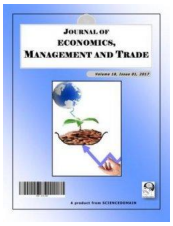

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Corporate Green CSR Trading Management based on a Metadata Analysis

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Author's contribution

The sole author designed, analyzed and interpreted and prepared the manuscript.

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ABSTRACT

The current article is about a new management approach introduced as "*corporate green CSR trading management*", and particularly useful in managing the trading of the green CSR firms as benchmark. The subject is important because now-a-days green companies have grown in popularity in US stock markets and many fund managers include them in trading portfolios. The principal target is to introduce a framework for personalized market strategies when trading CSR firms. So, the concept "*corporate green CSR trading management*" is defined initially as an innovative concept benchmarked a 3-d array and then the dimensions, functionalities, and trading returns of this array are discussed. Article reasons that, in no-way and sidelong markets hedge funds profit from the proposed trading management concept at the expense of long-term investors and swing traders. Similarly in bull/bear markets, short-term traders and institutions profit at the expense of hedge funds. As paper's contribution could be regarded the empirically-tested conclusion that, after the incorporation of the "*corporate green CSR trading management*" in trading management tactics: (i) in sidelong markets trading, hedge fund money accumulates profit entirely with overnight-positions in ethical CSR ETFs; while (ii) in bull/bear markets trading, the profit occurs in day-trading on non-ethical 3x ETF traded mainly by short-term traders and institutions. Finally, the best results in all cases are received by CSR ETFs in no-way and sidelong markets after employing an overnight-position return trading strategy based on the proposed utility.

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1. INTRODUCTION

The principal target of this article is to define a new management approach (rather a new methodology) based on an innovative trading utility derived by the introduced new concept "*corporate green CSR trading management*" [Note 1], and then to discuss the dimensions, functionalities, and trading returns of this concept. As an application domain in this article, a group of fifty-six (56) ethical CSR non-leveraged ETFs [Note 2]; and one (1) leveraged ETF [Note 3] (in particular GASL; a Natural Gas related bull 3x ETF benchmarked the ISE revere natural gas index [1]) were chosen.

For the purposes of this article, firstly the concept "*overnight trading*" is defined as the after-hours trading activity (i.e. 04:00 pm – 09:30 am NY/EST). Similarly, the concept "*day trading*" or "*intra-day trading*" is defined as the in-hours day-time trading activity (i.e. 09:30 am – 04:00 pm NY/EST). In this domain, a number of personalised temporal trading strategies could be derived, like the "*overnight-position return strategy*" and the "*day-trading return strategy*" used in this paper. The results presented in Section 5 show that the proposed management methodology accumulates profit entirely overnight in no-way and sidelong markets for ethical 1x ETFs, while in bull/bear markets the profit occurs mainly in day trading for non-ethical 3x ETFs.

After a backtesting procedure in available 3-year data (2015, 2016, 2017) for the group of the 56 ethical ETFs and the GASL bull 3x leveraged ETF (Natural Gas), it was found that hedge funds in no-way and sidelong markets, profit from the proposed approach at the expense of long-term investors and swing traders according to Leung, Lorig, and Pascucci [2]. On the other hand, in bull/bear markets, short-term traders and institutions profit from the proposed approach at the expense of hedge funds according to Little [3] and Basdekidou [4]. In management and particularly in trading management, apart from the instrument (ETF, ETN, stock, etc.), the leverage mode (1x, 2x, 3x), and the CSR identity, it is important to classify the investors, traders, and speculators themselves. Hence, the following categories are used in a metadata analysis as 1st level metadata: institutions, long-term investors, short-term traders, swing traders, intra-day speculators, and hedge funds.

The rest of the article is organized as follows: In Section 2 ("*The Literature Review*") relative bibliographic references are discussed. In Section 3 ("*The Proposed Approach*") the proposed approach is discussed and analyzed. Following, in Section 4 (*"Corporate Green CSR Trading Management*") the introduced concept is defined and analyzed by using the Livermore's "*Psychological Time*" as parameter and its functionality is documented in "*Emotional Control*" and "*Money Risk Management*" trading dimensions. In Section 5 ("*Backtest Results & Performance Evaluation*") by backtesting available 3-year data for a group of 56 ethical CSR 1x ETFs and the GASL non-ethical 3x ETF, the performance of the proposed trading methodology is empirically estimated and its functionality is demonstrated. Following, in Section 6 ("*Comparative Returns Statistical Analysis*") a comparative return analysis for both ethical and non-ethical ETFs, as they were projected in trending and sideways markets is presented. Finally, in Section 7 ("*Conclusions*") paper's contributions, enhancements and innovations are discussed.

