

Systematic Risk and Idiosyncratic Risk Literature Review

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Abstract. This paper summarizes the previous conclusions on the factors related to systematic risk and idiosyncratic risk. This paper summarizes the impact of some specific macroeconomic factors, product market competition, and investor sentiment on this risk. Then it summarizes the impact of corporate governance and corporate social responsibility on idiosyncratic risk. I found that these factors have different degrees of influence in different environments, countries, and markets, and made a comparative analysis of individual factors. Help investors or company managers better understand the factors related to these two risks.

Keywords: Systematic Risk, Idiosyncratic Risk, Determinants.

1. Introduction

As more individuals start investing or purchasing financial goods, systematic and idiosyncratic risk should be better recognized. Sharptree & Sharptree came up with the asset pricing concept in 1963. The model's key insight, according to Chauveauh (2002), is that a single asset's total risk may be separated into two categories: systematic risk and non-systematic risk. Unsystematic risk is unrelated to the economic system and is measured by an index that gauges how assets vary with the economy [1]. In finance and economics, systemic risk (commonly referred to as total risk or indivisible risk in Economics) is vulnerable to events that affect the overall results, while the non-systemic risk is a risk unique to a specific company or industry. The combination of the two risks is the total risk faced by investors. However, the factors causing these two risks are different. The factors causing system risk mainly include some macroeconomic factors and product market competition. Factors causing idiosyncratic risk mainly exist in the company, such as corporate governance, corporate social responsibility, and so on. Because of its huge size, systemic risk is significant and accounts for a significant share of overall portfolio risk [2]. At the same time, unique risk plays a key role in asset pricing since investors are exposed to it either passively or actively [3]. The basic funamental of BP neural network

Previous research on systematic and non-systematic risk has focused on identifying a component and analyzing its influence using an asset pricing model. The prior study literature will be summarized in this paper. Sort out the two important aspects impacting these two dangers so that readers may have a better knowledge of the issues and contribute some from their own ideas.

Firstly, this paper analyzes and summarizes three factors related to system risk - macroeconomic factors, product market competition and investor sentiment. Then it analyzes and summarizes the two factors related to idiosyncratic risk - corporate governance policy and corporate social responsibility. In the end, through the comparative analysis of investment sentiment between Chinese and American investors, this paper gives suggestions and explains the conclusions and limitations of this paper.

2. Systematic Risk

2.1. Macroeconomic factors

The macroeconomic factor is one of the decisive factors of systematic risk. However, there are many macroeconomic factors such as inflation and tax policy. Since inflation is a factor of systemic risk, it will bring losses to investors. However, according to the standard present value model of the asset price, it does not recognize that the real stock price or real return will be affected by inflation. Rapach (2002) studied 16 countries but found no real evidence that inflation will erode the long-term

real value of stocks [4]. From table 1, the research results show that the price dividend (PD ratio) of stocks is inversely proportional to the inflation rate. Therefore, it has a negative impact on investors. According to the research of Quayes (2008), The nominal value of equities will rise proportionally as inflation rises. The true price of equities, on the other hand, will fall due to the recent tax law [5]. Therefore, inflation will have a complex impact on personal assets.

Table 1. Determinants of price-dividend ratio for the S&P500 index [3]

Variable	Coefficient
Constant	6.908 (4.133)
Real GDP	0.0540 (5.754) *
Population proportion	4.911 (5.426) *
Inflation rate	-5.374 (-5.043) *
Capital gains tax	-0.099 (-0.478)
ρ	0.611 (1.966)
R ²	0.90

2.2. Product market competition

Product market competition is one of the factors of systematic risk. According to the survey, when companies are exposed to systematic risk, product competition affects them in two different ways. The first effect, product market competition reduces the growth of company value options, so the systematic risk burden is relatively reduced [6]. Because the value destruction caused by the threat of competitor entry or expansion is pro-cyclical, it effectively reduces enterprise risk [7]. The second effect is that competition erodes firm value unconditionally by reducing operating profits, effectively increasing systemic risk exposure [8]. So, the two effects are opposite. However, according to the findings of Gao, Tian and Wu (2019), market structure is the interaction between various enterprises that operate business competition. The innovation risk and bankruptcy risk of a company increase with the strengthening of the degree of business competition, so it has a higher systematic risk [8]. On the other hand, product market competition will increase the liquidity risk of enterprises and increase the possibility of bankruptcy. Companies that are more competitive for their business are likely to be hit more widely because their business is more extensive. As for monopolistic enterprises, because of their higher profit accumulation, they have higher resistance to systemic risks [10]. In addition, the enterprise in the center of competition, the fiercer the business competition, the stronger the systematic risk. Because the system impact caused by system risk will be transmitted between enterprises [11]. Therefore, according to the above investigation, there are different opinions about the influence of product market competition on system risk. However, most people believe that the degree of product market competition is related to the degree of system risk and that product market competition will increase the probability of system risk. Results

