eng" labeled CSR by the CGEM, and "N.Eng", which represent companies not considered responsible and focus on profitability as main goal, over environmental consequence of their activities. El Malki (2012,2014), Simionescu and al (2014), Chetty and al (2015), Masoud and Halaseh (2017), Lin and al (2018)

3.2. Dependent variables

The literature review of empirical studies shows that works measuring the impact of SRI on profitability are abundant, but few works have

operationalized this profitability through variables reflecting the intentions of the company's stakeholders. For this reason, financial performance is measured by three variables: ROE to identify the behavior of managers interested in Return on Equity (ROE), the payout ratio targeted by shareholders who expect the distribution of dividends, and finally the Price to Book Ratio (PBR), which captures the interest of speculators interested in comparing the book value of the company's assets with its stock market price. As a consequence, we opted for two categories of socially responsible investment; the first category concerns the Highly Committed Investments named by Vigeo-Eiris and the Committed Investments labeled by the CGEM.

3.2.1. ROE

The "Return on Equity" is an accounting profitability indicator that measures the profitability of capital employed. It indicates the ability of managers to use the resources provided by shareholders. A high and constant ROE means that the company has a sustainable competitive advantage. Jiang and Yang (2015); Angelia and Suryaningsih (2015); Dumitrescu and Simionescu (2015); Chetty and al. (2015); Maqbool and Zameer (2017). The formula of the indicator is:

$$ROE = \frac{Benefice}{VNC} \quad (1)$$

3.2.2. Payout ratio

The payout ratio represents the share of the firm's profit paid to shareholders in the form of dividends. Several authors have measured the profitability of investments by the payout ratio as Attig and al. (2014); Benlemlih and Bitar, (2016).

$$Payout\ ratio = \frac{Dividend\ per\ Stock}{BPA} \quad (2)$$

According to stakeholder theory (Freeman, 1984), the adoption of responsible behavior is in response to the necessity of maximizing corporate objectives through profitability for the benefit not only of shareholders but also of other stakeholders. Gallo (2004); Allouche and Laroche (2005); He and al. (2012).

3.2.3. Price to book Ratio

The Price to Book Ratio is a measure if a stock's price accurately reflects its financial value. Speculators use it to determine if the purchase price of a company reflects its true book value in the market. Although standards across industries vary, a PBR of less than 1 indicates an undervalued stock, while a PBR of more than 3 indicates an overvaluation. Rodriguez-Fernandez (2015), Lin and al.(2018).

$$PBR = \frac{\text{Market value of the stock}}{\text{Book value of the stock}} \quad (3)$$

3.3. The control variables

To ensure unbiased results we introduced the following control variables: sector, number of years listed, total assets, share capital, we also include the effect of the Cop 22 global event held in Morocco in 2016.

3.3.1. Firm size

In order to control for the effect of the size of the firms that compose a sample, the control variable size is considered the most important (Anderson and Dejoy, 2011), and the most used (Griffin and Mahon, 1997).

3.3.2. Sector

In order to aggregate our sample, we divided it into three main sectors, namely: Industry, Service and Construction sector.

3.3.3. Age

The number of years is retained (Maqbool and Zameer, 2017; Masoud and Halaseh, 2017; Lin and al., 2018), since the listing imposes on the company to fulfill certain obligations in accounting and administrative normality something that provides market value to the company.

3.3.4. Cop22 event

The organization of the Conference of the Parties in its 22nd (COP22) edition in Morocco in 2016 has raised awareness among Moroccan

companies of the importance of integrating social and environmental criteria in their investments. COP is a dichotomous variable that takes the value "0" before 2016, i.e. before the organization of the event and the value "1" after 2016.

From the above, we have a main hypothesis that will be divided into sub-hypotheses depending on the degree of engagement of companies in CSR and the level of financial performance targeted.

