

**THE VALUE RELEVANCE OF GRI REPORTS
IN THE PORTUGUESE STOCK MARKET**

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Communication

Abstract

Socially Responsible Investment has grown enormously and the publication of reports has increased in developed economies in recent years. The fact that this type of reporting is on a voluntary basis in several countries raises questions about whether stock markets investors would take these reports into consideration. This study attempts to address this question, drawing on a sample of 46 firms listed on the Portuguese stock market over the 2005-2015 period. To that end, we construct a portfolio selecting the socially responsible firms rated by Global Reporting Initiative (GRI) annual reports and consider the market portfolio as a benchmark. We analyse the risk-adjusted returns and systematic risk sensibilities of these firms applying the classical market model. For robustness, a spanning test is realized. Our results support that the investment in socially responsible firms in the Portuguese stock market leads to higher returns assuming less systematic risk. These results are important for investors as well as academics.

Keywords: Performance, Risk, Socially Responsible Firms.

1. INTRODUCTION

Socially Responsible Investment (SRI) has grown substantially worldwide over the last few years, with Europe taking the lead in this type of investment. Currently, SRI is a visible segment of the international capital markets. It represents 16% of the assets under management in the US, while in Europe and Asia-Pacific the professionally managed assets of SRI portfolios have reached 5.9 trillion euros and 68.7 billion euros respectively (Eurosif, 2014).

In this context, the World Commission on Environment and Development created by the United Nations Organization made a huge contribution in 1987 when it published the report "Our Common Future" which defined the concept of sustainable development. Following the creation of this concept, investors have shown an increasing interest in corporate social responsibility issues and, therefore, it was necessary to develop a new information model for the organizations, as well as adapt the classic financial theory and incorporate the social responsibility factor, leading to the concept of sustainable finance which takes into consideration social and environment aspects when it comes to making decisions regarding investments, and that can be defined as a branch of modern financial theory where the goal is to reach the triple bottom-line: financial, social and environment performance (Fernández et al., 2010; Elkington, 2010).

In this context, the aim of our study is to analyze the stock market performance, in terms of return and risk, of socially responsible firms quoted in Portugal, during ten years, between 2005 and 2015. This period was troubled by Lehman Brother's crisis and we can show how this fact affected the stock market in this peripheric country.

In our study, we applied a methodology based on a portfolio formation approach and then we performed a test for mean-variance spanning in a single-equation model during the

period 2005 to 2015. We also consider three subperiods, before and after de Lehman Brother's crisis and 2011-2015 that corresponds at the Economic Adjustment Program for Portugal, usually referred to as the Bailout program. This program was signed in 2011 by the Portuguese Government and by the European Central Bank and the International Monetary Fund in order to cope with the Portuguese financial crisis.

This paper aims at complementing the existing literature by explicitly studying the performance of Social Responsible Investments in the Portuguese Stock Market.

The paper is structured in six sections. Section two includes a literature review about socially responsible investment. Section three describes the database employed in this study. Section four presents the methodology of this research. Section five describes the empirical results. Finally, section six discusses the main conclusions of this research.

2. LITERATURE REVIEW

Socially responsible investment has been the subject of numerous studies. Most of them has focused on the stock market performance of SRI funds (Statman, 2000; Renneboog *et al.*, 2008; Fernández Sánchez and Luna Sotorrío, 2014, among others) or SRI indexes (Garz *et al.*, 2002; Schröder, 2004 and 2007; Ortas *et al.*, 2014; Miralles-Quirós and Miralles-Quirós, 2017; among others). However, the number of studies that analyse SRI portfolios is reduced.

Initial studies are those of Derwall *et al.* (2005) and Bauer *et al.* (2005) for the US stock market. Derwall *et al.* (2005) analyse investment portfolios during the period 1995 to 2003 using the rating Innovest. The authors applied the four-factor model, similar to Bauer *et al.* (2005), and concluded that the portfolio with higher environmental levels shows a better performance when are compared with the conventional portfolio. Following studies

are those of Kempf and Osthoff (2007), Galema *et al.* (2008), Hong and Kacperczyk (2009) focused on the US market, Hill *et al.* (2007), Humphrey *et al.* (2012) based on a global perspective or Brzezczynski and McIntosh (2014) for the UK market.

In this strand of financial literature, we highlight the work of Miralles-Marcelo *et al.* (2012) who studied the performance of Spanish socially responsible firms employing the GRI criterion during the period 2001-2010. The authors applied a four-factor model and analyse the market risk adjusted return and concluded that in sub-periods of economic recession, socially responsible investments are more secure.

