Proceedings of the 7th International Conference on Economic Management and Green Development
DOI: 10.54254/2754-1169/32/20231590

The Value Premium Puzzle: A Comprehensive Review of the Empirical Evidence and Theoretical Explanations

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Abstract: This paper provides a comprehensive review of the major perspectives of scholars regarding the value premium phenomenon, which has been debated for decades. The review is structured into four parts: risk-based explanations, market-level explanations, firm-level explanations, and behavioral-based explanations. Risk-based explanations, which revolve around Fama and French's contribution, are discussed alongside two other prominent works by different scholars. Market-level explanations mainly focus on aggregate financial conditions, while firm-level explanations highlight different forms of financial inflexibility. Behavioral-based explanations are subdivided into short-term momentum, long-term momentum, and irrational expectations. The paper also addresses the issue of the decreasing value premium observed in recent decades, which underscores the proxy problem of using the book-to-market ratio to reflect the fundamental equity of stocks. Overall, this review sheds light on the various perspectives that scholars have brought to bear on the value premium phenomenon, thereby deepening our understanding of this long-standing puzzle in the global markets.

Keywords: Value Premium, Risk Compensation, Behavioral Anomaly.

1. Introduction

The value premium is a widely confirmed and studied phenomenon. The basic concept of the value premium suggests that stocks with lower valuations tend to outperform the ones with higher valuations over a long period. Parameters are set to help scholars and investors define the value spectrum of stocks. One of the most widely-used parameters for value evaluation is the book-to-market ratio, also known as the book equity or the B/M ratio, which is calculated by a firm's book value per share divided by its market value per share.

Despite the fact that the concept of the value premium is far from being new, the empirical evidence and theoretical implication of its explanation haven't stopped generating attention and debate for decades. Popular views on the explanation of the value premium include risk compensation from standard finance and irrational behaviors from behavioral finance. Fama and French are prominent supporters of the risk-based explanation which indicates that the premium of investing in value stocks is caused by bearing higher risks. The behavioral-based explanation of the value premium suggests that the mispricing led by investors' cognitive biases and the reversal effect of the stock price are the ultimate cause of the value premium. Supporters of this explanation include Richard Thaler and Werner De Bondt. Thaler is a Nobel Prize winner, who suggests that investors'

DOI: 10.54254/2754-1169/32/20231590

overreaction to positive news and a lack of reaction to negative news of growth stocks are the driving forces of the overvaluation or mispricing of these stocks in his 1992 paper [1]. However, there are other contributions made by scholars or investors in terms of the explanation for the value premium and it might be hard to definitively attribute certain progress or findings to a single individual or group.

In this paper, a survey of the literature on the explanation of value premium will be conducted and the main findings and contributions of the literature will be integrated into four parts that are an overview of risk-based explanations, market-level explanations, firm-level explanations, and behavioral-based explanations. Specifically, the literature chosen in this paper either incurs great attention or endorsement or reflects a creative and thought-provoking perspective. Extremely Idiosyncratic insights into the value premium puzzle are not included in this paper. The main goal is to integrate literature of great value on the explanation of the value premium into reasonable sections in order to clearly and critically review the voices so far on this topic.

