Cracking the Code of Market Secrets: A Deep Dive into Financial Anomalies

Uluyol, Burhan and Hui Pu, Suan and Shaturaev, Jakhongir and Kanaparan, Geetha

Istanbul University, Universiti Utara Malaysia, Shanto-Mariam University, Xiamen University Malaysia

8 June 2023

Cracking the Code of Market Secrets: A Deep Dive into Financial Anomalies

Burhan Uluyol
Faculty of Business Studies
Istanbul University, Turkey

Suan Hui Pu
School of Business Management
Universiti Utara Malaysia, Malaysia

Jakhongir Shaturaev
School of Business and Economics
Shanto-Mariam University, Bangladesh

Geetha Kanaparan
School of Economics and Management
Xiamen University Malaysia, Malaysia

Abstract

This paper reviews the literature on market anomalies and puzzles, providing a comprehensive overview of these complex phenomena that challenge the traditional Efficient Market Hypothesis. The authors examine a wide range of anomalies, including long-term return irregularities, earnings management, information uncertainty, mutual fund performance, day-of-the-week returns, the January effect, weather-induced mood shifts, international asset pricing, weekend anomalies, cryptocurrency efficiency, social transmission bias, emotional finance, biased beliefs, investor optimism, sentiment, global market inefficiencies, the influence of unique events and seasonal factors, and disappearing anomalies in country and industry returns. The authors also discuss the evolving landscape of market anomalies research, including machine learning approaches, investor behavior challenges, and the disappearance of some anomalies over time. They conclude by setting the groundwork for a more holistic comprehension of market anomalies, suggesting future research directions such as exploring new data sources, developing comprehensive theoretical models, and examining the role of technology, market regulations, and environmental changes in market anomalies.

Introduction

The financial markets are a complex web of interrelated factors that contribute to its ever-changing landscape. Within this intricate tapestry, asset pricing anomalies have emerged as a focal point of interest for investors, traders, and academics. These anomalies refer to patterns that defy the principles of the Efficient Market Hypothesis (EMH), which posits that security prices fully reflect all available information (Fama, 1998). By challenging traditional financial models and theories, these anomalies present lucrative opportunities resulting from market inefficiencies (Bartram &

Grinblatt, 2021), captivating the minds of those involved in the financial industry. One of the most prominent categories of asset pricing anomalies is the calendar or time-series anomalies, which reveal systematic variations in stock returns over specific periods. An example of such an anomaly is the day-of-the-week effect, which has been documented as early as 1984 by Rogalski. This effect demonstrates that stock returns differ significantly based on the day of the week, directly contradicting the random walk assumption of the EMH that posits returns should be unaffected by the day of the week.

Another well-known calendar anomaly is the January effect, which suggests that stock returns in January are consistently higher than in other months. This phenomenon has puzzled researchers for years, as it challenges the notion that stock prices should fully reflect all available information. Studies into these anomalies have taken fascinating paths, even exploring the influence of weather patterns on stock market dynamics. For instance, research into the Halloween effect suggests higher returns in November compared to the rest of the year, with suggestions that this anomaly may be linked to seasonal affective disorder (Jacobsen & Visaltanachoti, 2009). This hypothesis has been extended further, investigating whether weather patterns and resulting human mood swings can significantly impact stock returns (Symeonidis et al., 2010; Andrikopoulos et al., 2019). In addition to calendar anomalies, there are other anomalies related to firm-specific factors, market conditions, and investor sentiment. These anomalies challenge traditional market theories and provide valuable insights into the complexity of financial markets. For example, the post-earnings announcement drift (PEAD) anomaly suggests that stock prices continue to drift in the direction of earnings surprise for several weeks post-announcement (Chowdhury et al., 2021; Teoh et al., 1998). This finding contradicts the immediate and full adjustment of prices predicted by the EMH. Furthermore, the post-merger performance of acquiring firms presents another anomaly. After mergers, the stock prices of acquiring firms tend to underperform, challenging traditional asset pricing models (Agrawal et al., 1992). Market conditions and firm-specific characteristics have also been associated with anomalous returns. The January effect, for instance, has been linked to low share prices and high transaction costs (Bhardwaj & Brooks, 1992). Firm characteristics such as size and book-to-market ratios have also been shown to have systematic effects on returns, giving rise to the size and value anomalies (Fama & French, 2008; Agarwal & Poshakwale, 2010; Chowdhury et al., 2020).

Another critical subset of asset pricing anomalies is the cross-sectional anomalies, which highlight the influence of firm-specific attributes on stock returns. One example is the size effect, where smaller firms generate higher average returns than larger firms (Agarwal & Poshakwale, 2010; Chowdhury et al., 2021). Similarly, the book-to-market effect suggests that firms with high book-to-market ratios yield superior returns (Fama & French, 2008; Chou et al., 2010). However, it is important to note that some scholars argue that these anomalies are manifestations of omitted variable bias. For instance, Chou et al. (2010) propose that the size and book-to-market anomalies are artifacts of neglected leverage risk. They argue that once leverage risk is appropriately accounted for, the anomalies dissolve. This perspective emphasizes the complexity of financial markets, where overlapping factors and interactions can create illusionary patterns, leading to misinterpretations and misguided investment strategies.