The different hypotheses of our research are presented in the following table:

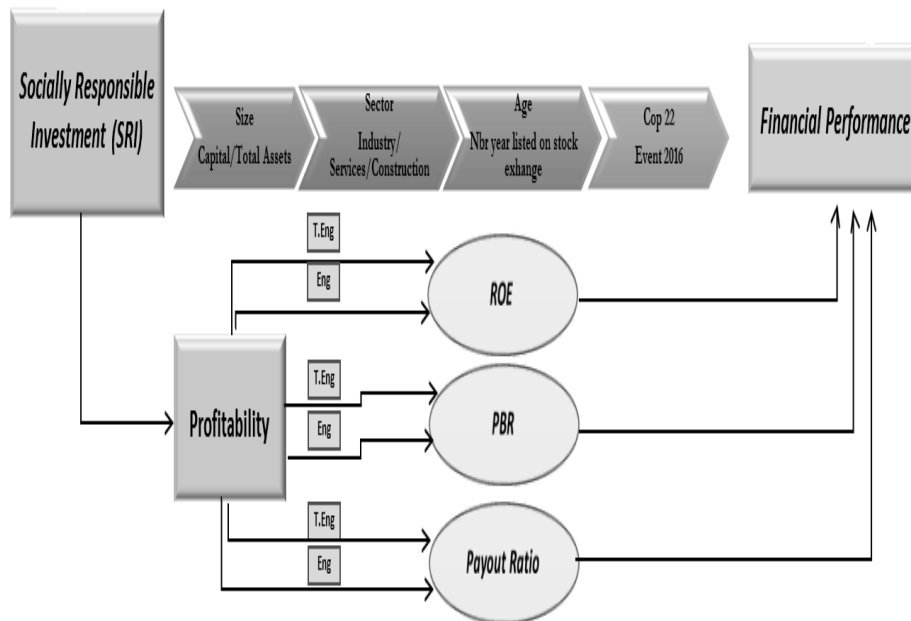
Table1 : Summary of the different hypotheses of our research

Reference	Hypotheses
<i>H</i>	SRI has a + impact on the FP of companies.
<i>H.1</i>	Very Engaged SRI has a + impact on the FP of companies.
<i>H.1.1</i>	Very Engaged SRI has a + impact on the ROE of companies.
<i>H.1.2</i>	Very Engaged SRI has a + impact on the payout of companies.
<i>H.1.3</i>	Very Engaged SRI has a + impact on companies' PBR.
<i>H.2</i>	Engaged SRI has a + impact on the FP of companies.
<i>H.2.1</i>	Engaged SRI has a + impact on companies ROE.
<i>H.2.2</i>	Engaged SRI has a + impact on the payout of companies.
<i>H.2.3</i>	Engaged SRI has a + impact on companies PBR.

Source: Elaborated by the authors

From the above, we find ourselves in front of a conceptual model schematized on figure 1.

Figure1 : Presentation of the conceptual model



Source: Elaborated by the authors

This work concerns the study of 48 Investments listed on the Casablanca Stock Exchange. All companies not listed on the stock exchange are excluded. The availability and quality of information published in financial reports is one of the main reasons behind that choice.

The period covered by this study is between 2011 and 2019. The choice of this period is random but justified by two events main reasons: that have directly impacted the international economy namely the financial crisis of 2008, and the pandemic of Covid 2019. The total number of observations obtained is 432.

All the data used in this work are collected directly from the official websites of the Casablanca Stock Exchange⁴ and the AMCC⁵ as well as the financial reports of the different companies that compose our sample⁶,

4 <http://www.casablanca-bourse.com/bourseweb/index.aspx>

5 <http://www.amcc.ma> Moroccan Capital Market Authority

6 Websites of different companies that compose our sample

the last are considered as a reliable and unavoidable source of secondary data (Fraser and al., 2006). So for the SRI variable, is obtained after combining between companies labeled CSR by the CGEM⁷ and Vigeo-Eiris⁸ reports published between 2011 and 2019.

The adopted models are summarized by the following equations:

$$ROE = \alpha + ISR + Sector + Size(LogCapital) + Age + Cop22 \quad (04)$$

$$Payout = \alpha + ISR + Sector + Size(LogTActif) + Age + Cop22 \quad (05)$$

$$PBR = \alpha + ISR + Sector + Size(LogTActif) + Age + Cop22 \quad (06)$$

The same method of estimation for the three models is specified bellow: the resulting F-statistic is used to determine whether there are individual effects or not. If there are individual effects, a specification test is needed to define the type of individual effects and if it is a fixed or random effect, the test used is the Hausman test. To ensure that the models are well specified, and to avoid estimation bias, specification and goodness-of-fit tests have been adopted, namely: Ramsey rest test, homoscedasticity test and autocorrelation test.

