Market Volatility and Trading Opportunities On Corporate EarningsReports

Abstract

This paper examines the relationship, the market volatility (MV), and the involved trading opportunities between corporate social responsibility (CSR) and the earnings releases by NASDAQ-100 companies in the USA (quarterly). We consider the interaction between the social performance (for the environment, employment, and community activities) and the financial and trading performance that would be the case for an accumulated functionality in earnings releases. In general, social performance returns are negatively related to trading returns; so, the relatively poor financial and market trading reward (return), offered by socially responsible ethical NASDAQ-100 companiestrading the earnings reports, is in accordance to their good social performance regarding employment and environmental aspects. This could be changed if these ethical ETFs were incorporated into their arsenal of trading tools several CSR.mv functions (trading utilities) are discussed in this article. Impressively, we find also that considerable bizarre returns are obtained by funds, holding a portfolio of socially least unethical companies, involved in short-term or intraday speculations. In this domain, the complex relationship between social, financial, and market trading performance, during this particular "psychological time" (quarterly earnings releases), offers indeed excellent trading opportunities.

Keywords: *corporate social responsibility, earnings releases, ethical investing, market volatility*

JEL Classifications:*G10, G14, G18, M14, M20*

JEL codes classification: G11; G12; G14; G18; G20; G38; K22; Q15; and R21

1. INTRODUCTION

There are now a large and growing number of *ethical* mutual funds in the US, Canada, Australia, and Europe investing through NASDAQ-100 firms, S&P-500 companies, and ETFs (Note 1). According to the United States Social Investment Forum (US.SIF), over 12% of all ETF, mutual funds, forex, and equity investments are currently managed under Socially Responsible Investment (SRI) guidelines. The concept of SRI is related to *Corporate Social Responsibility* (CSR) (Note 2), and the former often involves a fund or institutions following "*ethical rules*" and implementing "*socially responsible functionalities*" to obey the US.SIF guidelines to ensure that it does not invest in ETFs, mutual funds, and companies that have bad or poor performance in the latter. On the other hand, the earnings reports, released during the first month of each quarter (US data), is well known to create great market volatility which fuel the momentum in equities, options, futures, and Forex markets offering great trading opportunities (Basdekidou & Styliadou 2017a, 2017b, 2017c).

The earnings release timing could be characterized as a Jesse Livermore's "*psychological time*" in

trading (Mercer 2016). For more discussion about the "*psychological time*" please see Livermore (1940/2001) and Lefèvre (1923/2010). Finally, many NASDAQ-100, S&P-500, large ETFs, mutual and pension funds, institutions, and swing traders now include "*ethical CSR criteria*" in their stock and ETF selection search engines; and recently there are some evidence that contemporary market analysts tend to produce portfolio research based on SRI ethical issues as well (Note 3).

In this domain, this article introduces the concept "*CSR market trading volatility, CSR.mtv*" to describe the *ethical* criteria and trading functionalities, as a psychological timing function, for corporate conscience responsible trading of volatile situations like the earnings release reports.

1.1 Problem Introduction

A great number of research reports and papers on CSR have been published in recent years, but it is not clear and well-documented whether an investment in socially responsible stocks, ETFs, or mutual funds is advantageous to profits (returns). From a theoretical point of view, arguments associated with the *Efficient Markets Hypothesis* (Note 4) would suggest the merit, quality, and integrity of the SRI investments. On the other hand, from a different perspective (speculative traders) the demerits, the worthlessness, and the disadvantages of the socially responsible *ethical*firms, companies, and ETFs are obvious in intraday and short-term trading (Basdekidou, 2021, 2019, 2017).

We consider that, at the *firm level*, under some assumptions concerning the existence of markets and well-defined property and ethical rights; product recognition (marketing), brand awareness, stability and serenity should be achieved after investments in socially responsible activities although the marginal profitability would be zero. Also, at the *financial portfolio level*, by selling out and isolating stocks, industries, sectors, or even whole countries, on ethical and social responsibility matters, will reduce portfolio functionality, variety, diversification, and efficiency (Basdekidou & Papapanagos, 2023, 2024a).

So, a good practice is to maintain a portfolio with a well-diversified spread of assets, some of them with social consciences (moral sense), i.e. the ethical part of the portfolio (long-term investment); while the remaining assets of the portfolio would be leveraged non-ethical non-morally right firms, companies, or ETFs, ideal for intraday trading market volatile situations like the earnings reports releases (Basdekidou & Papapanagos, 2024b, 2024c).

So, an equity (firm or company) or an ETF with well-organized corporate social responsibility activities should enjoy ethical brand awareness and enhanced returns (profit); relative examples are outlined in Tables 2, 3, 5, and 6 (Section 4). Hence, the point (desideratum) for a strategy for increasing efficiency is to improve the firm's operating performance and ETF's trading plan, which improvements may feed through the "*psychological time*" and the "*CSR.mtv*" trading parameters and activities respectively ((Basdekidou & Papapanagos, 2023, 2024d).

We believe that it is possible to give the reason for a positive, operative, and functioning relationship between social, financial, and trading performances, particularly in NASDAQ-100 firms, S&P-500 companies, and leveraged ETFs; and actually, this is the case and the target of this article.

1.2 Literature Review

The European Union promotes a pan-European framework for CSR as: "*a concept whereby companies integrate social and environmental concerns in their business plans and operations, as well as in their interaction with stakeholders voluntarily*" (European Commission, 2024). In this domain, it is important to recognize that the Corporate Socially Responsible Performance (CSR.P) concept is a multi-dimensional function; hence paying attention to the wrong aspect it may result in inaccurate and incorporated conclusions (Joshi et al., 2024; Raghavendra& Ganapathy, 2024; Styliadou, 2018a; Styliadou, 2018b).

