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Fundamental Anomalies Within Shariah-Compliant Malaysian Stock Market

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Abstract: *The purpose of this paper is to investigate the presence of the fundamental anomalies (i.e., size and value anomaly) in the Shariah-compliant Malaysian stocks and its implications for the fund managers. Cross-sectional data was obtained from Shariah-compliant listed companies across eleven (11) sectors from the Bursa Malaysia Sectorial Index Series in 2023. The study was subjected to the Sharma and Jain (2020) that utilized the Welch's t-test for the exploration of the size and value anomalies. Two portfolios were created based on the market capitalization and price-to-book ratio of the companies. In addition, the average abnormal returns were calculated to assess any significant differences amongst the portfolios. The results indicate that the size and value anomalies exist in several sectors in Shariah-compliant Malaysian stocks market. The findings proved that the market is inefficient in the Efficient Market Hypothesis (EMH) semi-strong form, since investors can potentially make profits using the anomalies identified by the publicly traded companies' financial ratios. The implication to the fund managers in creating investment portfolios based on the anomalies examined, especially for those who wish to participate in Shariah-compliant stocks market. The paper attempts to close the research gap about the size and value anomalies on the individual Shariah-compliant stock. The paper adds to the current literature on fundamental anomalies that involve various sectors.*

Keywords: Size Anomaly, Value Anomaly, EMH, Shariah-Compliant Stock

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1. Introduction

The recent stock market declines in several countries have put a strain on unit trust funds, which have caused losses for investors. The market's current downturn is primarily due to worries about a possible slowdown in the US economy, a reduction in tech stock values, the Bank of Japan's surprise interest rate hikes, which caused a sell-off in Japanese stocks, and growing geopolitical tensions in the Middle East (Joshi, 2024). Consequently, it is difficult for fund managers to maintain a strong portfolio performance during this period because many investors choose to redeem their investments immediately when there is a poor performance in the fund even for a short period of time (Public Mutual, 2024).

The point to be emphasized here is that underperforming fund managers can cause major problems because they hold enormous amounts of funds, and a slight drop may end up in great losses. Moreover, fund managers are more susceptible to market efficiency because of their greater engagement in the news and information in the market compared to individual

investors, aside from their professional role. In turn, they will have no excuse for not generating abnormal returns.

Abnormal returns are synonymous with market anomalies, which suggests a pricing divergence. Aggarwal and Jha (2023) claimed that these market anomalies offer an opportunity for investors to take advantage of market possibilities and create abnormal returns. One of the market anomalies is fundamental anomalies, which refer to the behavior of stock prices and the relation between accounting numbers and firm value (Lewellen, 2010). There are many types of fundamental anomalies, size and value are the popular ones.

Size anomaly, which refers to the fact that the size effect raises an argument to the Efficient Market Hypothesis (EMH). The size effect was first presented by Banz (1981), whereby smaller firms tend to outperform bigger ones, even after risk has been adjusted. According to Handoyo, Mulyani, Ghani and Soedarsono (2023), small firms tend to choose a proactive strategic orientation, which then leads to a positive and significant effect on company performance. Additionally, it turns out that small firms perform better than large firms because larger firms appear to have less returns and more pronounce to underperformance (Allen, Qian, Shan, & Zhu, 2024; Mehrotra, Mohanty, & Sharma, 2023).

Value anomaly is another market phenomenon that has drawn the interest of academics. Basu (1977), who initially investigated value effect in the late 1970s, stated that low price to earnings (P/E) firms (value stocks) did generate greater returns on a risk-adjusted basis than the high P/E firms (growth stocks). Similarly, Maheswari and Ramya (2024) proved that high P/E ratio stocks do not necessarily produce great returns. Rather, low P/E ratio stocks that are undervalued and most likely will generate higher returns in the future (Yan, Yang, Hou, Zhang, & Zhu, 2022). Furthermore, according to Anginer, Ray, Seyhun and Xu (2024), value anomaly can also be detected by calculating the abnormal returns that will occur in the future from anomalies in which the underlying stocks have more pronounced current book-to-market ratios than they have in the past. This suggests that if the value anomaly exists, investing in high book-to-market ratios increases the chance of obtaining abnormal returns.

In the end, the occurrence of both size and value market anomalies suggests market inefficiency, allowing investors to achieve abnormal return in portfolios, particularly when investing in either small firms or value stocks.

Prior studies on fundamental anomalies (size and value anomaly) have concentrated on conventional stocks, such as Amin, Abdul-Rahman and Karim (2024) investigate the size effect in the stock returns cross-section, including over 800 stocks listed in the FTSE Bursa Malaysia KLCI Index. Even on the Islamic counterpart, their focus was on the market indices, such as Al-Khazali, Lean and Zoubi (2022) that claimed Shariah-compliant stock indices globally exhibit a size anomaly and are inefficient when in the semi-strong state.

We highlight two critical reasons that motivates us to analyze the fundamental anomalies in Shariah-compliant stocks.