4. Empirical Results

4.1. Exploratory analysis of the data

Before proceeding to estimate our models, we launched this section by describing, exploring and interrogating the statistical data in the analysis focuses on all of variables, starting with the explanatory variable, passing through the explained variables and finally the control variables.

From the figure 2, the number of labeled companies is unstable, especially after excluding any company that did not maintain its label during the study period in order to better identify the effect of socially responsible investment on the financial performance of Moroccan listed companies.

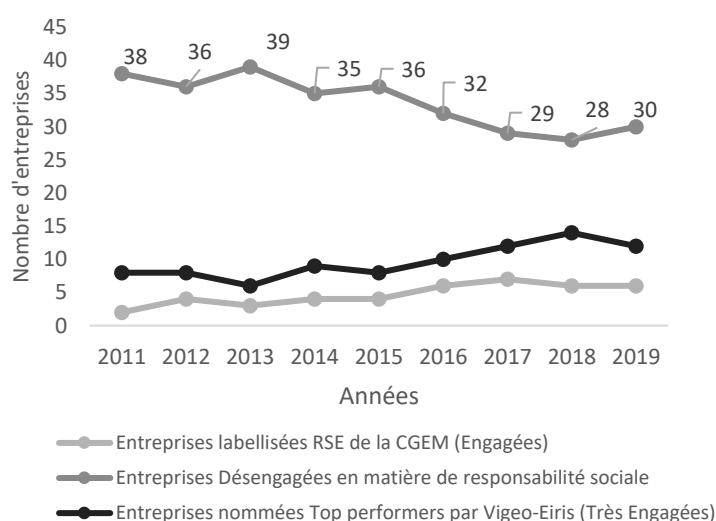
The maximum number of listed companies labeled CSR between 2011 and 2019 is reached in 2017 with 7 companies, to stabilize in 6 companies

7 <http://rse.cgem.ma> Confédération Générale des Entreprises du Maroc

8 <https://vigeo-eiris.com/>

until 2019. For the Vigeo-Eiris award, the first report published was in 2011, the report named 08 companies as Top CSR performers in Morocco in 2011. Another 05 reports were published until 2019 naming a total of 87 companies as top performers in terms of responsibility. The highest number was recorded in 2018 with 14 companies or 30% of the companies in our sample in 2018.

Figure2 : Evolution of the number of companies engaged in SRI between 2011 and 2019



Source: Elaborated by the authors

For the dependent variables the annual evolution is analyzed on the basis of the variation of the means from one year to the next. In the table2, outlined the descriptive statistics that relate to the different dependent variables of our models.

Table2: Statistic descriptive of profitability Variables

Variable	N	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
ROE	432	0,46	0,08	0,37	0,62	0,50	2,31
PBR	432	1,42	0,21	1,17	1,85	0,82	2,98
Payout	432	0,41	0,11	0,15	0,53	-1,42	4,77

Source: Elaborated by the authors

The ROE achieves a positive return of 46% (SD: ± 0.08), which concerns the funds available to the shareholders. The ROE range between the minimum value of 0.37 and maximum of 0.62. This means that the portfolio returns are less dispersed. The distribution of ROE is skewed to the right as the Skewness value is 0.50. However, the distribution of ROE is crushed since the kurtosis of 2.31 (less than 3).

PBR variable, range between 1.17 and 1.85 with a positive mean 1.42 (SD: ± 0.21), The investors are ready to pay 42% more for a stock than its book value, so the market value of the stock is more than its book value. The distribution of PBR is asymmetrical towards the right given that the value of Skewness is 0.82 (higher than 0). However the distribution is qualified as normal since the Kurtosis registers a value of 2.98. The distribution rate range between a minimum value of 1.17 and maximum of 1.85 the distribution rate the average recorded of is 41% (SD: ± 0.11) revealing that the company has recorded an average capital gain between 2011 and 2019. In order to evaluate the dependence between our variables two by two, a calculation of the correlation coefficient must be conducted to determine the absence or presence of a significant linear relationship between the variables of our sample. The coefficients obtained range between -1 and 1. The closer the coefficient is to 1 or -1, we speak of a multicollinearity between the two variables selected (Gujarati, 2009).

