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Old Bands, New Signals: ESG-Driven Donchian Strategy in the Malaysian Stock Market

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Abstract

This paper investigates the performance of the rule-based Dual Donchian Bands (DC) technical strategy within the context of ESG-aligned equity portfolios in the Malaysian stock market. While the Efficient Market Hypothesis (EMH) asserts that asset prices fully reflect all available information, the consistent excess returns observed from technical trading strategies challenge the completeness of this framework, especially in markets influenced by non-financial factors such as ESG screening. To conduct the empirical study, we utilized more than 10 years of daily data from the FTSE4Good Bursa Malaysia Index (F4GBM) between 01/01/2015 and 31/05/2025. We implement a dual breakout system that synthesizes short- and long-term price channels to generate systematic entry and exit signals. Our results reveal that the DC delivers returns that outperform the passive buy-and-hold benchmark, with superior performance across key metrics such as the Sharpe ratio, Sortino ratio, and maximum drawdown. These findings suggest the presence of exploitable inefficiencies in the ESG-tilted market, which is often presumed to be less driven by speculative forces. Our results challenge the weak-form efficiency of Malaysian ESG stocks and contribute to the growing body of behavioural finance literature that highlights the potential for systematic predictability in asset prices.

Keywords: ESG, Bursa Malaysia, Donchian strategy, EMH, technical analysis

Introduction

The increasing complexity of global capital markets has led scholars and practitioners to reassess traditional views on asset pricing, portfolio construction, and investment strategy. Central to this issue, the EMH posits that all available information is rapidly reflected in asset prices, rendering systematic outperformance unfeasible through either fundamental or technical means (Fama, 1970). However, numerous empirical studies have reported inconsistent findings with this idea, particularly due to market inefficiency, information asymmetries, and investor behavioural biases (Lo, 2004; Lim & Brooks, 2011). The controversy surrounding EMH has triggered the use of different approaches that include technical analysis (TA). This method employs historical price and volume data to identify trends, reversals, and support and resistance levels. It offers rule-based guidance for market entry and exit decisions (Murphy, 1999). A stream of studies documents the profitability of technical rules, especially in emerging markets or under weak-form efficiency environments (Nor & Wickremasinghe,

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2017; Park & Irwin, 2007). The use of advanced statistical tests and data-snooping adjustments, along with the advancement in computing ability, has further strengthened the empirical rigour of TA-based studies (Nor et al., 2023).

In addition, regulatory shifts in sustainability, ethical investing preferences, and long-term risk mitigation objectives have increased demand for environmental, social, and governance (ESG) investing. Several global market indexes, such as FTSE4Good and MSCI ESG Select, classify companies based on specific sustainability and governance criteria and track their performance over time. As ESG investing has conventionally been established by fundamental screening, recent literature has documented the application of TA in exploring the profitability of ESG-aligned stocks (Lee et al., 2024; Dutta et al., 2024). Furthermore, evidence linking green finance and sustainability outcomes in emerging markets (Ghouse et al., 2025) reinforces the relevance of integrating TA with sustainable investments. Notably, Nor et al. (2023) demonstrated that renewable energy stocks, which are aligned with ESG principles, exhibit sufficient technical characteristics for trend-based and hybrid-fractal trading strategies to outperform passive benchmarks.

The convergence of technical analysis and ESG investing holds practical implications not only for active asset management but also for personal financial planning. As more individuals adopt sustainability criteria in their investment objectives, financial planners are increasingly expected to integrate ESG preferences into holistic wealth management strategies. It enables planners to advise clients on the importance of market timing, tactical allocation, and short-term positioning within long-term ESG mandates. By incorporating rule-based trading systems, financial planners can simulate a dynamic portfolio construction approach. This is particularly important when navigating volatile or sentiment-driven ESG sectors. In terms of TA, the Dual Donchian Bands (DC) presents a compelling case. This approach combines breakout signals from short-term and long-term Donchian Channels to capture sustained momentum while filtering noise from market fluctuations. Moreover, its simplicity and adaptability make it particularly suitable for ESG-focused investment portfolios, where price trends are often shaped by thematic flows and investor sentiment.

Despite its practical utility, the DC method remains underexplored in finance literature, unlike the more popular indicators like moving averages, relative strength index, and Bollinger Bands. Accordingly, this study contributes to the growing discourse at the intersection of sustainable investing and evidence-based market timing by evaluating the performance of the DC strategy applied to ESG index constituents.

Research Design

This study investigates the profitability of technical price patterns within the sustainable equity segment. We analyse daily stock data from the constituents of the FTSE4Good Bursa Malaysia Index (F4GBM) over the period from 1 January 2015 to 31 May 2025. The analysis encompasses 142 companies across a broad range of sectors, such as financial services, healthcare, consumer goods, technology, and plantations. The sample period includes several economic, geopolitical, and health crises such as the US-China trade war, Russia-Ukraine war, COVID-19, and the more recent Trump trade war.

In executing rule-based trading signals, we use DC, which is a trend-following system based on two Donchian channels. In short, the longer (shorter) band is used to gauge trend direction (as buy signals), while a drop below the shorter band low triggers a sell signal. Due to short-selling restrictions in Bursa Malaysia, we explore a long-only policy. For robustness, we run the analysis 18,176 times by

exploring standard and different combinations of short-long bands in the F4GBM portfolio. Further, instead of using simple return on investment, we investigate various metrics to gauge risk, return, and risk-return trade-off. These metrics include the Sharpe ratio, Sortino ratio, maximum drawdown (%), performance ratio, MAR ratio, recovery factor, and ulcer index. Consistent with prior literature in this area, we employ the buy-and-hold policy (BH) as the benchmark. This allows us to gauge the trading performance of active TA against a passive rule and formulate implications for the weak-form Malaysian ESG market efficiency.