First reason, Shariah-compliant stocks are restricted to the Islamic law, which are not allowed to engage in any activities that are related to a certain type of business, such as those involving interest (*riba*), severe uncertainty (*gharar*), or gambling (*maysir*). Consequently, Shariah-compliant portfolios are not as diversified, being more concentrated in a single sector, and smaller-cap focused than conventional portfolios (Al-Khazali et al., 2022). Tawfik and

Elmaasrawy (2024) stated that they can only fund themselves with shares, retained earnings, and several Islamic financing formulas, as they are not able to finance through interest-bearing loans.

Additionally, because the screening procedure for Shariah-compliant stocks can be difficult and time-consuming, there may be fewer opportunities for investment available. According to Talha, Faisal and Khan (2024), the limited investment opportunities may result in poorer returns on investment compared to the conventional stock market. Thus, Muslim investors need to improve their understanding of market efficiency in Shariah-compliant stocks so that they can place a larger part of their portfolio to these investments despite their challenges.

Second reason, the issue of poor managerial skills among fund managers must be solved. Many earlier researchers found that, fund managers' managing abilities do not significantly contribute to the superior fund performance; rather, several studies suggested that this is more likely to be the result of luck than skill (Barras, Scaillet, & Wermers, 2010; Blake & Timmermann, 1998; Cuthbertson, Nitzsche, & O'Sullivan, 2008; Jensen, 1968; Malkiel, 1995). According to Hasnaoui and Fatnassi (2021), Islamic fund managers in the Kingdom of Saudi Arabia showed ability in selectivity but not in timing the market. Meanwhile in Malaysia, Abdul Rahim, Othman and Soon (2017); Abdullah and Abdullah (2009); Low (2013); Low and Ghazali (2005); Mansor, Bhatti, Rahman and Do (2020); Rozali and Abdullah (2006) had the opinion that obviously Malaysian fund managers lack both selectivity and market timing skills.

Simply, they failed to decide what are the most beneficial assets to invest in and when the appropriate timing for such investments. As a result, poor fund manager skills can have significant negative impacts on investment performance, affecting both individual investors and the broader market. This occurs in Chinese equity securities investment funds, as reported by Gao, O'Sullivan and Sherman (2021), where the poor abnormal performance of underperform funds is primarily caused by "bad skill" and there is no proof supporting the presence of truly skilled fund managers. Therefore, the fund managers need to revise the approaches they have developed and make the most of market opportunities, like anomalies in the stock market, for developing profitable investment strategies.

In this study, we pose one main question to gain insight about a Shariah-compliant stock market anomalies that could potentially impact the market efficiency. The main question is "do Shariah-compliant stocks subject to the size and value anomalies?"

We take Shariah-compliant daily closing stock prices to conduct our research analysis that are sourced from the Bursa Malaysia Sectorial Index Series, which includes all firms listed in the Main Market and is organized according to each company's specific sector. The inclusion of several sectorial indices serves as an opportunity for diversification and to enable understanding of a Shariah-compliant Malaysian stock market.

This study aims to explore the evidence of the fundamental anomalies (i.e., size and value anomaly) on the Shariah-compliant Malaysian stocks. We investigate whether there are statistically significant abnormal returns in the stocks. We also examine if **small-cap (value) portfolios** are profitable more than **big-cap (growth) portfolios**.

Majority of earlier researches on the fundamental anomalies, including Chen, Petkova and Zhang (2008); Clark and Qiao (2020); Conrad, Cooper and Kaul (2003); Ho and An (2020); Lakonishok, Shleifer and Vishny (1994), adopted the student's *t*-test to determine whether or

not there was a statistically significant difference in return between the portfolios in size and value effects. Despite being frequently utilized in the prior financial literature, the student's *t*-test still produces erroneous results, especially when the equal variances assumption is violated. So, instead of using the Student's t-test, this study follows Sharma and Jain (2020) previous work, to identify the size and value anomaly using the Welch's *t*-test.

This study delivers multiple significant key additions to the scholarly literature. First, the present study examines the size and value anomalies of fundamental anomalies on Shariah-compliant individual stocks instead of their market indices. Second, to deliver an extensive and rigorous conclusion, we examine the size and value anomalies as well as EMH performance based on distinct market sectors. Third, we use a Welch's *t*-test that allows us to investigate the size and value anomalies in Shariah-complaint stocks when the assumption of equal variances is violated.

We found that the size and value anomalies did exist in Shariah-complaint Malaysian stock market. It demonstrated by statistically significant average abnormal returns in many different sectors, as well as by the size and value effects, which indicates that small-cap portfolio in the *Consumer Products and Services* sector and value portfolio in the *Construction* and *Consumer Products and Services* sector tend to achieve better returns.

The findings of this study propose significant advantages for those involved. In recent years, Shariah-compliant stocks have increased in popularity (Al-Khazali et al., 2022). Our investigation adds to the needed knowledge of this Shariah-complaint stock market, empowering Muslim individual investors to effectively and precisely evaluate its performance.

