

Analysis of Currency Risk Hedging Strategies in Multinational Companies: A Case Study of the 2022 Russo-Ukrainian War and Surge in US Dollar Exchange Rate

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Abstract. The volatility of exchange rates due to frequent global events is one of today's hot topics. The profitability of large multinational corporations is highly correlated with exchange rates. This paper primarily takes a case study approach, focusing on the combination of global events and large multinational corporations, integrated with the strategic optimization of commodity swaps. The ultimate goal is to develop innovative strategies for large multinational corporations to hedge against foreign exchange risk. The first case of the article focuses on the analysis of the Russian Ruble exchange rate, which first fell and then rose from February to August 2022, and Coca-Cola HBC modifies cash and debt to account for foreign exchange swings. The second case assesses the financial impact of a spike in the U.S. dollar exchange rate in 2022, where Coca-Cola reduces its assets in financial derivatives designated as hedges and significantly increases its liabilities to offset them. In addition, the study also presents a novel strategy that mixes forward foreign currency contracts with commodity futures. Reduce risk by securing profits ahead of time. This comprehensive analysis aims to provide companies with insightful and actionable strategies for managing the complexity and uncertainty of currency market volatility.

1 Introduction

In 2022, the global economy faced significant challenges, including the Russo-Ukrainian war and significant currency fluctuations, particularly the rise of the U.S. dollar. These developments had a profound impact on both global financial markets [1, 2] and multinational corporate strategies.

This thesis examines these dynamics, focusing on two aspects: the impact of the Russo-Ukrainian war on the Russian ruble and Coca-Cola HBC's strategic response; the other is the impact of the rise of the US dollar on Coca-Cola Company, highlighting its currency hedging tactics. This analysis aims to shed light on the direct impact of international political-economic events on global companies and the adaptability of multinational corporations to macroeconomic volatility.

2 Case Description

2.1 Case 1: The 2022 Ukrainian Crisis: Economic and Geopolitical Impacts and Their Effect on Global Markets and Coca-Cola HBC

The Ukrainian crisis of 2022 is a complicated and multifaceted global event with far-reaching political and

economic consequences. Russia's launch of a large-scale military operation against Ukraine on February 24, 2022, significantly escalated an already tense situation in eastern Ukraine that had been ongoing since 2014 [3]. This crisis is rooted in a complex web of factors, encompassing historical, political, security, and geopolitical dimensions. At its core are Russia's fears of NATO's eastward expansion, Ukraine's ambitions to deepen ties with Western powers, especially the EU and NATO, and Russia's and Ukraine's contrasting cultural and historical identities.

During the Russia-Ukraine conflict, the United States imposed strict economic sanctions targeting key Russian sectors such as banking [4]. At the same time, these Western nations provided Ukraine with crucial military and humanitarian aid. As a countermeasure, Russia responded by restricting its energy exports and seeking to strengthen its economic ties with alternative global partners, most notably China [5].

As Russia is a major global supplier of oil and gas, the crisis has led to a significant increase in energy prices. Western sanctions against Russia and a rethinking of its energy dependence have led to a major restructuring of the global energy market. Both Russia and Ukraine are major global exporters of wheat and other grains. Wars have disrupted production and exports in these areas, causing global food prices to rise [5].

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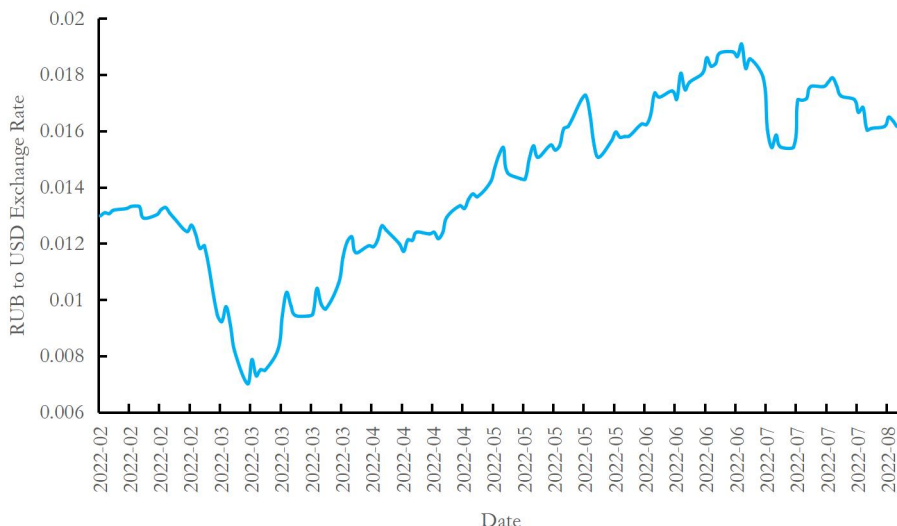