2. THE LITERATURE REVIEW

The market volatility, regardless of its sign and strength (no-way, sidelong, bull, bear), offer always great trading opportunities if a well-defined trading management strategy is followed, as well described by Moskowitz, Ooi, and Pedersen [5]; Malkiel [6]; Lan, Lin, and Lee [7]; Sambe, Tee, and Dagba [8]; Pendaraki [9]; Koutmos [10]; and Basdekidou and Styliadou [11]. Also, the CSR concept has been extensively studied, analyzed and documented by Hemingway [12,13]. Socially responsible ETFs invest in companies that have a strong track record for being socially responsible. Typically, CSR companies included in ETF CSR databases are: Alternative energy companies and firms, and ecologic / biologic organic food markets. Finally, in the CSR-ETF ground, Chen [14] examines the spill-over and the leverage effects of the ETFs included the CSR category, and Basdekidou [4] performed an empirically tested analysis for the CSR concept related to a number of CSR leveraged ETFs.

In market trading volatility literature the so-called temporal trading functionalities (e.g. "Psychological Time") have not been fully documented yet (see Livermore, 1940/2001;

[15]). Hence, understanding the 1-d trading dimensions like "*Psychological Time*", "*Emotional Control*" (i.e. Entry-position tactic), and "*Money Risk Management*" (i.e. Exit-position tactic), is critical for market trading based both on securities evaluation and trading methodologies. In this domain, Livermore [15]; Lefèvre (1923/2010) [16]; Vayanos and Woolley [17]; and Lou et al. [18] deliver remarkable new evidences about overnight-position and day-trading as temporal parameters to the proposed in this paper trading approach. It is notable that, after applying the proposed trading management approach, the displayed profits (returns) in Tables 1-4 are inconsistent with the mainstream trading theories about overnight-position and intra-day trading. So, this anomaly could be well characterized as a new (temporal) market inconsistency not belonging to literature-defined fundamental, technical or time-based ones [3,4,17].

3. THE PROPOSED APPROACH

The proposed approach (as an undocumented methodology) is better described by the following flow-chart (Fig. 1):

The real-world problem:

"*A need for a new management methodology in trading*"

In order to address an empirically-tested approach for facing this problem, the new concept "*corporate green CSR trading management*" is introduced and documented.

Then, the introduced concept is projected in the three classical trading dimensions (i.e. *Psychological Time; Emotional Control*; and *Money Risk Management*) and became a function rich in functionalities.
Then this function is parameterized by the items of an array of trading tactics. The result is a new term named similarly the "*corporate green CSR trading management*" term.

Finally, this new term is parameterized by particular time-frames (usually used by ETF traders and speculators) and the introduced trading utility is defined. For simplicity reasons, this trading utility is named similarly as the "*corporate green CSR trading management*" utility.

An extensive trading-literature review [9,10,11,14] indicates that, in no-way and sidelong markets, "smart money" overnight methodologies (usually applied by hedge funds or the "big brothers" traders), profit from adapted and personalized appropriate time-series temporal momentum trading tactics at the expense of long-term and/or swing trading tactics. Also, in bull/bear markets, intra-day trading methodologies profit from adapted and personalized appropriate time-series temporal momentum trading tactics at the expense of conservative trading tactics, as described by Makridou, Atsalakis, and Zopounidis [19]. Hence, in order to be within the mainstream; in the CSR ETF trading strategies environment and for the purpose of this article, a trading methodology has been introduced for CSR 1x, 2x, 3x ETFs, after estimating empirically, investigating statistically, and document logically both:

a) Whether the hedge funds, in no-way and sidelong markets, profit from the application of the proposed "*corporate green CSR trading management*" concept as a trading approach; and
b) Whether the short-term traders and institutions, in bull/bear markets, profit from the application of the proposed "*corporate green CSR trading management*" concept as a trading approach.

