

How Do Currency Derivative Instruments Function as Hedging Mechanisms for Multinational Firms Operating in High Volatility Forex Environments, And to What Extent Do They Transfer Versus Redistribute Exchange Rate Risk Within the Financial System?

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ABSTRACT: As a result of globalization and growing international trade, MNCs are increasingly exposed to forex risks (foreign exchange rate risk) due to the fluctuation of currency values. In countries with significant forex market volatility, uncertainty regarding exchange rates has a significant impact on an organization's profit, cash flow, investment decision, and overall stability of its finances. To mitigate currency exposure and risk, MNCs have adopted the use of derivatives (in particular, currency derivatives) as means to hedge against foreign exchange risks.

This study aims to analyze how currency derivatives operate as tools to eliminate or reduce risk associated with exposure to foreign exchange rates and determine if currency derivatives reduce or redistribute risk within the global financial system. The research methodology for this study is based on analysing existing literature and secondary data, followed by an analytical discussion of hedging strategies used by corporations, currency derivative market behaviour, and systemic risk associated with finance.

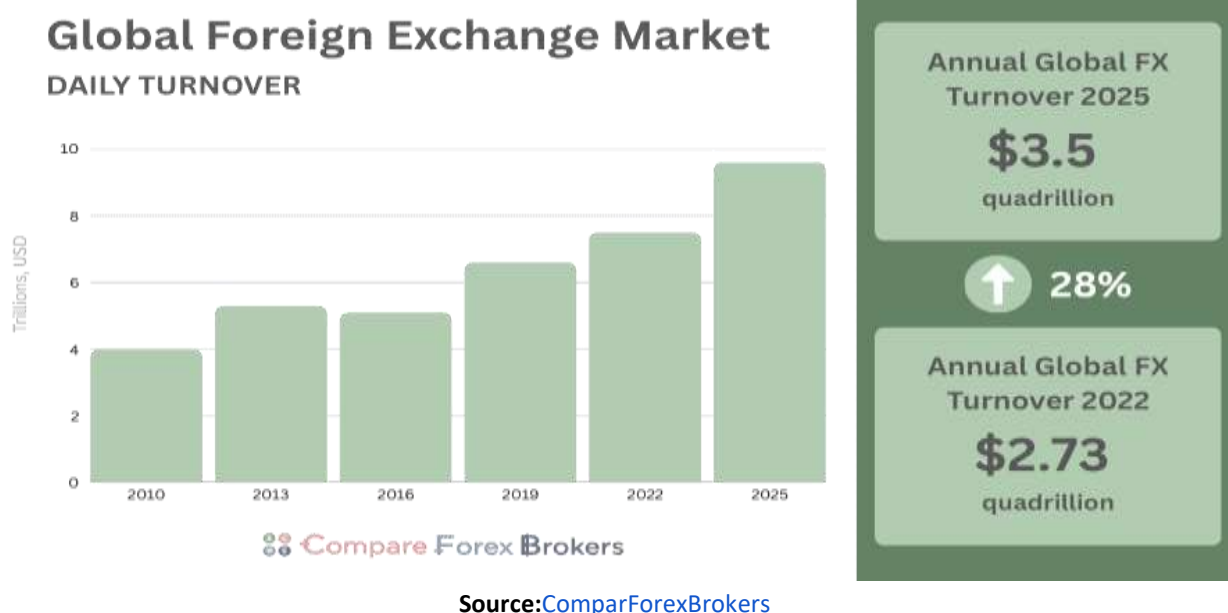
The research indicates customers using currency derivatives can better manage the predictability of cash flow, reduce the risk of earnings volatility, improve financial forecasting/financial planning and be protected against currency fluctuations when making foreign investments. However, the study also states that customers essentially transfer their financial risk to derivative dealers and financial institutions increasing systemic risk or potential for systemic risk during a financial crisis. Therefore, the research concludes that regulated, transparent, and effective risk management/hedging frameworks will enhance stability in what has become increasingly globalized, volatile, and interconnected forex markets.