Having a socially responsible corporate conscience (moral sense), it may enhance an ETF's or firm's profitability by helping to satisfy its stakeholders (institutions, swing traders, intraday speculators, employees, altruistic shareholders, consumers, government, etc.) (Osakwe&Amalachukwu, 2017; Basdekidou& Papapanagos, 2023). Brammer, Brooks, and Pavelin (2006) show that a strong CSR.P may enhance or damage an ETF's reputation depending upon how important that particular type of activity is to the stakeholders (Hovakimian& Hu, 2016) and institutional investors as well (Edelen, Ince, & Kadlec, 2015; Chen, Harford, & Li, 2007).

An ETF's level of corporate social responsibility may be measured along many different dimensions, including market trading volatility (Bali &Cakici, 2008), asset price volatility (Nickerson, 2016), philanthropic activities (National Philanthropic Trust, 2017), social responsibility and industry (Melo & Garrido-Morgado, 2012), reduction of adverse environmental impacts (Martinuzzi, Kudlak, Faber, & Wiman, 2011), good treatment of employees and equity returns (Yan & Zhang, 2009; Lou, Polk, & Skouras, 2016), temporal trading functionalities (Basdekidou & Styliadou, 2017a, 2017b). According to our knowledge, no single study has yet examined the differential impacts of each of these aspects of CSR and CSR.P on stock and ETF returns in market volatile situations like those at the announcements of the earnings reports (Styliadou & Williamson, 2018; Styliadou, 2018c).

Another three CSR dimensions related to market trading volatility are the market timing, the market dynamics, and the leveraged ETF. For market timing context and functionality, the Hovakimian and Hu (2016) and the Cesari et al. (2012) articles are great reference texts. Market dynamics (returns, functionalities, efficiency, etc.) have been examined in detail by Basdekidou (2018a), while the leveraged ETF intraday trading has been discussed by Basdekidou and Styliadou (2017b).

Although CSR and CSR.P have, traditionally, been associated with big enterprises, firms, and businesses; the SME business Sector (Note 5) is also significant in terms of the economic, environmental, and social impact it makes worldwide (Basdekidou & Papapanagos, 2024a, 2024b, 2024c). So, recently, the attention has been turned to discussion and analysis of functions, principles and practices of CSR and CSR.P in small and medium-sized businesses as well (Kechiche &Soparnot, 2012). Finally, CSR and CSR.mtv are related to the global financial crises (Nguyen & Tran, 2016) and should contribute to the national agenda in emerging economies (Joshi et al., 2024; Chatterjee & Mitra, 2017).

1.3 Paper's Motivation

The current paper aims to contribute to the corporate finance literature by: (i) the introduction, definition, and documentation of the innovative term "*CSR market trading volatility (CSR.mtv)*" as a temporal psychological timing function for corporate conscience responsible leveraged ETF trading in volatile situations like the earnings release reports; (ii) the combination of the binary options with the CSR functions; and (iii) the application of *CSR.mtv* functionalities in volatile markets.

For our research, we back-tested data both at the *firm level* and at the *ETF level*, which we argue is highly desirable, particularly for the 3x leveraged ETFs that perform better in volatile markets (e.g. NFP or earnings release psychological time) (Basdekidou & Styliadou 2017a).

To summarize in brief, this paper states that NASDAQ-100 firms and the S&P-500 companies under management, following strictly a plan with both "*ethical criteria*" in long-term investments and "*trading criteria*" in volatile intraday trading, perform better, consistently, and reliably. This is also the case of the *CSR.mtv* leveraged ETFs, that is to say socially responsible *ethical* ETFs ready as well to exploit market trading volatility.

1.4 Paper's Structure

The rest of this article continues as follows. Section 2 discusses the existing evidence on the relationship between CSR and earning release financial trading performance, while the data and the research methodology are described and examined in Section 3. Following, Section 4 contains the analysis and the relative results. Finally, Section 5 offers some concluding remarks, discussion, and suggestions for further research.

2. CORPORATE SOCIAL RESPONSIBILITY, NFPs & FINANCIAL RETURNS

In this Section, we review the existing evidence concerning the links and functions between CSR, CSR.P, and earnings release market financial performance (Basdekidou, 2017b; Mercer 2016; Ang et al. 2006). Since our concern lies within the emotional effect of social responsibility on institutions, investors, and traders upon whom accounting-based measures have only an indirect impression; we concentrate on the studies concerning equities (NASDAQ-100 firms and S&P-500 companies) and leveraged ETFs trading returns during the earnings release report release *psychological time*(Styliadou & Williamson, 2018; Styliadou, 2018a, 2018c).

The literature that we review consists of two dominant classes: (a) evidence and back-testing data (proofs) at the *firm level*, concerning the assessments of a firm's reputation and its stock performance for SRI and non-SRI firms; and (b) evidence and back-testing data (proofs) at the *ETF-level*, regarding the relationship between social performance and the equities and leveraged ETF's returns (Basdekidou & Styliadou, 2017a, 2017b, 2017c).

In this domain, many articles have investigated the connection between a firm's, company's or ETF's degree of corporate social responsibility and its reputation and respectability. Enhanced corporate social performance may lead to improved returns either directly through the classical "cost reduction" and "productivity improvement" functions, or indirectly through a renovation and upgrade in the firm's or ETF's overall standing and outlook, which makes market analysts and securities advisers more compliant to recommend the particular equity or ETF and the institutions and investors more willing to hold it, regardless of the dividends, profit shares and revenues (*firm-level*) or the NAV and ETF management cost (*ETF-level*) (Basdekidou, 2021, 2019, 2018a, 2018b).

Gail Mercer (2016), a volume analyst and divergences-based trading expert from North Carolina, examines the average movement of indexes, futures, commodities, equities, mutual funds, ETFs, binary options, and Forex pairs for the 2015 year just after the NFP releases (12 NFP reports). Mercer's study considers the NFP "market volatility", as well as payroll/financial remunerations and other issues. Then, immediate price reactions (on NFP announcement) and long-term

*buy-and-hold*abnormal returns are examined in her article. Also, Mercer (2017) discusses the binary options (see Section 4: CSR and Binary Options) as trading opportunities suitable for volatile market conditions (Osakwe&Amalachukwu, 2017).