Obviously, the proposed approach needs quality primitive data (for the 1st level metadata structures) for a period of at least 3 years and a dedicated well-documented and trusted backtesting software as well; in order to apply on these primitive data an empirically tested procedure, and then a quality statistical analysis on the derived 2nd level metadata structures (information mining). In this domain, the results does depend on the trading instrument (ETF, ETN, Stock; 1x, 2x, 3x leverage; index-based, sector-based; CSR; etc.) and as a result a personalized functionality always involved as "*volatility*" (i.e. trading instrument), or "*user profile*" (i.e. institutions, long-term investors, swing traders, short-term traders, speculators, and hedge funds).

4. CORPORATE GREEN CSR TRADING MANAGEMENT

The proposed trading approach is discussed and demonstrated through the paradigm of the GASL bull 3x ETF. The GASL 3x bull ETF (Direxion Daily Natural Gas Bull 3x Shares) it is not the name of a common "stock" traded in a stock exchange like the NY Markets; it is actually a trading triple-leveraged "tool" (an artificial "stock")

provided by Direxion (www.DirexionInvestments.com). GASL's target index (operated actually as a benchmark) is the ISE-Revere Natural Gas Index (FUMTR), with the following top holdings: *Anadarko Petroleum, Devon Energy, Concho Resources, Encana, Continental Resources, etc*.

In particular the concept "*corporate green CSR trading management*" is introduced and documented and its derived relative temporal function is defined and analyzed by using the Livermore's "*Psychological Time*" as parameter, and its functionality is documented in "*Emotional Control*" and "*Money Risk Management*" trading dimensions. Livermore [15]; Lefèvre [16]; Basdekidou [4]; and Avellaneda and Zhang [20] discuss trading methodologies. Also, in computational finance theory, leveraged (in particular if it is based on ETFs or ETNs instruments) implied volatility from market dynamics [2,6,12].

The proposed trading approach is defined as a 3-d array of trading functionalities involved in market moves and applied in overnight-position trading and intra-day trading situations for any 3x ETF trading instrument. In this definition, the third (temporal) dimension is always the "*Psychological Time*" at the beginning of a move, while the other dimensions are the "*Emotional Control*" and the "*Money Risk Management*" (Fig. 1). Tables 1-4 in Section 5 demonstrate the trading functionality of the proposed methodology. This functionality is time-based (i.e. a temporal one) because it is hardly dependent on the application timing.

At the center of the introduced "methodology" approach is the concept "*corporate green CSR trading management*" which is defined as a temporal trading term benchmarked a (3-d) array of trading functionalities with three dimensions: (i) Jesse Livermore's *Psychological Time*; (ii) *Emotional Control*; and (iii) *Money Risk Management*. In particular, the first dimension is a user-independent parameter benchmarked a 1-d array of trading utilities, and the other two dimensions ("*Emotional Control*" and "*Money Risk Management*") are user-depended characterized by a high degree of "*trader-dependency*" (Fig. 1).

In the proposed undocumented methodology (approach), the "*corporate green CSR trading management*" concept is operated only as a short-term function parameterized in turn by three (3) popular price action time-frames (e.g. [5-minute], [30-minute], and [2-hour]) and then becoming a term and trading utility. This new trading utility could be documented by time- and profit-targets in trading leveraged assets as follows:

i. Parameterize day-trading trading strategies by specific time- and profit-targets; and open/close long/short positions at a specific time- and profit-target; and
ii. Parameterize swing trend-reversal trading strategies by consolidation price action patterns, resistance and support zones, and price action / technical indicators divergences [3,11,18].

The temporal functionalities (that are or have been) derived from the proposed methodology operate as "*Warning Dynamics*" trading signals, signaling a change in trend from bullish to bearish or vise versa (in shortcut as: w!D signals) when they are related to particular Candlestick Patterns with a personalized metadata-based reliability (e.g. Three Line Strike, Two Black Gapping, Three Black Crows, Abandoned Baby, Evening Star – as bearish reversal pattern confirmation) or Price Action Patterns (e.g. Bullish/Bearish Wedges, Head-and-Shoulders/neck-line) [4,10,11]. These short-term patterns, in the proposed trading management approach, operate as *psychological time w!D signals* awaiting the final confirmation/triggering signal (e.g. a volume increase; a candlestick pattern break; a price action pattern break; Jesse Livermore's resistance pivotal-line breakout; Jesse Livermore's support pivotal-line breakdown) just before the final executive open/close position order.