Fig. 1. RUB To USD Exchange Rate from 2022-02-01 to 2022-08-05

Data source: www.investing.com

Photo credit: Original

Fig. 1, which plots the exchange rate of the Russian ruble against the U.S. dollar, shows a sharp decline in the value of the ruble beginning on February 24, 2022, coinciding with the start of the Russia-Ukraine conflict. After this initial plunge, the ruble began a gradual recovery beginning in early March, eventually surpassing its pre-conflict value by mid-April.

Coca-Cola HBC's operations in Russia were impacted by the crisis between Russia and Ukraine. Coca-Cola stated in March 2022 that it was stopping its business in Russia [6], which had a significant negative impact on Coca-Cola HBC, one of the company's main bottlers. At the same time, the significant fluctuation of

the ruble exchange rate also exposes Coca-Cola HBC to some foreign exchange risk.

2.2 Case 2: Soaring Dollar Rate Spurs U.S. Firms to Currency Hedge in 2022

The US Federal Reserve sharply increased interest rates in 2022 in an effort to fight inflation in the face of continued conflicts and a volatile world. Influenced by a variety of factors, the dollar experienced significant appreciation, reaching its highest level in two decades (please see Fig. 2).



Fig. 2. ICE US Dollar Index from 2003 to 2023

Data source: Yahoo Finance

Photo credit: Original

The rise in the value of the dollar has serious implications for large multinational corporations. Essentially, for large U.S.-based multinationals, the appreciation of the dollar depreciates the foreign currency earnings of their overseas operations relative to

the dollar when converted back into U.S. dollars. This has a significant impact on the profits of these companies. As a result, U.S. companies are forced to adopt currency hedging strategies.

2.3 Dynamics of the foreign exchange market and economic consequences

The following article will make a specific analysis of the two cases mentioned before.

2.3.1 Changes in exchange rate fluctuations of the Rouble and the impact on Coca-Cola HBCs

The rouble exchange rate experienced three stages of depreciation, recovery and appreciation in the period from February to August 2022.

The sharp drop in the rouble coincided with the start of the Ukrainian crisis in 2022. Investors and markets often assume that conflict leads to instability, especially when it involves a large economy like Russia. This has led investors to sell the rouble and shift assets to currencies that are perceived as safer, such as the dollar or euro.

In parallel, Europe and the United States imposed a series of sanctions on Russia. This included the announcement on February 27 that Europe and the United States would ban some Russian banks from using the SWIFT system [5]. The move was a direct hit on Russia's financial system [7]. It not only increases the risk of capital outflows from Russia, but also has a direct impact on Russian exports, especially oil and gas. This has affected Russia's government revenues and the value

of its currency, leading in part to a sharp depreciation of the Russian rouble.

The rebound and recovery after the significant drop is related to Russia's counter-sanctions measures. On April 1, 2022, Putin announced the enforcement of mandatory payment in rubles for natural gas [8]. Approximately 33% of the natural gas used in Europe comes from Russia [9]. The policy of mandatory rouble purchases is beneficial in strengthening the rouble and increasing its currency value. This has greatly influenced the recovery of the rouble exchange rate. After Putin's announcement, Fig. 1 shows that the Russian rouble had already recovered to its pre-war level.

The subsequent appreciation of the rouble (almost tripling from its low to its high) is related to Russia's counter-sanctions policy in February and March. Russia's counter-sanctions included both domestic and international measures. Domestically, Russia adopted counter-sanctions legislation, which required citizens to sell any foreign exchange profits they received from dealing with non-residents (see Fig. 3). The international measures have already been mentioned in Section 2.3.1. Under the combined influence of these internal and external factors, Russia stabilized the value of the rouble and prevented capital outflows. These factors included market expectations and the speculative and arbitrage mentality of investors, which ultimately drove the rouble's appreciation.