2. INTRODUCTION

The rise of globalisation has led to the growth of MNCs globally and thus increasing dependence on cross-border trade, foreign investments and international capital flows. Due to the transactions involving different currencies, firms now face significant risks due to the fluctuations of currency exchange rates, which can affect their profitability, cash flow and investment decisions. To hedge against these risks, the currency derivative market has expanded significantly over recent decades. Instruments such as currency futures, options, forwards and swaps are used by companies as well as financial institutions to hedge against the risk of exchange rates. Technological change, financial innovation and electronic trading platforms have increased the accessibility and efficiency of global foreign currency derivatives markets.

Foreign exchange (Forex) markets trade with large swings in price because of several factors, including inflation rates, interest rate differentials, political problems between countries, changes in monetary policy, and financial crisis events. Many different events such as the Asian Financial Crisis, the Global Financial Crisis (GFC) of 2008, COVID-19, and the Russia-Ukraine war have illustrated how dramatically currency fluctuations affect businesses around the world. As a result of these fluctuations, multinational (MNC) businesses are increasingly using currency derivatives to provide earnings stability and reduce volatility in their financial reports. There continues to be considerable controversy on how effective or ineffective currency derivatives help MNC's reduce risk or simply move around the exposure associated with exchange rate fluctuations to other parties (thereby possibly creating more systemic instability in the financial system). Therefore, this study investigates how effective currency derivatives are in hedging and the implications for creating financial stability in volatile currency markets.

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3. CONCEPTUAL FRAMEWORK

Currency derivatives are agreements that are valued based on how the value of currencies fluctuate. They are used by MNC's to manage foreign currency exchange rate fluctuations associated with their international trade and investments. Hedging is a risk management process to decrease the risk of future financial losses due to the possibility of an adverse currency movement. There are three types of exchange rate risk (i.e. transaction risk {future foreign currency payment or receipt}, translation risk {foreign financial statements converted to domestic currency}, & economic risk {the competitiveness of an organization in the long run and its effect on their overall market value}). High volatile foreign exchange environments are marked by rapidly changing, and often unanticipated, currency valuations because of changes in inflation rates, interest rate differentials, geopolitical disturbances, monetary policy changes & financial crises.

