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THE FINANCIAL PERFORMANCE OF THE INVESTMENT BETWEEN SOCIAL RESPONSIBILITY AND IRRESPONSIBILITY-NEW MODELING

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Abstract: The absence of a consensus of the associations among the Socially Responsible Investment (SRI), and the financial performance has comprised a bunch of enterprises that are really ashamed about the acceptance of this precise genre of investment. This performed article would attempt to provide a response to this fundamental question. It is explicit that the extension of SRI impacts the profits of Moroccan labor that is rostered on Casablanca's Stock Exchange. This work endows a reasonable likelihood to evolve the essence of the influence among SRI and the return in an illustrated and obvious methodology. The methodology utilized here is the E. F. Fama, and K.R. French [6] [7] [8] [9] [21] in their articles on the conventional equities between 1992 and 1993. Initially, both authors address the distinction of the Moroccan stocks qualified responsible; then, they re-name the results, that previously launched academic studies, related to the ethics investment on corporate yields. Also, they demonstrate the approaches utilized in their remedies, and the outcomes they have obtained. The research has fruitfully represented that the four-factor model (whereas the fourth variable of SRI was added to the original Fama & French) illustrates the performance. In return, it has been discovered that Social responsibility has a beneficial contribution with less effectiveness for large

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companies rather than small ones.

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1. INTRODUCTION

The discussion on ethics and economic has existed since the Greek age. The dichotomy between the two spheres has begotten numerous variations in the philosophical situations. For Aristotle, economy opposes the virtue. According to the same author, the economy ought to function in such a way to ensure the well-being of the community, and prohibiting the accumulation of resources without the purpose of re-diffusing them; however, the political economy or the "Crematism" boosts the enrichment, which possesses the crucial objective of comprising the wealth by determining that "Homo-Economicus" is a rational organism who seeks to uphold the profits.

Aristotle's philosophy will find out an indelible echo in Christianity and Islam afterward, which bestows the rise to the spiritual movements that later on, would breed the first ethics that currently share the same figures.

From the Quakers, the congregations of Protestants in France and the USA, who prohibited slavery for religious causes, to the "Pioneer Fund" which erases any "sin stock", or sinful investment such as tobacco, gambling, weapons, and whatsoever. Until the moment when these practices were inserted in today's responsible corporates.

SRI has been subject to a bunch of academic explorations, which experiences the impact of SRI on returns, but the outcomes are very overlapped, and there are dispute views on this particular point.

Since Markowitz's [11] [19] pioneer labor that fenced the ethical disciplines to make more profits, the research has pursued to sprout, attempting to analyze this connection in different ways and sides.

The period between 1972 and 2019 generated several studies with various and paradoxical findings. They shove among opinions that defend positive relationships between SRI, financial performance,

and others that have detected negative relationships. From the modern Portfolio Theory of Markowitz [11] [19], SRI curbs the investment opportunities and allows for less differentiation capacity due to the selection problems it causes. In the same orientation, Milton Friedman [12] in “Capitalism and Freedom” (1962) criticizes SRI. According to them, there is no compatibility between SRI and returns. Friedman [12] utters that taking into consideration social and environmental can orient to additional external costs that have to be internalized and a loss of enterprise. However, the Theory of Clow (1999), shows that SRI, through its selective approach, would cause a sector bias by limiting its field of business, thus increasing its risk while decreasing its profitability. For the “information effect” theory, Kurtz [15] argues that SRI grants further value by the way that extra-financial ratings can be interpreted as reversing a certain govern of the engagements faced by the corporate.

This article will assist to evolve the discussion on the subject and make it boosted by persuading new instructions to better identifying the consequences of SRI on returns of particular corporate equity portfolios. There will be numerous authors who would be detailed later in this article, affirming somehow this methodology influences the essence of the causal relationship between SRI and performance that impacts the outcomes obtained.

Here, the purpose is to analyze the merit of considering an ethic variable on the profitability of shares. What characterizes this labor, apart from the originality of the new context, is the equation utilized based on the Fama-French model [6] [7] [8] [9] [21] but adding the fourth parameter of social responsibility. This connotation permits us to make a significant assessment to integrate the SRI factor, i.e., to emerge whether this factor will assist to better perceiving the training of benefits. Secondly, it will be simple to measure the impact of ethics on a company’s returns. According to the literature, few researchers have opted for this method and focused on the study of SRI in Morocco. Last but not least, the most important point, that characterizes this work, is that will allow us to determine the type of causality between socially responsible investment and the firm effect of the size in demonstrating enterprise profitability. Precisely, what if the impact of SRI on the financial performance was conditioned by their capitals.

2. LITERATURE REVIEW AND ASSUMPTION

“The corporate has to make a profit, or it will die, but if you attempt to run a business solely on profit, then it will also die because it will not possess a purpose.” (Henry Ford, 1920).

The citation of Henry FORD appears the importance of adopting a CSR approach in the management of the firm to increase its agility and ensure its sustainability.