This study also can directly assist fund managers to create investment portfolios based on the anomalies examined, especially for those who wish to participate in Shariah-compliant stock markets. At the same time, the fund managers get to improve their existing strategy performance since the anomalies may offer exploitable profits to their portfolio (Asnawi, Salim, & Malik, 2020).

2. Literature Review

The EMH of Fama (1970), particularly when it comes to market efficiency, is considered as one of the most debated and extensively researched theories in finance literature. Under the EMH, investors cannot consistently obtain an abnormal return and even beat the market. Hence, the best way for investors to trade is by implementing a buy and hold strategy through a market portfolio, which includes all of the stocks available for investment (Bodie, Kane, & Marcus, 2022).

Theoretically, many prior researchers agree with the notion that the market is efficient if stock prices swiftly absorb new accessible news and neither individual nor institutional investors may get abnormal returns after optimizing for risk.

However, some other researchers have noticed a few unusual trends in the stock markets of many different nations worldwide, showing the inefficiencies in the stock market. A recent study by Bock and Geissel (2024) have seen a 20 percent rise in Europe market inefficiency, which contributed by the increase in average inefficiencies in the developed European countries stock market like Germany and the Scandinavian countries. Meanwhile, Lobão (2024) reported that, among Asian countries, Malaysia is the one that has shown a rise in the

severity of price clustering over time. This shows how the stock prices did not move randomly and violates the EMH for some stocks that show significant rates of price clustering.

Additionally, Jumintang and Utami (2022) stated that stock market anomaly is another factor that really works against the EMH. The factor does not support the concept of the efficient market, whereby investors may obtain abnormal returns since stock prices do not correspond to existing information and technically able to create a pattern.

In general, there are three (3) basic types of stock market anomalies, which is *calendar* or seasonal anomalies, *fundamental* anomalies and *technical* anomalies (Afrilianto & Daryanto, 2020; Dailydytė & Bužienė, 2020).

The anomaly under our investigation is *a fundamental* anomaly. Over the previous five years, the evidence of fundamental anomalies has been dominated by the two anomalies of size and value anomaly. Nevertheless, there has not been much evidence recently supporting the size anomaly's presence, given the disappearance of the size effect being documented by researchers in some countries.

Meanwhile, the academics have begun to debate which accounting measures will best explain the value effect. Also, the comparison and contrast with joint strategies, such as value-growth and value-momentum, will eventually help the investors gain from portfolio diversification**.**

2.1 Size Anomaly

Size anomaly is one of the stock market anomalies that has received a great attention, which is also one that previous researchers have debated a lot (Yin & Liao, 2021). A common measure used to assess the size of stocks is market capitalization, which comprises stocks with small, medium, and big capitalizations. The size anomaly arises when uncommon returns indicate that certain stocks, whether big or small, could outperform the market. Meaning that these stocks generate greater returns than may be expected. Additionally, it also occurs because of the size effect's contradiction with the EMH, which enables investors to get abnormal profits by investing in smaller-cap firms.

Smart, Gitman and Joehnk (2014) stated that the size effect sometimes gets referred to as the "small-firm effect" because many studies have found that small firms (small-cap stocks) frequently outperform large firms (big-cap stocks). The small-firm effect is considered an anomaly because small stocks appear to generate returns that are higher than their beta can explain. In fact, the stocks that produce abnormally high returns are generally more risky than other stocks. It is well acknowledged by academics and practitioners that small companies carry greater risk than large ones. Thus, according to Roszkowska and Langer (2019), small stocks have the greatest potential for abnormal returns and differences in risk could be the cause of the returns difference between small and large stocks.

Critically, the hypothesis is supported by Al-Khazali et al. (2022), that examined the size anomaly in the Islamic stock market over the 1996 to 2019 sample period. The study discovered that small-size portfolios outperformed large-size portfolios, but the reliability of the result depended on the risk tolerance of the investor. The most common explanation for the reason small stocks generates higher abnormal returns than large ones is because those stocks are fundamentally riskier. In response to the risk-return trade-off, greater returns ought to correctly portray the risk premium rather than undervalue the market.

Some other studies have produced contradictory findings, such as Ali, Badhani and Kumar (2022) analysis to control the size effect in the relationship between risk and return in the Indian stock market. The study indicates an important inverse relation between return and risk across a variety of risk proxies, which results in small stocks' lower returns than those of large stocks. This may be caused by investors who choose to take on more risk to obtain large returns with low probability, as opposed to being risk averse, leading to the overvaluation of those stocks.

Furthermore, some studies have declared that the size effect in the stock markets of the United States and certain other countries has allegedly vanished in the past few years (Cheema, Chiah, & Zhong, 2021). The most well-known explanation for no evidence of the size effect, as stated by Hou and Van Dijk (2019), is that it can be linked to small (large) firms experiencing negative (positive) profitability shocks. Yin and Liao (2021) evaluated the way profitability shocks, which are proxies for cash flow shocks, affect the cross-sectional correlation between size and expected returns throughout the period from 2002 to 2019 in the Chinese A-share market. After the profitability shocks adjustment, the small firms' return seems to rise, while the large firms' return tends to decline.

