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The Role of Financial Instruments in Corporate Exchange Rate Risk Management

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Abstract: As international investment increases with the process of economic globalization, managing exchange rate risk efficiently has become one of the most significant strategies for companies to reduce risk and make more profits. Due to the need to consider numerous internal and external factors, risk management is a sophisticated decision that executives need to make effectively. On the basis of accentuating the magnitude of hedging exchange rate risk for corporations and combining previous research findings and theoretical analysis, this research introduces some pragmatic approaches for firms to choose and utilize suitable financial instruments in hedging exchange rate risk, such as the rational use of financial instruments to hedge risks, the use of short-term and long-term foreign currency derivatives to reduce exchange rate risks, and the impact of board structure on hedging activities. The content of the analysis can provide companies with a deeper understanding of the ways to select and utilize the most appropriate financial instruments for risk management, thus improving corporate efficiency and achieving corporate objectives. The study would act as an available tool for corporations to improve efficiency and achieve their goals.

Keywords: Financial instrument, Exchange rate risk, Hedging, Risk management

1. Introduction

With the process of economic globalization getting increasingly further, a spectacular change has occurred in the financial market these years. Substantial multinational corporations and exporters are springing up, with commerce reaching every corner of the world, promoting managers and investors to attach greater importance to international risk management, especially financial risk management. According to the data of net international investment position (NIIP) from the Organisation for Economic Cooperation and Development (OECD), China exhibited an amount of $2531.33 billion by the end of 2022, which contributes to approximately 14% of its GDP [1]. Apart from this, other countries like Canada, Germany, and Korea also demonstrated a positive NIIP. It is evident that enterprises and investors are conducting substantial international investments in search of greater profits or to ameliorate their portfolios, which may also result in a larger exposure to the exchange rate fluctuation. Thus, corporations may seek to hedge their foreign currency risk in order to gain more value. Faced with the risk of exchange rate fluctuation, corporations could manage it through currency derivatives, internal transactions with foreign subsidiaries, and other means. In consideration of the prevalence of securities and derivatives in the global market, taking advantage of financial instruments is a marvelous approach for companies to achieve their goals, while they are

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truly extensively used in risk management. Abundant studies have proved that both fundamental and derivative financial instruments can play a role in risk management if the company chooses the suitable one and hedges properly.

Therefore, through a review of previous studies and theoretical analysis, this paper introduces pragmatic financial instruments commonly used to manage corporate exchange rate risk, and discusses the outcomes achieved and factors affecting the use of financial instruments to manage foreign exchange risk. The analysis in this paper will provide companies with further insight into how to decide and apply the proper financial instruments when trying to manage risks.

2. The influence of exchange rate risk to the companies

Firms would encounter a variety of risks in the operating process, including the change in the macro-economic environment, the fluctuations in the cost of raw materials, the alteration in the demand and preference of the clientele, geopolitical risks, and other unexpected sources. Managers of the companies would be willing to take on some of these risks for the risk premium and a higher return and accept them as part of the cost. Thus, parallel with other kinds of costs, corporations should manage risks to minimize their negative effect on the firms' value. Based on the influence factors, the risks confronted by the companies are roughly comprised of exchange rate risk, interest rate risk, commodity price risk, and the risk of property damage.

The exchange rate risk is also known as foreign currency risk, exchange rate exposure, or foreign exchange risk. It stands for the sensitivity of a corporation's cash flow or value to the change of exchange rate, which could have a direct or indirect influence on firms. A firm's foreign currency denominated assets and liabilities would be a significant determinant of the degree of exposure to exchange rate. Thus, companies would encounter a direct foreign exchange risk when they have foreign debt, foreign transactions, or other contractual foreign currency cash flows. For those companies who are usually in need of purchasing raw materials or paying for cross-border transaction costs which are denominated in foreign currency, when faced with a depreciation in domestic currency, the costs of the enterprises would rocket, which may lead to a plunge in the rate of profit. This would be one of the most important sources of risk to their value and profitability, which is known as cost risk. Besides, there would also exist liquidity risks when the exchange rate fluctuates. Having foreign debts, a firm would have to pay more in its own currency to service the debts when the local currency depreciates, which would probably cause the company strapped for cash. In addition, fluctuations in exchange rates may affect firms with foreign transactions indirectly through the channel of competition. When the local currency appreciates, the price of exported commodities may rise, which may cause the companies to lose competitiveness in the international market. Therefore, exchange rate fluctuations would affect the market share of corporations and obliquely impact the profit level of enterprises.