These three major themes are covered by social responsibility, lead to talk about the reasons why enterprises find it significant and beneficial for their activities.

First of all, the environmental aspect: the company sights itself as a member of a community which must prompt the entourage, by supervising its consumption and spending of energy that boosts its image in the society.

Secondly, the social aspect: by ameliorating the work conditions and utilizing a participatory management model, then the corporate will gain the supply of all its stakeholders.

Thirdly, the governance aspect: adopting a particular culture of dialogue and transparency that enables the enterprise to make the right accords. Also, it is the way to set the rules for optimizing resources. So, the concept of CSR (Corporate Social Responsibility) has become a crest that identifies all companies that embody the moral and sustainable evolvement values in their economic behaviors. This will grant to the rise of social rating agencies, whose mission is to assess the level to which these firms subscribe to Social, Environmental, and Governmental (ESG) standards. SRI will gradually change from an exclusive to an inclusive approach that ranks the funds according to their adherence to ESG practices, “Best-in-class.”

Over time, SRI will take different shapes and being reversed in several aspects. Shareholder engagement, solidarity, or perpetual finance, all these concepts oscillate between agility and economics which is durable of the company. On the second hand, these shapes respond to the environmental or social concerns and incorporate stakeholders in decision-making.

In this likelihood, SRI is observed as a direct derivative of the congregation of CSR and SD. Apparently, SRI is the integration of responsibility into the business markets, therefore the term of SRI portfolio. There is no consensus on a precise and explicit meaning of SRI “SRI suffers from

true conceptual confusion” (Zaouati) [25]. Since then, some authors include SRI in any type of social aspect (community investment, positive and negative ratings). Others exclude any of these activities. The most academic definition of SRI is that of Renneboog and al. [22]. “SRI is a financial asset that needs investment filters to select or reject funds based on ecological, corporate governance or ethical criteria, and which also engages in local society and shareholder activism.” It could be uttered that any management operation that is influenced by social or environmental considerations is an SRI. It is a voluntary commitment by a particular company to insert extra-financial objectives into its purpose in order to handle the requirements and pressures of its context. These labors on this subject have really developed since the early 1990s. This has allowed the performance of SRI to be compared with conventional investments. We will represent the most significant research as the experimental methods applied, and the essential measurement factors were selected.

In 2003, Margolis and Walsh [18], justify the positive link between returns and SRI. They identified only 08 cases out of 127 which was discovered as a negative correlation between the two dimensions. SRI enables efficient use of assets (resource theory) by governing consumption throughout the development of innovational potential that leads to competitive merit (good management theory). This is the “learning effect,” a long-term horizon would also be a performance factor of SRI (Cummings, Barnett and Salomon) [2] [5]. On the other hand, SRI, according to modern portfolio theory, is unfavorable for the firm due to it generates costs for them, which ought to be supported by the state (Brammer, Dupré and al.) [3] [26] have attempted to evaluate the effect of ethics scoring on the financial performance of companies. They integrate a social responsibility index in the Fama and French model [6] [7] [8] [9] [21] in 1993. The authors measure the difference in returns between an investment with a good rating and those with poor ones. The outcomes point out, that SRI is less profitable than conventional actions. Renneboog and al. [22] committed the same work, but they have added a supplementary variable to Carhart’s [4] equation: a fifth SRI factor. They found that the impact of SRI on the risk of stocks is not very limited. On the other hand, companies that do not take such interest into consideration are just

subject to explicit costs. Penalties and atrocious reputation (Laperche and Uzunidis) [16], or the risks of bankruptcy and withdrawal of capital by investors are examples of these costs.

Maryland (2013) evaluated the effect of SRI on financial performance utilizing the experimental methodology. They acknowledged that the more the social attitude of the firm, the more it receives an additional bonus; moreover, the fact that the business is not involved in any influence on its yields. Thus, Xiao and all [24] assessed the impact of a durability index of enterprise by integrating an ethical factor in the model of Fama and French [6] [7] [8] [9] [21]. The authors attempt to measure the difference in weighted returns between portfolios with a good rating and those with a poor note, and the results show that the benefits of SRI resemble those of conventional equities. For Girerd-Potin and all [10] [26], they used the score from the Vigeo reports between 2003 and 2010 to express the CSR dimensions of companies. These are the “commercial actors,” i.e., employees, customers, and suppliers, the “social actors” mentioned by the environmental and social, and the “financial actors,” i.e., shareholders and creditors. The authors integrated the three dimensions into the Fama and French model [6] [7] [8] [9] [21] after determined the profitability gap for all dimensions, and the results show that an additional risk premium is required by investors to have an action with a low CSR rating. On the capital, providers opt for small SRI instead of big conventional capital. They also confess that socially responsible stocks are immune from financial underperformance in the event of SRI risk because they have good assimilation of ethical firm opportunities. In 2015 Adeneye and Ahmed [01] [13], labored on 500 corporates in the UK. The authors attempted to determine the essence of the correlation at the fore between SRI and the MBV index, on the other hand, between CSR and the effect of the enterprise dimension. They observed that there is a plausible link between the MBV and SRI but a neutral impact between social funds and size. Conversely, Platonova, and all [20] concluded that SRI outperform conventional action in terms of returns when they calculated the CSR of 24 Islamic banks paired to irresponsible investment firms using the content analysis. The identical result was obtained by adopting the same methodology by Maqbool and Zameer [17]. In the end, a favorable effect between SRI and the benefits of 28 Indian Financial institutions listed on the Bombay Stock

