

Fisher's Separation Theorem and its Limitations

Xinyu He *

Cardiff University, Cardiff, Wales, CF10, United Kingdom

* Corresponding Author Email: mdang81973@student.napavalley.edu

Abstract. When businesses make investment decisions, they often evaluate the Net Present Value (NPV) of investment projects. For investors, a project is deemed worthwhile if its NPV is greater than zero. This phenomenon can be attributed to the Fisher Separation Theorem, which asserts that in perfectly efficient capital markets without transaction costs, a single interest rate prevails. In this context, investors' production choices adhere strictly to objective market regulations aimed at maximizing attainable wealth, entirely detached from individual subjective preferences. This, in turn, enables both borrowers and lenders to base their consumption and investment decisions on the prevailing market interest rate, thereby encouraging a clear distinction between investment and financing choices. Therefore, a company's investment decisions can be discussed separately from its financing decisions. So, the enterprise's investment decision and financing decision can be discussed separately. When enterprises invest, enterprises do not have to consider the subjective consumption preferences of different investors, because investors' consumption preferences can be satisfied accordingly through perfect capital market operation. Because of Fisher's Separation Theorem, which requires the market to be transaction cost-free, it also has some limitations.

Keywords: Fisher's separation theorem, Investment decision, financing decision limitations.

1. Introduction

With the continuous evolution and enhancement of enterprise management systems, businesses have gradually embraced a range of strategies for investment decision-making, including direct financing choices, indirect financing decisions, and investment in enterprise management system improvement. Nevertheless, it's important to acknowledge that these strategies come with various constraints and prerequisites.

Is it always the case that the returns from an investment strategy correspond proportionally to the risks it assumes, or can situations arise where the expected returns of an investment strategy fall short of the associated risks, or vice versa? Furthermore, do Von Neumann and Morgenstern propose uniform criteria for investment strategy selection across all market participants, or are there multiple standards that may potentially conflict with the widely accepted theory of expected utility? [1]. Dybvig's profit allocation pricing model introduces the concept of amalgamating risk and returns, effectively combining investment returns with associated costs. This analytical framework helps determine the expenses required to achieve equivalent returns across different investment projects, thus assessing input efficiency relative to output. Moreover, it facilitates comparisons among a diverse array of projects. [2].

Numerous studies have affirmed that enterprise investment decisions and financing decisions are interconnected. However, it's worth noting that the Fisher Separation Theorem suggests that a company's investment choices should remain unaffected by investors' personal preferences. This assertion is contingent on the assumption of a perfectly functioning market without any transaction costs, a limitation that significantly constrains the applicability of Fisher's separation theorem. This paper's primary objective is to delve into Fisher's Separation Theorem and scrutinize its limitations. Through this analysis, this paper aims to gain a deeper understanding of how Fisher's Separation Theorem operates within imperfect markets.

2. Key Utilizations of Fisher's Separation Theorem within Corporate Policy

The concept of segregating ownership and operational management in modern corporations is inherently rooted in the Fisher Separation Theorem. This theorem essentially delineates that enterprise ownership belongs to the shareholders, while the responsibility for day-to-day operations rests with professional managers. As a result, enterprise managers possess the authority to make critical investment decisions on behalf of the company.

Generally, the overarching goal of a corporation is to maximize shareholder wealth. However, it's essential to recognize that the utility or preferences of individual shareholders can vary widely. To achieve the optimal enhancement of shareholder value, corporate managers must carefully choose the production ratio. This ratio, exemplified by points (P0, P1) in Figure 1, represents the ideal production point where the incremental return on investment aligns with the prevailing capital market interest rate [3].

According to Hirshleife, if the enterprise's production does not align with this optimal point, it signifies that the combination of production factors is not delivering maximum benefits [4-5]. In such instances, enterprise managers will adjust the production factor mix to guide it back to the optimal production point [6]. Business investors, on the other hand, will opt for production projects that promise returns on investment at least as high as the average interest rate prevailing in the capital market. This choice reflects the most advantageous production decision (P0, P1), with the primary aim of maximizing the current valuation of shareholders' wealth, denoted as $W_0 = P_0 + P_1 / (1 + r)$.

Despite variations in shareholders' consumption preferences and their distinct affinities for different production factors, the market's dynamics steer their borrowing and lending activities, guiding them along the capital market line. Consequently, shareholders will make their optimal consumption decisions in accordance with these market dynamics [7]. This orchestration of the enterprise's operations, rooted in the separation of ownership and management rights, ultimately serves to maximize the interests of shareholders [8].

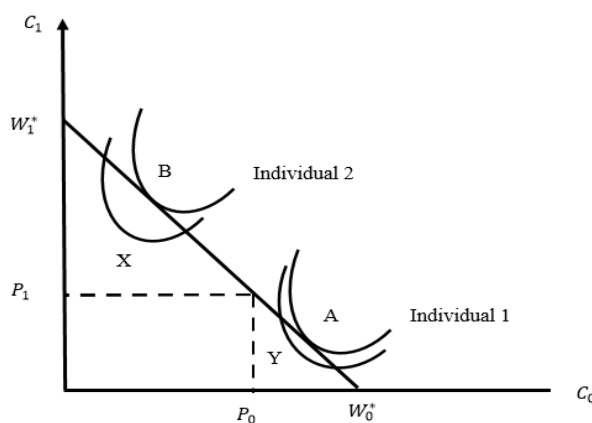


Figure 1. The Optimal Production Decision of Enterprises.
Photo credit: Original.

