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EXPLORING ESG MOMENTUM: CORPORATE RESPONSIBILITY AND STOCK PERFORMANCE IN TAIWAN

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ABSTRACT

With the acceleration of global economic integration and a growing awareness of sustainability, investors are increasingly prioritizing corporate social responsibility (CSR) in their decision-making. This study examines the relationship between CSR and stock momentum by analyzing the Taiwan stock market through the lens of two prominent Exchange-Traded Funds (ETFs): the Fubon Taiwan Corporate Governance 100 ETF (00692) and the Yuanta Taiwan ESG Sustainability ETF (00850). Using a sample period from December 2009 to December 2019, the study constructs momentum portfolios based on historical returns to evaluate whether CSR-focused companies demonstrate persistent outperformance or reversal effects. Results reveal significant momentum effects in portfolios formed from CSR-oriented firms, offering valuable implications for institutional and retail investors alike.

KEYWORDS: - Corporate Governance, ESG, Stock Momentum Effect, Reversal Effect, Taiwan Stock Market, ETF Performance.

ISSN: 3049-3552

Volume 3 Issue 4, July-August 2025, pp 01-09

1.0 INTRODUCTION

In recent years, environmental, social, and governance (ESG) factors have emerged as essential components of corporate evaluation, gaining prominence beyond their traditional role as secondary considerations. Today, ESG criteria are widely recognized as fundamental to assessing long-term firm value and sustainable growth. Scholars have argued that ESG performance provides a more holistic and forward-looking framework for evaluating corporate resilience and alignment with broader societal expectations (Edmans, 2023). Moreover, growing investor demand for sustainable practices is increasingly influencing capital allocation and asset pricing, underscoring the financial significance of ESG factors (Bansal et al., 2021).

1.1 Research Background and Motivation

The momentum effect refers to the tendency of stocks that have performed well (or poorly) in the past to continue their performance in the short term. This challenges the Random Walk Theory and suggests predictability in stock returns (Jegadeesh& Titman, 1993). While momentum effects are well-documented in global markets, evidence in Taiwan remains inconclusive (Chen, 2000; Lin et al., 2006; Yao, 2012). With increasing attention to corporate social responsibility (CSR) and sustainability, this study explores whether CSR-focused firms listed in Taiwan show significant momentum effects, using ETFs that track governance and ESG-related indices.

1.2 Research Objectives

This study analyzes momentum effects using the component stocks of two Taiwan-based ETFs:
- Yuanta Taiwan ESG Sustainability ETF (00850)
- Fubon Taiwan Corporate Governance 100 ETF (00692)

The objectives are to:
1. Evaluate momentum effects in ESG-focused firms.
2. Compare momentum performance across the two ETFs.
3. Assess their relative performance against the broader market.

1.3 Research Structure

The paper is organized as follows: Section 2 reviews related literature, Section 3 outlines the methodology, Section 4 presents empirical results, and Section 5 concludes with key findings and recommendations.

2.0 LITERATURE REVIEW

Momentum effects have long challenged the assumptions of efficient markets and have often been interpreted as anomalies unexplained by traditional risk factors. The multifactor model proposed by Fama and French (1996) expanded on the Capital Asset Pricing Model (CAPM) by

ISSN: 3049-3552

Volume 3 Issue 4, July-August 2025, pp 01-09

incorporating size and value effects, yet momentum continued to demonstrate persistent abnormal returns, prompting further investigation into behavioral and structural explanations.

2.1 Exchange-Traded Funds (ETFs)

ETFs are investment funds traded on stock exchanges, combining the diversification benefits of mutual funds with the liquidity of individual stocks. Since the launch of Taiwan's first ETF—the Yuanta Taiwan Top 50 ETF (ticker: 0050) in 2003—the domestic ETF market has expanded significantly (Taiwan Stock Exchange, 2021).ETFs are classified into various types, including equity-based, futures-based, and leveraged or inverse ETFs. They are widely used for cost-effective exposure to indices and sectors.