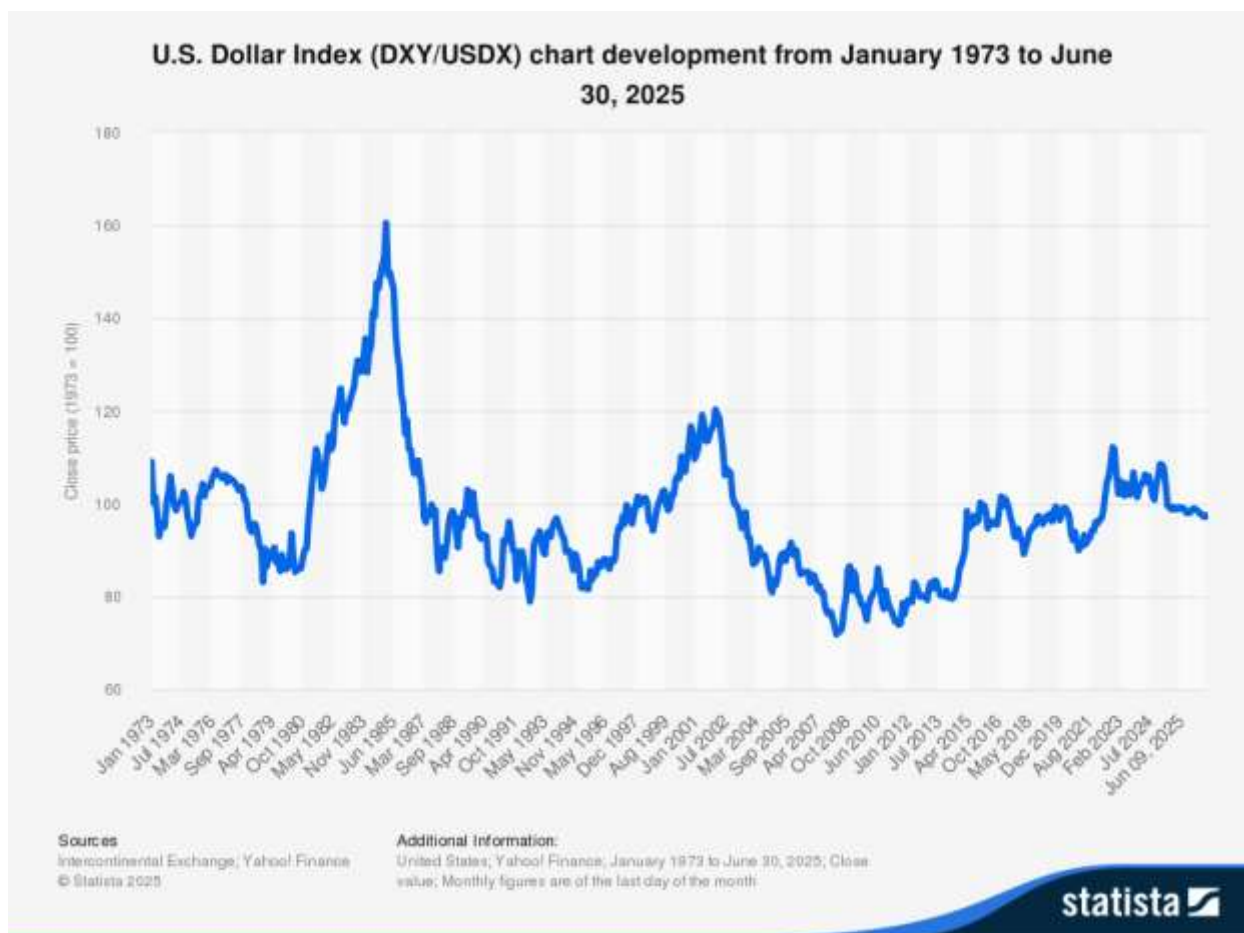
The four primary currency derivatives are: currency futures, currency options, currency swaps and forward contracts (including NDF's). Each currency derivative instrument assists an organization with locking in exchange rates, providing certainty, and stabilizing cash flow. The supporting theories related to how organizations use derivatives to hedge against financial risk are: Risk Management Theory, Modern Portfolio Theory (developed by Harry Markowitz), Efficient Market Hypothesis, Hedging Theory & Systemic Risk Theory. The theories describe the various methods that companies use to hedge against financial risk and they also illustrate the connections between their financial instruments.

4. REVIEW OF LITERATURE

4.1 Studies on Exchange Rate Volatility and MNC Performance

The long-standing issue of variable fluctuations in foreign exchange rates poses a formidable problem for multinational companies (MNCs) as the level of fluctuation in the currency directly impacts the international exchange of goods/services, profitability, levels of foreign investment, and overall cash flow. Many researchers have indicated that fluctuations in the exchange rate /currency add additional uncertainty to companies involved in cross-border transactions and, cast a negative shadow on the firm's value and competitive position (Bartram, Brown, and Minton, 2010). Additionally, researchers state that companies with a larger international exposure will experience more levels of income instability (earnings fluctuations) during periods of currency fluctuations (Muller & Verschoor, 2006). High levels of forex fluctuation will especially have an adverse impact on firms in a developing/ emerging market as a result of the weak financial systems and limited ways to hedge against currency (Lestari & Adekunle, 2024).

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Source: [LendEDU](#)

4.2 Research on Currency Derivatives as Hedging Tools

Companies often utilize currency derivatives as a vehicle to hedge against transaction risk and stabilize their corporate cash flow. Zai and Mansur (2024) concur with these companies utilizing forwards, futures, options, and swaps. They believe these are the main instruments being utilized to reduce level of spending related exposure and improve levels of predictability in terms of earnings. Hedging strategies help companies reduce the uncertainty associated with foreign currency payments and receipts. This enhancement of both financial planning and operational stability has resulted in the use of forward contracts to be regarded as one of the most favored hedging vehicles, as they allow the locking of future exchange rates, while eliminating a negative foreign currency impact on business operations. Moreover, corporate hedging reduces the level of earnings volatility and increases overall shareholder confidence (Allayannis & Ofek, 2001).