Apart from the intrinsic factors of corporations, such as the size or the leverage rate of the company, several researches have found that the exchange rate exposure to a specific company is also determined by other influence factors like the macro-economic environment and the organization structure of the company. This indicates that predicting exchange rate movements is no easy feat, especially in the short term. Thus, foreign trade enterprises need to elaborately predict the future exchange rate trend and formulate corresponding risk management strategies to reduce the impact of exchange rate fluctuations on the uncertainty of enterprises. Facing exchange rate risk, companies could adopt derivatives like currency forward contracts, currency options, swaps or simply use foreign debt to hedge the risk. However, it is also possible for executives to conduct speculation decisions such as interest arbitrage to make profits, exploiting the interest rate differential between two countries without hedging against foreign exchange risk.

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3. Usage of financial instruments in corporate exchange rate risk management

A hedge is different from a diversifier or a safe haven and is known as an asset that is averagely uncorrelated or negatively correlated with another asset or portfolio [2]. Naturally, firms hedge for the sake of diminishing volatility and boosting value. There are also possibilities for companies to adopt speculation in advantage of the fluctuation of exchange rates. With numerous and fickle variables to carefully consider, conducting risk management is a complicated decision for managers to make properly. Internal or external, the factors that occur in the financial system would affect the type of optimum instruments to use when managing exchange rate risk and the consequences of the hedging action.

3.1. The methods to hedge exchange rate risk

Enterprises with international cash flows would hold some foreign currency denominated assets and liabilities, which would change in the same direction when an appreciation or depreciation of the foreign currency happens and offset the loss of companies arose from the value declined in assets or increased in liabilities. Thus, the extent of change in the companies' foreign currency cash flows under the fluctuation of exchange rate is immediately connected with the difference between its assets and liabilities denominated in foreign currency. Therefore, the first approach for firms to hedge the risk is through internal risk management, which denotes the strategy of matching currency assets such as accounts receivable and currency liabilities like accounts payable to decrease the discrepancy between the two. This is also known as a natural hedging strategy, which seeks to invest in assets whose performance is negatively correlated with each other and conduct risk management through the corporations' on-balance-sheet activities [3].

If there still exists an imbalance of assets and liabilities denominated in foreign currency after conducting natural hedge, managers would turn to financial instruments like derivatives for help to further lower their general exposure. This process is perceived as external risk management, for firms implement derivatives transactions with counter parties outside the company to hedge the exchange rate risk.

Abundant options are offered to executives of companies with foreign cash flows to mitigate the exchange rate risk, including using financial instruments, issuing debts denominated in foreign currency, and performing internal transactions with its foreign subsidiaries. Among all the choices, using financial derivatives is the most utilized method. Therefore, managers should choose appropriately which tools to use and to what extent based on the distinctive characteristics of the company, and correctly conduct the management.

3.2. How to choose and utilize the suitable instruments

For different kinds of corporations, such as multinational enterprises, export companies, and import companies, the optimal choice of financial instruments in hedging exchange rate risk vary in accordance with their intrinsic characteristics. In addition, taking into consideration features like duration of different tools to use, they should be properly matched with the specific type of foreign currency exposure the firm is facing.

Effective hedging decisions should be made tally with the type of exchange rate exposure that the firm is dealing with. Those corporations facing positive exchange rate exposure, like exporters, are expected to lower the risk by making deals on derivatives with counter parties outside the companies, internal transactions with their foreign subsidiaries, and issuing debt denominated in foreign currency. On the contrary, companies with negative exposure could manage risk through natural hedges, like passing along those costs to their customers [4].