Exchange, in relation to classic companies matched by Size, Age, and Risk. Schönborn and all [23] also explored an evident impact between CSR calculated by questionnaires that identify the culture of socially responsible business on returns.

It could be sighted from what was stated previously that there is a factual diversity in the results. Consequently, this makes it tough to draw general conclusions about the link between SRI and financial performance, and whether it is a negative or positive SRI performance compared to conventional investment. In effect, an attentive examination of the various works points out that perceived disparities in the conceptual basis subsequently generate diverse SRI performance.

The analysis of the literature affirms that all the theoretical foundations and results could be validated separately according to the different notions (period, sample size, a measure of profitability exploited...). Hence, the lack of consensus observed orients to questions about the choice of the empirical approach applied. Studies imply that certain characteristics of SRI are highlighted as factors influencing the competitiveness of the firms (small/big, risk, or medium/long term...). It can be uttered that this also depends on the methodology used, which causes a bias that distorts the essence of the link between SRI and benefits.

According to literature, the most important variables are enterprise risk, size, and value, as these are the most frequently utilized in research to examine more closely the financial performance of actions.

Fama-French [6] [7] [8] [9] [21] represents the weight, by the BC ratio, which evaluates the investment by its estimated market price. The BC is the cost of all the company's assets which is expressed by the stock market price, so it allows us to distinguish between "blue chips" big caps, and "small caps".

For the value variable, it illustrates the premium performance, at the time linked to the VC/VM and equivalent, to the profits of enterprises with a high VC/VM, minus the returns of firms with a low VC/VM. This ratio is really important because it allows the action to be examined by indicating whether its business is under- or overvalued. That is to say if the book value of the company exceeds its market value or the contrary.

To adapt this scheme to the problematic, the fourth factor of SRI is integrated to see if it provides more information on the creation of the returns of the security.

In other words, the model will test if the SRI is significant in explaining returns or not.

The first assumption H₁: The Integration of the SRI provides more interpretation for the formation of yields on equity portfolios.

Two types of investment are the subject of this study: SRI and conventional investment. According to the literature, SRI creates additional prices, that have to be borne, and narrows the enterprise's investment range, because it limits them to well-defined sectors. SRI has a cost for financiers in the short and the long term, SRI permits the company to evolve in its context where various actors with different requirements and needs coexist. Thus, the more firm is concerned with its environment, then it becomes competitive and less risky. This allows generating value in a large period. The hypothesis here is that SRI has a favorable impact on the performance of companies over the long term...

The second assumption H₂: The SRI has a positive influence on the benefits in the long term. On the other hand, SRI is expensive for fundholders in a short duration, as it requires additional spending. So, it can be postulated that the greater the size of the SRI is, the greater the price of SRI, and the more the effect of this cost on financial performance are. The third hypothesis assumes that the degree of involvement of firms in social responsibility is conditioned by their weight, which has either a positive or negative impact on profitability.

The third assumption H₃: The Impact of SRI on companies' returns is submitted by their size.

3. METHODOLOGY

For Socially Responsible Investment factor, it will be of a Boolean nature, i.e., it only gets two values, either "yes" or "no." (Labreuche) [14], sees that a Boolean is "a qualitative variable that can only take two modalities, often coded 1 or 0."

The term of this study is spread over a period of 9 years, between 2011 and 2019, for a total

of 108 observations. The choice of this duration is intended to overcome the negative effects of the 2008 financial crisis on companies upstream and the crunch caused by the covid19 pandemic downstream.

The collection of data for the construction of the factors included in the econometric model was carried out cautiously from official sources. These are secondary data which are already produced by organizations in the form of reports and archives, ... (Baumard and al., 2012.) for the SRI ratio, the list of firms qualified as socially responsible and the labeling period is procured from the homepage of the CGEM.

The necessary information for the elaboration of the other variables is obtained from several official sites. Bank Al Maghreb (BAM)¹, the Exchange of Casablanca², the Moroccan Capital Markets Authority (AMMC)³, and the websites of the different companies in the sample.

Construction of model.