4.3 Studies on Effectiveness of Different Derivative Instruments

The effectiveness of different types of derivative instruments (whether they are forward, swap, futures or option) to hedge against risk is contingent upon market conditions. For example, Futures contracts provide standardised contracts traded on an exchange and provide an amount of certainty around price movements; however, they do not provide any flexibility to the user. Options, on the other hand, give the user some protection for downside risks while allowing them to benefit from positive exchange rate movements. Currency Swaps are effective long-term financing and debt management tools. (Nguyen, 2012) finds that most multinational companies prefer forwards and swaps due to their ease of use and effectiveness at reducing transaction exposure. (Bartram et al. , 2010), However, maintain that the success of financial hedging tends to diminish during periods of extreme volatility in exchange rates and during financial turmoil.

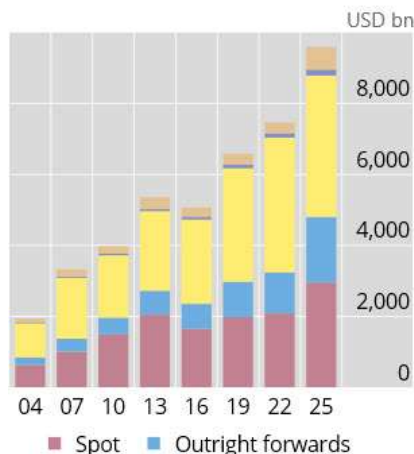
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Foreign exchange market turnover by instrument¹

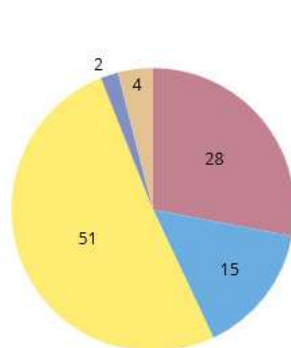
Net-net basis, daily averages in April

Graph 1

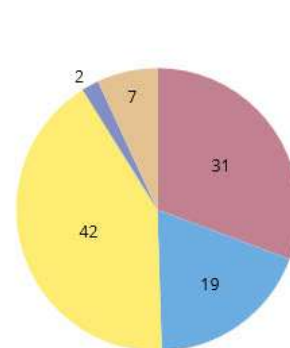
A. 2004–25



B. 2022



C. 2025



¹ Adjusted for local and cross-border inter-dealer double-counting, ie “net-net” basis.

Source: BIS Triennial Central Bank Survey. For additional data by instrument, see Table 1.

© Bank for International Settlements

Source: [BIS](https://www.bis.org)

4.4 Risk Transfer vs Risk Redistribution Debate

A major debate among financial scholars revolves around whether derivatives actually eliminate risk or if they simply redistribute it throughout the financial system. Hedging allows the exchange-rate risk of multinational companies to be transferred to banks, investors, or derivative counterparties. Excessive interrelatedness of derivatives, however, presents systemic vulnerabilities and counterparty risks. During times of financial stress, derivative exposures can exacerbate the financial contagion of one institution to another (Muller & Verschoor, 2006).

4.5 Evidence from Financial Crises

Major financial events like the Asian Financial Crisis and the Global Financial Crisis in 2008 have both highlighted how effective currency derivatives can be and how ineffective they can be when you see how many firms lost large amounts of money due to fluctuations in exchange rates or the derivative markets not being able to function properly. The COVID-19 pandemic has created even more fluctuations in currency and an increased number of firms that are looking to use these tools (hedging instruments) to hedge against adverse currency movements. Recent research has shown that increased geopolitical tensions and uncertainty regarding monetary policy have led to corporate entities looking to extend the duration of hedges and using more forex (foreign exchange) derivatives to manage their future cash flows (Reuters, 2025).

4.6 Research Gap

The literature has looked at exchange rate exposure and the use of derivative instruments to hedge against exposure for many years. The literature has used three critical dimensions of analysis but never in a way that looks at all three at the same time: how well do hedging instruments hedge, how do hedging instruments redistribute systemic risk from financial systems to corporate entities; and what challenges do firms face when using hedging instruments in emerging markets? In addition, there is a lack of analysis regarding whether using derivatives will result in reduced aggregate financial risk or whether using derivatives results in the redistribution of risk among market participants in the global financial system.