Several studies examine the relationship between CSR, financial, and trading performances using theoretical rather than empirical models (Brammer, Brooks, &Pavelin 2006). These theoretical models are strongly related to the well-known Merton's (1987) model of capital markets functionality, equilibrium, operation, and segmentation. Also, Angel and Rivoli (1997) consider the issue of SRI from a different perspective and examine the impression and impact of environmental behavior on a firm's costs and equity capital. They argued that socially responsible investors will not invest in companies and ETFs whose environmental policies are questionable, and therefore any demand for the shares of such firms will come only from "neutral" or short-term institutions and investors, i.e. from those who built up portfolios without a social conscience and moral sense. This lack of demand will force up the cost of capital for polluting, corrupt morally, firms and ETFs as opposed to green *ethical* firms, companies, and ETFs (Joshi et al., 2024; Basdekidou, 2021).

Finally, there is no documented analysis of the impact of social responsibility on stock returns at the *firm level*, aside from some initial studies by Derwall et al. (2004). They focus mainly on the environmental aspect of CSR and suggest that firms who can improve their environmental performance can reduce their "betas" (i.e. more risk-free investments), attract socially responsible (mutual) funds, and finally raise their stock prices by up to 4%. Derwall et al. (2004) employ data from the "*Innovest*" rating database having records of "eco-efficiency" performances (environmental issues) for the period 1995-2003. They rank their sample of companies with some eco-efficiency variables and indicators and categorize them into two portfolios (the highest and the lowest *ethical* scoring companies).

3. DATAand RESEARCH METHODOLOGY

For the current paper, the shareholding information, the changes in insider holdings & some sample profit/losses trading data (2007-2024) -used in this paper as the shareholding & profit variables- came from many resources: The Barron's information databases and sources, a Wall Street Journal affiliate (Barron's, 2024); The StockCharts.com initiative; and The Securities & Exchange Commission/SEC notices, releases & announcements. The United States SEC requires that all institutions with a total position greater than $100 million of securities or equities positions greater than 10,000 shares or positions in individual shares greater than $200,000, must report their holdings, using the SEC's Form 13f, quarterly. In this paper, these numbers were used to estimate total corporate holdings and position changes in a sample 4-day period.

The U.S. Ethical Investment Research Service (EIRIS), as a non-profit organization, specializes in the measurement of corporate social performance against an objective set of criteria, principally for use by institutional investors, funds, and traders. The EIRIS surveys firms concerning their social performance as well as their research in CSR matters. As a result, they can provide social performance data and information for firms and ETFs. Also, EIRIS has been engaged in a process of updating its information databases continuously, making the distribution of the information itprovides fairly stable and accurate over time. Each company is examined at least twice annually, and significant pieces of information are added to a company's profile as they happen (real-time knowledge database updating).

Our data were drawn from the EIRIS database in December 2016. The ratings are based on fairly objective, quantifiable criteria (such as the number and size of environmental fines, the proportion of women and disabled persons on firm's/company's/ETF's Board, the net investments in *ethical* research, etc.). Although these data are related to many issues regarding employment, environment, community, human rights, and supply chain management; in this article, we restrict our research to the first three of these CSR issues.

Some previous studies of CSR have investigated both short- and long-term stock returns just after the announcements of new CSR data and activities. However, an examination of the short-run price impact is not feasible in our research since the EIRIS data are updated on a continuous rather than a discrete basis, and therefore there is no event date as such. Hence, we have to focus on long-term stock returns following the cut-off date at which the data were collected.

After obtaining the EIRIS data we examine the returns for various portfolios categorized according to CSR environmental performance as the *key* field in the sorting procedure and thereafter comparing them with the FTSE 100 and FTSE All-Share indexes as benchmarks. The portfolios are all equally weighed (apart from the FTSE benchmarks), and all assume initial investment on 1st January 2000 for a 5-year holding period. This procedure ensures that a reasonable size of portfolio is examined in each case, and that all of the portfolios contain the same number of firms and ETFs to ensure a valid comparison. Next, we run a cross-sectional regression of the stock returns on the composite CSP measure and separately on the three basic indicators (*environment*, *employment*, and *community*). This procedure enables us to separate the effects of the various CSP aspects on returns for more accurate and reliable information.

Also, the current paper identifies long- and short-term corporate investors, traders, and speculators, based on their average "*Earnings release reports turnover*" portfolio, into4 days. The term "*Earnings release reports turnover*" is defined, for this paper, as a measure of stock liquidity; calculated by dividing the total number of shares traded over these 4 days by the average number of shares outstanding for that period). Obviously, the higher the "*Earnings release reports turnover*" number, the more liquid the trading instrument in the last four days (Yan & Zhang, 2009).

The presented analysis is based on 4 days (sample statistics), and the traders involved in trading were sorted into four categories according to their temporal corporate holdings as the percentage of total shares outstanding at the end of each of these two days (Basdekidou, 2016, 2019, 2021). Therefore, in the first category, the institutions ranked in the bottom fourth after having the lowest "*Earnings release reports turnover*" were placed; they are classified as long-term investors (LT investors). In the second category, the institutions ranked in the top fourth after having the highest "*Earnings release reports turnover*" were placed; they are classified as short-term swing-trading traders (ST_1 traders) (Basdekidou, 2019, 2017).

Then, the rest domain is divided into two equal categories (third & fourth categories). In the third category, the short-term momentary traders were placed (ST_2 short-term speculators); and finally, in the forth category, the detected intraday individual or institution speculators were placed (ST_3 intraday speculators) (Basdekidou & Papapanagos, 2024c, 2024d)

The back-tested statistics for the sample earnings release period are presented in the following Table 1, which displays the summary numbers of NASDAQ-100earnings release trading and NASDAQ-100 non-earningsrelease trading from 1st January 2000 to 30thApril 2017 (NASDAQ-100 data were

obtained from SEC). Both categories are referred to as socially responsible ethical NASDAQ-100 firms (equities)(Joshi et al., 2024; Chatterjee & Mitra, 2017).