2.2 Corporate Governance

Good corporate governance enhances transparency and accountability, often leading to better firm performance and investor confidence (Merton, 1987; Bauer et al., 2008). Poor governance, on the other hand, deters foreign investment and hinders market development (Karmin, 2000). Governance practices are especially critical for firms aiming to meet sustainability standards and fulfill CSR obligations (Porter & Kramer, 2002; Poddi&Vergalli, 2009).

2.3 Sustainability and ESG

Sustainable development integrates environmental, social, and governance (ESG) dimensions to achieve long-term value. Elkington (1997) introduced the "triple bottom line" framework, emphasizing balanced growth in profit, people, and planet. ESG factors are increasingly important in investment decisions, as they indicate a firm's resilience and ethical standing (Jabareen, 2008; Crews, 2010). ESG-focused firms are believed to generate social value while maintaining financial performance.

2.4 Momentum and Reversal Effects

DeBondt and Thaler (1985, 1987) first documented overreaction in stock markets, where past losers outperformed winners, indicating reversal effects. Conversely, Jegadeesh and Titman (1993) found that short- to medium-term momentum strategies—buying recent winners and selling losers—produced abnormal returns. In Taiwan, research is mixed. While some studies confirm momentum effects (Chen, 2002; Hsu et al., 2015), others find limited or inconsistent evidence (Chen, 2000; Yang, 1997). These findings highlight the need to reassess momentum under alternative frameworks such as ESG investing.

ISSN: 3049-3552

Volume 3 Issue 4, July-August 2025, pp 01-09

3.0 METHODOLOGY

3.1 Research Design

This study investigates stock momentum effects among component stocks of two CSR-oriented ETFs: the Yuanta Taiwan ESG Sustainability ETF (00850) and the Fubon Taiwan Corporate Governance 100 ETF (00692). Following Lin (2020) and Cai (2019), momentum strategies are constructed by ranking stocks based on past returns over various formation periods and evaluating their performance over corresponding holding periods.

Three return windows are used to measure cumulative past performance:
- Short-term: R(-6, -2)
- Mid-term: R(-12, -7)
- Full-term: R(-12, -2)

Momentum portfolios are formed by selecting the top 10% (winners) and bottom 10% (losers) based on return rankings. These portfolios are then held for 3, 6, 9, or 12 months to observe performance. A significant positive return indicates a momentum effect; negative returns suggest reversal.

3.2 Sample and Data Source

The study uses monthly return data from the TEJ (Taiwan Economic Journal) database. The sample includes all component stocks of the two ETFs as of October 2020:
- 100 firms from ETF 00692 (Corporate Governance 100 Index)
- 69 firms from ETF 00850 (Taiwan ESG Index)

The full research period spans January 1998 to December 2019, covering 954 firms listed on the Taiwan Stock Exchange. Historical constituent changes are not tracked dynamically; instead, the latest ETF constituents are applied retrospectively.

4.0 EMPIRICAL RESULTS

This study examines momentum strategies formed using different holding and formation periods, focusing on portfolios based on the Yuanta Taiwan ESG Perpetual ETF and a market index benchmark. The analysis centers on the 0.8 quantile threshold and evaluates portfolio returns across 3-month, 6-month, 9-month, and 12-month horizons. Results are reported in Tables 1 to 3.

4.1 Yuanta Taiwan ESG Perpetual ETF Portfolios

Table 1 presents the results for momentum portfolios constructed using the Yuanta Taiwan ESG Perpetual ETF with a 0.8 quantile threshold. Across all formation and holding periods, returns are significantly positive at the 1% level. Notably, the 9-month and 12-month holding periods

ISSN: 3049-3552

Volume 3 Issue 4, July-August 2025, pp 01-09

consistently yield higher average returns compared to shorter horizons. This pattern suggests that ESG-based momentum strategies are robust and more profitable when implemented over longer investment horizons.