Table3: Correlation matrix

	Sector	ROE	PBR	Payout	Capital	T.Assets	listing
Secteur	1,0000						
ROE	-0,0382	1,0000					
PBR	-0,1062	-0,0616	1,0000				
Payout	0,1261	0,1052	-0,0759	1,0000			
Capital	-0,1175	0,3463	-0,0119	0,0626	1,0000		
T.Assets	0,1087	0,4007	-0,1973	0,0912	0,8062	1,0000	
Listing	-0,0825	0,1434	-0,1000	0,0917	0,2950	0,2780	1,0000

Source: Elaborated by the authors

From the table3, the variables are correlated either positively or negatively. The coefficients range from -0.1175 to 0.8062. Generally, the

correlation coefficients do not show an apparent collinearity problem because the values of most coefficients are far from -1 and 1.

4.2. Econometric modeling

After the exploratory analysis, econometric modeling is conducted. The approach followed starts with the regression of the different panel models selected.

For each of three models the same estimation method has been used, starting with the presentation of the main results of the regressions of the three fixed effects models which specify the relationship between SRI and ROE (model 1), PBR (model 2) and the payout ratio (model 3), followed by the different specification and adjustment tests and ending with the interpretation of the results of the adjusted models.

4.2.1. Robustness check

4.2.1.1. *Detection of individual effects*

The table4 summarizes the set of results concerning the regression of the fixed effect model for the three variables.

Table4: Fixed effect model for the three variables

Variables	ROE	PBR	Payout
ISR			
Engaged	0.114 (0.130)	-0.0880 (0.049)*	-0.327 (0.138) **
VeryEngaged	0.363 (0.139) ***	-0.0228 (0.052)	0.042 (0.149)
Cop .22	-0.015 (0.104)	-0.113 (0.020) ***	0.074 (0.110)
Size		-0.0174 (0.066)	-0.001 (0.162)
Constant	47.35 (40.62)	0.0240 (0.598)	80.57 (43.25)*
F / Wald chi2 (Mod)	2.72	10.25	3.63
Prob> F/ Prob> Chi ²	0.0295	0.0000	0.0064
Observations	432	423	432
R-squared	0.028	0.099	0.037
Nombre d'action	48	47	48
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Source: Elaborated by the authors

From the results in the table4 the models are statically significant, with Plus-Values less than 5%. The null hypothesis of no individual effects is rejected concludes that there is individual effects.

4.2.1.2. *Specification of the type of individual effect: fixed or random*

To determine the nature of the individual effects within the models,a Hausman test is is required. It allows verifying if the model is identical for all the investments or if there are differences specific to each of them. To perform this specification test, a second estimation is necessary using a random effects model in order to compare the two Models and then choose the correct estimation.

The table5 reports the set of results for the random-effects model regression on our three variables.

Table5: Random effect model for the three variables

Variables	ROE	PBR	PayOut
ISR			
Engaged	0.0819 (0.123)	- 0.085 (0.048)*	-0.294 (0.128) **
Very Engaged	0.123	- 0.028 (0.051)	-0.062 (0.127)
Sector			
Industry	0.043 (0.280)	- 0.113 (0.291)	-0.029 (0.232)
Services	0.027 (0.245)	- 0.171 (0.269)	0.213 (0.209)
Cop22	-0.015 (0.104)	- 0.113 (0.020) ***	0.073 (0.110)
Age	0.422 (0.317)	- 0.002 (0.005)	0.305 (0.274)
Size	-0.478 (0.159) ***	- 0.002 (0.061)	0.017 (0.084)
Constant	49.78 (40.56)	0.075 (0.603)	77.70 (42.88)*
F / Wald Chi ² (Mod)	20.69	41.68	17.40
Prob> F/ Prob> Chi ²	0.008	0.000	0.026
Observations	432	423	432
Numbre action	48	47	48
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Source: Elaborated by the authors

Based on the results shown in table5, all three models are statically significant with a significance level below 5% for the variables ROE, PBR

and Distribution rate. We conclude that necessity of conducting Hausman specification test.