5. CURRENCY DERIVATIVES AS HEDGING MECHANISMS

The most commonly used currency derivatives by multinational corporations (MNC's) are foreign currency derivatives. These products help reduce the uncertainty that businesses face when dealing with foreign currency fluctuations and provide greater certainty regarding future cash flows and earning potential resulting from foreign currency transactions.

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5.1 Forward Contracts

The most common type of foreign currency derivatives utilized by MNC's are forward contracts. Forward contracts are defined as customized or negotiated bilateral agreements between two parties to exchange one or more currencies for the price agreed upon on a specified future date. The primary function of a forward contract is to provide future pricing certainty for MNC's that are engaged in import/export transactions and to provide settlement of foreign currency transactions.

5.2 Currency Futures

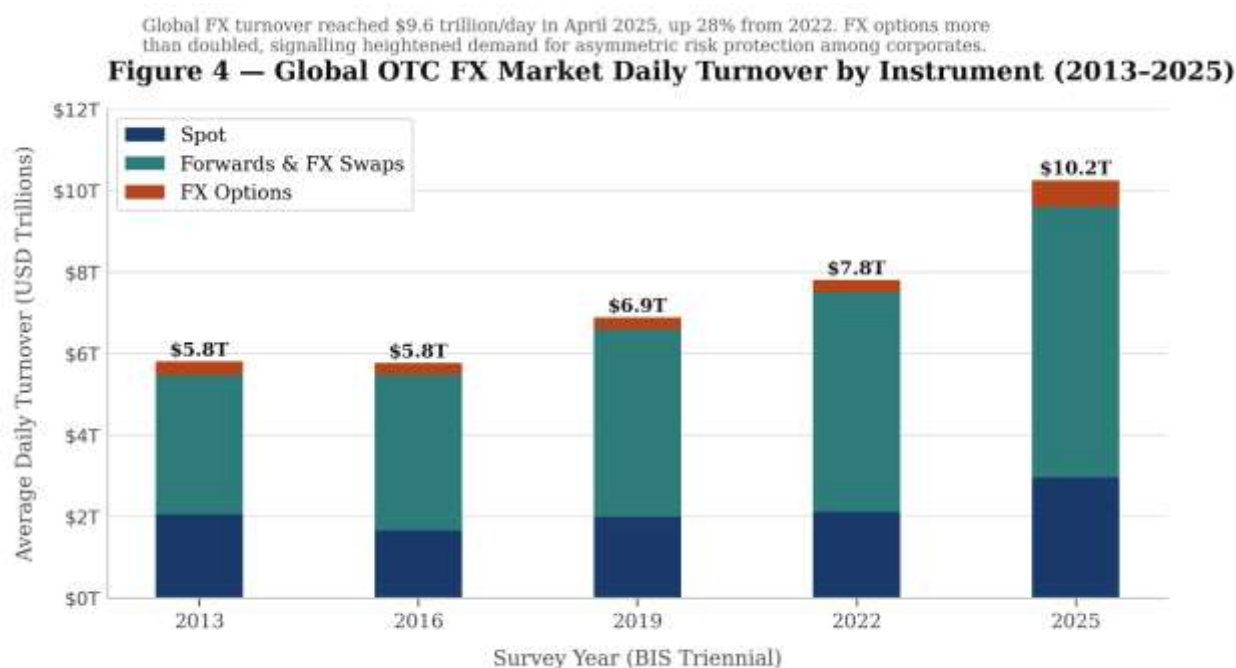
Foreign currency futures contracts are standardized foreign currency derivatives that are traded on organized exchanges. Foreign currency futures contracts obligate the contracting parties to purchase or sell a prescribed quantity of a foreign currency at a specified price on a prescribed future date. Due to the fact that futures contracts have been traded and regulated by an organized exchange, they provide transparency, liquidity, and reduced counterparty risk. Therefore, foreign currency futures contracts are generally used as effective short-term hedging instruments by MNC's who transact in foreign currency.