2.3. Investor sentiment

Investor sentiment, in general, refers to the belief in expected cash flows and investment risk that is not supported by the facts [12]. Betting on emotional investors, according to Shleifer and Vishny (1997), is costly and dangerous [13]. As a result, investor mood can have an impact on a single firm or the entire stock market. However, investor sentiment is affected by many factors, such as air pollution, terrorist attacks or covid-19 pandemic.

For air pollution, a great number of psychological research have demonstrated that people's emotions are influenced by their surroundings. People who are exposed to a polluted atmosphere will experience evident negative feelings like despair and anxiety. Chang (2016) argues that air pollution is linked to a wide variety of human effects, including cognition, emotion, and work efficiency, based on observations of the influence of local air pollution on stock market returns and new economic data [14]. Heyes et al. (2016) presented the first empirical evidence of a causal link between air quality and financial market efficiency. The bad air quality in the city where the stock market is situated will cause

the market price to deviate from the fundamental price [15]. Therefore, it can be concluded that air pollution will indeed affect investor sentiment and thus affect systematic risk.

For terrorist attacks, Burch (2016) claims that terrorist occurrences are unanticipated events that bring investors to worry, astonishment, and a negative mood. This emotion may cause panic selling, resulting in a dramatic drop in the financial markets [16]. Papakyriakou (2019) conducted research on a current sample of 28 significant terrorist acts in G7 nations and examined their influence on a global sample of stock market indices in 66 countries [17]. It is concluded that after the terrorist attacks, the stock market suffered significant economic losses, investor sentiment was greatly affected, resulting in increased systematic risk.

2.4. Liquidity, enterprise operating efficiency and profitability

Liquidity, according to previous research, has both a positive and negative influence on systemic risk. Jensen (1984) discovered that systematic risk and liquidity have a positive connection [18]. He argued that when liquidity rises, the cost of enterprises' free cash flows rises as well, resulting in an increase in systemic risk. Most buyers use liquidity ratios to anticipate a company's existing situation at the time of investing. The majority of research, on the other hand, found a negative link between systematic risk and liquidity. Higher operational efficiency equals more earnings, and more profits mean less risk to the system [19]. Operational efficiency, according to most researchers, has a detrimental influence on beta. In the non-financial sector, Eldomiatty et al. (2009) discovered a negative association between systemic risk and operating efficiency. Asset turnover can be used to gauge operational efficiency [20]. Profitability is critical to the success of every business, and with prosperous businesses, there is a chance to lower system risk [21]. Profitability and systematic risk have a negative relationship, according to Rowe and Kim (2010). In certain businesses, however, the connection is the polar opposite [22]. Borde et al. (1994) found a link between insurance company profitability and systematic risk, and explained why the greater the profit of financial companies, the greater the risk; the reason for this greater risk is that the bigger the credit risk borne by finance organizations, the stronger the profitability [23].

3. Idiosyncratic Risk

3.1. Corporate governance policy

According to previous studies, there is a certain relationship between corporate governance policies and idiosyncratic risks. For example, companies with less anti-takeover protections have a higher level of unique hazards, trading activities, private information flow, and future earnings information reflected in stock prices. Institutional transaction interests, particularly M&A arbitrage institutions, bolster the link between corporate governance and idiosyncratic risks. By separating volatility into governance and non-governance components, Ferreira (2007) discovered a positive association between idiosyncratic risk and corporate governance [24]. However, due to variations in institutional environments, the link between corporate governance and company risk may not be relevant to developing economies (such as market friction, government intervention, etc.). I focus on two types of corporate governance features based on past research: board size, CEO duality factors and CEO ownership. Acknowledgements

For board size, according to a study done by Moscovici and Zavalloni (1969), the size of a corporate board has a detrimental influence on risk-taking [25]. A larger board of directors has a stronger track record of monitoring the firm and reducing risk [26]. However, larger boards have a greater overall cost of capital, according to Pham (2012), suggesting a higher degree of knowledge asymmetry and hence a higher degree of risk [27].