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To what extent should the corporations hedge the risk is closely connected with their foreign sales and trades. When considering the inherent factors of the firms, it turns out that these would impact the extent of exchange rate exposure and thus affect the usage of derivatives. Firm size is positively related to the hedging through derivatives, since large firms have more foreign transactions and are more likely to be influenced by the fluctuation of exchange rate. Additionally, R&D expenditure, which denotes the growth opportunity of the firm, would also positively impact the decision because companies with high R&D expenditure would be more prone to under-investing [5].

Among all the financial instruments, foreign debt is a marvellous tool for hedging the exchange rate risk. Foreign debt is one of the most accessible instruments to approach when managing exchange rate risk since other hedging instruments may be unavailable or poorly developed in some areas. The effectiveness of foreign debt in hedging is determined by the certainty of expected future foreign inflows of the company. This stability could be different according to the firms' operational strategy. A multinational enterprise would directly invest in foreign assets and gain a flat cash inflow from its foreign subsidiaries, while an exporting corporation would experience a volatile income due to the change in the macro-economic environment. A study found that in comparison to exporters, the use of foreign debt reduces exchange rate exposure for multinational enterprises in a larger extent. In the meanwhile, other firms' factors such as credit rating, leverage rate, liquidity, and R&D expenditure should also be considered when making hedging decisions [6].

Turning sight to the optimal use of specific derivatives to manage the risk, a research set the risk averse exporting firms who aim at maximizing their expected utility as the research objects, to investigate their optimum financial instruments used in hedging the exchange rate risk in futures and options markets. With empirical study, it is proved that the risk averse companies would rather utilize futures when there exist no or weak biased prices of options and futures. Since hedging fully through futures gives a deterministic income while options would always leave uncertainty to the outcome, and the former settled income exceeds the latter expected one, this inclination of companies choosing futures could be caused by the preference of hedging instruments which provide the largest decline in the volatility of the future income [7].

In practice, foreign debt and foreign currency derivatives could be complements or substitutes under different circumstances, which would highly rely on the characteristics of the financial instruments. As for short-term risk like cash flow exposure raised from the export or import transactions, derivatives such as futures, forwards and options are suitable for the hedging activity, for they have a rather short duration. On the contrary, swaps and foreign debts would facilitate the management of long-term exchange rate risk such as the stable income from the foreign subsidiaries or the foreign assets. Beyond the term of the exposure, the properties of the firms also play a significant role in choosing the appropriate long-term hedging instruments. High leverage companies prefer to use foreign swaps to balance the foreign assets and liabilities since they may have reached the boundary of their debt capacity and a higher leverage rate would drive the companies to default. Firms with large amounts of cash in hold would choose swaps too, for they are not expecting an extra amount of foreign cash. In addition, foreign swaps are accessible approaches for small companies to create certain foreign debt, because they may lack credit to enter the foreign financial market or the entry price would be exorbitant to them. Apart from selecting certain financial instruments to hedge the risk, managers could also use both short-term foreign currency derivatives and long-term currency derivatives to fully reduce the exposure to the exchange rate, which would blur the distinction between the user of foreign debt and derivatives [8].

3.3. The outcomes of hedging

Firms hedge to not only reduce the exposure to the fluctuating exchange rate but also gain profit from it due to the presence of imperfection in the market. As Modigliani-Miller theorem supposes, the

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value of a company has nothing to do with its capital structure in the presence of perfect capital markets [9]. That is to say, regardless of taxes, bankruptcy costs, and asymmetry information, the utilization of risk management measures will not influence the company value. Nonetheless, in reality, there exists inefficiency in the market. Therefore, this enables enterprises to add value by hedging risks and reducing the volatility of their cash flow.

According to Smith and Stulz, hedging activities are able to add value to corporations through the impacts of taxes, contracting costs, and firms' investment decisions influenced by the hedging policy [10]. The conclusion of previous researches on the channel of adding value to the firms are mainly split into three types. First, risk management could reduce the possibility of companies encountering financial distress and therefore avoid under-investment. The fluctuation of exchange rate risk could influence the liquidity of corporations and possibly cause a heavier obligation to the creditors, hence hedging could decline the risk and lower their expected bankruptcy costs, thereby increasing the firms' value. Besides, hedging could guarantee the availability of internal financing activities of the companies, so there would be less chance of under-investment. Second, the expected tax costs could be lowered through hedging. Firms could utilize hedging to manage the fluctuation of taxable income and avoid a dramatic increase in taxes under the graduated tax policy or a convex tax schedule. Third, hedging could reduce the exposure to the managers, hence they would make more proper decisions to manage the exchange rate risk to the corporations and decrease agency costs at the same time [11].