5.3 Currency Options

Foreign currency options are a type of foreign currency derivative that provides the right (but not the obligation) for the holder to buy or sell a prescribed quantity of a foreign currency at a prescribed or predetermined exercise price before or on a specified expiration date. The primary advantage of foreign currency options is to provide a hedging instrument for MNC's against the risk of foreign exchange loss while allowing MNC's to participate in foreign exchange gains, thereby permitting MNC's to have greater flexibility over foreign currency transactions.

5.4 Currency Swaps

Currency swaps allows two entities to exchange an original value and associated interest payments in differing currencies. The typical uses of swaps are in terms of long-term financing (e.g., raising money) and debt management, or lowering borrowing costs in the international market. For example, currency swaps allow companies to raise funds in foreign currencies while keeping their exposure to fluctuations in the exchange rate to a minimum.



5.5 Non-Deliverable Forwards (NDFs)

Forwards (NDF) are contracts that are primarily used in countries that do not allow free conversion of their currencies to any other currency. When an NDF is completed, there is no physical delivery of cash. Instead, the settlement of the NDF occurs with the transfer of U.S. dollars or another major convertible currency to the counterparty (the seller or buyer) of the NDF. Many companies use NDFs to hedge their currency exposure in restricted foreign currency exchange markets because they operate in emerging markets.

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6. MECHANISMS THROUGH WHICH HEDGING WORKS

Hedging activities by multinational companies (MNC) are often utilized to reduce the uncertainty associated with foreign currency fluctuations, helping support MNCs with the stability of their mission-financial statements arising from their international operations. Hedging through currency derivatives allows companies to hedge against risks created by cross-border transactions and investments, thereby helping to reduce or stabilize foreign currency exposures.

6.1 Stabilization of Cash Flows

Through hedging activities, companies are able to stabilize projected future cash flows created by foreign currency transactions by locking in the exchange rate through the use of derivatives in the form of forwards and futures contracts. By locking in the exchange rate through the use of forwards and futures, companies reduce uncertainty relating to cash inflows and outflows associated with foreign currency transactions during the contract duration. Therefore, companies can maintain a smoother operating cash flow related to foreign currency transactions and avoid the uncertainty and unexpected financial losses created from adverse exchange rate movements.

6.2 Reduction of Earnings Volatility

Corporate profits and earnings can be negatively affected by fluctuation in exchange rates. Hedge strategies will help minimize impacts of exchange rate fluctuations by creating a gain on available derivative contracts that will offset potential loss in foreign currency. Therefore, firms will experience reduced volatility of earnings; as well as having the consistency of financial performance to provide greater investor confidence.

6.3 Protection of International Investments

Many multi-national firms invest in foreign subsidiaries, foreign assets and foreign projects that are exposed to foreign currency risk. Hedge strategies are used to protect the value of these international investments against losses due to an adverse movement of exchange rates. Hedge strategies will allow these firms to continue to maintain the value of those investments; thereby, allowing these firms to continue with their long-term profitability objectives in their foreign operations.

6.4 Reduction in Transaction Exposure

Transaction exposure arises from expected future receipts and payments denominated in foreign currency. Firms reduce their financial risk of transacting in the global marketplace by using hedge instruments (e.g., forwards, futures, and options) to lock in a predetermined exchange rate before completion of their international trades.

6.5 Improvement in Financial Planning and Budgeting

Using hedging to stabilize the movement of exchange rates provides firms with improved forecasting. Consequently, this will allow firms to create more dependable budgets and financial plans. By reducing uncertainty, managers will therefore be able to make more rational decisions about pricing, investment, production and international expansion strategies.

7. EXCHANGE RATE RISK TRANSFER VS REDISTRIBUTION

Multinational companies use currency derivatives to manage exchange rate risk, but they do not entirely eliminate that risk. Instead, they generally transfer or redistribute exchange rate risk between different participants in the financial system.

7.1 Risk Transfer Concept

The primary purpose of hedging is to transfer the exchange rate risk faced by corporations to those who are willing to take on the associated risks, traders and other individuals, entities and products derived from derivatives. By using forwards, futures, options or swaps, multinationals can protect their revenues from fluctuations caused by exchange rates, and at the same time, they can transfer to third parties the potential for losing revenues as a result of the risk of exchange rate fluctuations.