Where:

Size – The natural logarithm of Sales, instead of the actual sales number, is used; as the appropriate for the irregular price action chart smoothing transformation. In stock market data statistical analysis, the *log(sales)* transformation is preferred instead of other ones like *inverse(sales)* and *(sales)*.

Return - The Stock return is measured over the 4-dayearnings releaseperiod.

Market-to-Book is (total assets − book equity + market equity) / total assets.

LT – The corporate shareholding with a clear Long-term horizon (Investors). Corporate investors' horizon identification is based on their portfolio "security turnover".

ST – The momentary corporate ownership with a clear Short-term horizon (Traders and Speculators). The Short-term traders were divided in three categories: ST_1 are the swing Traders; ST_2 are the short-term speculators; and ST_3 are the intraday speculators.

Continuing Shareholding – This term is referred to corporate investors, as shareowners both at the beginning and at the end of the earnings release period.

Liquidations – This term is referred to ownership cases where old LT investors and ST traders own shares at the beginning of the earnings release period, but liquidate their holdings by the end of this period.

Initiations – This term refers to cases where new LT investors –i.e. owning no shares at the beginning of the earnings release period- establish new positions during this earnings release period and continue their shareholding after this period.

Difference - The difference in *Means* between Earning Release and Non-Earnings Release trading.

Table 1. Socially Responsible EthicalNASDAQ-100 Firms (equities) - Sample Shareholding Statistics

	Earnings Release Trading				Non-Earning Release Trading				Differences
	Obs.	Mean	Median	St. dev.	Obs.	Mean	Median	St. dev.	
A. Shareholding Dynamics Data									
Size	990	4.40	4.54	1.90	40,005	4.60	4.77	2.15	-0.20*
Return	990	0.37	0.38	1.22	40,005	0.26	0.14	0.77	0.11*
Market-to-book	990	2.37	1.89	1.56	40,005	1.70	1.36	1.22	0.67*
Total shareholding									
(1) LT investors	990	8.35	7.92	7.39	40,005	9.40	8.60	9.77	−0.15**
(2) ST_1 traders	990	12.20	11.40	10.44	40,005	10.10	8.11	11.61	2.10**
(3) ST_2 speculators	990	14.77	12.46	12.52	40,005	11.70	8.62	12.38	3.07*
(4) ST_3 speculators	990	16.61	12.13	17.61	40,005	12.60	9.15	13.66	4.01**
B. Shareholding Dynamics Cases									
	Continuing cases				Liquidation cases				Initiation cases

Old LT investors	1,055	25	0
New LT investors	0	0	78
ST_1 traders	350	85	0
ST_2 speculators	0	280	0
ST_3 speculators	0	390	0

* Changes significantly different from zero at 5% level

** Changes significantly different from zero at 1% level

Source: Author's processing of SEC/SDC market data

The result is a statistically unbalanced panel, covering the sample period from January 1st, 2007, to April 30th 2024, with up to 40,995 observations for 50 *ethical*NASDAQ-100firms (equities). The sample period starts from 2000 because from this year the data (shareholding, transaction, etc.) are available in a digital format with a relatively low cost(Joshi et al., 2024; Chatterjee & Mitra, 2017).

While weekly and monthly data could allow better and more accurate association of the shareholding changes; time shorter (daily) data were used in particular for two reasons. Firstly, because they help to understand better the changes in NASDAQ-100 firmsand S&P-500 companies'ownership during the earnings release period; and secondly, they provide flexibility in trading NASDAQ-100 firms, S&P-500 companies, and 3x leveraged or non-leveraged 1x ETFs without serious throwbacks, which usually occur in time longer (e.g. weekly or monthly) data.

4. LEVERAGED ETFs WITH EXPOSURE TO CSR: ANALYSIS & RESULTS

In this Section, the returns of two thematic categories NASDAQ-100 firms, those incorporating CSR (i.e. socially responsible *ethical* firms) and those non-incorporating CSR functionalities (i.e. *unethical* firms), are presented in Tables 2 and 3 respectively. These results show that those NASDAQ-100 firmsincorporated into CSR perform better in the long term, while the other firms perform better for the short period (e.g. first 30 minutes) after the earningsrelease. Also, in all cases, the CSR NASDAQ-100 firms and the S&P-500companies have significantly higher average returns in the long run than the benchmark ones.

Also, investing equally in two GC (Gold) and two CL (American crude oil) non-leveraged 1x ETFs with top employment and clear CSR policy would have yielded a 15% return higher than the relative FTSE benchmark. Even though this precious metals/GC and energy/CL portfolio is clearly very small, and therefore its returns will be subject to some statistical effects; actually, it is clear that the CSP *ethical*non-leveraged 1x ETFs provide positive returns in the long term.

Also, very interesting is that speculative *unethical* (from a social responsibility standpoint of view) 3x leveraged ETFs provide strong trading performances in short-term and intraday market volatile situations like the first 30 minutes or the first 2-hour period from the earnings release. In this case, a portfolio comprising six 3x leveraged ETFs, related to GC and CL instrument categories, yields a mean positive return of about 45% in 2 hoursafter the earnings release, outperforming the benchmarks by 23%.

Obviously, critical to economy report releases like the earnings releases and the NFPs, create great

market volatility (price action/last resistance and directional movement volatility breakouts), which can fuel the securities, options, futures, commodities, and Forex markets (Joshi et al., 2024).