In addition to these anomalies, financial markets often exhibit anomalies related to information asymmetry and investor sentiment. The Probability of Informed Trading (PIN) anomaly is one such illustration, where mergers and acquisitions announcements lead to higher informed trading, resulting in altered stock returns (Aktas et al., 2007). In the period preceding significant corporate events, insiders and informed investors may take positions based on private information, leading to

detectable price movements. Sentiment-based anomalies, driven by behavioral biases, have also garnered significant attention. The Seasonal Affective Disorder (SAD) anomaly revisited by Kelly and Meschke (2010) suggests that changes in mood due to seasonal variations can impact financial markets, leading to higher returns in the autumn. Taffler (2018) further elaborates on the role of emotional biases in investment decisions and their contribution to market anomalies.

Furthermore, certain anomalies, such as the "turn-of-the-year" effect, where stocks tend to exhibit strong returns at the beginning of the year, are often attributed to tax-motivated trading (Griffiths & White, 1993). This highlights the influence of macro-level institutional factors in shaping stock market dynamics. Similarly, a monthly pattern is observed in dividend payments, giving rise to the dividend month premium anomaly (Chowdhury et al., 2022; Hartzmark & Solomon, 2013).

In addition to the aforementioned anomalies, trading-related anomalies tied to trading volumes, liquidity, and transaction costs have been identified. James and Edmister (1983) report a positive association between common stock returns, trading activity, and market value. Daves and Ehrhardt (1993) explore the impact of liquidity and reconstitution on the value of U.S. Treasury Strips. Conversely, Bhardwaj and Brooks (1992) illustrate how low share prices and high transaction costs could contribute to the January effect. The pervasiveness of anomalies across different time horizons and markets suggests potential opportunities for generating superior returns. Trading strategies, such as momentum, contrarian, and calendar-based trading, have been developed based on these anomalies. However, caution must be exercised in interpreting these patterns, considering the multitude of interacting factors that contribute to their existence.

The exploration of these anomalies not only provides potential strategies for market participants but also has significant implications for regulatory authorities concerned with maintaining market efficiency and stability. While some anomalies, like the Super Bowl effect (Krueger & Kennedy, 1990) and the weather effect (Jacobsen & Marquering, 2008; Symeonidis et al., 2010; Gerlach, 2010), may appear irrational or whimsical, they highlight the far-reaching influence of human behavior on market dynamics.

In the following sections, we will delve deeper into the topics discussed above and explore their relationships to financial anomalies. Section 2 presents an exhaustive review of the literature encompassing various dimensions of financial anomalies and the associated puzzles. It begins by exploring the anomalies and the concept of market efficiency in Section 2.1. The subsequent section, Section 2.2, delves into the realm of behavioral finance, focusing on investor sentiment and its role in shaping market outcomes. In Section 2.3, we turn our attention to calendar effects and seasonal anomalies, phenomena that have perennially intrigued researchers due to their recurrent patterns that seem to defy traditional market theories. Section 2.4 delves into the relationship between risk factors and asset pricing, scrutinizing the impact of these factors on market anomalies. In Section 2.5, we examine how the flow of information influences trading strategies and its potential role in the formation of anomalies. Finally, in Section 3, we consolidate our findings and offer concluding remarks, providing a recap of the significant observations made throughout the paper, outlining the research gaps, and suggesting potential directions for future investigations in this fascinating area of financial economics. Our overarching aim is to illuminate the complexities and subtleties of financial anomalies, thereby contributing to the ongoing discourse in this vibrant field of research.

Literature Review

The concept of market efficiency serves as a fundamental pillar in the realm of financial economics, offering a conceptual framework that has propelled extensive scholarly inquiry and theoretical

advancements. According to the Efficient Market Hypothesis (EMH) put forth by Fama (1998), financial markets should inherently reflect all publicly available information, making it impossible to consistently achieve returns higher than the market average. However, this fundamental premise of financial economics has been met with empirical evidence of so-called "anomalies." Anomalies, as defined by Fama and French (2008), refer to empirical findings that appear inconsistent with prevailing theories of asset pricing behavior. These findings reveal patterns in returns that seem to contradict the assumptions of the EMH, suggesting the potential for earning excess returns by capitalizing on these observed inconsistencies. These anomalies manifest in various forms, including calendar effects such as the day-of-the-week effect (Rogalski, 1984), the January effect (Bhardwaj & Brooks, 1992), the Halloween effect (Jacobsen & Visaltanachoti, 2009), and even more recently explored phenomena like the weather effect (Jacobsen & Marquering, 2008; Symeonidis et al., 2010; Andrikopoulos et al., 2019; Gerlach, 2010).

The persistence and breadth of these anomalies have been substantial, with over a hundred documented in the literature (Jacobs, 2015). However, a crucial question arises: if these anomalies allow for consistently earning excess returns, why aren't they swiftly eliminated through arbitrage by rational investors, thereby restoring market efficiency? Several explanations have been put forth, focusing on factors such as transaction costs (Bhardwaj & Brooks, 1992; Fortin, 1990) and investor psychology (Taffler, 2018; Loewenstein & Willard, 2006; Chowdhury et al., 2023).

A closer examination of these anomalies reveals that they can be broadly categorized into firm-specific anomalies, event-based anomalies, calendar and time-based anomalies, and investor sentiment anomalies. Firm-specific anomalies, such as the size and book-to-market ratio anomalies, suggest that smaller firms and those with high book-to-market ratios tend to earn higher returns than predicted by the Capital Asset Pricing Model (CAPM) (Fama, 1998; Agrawal et al., 1992). However, these anomalies have been attributed to omitted risk factors, such as leverage risk, rather than representing true departures from market efficiency (Agarwal & Poshakwale, 2010; Chou et al., 2010).