2. Risk-Based Compensation

Fama and French suggested that the value premium, to a great extent, stems from the compensation for systematic risk factors in asset pricing. Fama and French first introduced the three-factor model, which includes market risk, size, and book-to-market ratio, as an asset pricing model [2]. When extending the observing timeline of the previous sample stocks, they rejected the central idea of the Sharpe-Lintner-Black model that the market portfolio of invested wealth is mean-variance efficient. Instead, they discovered that the book-to-market ratio best captures the cross-sectional deviation among average stock returns. They discovered the phenomenon that stocks with high book-to-market ratios tend to outperform the ones with low book-to-market ratios if the two factors are controlled. Their later work of 1996 further argues that many average-return anomalies from the CAPM model are captured by the three-factor model. This discovery led to their work in 1993 where, by looking at the returns of stocks in NYSE and NASD, Fama, and French first suggested that the existing value premium can be largely explained by companies' book-to-market (B/M) ratio [3]. Their findings implicate the meaning of value premium that the stocks that have higher average returns are usually the stocks that have higher book-to-market ratios which are also known as value stocks. They further proposed an explanation for the premium phenomenon among these stocks that vary from their B/M ratio by using regression tests that, the higher return of these value stocks can be attributed to a higher level of risks that their investors are bearing. Fama and French suggest that a stock's book-to-market ratio and slopes on the HML(high minus low) factor can serve as a proxy for the financial distress that it is facing. According to this, HML as a factor to explain the expected returns from stocks is effective and the result it generates is consistent with what other scholars previously suggested that average stock returns are compensated by distress risk. In addition, Fama and French found that the profitability factor is another effective predictor of returns, but did not contribute to the value premium [4]. They added a profitability factor to their model, to capture the effect of a firm's profitability on its returns. To conclude, Fama and French are prominent endorsers of the risk compensation explanation of the value premium, and the multi-factor model is widely accepted in the research of the value premium puzzle.

Great contributions to the risk compensation explanation had also been made by Lettau and Wachter. They propose a dynamic risk-based model in order to analyze risk compensation [5]. They introduce a cross-section of firms with long history according to their cash flow timing to find out the difference between value and growth stocks that cause the value premium. By incorporating a stochastic discount factor to probe into how investors perceive these cash flows in terms of the risks, they are able to find out that the value decile shows an increase in the risk premium, risk-adjusted returns, and the Sharpe ratio. The value premium from the portfolios generated by their model exceeds

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the one generated by B/M sorting criteria. Through this finding, they imply that there is lower volatility in extreme value portfolios than in extreme growth ones. Their model underlines the important role of cash flow dynamics in the change of discount rates under its primary concern of trying to explain the value premium through the perspective of cash flow fundamentals. Overall, their proposed model still supports the risk-based cause of the value premium and concerns the time-related behavior change of the market as a whole, the return spread between value and growth stocks, and the flaws of the CAPM model in terms of its contribution to the puzzle.

There is another perspective that is prominent in the field of risk-based explanation. Asness, Moskowitz, and Pedersen examine the performance of value and momentum strategies across eight diverse markets and asset classes [6]. Their findings also endorse the risk-based explanation of the puzzle by implying that value strategies tend to work well in environments with high risk whereas momentum strategies tend to work well in an environment with low risk. They discover that value strategies and momentum strategies are both positively correlated with other counter strategies across unrelated markets whereas value and momentum strategies have a negative relationship of co-movement with each other across different asset classes. This implies that there are some factors shared by markets across the world that can affect the value and momentum strategies They also find that risk elements are negatively correlated with value strategies while being positively correlated with momentum strategies and fund liquidity risk could partially explain the momentum strategies but not the value ones.

2.1. Market-Level Risks

Arguments are frequently presented by scholars who have found a robust relationship between the value premium and market-level conditions or risks. Gulen, Xing, and Zhang suggest that time variations element contributes to the value premium [7]. Based on a two-state Markov switching framework, they are able to acquire two major findings by testing the time-varying transition probabilities. One of them is that the expected return in values stocks is more sensitive to market-level volatility state whereas the one in growth stocks is less sensitive to the same aggregate condition. More importantly, the expected premium of value stocks shows a pattern of sharp increase when present in an aggregate economic condition with high volatility. Another major finding that supports the market-level explanation concerns the financial distress of different firms from the value spectrum. For example, some scholars found that value premium can be attributed to financial distress for the reason that value stocks tend to be the stocks that are under distress. In turn, companies under distress are evidently more sensitive to the impact of market-level downturns. Thus, the value premium may stem from bearing more risks in terms of aggregate market conditions. To further explain this idea, They use variables of the percentage of firms that cut their dividends above 25% level, firms' book value of debt to market value of equity ratio, and the standard deviation of earnings divided by price across firms to get insights from markets of different regions and countries. By completing this, their paper was able to argue that the value premium phenomenon is more prevalent and reliable in a more mature market such as the market in the United States and Japan whereas this premium appears less robust in markets of Thailand and other high-growth markets due to the variation between the ability of risk spread in the regional market as a whole. Consistently, Fama and French's contribution to the puzzle also includes proof of the correlation between financial distress and expected returns with the help of the HML (high minus low) factor in the multi-factor explanations of asset pricing anomalies.