Following, Table 2 summarizes both: (a) the relative average return for the 4 days after the earnings release; and (b) the average return for the whole January 1, 2007 – April 30, 2024 sample time period. For this purpose,several socially responsible (CSR) *ethical*NASDAQ-100 in typical Sectors/industry groups, like Oil & Gas, Health care & Drugs, Information Technology, and Biotechnology is used.

Table 2.*Ethical*CSR NASDAQ-100 firms and Earnings Release Reports: (a) Average return for the 4 days after the earnings release; and (b) Average return for the whole sample period: 2007-2024

NASDAQ-100 *Ethical* CSR firms				
Industry Group	Average return for the 4 days just after the earnings release	(St. Dev.)	Average return for 2007-2024 period	(St. Dev.)
Independent Oil & Gas	10 %	2.14	-22 %	2.71
Oil & Gas Drilling & Exploration	6 %	2.10	-55 %	2.36
Health Care Plans	13 %	2.18	-14 %	2.91
Drugs - Generic	3 %	2.12	5 %	2.26
Electronic Equipment	2 %	2.18	130 %	2.31
Internet Information Provider	3 %	2.24	122 %	2.55
Semiconductors	18 %	2.23	160 %	2.70
Biotechnology	22 %	2.12	-10 %	2.92

Source: Author's processing of SEC/SDC market data

Following, Table 3 summarizes both: (a) the relative average movement for the 4 days after the earnings release; and (b) the return for the whole 2007-2024 sample time. For this purpose,several non-socially responsible (non-CSR) *unethical*NASDAQ-100 firms (equities) in typical industry groups is used.

Table 3.*Non-Ethical*CSR NASDAQ-100 firms and Earnings Release Reports: (a) Average return for the 4 days after the earnings release; and (b) Average return for the whole sample period: 2007-2024

NASDAQ-100 *Non-Ethical*firms				
Industry Group	Average return for the 4 days just after the earnings release	(St. Dev.)	Average return for 2007-2024 period	(St. Dev.)
Independent Oil & Gas	21 %	2.19	-35 %	2.94
Oil & Gas Drilling & Exploration	10 %	2.13	-72 %	2.46
Health Care Plans	21 %	2.43	-19 %	2.98
Drugs - Generic	7 %	2.22	2 %	2.48
Electronic Equipment	14 %	2.24	110 %	2.51
Internet Information Provider	11 %	2.28	102 %	2.59
Semiconductors	42 %	2.43	121 %	2.88
Biotechnology	51 %	2.22	-19 %	3.05

Source: Author's processing of SEC/SDC market data

Comparative Analysis of Tables 2 & 3

A comparative analysis of Tables 2 and 3 shows that the *Ethical* CSR NASDAQ-100 firms perform

better (better investment functionality) in the long run (2007-2024 period), while the *Non-Ethical* NASDAQ-100 firms display better results in the 4 days just after the earnings release (better short-term trading functionality).

4.1 The CSR Market Trading Volatility – CSR.mtv

In this paper, the innovative concept "*CSR market trading volatility, CSR.mtv*" is introduced and it is defined as a socially responsible *ethical* indicator (like the technical indicators, e.g. Directional Movement - DMI/ADX, Relative Strength – RSI, etc.) to describe the *ethical* criteria and the trading functionalities (as psychological timing functions) for corporate conscience responsible trading of volatile situations (like, for instance, the earnings release reports).

Following, Table 4 presents, apart from the earnings release reports, a number of announcements and releases provoking market trading volatility. All these situations incorporate *CSR.mtv* functionality.

Table 4. Company Initiatives, Fed Meetings, Reports & Time-Targets

Fed Meetings, Reports, etc.	Time-Targets (trading)
USD rate hike (cut) trading	Rate hike (cut) announcement & actual time
Day Trading	first/last 5-min in a daily session (09:30-09:35, 15:55-16:00)
Fed/FOMC monetary policy Meetings	Fed/FOMC meetings decision announcement at 02:00 pm EST
Fed/FOMC monetary policy Meetings	Fed/FOMC conferences at 02:30 pm EST
Fed/FOMC monetary policy Meetings	Fed/FOMC meetings minutes announcement at 01:00 pm EST
Fed Members Speeches	at 10:00 am EST; at 01:00 pm EST
Non-Farm Payrolls Reports	first Friday each month at 08:30 am EST
API reports for WTI (USO) inventories	On Tuesdays at 04:30 pm EST
EIA reports for WTI (USO) inventories	On Wednesdays at 10:30 am EST

Source: Author's data

4.2 CSR and Binary Options: Relationship in Financial and Social Performances

In 1970, Milton Friedman famously wrote:

"*There is one and only one social responsibility of business--to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud.*"

While that may seem like an extreme view, Friedman does have a point. As the owners of a firm, shareholders hire managers to act as their agents. When managers focus on profit maximization, they also tend to maximize shareholder wealth. If they choose, shareholders can then donate part of that wealth to social causes that are important to them.

To the extent that managers pursue objectives other than profit maximization, they may reduce shareholders' wealth and effectively substitute shareholders' priorities with their own. Profit

maximization also tends to promote efficiency and accountability. In the pursuit of their self-interest, firms usually allocate scarce resources to their most productive uses. The trouble is that firms do not always bear the full social costs of their actions(Joshi et al., 2024; Chatterjee & Mitra, 2017).

Economists call these phenomena negative externalities. For example, a coal power plant that expels its waste into the atmosphere could increase the prevalence of acid rain and make the surrounding area less desirable to live in, potentially hurting property values. Because the power-generating firm does not directly bear these costs (in the absence of regulation), it may produce more electricity from coal than is socially optimal. Hence, a narrow focus on profit maximization does not always lead to the most efficient social outcome.

There is also an argument that this focus can result in an unfair distribution of resources. Perceptions about fairness are very subjective, but they can have a big impact on a firm's image, and ultimately its profitability. For example, Nike (NKE) faced consumer boycotts in the 1990s for its suppliers' use of sweatshop labor. Even though the suppliers paid market wages in the developing countries where they operated, the conditions those workers toiled in and the compensation they received seemed unfair to many Western consumers, who used their purchasing power to express their discontent.