Two multifactorial models are used to test the hypotheses. The first is conceived by Fama-French [6] [7] [8] [9] [21], namely.

$$R_i - R_f = \alpha_i + \beta_i(R_m - R_f) + \gamma_i \text{SMB} + \delta_i \text{HML} \quad (1)$$

For the second model, it is an extension of the first one of Fama-French [6] [7] [8] [9] [21] [52], where it integrated a fourth variable called SRI, which verifies whether the investment is socially responsible or irresponsible.

$$R_i - R_f = \alpha'_i + \beta'_i(R_m - R_f) + \gamma'_i \text{SMB} + \delta'_i \text{HML} + \theta_i \text{SRI} \quad (2)$$

With:

- ❖ **R_i**: Investment return (i);
- ❖ **R_f**: Risk-free rate;
- ❖ **R_m**: Market profitability ;
- ❖ **SMB**: Size factor Small-Medium-Big;
- ❖ **HML**: Value factor High-Minus-Low;

¹www.bkam.ma

²www.Casablanca-bourse.com

³www.ammc.ma

- ❖ **SRI**: Social responsibility factor;
- ❖ $\alpha', \beta', \gamma', \delta', \theta_i$: model coefficients.

The equations (1) and (2) try to clarify the excessive return of a portfolio compared to the market risk premium and other aggregate information in the form of the ratios discussed below.

After collecting the data, different portfolios are constructed to have the four explanatory factors of the models. as a result, 10 portfolios are found:

- ❖ S/L (Small and Low): includes all companies with small size and value;
- ❖ S/M (Small and medium): is comprised of all firms with small size and with medium value;
- ❖ S/H (Small and High): composed of all companies with small weight and high value;
- ❖ B/L (Big and Low): Made up of all enterprises with big size and low value;
- ❖ B/M (Big and Medium): constituted of all high firms in weight and with medium value;
- ❖ B/H (Big High): Made up of all actions with big size and with high value;
- ❖ S/N (Small and Not involved): includes all small companies socially irresponsible;
- ❖ S/I (Small and Involved): composed by all SRI with small size;
- ❖ B/N (Big and Not involved): Constituted by all big companies socially irresponsible,
- ❖ B/I (Big and Involved): formed by all SRI with big size.

After building the various wallets, the average return is calculated for each portfolio over the entire period from 2011 to 2019. The measure of these returns will namely help construct the factors.

The market risk premium ($R_m - R_f$): Got by the difference between the market return and the risk-free return. The MASI (Moroccan All Shares Index) is taken as market index, since it captures all the shares listed on the Casablanca Stock Exchange. For the risk-free return, government bonds or Treasury Bills are considered with an average maturity of 52 weeks. This choice is justified firstly by the availability of data as well as the better performance obtained compared to other returns.

For the calculation of the return in R_i

$$R_i = \frac{P_i - P_{i-1}}{P_{i-1}} + \text{div} \quad (3)$$

With:

- ❖ R_i : Investment return (i);
- ❖ P_i : Portfolio (i) ;
- ❖ **div**: Dividend.

SMB (Small-Medium-Big): it is the size risk factor. Market Capitalization (MC) is chosen to indicate size to indicate size. It is obtained by multiplying the share value by the number of shares. So, SMB is equal to the difference in profitability between small-cap and big-cap stocks.

$$SMB = \frac{SL + SM + SH}{3} - \frac{BL + BM + BH}{3} \quad (4)$$

HML (High- Medium-Low): presents the risk factor related to the share value defined by the ratio (BV/MV). This ratio is calculated by dividing the book value of a firm and its market value. The first value is accounting value. It is obtained by dividing a company's equity capital and the number of actions it holds. Equity expresses the difference between a company's assets and liabilities. The second value is of a financial nature, representing the value of the share on the stock market. HML is equal to the difference in profitability between low and high value stocks.

$$HML = \frac{SH+BH}{2} - \frac{SL + BL}{2} \quad (5)$$

SRI-Socially Responsible Investing (Involved—Not Involved): is a Boolean factor that returns “involved” if the investment qualifies as responsible, and “not involved” if it is a conventional stock. So, SRI is the difference in profitability between socially and classic investments.

$$SRI = \frac{SI+BI}{2} - \frac{SN + BN}{2} \quad (6)$$

The two models are similar in terms of the first three factors that express the return on assets but dissimilar in regard to their number. The second includes in addition to the variables as defined by Fama-French [6] [7] [8] [9] [21], a fourth, related to social responsibility.

In this article, the effect of SRI on the profitability of companies is measured by using a very powerful tool that assesses the risk sensitivity of a stock in an investment strategy.

Fama-French [6] [7] [8] [9] [21] has attempted to express the performance of a firm with a maximum of financial and accounting information. The purpose is correctly estimating the return

by the risk premium, book to market value (BVM) ratio, and the market capitalization (MC). Fama-French model [6] [7] [8] [9] [21] overcomes the weaknesses of the CAPM by calculating the enterprise's residual risk, and the systematic risk that affects other businesses in the economy. In this vision, SRI is presented as a consideration of CSR in markets, that is to say, SRI is nothing more but a composition of financial securities of SRI. The strong connection between SRI and CSR legitimizes the choice for the General Confederation of Enterprises (CGEM) CSR label to differentiate between SRI and conventional investments. In order to have a more credible qualification of socially responsible companies, this work was based on the reports of the CGEM, which is an official body recognized by all the players in the Moroccan economy. The preference of the CSR etiquette of the CGEM also draws its interest from its quality, as it is the result of a credible audit which is given the international reputation of Vigeo-Eiris as an extra-financial rating agency.