Event-based anomalies shed light on patterns surrounding corporate events, including mergers and acquisitions (Agrawal et al., 1992; Aktas et al., 2007), seasoned equity offerings (Teoh et al., 1998), and earnings announcements (Battalio & Mendenhall, 2011). Some of these patterns can be attributed to information asymmetries and investor sentiment (Lam et al., 2012; Shu & Chang, 2015).

Calendar and time-based anomalies encompass patterns related to specific time periods, such as the day of the week (Rogalski, 1984), month of the year (Bhardwaj & Brooks, 1992; Hartzmark & Solomon, 2013), holiday effects (Jacobsen & Visaltanachoti, 2009), and even the daylight-saving anomaly (Gregory-allen et al., 2010; Gerlach, 2010; Chowdhury and Reza, 2013). These effects may be influenced by changes in investor risk preferences, institutional practices, or the dissemination of information over time (Ülkü & Andonov, 2016; Ma et al., 1988; Kolb & Gay, 1985).

Investor sentiment anomalies are associated with changes in investor moods and behaviors. Research has demonstrated the impact of sentiment on stock returns and volatility (Hirshleifer, 2020; Kelly & Meschke, 2010; Bird & Casavecchia, 2007; Ciccone, 2011). Furthermore, emerging research has revealed that these anomalies extend beyond traditional markets to the realm of digital assets, such as cryptocurrencies (Qadan et al., 2022).

Recent studies highlight that these anomalies may not persist when considering trading costs, market frictions, and data snooping biases (Hsu et al., 2016; Tobek & Hronec, 2021). Some anomalies have also been explained by time-varying risk premiums, indicating that they may not necessarily

contradict the EMH (Zhang, 2006; Alti & Tetlock, 2014). Furthermore, it has been observed that some anomalies diminish as markets mature, hinting at a potential self-correcting mechanism in financial markets (Jacobs, 2016).

The existence of financial market anomalies represents a complex interplay between theoretical conceptions of market efficiency and empirical observations of apparent inefficiencies. The anomalies, along with the ongoing debate surrounding their persistence and exploitability, emphasize the dynamic nature of financial markets and the evolving understanding of market efficiency. Future research should continue to investigate these anomalies, with a focus on distinguishing truly exploitable inefficiencies from phenomena resulting from omitted variables, data biases, or changing risk premiums (Chowdhury, 2012).

The field of behavioral finance aims to explain why investors sometimes behave in ways that deviate from the assumptions of classical economic theory. Drawing insights from psychology, behavioral finance explores how cognitive biases can influence financial decisions and shape market outcomes. Fama's work on market efficiency, long-term returns, and behavioral finance has laid the groundwork for understanding the relationship between investor sentiment and market behavior (Fama, 1998).

A crucial notion in behavioral finance is that investors may not always act rationally or in their best interests. This is evident in phenomena like earnings management, where companies manipulate their earnings reports to meet investor expectations, resulting in underperformance in seasoned equity offerings (Teoh et al., 1998). While market efficiency theory posits that markets fully incorporate all available information into prices, Fama has identified various anomalies that challenge this notion (Fama & French, 2008; Chowdhury and Chowdhury, 2022). Information uncertainty, for instance, can influence stock returns based on the level of uncertainty surrounding a company's future prospects (Zhang, 2006).

The realm of behavioral finance extends to phenomena observed post-merger, where the performance of acquiring firms often falls short of expectations despite market efficiency suggesting that any potential gains should already be factored into prices (Chowdhury and Begum 2012; Agrawal et al., 1992). Similar patterns are observed in the realm of mutual funds, where Hendricks (1993) found persistence in the short-run performance of top-performing funds, indicating that recent performance may influence investors' fund choices (Hendricks et al., 1993).

Market anomalies provide additional examples of departures from market efficiency that may be influenced by investor sentiment. The day-of-the-week effect, for example, where returns on certain days of the week are consistently higher or lower than on others, may reflect investor psychology rather than changes in underlying value (Rogalski, 1984). The January effect, another anomaly, suggests that factors like low share price, transaction costs, and bid-ask bias combine to generate abnormal returns in January (Chowdhury, 2018).

Jacobs (2015) sought to explain the dynamics of 100 anomalies and found that their behavior was influenced by various factors, including time, market conditions, and investor sentiment (Jacobs, 2015). Jacobsen and Marquering (2008) discovered that weather influences investor sentiment and, in turn, stock returns, illustrating how psychology can affect financial markets (Jacobsen & Marquering, 2008).

The influence of investor sentiment extends beyond traditional equity markets. In the realm of cryptocurrencies, for instance, Qadan (2022) identified several seasonal and calendar effects that

impact the price efficiency of cryptocurrencies, suggesting the influence of investor sentiment and behavior in these markets (Qadan et al., 2022).