4.2.1.3. *Hausman test*

4.2.1.3.1. *presence of random effects*

The summary of the results of the Hausman tests are plotted in the following table6.

Table6: Results of the Hausman tests

Test Hausman FE vs RE			
Variables	Chi2	Prob>chi2	Decision
ROE	0.68	0.9536	Random Model
PBR	1.46	0.8335	Random Model
Pay Out	1.83	0.7674	Random Model

Source: Elaborated by the authors

The table6 shows that all the plus-values of Hausman test conducted are higher than the significance level of 5%. As consequence, the null hypothesis is accepted, i.e. we confirm the presence of random effects.

4.2.1.3.2. *presence of endogeneity*

for the endogeneity test, we opted for the Hausman test which allows us to check if there is a difference between the instrumental variable estimator and the OLS estimator, thus verifying if there is endogeneity of the variables (if the two estimators are consistent, they are asymptotically equal).

4.2.1.4. *Ramsey-reset test on the good global specification of the model*

After the specification of the models a test of ramsey is necessary to verify if our models are well specified or not. The results of the Ramezy tests concerning our three models are summarized in the table7.

Table7: Results of the Ramsey tests

Test Ramsey-reset			
Variables	F (3, 420)	Prob>F	décision
ROE	1,18	0,3155	Well Specified Model
PBR	1,17	0,3193	Well Specified Model
Pay Out	1, 35	0.3491	Well Specified Model

Source: Elaborated by the authors

According to the results of the table7, the plus-values are above the 5% threshold for all variables, so the null hypothesis is accepted i.e. the models are well specified.

4.2.2. Adaptation and adjustment of the model

After specifying profitability models, the adjustment procedure will begin by testing for autocorrelation and homoscedasticity.

4.2.2.1. Autocorrelation test

In order to perform this test, by regressing, first the model, the residuals are detected and then the squares of the residuals on the explanatory variables are regressed a second time. Finally, an F-test is necessary to see if the coefficients are significant.

Much software allows performing this autocorrelation test. A test detecting the dependence of errors is performed by analyzing the residuals directly according to the model adopted. This is the case of the Stata software which allows, with the `xtserial()` command, to perform a Wooldridge test for autocorrelation of panel data.

Table8: Test Wooldridge of autocorrelation.

Variables	Test Wooldridge of autocorrélation		
	F	Prob> F	Decision
ROE	1,976	0,1664	No Autocorrelation
PBR	35,499	0,0000	Autocorrelation
Pay Out	0,178	0,6748	No Autocorrelation

Source: Elaborated by the authors

The table8 shows that the two models concerning the ROE and the distribution rate variables present surplus values higher than the 5% threshold, which allows us to reject the alternative hypothesis and to accept the null hypothesis of the absence of first-order autocorrelation.

Then there is the presence of autocorrelation for the third model, which concerns the PBR model with a surplus value below the significance level 1%. The alternative hypothesis is accepted and the null hypothesis of no first order autocorrelation is rejected.

4.2.2.2. *Homoscedasticity test*

After conducting the Hausman and Ramsey specification tests for the three profitability variables, a random-effects model was found. The Stata software offers a command that allows us to check directly the heteroscedasticity problem. It is the `xtreghet()` command which is a module for estimating heteroscedasticity in panel data regressions specifically when it is a random effects model. These two tests verify the following hypotheses:

H0: Panel Homoscedasticity.

H1: Panel Heteroscedasticity.

Table9: Results of the Heteroscedasticity test

Test	ROE		PBR		Pay Out	
Lagrange Multipl	1.99e+05	P<0 .01	8.00e+04	P<0 .01	6.87e+04	P<0 .01
Wald	9.88e+07	P<0 .01	1.30e+07	P<0 .01	4.03e+06	P<0 .01
Decision	H1: Heteroscedasticity		H1: Heteroscedasticity		H1: Heteroscedasticity	

Source: Elaborated by the authors

According to the table9, it can be seen that all the gains from the Breusch Pagan Lagrange Multiplier and Wald tests are below the 5% significance level, so the null hypothesis of homoscedasticity is rejected and the existence of the heteroscedasticity problem for all models is admitted. A correction and adjustment work is necessary.

