

A Review about the Business Cycle and Stock Market

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Abstract: This study reviews extensive research examining the relationship between business cycles and stock market returns. It explores both the impact of business cycles on stock market volatility and the predictive power of stock markets regarding business cycles. Existing theories and empirical studies have provided significant insights, yet a notable gap exists in understanding stocks' differential sensitivity to economic fluctuations across various industries. This review highlights the need for future research to adopt a more granular approach, considering industry-specific responses and utilizing qualitative methods to explain these differences. Additionally, regional variations in the relationship between business cycles and stock market returns are examined, noting distinct patterns in North America, Europe, Asia, Latin America, Africa, and the Middle East. The review underscores the importance of data-driven approaches in predictive analytics to uncover new theoretical perspectives and improve the predictability of economic phenomena. Ultimately, this study aims to comprehensively understand the interplay between economic cycles and stock markets, offering valuable insights for investors and policymakers.

Keywords: business cycle, stock market, economic forecasting.

1. Introduction

In his work "Principles of Political Economy," Simonde systematically discussed the concept of business cycles for the first time, laying the foundation for studying economic cycles. From the late 18th century to the early 19th century, business cycles gradually attracted the attention of economists. Marx developed Sismondi's theory of cyclical crises into the theory of alternating cycles, arguing that capitalist economies undergo alternating movements between prosperity and recession, and he predicted a communist revolution. Subsequently, the French economist Clément Juglar identified the Juglar cycle, lasting from 7 to 11 years, which Joseph Schumpeter further elaborated. This was followed by several other economic cycles, including the Kitchin cycles, Kuznets infrastructure investment cycles, and Kondratiev waves.

Research on the stock market has been an increasingly deepening topic among economists in recent years. For example, studies have shown that investor regret is not a strong predictor of stock returns [1]. With the development of globalization and information technology, stock market volatility is becoming more frequent, and economists continuously explore its relationship with the business cycle. Factors such as government monetary policy, fiscal policy, and the international trade environment can influence the economic cycle and the stock market, necessitating continuous examination and understanding of this relationship. Early studies primarily focused on the business

cycle's impact on the stock market's overall performance. Still, in recent years, scholars have begun paying more attention to the performance differences of different stocks in different stages of the business cycle. For example, stock market contractions typically start a few months before an economic recession and end before the recession [2].

Against the backdrop of globalization and the development of information technology, the stock market's volatility is increasingly frequent, and its relationship with the business cycle is manifesting new characteristics. Therefore, delving into the business cycle and stock market relationship is essential for investors and decision-makers in formulating effective investment strategies. However, the author noticed a lack of comprehensive online research reviews in this field. Thus, the author sought relevant research papers from the past three decades, aiming to review the current state of research on the relationship between the business cycle and the stock market and to explore future research directions. The goal is to provide valuable references and insights for investment decision-making.

2. The correlation theory of the business cycle and stock market

Choe et al. studied the impact of the reverse selection effect on companies' stock offerings during economic expansions, showing that the reverse selection effect triggered by announcements of seasonal standard stock offerings is relatively tiny.[3] This suggests that during economic expansions or periods of significant equity financing, public distrust towards stock-issuing companies due to information asymmetry diminishes. Their findings demonstrate that during periods of economic prosperity, more companies choose to issue common stock, and the proportion of equity financing in external financing significantly increases. Therefore, most companies primarily opt to issue stocks during the upward phase of the business cycle, further leveraging information asymmetry to raise IPO prices, thereby achieving a certain degree of financing enhancement.

Bolten and Weigand demonstrated that the relationship between the stock market and the dynamics of the business cycle can be conceptualized using dividend discount models. The interaction between changes in earnings and interest rates throughout the entire business cycle was shown to lead to variations in stock price levels.[4]

With the development of the market economy and stock market, applying business cycle research methods to the study of stock market returns is becoming an important direction in studying business cycle fluctuations. The remaining sections of this paper will be structured as follows: The first section will analyze the impact of the business cycle on the stock market. In contrast, the second section will examine the predictive power of the stock market on the business cycle. The third section will describe the influence of business cycles on stock markets in various regions worldwide. Finally, the conclusion will summarize the key findings of the paper.

2.1. Influence about business cycle

The influence of business cycle variations on the stock market can be traced back to 1996 when Hamilton and Gang constructed a time series model, positing a latent variable (used to measure the state of the economy) that determines the average growth of industrial production and the scale of stock volatility. Their results revealed that economic recessions are the primary factors triggering fluctuations in stock returns [5]. Their constructed framework proved valuable not only for predicting stock volatility but also for identifying and forecasting economic turning points. Additionally, their findings corroborated the same conclusion as [6] — that economic recessions are the most significant single factor, accounting for over 60% of stock return variance [7]. Entorf et al. suggested that announcements of business cycle forecasts could influence, to some extent, the volatility of stock prices and asset prices [8]. They employed a 15-second Xetra DAX regression to reflect two

prominent monthly forecasts of the German business cycle and analyzed whether macroeconomic information was expanding separately while also considering whether other temporal information interfered. The results showed that the news of the release of the two forecast indicators immediately triggered a response in the stock market within 15 seconds of the announcement, which persisted for about 2 minutes. Furthermore, these announcements also immediately affected market volatility. These findings are significant for improving high-frequency predictions of the stock market. Other scholars argue that the volatility of the stock market generates uncertainty, and the increased volatility leads to increased uncertainty about future economic conditions. The increase in uncertainty then causes a decline in consumption and investment expenditure, ultimately resulting in an economic slowdown[9].