Vigeo-Eiris Morocco labels companies in terms of Social Responsibility on several aspects, including:

- ❖ Employment terms, working conditions, and professional relationships;
- ❖ The preservation of the environment;
- ❖ Commitment to the community;
- ❖ The promotion of social responsibility of suppliers and subcontractors;
- ❖ Respect for human rights;
- ❖ Healthy competition;
- ❖ Prevention of corruption;
- ❖ Transparent corporate governance;
- ❖ Respect for the interests of stakeholders (customers and consumers).

The sample includes 59 firms quoted on the Casablanca Stock Exchange (see table1). The choice of the listing is necessary for us given the availability of reliable financial data published annually.

MOHAMMED ALAMI CHENTOUFI, TAREK ZARI

INVOLYS	NI	NI	NI	NI	INV	INV	INV	INV	INV
ITISSALAT AL-MAGHRIB	INV	INV	INV	INV	INV	INV	INV	INV	INV
LABEL VIE	NI	NI	NI	NI	NI	NI	NI	NI	NI
LAFARGE HOLSIME	INV	INV	INV	INV	INV	INV	INV	INV	INV
LESIEUR CRISTAL	NI	NI	INV	INV	NI	NI	INV	NI	INV
LYDEC	INV	INV	INV	INV	INV	INV	INV	INV	INV
M2M GROUP	NI	NI	NI	NI	NI	NI	NI	NI	NI
MAGHREB BAIL	NI	NI	NI	NI	NI	NI	NI	NI	NI
MAGHREB OXYGEN	NI	NI	NI	NI	NI	INV	INV	INV	NI
MANAGEM	INV	INV	INV	INV	INV	INV	INV	INV	INV
MED PAPER	NI	NI	NI	NI	NI	NI	NI	NI	NI
MICRODATA	NI	NI	NI	NI	NI	NI	NI	NI	NI
MINIERE TOUISST	NI	NI	NI	NI	NI	NI	NI	NI	NI
NEXANS MAROC	NI	NI	NI	NI	NI	NI	NI	NI	NI
OULMES	NI	NI	NI	NI	NI	NI	INV	INV	NI
PROMOPHARM	NI	NI	NI	NI	NI	NI	NI	NI	NI
REALISATIONS MECANIQUES	NI	NI	NI	NI	NI	NI	NI	NI	NI
REBAB COMPAGY	NI	NI	NI	NI	NI	NI	NI	NI	NI
RISMA	NI	NI	NI	NI	NI	NI	NI	NI	NI
S BOISSON MAROC	NI	NI	INV	INV	INV	INV	INV	INV	INV
SALAFIN	NI	NI	NI	NI	NI	NI	NI	NI	NI
SMI	NI	NI	INV	INV	INV	INV	INV	INV	INV
SNEP	NI	NI	NI	NI	NI	INV	INV	INV	NI
SONASID	NI	NI	NI	NI	NI	NI	NI	NI	INV
SOTHEMA	NI	NI	NI	NI	NI	NI	NI	NI	NI
STOKVIS	INV	INV	INV	INV	NI	NI	NI	NI	NI
TIMAR	NI	NI	NI	NI	NI	NI	NI	NI	NI
UNIMER	NI	NI	NI	NI	NI	NI	NI	NI	NI
WAFI ASSURANCE	NI	NI	NI	NI	NI	NI	INV	INV	INV
ZELLIDJA	NI	NI	NI	NI	NI	NI	NI	NI	NI