However, even though profitability shocks and returns have a positive relationship, investors cannot expect to accumulate high returns from small firms that experience large and positive profitability shocks. This is due to the market's irrational response to these shocks, which happens even when firms encounter positive shocks (Yin & Liao, 2021). Consistent with the findings by Cheema et al. (2021), which show that the significant and large size premium reemerges after accounting for profitability shocks to both small and large firms in the Tokyo Stock Exchange of Japan. The United States of America stock market also exhibits this phenomenon (Hou & Van Dijk, 2019). Therefore, this draws attention to a noteworthy factor of cash flow shocks, such as profitability shocks, that may help to explain the literature's weak evidence in favor of the size premium.

For the Malaysian stock market, previous work on the size effect has not yet been thoroughly examined. Nevertheless, a few studies on small-sized firms or market capitalization have identified a significant connection with other variables. The first study by Brahmana, Hooy and Ahmad (2014) conducted research on the impact of weather on investors' Monday irrationality. The study found that temperature played a crucial role in driving Monday irrationality, but only enabling predictions for small and medium-sized firms while not for large-sized firms. Li, Ee and Rashid (2016) focused on momentum trading in shariah-compliant stocks in Malaysia. The findings, however, indicated that the small-sized firms could not explain the observed momentum returns.

Prior to that, Lai and Lau (2010) examined the performance of mutual funds in Malaysia and identified significant factors explaining equity fund returns. On average, Malaysian funds for equity tend to own smaller in size market capitalization stocks and a focus on value-oriented stock while engaging in specific trading strategies. Collectively, these studies deepen the understanding of size effect and provide valuable insights into the factors influencing investment behavior in the Malaysian stock market.

2.2 Value Anomaly

Value anomalies serve to illustrate the contradiction between the value effect and the EMH, indicating that there might be potential to generate abnormal returns by taking advantage of market inefficiencies and that markets are not always completely efficient. The value effect happens because investors overestimate the future earnings and profitability of value

companies. Numerous studies on the presence of the value effect have been conducted using various value portfolio structures, such as reconciling companies with respect to book-to-market, price-to-book and earning-to-price ratios, comparing value versus growth stocks, or combining value and momentum strategies.

For example, Boamah (2017) examined the book-to-market effect on nine African frontier equities markets and found that equity firms with high book-to-market receive higher returns than those with low book-to-market. This phenomenon proves that the book-to-market effect of value anomaly does exist on the African Frontier Stock Markets.

Moreover, there is research that refutes the book-to-market ratio's validity as a value factor. Liu, Stambaugh and Yuan (2019) used empirical evidence to demonstrate that the earnings-to-price ratio reflects the value effect far more effectively than the book-to-market ratio, particularly when it comes to describing average stock returns in China. Similar findings were made by Huang, Liu and Shu (2023) who discovered that in Vietnam, the earnings-to-price ratio performs better than the book-to-market ratio in measuring the value effect.

Following the literature, the earning-to-price ratio has been frequently be used as one of the key value factors in many studies, such with studies by Chan, Gray, Gray and Zhong (2020); Garcia and Oliveira (2018); Jansen, Swinkels and Zhou (2021); Maio and Santa-Clara (2017); Zaremba and Nikorowski (2019), and has proven to be an effective way to capture the value effect in measuring country stock markets.

In recent year, Wang (2024) reexamined the value strategy using a new measure known as Cash-based Operating Profitability to Price (COP/P) ratio, because the study believes that the existing value measure did not perform well during the previous three decades. The study found that an investment portfolio with the greatest COP/P stocks purchased, and the lowest COP/P stocks sold generates monthly returns of 1.04% on an equal-weighted measure and 0.78% on a value-weighted one. Even in the period following 1990, when the book-to-market fails to forecast returns, the COP/P effect continues to exist and holds true for large-cap stocks. Thus, the COP/P ratio should also be considered as an important value measure, particularly when contrasting value and growth stocks.

Value stocks are sometimes coupled with growth stocks as a counterpart. The opposite features define the value stocks in a portfolio, which comprise firms with high book-to-market ratios and low price-to-book ratios, while growth stocks create portfolios with low book-to-market ratios and high price-to-book ratios (Sharma & Jain, 2020). At some point, value anomaly arises as result of investors showing a tendency to underestimate value firms' future returns and earnings while overestimating future returns and earnings of growth firms. According to Aboura and Arisoy (2016), there is something that is known as the value premium, in which value stocks tend to offer greater average returns than growth stocks. The market's superior performance of value stocks and against the growth stocks.