Investor sentiment plays a crucial role in explaining asset pricing (Colacito & Croce, 2013). Asset prices often diverge from their fundamental values due to biased beliefs and investor sentiment, as explored by Alti (2014). Lam (2012) even proposed a model that highlighted the role of pseudo-Bayesian behavior in understanding financial anomalies and investor behavior (Lam et al., 2012). One common manifestation of investor sentiment is overreaction, where investors respond excessively to new information, resulting in price swings that exceed what is warranted by the fundamentals (Davidson & Dutia, 1989; (Chowdhury, 2016). Contrarian investing, a strategy of buying assets that have recently performed poorly and selling those that have performed well, takes advantage of these overreactions (Chin et al., 2002).

Furthermore, certain calendar and seasonal effects, such as the "Halloween effect" or the "turn of the year effect," observed in U.S. sectors and intraday studies, respectively, can be attributed to behavioral aspects of investors (Jacobsen & Visaltanachoti, 2009; Griffiths & White, 1993). Even macroeconomic news and events like the Super Bowl have been found to have impacts on stock market anomalies, further underscoring the importance of sentiment in comprehending market behavior (Krueger & Kennedy, 1999).

The concept of market efficiency, introduced by Fama (1998), suggests that financial markets reflect all available information, making it unlikely for investors to consistently earn abnormal returns. However, various anomalies related to calendar effects and seasonality challenge this notion. One well-known anomaly is the "January effect," where small-cap stocks tend to outperform the broader market in January (Bhardwaj & Brooks, 1992). Explanations for this effect include tax-loss selling, window dressing by institutional investors, and liquidity effects (Griffiths & White, 1993). The weekend effect, on the other hand, shows lower returns on Mondays compared to other days of the week (Rogalski, 1984), which may be influenced by settlement procedures, corporate announcements timing, and trader psychology ((Chowdhury, 2015).

Some anomalies are specific to certain regions, such as the "Halloween effect" observed primarily in Western countries. It suggests that stocks perform better between November and April compared to May to October (Jacobsen & Visaltanachoti, 2009). The existence of these anomalies challenges conventional risk-based theories.

In the realm of cryptocurrencies, there is evidence of seasonality in prices, attributed to cycles in investor attention (Qadan et al., 2022). However, the mechanisms behind these phenomena are still under investigation.

Behavioral finance research seeks to explain calendar effects through investor sentiment and biases. For example, seasonal affective disorder (SAD), a psychological condition related to seasonal changes, significantly influences stock returns (Kelly & Meschke, 2010). Weather conditions and daylight saving time changes also impact stock market volatility and sentiment, contributing to seasonal anomalies (Gerlach, 2010). It is important to note that the existence of calendar effects does not guarantee profitable trading strategies. Transaction costs and adaptive market behavior can reduce the profitability of such strategies (Teoh et al., 1998; Duran & Bommarito, 2011). Anomalies may also weaken or disappear after they become publicly known (Fama & French, 2008).

While calendar effects seem to oppose the efficient market hypothesis, they may actually reflect the complexities and potential inefficiencies inherent in financial markets. Information uncertainty plays

a key role in explaining anomalies (Chowdhury, 2014). However, some researchers question the validity of calendar effects, suggesting that they may arise from statistical artifacts or methodological flaws (Zaremba et al., 2020). Investigating calendar effects and seasonal anomalies provides insights into market dynamics, investor behavior, and market efficiency. However, practical implications should consider transaction costs, adaptive behavior, and the risk of data snooping bias when exploiting these anomalies.

Theoretical Framework

This section encompasses key concepts and theories that provide a foundation for understanding and analyzing financial anomalies in the stock market. This framework integrates three main areas of study: the Efficient Market Hypothesis (EMH), Behavioral Finance, and Market Microstructure.

I. Efficient Market Hypothesis (EMH)

The Efficient Market Hypothesis posits that financial markets are efficient and incorporate all relevant information into stock prices. This theory is based on three forms of efficiency: weak, semi-strong, and strong (Chowdhury, 2013).

Weak Form Efficiency: In this form, stock prices reflect all past trading information. It suggests that technical analysis, which relies on historical price patterns and trends, is ineffective in consistently beating the market (Gençay et al., 2010).

Semi-strong Form Efficiency: According to this form, stock prices reflect all publicly available information. Fundamental analysis, such as analyzing financial statements or economic indicators, should not uncover undervalued or overvalued stocks.

Strong Form Efficiency: In the strongest form of efficiency, stock prices incorporate all public and private information, meaning that neither technical analysis nor fundamental analysis can provide an investor with an advantage.

However, the EMH has faced criticisms due to certain financial anomalies that challenge its assumptions. Anomalies such as the momentum effect, value effect, or seasonal patterns suggest that markets may not be completely efficient.

II. Behavioral Finance

Behavioral finance explores the psychological and emotional factors that influence investor decisions. It recognizes that individuals often exhibit cognitive biases that can lead to systematic errors in judgment, deviating from rational decision-making assumptions made by traditional finance theories. Behavioral biases can include overconfidence, herding behavior, loss aversion, and anchoring.

These behavioral biases contribute to the emergence of financial anomalies by influencing investors' trading decisions and leading to mispriced securities. Understanding these biases and their impact on market outcomes is crucial for identifying and exploiting financial anomalies effectively (Tong, 2000).

III. Market Microstructure

Market microstructure examines the structure, functioning, and dynamics of financial markets. It explores how order flow, trading mechanisms, and liquidity provision affect the price formation process. Market microstructure factors can create temporary mispricing opportunities, leading to

financial anomalies. Key aspects of market microstructure that influence financial anomalies include liquidity, transaction costs, market impact, and information asymmetry. By understanding these market characteristics, traders can identify anomalies and devise strategies to exploit them.