3. Investor Performance in Investment Decision-making

In the realm of investment decisions, both for enterprises and individuals, a fundamental guiding principle comes into play. Essentially, when faced with an attractive investment opportunity, their primary criterion for decision-making revolves around the notion that they will engage in the project if and only if the expected rate of return from that investment project matches or exceeds the prevailing market interest rate. This steadfast principle serves as a safeguard, ensuring the project's viability and the generation of a positive net present value.

In situations where companies or individuals opt to invest in a project but encounter a shortfall in available funds, they readily turn to external financing by borrowing at market interest rates. For borrowers, the pivotal consideration in the decision-making process hinges on whether the return on

the borrowed capital is poised to surpass the prevailing market interest rate. This decision-making process remains largely independent of the specific consumption preferences of individual investors.

Conversely, from the perspective of capital providers or savers, there is often no imperative to delve deeply into the intricate details of the investment projects undertaken by borrowers. This includes aspects like loan terms and cash flow patterns. For these savers, the crux of the matter lies in whether the expected rate of return on the investment project sufficiently compensates for the market risks associated with their lending activities or offsets the opportunity cost incurred by not deploying their funds elsewhere in the market. As a result, they maintain the flexibility to invest in any project available through the capital market or make decisions related to intertemporal consumption without the necessity of transferring the project to other investors [9]. This dynamic encapsulates the efficient functioning of capital markets, where the alignment of expected returns with prevailing market conditions drives investment decisions for both borrowers and savers.

4. Constraints Inherent to Fisher's Separation Theorem

Fisher's Separation Theorem, as originally formulated, hinges on the assumption of an impeccably efficient market, one entirely devoid of transaction costs. Yet, the real-world capital market often confronts the reality of transaction costs, which in turn gives rise to financial intermediaries. These intermediaries play a crucial role by bridging the gap between savers and borrowers, but they do so at a cost, charging fees for their services. Typically, they gather deposits from individuals at comparatively lower interest rates and subsequently lend these funds to borrowers at higher interest rates. When these borrowing and lending interest rates diverge due to transaction costs, the application of Fisher's Separation Theorem becomes less straightforward.

As illustrated in Figure 2, this divergence in interest rates leads to distinctive decisions by different individuals. For instance, Individual 1, seeking the best lending rate, opts for point B as their investment choice. Meanwhile, Individual 2, looking for the most favorable borrowing rate, selects point A for their investment. In this context, the uniformity of interest rates falters, and individuals retain more direct control over their investment and consumption decisions, without ceding authority to a centralized manager [4]. Thus, in situations marked by non-uniform interest rates stemming from transaction costs, investors may make divergent choices driven by their unique preferences and financial circumstances.

It's worth noting that in many research scenarios, especially theoretical ones, the assumption of a perfectly frictionless market without transaction costs prevails. This assumption simplifies analysis and helps establish theoretical foundations. However, it's crucial to recognize that in the real world, transaction costs are pervasive and can have a substantial impact on investment decisions, potentially challenging the straightforward application of Fisher's Separation Theorem [10-11]. Thus, while the theorem remains a valuable theoretical concept, its practical applicability may vary depending on the complexities of the actual market conditions.

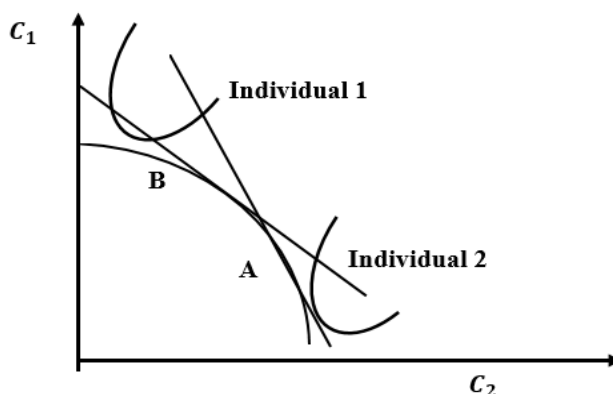


Figure 2. Limitations of Fisher's separation theorem.

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5. Conclusion

The Fisher Separation Theorem postulates that in a perfect and complete capital market, companies make investment decisions focused on maximizing the wealth of their existing shareholders, regardless of individual subjective preferences. This research employs a blend of graphical and textual methodologies to examine the implementation of Fisher's Separation Theorem in corporate decision-making and investor investment strategies. Ultimately, it is argued that under the premise of a perfect market (no transaction costs), when a firm makes an investment decision, it will solely assess the expected return on its investment relative to the prevailing market interest rate. As long as the anticipated return surpasses the market rate of interest, it will proceed with the investment. Savers in the face of investment, will not care about the specific information of the investment project, The Company will base its investment decision solely on the anticipated rate of return in comparison to the prevailing market interest rate. When the expected return exceeds the prevailing market rate, it often leads to the pursuit of the investment. However, it's crucial to note that Fisher's separation theorem assumes an idealized market scenario without considering transaction costs, making it a simplification that may not hold true in real-world situations and conditions.

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