Similar findings are shown by Garcia and Oliveira (2018) in the context of the international stock market, where value stocks typically exhibit superior returns than growth stocks. Indeed, investing in international markets provides researchers with an adequate out-of-sample pool of data and a larger range of alternatives for investors to profit from other countries' market capitalizations and global Gross Domestic Product or GDP.

In light of this, Hollstein (2022) conducted research in which the study looked into stock market anomalies for all developed and emerging markets tracked by Morgan Stanley Capital International (MSCI) across 47 different countries. Surrounding the period from January 1980 to December 2017, the value strategy was discovered to be the strongest and most robust anomaly among a large set of 124 anomalies observed. This highlights how important it is to take value anomaly into account when constructing an investment portfolio strategy, even for markets with a worldwide reach.

In summary, the size and value anomalies are among the fundamental anomalies in the stock market that disregard the EMH since there is a possibility that the stock price was not correctly reflecting the available information surrounding the public announcement. Several factors, including the companies' market capitalization size (size effect) and the rate of the price-to-book and book-to-market ratios (value effect), have been employed by previous researchers to help explain these anomalies. The idea that **small-cap companies** are more likely than big-cap companies to have **superior abnormal returns** has been brought up. Also, **companies with low price-to-book ratios** and **high book-to-market ratios** are expected to have greater abnormal returns than the opposite. Evidence showing the ongoing relevance of the size and value anomalies in some countries hints that these anomalies are still relevant and significant to be concerned.

In light of the lacks of past review research, this study offers an updated point of view and focus thoroughly monitoring and assessing some of the fundamental anomalies on Malaysia's Shariah-compliant stocks. As mentioned before, the purpose of this study is to fill in what is lacking in the literature through exploring aspects like the implications for fund managers, hence it provides an expended and more thorough analysis of this topic.

3. Method

3.1 Data

This study utilizes Shariah-compliant daily closing stock prices in the year 2023, covering the scope of 11 sectors from the Bursa Malaysia Sectorial Index Series, which includes all firms listed on the Main Market. The sectors that were included were limited to those that accounted for at least 80% of Shariah-compliant stocks, any less than that was disregarded. Annual data comprising market capitalization and price-to-book ratio is sourced from Refinitiv Eikon Datastream.

For each sector, the stocks are ranked from the largest to the smallest based on the market capitalization and price-to-book ratio of the companies. Following Rohuma (2023), "big-cap portfolio" is constructed according to the stock's market capitalization surpasses that of the median. Below that, it was categorized as "small-cap portfolio".

As per the research conducted by Fama and French (1993), a stock was classified as "value" if its book-to-market value was within the top 30% of all stocks' book-to-market value, and as "growth" if it fells among the bottom 30%. To obtain adequate and comparative findings with previous research, a different accounting variable, the price-to-book ratio, is used. However, the term "value portfolio" was used for stocks with the bottom 30% of the price-to-book ratio and "growth portfolio" for those with the top 30% one.

For purpose of our study, the stock price sample has been transformed into a return series and abnormal returns for each sector were calculated over a one-year period. The abnormal returns

are used to see how far the actual return diverges from its expected returns. The formula for an actual return can be expressed as follows:

$$R_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}} \tag{3.1}$$

where R_{it} is the actual return on stock i at the time t, P_{it} and P_{it-1} are closing prices of stock i at time t and $t-1$ respectively.

Then, the expected return can be obtained from the following equation of CAPM:

$$E\left(R_{it}\right) = R_{ft} + \beta_{it}\left(R_{mt} - R_{ft}\right) \tag{3.2}$$

The model says that the expected return on stock i ($E\left(R_{it}\right)$) is equal to the risk free-rate (R_{ft}) plus the product of the stock's beta (β_{it}) and the risk premium on the overall market ($R_{mt} - R_{ft}$). The abnormal return (AR) is computed by subtracting the expected return from the actual returns.

$$AR = R_{it} - E\left(R_{it}\right) \tag{3.3}$$

A positive abnormal return indicates that the stock return performs better than expected. We used the return of the FTSE Bursa Malaysia EMAS Shariah Index represents the market return, and the 3-month Kuala Lumpur Interbank Offered Rate (KLIBOR) serves as a stand-in for the risk-free rate.

3.2 Welch's t-Test

The Welch's *t*-test, referred to as the unequal variances *t*-test, is a statistical method utilized for testing hypotheses. It is an adjusted form of the standard Student's *t*-test that relies on the groups having equal variances. Despite being frequently utilized in the prior financial literature, the Student's *t*-test still produces erroneous results, especially when the equal variances assumption is violated. So, instead of using the student's *t*-test, this study follows Sharma and Jain (2020) previous work, which identified the size and value anomaly using the Welch's *t*-test.

Since the Welch's *t*-test compares the means of two distinct groups that are independent of each other when the sample sizes and variances are significantly different, the Welch's *t*-test would therefore give an extra reliable and precise measure for comparing mean returns. This is the way the Welch's t-test statistic is calculated:

$$t = \frac{\bar{R}_1 - \bar{R}_2}{\sqrt{\frac{s_1^2}{N_1} + \frac{s_2^2}{N_2}}} \tag{3.4}$$

where,

$\bar{R}_1, \bar{R}_2$: the two groups sample means,

s_1^2, s_2^2 : the two groups sample variances,

N_1, N_1 : the two groups sample sizes.