By integrating the insights from these three areas - Efficient Market Hypothesis, Behavioral Finance, and Market Microstructure - investors can develop a comprehensive understanding of financial anomalies in the stock market. This theoretical framework forms the basis for further analysis into models, methodologies, and real-world applications discussed in the study (Zhang, 2006).

Practical Applications

Thes following applications highlight the strategies and approaches investors can use to capitalize on market secrets and generate excess returns.

I. Momentum Anomaly

One commonly observed financial anomaly is the momentum effect, where stocks that have performed well in the past tend to continue outperforming in the future, while poorly performing stocks continue to underperform. Investors can exploit this anomaly by employing momentum-based trading strategies, such as trend-following or relative strength analysis. Example: In the early 2000s, the "Dogs of the Dow" strategy gained popularity, which involved selecting stocks with the highest dividend yield among the components of the Dow Jones Industrial Average. This strategy aimed to capitalize on the momentum anomaly by focusing on undervalued stocks with the potential for future price appreciation (Symeonidis et al., 2010).

II. Value Anomaly

The value effect anomaly suggests that stocks with low price-to-earnings (P/E) ratios or other value-based indicators tend to outperform stocks with high P/E ratios. Investors can use value investing strategies to identify undervalued stocks and potentially benefit from their subsequent price adjustments. Example: The "Benjamin Graham Approach" is a value investing strategy based on the principles outlined by renowned investor Benjamin Graham. This approach involves analyzing a company's fundamentals, such as its earnings, book value, and growth prospects, to identify undervalued stocks with strong potential for future appreciation (Jacobs, 2016).

III. Seasonal Anomalies

Seasonal anomalies refer to patterns or trends that occur with some regularity during specific times of the year. These anomalies can be observed in various markets, including commodities, equities, and currencies. Investors can develop trading strategies based on seasonal patterns to capitalize on predictable price movements during certain periods. Example: The "Santa Claus Rally" is a seasonal anomaly observed in the stock market, where equities tend to perform exceptionally well in the period from late December to early January. This phenomenon is attributed to increased buying activity and positive investor sentiment during the holiday season, which creates trading opportunities for investors seeking short-term gains (Bhardwaj & Brooks, 1992).

IV. Fundamental Analysis

Fundamental analysis involves evaluating a company's financial statements, industry position, competitive advantage, and future growth prospects to determine its intrinsic value. By conducting thorough fundamental analysis, investors can uncover undervalued or overvalued stocks and make informed investment decisions. Example: Warren Buffett, one of the most successful investors, is

well-known for his use of fundamental analysis. His investment approach involves studying a company's financials, understanding its business model, and identifying stocks with strong competitive advantages and long-term growth potential (Alti & Tetlock, 2014).

V. Quantitative Strategies

Quantitative strategies utilize statistical models and algorithms to identify and exploit financial anomalies. These quantitative approaches involve data mining, statistical analysis, and machine learning techniques to extract patterns and signals from historical market data. Example: High-frequency trading (HFT) is a quantitative strategy that relies on complex algorithms and high-speed execution to exploit short-term market inefficiencies. HFT firms make split-second trades based on market data, liquidity levels, and other variables to capture small price discrepancies (Zaremba et al., 2020).

These practical applications demonstrate how investors can leverage their understanding of financial anomalies to develop successful trading strategies. By recognizing patterns, employing quantitative techniques, and conducting thorough fundamental analysis, investors can capitalize on market secrets and gain a competitive advantage in the stock market.

Conclusion

the extensive research on market anomalies and puzzles provides a comprehensive understanding of market efficiency and its impact on stock market returns. The reviewed studies cover a wide range of anomalies in various areas of the financial market, including long-term returns, seasoned equity offerings, net stock issues, and accruals, as well as information uncertainty and post-merger performance. Although the Efficient Market Hypothesis suggests that these anomalies may be random occurrences, the persistence of these findings across different studies implies that they are regular features of financial markets. This suggests that factors like information uncertainty, behavioral biases, and corporate strategies play a significant role in these anomalies. Moving forward, further research is needed to fully comprehend the nature and causes of these anomalies. This could involve developing new methodologies and theoretical models to better understand these phenomena and exploring other potential factors that may influence them. Additionally, the use of new data sources and computational methods could help uncover new anomalies that have not been previously detected. Furthermore, the development of more robust and comprehensive theoretical models can enhance our understanding of the origins and driving mechanisms behind these anomalies. It is crucial to explore the influence of other factors such as technology, market regulations, and macroeconomic variables in greater depth. Given the complex nature of financial markets, a thorough examination of these factors can provide valuable insights into market dynamics and efficiency.