In this field, Miralles-Marcelo *et al.* (2015) analyse the stock market performance, in terms of return and risk, of socially responsible listed firms in ten European countries in a long and troubled period of time, 2001-2013. The authors have considered the annual information provided by the Global Reporting Initiative.

In Portuguese case, only after 2005 there exist a number of firms listed on Euronext Lisbon stock exchange that could be analysed because since this year the firms were obliged to report their accounts according to International Standards of Accounting and International Financial Reporting Standards (IAS-IFRS standard), for this reason the firms can pay attention to CSR practices. Afonso *et al.* (2012) considered nineteen firms listed on the PSI 20 Index during 2005 to 2009, and concluded that firms that had a better social performance are not the ones who had a better economic performance. To measure the economic and financial performance the authors used return on equity (ROE), return on assets (ROA) and return on sales (ROS) and calculated the correlation between them. They concluded that the CSR is correlated positively with ROA and negatively with ROE. In this sense, we consider that our study is pioneer in the socially responsible investment in Portuguese stock market.

3. DATABASE

The database used in this research is composed by two types of information: social responsibility information based on the firms' sustainability reports, and the financial information necessary to analyse their value on the stock market. Following is a description of the two types of information.

3.1. INFORMATION ABOUT SOCIAL RESPONSIBILITY

Recent years have been characterized by a substantial increase in the number of firms worldwide that started publishing sustainability reports (KPMG, 2013). This trend has accelerated the need to provide credibility. As a result, the GRI was created with the aim of helping organisations to provide information about sustainability, as well as to assist stakeholders in interpreting it.

The *Global Reporting Initiative* (GRI) is one of the pioneering organizations in rating socially responsible companies worldwide, creating and publishing since 1999 the annual list of socially responsible companies, as well as their social responsibility rating based on the sustainability reports submitted by the companies. Therefore, every year since 1999, the GRI prepares and publishes a list of international firms that produce sustainability reports in accordance with its globally recognised criteria, which are used in the present study.

Even though there is information available for the years prior to this date, we started the study in 2005 because just after this date there are a significant number of socially responsible firms rated by the GRI. Those firms are listed in Table 1.

Table 1 Listed firms that publish sustainability reports in the period 2005-2015

Sector	Firm
Conglomerates	SONAE Capital
Construction Materials	CIMENTOS de Portugal MOTA ENGIL TEIXEIRA DUARTE
Energy	EDP GALP REN
Financial services	BANCO COMERCIAL PORTUGUÊS BANCO ESPIRITO SANTO
Food and beverage products	SUMOL COMPAL
Forest and paper products	CORTICEIRA AMORIM SONAE INDUSTRIA
Healthcare services	LUZ SAUDE
Logistics	CTT CORREIOS DE PORTUGAL
Real estate	SONAE SIERRA
Technology and Hardware	SONAE COM
Telecommunications	PORTUGAL TELECOM

This criterion has been applied in some studies that highlight the importance of social responsibility, such as Moneva and Ortas (2008) and Miralles-Marcelo *et al.* (2012).

3.2. FINANCIAL INFORMATION

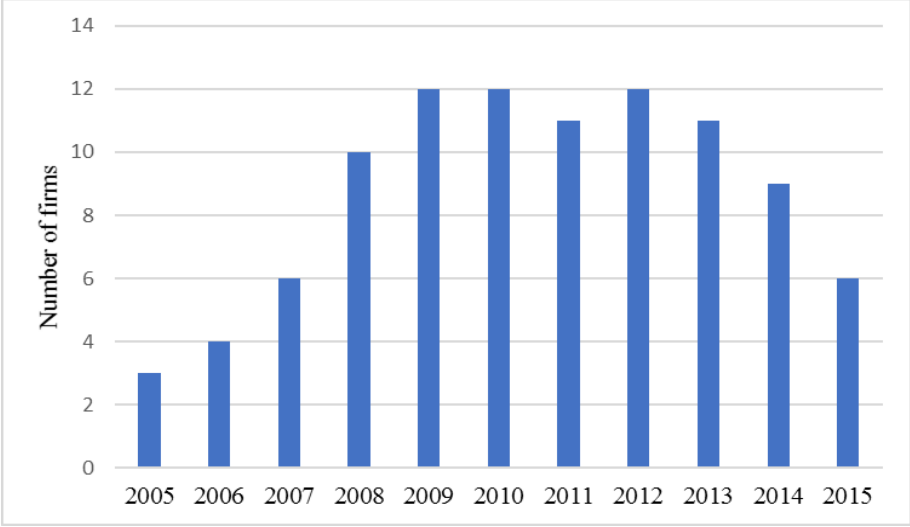
The sample of our study, for the period between January 2005 and December 2015, includes 46 firms listed on the Portuguese stock market, and covers all industries. We started the research in 2005 because that marks an increase in the number of socially responsible firms susceptible to analysis.