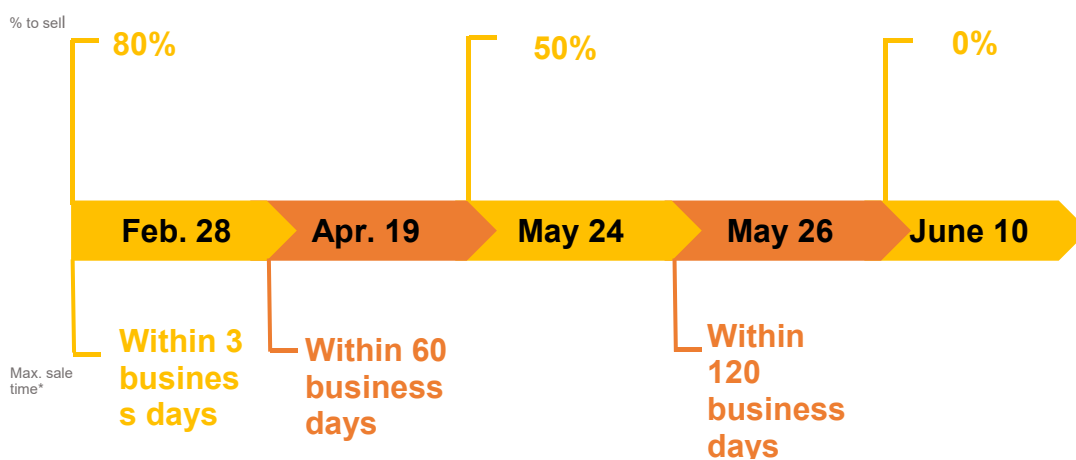


Fig. 3. The specific event requirements of the 'Citizens should sell any foreign exchange profits they received from dealing with non-residents' law

Source: ALRUD. (2022, July 21). Overview of Russian counter-sanctions measures. Retrieved from <https://www.alrud.com>. [10]

On the one hand, the volatility of the rouble exchange rate has created income instability for Coca-Cola HBC. This is because Coca-Cola HBC, a company headquartered in Switzerland, must convert its rouble earnings in Russia into euros. Therefore, the drastic fluctuation of the rouble poses a significant currency risk for Coca-Cola HBC. On the other hand, the Russian-Ukrainian conflict has a broad international impact, accompanied by sanctions and countermeasures. As a large multinational company, Coca-Cola HBC's ecosystem is closely linked to the policies of various countries. As a result, other countries' sanctions policies

against Russia have a significant impact on Coca-Cola HBC's business.

2.3.2 Variations in the US dollar's value in foreign currencies and their effects on the Coca-Cola Company

In 2022, the dollar rose steadily, mainly due to the Federal Reserve's consistent interest rate hikes [2] and pessimistic market expectations. At one point, it reached its highest level in 20 years (please see Fig. 4).



Fig. 4. ICE US Dollar Index 2022

Data source: Yahoo Finance
 Photo credit: Original

As a large multinational corporation with operations around the world, the Coca-Cola Company has been significantly impacted by the strengthening of the U.S. dollar. Headquartered in the United States, the Coca-Cola Company's foreign currency earnings from its overseas operations depreciated significantly against the dollar. This created challenges in maintaining profitability. In addition, the Company has substantial holdings in cash and cash equivalents as well as other interests in domestic and foreign banks and financial organizations. Due to currency fluctuations and global events, the company also faced risks associated with the default or failure of counterparty financial institutions [11].

2.4 Strategies and their economic consequences

2.4.1 Coca-Cola HBC Strategy

First, on the business side, as a result of the United States' sanctions policy against Russia, many U.S. multinationals have announced the suspension of their operations in Russia. Coca-Cola's production and

marketing are banned in Russia as a result of this. Coca-Cola HBC primarily manufactures, bottles and distributes The Coca-Cola Company's products in certain regions. The Coca-Cola Company's decision to halt operations in Russia has had a big effect on Coca-Cola HBC's activities there. In response, Coca-Cola HBC suspended Coca-Cola orders and canceled all investments in Russia. Coca-Cola HBC in Russia was transformed into a locally managed, self-sufficient company focused on the production, bottling and distribution of local brands. In accordance with the Board-approved treasury policy, Coca-Cola HBC stuck to its goal of hedging between 25% and 80% of rolling 12-month estimated transactional foreign currency exposure [6].

Second, in terms of the Russian ruble exchange rate, the strengthening of the ruble after March positively impacted Coca-Cola HBC's sales in Russia. Coca-Cola HBC's volume sales in Russia declined by 41%, mainly in the second half of the year. However, the strong performance of the ruble provided the company with unexpected currency gains. In addition, with the integration of Multon, Coca-Cola HBC's comparable EBIT in Russia in 2022 actually exceeded that of 2021 [6].