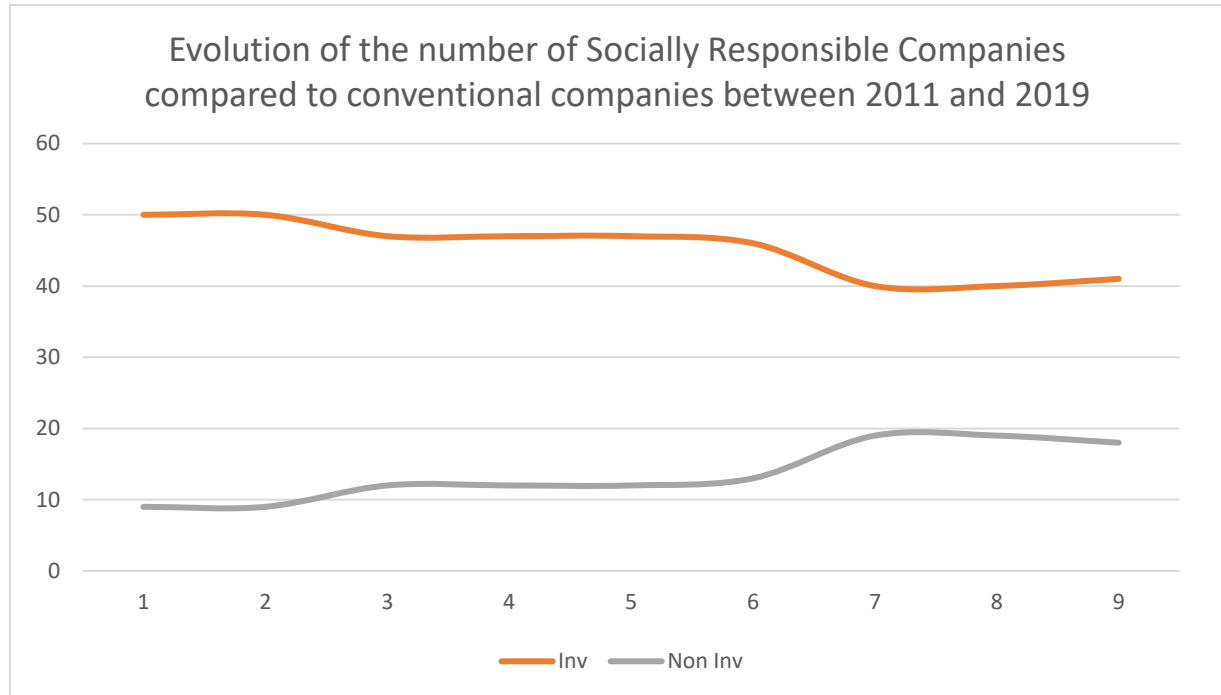
Source: elaborated by us according to Vigeo-Eiris Morocco reports.

NI: No-Involved; **INV:** Involved

THE FINANCIAL PERFORMANCE OF THE INVESTMENT

The graph below points out the evolution of a number of Moroccan companies that opt for socially responsible behavior compared to other conventional

Graph1: Development of ethical enterprises between 2011 and 2019.



Source: self-elaborated according to Vigeo Eiris Morocco reports

The two curves show that there is a positive evolution of socially responsible companies compared to the other conventional ones. The descending number of No-Involved enterprises can be explained by the active and progressive recognition of the importance of ethics in business.

4. DISCUSSION OF RESULTS

In this work, and before running the regression of the Fama-Français model [6] [7] [8] [9] [21], the data of the factors as well as the correlation between them will be examined.

4.1.Descriptive statistics:

Tables 2, 3, and 4, below show the essential descriptive statistics of 4 ratios: $R_m - R_f$, SMB, HML, SRI. These ratios concern the different portfolios: Small and large No-Involved companies (SN/BN), as well as Small and large socially Involved companies (SI/BI).

Table 2: Main values of the descriptive statistics for the 3 factors making up the model.

	Mean	Std Err	Median	Std dev	Var	Kurt	Skew	Range	Min	Max	Sum	N
SN	0.54%	0.0009	0.0050	0.90%	0.0001	-0.9759	-0.0605	0.0349	-1.3%	2.2%	0.5808	108
SI	3.85%	0.0067	0.0396	6.96%	0.0049	-0.8759	0.0778	0.2523	-8.0%	17.2%	4.1617	108
BN	0.72%	0.0006	0.0081	0.67%	0.0000	-1.0105	-0.4210	0.0236	-0.7%	1.7%	0.7801	108
BI	1.63%	0.0009	0.0185	0.89%	0.0001	-1.0280	-0.3663	0.0337	-0.1%	3.2%	1.7589	108

Source: Self-elaborated according to data from the Casablanca Stock Exchange.

In Table 2, the results show that all four portfolios achieve positive returns. The averages Involved ones are significantly more elevated (SI=3.85%, BI=1.63%) than those of the uncommitted wallet (SN=0.54%, BN=0.72%), which leads us to say that they reach a higher benefit. On the other hand, the non-Involved firms have a lower standard deviation (SN=0.90%, BN=0.67%) compared to the SRI Involved ones (SI=6.96%; BI=0.89%), which means that the returns of the former wallet are less dispersed and are more centrally concentrated.

The distribution of returns for all portfolios is approximately symmetrical as the skewness values are all between -0.5 and 0.5. However, the returns of small socially Involved companies SI are nearly symmetrical to the right, but the returns for the other portfolios are approximately symmetrical to the left.

For the kurtosis, it shows a flattened form (platykurtic) for both BN and BI portfolios. Since its value is slightly below -1, while for the other two portfolios their kurtosis shows an almost normal (mesokurtic) shape since their values are above -1.

Table 3: Main values of the descriptive statistics for the 4 factors making up the model.