For CEO duality, according to Jensen and Meckling (1976), is the cause of the rise in idiosyncratic risk. Because CEOs are more likely to utilize their influence to work with people or close relatives who are less likely to disagree [28]. According to Westphal and Zajac (1995), this may increase the

danger of the company's return [29]. CEO duality is linked to a higher level of uncertainty in the organization (Alam and Ali Shah, 2013) [30].

For CEO ownership, one of the most essential techniques for businesses to lower agency costs is CEO ownership, which may influence risk-taking behavior. Panousi and Papanikolaou (2012), for example, found that senior management shares are related to a greater degree of unique risk in US-listed businesses, possibly due to a lack of management diversification [31]. As a powerful major stakeholder, the CEO, like the leader of the country, Shleifer and Vishny (1986) say that they are cautious and endeavor to limit risks [32]. Therefore, the relationship between corporate governance and idiosyncratic risk is very significant.

3.2. Corporate social responsibility (CSR)

Corporate social responsibility (CSR) refers to a legal company's obligation to its shareholders, employees, customers, communities, and the environment while making a profit [33]. Since the 2008 financial crisis, an increasing number of businesses have engaged in corporate social responsibility initiatives and published public reports on their efforts (Galema et al., 2008) [34]. Corporate social responsibility aids in the resolution of the employment issue. Protecting natural resources and the environment, as well as attaining sustainable development, are all priorities in addition to growing investment, adding new projects, and creating employment. Guenster et al. (2011) found that investors prefer to put in firms that perform well in terms of corporate social responsibility [35]. During the financial crisis, Marti et al. (2015) investigated the link between CSR and financial performance [36]. They discovered that businesses with a high level of CSR involvement had a steadier financial performance. Companies with a high level of CSR activity have lower operational risk, according to these studies. Corporate social responsibility is intimately linked to particular dangers when it comes to risks. Poddi and Vergalli (2009) employed the beta version of the capital asset pricing model (CAPM) to assess company risks and looked at the influence of CSR on the beta version [37]. According to their findings, the beta is inversely connected with CSR accomplishments, implying that organizations that engage in CSR can successfully reduce operational uncertainty and corporate risks. I focus on Chen et al (2018) findings [38], they assess unique risk using the Fama capital pricing model, which divides the market state into primary and secondary markets and investigates the link between corporate social responsibility and unique risk.

According to their research, corporate social responsibility may assist in risk management and the reduction of specific hazards. This study is in line with Jo (2012) findings, which claim that implementing corporate social responsibility can lessen information asymmetry between corporations and stakeholders [39]. Furthermore, the study discovered that, even in a volatile market, the impact of business social responsibility implementation remains significant. Furthermore, there is a link between poor corporate social responsibility performance and a rise in the amount of particular risk. This means that corporate social responsibility, careful management, and successful operation methods may all help to decrease operational risk.

4. Conclusion and Discussion

4.1. Conclusion

Generally speaking, an increasing number of people are beginning to invest or manage their money through acquiring financial goods. Then they should learn more about systematic risk and idiosyncratic risk, as well as the required information and affecting variables. By sorting out the conclusions of previous studies, I summarized five typical factors about the two risks.

4.2. Discussion

At the same time, I discovered that the degree of effect of many elements varies among nations, markets, and other conditions. For example, two things influenced investor sentiment: air pollution

and terrorist strikes. However, air pollution will have a greater impact on Chinese investors, while terrorist acts may have a greater impact on American investors.

4.3. Suggestion

According to research, managers should have excellent managerial experience and expertise. Companies should not just endeavor to maximize profits for shareholders, but also consider and execute corporate social responsibility. In addition, the organization should develop its relationships with stakeholders, integrate business operation plans, decrease market change uncertainty, and eliminate particular risks. In terms of investing, investors should conduct basic research and learn about the company's corporate social responsibility plan before making a decision. This not only lowers potential losses but also increases the long-term stability of the chosen financial goals.

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