To lessen these potential problems, many NASDAQ-100 and S&P-500 firms and ETFs have defined their CSR policy, plans, and strategy more broadly than Friedman to include the so-called "*taking responsibility*" for their impact on the environment and social welfare even when there is no a legal requirement to do so. While that is certainly worthy of praise, from a social perspective of view, an expansive CSR may also be consistent with long-term profit maximization.

In getting ahead of environmental and social problems that their operations may create, companies may be able to stave off potentially onerous regulations and reduce political risk. A proactive approach can also reduce the risk of conflicts with non-government organizations and other advocacy groups that can hurt sales and damage the value of a brand. Mindful of this risk, Starbucks (SBUX) developed standards for ethically sourced coffee in partnership with Conservation International in the early 2000s. Under these standards, it now sources most of its coffee from producers with independently verified environmentally friendly practices.

Incorporating binary options in CSR.mtv trading plans has as a result limited risk and reward, as well, on every trade (Mercer 2017). Traders, on the expenses of $100, choose their risk on entry, and at the end, they cannot suffer more loss than they pay on entry. In particular, for the high–volatility earnings release trading ("*psychological time*" at the earnings reports release),*binary options* are ideal tools by limiting risk on trade entry.

Also, traders and speculators can limit their risk, on trading volatile market reports releases, even further by using the more sophisticate *out-of-money* (OTM) and *at-the-money* (ATM) binary options. Comparative analysis shows that, for the volatile market report releases, binary options and *CSR.mtv* temporal functionalities apply better to the following four categories of shareowners:

- Long-term investors ("LT Investors")
- Short-term swing traders ("ST_1 Traders")
- Short-term momentary traders ("ST_2 Speculators")
- Intraday traders ("ST_3 Speculators")

Following Table 5 displays the returns of the CSR/binary options combination in earnings release trading for socially responsible *ethical*NASDAQ-100 and S&P-500 firms (equities). The numbers of NASDAQ-100 (50 firms) and S&P-500 (250 companies)back-tested are somewhat small (covering the twelve (12) US market Sectors: Information Technology, Health care& Drugs, Biotechnology, Gold, Energy, Resources, Basic Industries, General Industrials, Cyclical Consumer, Non-cyclical Consumer, Cyclical Services, and Non-cyclical Services) and predictably increase the statistical standard errors and therefore negatively affect the statistical significance of the interpretations.

It is notable that, surprisingly, there is a very little return difference between these twelve (12) Sectors after applying the CSR.mtv*ethical* indicator in turn.

Table 5. Returns of the CSR/binary options combination (*ethical* NASDAQ-100 and S&P-500)

US Market Sectors	Positive/Negative impacts (Returns) – CSR.mtv*ethical* indicator		
	Environment *CSR.mtv*	Social*CSR.mtv*	Community*CSR.mtv*
Information Technology	-4%	+11%	+3%
Health care & Drugs	-3%	-18%	+4%
Biotechnology	-18%	-8%	+3%
Gold	-22%	-9%	-4%
Energy	-17%	-15%	-4%
Resources	-12%	-16%	-3%
Basic Industries	-5%	+9%	+2%
General Industrials	-7%	+5%	+2%
Cyclical Consumer	-3%	-3%	+3%
Non-cyclical Consumer	-4%	+7%	+4%
Cyclical Services	-6%	-1%	+1%
Non cyclical Services	-4%	+2%	+2%

Source: Author's data

At the 2000-2017 horizon (long-term investment), the environment*CSR.mtv* ethical (indicator) variable negatively affects returns for all these twelve Sectors, although only significantly so for three of them (Gold, Biotechnology, and Energy), while the social(employment) *CSR.mtv* ethical (indicator) variable only negatively and significantly affects returns for the Health care& Drugs, Resources, and the Energy Sectors.

Also, this parameter/variable is positive for the Information Technology, Basic Industries, Non-cyclical Consumer, General Industrials, and Non-cyclical Services Sectors, although never significantly so. Finally, the community*CSR.mtv* ethical (indicator) parameter has a positive impact for 9 of the 12 sectors, but again it is never statistically significant.

On the other hand, in intraday and short-term trading theearnings release*psychological time*by buying the stocks or 3x leveraged ETFs of NASDAQ-100 firms and S&P-500companieswith poor *environment* performances, yields the most striking benefits in the case of the Gold, and Biotechnology Sectors (+45% and +12% respectively); while for these firms and companies buying CSR/binary options equities (firms and companies)and 3x leveraged ETFs with the lowest *social (employment)* performance or the lowest *community* performance, would lead to average returns

of60% and 25% higher respectively than the same equities (firms and companies) and ETFs but without the binary option counterpart.

Also, for the intraday and short-term trading as well, in earnings release*psychological time*, buying the equities (firms and companies) with poor *social (employment)*performances yields the most striking benefits in the case of the Information Technology, Health care& Drugs, and General industrials Sectors; while for these firms and companies buying CSR/binary options firms (equities) with the lowest *environmental* performance and the lowest *community* performance, would lead to average returns 32% and 11% higher respectively than the same equities (firms and companies) and ETFs but without the binary option counterpart.

Following, Table 6uses the data presented in Table 1 and presents in summary the ownership (no.) and the shareholding position (%), as well as the trading results (profit %) for the four categories of traders discussed in this paper. The numbers resulted from the Table 1 sample statistics data (NASDAQ-100). As it was expected, the short-term swing traders (ST_1) got the best returns in earnings release trading, thanks to temporal *CSR.mtv* functionalities (time-based warning dynamics signals and time-based triggering signals) incorporated in their trading plans and strategies.