4.2 ESG ETF Portfolios vs. Portfolios Formed from Market Index Constituents

Table 2 compares the performance of ESG-based momentum portfolios with those constructed using the constituent stocks of the Taiwan market index as a benchmark. While positive returns are still observed for many combinations, the statistical significance is generally weaker compared to pure ESG portfolios. Only selected configurations with longer holding periods (e.g., 12-month holding with 9-month formation) exhibit significant t-statistics. This indicates that including broader market stocks may dilute the momentum effect captured by ESG screening.

4.3 Alternative ESG Momentum Portfolios: Fubon Taiwan Corporate Governance

Table 3 shows the results of alternative momentum strategies using the 0.8 quantile threshold, constructed with a different portfolio design. These portfolios continue to exhibit consistently strong positive returns, especially over longer holding durations. The robust performance across various formation periods further validates the effectiveness of ESG-based momentum strategies in the Taiwanese market context.

5.0 DISCUSSION

Empirical studies from Europe indicate that ESG-related performance can significantly influence stock returns, reinforcing the global relevance of ESG considerations in investment decisions (Ziegler et al., 2007). Our findings further contribute to this literature by revealing key insights into the role of momentum investing within Taiwan's ESG investment landscape. Notably, ESG screening affects not only return potential but also the associated portfolio risk and diversification benefits (Verheyden et al., 2016).

5.1 ESG Momentum Effect and Holding Periods

First, the findings confirm a robust momentum effect in the Yuanta Taiwan ESG Perpetual ETF portfolios. The statistically significant returns across all formation and holding period combinations suggest that ESG-related information is not immediately priced into the market, allowing investors to capture excess returns through momentum-based strategies.

Notably, longer holding periods (9-month and 12-month) outperform shorter ones. This aligns with the behavioral finance explanation of momentum, where under reaction to firm-specific ESG information may take time to fully reflect in prices. Thus, investors with longer investment horizons may be better positioned to benefit from ESG-based momentum.

ISSN: 3049-3552

Volume 3 Issue 4, July-August 2025, pp 01-09

5.2 Market Index Comparisons and ESG Premium

When comparing ESG ETFs with broader market indices, the momentum effect weakens, particularly under the 0.8 quantile threshold. This suggests that ESG portfolios may carry an intrinsic momentum premium that is diluted when non-ESG constituents are introduced. The superior performance of ESG-focused strategies may reflect investor preferences for sustainability, better governance, and long-term risk mitigation.

5.3 Implications for Asset Allocation and Strategy Design

For portfolio managers and ESG-oriented investors, these findings offer several practical implications:

Strong statistical significance across horizons: Momentum effects in ESG portfolios remain consistently significant across various formations and holding periods, particularly over longer horizons. This supports the implementation of medium- to long-term momentum strategies within ESG investment frameworks.

ESG as a performance-enhancing filter: ESG integration not only aligns with sustainability goals but also contributes to improved return profiles. The use of ESG screening appears to reinforce momentum signals, enhancing the selection of firms with stronger price trends and potentially more robust fundamentals.

5.4 Limitations and Further Research

This study is limited to one ESG ETF and a single regional market. Future studies could expand the dataset to include multiple ESG indices across global markets and apply additional factor models (e.g., Fama-French or Carhart) to isolate ESG-specific alpha. Additionally, incorporating risk-adjusted performance metrics such as Sharpe ratio or maximum drawdown could enrich the robustness of the results.

6.0 CONCLUSION

This study investigates the effectiveness of ESG-based momentum strategies using the Yuanta Taiwan ESG Perpetual ETF and the market index portfolio. By applying a 0.8 quantile threshold to identify high-performing stocks, the results show that momentum strategies yield significantly positive abnormal returns, particularly for longer holding periods (9-month and 12-month horizons).

Empirical results across various formations and holding periods confirm that ESG momentum strategies are robust within the Taiwanese market. Portfolios constructed solely with ESG-screened constituents outperform those based on the broader market index, especially in terms of statistical significance. These findings underscore the growing importance of ESG considerations

ISSN: 3049-3552

Volume 3 Issue 4, July-August 2025, pp 01-09

in investment decisions and suggest that investors incorporating ESG filters may achieve superior risk-adjusted performance.