	Mean	Std Err	Median	Std dev	Var	Kurt	Skew	Range	Min	Max	Sum	N
R_m-R_f	0.82%	0.0006	0.0080	0.59%	0.0000	-1.1557	0.0365	0.0233	-0.0024	0.0209	0.8895	108
SMB	0.39%	0.0006	0.0059	0.60%	0.0000	-0.8027	-0.5766	0.0231	-0.0092	0.0139	0.4162	108
HML	-1.33%	0.0007	-0.0139	0.68%	0.0000	-0.2815	0.1240	0.0323	-0.0310	0.0013	-1.4385	108
SRI	2.11%	0.0033	0.0247	3.45%	0.0012	-0.8258	-0.0609	0.1229	-0.0347	0.0881	2.2799	108

Source: Self-elaborated according to data from the Casablanca Stock Exchange.

In Table 3, an analysis of the descriptive statistics of the factors making up the model, show that the average market return is positive (0.82%). Similarly, the SMB (0.39%) and SRI factors

THE FINANCIAL PERFORMANCE OF THE INVESTMENT

are clearly outperforming the other factors with an average of (2.11%) which is twice better than the average market return, while HML is unprofitable with a negative average of (-1.33%).

On the other hand, the market return as well as the SMB and HML factors show a similar standard deviation ($\approx 0.6\%$) but largely low when compared with the SRI factor (3.45%). That means the market return and the HML and SMB factors are more concentrated around the average.

The distribution of data for all factors is approximately symmetrical to the left as their skewness values are all between -0.5 and 0. However, the Kurtosis of the market return shows a flat form (“platykurtic”), as its value is slightly below -1, while for the other factors their kurtosis shows an almost normal (“mesokurtic”) form as their values are above -1.

Table 4: The measure of the correlation between the 4 factors that make up the model.

	$R_m - R_f$	SMB	HML	SRI
$R_m - R_f$	1			
SMB	0.54878461	1		
HML	0.19474051	-0.10746834	1	
SRI	0.5565309	0.41498702	0.16927437	1

Source: Self-elaborated according to data from the Casablanca Stock Exchange.

Table 4 shows the relationship between market performance and other factors in the model. The highest positive correlation is recorded between the market return and SRI (0.56). The SME size factor positively affects the market return with a correlation of 0.55. The SME size factor positively affects the market return with a correlation of 0.55. On the other hand, there is a weak correlation between the HML’s enterprise value factor and market return.

4.2. Regression analysis and hypothesis testing.

The two table below tables below present the regression of the two models, namely the classic Fama-French model [6] [7] [8] [9] [21] and our Fama-French model to which we added the fourth SRI factor.

Table 5: Three Factors Regression Model.

Three Factors Regression Model											
				Coefficients				P-value			
PF	n	R ²	Adj R ²	Intercept	R _m -R _f	SMB	HML	Intercept	R _m -R _f	SMB	HML
				α	β	γ	δ	α	β	γ	δ
SN	108	65%	64%	-0.0060	1.2973	-0.1005	-0.0825	0%	0%	35%	31%
SI	108	43 %	42 %	-0,0029	5,8571	2,4015	1,2030	85 %	0 %	3 %	13 %
BN	108	52%	51%	-0.0045	0.9577	-0.3210	-0.3775	0%	0%	0%	0%
BI	108	65%	64%	-0.0011	1.4468	-0.6469	-0.5967	48%	0%	0%	0%

Source: Self-elaborated according to data from the Casablanca Stock Exchange.

Table 6: Four-Factor Regression Model.

Four Factors Regression Model													
				Coefficients					P-value				
PF	N	R ²	Adj R ²	Intercept	R _m -R _f	SMB	HML	SRI	Intercept	R _m -R _f	SMB	HML	SRI
				α'	β'	γ'	δ'	θ	α'	β'	γ'	δ'	θ
SN	108	75%	74%	-0.0057	1.5560	0.0110	-0.0278	-0.1025	0%	0%	91%	69%	0%
SI	108	100 %	100 %	-0,0089	1,1665	0,3799	0,2125	1,8580	0 %	0 %	0 %	0 %	0 %
BN	108	80%	79%	-0.0040	1.2760	-0.1838	-0.3103	-0.1261	0%	0%	0%	0%	0%
BI	108	72%	71%	-0.0008	1.6655	-0.5527	-0.5505	-0.0866	55%	0%	0%	0%	0%

Source: Self-elaborated according to data from the Casablanca Stock Exchange.

Tables 5 and 6 present the regressive results of the two models. The first is a three-factor Fama-French [6] [7] [8] [9] [21], that captures only the impact of firm size, expressed by the capital, the market value, and risk premium for returns on the portfolios that have been built. The second one is the four factors, which reverse in addition to the aforesaid variables the effect of the Involvement of socially responsible companies on their returns.

The objective is to compare the results of the two models, their significance, as well as their representativeness, in order to find out whether the introduction of a fourth factor to the initial

model will provide additional information and better explain performance.