The financial information, was taken from the Thomson Reuters DataStream database.

Figure 1 shows the evolution of the number of the firms listed in the Portuguese stock market that elaborated sustainability reports following the GRI guidelines in 2005-2015

years. As we can see, there is a great evolution between 2005 and 2010, but in 2011 as the year when Portugal, hit by a serious economic and financial crisis, was forced to seek outside help. This situation affected the economy and the number of the firms which elaborated a CSR disclosure decrease substantially and in 2015 just six firms do it.

Figure 1 Evolution of the GRI in the Portuguese stock market



A socially responsible portfolio was created with the firms which disclosure and was classified by Global Reporting Initiative (GRI) in each year for the 2005-2015 period. Table 2 presents descriptive statistics about market and socially responsible portfolios monthly returns for Portuguese stock market: average, standard deviation, asymmetry, kurtosis, Jarque-Bera and *p*-value. We can observe that both portfolios present a negative value for the mean, but the value is less negative for the GRI portfolio.

Table 2. Descriptive statistics

	Benchmark	GRI
Mean	-0.735	-0.139
Std dev	5.869	6.665
Skewness	-0.113	-0.541
Kurtosis	3.264	3.840
Jarque-Bera	0.664	10.251***

Figure 2 Cumulative returns for the both portfolios over the period 2005-2016

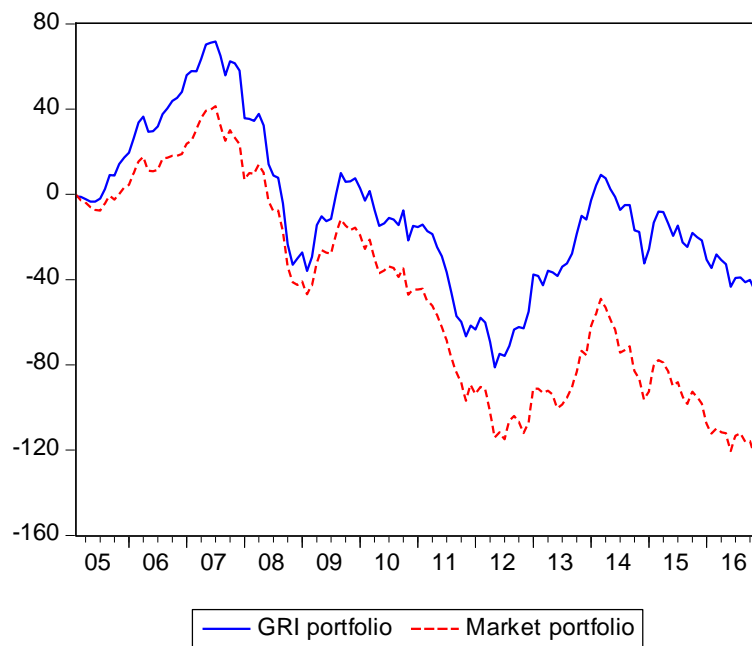


Figure 2 shows the cumulative returns for the market and GRI portfolios, and we can observe what are the recession periods over the period analyzed in this study. In the year 2008 the Lehman Brothers creates a global financial crisis, and all the

markets were affected, but the weaker economies like Portuguese was worst. The Portuguese economy surfed another crisis when the government had to ask for financial help International Monetary Fund (IMF) in 2011.

4. METHODOLOGY

For the portfolio analysis, we assumed the existence of a linear relationship between the return generated by the socially responsible and the market portfolios. The starting point for our analysis is the commonly and classical market model, where the dependent variable is the monthly return on portfolio GRI in month t minus the risk-free rate.

This model is portrayed by the following equation:

$$R_t^{GRI} - R_{ft} = \alpha + \beta(R_t^M - R_{ft}) + \varepsilon_t$$

where

R_t^{GRI} = return of socially responsible portfolio (GRI) in month t

R_{ft} = risk-free rate in time period t

R_t^M = return of the market portfolio (M) in month t .