7.2 Redistribution Within Financial System

Derivatives do reduce the exposure that corporations have to exchange rate risk; however, the risk does not disappear from the economy. It will be re-concentrated to banks, hedge funds, derivative dealers and other entities that actively trade derivatives. The interrelatedness of these entities (financial markets) could lead to increased exposure and risk throughout the financial system.

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7.3 Counterparty Risk

Financing those hedging activities can place a company at risk due to counterparty risk. Counterparty risk refers to the potential that the other party in a derivative transaction fails to meet its contractual obligation to the company, thereby defaulting on the derivatives contract. The potential for counterparty risk is magnified further in an unstable financial market because defaults by large financial institutions can lead to much larger disruptions in the global financial market than may otherwise occur.

7.4 Systemic Risk and Financial Contagion

Financial contagion occurs when a financial shock transmission via derivative/equity exposure causes the massive liquidation of securities across various institutions and countries result in increased levels of systemic risk during periods of global financial crises (e.g., the 2008 Global Financial Crisis).

7.5 Speculation vs Hedging

As a result, derivatives can be utilized to hedge foreign exchange exposure to minimize uncertainty and promote global commerce. Therefore, excessive amounts of speculative trades could contribute to increased levels of market volatility, and as a result, increase levels of financial instability in periods of high foreign exchange volatility.

8. IMPACT OF FOREX VOLATILITY ON MULTINATIONAL FIRMS

Foreign exchange rate volatility is a significant problem for multinational corporations due to the nature of their businesses (i.e., they participate in both the buying and selling of goods in multiple currencies for purposes of transactions, investing and financial reporting). The continuous fluctuation in forex transactions is creating uncertainty in terms of future revenues, costs, profits and value of assets, resulting in continued uncertainty for MNCs' future operations and the future impact of these transactions on their financial performance.

8.1 Transaction Exposure

Transaction exposure exists when MNCs engage in foreign trade involving a transaction in a foreign currency that will take place in the future. Changes in the exchange rate from date of agreement to settlement can negatively impact either cost or revenue streams related to that transaction. For example, if an exporter has an expectation of receiving payment in a foreign currency, and that currency depreciates in value, before the exporter receives the payment, then there will be a loss to that exporter due to currency depreciation.

8.2 Translation Exposure

Translation exposure happens when an international business converts a foreign subsidiary's financial statements into the parent's currency. Currency fluctuations can affect a firm's assets, liabilities, revenues and profits, as well as the overall financial results and ultimately how investors see that firm.

8.3 Economic Exposure

Long-term economic exposure from currency fluctuation will affect the firm's global competitiveness, market value and future cash flows. Continuous appreciation or depreciation of the currency will affect product pricing, export competitiveness, production costs and international investment opportunities.

8.4 Sector-wise Differences

- **Exporting Firms**

An exporter usually benefits when the domestic currency depreciates because their goods will be cheaper and more competitive in the exporting market. However, if there is significant volatility in the domestic currency, then there will be uncertainty in future revenues and pricing decisions.

- **Importing Firms**

An importer is negatively affected by depreciation of the domestic currency because imported raw materials, machines and goods will become more expensive, thus increasing the cost of production and reducing profits.

- **Banking and Financial Institutions**

Banks and financial institutions are especially exposed to foreign exchange risk because of their international lending, investments and derivatives. Currency promotions (depreciation/appreciation) on larger amounts of currency create a substantial amount of risk through market risk, counterparty risk and potential systemic instability in the banking system.

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9. EMPIRICAL DISCUSSION AND ANALYSIS

9.1 Evidence from Corporate Hedging Practices

Empirical studies show that multinational corporations widely use currency derivatives to reduce exchange rate uncertainty and stabilize financial performance. Firms engaged in international trade commonly hedge transaction exposure through forwards, futures, options, and swaps. Research indicates that corporate hedging reduces cash flow volatility, improves earnings predictability, and supports long-term investment planning. Large multinational firms tend to adopt more sophisticated hedging strategies due to their greater exposure to foreign exchange risk and access to advanced financial markets.