Table 1. Comparison of Coca-Cola HBC's other comprehensive income between 2022 and 2021

Item	2022			2021		
	Prior to taxes € million	Income tax € million	after taxes € million	Prior to taxes € million	Income tax € million	after taxes € million
The expenditure of hedging	(3.5)	-	(3.5)	(2.7)	-	(2.7)
Hedging for cash flow	34.6	(3.9)	30.7	69.5	(9.5)	60
Translation of foreign currencies (losses)/gains	(252.6)	-	(252.6)	73.6	-	73.6
Decrease in equity investment valuation at fair value via other comprehensive income	(0.1)	-	(0.1)	-	-	-
Realistic profits	26	1.8	27.8	16.1	(6.1)	10
Part of other total revenue	34.2	-	34.2	14.6	-	14.6

from investments made using the equity method						
Reclassification of the portion of other comprehensive income from equity method assets that resulted from a business combination to the income statement	145.2	-	145.2	-	-	-
Other comprehensive (loss)/income	(16.2)	(2.1)	(18.3)	171.1	(15.6)	155.5

Data source: Coca-Cola HBC. (2022). 2022 Integrated Annual Report. Retrieved from <https://www.coca-colahellenic.com/en/investor-relations/2022-integrated-annual-report> [6]

It is noteworthy that Coca-Cola HBC's foreign currency translation decreased significantly in 2022 compared to 2021 (see Table.1). The amount of foreign currency translation losses reached 252.6 million euros in 2022, which is largely related to the Russian ruble.

To manage the significant volatility of the Russian ruble, Coca-Cola HBC reduced its current ruble-denominated borrowings in 2022 (from €57.2 million in 2021 to €2.2 million). This significantly reduced the liability risk associated with ruble volatility. In addition, repaying debt when the ruble exchange rate is low can be somewhat profitable.

After recovering from a low, the Russian ruble offered arbitrage opportunities during its appreciation. In response, Coca-Cola HBC took advantage of this by increasing its Russian ruble cash holdings for speculative purposes (from 9.5 million euros in 2021 to 96.4 million euros in 2022).

2.4.2 Coca-Cola Strategy

The Coca-Cola Company's net operating revenues from operations outside of the US reached \$27.6 billion in 2022. It was necessary to convert these foreign currency-denominated revenues into US dollars. Nonetheless, the profitability of foreign currency revenues was significantly impacted by the rising of the US dollar. Of course, the weakness of some currencies would be offset by the strength of others, but there was still a significant risk. To manage this risk, The Coca-Cola Company lessened its net exposure to foreign exchange volatility by utilizing financial derivatives. The Company also maintained a prudent level of debt. The company increased its return on equity to shareholders by lowering its cost of capital through the utilization of debt financing [11].

Table 2. Financial statement of derivative instruments designated as hedging tools by The Coca-Cola Company (unit: USD)

Derivatives Designated as Hedging Instruments	Balance Sheet Location	31-Dec-22	31-Dec-21
Assets:			
Foreign currency contracts	Prepaid expenses and other current assets	126 \$	151
Foreign currency contracts	Other noncurrent assets	13	27
Interest rate contracts	Prepaid expenses and other current assets	—	1
Interest rate contracts	Other noncurrent assets	—	282
Total assets		139 \$	461
Liabilities:			
Foreign currency contracts	Accounts payable and accrued expenses	54 \$	15
Foreign currency contracts	Other noncurrent liabilities	108	17
Commodity contracts	Accounts payable and accrued expenses	2	—
Interest rate contracts	Other noncurrent liabilities	1,676	14
Total liabilities		1,840 \$	46

Data source: The Coca-Cola Company. (2022). 2022 Form 10-K Annual Report. Retrieved from <https://investors.coca-colacompany.com/financial-information/financial-results> [11]

From an asset perspective, Table 2 provides relevant information. Compared to 2021, the Coca-Cola Company's assets designated for hedge accounting in derivative instruments decreased by \$322 million in 2022. The anticipation that the value of the US dollar will appreciate more, lowering the value of other currencies in relation to the US dollar, is the reason for a more thorough explanation. Coca-Cola reduced its

prepaid expenses for foreign currency contracts to avoid paying more U.S. dollars after the currency devaluation. Therefore, Coca-Cola's reduction in derivative assets can be interpreted as an effort to minimize potential losses due to fluctuations in the U.S. dollar exchange rate.