4.3 The CSR.mtv Functions

An array (arsenal) of *CSR.mtv* functions, incorporated as trading tools in *ethical*NASDAQ-100 firms for volatile markets intraday trading, should be:

(i) The [1-min, timeframe], for the local "least resistance/support" functionalities (please see Livermore (1940/2001) and Lefèvre (1923/2010));

(ii) The [5-min, timeframe],for on-open price action gaps (usually the gap-ups and in some cases and the gap-downs);

(iii) The [13-min, timeframe],for uprising triangles and cups (as bullish price action patterns for the warning dynamics signals);

(iv) The [65-min, timeframe], for time-based pivotal points and pivotal lines breakouts (accompanied by volume sectional increase);

(v) The [4-h, timeframe], for big picture warning dynamics;

(vi) The [Daily, timeframe], for big picture eyeballing; and

(vii) The morning/noon/evening price action breaks (accompanied by volume increase as well for the triggering signals).

In the following Table 6, the presented numbers were calculated as follows:

1,055 = the number of the old LT investors (shareowners)before earnings release time;

1,133 = 1,055 (old LT investors) + 78 (new LT investors, see Table 1);

1,108 = 1,133 – 25 (old LT investors liquidations, see Table 1); and

265 = 350 – 85 (ST_1 Traders, see Table 1).

Table 6. Trade Socially Responsible *Ethical&Non-Ethical* NASDAQ-100 Firms with Binary Options

Ownership (Shareholding Position %)Return / Profit (%)

	Before Earnings	@Earnings	After Earnings	*Ethical*	*Non-Ethical*
Long-term Investors					
(LT Investors)	1,055 (75%)	1,133(53%)	1,108(81%)	0%	+6%
Short-term Swing Traders					
(ST_1 Traders)	350 (25%)	350(16%)	265(19%)	+42%	+33%
Short-term Momentary Traders					
(ST_2 Speculators)	0 (0%)	280 (13%)	0 (0%)	-26%	-22%
Intraday Traders					
(ST_3 Speculators)	0 (0%)	390 (18%)	0 (0%)	-45%	-38%
Total	1,405	2,153	1,373		

Source: Article author's processing of data presented in Table 1.

Table 6 Analysis

As expected, the short-term swing traders (ST_1 traders) got the best returns in earnings release trading in both *ethical* and *non-ethical* NASDAQ-100 firms (+42% and +33% respectively), thanks to temporal *CSR.mtv* functionalities (time-based warning dynamics signals and time-based triggering signals) incorporated in their trading plans and strategies.

Also, the worst returns in earnings release trading have been recorded in intraday trading (intraday traders; ST_3 Speculators) in both Ethical and Non-Ethical NASDAQ-100 firms (-45% and -38% respectively), thanks to emotional functionalities (fear, greed, etc.) involved in such as short-run volatile environments.

Thereturn/profit (%) numbers, presented in Table 5, were calculated afterincorporating all kinds of trading costs (commission, overnight holding, margin, tax).

5. DISCUSSION &CONCLUSIONS

This paper has studied the relationship between corporate social performance and trading performance for NASDAQ-100 firms,S&P-500 companies, and leveraged/non-leveraged ETFs. According to the back-tested data we have used in our research (January 1, 2007 – April 30, 2024) we found that *ethical* firms with higher social performance tend to achieve higher returns in long-term investments but lower returns in short-term trading; while 3x leveraged ETFs with the lowest possible CSR.P, outperform in volatile markets like those markets during theearnings and the NFP employment report releases time. Our findings are compatible and relevant to some equity and ETF analysts and fund managers as well, suggesting that the introduction of *ethical* rules into their trading plans and strategies will enhance their returns and performance (Basdekidou 2017, 2018a, 2018b).

Nowadays, within the internet-based trading era, the earnings report releases offer great temporal trading opportunities not only for the *unethical* short-term and intraday traders and speculators, but as well as and for the CSR firms, companies, and ETFs; who could exploit the market volatility during this Livermore's *psychological time.*

We conclude that, the best way to trade earnings release reports is to incorporate *market trading volatility* (MTV) functionalities and *binary options* in trading plans and strategies, and to use *ethical* 3x leveraged ETF as trading "vehicles" (instruments). Even if an improvement in social performance is rewarded by a share price increase in the short term, in the long run the relationship between social and financial performance may be negative.

Future research in the "*CSR-leveraged ETF*" domain, must be able to spot light on the relative merits of these complementary concepts and may conduct more sophisticated back-tested analysis and studies to examine the temporal time-series context of the impact on its share price after a change in corporate social policy by a respectable firm, company or ethical ETF in order to exploit the *psychological time* and the trading opportunities involved in volatile markets like the quarterly earnings releases or the NFP report releases on the first Friday each month.

We know well that *leverage* is a double-edged sword, with a bigger move down being just as possible as a bigger move up. Data analysis shows that even the overnight position in 3x leveraged ETF is risky. Since they use financial derivatives, leveraged ETFs are inherently riskier than their unleveraged counterparts. According to the established perception, leveraged ETFs are not appropriate for long-term socially responsible investors and retirement *ethical* portfolios trying to maintain a low beta coefficient. Hence, incorporating 3x leveraged ETF temporal trading functionalities in socially responsible ethical portfolios is a challenge introduced in this paper but has to be investigated and documented better in the future.

In the paper's back-tested sample data for the earnings release reports (Tables 5, 6); the long-term investors enjoy no return of their capital. Also, data analysis applied found that short-term swing traders incorporating in their strategies the CSR.mtv functionalities (intraday warning dynamics signals, triggering signal) with binary options are benefit (+42%) at the expense of short-term momentary and intraday speculators.

Obviously, this excellent return (+42%) is risky and uncertain and will be much lower if binary options are incorporated for a more safely earnings release trading. Hence, an *ethical* 3x leveraged ETF armed with *CSR.mtv* functionalities would perform better in long-term investments as a respectable fund, as well as in earnings release intraday and short-term trading (volatile markets).