9.2 Comparison Across Developed and Emerging Markets

The way that currency derivatives are used and their effectiveness varies between developed countries and emerging markets. In the developed world, financial markets are typically larger, more liquid and have greater protection from regulatory authorities; therefore, the efficiency of currency derivatives is generally much greater than in the developing world. In contrast, firms that operate in emerging markets often have limited access to derivatives, lack a reliable financial system and experience higher levels of volatility in exchange rates than firms operating in developed markets. Because of this, multinational companies that operate in emerging markets will often use customized hedges, such as non-deliverable forwards.

9.3 Impact During Crisis Periods

Financial crises (the 1997 Asian Financial Crisis, the 2008 Global Financial Crisis, and the current Covid-19 Pandemic) have all highlighted the critical role played by currency derivatives in mitigating forex risk. During periods of extreme volatility, the volume of hedging activities undertaken by companies increased significantly in order to preserve cash flow, and to decrease uncertainty. The crises also illustrated the many weaknesses found in derivative markets, including counterparty defaults, lack of liquidity, and systemic financial contagions.

9.4 Relationship Between Derivative Usage and Financial Stability

By decreasing direct exposure to the fluctuations in an exchange rate, and by decreasing overall corporate risk management, the use of currency derivatives contributes to the ongoing stability of the overall financial system. However, if companies rely too heavily on the use of derivatives for risk mitigation, then their connection through derivative contracts can create an increased level of systemic risk among financial institutions. As a result, systemic risks can be amplified through a concentration of risk among banks and derivative dealers during times of financial instability.

9.5 Interpretation in Light of Economic Theory

These findings are in accordance with the Risk Management Theory and Hedging Theory which explains how derivatives are used by firms to create a buffer against financial uncertainty and to help stabilize their operations. The Modern Portfolio Theory (developed by Harry Markowitz) supports the argument for risk diversification and reduction through hedging. Systemic Risk Theory, however, states that derivatives reduce exposure at the firm level but do not eliminate risk completely and may redistribute risk throughout the entire financial system.

10. POLICY AND REGULATORY IMPLICATIONS

Multinational corporations need to implement a strategic hedging strategy to manage foreign exchange exposure in an extremely volatile currency environment. Firms must spread out their operational and financial risks across many different areas of the world and many different currencies as well as use appropriate instruments such as forwards, options and swaps when hedging. Good hedging will improve cash flow stability, decrease revenue volatility and assist firms with long-term financial planning and investment decisions.

Financial institutions involved in derivative markets need to improve their systems for managing counterparty risk and have enough capital reserves. Since most banks and dealers in derivatives absorb some of the transferred exposure to exchange rate risk, it is vital to have good liquidity management, stress testing and adequate internal monitoring to help reduce the potential for financial instability during periods when the capital markets are under stress.

The role of regulators is very important when it comes to maintaining transparency and providing stability within the forex derivatives market. Regulators should introduce policies that will help improve the current disclosure requirements, increase the regulations surrounding clearinghouses, and monitor systemic risk created by forex derivative transactions.

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12. CONCLUSION

The research shows that currency derivatives are used to manage a multinational corporations' exposure to foreign exchange risk in a volatile foreign exchange market. Forward contracts, futures contracts, options, swaps and non-deliverable forward contracts are instruments that can help stabilize cash flows, reduce earnings volatility, maximize financial planning and investment decisions and manage risk due to transactions, translation and economic exposure, ultimately leading to improved corporate financial stability.

The study also identifies currency derivatives as not completely eliminating foreign exchange risks, but rather redistributing the risks within the overall system because they transfer risks from multinational corporations to banks, financial institutions, investors and dealers creating a greater level of interconnectivity between the global financial markets. In general terms, derivatives can serve as hedges under proper regulation and supervisory oversight; however, improper use of derivatives from excessive speculative trading or too much dependence on derivatives can ultimately increase systemic risk and cause financial contagion during periods of economic distress.

The study provides an insightful and integrated view of how the firm level hedging effectiveness integrates with a broader view of systemic financial risk. In relation to that, the research demonstrates that, as an example, effective market innovation should be balanced with maintaining the market stability and appropriate regulatory oversight of derivative markets.

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