However, it is also possible for hedging activities to jeopardize the firms' value. Research provides evidence of the negative effect of hedging by showing that the exchange rate risk of firms failed to decline after conducting hedging activities, while the volatility of their value increased [12]. This could be attributed to the mismanagement of the executives like under or over hedging the risk to satisfy their own profits which is not maximizing shareholders' value. It is also possible that the effectiveness of the complicated usage of financial instruments is constrained and derives unexpected excessive hedging costs.

3.4. External factors influencing hedging

Apart from the properties of the firms themselves, external factors would also impact the risk management decisions of executives and the outcome of hedging.

3.4.1. Exchange rate regimes and government intervention

It is reported that macro-economic factors like the foreign debt of a nation, the extent of openness, and the exchange rate regimes would have an impact on companies' exchange rate risk [13]. When mainly focused on the influence caused by the governments, the exchange rate regimes are put under the spotlight. There exist debates on the choice of adopting floating or fixed exchange rate regimes, the supporters of the former think a fixed exchange rate would make the economy become more fragile, while the advocates of the latter reckon that it could reduce costs through controlling the fluctuation of exchange rate.

The exchange rate regimes have complex effects on the firms' exposure to the exchange rate. Initially, a fixed regime could guarantee a lower volatility of exchange rate, which would decrease the cost of hedging and therefore could reduce firms' foreign currency exposure. However, managers would believe that the stable exchange rate is an implicit guarantee from the government to protect them from the fickle exchange rate and thus raise the possibility of moral hazard. Corporations would forgo the use of financial instruments to hedge the exchange rate risk, instead, they may be encouraged to utilize the risky unhedged foreign debt to gain profitability. Apart from this, under fixed regimes, companies would neglect the probability of being influenced by the fluctuating

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exchange rate, hence they would rarely actively make efforts in hedging the exchange rate risk, which would heavily put them at risk [14].

3.4.2. Board attributes

The exchange rate risk that a corporation confronts could be influenced by the structure of board of directors through the channel of impacting the hedging activities. By properly supervising the managers, the board is able to ensure the managers make suitable hedging decisions and reduce the cost of agency conflicts. In this way, the board could ensure that managers are making appropriate hedging decisions when dealing with exchange rate exposure.

The research examines the influence of board structure on hedging activities. It is proved that a smaller board, which has less coordination costs, is more effective in overseeing managers and could drive them to make the optimum hedging decisions in reducing the exchange rate risk. Besides, independent directors have fewer direct benefit within the companies and their remuneration has no connection with the performance of the companies, thus they could better supervise the managers and reduce the firms' foreign currency exposure. Due to the distinct characteristics of women, such as strong sense of ethics, risk aversion, and emphasis on correct disclosure of companies' financial information, the gender-diverse board with more women would perform better at monitoring executives than a board fully consisting of men. This effectiveness of women directors would be greater when the board has higher independence, and therefore reduces the exchange rate risk of the corporations [15].

4. Conclusion

This paper interprets the importance of managing exchange rate risk to the companies under the fluctuation of the exchange rate, for they may be faced with cost risk and liquidity risk and would have a smaller market share because of the competition raised by the depreciation of domestic currency. It mainly focuses on the use of financial instruments, including foreign debt and derivatives, for companies to hedge exchange rate risk in different situations. Based on relevant research and data, this paper attempts to provide a preliminary illustration of the approaches and key points that a corporation under different internal or external circumstances should take into consideration when choosing and applying appropriate methods and financial instruments to hedge the exchange rate risk. Besides, it also addresses how external factors like exchange rate regimes and the structure of board of directors affect the risk management decisions of executives. In addition, this article discusses the probable influence factors and consequences in terms of adding value to enterprises. The analysis in this paper will give firms additional insight into how to select and utilize the most suitable financial instruments for managing exchange rate risks.

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