2.2. Corporate-Level Risks

Different perspectives have been generated by scholars who looked beyond the market level and choose to focus on the companies themselves to solve the puzzle. For example, some scholars use

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B/M as an indicator for value to draw a look into the cause of value premium. In his work, two models are developed to analyze the relationship between expected returns and endogenous decisions made by companies. By demonstrating a linear relationship between growth opportunities divided by the assets in place ratio and the company's beta and also between fixed operating costs divided by the total value of the company ratio and its beta, the paper was able to obtain the conclusion that the value premium, which is represented by the book-to-market effect, is a consequence of the variation among companies' operating leverage. This means that high operating leverage can drive increased risk when there is a decrease in demand for the company's products which then causes a decrease in equity.

Another explanation that supports the financial inflexibility 'theory' is that costly reversibility, a source of financial inflexibility, contributes to the value premium. Garlappi and Yan exemplify a group of scholars' opinions on the value premium puzzle [8]. By testing the three effects of nonconvex adjustment costs, operating leverage relative to the price of financial assets, and investment irreversibility, they find out that changes in a company's expected to return are a result of changes in its excess capital capacity. Because of investment irreversibility, the model from the paper proves that companies that have gone through a series of negative impacts in terms of their profitability tend to have high B/M ratio, and these kinds of companies are most likely to gain an advantage of positive shocks requiring only investment in a small scale. Thus, investment in these companies bears a high systematic risk for its sensitivity to systematic shocks. In addition, simulations from the paper further prove that this kind of investment irreversibility not only contributes to the value premium but also serves as a main propeller for it by denying the effect of fixed adjustment costs in changes of expected returns.

In recent years, evidence for financial inflexibility is still accumulating. Clark, Zhuo, and Qiao found a significant positive correlation between the well-accepted value indicator which is the B/M ratio, and financial inflexibility by looking into the Chinese stock market, showing that financial inflexibility is a crucial risk determinant of the value premium phenomenon [9]. They use the stochastic dominance theory to test the systematic incremental utility concerned with the value premium and eventually rejected any systematic phenomenon associated with the value premium. Then, they further draw a conclusion that distributions of returns are what partly cause the investor utility by testing their sample from the Chinese stock market. In addition, their paper emphasizes the contribution of financial inflexibility to the value premium by demonstrating the correlation between the B/M ratio and firms' financial flexibility level.

3. Behavioral Anomaly

3.1. Short-Term Momentum

Some scholars supports a behavioral-based explanation by suggesting that past intangible information which is not related to accounting activities is what drives the value premium to a great extent. By looking into the Chinese stock market which has a special environment compared to other more developed markets, they find that a higher value premium is seen in stocks that have less amount of past intangible information while a lower value premium is seen in stocks with more non-accounting information. Moreover, they use the multivariate decomposition analysis to prove that idiosyncratic volatility which can also be known as arbitrage risk has an unobtrusive effect on the value premium, a finding that further supports the crucial role of past intangible information in the formation of the value premium.