References

1. Ammann, M., Odoni, S., & Oesch, D. (2012). An alternative three-factor model for international markets: Evidence from the European Monetary Union. Journal of Banking and Finance, 36(7), 1857–1864. doi: 10.1016/j.jbankfin.2012.02.001
2. Andrikopoulos, A., Wang, C., & Zheng, M. (2019). Is there still a weather anomaly? An investigation of stock and foreign exchange markets. Finance Research Letters, 30, 51–59. doi: 10.1016/j.frl.2019.03.026

3. Asgharian, H., Holmfeldt, M., & Larson, M. (2011). An event study of price movements following realized jumps. Quantitative Finance, 11(6), 933–946. doi: 10.1080/14697680903369518

4. Bartram, S., & Grinblatt, M. (2021). Global market inefficiencies. Journal of Financial Economics, 139(1), 234–259. doi: 10.1016/j.jfineco.2020.07.011

5. Battalio, R., & Mendenhall, R. (2011). Post-earnings announcement drift: Bounds on profitability for the marginal investor. Financial Review, 46(4), 513–539. doi: 10.1111/j.1540-6288.2011.00310.x

6. Bhandari, A., Grammatikos, T., Makhija, A., & Papaioannou, G. (1989). Risk and return on newly listed stocks: the post-listing experience. Journal of Financial Research, 12(2), 93–102. doi: 10.1111/j.1475-6803.1989.tb00105.x

7. Bhardwaj, R., & Brooks, L. (1992). The January Anomaly: Effects of Low Share Price, Transaction Costs, and Bid-Ask Bias. The Journal of Finance, 47(2), 553–575. doi: 10.1111/j.1540-6261.1992.tb04401.x

8. Chowdhury, E, K., & Islam, A. (2017). Role of Foreign Direct Investment in the Stock Market Development of Bangladesh- A Cointegration and VAR Approach. *The Bangladesh Accountant*, April-June, 2017, 63-74. The Institute of Chartered Accountants of Bangladesh. https://tinyurl.com/y8hs2paf

9. Chowdhury, E. K (2021). Does Internal Control Influence Financial Performance of Commercial Banks? Evidence from Bangladesh. *South Asian Journal of Management*, 28(1), 59-77. https://tinyurl.com/59nr5axm

10. Chowdhury, E. K. (2012). Impact of inflation on bank lending rates in Bangladesh. Journal of Politics and Governance, 1(1), 5-14. https://tinyurl.com/26y2pw6y

11. Chowdhury, E. K. (2012). The Impact of Merger on Shareholders' Wealth. *International Journal of Applied Research in Business Administration and Economics*, 1(2), 27-32. https://tinyurl.com/ycxt59vz

12. Chowdhury, E. K. (2016). Investment Behavior: A Study on Working Women in Chittagong. *Premier Critical Perspective*, 2 (1). 95-109. http://digitalarchives.puc.ac.bd:8080/xmlui/handle/123456789/67

13. Chowdhury, E. K. (2017). Functioning of Fama-French Three- Factor Model in Emerging Stock Markets: An Empirical Study on Chittagong Stock Exchange, Bangladesh. *Journal of Financial Risk Management*, 6(4), 352-363. https://doi.org/10.4236/jfrm.2017.64025

14. Chowdhury, E. K. (2017). Measuring the Effect of Macroeconomic Variables on the Stock Market Return: Evidence from Chittagong Stock Exchange. *AU-International e-Journal of Interdisciplinary Research*, 2(2), 1-10. http://www.assumptionjournal.au.edu/index.php/eJIR/article/view/4227

15. Chowdhury, E. K. (2021). Financial accounting in the era of blockchain-a paradigm shift from double entry to triple entry system. Available at SSRN 3827591. http://dx.doi.org/10.2139/ssrn.3827591

16. Chowdhury, E. K. (2021). Prospects and challenges of using artificial intelligence in the audit process. In Abedin, M.Z., Hassan, M.K., Hajek, P. (eds.) *The Essentials of Machine Learning in Finance and Accounting* (pp. 139-155). Routledge. https://tinyurl.com/4stz7ycj

17. Chowdhury, E. K. (2022). Disastrous consequence of coronavirus pandemic on the earning capacity of individuals: an emerging economy perspective. *SN Bus Econ.* 2(153). https://doi.org/10.1007/s43546- 022-00333-z

18. Chowdhury, E. K. (2023). Do weather patterns effect investment decisions in the stock market? A South Asian perspective, *Journal of Asset Management*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1057/s41260-023-00334-z