The first overview of the adjusted R^2 value in the two tables confirms that the second four-factor model performs better in explaining portfolio returns than the first three-factor model. The second model explains up to 100% of the portfolio's profitability. This is the case for the SI (Small/Involved) portfolio. It includes small socially responsible companies, and 72% minimum for the BI (Big/Involved) portfolio, which includes big socially responsible investments. The case is not the same for the first model with three factors. That explains only 65% of the profitability for the SN portfolio of small conventional companies and the BI portfolio, created of big Socially Responsible Investments. Another relevant information to be extracted from the two tables are that the p-value for the SRI factor is significant for all portfolios (0%). However, the importance of the other factors varies according to the nature of the portfolio. For the SN portfolio (small companies not Involved), the two factors SMB and HML are in fact insignificant. This suggests that size and market value do not fully explain the formation of the financial performance of small firms that are not socially involved.

From the above, it is clear that the inclusion of the fourth factor of social responsibility in the Fama-French model [6] [7] [8] [9] [21] provides greater clarity on the development of the profitability of stock portfolios. The model provides more meaningful information that explains the profitability of Moroccan firms. So, for all portfolios, the inclusion of the social responsibility factor is very significant and instructive. This confirms the first hypothesis.

On the other hand, the data observed in Table 6 show that SRI is a very indispensable factor in measuring the effect of social responsibility on the return creation of stock portfolios, and to measuring firms' financial performance. For the SN portfolio (conventional small firms), the SRI factor has a negative coefficient of -0,1025, while for the SI portfolio (small socially responsible companies) SRI has a positive impact of 1.8580. The same for BN (large companies not involved) a value of 0.1261 and BI (large companies involved) a value of 0.0866. This clearly shows that SRI adds value to the company's result and clearly improves its financial performance.

The results in Table 6 show also that socially responsible investment has a positive impact on

the financial performance of companies but influences the performance of portfolios differently. In other words, the effect of corporate social responsibility on profitability is not the same, which confirms hypothesis H₂.

Other pertinent information is that the impact of socially responsible investment (SRI) varies from one portfolio to another and influences the profitability of shares to a greater or lesser extent. A comparison of the effect of SRI on the portfolio of small socially committed companies (SI) with that of the portfolio of small conventional companies show that SRI has a positive impact on the SI portfolio with a value of 1.8580; whereas for the SN portfolio, the impact is negative with a value of -0.1024. The impact of SRI on both involved and non-involved portfolios is negative for big capitalization portfolios but to a lesser extent. For BI (large socially responsible investments) with a value of -0.0866 compared to BN (large conventional investments) which is -0.1261 (< -0.0866), which clearly shows that SRI has a positive impact on the financial performance of companies.

In fact, this positive impact of the SRI factor on the profitability of responsible companies can be justified by the reduction of risk over the long term. The notoriety effect (the effect of propagating the company's reputation), also, positively affects the perception of the company by stakeholders and subsequently positively affects their financial performance. On the other hand, the negative effect of SRI on the financial performance of conventional companies can be explained by their irresponsible attitude towards stakeholders. This attitude will negatively impact company performance. This explains why it is important for these companies to develop a socially responsible investment strategy or at least limit their irresponsible practices. This can also be explained by the nature of the company's activity, which may be opposed to ethical standards or prohibited by religion, or simply have a negative impact on the environment or society.

In this case, the company's irresponsibility will be misjudged by stakeholders, which will be reflected negatively on its performance. Therefore, the company has an interest in expanding into new sectors and also in adopting new responsible practices.

On the other side, the data suggests opposite results concerning the impact of the SRI factor

on the profitability of small and big socially responsible companies. This result confirms, but conversely, hypothesis 3, that means that the weight of the investment is negatively influenced by the SRI factor. According to Table 6, big Socially Responsible Investments see their profitability decrease monthly by -0.087. This decrease in profitability can be explained by the strong competition that exists between big Socially Responsible Investments. When it comes to big Socially Responsible Investments that are not afraid to invest additional funds in social responsibility, which makes their profitability low even in the long term. The difference in returns between small and large socially responsible investments can be explained by the lack of diversification. Exclusive filtering reduces the choice of investment sectors, especially for large-capitalization companies that need to diversify their investments, which has a negative impact on their financial profitability.

5. CONCLUSION

Taking everything into consideration, this work has allowed us to bring more significant information that explains the financial performance of Moroccan companies. The integration of a fourth factor into the Fama-French model [6] [7] [8] [9] [21] has allowed us to better interpret the performance of the shares. Specifically, socially responsible investment (SRI) has a positive effect on the financial performance of equity portfolios, which is in line with many studies that show a positive correlation between social and financial performance.

On the other hand, the measure of impact for socially responsible companies was made while considering the size effect of the investment. SRI may have a lower impact on the return of the big Portfolio Socially Responsible compared to small Socially Responsible Capitalizations. Investing in social responsibility can reduce the risk but does not necessarily increase the financial return of the company.

For No-Involved companies, it has been found that irresponsible behavior affects negatively their financial returns. SRI is an alternative to be integrated into the strategy of traditional

investments: firstly, to delimit risk, and to copy a new perception in the opinion of stakeholders. That can positively affect the profitability of the company.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interests.

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