This study specifically utilizes the Welch's *t*-test to determine if there is a statistically significant difference between the abnormal returns on the small- and big-cap portfolios, and on the value and growth portfolios. When the *t*-value crosses the critical threshold and the p-value falls below the significant level, the null hypothesis is considered invalid, signifying that the abnormal returns are significantly deviate from zero.

4. Findings

A summary of the market capitalizations for small and big market cap portfolios and the price-to-book values for the value and growth portfolios created in various sectors is displayed in Table 1 and Table 2, respectively.

In general, we were unable to identify any trends regarding the constancy of market capitalization over the sectors shown in Table 1. This is because the mean market cap for some sectors differed extensively relative to the portfolios of small-cap and large-cap stocks. For instance, the largest differences, RM47,237.16 million, is observed in the *Transportation and Logistics* sector, and this could result in a significant discrepancy between the return performance of the two portfolios. Conversely, the market capitalization of the *Property* sector differed by just RM816.03 million across the small-cap and big-cap portfolios, which therefore could eventually cause us to get an inconsistent outcome.

Table 1: Minimum (Min), Mean and Maximum (Max) Values of Market Capitalization, in RM Million, for Small-Cap and Big-Cap Portfolios

Portfolio Formation Sector	Small-Cap Portfolio			Big-Cap Portfolio		
	Min	Mean	Max	Min	Mean	Max
Construction	0.665	87.541	143.510	144.149	1,121.512	9,808.654
Consumer Products and Services	25.998	97.093	194.895	198.121	2811.062	32,830.000
Energy	0.138	79.351	249.828	266.263	1852.515	13,832.466
Healthcare	136.213	517.818	1,090.941	1,196.302	10,357.432	53,874.757
Industrial Products and Services	1.191	92.917	198.711	201.588	2,456.421	68,800.000
Plantation	62.416	349.793	959.310	1,132.693	7,588.794	31,752.528
Property	2.091	93.474	188.676	208.616	909.506	3,877.819
Technology	32.700	183.862	400.890	421.200	3,204.146	9,742.627
Telecommunications and Media	42.072	109.711	221.569	391.227	19,224.527	4,6926.032
Transportation and Logistics	25.000	120.656	307.145	390.777	47,357.815	561,856.497
Utilities	66.615	588.401	1,743.682	3,250.000	19,999.039	55,402.135

Table 2 shows that the price-to-book ratio mean values for all sectors of the growth portfolio exceeds that of the value portfolio, literally more than one up to more than 50. It can imply that investors are confident in the business's prospects and that the stock has been overpriced, but it can also mean that market expectations are too high. Therefore, it is crucial to use caution when assessing the worth of a high price-to-book ratio.

Table 2: Minimum (Min), Mean and Maximum (Max) Values of Price-to-Book for Value and Growth Portfolios

Portfolio Formation Sector	Value Portfolio			Growth Portfolio		
	Min	Mean	Max	Min	Mean	Max
Construction	0.081	0.224	0.288	0.869	1.998	8.855
Consumer Products and Services	-1.769	0.315	0.575	1.749	4.844	49.110
Energy	-5.771	-0.686	0.503	1.029	3.334	12.527

Healthcare	0.529	0.807	1.099	2.715	4.061	6.976
Industrial Products and Services	0.140	0.317	0.478	1.184	2.990	14.499
Plantation	0.158	0.388	0.486	1.348	1.893	2.471
Property	0.136	0.203	0.252	0.481	1.149	3.964
Technology	0.186	0.722	1.112	3.751	7.865	19.814
Telecommunications and Media	0.323	0.353	0.396	2.617	15.637	51.228
Transportation and Logistics	0.219	0.382	0.603	1.301	5.132	17.680
Utilities	0.239	0.348	0.492	2.178	2.766	3.538

Next, the average abnormal return produced by the small-cap and big-cap portfolios are statistically tested and demonstrated in Table 3. The outcomes reveal that the *Construction*, *Consumer Products and Services*, *Industrial Products and Services*, and *Property* sectors are the four that have positive average abnormal returns and are 99% statistically significant for the small-cap portfolios, but not in the big-cap portfolio, except for *Property* sector.

Then, when the portfolios are statistically tested under the opposing hypothesis that there is a difference in the mean returns of the small- and big-cap portfolios, only the *Consumer Products and Services* sector has a positive and significant difference. This ensures that there is a statistical difference among the portfolios of small and big companies, emphasizing that owning small-cap stocks in this sector will be advantageous.

In the Property sector, despite both portfolios showing positive significant abnormal returns, there was statistically insignificant difference in returns between the small- and big-cap portfolios. So, there is no extra benefit to investing in small-cap portfolios since this sector has the potential to show a significant abnormal return in both portfolios.