The results of the various tests carried out show that the models suffer from an autocorrelation and heteroscedasticity problem which can lead to corrupted estimation.

As for the risk models, the Generalized Least Squares (GLS) method is used to correct these problems. The Stata16⁹ software allows the direct correction of problems related to autocorrelation and homoscedasticity through the `xtgls()` command. This command adapts to linear panel data models and more specifically to random effects models using generalized least squares. This command allows the optimization and adjustment of a model when it suffers from autocorrelation or heteroscedasticity between panels. After correction, the adjusted models are reported in table 10

Table 10: Model Adjustment Report

Cross-sectional time-series FGLS regression
Coefficients: « Generalized Least Squares »
Panels: Homoscedastic
Correlation: No autocorrelation

Variables	ROE	PBR	Pay Out
I.S.R			
Engaged	- 0.055 (0.121)	0.092 (0.104)	-0.218 (0.118) *
VeryEngaged	0.300 (0.101)***	- 0.173 (0.083) **	-0.223 (0.098) **
Secteur			
Industry	0.070 (0.125)	- 0.064 (0.098)	0.005 (0.113)
Services	0.051 (0.109)	- 0.145 (0.089)	0.215 (0.101) **
Cop.22			
Age (Cotation)	- 0.013 (0.139)	- 0.121 (0.060) **	0.073 (0.136)
Size (T. Actif)	- 0.461 (0.075)***	0.140 (0.056) **	0.059 (0.048)
Constant	45.36 (54.09)	- 1.172 (0.504) **	74.94 (52.69)
Wald Chi2 (Mod)	59.54	20.17	27.07
Prob> Chi2	0.00	P 0.00	0.00
Observations	432	432	432
Nombre d'actions	48	47	48
Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1			

Source: Elaborated by the authors

9 StataCorp. 2019. Stata Statistical Software: Release 16. College Station, TX: StataCorp LLC.

4.2.3. Interpretations of the results of the adjusted models

Heteroscedasticity and autocorrelation were well corrected. All three of the models are largely significant with a p-value below the 1% threshold.

4.2.3.1. *Adjusted modeling of the SRI and ROE interaction*

For the relationship between the variable SRI and the variable Return on Equity (ROE) it is found that there is a positive impact for the "Very Engaged" investments with a significant p-value of 0.003 below the 1% threshold. In fact, the «Veryengaged» investments having obtained the «bestperformers» trophy awarded by Vigeo-Eiris achieve a higher return on capital than the other investments by (0, 30). On the other hand, the link between ROE and CSR-labeled SRI is not significant, since the p-value is well above the 10% significance level.

The sector variables and the Cop 22 event are no longer significant and therefore does not impact the ROE variable since their p-values exceed the significance level. For size and age, they impact the ROE with a significance level below 1%.

Indeed, when size of the firm increases by one unit, ROE decreases by (0, 46). In other words, small investments achieve a higher return on capital than large ones. In addition, when age increases by one unit, ROE increases by (0,42), i.e. the oldest firms in the stock market outperform the youngest in terms of return on capital.

4.2.3.2. *Adjusted modeling of the relationship between SRI and PBR*

As far as the Price to Book Ratio (PBR) is concerned, it is negatively related to the "Very Engaged" modality of socially responsible investments with a p-value of (0,038) significant at the 5% threshold, whereas this relationship is not significant for Committed investments. In fact, the companies that received the "Top Performers" award from Vigeo-Eiris have a lower PBR than the other investments of (0,17). This means that the Very Engaged SRIs are undervalued compared to the other investments. This relationship is no longer significant for committed companies since the p-value is well above the 5% significance level. The same observation is made for the Sector variable with a p-value of (0,51) and (0,10) respectively for the industry and services sector, which is

above the 5% significance level. The variables Age and Cop 22 impact negatively PBR with a significance level below 5%. When the age of the investments increases by one unit, the PBR decreases by (0,05). On the other hand, the organization of the Cop 22 event in Morocco has a negative impact on the value of investments of (0,12) compared to the years before 2016. Finally, the size variable positively impacts the PBR with a significance level below 5%. Indeed, when the size of the investment increases by one unit, the valuation of the company increases by (0,14).