Another perspective from the momentum explanation is centered around the mispricing pattern of stocks. Cong, George, and Wang contribute to the behavioral explanation by initiating the use of the VPD factor in examining the cross-sectional deviation of stock returns and the use of alternative metrics in the evaluation of companies' intrinsic value to analyze the value premium [10]. The VPD

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factor stands for the value-price-divergence factor which is another factor aimed to describe the price divergence phenomenon caused by investors' behavioral tendencies. Last but not least, based on the discovery associated with the VPD factor, their paper even points out the restrictions of the B/M ratio in terms of its widely-accepted usage of determining the value spectrum. The investor recognition hypothesis is also supported stemmed from the mispricing explanation. Ahmad and Oriani find an evident value premium phenomenon given the condition of a low degree of investors' attention [11]. They use VL, GL, VH, and VL to represent value stocks with low investors' attention, growth stocks with low investors' attention, value stocks with high investors' attention, and growth stocks with high investors' attention. Based on their data of US stocks during the period of 2003 to 2017, they find that VL outperform GL whereas returns of VH didn't differ from that of GH significantly. This phenomenon that their paper discovered is in accordance with the investor recognition hypothesis which is robust evidence for the mispricing phenomenon concerned in the behavioral explanation of the value premium.

3.2. Long-Term Reversal

De Bondt and Thaler found the existence of price reversals in stocks that have consistently experienced long-term gains or losses [12]. For the stocks that have experienced great losses, however, they tend to outperform the ones that have gained from the past period during the reversal stage. Another work from them further backed up the overreaction hypothesis in the stock market by examining the winner-loser effect, stock market seasonality, and risk. They conjectured that the stock prices could be viewed as a kind of discounted expected earnings and prove that the market usually isn't able to predict or realize ahead of the reversal tendency in extreme earnings numbers.

3.3. Irrational Expectation & Overreaction

Lakonishok, Shleifer, and Vishny suggested in their work that the pattern of errors made by investors in terms of predicting the expected return of stocks could potentially account for the value premium [13]. In their argument, investors tend to make more prediction mistakes and are usually over-optimistic when investing in growth stocks for the reason that they presume these stocks' past growth as a radical good sign of investment and also that companies showing high past growth rates are often considered well-run companies such as Microsoft and Walmart, and are further equated by investors to ideal investment choices. Based on these conjectures, they provide an insight into the overreaction of past growth from growth stocks leading to a future reversal situation which then causes the value premium.

However, contradicting evidence is provided by Doukas, Kim, and Pantzalis to reject the extrapolation hypothesis [14]. Unlike Lakonishok, Shleifer, and Vishny's approach, they test the errors-in-expectations hypothesis in a more direct way and are able to conclude that investors are actually overly optimistic towards value stocks instead of growth stocks by finding out that investors in their test tend to make more significant forecast errors in predicting the expected return of value stocks than growth stocks, a phenomenon that contradicts to the extrapolation hypothesis. Their findings implicate that the initial bias of the expected return from value stocks actually outweighs that of the growing ones.

4. Conclusion

Overall, the value premium is still a complex topic that has attracted a number of scholars and investors to try to figure out its underlying driving force of it. However, the one thing that is certain is that the existing value premium has been strongly confirmed by plenty of empirical evidence across different markets, industry sectors, and time periods. On the other hand, the theoretical implications

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for the explanation of the value premium are rather multifaceted and are hard to integrate, suggesting the debate on this topic is presumably far from settled. But the complementary effect of these arguments is still helpful to provide a deeper understanding of the phenomenon. Based on the existing research on this topic, new insights into the value premium keep emerging and are able to relate to the reality of the current time period more. The solving of the value premium offers a deeper and richer understanding of market efficiency, asset pricing, investors' behavior, and many other aspects. The puzzle engages both the market mechanism and how people's minds work.

However, as the dispute for the value premium puzzle continues, new evidence has indicated that over the recent decades, the phenomenon of value premium has become less evident compared to earlier. This incurs skepticism in terms of the way that the value spectrum is originally defined. As the cross-sectional correlation between stocks' fundamental equity and book equity decrease over time, the traditionally well-receiving book-to-market ratio may not continue to be the effective indicator of the value spectrum. Instead, investors and scholars might need to start considering the fundamental-to-market ratio as the proxy for value parameters. Changes are happening every second across the global market, to further probe into the value premium puzzle, constant updates on sample observations and reconsideration of potentially outdated principles are going to be needed.

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