Besides, the *Healthcare* small-cap portfolio showed a significant abnormal return, but it did so in the form of negative returns, which is undesirable.

When we compare the small- and big-cap portfolios, the small-cap portfolios have more sectors with significant and positive average abnormal returns. This is consistent with the finding of Roszkowska and Langer (2019) that small stocks have the most potential for abnormal returns. According to previously released studies, there is a size effect when small-cap stocks do better than big-cap stocks. Thus, the size effect did exist only in one sector, which is the *Consumer Products and Services* sector.

Table 3: Average Abnormal Returns (%) of Small-Cap and Big-Cap Portfolios

Portfolio Formation Sector	Small-Cap Portfolio (p-value)	Big-Cap Portfolio (p-value)	Small (–) Big Cap Portfolio (p-value)
Construction	0.123	0.061	0.063
	(0.004) ***	(0.018) **	(0.182)
Consumer Products and Services	0.111	0.003	0.108
	(0.000) ***	(0.818)	(0.001) ***
Energy	0.098	0.334	0.236
	(0.059) *	(0.057) *	(0.180)
Healthcare	-0.073	0.065	-0.138
	(0.010) ***	(0.220)	(0.028)
Industrial Products and Services	0.140	0.031	0.109
	(0.002) ***	(0.042) **	(0.021) **
Plantation	-0.237	-0.018	-0.219
	(0.337)	(0.146)	(0.378)

Property	0.153	0.115	0.037
	(0.000) ***	(0.000) ***	(0.411)
Technology	-0.006	0.048	0.055
	(0.837)	(0.177)	(0.241)
Telecommunications and Media	0.006	0.033	-0.027
	(0.902)	(0.298)	(0.626)
Transportation and Logistics	0.180	0.009	0.171
	(0.017) **	(0.728)	(0.030) **
Utilities	0.204	0.007	0.197
	(0.029) **	(0.527)	(0.035) **

Note: * denotes a significant *t*-test at 10%, ** at 5%, and *** at 1%

Table 4 demonstrates the average abnormal returns for value and growth portfolios. The findings show that only the *Property* sector offers a significant and positive average abnormal return in both the value and growth portfolios. By contrasting the two portfolios' returns, the distinction is slightly significant at the 10% significant level. But they are still profitable because both portfolios have significant abnormal returns.

Additionally, there are also three sectors that have positive average abnormal returns and are statistically significant at 1% significant level for the value portfolio but not for the growth portfolio, which are *Construction, Consumer Products and Services* and *Energy* sectors. Then, as we examined the variation within the return on value and growth portfolios, there is statistically significant difference at 1% significant level for *Construction* and *Consumer Products and Services* sectors. This suggests that buying value stocks in these two sectors will yield more profits than buying their growth stocks.

Literature suggests that value effect exists when value portfolios perform better than growth portfolios. Our findings reveal that the value effect did occur in the two sectors, which are *the Construction* and *Consumer Products and Services* sectors. Even though the growth portfolio did appear to outperform the value portfolio in the other sectors, the *t*-test statistics fails to reject the null hypothesis, implying that there is no significant difference between the mean returns of these two portfolios.

To conclude, the existence of the size and value anomalies in Malaysian stock market is supported by statistically significant average abnormal returns over many different sectors, as well as by the size and value effects, which indicates that small and value portfolios tend to achieve better returns.

Table 4: Average Abnormal Returns of Value and Growth Portfolios

Portfolio Formation Sector	Value Portfolio (p-value)	Growth Portfolio (p-value)	Value (–) Growth Portfolio (p-value)
Construction	0.127	0.021	0.106
	(0.000) ***	(0.427)	(0.009) ***
Consumer Products and Services	0.104	0.010	0.108
	(0.000) ***	(0.818)	(0.001) ***
Energy	0.384	0.278	0.0105
	(0.001) ***	(0.349)	(0.722)
Healthcare	0.052	-0.090	0.142
	(0.362)	(0.035) **	(0.050) **
Industrial Products and Services	0.121	0.003	0.122
	(0.047) **	(0.880)	(0.064) *
Plantation	-0.403	-0.004	-0.399

	(0.371)	(0.782)	(0.381)
Property	0.202	0.070	0.132
	(0.003) ***	(0.002) ***	(0.054) *
Technology	0.052	0.034	0.018
	(0.143)	(0.307)	(0.703)
Telecommunications and Media	0.088	0.002	0.086
	(0.281)	(0.967)	(0.332)
Transportation and Logistics	0.266	0.085	0.181
	(0.406)	(0.378)	(0.163)
Utilities	-0.012	0.167	0.179
	(0.312)	(0.220)	(0.201)

Note: * denotes a significant *t*-test at 10%, ** at 5%, and *** at 1%

5. Discussion

A few sectors exhibit statistically significant and positive average abnormal return in small- and big-cap portfolios. These findings suggest that Shariah-compliant Malaysian stock market anomalies or inefficiencies may exist. Three possible causes may have contributed to the size effect in the *Consumer Products and Services* sector, and this could lead to a size anomaly.