5. BACKTEST RESULTS & PERFORMANCE EVALUATION

A backtest procedure is the appropriate performance evaluation tool according to Moskowitz, Ooi, and Pedersen [5]; Malkiel [6]; Lan, Lin, and Lee [7]; Sambe, Tee, and Dagba [8]; Pendaraki [9]; and Koutmos [10]. So, in order to evaluate the proposed trading methodology, the derived trading utility has been backtested into a 3-year data set provided by Barron's [21] for the 3x ETF (bull leveraged instrument) GASL (Primitive data for the period: 01.01.2015 – 31.12.2017). Actually, 2,066 trades has been generated by the backtest procedure and the empirically-tested results are presented in Tables 1-4; while a comparative statistical return analysis is discussed subsequently.

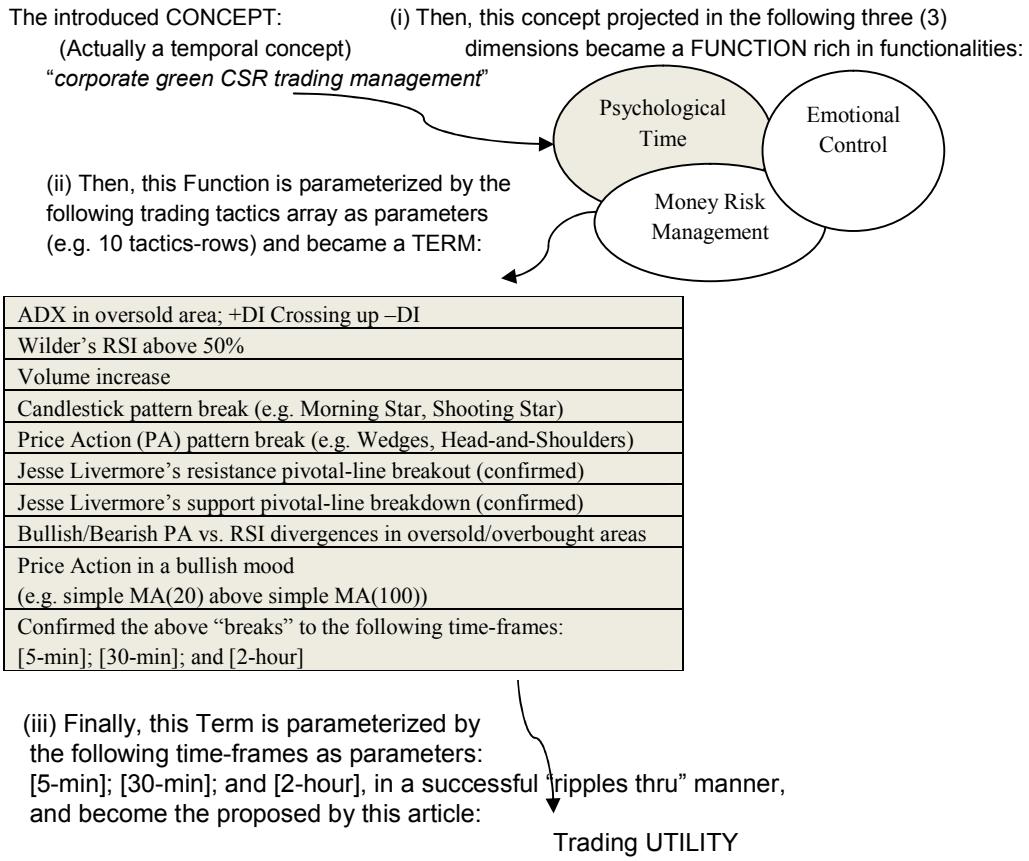

Fig. 1. The "*corporate green CSR trading management*" concept transferred to a trading utility

5.1 Market Volatility in Bull/Bear, No-way and Sidelong Markets

The proposed trading management approach follows Wilder's approach [22] and it is characterized by a strong relation to overall market volatility condition. Hence, trading low-volatility sidelong markets requires a different set of trading functionalities rather than trading a high-volatility bull/bear market [4,11]. Obviously, "emotional control" and "money risk management", as the 1-d dimensions of the proposed methodology, need more information and trading functionality in now-way and sidelong markets rather than in bull/bear ones.