Moreover, alternative portfolios constructed using another ESG-themed ETF (Fubon Taiwan Corporate Governance 100 ETF) exhibit similar patterns of strong and consistent momentum effects. This reinforces the notion that ESG-based investing not only aligns with sustainability goals but also delivers competitive financial returns in emerging markets like Taiwan.

Future research may further explore ESG momentum in different sectors, integrate risk metrics such as volatility or drawdown, or assess the role of ESG dynamics during periods of market stress.

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ISSN: 3049-3552

Volume 3 Issue 4, July-August 2025, pp 01-09

Tables: Momentum Portfolios (0.8 Quantile)

Table 1. Momentum Portfolio Results (0.8 Quantile, Yuanta Taiwan ESG)

Panel A: 3-Month and 6-Month Holding Periods

Formation Period	3-Month Avg. Return	P(T<=t)	Significance (3M)	6-Month Avg. Return	P(T<=t)	Significance (6M)
3	0.0417	0.0	***	0.0857	0.0	***
6	0.0444	0.0	***	0.0977	0.0	***
9	0.0512	0.0	***	0.1038	0.0	***
12	0.0509	0.0	***	0.0982	0.0	***

Panel B: 9-Month and 12-Month Holding Periods

Formation Period	9-Month Avg. Return	P(T<=t)	Significance (9M)	12-Month Avg. Return	P(T<=t)	Significance (12M)
3	0.1345	0.0	***	0.1731	0.0	***
6	0.146	0.0	***	0.1737	0.0	***
9	0.139	0.0	***	0.1702	0.0	***
12	0.1308	0.0	***	0.1635	0.0	***

Table 2. Momentum Portfolio Results (0.8 Quantile, Market Index Portfolio)

Panel A: 3-Month and 6-Month Holding Periods

Formation Period	3-Month Avg. Return	p-value (3M)	Significance (3M)	6-Month Avg. Return	p-value (6M)	Significance (6M)
3	0.0417	0.2099		0.0857	0.1955	
6	0.0444	0.2238		0.09767	0.1509	
9	0.0511	0.2035		0.1038	0.0928	*
12	0.0509	0.1184		0.0981	0.0501	*

Panel B: 9-Month and 12-Month Holding Periods

Formation Period	9-Month Avg. Return	p-value (9M)	Significance (9M)	12-Month Avg. Return	p-value (12M)	Significance (12M)
3	0.1345	0.1342		0.1731	0.0779	*
6	0.146	0.0646	*	0.1738	0.0543	*
9	0.1391	0.0536	*	0.1703	0.0313	**
12	0.1308	0.0252	**	0.1635	0.0125	**

ISSN: 3049-3552

Volume 3 Issue 4, July-August 2025, pp 01-09

Table 3. Momentum Portfolio Results (Alternative ESG 0.8 Quantile: Fubon Taiwan)

Panel A: 3-Month and 6-Month Holding Periods

Formation Period	3-Month Avg. Return	p-value (3M)	Significance (3M)	6-Month Avg. Return	p-value (6M)	Significance (6M)
3	0.0352	0.0	***	0.0729	0.0	***
6	0.0333	0.0	***	0.0739	0.0	***
9	0.0368	0.0	***	0.0711	0.0	***
12	0.0335	0.0	***	0.0636	0.0	***

Panel B: 9-Month and 12-Month Holding Periods

Formation Period	9-Month Avg. Return	p-value (9M)	Significance (9M)	12-Month Avg. Return	p-value (12M)	Significance (12M)
3	0.112	0.0	***	0.142	0.0	***
6	0.1078	0.0	***	0.13	0.0	***
9	0.0988	0.0	***	0.121	0.0	***
12	0.0892	0.0	***	0.1112	0.0	***