First, because small-cap stocks are not as well-known as their big-cap counterparts, investors frequently pay them less attention. This lack of assessment may result in circumstances where the market does not properly imply or act upon publicly available information concerning these stocks. As a result, the small-cap stock market may therefore be less efficient and due to this inefficiency, there may be chances for exploitation, when informed investors may be able to profit from disparities.

Secondly, small stocks are more risky than big ones, they typically yield bigger returns. Higher returns should accurately reflect the risk premium prompted by to the risk-return trade-off. Small stocks may thus end up being the preferred option for Malaysian investors. This is consistent with research that found Malaysian equity funds are more tended to use certain trading techniques and hold stocks with smaller market sizes (Lai & Lau, 2010).

The third possible explanation is that there might be the lack of momentum anomaly in Shariah-complaint stocks in Malaysia. Li et al. (2016) stated that the small-sized firms could not explain the observed momentum returns. This implies that small firms with a history of underperformance have an opportunity to turn things around in the future.

Furthermore, this study investigates the profitability of value anomaly in Shariah-compliant Malaysian stock market. The outcomes indicate that there exists a value effect in the *Construction* and *Consumer Products and Services* sectors. There are two probable reasons for this phenomenon.

The first reason is that investors sometimes overestimate the future returns and earnings of growth firms while undervaluing those of value firms, which leads to value anomaly. This is in line with study by Doukas, Kim and Pantzalis (2004) that conclude that investors are often inaccurate when estimating future profit growth for value stocks. Additionally, since all two of these sectors plays an important role considerably to Malaysia's GDP, employment, and overall economic development, value effect occurs due to investors' extreme optimism about the stocks in these sectors.

The second reason is the one-year buy and hold period for portfolios is insufficient to allow the market to adjust for inefficiencies (Sharma & Jain, 2020). As emerging economies such as Malaysia are lacking efficient markets and have inadequate distribution of assets, these markets are unable to distribute resources optimally. It also means that because the market is not given sufficient time to correct itself and appropriately value the assets, investments cannot achieve their greatest potential.

In the end, the size and value anomalies continue to violate the EMH, where investors supposedly would not be capable of consistently beat the market by taking advantage of mispriced assets because the price of financial assets already fully incorporates all available information. It can be said that achieving an abnormal return is not possible. But that is not the case for size and value anomalies, when the size effect (the outperformance of smaller stocks, Banz (1981)) and the value effect (the outperformance of value stocks, Basu (1977)) challenges the EMH, referring to possibility for higher returns by leveraging market inefficiencies.

6. Conclusion

This study investigates the cross-sectional behavior of the fundamental anomalies, specifically on the size and value anomalies within a Malaysian stock market, using data from Shariah-compliant listed companies across 11 sectors from the Bursa Malaysia Sectorial Index Series. This study follows Sharma and Jain (2020) previous work, which identified the size and value anomalies using the Welch's *t*-test. Prior to that, the market capitalization and price-to-book ratio of the companies are used to rank the stocks in each sector from largest to smallest. Next, two portfolios are created and classified as small- and big-cap portfolios, as well as value and growth portfolios.

The findings reveal that the size and value anomalies are persistent in Shariah-compliant Malaysian stock market. There are many different sectors exhibit statistically significant average abnormal returns in the portfolios, as well as the size and value effects, which indicate that small-cap portfolio in the *Consumer Products and Services* sector and value portfolio in the *Construction* and *Consumer Products and Services* sector tend to generate higher returns.

Interestingly, there are significant size and value anomalies in this single sector, which is the *Consumer Products and Services* sector. The reason might be due to the high number of companies that are present in this sector, given that Malaysia's consumer sector comprises many kinds of industries, such as retail, tourism and food and beverage. So, the less popular stocks with lower prices are less sensitive to the market and have lower expected return, causing the abnormal return to be unusually high.

To conclude, the study's results agree with the conclusions reached by Al-Khazali et al. (2022). The findings proved that the Shariah-compliant Malaysian stock market exhibits inefficiency when the EMH is considered in its semi-strong form, since it is possible to profit from the size and value anomalies that have been examined. Moreover, this study emphasizes how crucial it is to account for various industry sectors in a stock valuation, the fund manager could utilize this information to design their portfolio depending on the fundamental anomalies evaluated.

However, this study has few limitations. Firstly, there might be a momentum effect in the market, thus the short one-year period would not be sufficient to support the market's overall efficiency. Secondly, the exclusion of the transaction costs may lead to distorted results. As mentioned by Yat, Keong and Ling (2011), transaction costs might exceed the potential returns,

making the transaction not profitable, particularly if it is a small one. Thus, future studies can widen the scope of study period and consider interaction with momentum anomaly, as well as incorporating the transaction costs for the portfolios.

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