Results and Discussion

In Table 1, we summarize the performance of DC against BH. The empirical results provide compelling evidence of the superior risk-adjusted performance of DC relative to the traditional BH policy when applied to the F4GBM constituents. Notably, the top-performing DC configurations, particularly those with shorter entry channels, achieved markedly higher Sortino and Sharpe ratios compared to the modest ratios gained from the BH approach. These best channels also delivered substantial improvements in downside risk management (lower maximum drawdown) and superior effectiveness in mitigating capital erosion during adverse market conditions (lower ulcer index). Moreover, the MAR ratio and recovery factor for the best DC channels indicate greater efficiency in translating volatility exposure into excess returns, far surpassing the BH rule.

Table 1

Investment performance of Dual Donchian Bands and Buy-and-Hold policy

	Rank	Shorter Channel	Longer Channel	Sortino ratio	Sharpe ratio	Max Drawdown %	Performance Ratio	MAR Ratio	Recovery Factor	Ulcer Index
Panel A: Dual Donchian Bands										
Standard	33	20	120	1.95	0.68	-0.28	0.09	0.53	2.83	9.88
Best Channels	1	15	150	2.67	0.76	-25.83	0.08	0.66	3.79	7.05
	2	15	270	2.65	0.79	-23.96	0.11	0.73	5.08	7.52
	3	15	210	2.52	0.74	-25.29	0.09	0.67	3.86	7.77
	4	15	300	2.51	0.74	-24.20	0.09	0.66	4.07	7.99
	5	10	300	2.47	0.85	-18.09	0.09	0.89	5.43	6.59
Worst Channels	124	60	90	0.58	0.34	-21.10	0.05	0.15	1.19	8.86
	125	65	90	0.55	0.31	-24.76	0.04	0.11	0.78	8.89
	126	35	90	0.54	0.27	-22.88	0.04	0.15	1.05	10.03
	127	40	120	0.47	0.26	-24.74	0.03	0.11	0.82	11.25
	128	80	120	0.18	0.15	-35.24	0.03	0.03	0.30	17.46
Panel B: Buy-and-Hold Strategy										
				0.63	0.47		0.09	0.17	0.91	13.8

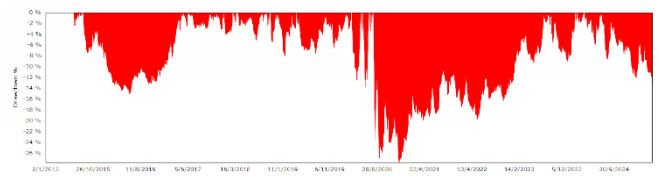
For transparency purposes, we also provide the suboptimal Donchian configurations. They exhibit notable underperformance, highlighting the sensitivity of trend-following strategies to parameter selection. Specifically, combinations involving longer short channels and narrower channel ranges (e.g., 80/120) not only yielded depressed Sortino and Sharpe ratios (0.18 and 0.15, respectively), but also suffered from severe drawdowns and elevated ulcer index scores (up to 17.46), effectively eroding investor confidence and long-term capital. For illustration purposes, Figure 1 shows the drawdowns of both DC and BH during the sample period.

It can be seen from the figure that DC experienced shallower drawdowns than the BH policy during the COVID-19 period, but its drawdown duration was longer. In contrast, BH endured a deeper drawdown exceeding 35% but began recovering more swiftly following initial stimulus-led rebounds. In more recent periods, DC continues to offer better downside protection. In summary, the findings highlight the

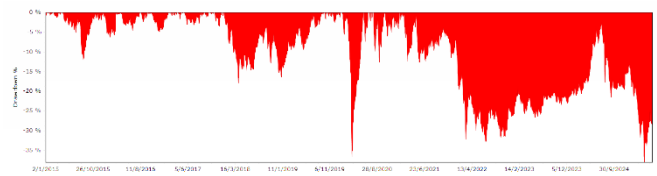
significant trade-off between trend responsiveness and noise filtration inherent in Donchian-based systems. The results reinforce the potential of technically informed ESG investing through DC, particularly with optimal parameters to balance trend duration and signal validity. Collectively, DC provides better return, lower risk, and greater risk-return trade-off against the BH policy.

Figure 1

Drawdowns for Dual Donchian Bands and Buy-and-Hold policy



Panel (a): DC



Panel (b): BH

Conclusion and Implications

In this study, we employ daily price data from F4GBM constituents to evaluate the performance of DC relative to the BH policy. Using a systematic technical analysis approach, the strategy was tested across various parameter combinations, with risk-adjusted performance assessed via several trading metrics. Our results reveal that wider channel DC configurations outperform BH in terms of both return-to-risk measures and capital preservation. However, the strategy also exhibited delayed recoveries due to its trend confirmation mechanics. Overall, our findings suggest the presence of exploitable price patterns and time-series dependencies in the ESG segment of an emerging market, thereby challenging the validity of weak-form efficiency. The evidence supports the incorporation of rule-based technical strategies in sustainable investment portfolios to enhance return and downside protection.

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