4.2.3.3. *Adjusted model of the relation between SRI and payout ratio*

The SRI variable negatively impacts the dividend payout ratio. For the "Engaged" SRIs, labeled by the CGEM CSR label, distributes to its shareholders in the form of dividends less than the other investments by (0,24), while the Very Engaged SRIs realize a payout ratio lower than (0,21) compared to the other investments, with a significant gain of (0,04) and (0,03) respectively for the Engaged and Very Engaged investments. For the services and age variables, dividends are positively impacted with a significance level below 5%. Indeed, firms belonging to the services sector distribute a higher percentage of profit in the form of dividends than other investments by (0,24). On the other hand, the oldest companies in the stock market are more profitable for the shareholders with a significance level of (0,02). When the age of the listed investment increases by one, the payout ratio also increases by (0,30). For the other variables, the results are not significant at the 5% level.

4.2.4. Summary of adjustment models

From the fit report it can be seen that the problem of heteroscedasticity and autocorrelation has been well corrected. The three models are largely significant with a p-value significant at the 1% level. The summary of the most important results of the assumptions and their interpretations are presented in the table 11.

Table11: Results of the assumptions

	Hypothesis	Impact	Interpretation
H	SRI has a positive impact on the financial performance of companies.	Contradictory	Mixed results
H1	A Very Engaged SRI has a positive impact on the financial performance of companies.	Contradictory	Mixed results
H.1.1	A Very Engaged SRI has a positive impact on the ROE of companies.	+0,29	Confirmed
H.1.2	A Very Engaged SRI has a positive impact on the payout ratio of companies.	- 0,21	Rejected
H.1.3	A Very Engaged SRI has a positive impact on companies' PBR.	- 0,17	Rejected
H.2	Engaged SRI has a positive impact on the financial performance of companies.	Négatif	Partially rejected.
H.2.1	Engaged SRI has a positive impact on companies' ROE.	Insignificant	Not validated
H.2.2	Engaged SRI has a positive impact on the payout ratio of companies.	- 0,24	Rejected
H.2.3	Engaged SRI has a positive impact on companies' PBR.	Insignificant	Not validated

Source: Elaborated by the authors.

From the above we can summarize our adjusted profitability models in the following equations:

$$ROE = 45,36 + 0,29 V.Eng + 0,423 0,38 Age - 0,46 Size \quad (07)$$

$$PBR = -1,17 - 0,17V.Eng + 0,05Age + 0,14Taille + 60,12 Cop22 \quad (08)$$

$$Payout = 72,55 - 0,24Eng - 0,21V.Eng + 0,24Services + 0,31Age \quad (09)$$

4.2.4.1. Comparison of the results with the literature

The hypothesis (H.1.1) which stipulates the positive impact of A Very Engaged SRI on ROE was confirmed (+0.29), several authors have confirmed the same positive relationship between SRI and ROE such as Vitezicand al (2012); Siewand al (2013); Dkhiliand al (2014); Jiang and Yang (2015); Maqbool and Zameer (2017). However, the other two hypotheses H.1.1.2, H.1.1.3 were negated.

The hypothesis (H.1.2) which stipulates the negative impact of A Very Engaged SRI on Payout was rejected (-0.21), this result is in line with the "neoliberal" theory of Milton Friedman (1962), as well as the theory of "financial costs" Luther and al. (1992). Several authors have reached the same results Gallo (2004); Allouche and Laroche, (2005); (He and al. 2012).

The hypothesis (H.1.3) which stipulates the negative impact of A Very Engaged SRI on PBR was rejected (-0.17), the work of Khlif and al. (2015) on South African and Moroccan shares, confirmed our results in the case of Moroccan shares, but they found a positive relationship for South African shares. Other authors managed to detect a neutral effect between PBR and SRI as Surroca and al. (2009); Tjia and Stiawati (2012).