So, because the information asymmetry declines over a bull/bear market, volatility (i.e. price changes) in bull/bear markets is bigger, reflecting more private and insight internal information and trading functionality. Hence, bull/bear markets are less noisy before the "opening bell-clock" rather than after it (i.e. the big profit in bull/bear markets arise mainly in intra-day trading sessions).

5.2 Information Asymmetry in Bull/Bear, No-way and Sidelong Markets

An intra-day trading, according to [4,11] literature, requires a different set of functionalities rather than an overnight-position trading. Individual trades contain more private (inside) information and trading functionality in after-hours than during the daily session. Hence, because the information asymmetry declines over the intra-day trading hours (i.e. 09:30 – 16:00 EST), volatility (price changes) overnight are larger and they reflect actually more private information and trading functionality, and accordingly they are much less disorderly than the relative intra-day changes.

5.3 An Application Case Study – Bull/Bear Markets

In this sub-Section, Tables 1 and 2 are referred to the introduced "*corporate green CSR trading management*" utility and present the annual and total returns (%) after the application of a trusted backtesting procedure both, to: (i) the non-ethical

bull 3x ETF GASL; and (ii) the group of the 56 ethical 1x ETFs accordingly; for the time period: 1st January 2015 – 31st December 2017 (2,066 trades generated) and for bull/bear markets in both cases. For practical, statistical and organization purposes, the returns were time-projected into two categories and they characterized as overnight-position and intra-day trading returns. In this frame and for the non-ethical GASL bull 3x ETF [Table 1], the better returns -in bull/bear markets- were obtained by this ETF with the intra-day trading return strategy and the "*corporate green CSR trading management*" proposed trading utility. Actually, in this case, the annual daytime return was 47.32% (with total period return: 173.62%), while the annual overnight-position return was -85.07% (with total period return: -422.03%). Subsequently, for the group of the fifty-six 56 ethical 1x ETFs [Table 2], the better mean returns -in bull/bear markets- were obtained by the intra-day trading return strategy as well; and in this case, the annual daytime mean return was 13.65% (with total period mean return: 101.77%), while the annual overnight-position mean return was -98.05% (with total period mean return: -459.21%).

So, a quality analysis, based on the recorded standard deviation values on both Tables 1 and 2, says that in bull/bear markets an overnight-position return strategy is more risky than a intra-day trading return strategy, because of the higher annual *Standard Deviation* (SD) and the lower *Sharpe Ratio* (SR) values recorded in overnight-position returns [Tables 1 & 2] [4,11]. This is why, in Table 1 (non-ethical ETF), the statistical quality indicator "*Sharpe Ratio*" (which does not include in calculations the risk-free interest rate) for the overnight-position trading strategy was -0.73, compared to the 0.16 of the day-trading trading strategy. Similarly, in Table 2 (ethical ETFs), the indicator "*Sharpe Ratio*" for the overnight-position trading strategy was -0.82, compared to the 0.13 of the intra-day trading strategy. So, according to the empirically tested primitive data and the 2nd level derived metadata structures (i.e. the "*user-profile*" information), this is why, in bull/bear markets, the short-term traders and the institutions, with the appropriate intra-day trading return strategies, beat conservative in terms of profit/return [1,22].

5.4 An Application Case Study – No-way and Sidelong Markets

In this sub-Section, Tables 3 and 4 are referred to the introduced "*corporate green CSR trading management*" utility and presents the annual and total returns (%) after the application of a trusted backtesting procedure both, to: (i) the non-ethical bull 3x ETF GASL; and (ii) the group of the fifty-six (56) ethical 1x ETFs accordingly; for the time period: 1st January 2015 – 31st December 2017 (2,066 trades generated) and for no-way and sidelong markets.