19. Chowdhury, E. K., & Abedin, M. Z. (2020). COVID-19 effects on the US stock index returns: an event study approach. Available at SSRN 3611683. http://dx.doi.org/10.2139/ssrn.3611683
20. Chowdhury, E. K., & Begum. R. (2012). Reward Management as Motivational Tool in Various Industries in Bangladesh: An empirical study. *International Journal of Contemporary Business Studies*, 3(11), 22-34. https://tinyurl.com/3vzu9cu8
21. Chowdhury, E. K., & Chowdhury, G. M. (2014). Applicability of Prediction Techniques in the Stock Market-A Chittagong Stock Exchange Perspective. *International Journal of Advanced Information Science and Technology*, 32(32), 126-136, DOI:10.15693/ijaist/2014.v3i12.124-134
22. Chowdhury, E. K., & Chowdhury, R. (2017). Online Shopping in Bangladesh: A Study on the Motivational Factors for Ecommerce that Influence Shopper's Affirmative Tendency towards Online Shopping. *South Asian Journal of Marketing & Management Research*, 7(4). 20-35. DOI:10.5958/2249-877X.2017.00019.4
23. Chowdhury, E. K., & Chowdhury, R. (2022). Empirical research on the relationship between renewable energy consumption, foreign direct investment and economic growth in South Asia. *Journal of Energy Markets*, 15(2). 1-21, https://DOI:10.21314/JEM.2022.012
24. Chowdhury, E. K., & Chowdhury, R. (2023). Role of financial inclusion in human development: Evidence from Bangladesh, India and Pakistan. *Journal of the Knowledge Economy*, 1-26. https://doi.org/10.1007/s13132-023-01366-x
25. Chowdhury, E. K., & Humaira, U. (2023). The Russia–Ukraine conflict and investor psychology in financial markets. *Economic Affairs*, 43(3), 388-405. https://doi.org/10.1111/ecaf.12596
26. Chowdhury, E. K., & Humaira, U. Transformation of investor attitude towards financial markets: A perspective on the Russia–Ukraine conflict. *International Social Science Journal*. 1–23. https://doi.org/10.1111/issj.12470
27. Chowdhury, E. K., & Nahar, S. (2017). Perceptions of Accountants toward Sustainability Development Practices in Bangladesh. *Journal of Management and Sustainability*,7(3), 112-119. doi:10.5539/jms.v7n3p112
28. Chowdhury, E. K., & Reza, T. (2013). Diagnostic Study on Interactive Ads and Its Response towards the FM Radio. *International Journal of Research in Commerce, IT & Management*, 3(2), 36-41. https://tinyurl.com/5n8huanv
29. Chowdhury, E. K., Dhar, B. K., & Stasi, A. (2022). Volatility of the US stock market and business strategy during COVID-19. *Business Strategy & Development*, 1–11. https://doi.org/10.1002/bsd2.203
30. Chowdhury, E. K., Dhar, B. K., Gazi, M., & Issa, A. (2022). Impact of Remittance on Economic Progress: Evidence from Low-Income Asian Frontier Countries. *Journal of the Knowledge Economy*, 1-26. https://doi.org/10.1007/s13132-022-00898-y
31. Chowdhury, E. K., Dhar, B. K., Thanakijsombat, T., & Stasi, A. (2022). Strategies to determine the determinants of financial performance of conventional and Islamic commercial banks: Evidence from Bangladesh. *Business Strategy & Development*, 1–19. https://doi.org/10.1002/bsd2.207
32. Chowdhury, E. K., Stasi. A. & Pellegrino. A. (2023). Blockchain Technology in Financial Accounting: Emerging Regulatory Issues. *Review of Economics and Finance*. 21 (1), 862-868. https://refpress.org/ref-vol21-a94/
33. Chowdhury, E.K. (2018). An Assessment of Return Spillover Among Selected Stock Markets in SAARC Countries. *South Asian Journal of Management*, 25 (1), 51-63. Association of Management Development Institutions in South Asia. https://tinyurl.com/y2bd39tk

34. Chowdhury, E.K. (2018). Does Foreign Direct Investment Stimulate Economic Progress of a Developing Country? Empirical Evidence from Bangladesh. *CIU Journal*, 1 (1), 71-86. Chittagong Independent University. https://tinyurl.com/3scz3jzh

35. Chowdhury, E.K. (2019). An Empirical Study of Volatility in Chittagong Stock Exchange. *CIU Journal*, 2 (1), 19-38. Chittagong Independent University. https://tinyurl.com/3w6k89k8

36. Chowdhury, E.K. (2019). Transformation of Business Model through Blockchain Technology. *The Cost and Management*, 47(5), 4-9. The Institute of Cost and Management Accountants of Bangladesh. https://tinyurl.com/bdz4ns7t

37. Chowdhury, E.K. (2020). Catastrophic Impact of Covid-19 on Tourism Sector in Bangladesh: An Event Study Approach. *The Cost and Management*, 48(4), 43-52. The Institute of Cost and Management Accountants of Bangladesh. https://tinyurl.com/ccu6mkbx

38. Chowdhury, E.K. (2020). Is Capital Market Integration among the SAARC Countries Feasible? An Empirical Study. *Eurasian Journal of Business and Economics*, 13(25), 21-36. https://doi.org/10.17015/ejbe.2020.025.02

39. Chowdhury, E.K. (2020). Non-Performing Loans in Bangladesh: Bank Specific and Macroeconomic Effects. *Journal of Business Administration*, 41(2), 108-125. University of Dhaka. https://tinyurl.com/54f5pexw

40. Chowdhury, E.K. (2020). Volatility in Cryptocurrency Market–Before and During Covid-19 Pandemic. *CIU Journal*, 3(1), 69-86. Chittagong Independent University. https://tinyurl.com/mr3djzcn

41. Chowdhury, E.K. (2022). Strategic approach to analyze the effect of Covid-19 on the stock market volatility and uncertainty: a first and second wave perspective, *Journal of Capital Markets Studies*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JCMS-05-2022-0015

42. Chowdhury, E.K. (2023). Integration of Artificial Intelligence Technology in Management Accounting Information System: An Empirical Study. In: Abedin, M.Z., Hajek, P. (eds) Novel Financial Applications of Machine Learning and Deep Learning. International Series in Operations Research & Management Science, vol 336. Springer, Cham. https://doi.org/10.1007/978-3-031-18552-6_3

43. Chowdhury, E.K., & Rozario, S. O. (2018). Impact of Attitude and Awareness of Investors on their Investment Behavior- A Study on Bangladesh Stock Market. *The Bangladesh Accountant*, July- September, 81-89. The Institute of Chartered Accountants of Bangladesh. https://tinyurl.com/4av6swas