2.2. The economical forecast from stock market

In terms of predicting the impact of the stock market on the business cycle, Domian and Louton employed CRSP stock index returns and the U.S. unemployment rate to construct a model of the relationship between the stock market and the business cycle. Their research findings indicated that negative stock returns quickly lead to a sharp increase in the unemployment rate, signaling a downturn in the business cycle and vice versa [10]. Another study suggested that stock market contractions typically begin a few months before an economic recession and end before the recession. Their proposed model utilized business cycle factors to generate forecasts of business cycle turning points and used stock market factors to create expectations of these forecasted turning points. In other words, stock market fluctuations lead to changes in the business cycle and are driven to some extent by expectations of future economic activity changes [11].

Vu (2015) investigated the relationship between output and stock market volatility in 27 countries over the past 40 years, controlling for country-specific characteristics. The results indicated that high stock market volatility is detrimental to future economic growth, and this adverse effect is not only limited to financial crisis periods but also exists during non-crisis periods[12].

2.3. The relation around the world

Dzikevičius and Vetrov explored the potential to enhance the risk-adjusted returns of U.S. stock portfolios using monthly data from March 1955 to May 2011. Their findings suggested that to maintain return/risk efficiency throughout the entire cycle, asset weights should be adjusted to accommodate cyclical changes in the economy. For passive stock investors managed based on cyclical variations, their expected returns may fall below optimal levels [13]. Avouyi-Dovi and Matheron examined the relationship between stock market indices and actual economic activity during business cycles in France, Germany, Italy, the United Kingdom, and the United States. Two main findings emerged: firstly, there seemed to be no strong dependency between short-term stock prices and actual activity levels outside the United States; secondly, natural activity and stock prices appeared to have similar determining factors [14]. As for China's stock market, during expansionary periods, the stock market cycle often leads the business cycle, while during recessions, the business cycle often leads the stock market. Moreover, when the stock market cycle leads the business cycle, they are always positively correlated [15]. Yang Gaoyu employed the Dynamic Conditional Correlation (DCC) method to examine the dynamic relationship between the stock market cycle and natural business cycles as well as financial business cycles in China. The results indicated a fundamentally positive dynamic relationship between the stock market cycle and financial, business cycle, as well as real business cycles, suggesting that the cyclical fluctuations in China's stock market are largely influenced by both real business cycles and financial, business cycles[16].

The regional overview underscores the importance of considering local economic conditions, market structures, and external influences when studying the relationship between business cycles and stock market returns. While specific patterns and theories may hold in one region, they may not be applicable or require significant adaptation in another. Future research should consider these regional differences to provide a more nuanced and comprehensive understanding of how business cycles impact stock market returns globally.

2.4. Discussion

This study highlights the diverse array of theories that have been utilized in the past to elucidate the intricate relationship between the business cycle and stock market returns. These theories encompass not only the direct impact of the business cycle on stock market dynamics but also the stock market's role as a predictor of business cycles. Empirical studies have been pivotal in this regard, endeavoring to scrutinize these theories and establish robust explanatory models. However, as we delve deeper into this subject, it becomes apparent that there is a crucial aspect that warrants further exploration: the differential sensitivity of stocks across various industries to fluctuations in the business cycle. Each sector operates within its unique ecosystem, influenced by many factors that may interact differently with economic volatility. For instance, while stocks associated with the real estate industry may demonstrate distinct patterns in returns during business cycles, those linked to the industrial sector may exhibit contrasting behaviors. Understanding these nuances requires a nuanced approach, one that goes beyond quantitative analyses to delve into the qualitative intricacies of industry dynamics. Yet, despite the paramount importance of this inquiry, the existing literature in this domain still needs to be more extensive. The current theories, though insightful, need to provide a comprehensive and precise understanding of the differential impacts of business cycles on various industries. This underscores the pressing need for further research to fill this gap in knowledge.

Moreover, the accessibility of information in the stock market presents a unique opportunity for conducting research in this area. With a clear delineation of business cycles, researchers can leverage vast datasets to perform comprehensive analyses across industries. This data-driven approach, advocated by Shmueli and Koppius, holds immense potential for shedding new light on this complex phenomenon. In light of these considerations, future research endeavors must embark on a more detailed exploration of the sensitivity of stocks in each industry to business cycles.[17] By forecasting changes in stock trends and juxtaposing these insights with existing theories, researchers can pave the way for the development of novel theoretical frameworks that offer deeper insights into the dynamics of the business cycle and its impact on stock market behavior across industries.

3. Conclusion

Through the above review, scholars have conducted research on the volatility of stock market returns related to the business cycle and the expectations of the business cycle based on the stock market. However, there currently needs to be a unified theoretical explanation for the returns of stocks in various industries, giving the impression that scholars have yet to find the micro-entry points and breakthroughs for the issues in each sector. In summary, a thorough investigation into the different performance characteristics of equity and debt assets during business cycles will help us better understand the operation of financial markets.

Acknowledgements

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