Table 1. Bull/Bear Markets - The "*corporate green CSR trading management*" utility / strategy approach: GASL non-ethical bull 3x leveraged ETF: Annual & Total Returns (%) from a backtesting procedure (2,066 trades); 1st January 2015 – 31st December 2017

Net Trading Results (estimated commission cost $0.01 / traded share)			
Annual Return	**Annual std. dev.**	**Sharpe ratio**	**Total return**
Overnight-position return strategy			
-85.07%	13.94%	-0.73	-422.03%
Day-trading return strategy			
47.32%	10.91%	0.16	173.62%

Table 2. Bull/Bear Markets - The "*corporate green CSR trading management*" utility / strategy approach: A group of 56 ethical non-leveraged ETFs: Annual & Total Mean Returns (%) from a backtesting procedure (2,066 trades); 1st January 2015 – 31st December 2017

Net Trading Results (estimated commission cost $0.01 / traded share)			
Annual Mean return	**Annual std. dev.**	**Sharpe ratio**	**Total mean return**
Overnight-position Return Strategy			
-98.05%	17.10%	-0.82	-459.21%
Day-trading Return Strategy			
13.65%	12.59%	0.13	101.77%

Table 3. No-way & Sidelong Markets - The "*corporate green CSR trading management*" utility / strategy approach: GASL non-ethical bull 3x leveraged ETF: Annual and Total Returns (%) from a backtesting procedure (2,066 trades); 1st January 2015 – 31st December 2017

Net Trading Results (estimated commission cost $0.01 / traded share)			
Annual return	**Annual std. dev.**	**Sharpe ratio**	**Total return**
Overnight-position return strategy			
88.22%	10.21%	0.60	407.29%
Day-trading return strategy			
-74.03%	16.33%	-0.58	-409.10%

Table 4. No-way & Sidelong Markets - The "*corporate green CSR trading management*" utility / strategy approach: A group of 56 ethical non-leveraged ETFs: Annual and Total Returns (%) from a backtesting procedure (2,066 trades); 1st January 2015 – 31st December 2017

Net trading results (estimated commission cost $0.01 / traded share)			
Annual mean return	**Annual std. dev.**	**Sharpe ratio**	**Total mean return**
Overnight-position return strategy			
121.07%	9.50%	0.72	**528.10%**
Day-trading Return Strategy			
-30.17%	11.90%	0.30	-340.15%

In this frame, the better returns (in no-way and sidelong markets) are obtained by the group of the 56 ethical ETFs with the overnight-position return strategy [Table 4]. Actually, in this case, the annual overnight-position mean return was 121.07% (with total period mean return: 528.10%), while the annual intra-day trading mean return was -30.17% (with total period mean return: -340.15%).

Subsequently, for the non-ethical 3x ETF [Table 3], the better returns (in no-way and sidelong markets) are obtained by the overnight-position return strategy as well; and in this case, the annual overnight-position return was 88.22% (with total period return: 407.29%), while the annual intra-day return was -74.03% (with total period return: -409.10%). So, a quality analysis, based on the recorded standard deviation values on both Tables 3 and 4, says that in no-way and sidelong markets an intra-day trading return strategy is more risky than a overnight-position return strategy, because of the higher annual *Standard Deviation* and the lower *Sharpe Ratio* values recorded as 2nd level metadata structures (i.e. mining of quality information empirically tested). So, according to empirically tested primitive data and the 2nd level derived metadata structures (i.e. the "*user-profile*" information), this is why, in no-way and sidelong markets, the "*smart money*" (hedge funds), with the appropriate overnight-position return strategies and CSR ethical ETFs as trading instruments, beat conservative long-term investors and low-budget swing traders, as far as the trading profit/returns are concern [1,22].

6. COMPARATIVE RETURNS STATISTICAL ANALYSIS

According to above Tables 1, 2, 3, and 4, and the empirically derived 2nd level metadata structures (i.e. "*trading instrument-profile*" mining information, "*market volatility*" mining information, "*temporal trading*" mining information), a statistical comparative return analysis indicates that:

- Trading a non-ethical 3x ETF: The particular GASL non-ethical bull 3x leveraged ETF has had the better annually and totally (3-year) performance as well, after the adoption of the "green CSR trading management" term (trading utility), in no-way and sidelong markets (i.e. low volatility environments) within the overnight-position return strategy (88.22% and 407.29% respectively) [Table 3].
- Trading a group of ethical ETFs: The particular group of the fifty-six (56) ethical 1x leveraged ETFs has had the better mean annually and mean totally (3-year) performance as well, after the adoption in trading strategies of the "*corporate green CSR trading management*" utility, in no-way and sidelong markets (i.e. low volatility environments) within the overnight-position

return strategy (121.07% and 528.10% respectively) [Table 4].