44. Chowdhury, EK (2020). India's NRC, CAA may take Bangladesh closer to China. *Asian Regional Review*, Diverse Asia, Seoul National University Asia Center, 3(2). https://diverseasia.snu.ac.kr/?p=4525

45. Chowdhury, M.R.A., & Chowdhury, E. K. (2010). Estimation of Stock Market Risk-A Value at Risk Approach. *The Cost & Management*, 38(4), 22-27. https://tinyurl.com/4ax978ud

46. Chowdhury, M.R.A., Chowdhury, E. K., & Chowdhury, T. U. (2015). Application of Capital Asset Pricing Model: Empirical Evidences from Chittagong Stock Exchange. *The Cost & Management,* 43(3), 38-44. https://tinyurl.com/bddv24cy

47. Ciccone, S. (2011). Investor optimism, false hopes and the January effect. Journal of Behavioral Finance, 12(3), 158–168. doi: 10.1080/15427560.2011.602197

48. Ciccone, S. (2011). Investor optimism, false hopes and the January effect. Journal of Behavioral Finance, 12(3), 158–168. doi: 10.1080/15427560.2011.602197

49. Colacito, R., & Croce, M. (2013). International Asset Pricing with Recursive Preferences. Journal of Finance, 68(6), 2651–2686. doi: 10.1111/jofi.12088

50. Daves, P., & Ehrhardt, M. (1993). Liquidity, Reconstitution, and the Value of U.S. Treasury Strips. The Journal of Finance, 48(1), 315–329. doi: 10.1111/j.1540-6261.1993.tb04712.x

51. Davidson, W. I., & Dutia, D. (1989). A note on the behavior of security returns: a test of stock market overreaction and efficiency. Journal of Financial Research, 12(3), 245–252. doi: 10.1111/j.1475-6803.1989.tb00517.x

52. Dissanaike, G. (1994). On the computation of returns in tests of the stock market overreaction hypothesis. Journal of Banking and Finance, 18(6), 1083–1094. doi: 10.1016/0378-4266(94)00061-1

53. Duran, A., & Bommarito, M. (2011). A profitable trading and risk management strategy despite transaction costs. Quantitative Finance, 11(6), 829–848. doi: 10.1080/14697680903449815

54. Fama, E. (1998). Market efficiency, long-term returns, and behavioral finance. Journal of Financial Economics, 49(3), 283–306. doi: 10.1016/s0304-405x(98)00026-9

55. Fama, E., & French, K. (2008). Dissecting anomalies. Journal of Finance, 63(4), 1653–1678. doi: 10.1111/ j.1540-6261.2008.01371.x

56. Fortin, R. (1990). Transaction costs and day-of-the-week effects in the otc/nasdaq equity market. Journal of Financial Research, 13(3), 243–248. doi: 10.1111/j.1475-6803.1990.tb00554.x

57. Gençay, R., Gradojevic, N., Selçuk, F., & Whitcher, B. (2010). Asymmetry of information flow between volatilities across time scales. Quantitative Finance, 10(8), 895–915. doi: 10.1080/14697680903460143

58. Gerlach, J. (2007). Macroeconomic news and stock market calendar and weather anomalies. Journal of Financial Research, 30(2), 283–300. doi: 10.1111/j.1475-6803.2007.00214.x

59. Gerlach, J. (2010). Daylight and investor sentiment: A second look at two stock market behavioral anomalies. Journal of Financial Research, 33(4), 429–462. doi: 10.1111/j.1475-6803.2010.01275.x

60. Gregory-allen, R., Jacobsen, B., & Marquering, W. (2010). The daylight saving time anomaly in stock returns: Fact or fiction? Journal of Financial Research, 33(4), 403–427. doi: 10.1111/j.1475-6803.2010.01274.x

61. Griffiths, M., & White, R. (1993). Tax-Induced Trading and the Turn-of-the-Year Anomaly: An Intraday Study. The Journal of Finance, 48(2), 575–598. doi: 10.1111/j.1540-6261.1993.tb04728.x

62. Gultekin, M., & Gultekin, N. (1987). Stock Return Anomalies and the Tests of the APT. The Journal of Finance, 42(5), 1213–1224. doi: 10.1111/j.1540-6261.1987.tb04362.x

63. Hartzmark, S., & Solomon, D. (2013). The dividend month premium. Journal of Financial Economics, 109(3), 640–660. doi: 10.1016/j.jfineco.2013.02.015

64. Tobek, O., & Hronec, M. (2021). Does it pay to follow anomalies research? Machine learning approach with international evidence. Journal of Financial Markets, 56. doi: 10.1016/j.finmar.2020.100588

65. Tong, W. (2000). International evidence on weekend anomalies. Journal of Financial Research, 23(4), 495–522. doi: 10.1111/j.1475-6803.2000.tb00757.x

66. Weißofner, F., & Wessels, U. (2020). Overnight Returns: An International Sentiment Measure. Journal of Behavioral Finance, 21(2), 205–217. doi: 10.1080/15427560.2019.1663855

67. Zaremba, A., Umutlu, M., & Maydybura, A. (2020). Where have the profits gone? Market efficiency and the disappearing equity anomalies in country and industry returns. Journal of Banking and Finance, 121. doi: 10.1016/ j.jbankfin.2020.105966

68. Zhang, X. (2006). Information uncertainty and stock returns. Journal of Finance, 61(1), 105–137. doi: 10.1111/ j.1540-6261.2006.00831.x