ε_t = error term of the regression

The present equation is estimated by the least squares method. The intercept of the model, known as Jensen's alpha (α), meaning the excess return of the SR portfolio that is not explained by the portfolio's exposure to the market risk in Portuguese stock market. In this sense, a statistically significant estimate for alpha would imply that the consideration of market risk does not entirely capture the variability in returns. The parameter β called systematic risk of the GRI portfolio, is

used to compare how the variations of the R_t^M affect R_t^{GRI} . Moreover, we analyse the joint hypothesis $H_0: \alpha=0 \wedge \beta=1$ that is called spanning tests (Huberman and Kandel (1987) in order to analyse whether socially responsible firms are an asset class in the Portuguese stock market. This methodology was also applied in the study Miralles-Marcelo *et al.* (2015) who studied the performance of Spanish socially responsible firms employing the GRI criterion during the period 2001-2010.

5. EMPIRICAL RESULTS

As we exposed in the methodology section, we estimate the classical market model. More precisely, Table 3 summarizes the results and presents the market model estimates for the socially responsible portfolio constructed following the GRI criterion in different sample periods.

TABLE 3. Mean-variance Spanning tests results for GRI portfolio

	$H_0: \alpha=0$	$H_0: \beta=1$	$H_0: \alpha=0 \wedge \beta=1$	R^2
01/2005-12/2015	0.627***	1.071***	0.071**	0.887
01/2005-09/2008	0.345	1.197***	0.197**	0.905
10/2008-12/2015	0.763***	1.033***	0.03**	0.886
01/2011-12/2015	0.738***	0.953***	0.04***	0.859
N° Observ	132			

This table present the results of the mean-variance spanning tests performed for GRI portfolio over the sample period 2005-2015. ***, ** and * represent the levels of significance of 1%, 5% and 10% respectively.

As we can see in Table 3, the risk-adjusted return, measured by the alpha coefficient, obtains a significantly positive risk-adjusted return in the Portuguese stock market in the whole period 2005-2015 and in the subperiods 2008-2015 and 2011-2015.

However, the GRI portfolio is not significantly different from zero for the subperiod before 2008. Moreover, in the third column we can see the beta coefficients and we concluded that the social responsible portfolio is significantly riskier than the market portfolio. However, in the subperiod of Economic Adjustment Program for Portugal the socially responsible investment is less risky than the market portfolio, and we can conclude that socially responsible investments are more secure when compared with others subperiods. Finally, we provide evidence that socially responsible firms are an asset class in the Portuguese stock market, as we can observe in fourth column. in the last column.

The results show that the publication of social responsibility reports affects positively the performance of listed firms in Portugal, which are consistent with previous empirical studies.

6. DISCUSSION AND CONCLUSIONS

Investment in socially responsible firms has grown considerably around the world and especially in Europe in recent decades. In this context, and given the influence of the economic policies established by the European Commission over these years, as well as the policies and legislation of each European country, many firms quoted on the European stock markets are inclined to adopt CSR practices. This is the case of Portuguese listed firms. For that reason, the aim of this study has been to provide evidence whether socially responsible firms are an asset class in this European peripheric market.

The present study is relevant because it is a pioneer study of its kind in Portugal. It analyses the performance of social responsibility portfolio of the listed firms in compliance with the GRI. The research considered a long period of time, which was then complemented by a further analysis of the periods of economic expansion and recession.

Our overall results will be informative and enlarge the knowledge of the institutional investors, academics and the managers.

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Annex 1. Sample of listed firms

Name

ALTRI SGPS
BANCO COMR.PORTUGUES 'R'
BANCO BPI
CIMENTOS DE PORTL.SGPS
COFINA
COMPTA
CORTICEIRA AMORIM
CCT CORREIOS DE PORTUGAL
EDP RENOVAVEIS
EDP ENERGIAS DE PORTUGAL
ESTORIL SOL 'B'
F RAMADA INVESTIMENTOS
FUTEBOL CLUBE DO PORTO
GALP ENERGIA GPS
GI.GLB.INTEL.TECHS.SGPS
IBERSOL - SGPS
IMMOBL.CON.GRAO-PARA
IMPRESA SGPS
INAPA
JERONIMO MARTINS
LISGRAFICA
LUZ SAUDE
MARTIFER
MEDIA CAPITAL
MONTEPIO
MOTA ENGIL SGPS
NAVIGATOR COMP
NOS
NOVABASE
OREY ANTUNES
PHAROL SGPS
REDITUS
REN
SAG GEST
SDC INVESTIMENTOS
SEMAPA
SONAE CAPITAL
SONAE INDUSTRIA SGPS
SONAE COM LIMITED DATA
SONAE SGPS
SPORT LISBOA E BENFICA FUTEBOL
SPORTING LIMITED DATA

SUMOL COMPAL
TEIXEIRA DUARTE
TOYOTA CAETANO
VAA VISTA ALEGRE ATLANTI