Finally, in both trading options (i.e. trading ethical and non-ethical ETFs) and according to the comparative returns statistical analysis, the best results were obtained by the CSR ethical ETFs ("*trading instrument-profile*" mining information), in no-way and sidelong markets ("*market volatility*" mining information) within the overnight-position return strategy ("*temporal trading*" information), as following: Annual mean return 121.07% and Total mean return 528.10% [Table 4].

6.1 Commission Cost

Tables 1, 2, 3, and 4 presented the trade performance analysis results after applying the backtest procedure on GASL and the group of the 56 ethical ETFs. For statistical backtesting purposes, during this backtest procedure, a capital of $100,000 has been invested per trade and a commission cost of $0.01 per trade share is regarded. This low commission cost results, under specific conditions, on significant (net) profit as shown in Tables 1, 2, 3, and 4. It is notable that in case of double the commission cost (i.e. $0.02 per share), the total net profit of both overnight-position and day-trading return strategies would be less than zero.

The things get worst, if a slippage cost is added in an overnight-position return strategy based on the "*corporate green CSR/CSE management*" trading utility. In this case, the intra-day trading return strategy, in bull/bear markets for the non-ethical 3x ETF domain, could present the better returns [Table 1]. Expectantly, because of the now-a-days Internet-based low-cost brokerage, commission cost is very low (something like $0.004 per share) and the so-called "*slippage cost*" is not any more relevant [17,20,22].

6.2 Dividend Returns and Cyclical Effects

In all the above empirically tested primitive and derived metadata (structures, actual data, and mining information), the dividends, the seasoned equity offerings (i.e. seasoned issues or follow-on offerings), and the cyclical effects (i.e. seasonal cycles), for simplicity reasons, didn't taken into account in the proposed approach.

6.3 Green Management, Green Technology and CSR

The concepts "*Green Management*", "*Green Governance*", "*Green Information Systems*" and "*Green Information Technology*" are strongly related to CSR and to the proposed trading ethic green CSR management concept; particularly now-a-days with the advances in global Information Systems (IS) and Information and Communication Technologies (ICT) [23-26]. In this "big picture" domain, both: (i) the need for a new governance model based on CSR and green IS/IT for building sustainable business practices and trading CSR strategies; and (ii) a well-defined framework to identify green CSR trading management opportunities for companies engaged in green information systems (green IS) and green information technology (green IT), are regarded as necessities and they are discussed in detail in [27-30] literature.

Finally, the state-of-the-art concepts "*Open Data*", "*e-Governance*", "*Business Analytics*", "*Business e-Learning*", and "*Business Intelligence*" are, also, strongly related to the proposed trading ethic green CSR management concept and discussed in detail in [31-35].

7. CONCLUSIONS

The main target of this article was to propose and discuss an innovative new trading management approach (rather than a new methodology) for trading green/ethical and non-ethical ETFs. The proposed approach is based on the introduction of a new concept (named: "*corporate green CSR trading management*") involved temporarily in both bull/bear and no-way/sidelong markets. Actually, the proposed concept, if it is projected in trading, is regarded as a market volatility function offering great trading functionalities and opportunities. This innovative function (characterized as a trading-strategy approach rather than as a documented trading strategy) was defined and analyzed by using the Livermore's "*Psychological Time*" as parameter, and its functionalities were documented in "*Emotional Control*" and "*Money Risk Management*" trading dimensions. The presented research also showed that if this function (rich in trading functionalities) is parameterized by the items of a trading tactics array, then the "*corporate green CSR trading management*" term is derived; and finally, if this innovative term is parameterized by particular time-frames, usually used by traders, the introduced by this article "*corporate green CSR trading management*" trading utility is defined (Fig. 1).