The hypothesis (H.2.2) which stipulates the negative impact of A Very Engaged SRI on Payout was rejected (-0.24), several authors have reached the same results Gallo (2004); Allouche and Laroche, (2005); (He and al. 2012).

5. Discussion

According to the table above, 03 of the hypotheses refer to a negative impact between SRI and financial performance, and they were subsequently rejected. On the other hand, hypothesis H.1.1 was confirmed as it refers to a positive effect of SRI on financial performance. The ascending hierarchy of the results of the hypotheses leads to mixed results regarding the main hypothesis H.

5.1. Hypothesis (H.1): The impact of A Very Engaged SRI on firms' financial performance

The profitability of the firm is measured by three variables, namely ROE (H.1.1), Payout Ratio (H.1.2) and PBR (H.1.3).

Only the hypothesis (H.1.1) which stipulates the positive impact of A Very Engaged SRI on ROE was confirmed (+0.29) in other words, the nomination of the companies by the Vigeo-Eiris Top Performer trophy has borne fruit, insofar as it reflects a good management capacity on the part of the managers, and subsequently allowed the investments to realize a net profit on the invested capital stock. The reputation and image of a socially responsible investment conferred by the Top-Performer award

reflects a certain control of market risks as well as the quality and efficiency of the investments made.

For the Payout Ratio, the nomination of Vigeo-Eiris "Best in Class", has a negative impact on the dividend payout. This can be explained by the additional costs of taking social or environmental constraints into account in the internal management of the company, which leads to a detour of part of the profits to the social cause, and subsequently can be interpreted as a negative impact on the financial performance of the company Rudd (1981). This can create a certain aversion to this type of investment among shareholders.

For the Price to book Ratio, a "Top Performers" SRI can be poorly viewed by the stakeholders of the Moroccan company, especially speculators since its purchase price does not reflect its true value on the market. This underperformance is explained by instrumental theories that limit the role of the company to the simple mission of wealth creation. For David Friedman, the reason why a company exists is to make a profit (Friedman, 1970). This is why the more socially active the company is, the more its value deteriorates on the financial level (arbitrage theory). The costs generated by the social vocation put the company at a competitive disadvantage (Jensen, 2002). On the other hand, the financial underperformance obtained by the PBR, can be justified by the existence of a classic investment more efficient at the financial level, and achieves a higher gain "Theory of managerial opportunism".

5.2. Hypothesis (H.2): The impact of Engaged SRI on firms' financial performance

For Engaged SRI, Hypothesis (H.2) is partially rejected, since the 02 sub-hypotheses H.2.1 and H.2.3 are insignificant while Hypothesis (H.2.2) that measures the relation between Engaged SRI and the Payout Ratio of firms is rejected.

Indeed, the CGEM CSR labeling negatively influences the dividend payment rate granted to shareholders, with a small difference noticed between the CSR labeled SRIs and those named Top Performer (-0.24 vs. -0.21). This result may create a certain aversion to this type of investment among shareholders.

6. Conclusion

The objective of this study is to define the impact of SRI on profitability. The contradictory results obtained show the existence of a mixed relationship between SRI and financial performance. Indeed, our study reveals that we can observe varying investment performances, depending on the level of involvement in social responsibility. In other words, certain investment selection and management choices made by managers can lead to different financial performances (investment diversification, commitment to a CSR labeling procedure or not). On another note, the types of SRI defined in our study (very Engaged and Engaged, Not Engaged) allow managers to clearly define the relationship between social responsibility and financial performance and subsequently optimize and adapt their investment selection choices.

Moreover, measuring the impact of SRI on profitability, operationalized by variables such as ROE, PBR and payout ratio, can help managers better understand the intentions of the company's various stakeholders. Indeed, ROE allows to highlight the behavior of managers interested in the return on equity, the distribution rate targeted by shareholders who expect the distribution of dividends, and finally the PBR which is of great interest to speculators by allowing them to compare the book value of the company's assets with its stock market price in order to identify undervalued companies.

Also, by engaging in a socially responsible approach, our results allow the manager to clearly define the expectations of stakeholders and to make corrections in the management strategy adopted.

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