Paper contributes to corporate finance literature by: (i) the introduction, definition, and documentation of the innovative term "*CSR market trading volatility (CSR.mtv)*" as a (socially responsible) ethical indicator and temporal psychological timing function for corporate conscience responsible trading in volatile situations, like the NASDAQ-100 firms and S&P-500 companies earnings release or the employment NFP release reports; (ii) the combination of the binary options with the CSR functions; and (iii) the application of *CSR.mtv* functionalities in volatile markets (long/short trading on normal session: 09:30 am – 04:00 pm EST, swing & intraday time-based trading strategies, etc.) to securities, leveraged ETF, options, futures, and Forex trading.

CONFLICT OF INTEREST

The author has not declared any conflict of interest.

DISCLOSURE

I have no positions in any stocks mentioned, and no plans to initiate any positions within the next 6 months. I just have positions in the following two NY NASDAQ-100 (^NDX) firms: the Lam Research Corporation – Semiconductor Equipment& Wafer Fabrication space (ticker NDX: LRCX; Fremont CA, www.lamresearch.com); and the NVIDIA corporation – Computer Graphics, PC gaming & GPU computing (ticker NDX: NVDA; Silicon Valley CA, www.nvidia.com).

I wrote this article myself, and it expresses my own opinions. I am not receiving compensation for it. Also, I have no business relationship with any company whose stock is mentioned in this article.

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Appendix :

End-Notes

Note 1.

NASDAQ-100. The NASDAQ-100 (^NDX) is a stock market index made up of 107 equity securities issued by 100 of the largest non-financial companies listed on the NASDAQ. It is a modified capitalization-weighted index. The stocks' weights in the index are based on their market capitalizations, with certain rules capping the influence of the largest components. It is based on exchange, and it is not an index of U.S.-based companies. It does not have any financial companies, since these were put in a separate index. Both of those criteria differentiate it from the Dow Jones Industrial Average, and the exclusion of financial companies distinguishes it from the S&P 500.

S&P-500.The Standard & Poor's 500, often abbreviated as the S&P 500, or just "the S&P", is an American stock market index based on the market capitalizations of 500 large companies having common stock listed on the NYSE or NASDAQ. The S&P 500 index components and their weightings are determined by S&P Dow Jones Indices. It differs from other U.S. stock market indices, such as the Dow Jones Industrial Average (DJIA) or the Nasdaq Composite index (NASDAQ-100, ^NDX), because of its diverse constituency and weighting methodology. It is one of the most commonly followed equity indices, and many consider it one of the best representations of the U.S. stock market, and a bellwether for the U.S. economy. The National Bureau of Economic Research has classified common stocks as a leading indicator of business cycles. The S&P 500 was developed and continued to be maintained by S&P Dow Jones Indices, a joint venture majority-owned by S&P Global. S&P Dow Jones Indices publishes many stock market indices such

as the Dow Jones Industrial Average, S&P MidCap 400, the S&P SmallCap 600, and the S&P Composite 1500. It is a free-float capitalization-weighted index, and has many ticker symbols, such as: ^GSPC, INX, and $SPX.

ETF – *Exchange Traded Fund.* An ETF is a marketable security that tracks an index, a commodity, bond, or a basket of assets like an index fund. Unlike mutual funds, an ETF trades like a common stock on a stock exchange. ETFs experience price changes throughout the day as they are bought and sold. ETFs typically have higher daily liquidity and lower fees than mutual fund shares, making them an attractive alternative for individual investors. Because it trades like a stock, an ETF does not have its *Net Asset Value* (NAV) calculated once at the end of every day like a mutual fund does.

Note 2.

CSR - *Corporate Social Responsibility*. Also called *Corporate Conscience, Corporate Citizenship* or *Responsible Business*, is a form of corporate self-regulation integrated into a business model. CSR policy functions as a self-regulatory mechanism whereby a business monitors and ensures its active compliance with the spirit of the law, ethical standards and national or international norms. Critics questioned the "lofty" and sometimes "unrealistic expectations" in CSR or that CSR is merely window-dressing, or an attempt to pre-empt the role of governments as a watchdog over powerful multinational corporations. Political sociologists became interested in CSR in the context of theories of globalization, neo-liberalism and late capitalism. Some sociologists viewed CSR as a form of capitalist legitimacy and in particular point out that what began as a social movement against uninhibited corporate power was transformed by corporations into a 'business model' and a 'risk management' device, often with questionable results. CSR is titled to aid an organization's mission as well as serve as a guide to what the company represents for its consumers. Business ethics is the part of applied ethics that examines ethical principles and moral or ethical problems that can arise in a business environment. ISO 26000 is the recognized international standard for CSR. Public sector organizations (the United Nations for example) adhere to the triple bottom line (TBL). It is widely accepted that CSR adheres to similar principles, but with no formal act of legislation.

Note 3.

Big Investors & SRI - "*Big investors want SRI research*". Editorial on *Financial Times* Fund Management Supplement, page 1, 18 October 2004, New York.

Note 4.

EMH – *Efficient Market Hypothesis.* The efficient market hypothesis is an investment theory that states it is impossible to "beat the market" because stock market efficiency causes existing share prices to always incorporate and reflect all relevant information. According to the EMH, stocks always trade at their fair value on stock exchanges, making it impossible for investors to either purchase undervalued stocks or sell stocks for inflated prices. As such, it should be impossible to outperform the overall market through expert stock selection or market timing, and the only way an investor can possibly obtain higher returns is by purchasing riskier investments.

Note 5.

SME – *Small and Midsize Enterprises*. Small and midsize enterprises are businesses that maintain revenues, assets or several employees below a certain threshold. Every country and economic

organization has its own definition of what is considered a small and medium-sized enterprise. In the United States, there is no distinct way to identify SMEs, but in the European Union, a small-sized enterprise is a company with fewer than 50 employees, while a medium-sized enterprise is one with fewer than 250 employees.