The main achievement of this article was the introduction of a new trading approach (with

parameters: bull/bear or no-way/sidelong markets; ethical/green or non-ethical ETFs as instruments; 1x or 2x or 3x leverage; and overnight-position return strategy or intra-day return strategy), armed with innovative functionalities relating to "*Psychological Time*" at the beginning of a price move during the intra-day and the after-hours trading sessions; the "*Emotional Control*"; the "*Money Risk Management*"; the items of the trading tactics array; and the classical time-frames used in trading (Fig. 1). In this domain, an empirically tested comparative statistical return analysis, presented in Section 5 (Tables 1, 2, 3, and 4), indicates that the particular GASL trading management instrument (actually, a non-ethical bull 3x leveraged ETF) has had much better annually and totally (3-year) performance as well, after the adoption of the proposed "*corporate green CSR trading management*" utility, in no-way and sidelong markets (i.e. low volatility environments) within the overnight-position return strategy. Correspondingly, a particular group of the fifty-six (56) ethical green 1x ETFs has had much better "mean annually" and "mean totally" (3-year) performance as well, after the adoption of the "*corporate green CSR trading management*" utility, in both no-way and sidelong markets within the overnight-position return strategy.

In paper's Section 6, a comparative quality statistical analysis based on the recorded *Standard Deviation* (SD) and *Sharpe Ratio* (SR) values, indicated that in bull/bear markets an overnight-position return strategy is more speculative and sensitive than an intra-day trading return strategy, because of the higher annual SD and the lower SR values recorded in overnight-position returns. Also, in no-ways and sidelong markets an overnight-position return strategy is less speculative and uncertain than an intra-day trading return strategy, because of the lower annual SD and the higher SR values recorded in overnight-position returns. Finally, in both trading options (green or non-green ETFs) and according to the comparative return statistical analysis of the introduced 2nd level metadata structures, the best results in all cases were obtained by the CSR ethical ETFs (i.e. "*trading instrument-profile*" mining information), in no-way and sidelong markets (i.e. "*market volatility*" mining information) within the overnight-position return strategy (i.e. "*temporal trading*" mining information) [Table 4]. Paper concludes that, in no-way and sidelong markets, hedge funds profit from the proposed "*corporate green CSR trading management*" concept at the expense of long-term investors, and swing traders. Similarly, in bull/bear markets, short-term traders and institutions profit from the proposed concept at the expense of passive investors and traders. Hence, the presented research shows that the proposed concept accumulates profit entirely overnight in no-way and sidelong markets, while in bull/bear markets the profit occurs mainly intra-day. So, a diversified portfolio of trading strategies based on the introduced by this paper "*corporate green CSR trading management*" concept, for a group of ethical green 1x ETFs or a group of non-green 3x ETF instruments of a volatile Sector like the (Energy) Natural Gas one, could deliver substantial profit.

Finally, additional future research and more statistically and empirically-tested primitive 1st level structures and data (i.e. metadata structures and the relative primitive actual data) are needed, in order for the proposed approach to become a well-defined methodology and thereafter a well-documented trading system.

COMPETING INTERESTS

The author has declared that no competing interests exist.

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NOTES

Note 1. Corporate Green CSR Trading Management

CSR - Corporate Social Responsibility
[see: Wikipedia.org; https://en.wikipedia.org/wiki/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, neoliberalism 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).

Note 2. Ethical CSR 1x leveraged ETFs

The following fifty-six (56) ethical CSR ETF were used in this article as the group of the ethical 1x ETFs:

DSI, DBA, JO, SUSA, CRBN, SHE, SPYX, COW, ESGD, ESGE, CATH, EFAX, KRMA, NUBD, ESGG, NULV, WLL, RJA, JJG, RODI, NIB, NUSC, NULG, NUMG, NUMV, NUDM, NUEM, MPCT, ESGL, ESGF, IBD, ETHO, EEMX, EQLT, BAL, CANE, FUD, GRU, ESGU, ESGN, ESG, ORG, SUSC, SUSB, GUDB, HECO, ESGW, BIBL, KGRN, ESGN, ICAN, LRGE, CHEX, USAG, LSTK, and YLDE.

For a full list of socially responsible ETFs traded in the USA, please consider the link:
http://www.ETFdb.com

Note 3. Exchange-Traded Fund (ETF)

[see: Investopedia.com; https://www.investopedia.com/terms/e/etf.asp]

An ETF, or exchange-traded fund, is a marketable security that tracks an index, a commodity, bonds, 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.

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