From a liability perspective, the Coca-Cola Company's liabilities designated for hedge accounting in derivative instruments increased significantly by \$1,794

million in 2022. This increase was most pronounced in the other long-term liability portion of interest rate contracts, which increased by \$1,662 million. By fixing interest rates and increasing the amount of long-term debt in interest rate contracts, the Company is better able to manage the risk of future fluctuations in the U.S. dollar exchange rate and reduce future financing costs.

Furthermore, the Coca-Cola Company uses derivative financial instruments to lower its net exposure to changes in foreign exchange rates rather than for trading reasons. The Company keeps an eye on a combination of short-term and long-term debt, as well as debt with fixed and variable rates. Additionally, the Company manages its exposure to interest rate changes by periodically entering into interest rate swap agreements. The Coca-Cola Company had \$11.37 billion in notional value of foreign exchange derivatives as of December 31, 2022 [11].

3 Optimization

In the above text, a common risk point for both multinational companies is the significant fluctuation of foreign currency revenues from overseas operations when converted into their domestic currency. As a result, even if there are no significant changes in the supply and demand for a product in a particular overseas region, i.e. the foreign currency value of the product remains relatively stable, the conversion into the domestic currency can still result in significant fluctuations.

The basic process of a commodity swap is as follows [12]. Suppose a commodity producer sells product X. However, due to significant fluctuations in the price of product X, the producer's profits are unstable. Therefore, the producer finds a counterparty to enter into a commodity swap. The specific operation involves the producer exchanging the sales revenue received during the contract period with the counterparty at an average price agreed in the contract. This serves to hedge the risk

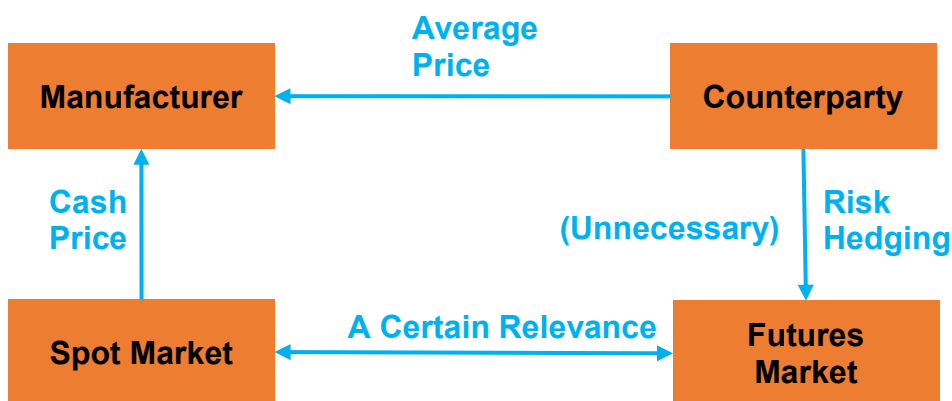


Fig. 5. Basic process of commodity swapping

Photo credit: Original

In the multinational case discussed above, the paper's strategy involves incorporating foreign exchange forwards into commodity swaps to lock in profits. The specific operation is as follows. Suppose the commodity producer can consistently generate a value of 1000 in foreign currency sales in the region before a major event occurs. This foreign currency revenue of 1000 can be exchanged for 1000X dollars at the launch of the period's exchange rate. After the major event, on the one hand, the producer's foreign currency income during this period is 1000-Y (mainly a negative impact). This income is then converted into $(1000 - Y) * (X - Z)$ dollars at the currency rate at the conclusion of the duration (this project refers to the actual currency rate at the conclusion of the duration, represented in calculations as the forward rate). Both 1000 - Y and $(1000 - Y) * (X - Z)$ dollars are the company's expected revenues. Next, a counterparty is found to agree on an average price. (For example, $\frac{(1000-Y)+1000}{2} * X$)

The specific strategy for setting the average price is determined by the particular event, company, and commodity using statistical methods. This article provides only the direction of the strategy and does not perform a detailed price analysis.

4 Conclusion

This paper examines two global events. The first event is the outbreak of the Russian-Ukrainian war in 2022. The international community placed sanctions on Russia, and Russia responded with its own penalties. This significantly affected the exchange rate of the ruble. In response, Coca-Cola HBC changed the content of its business in Russia and hedged its risk by reducing its rouble-denominated liabilities and increasing its rouble-denominated cash and cash equivalents. The second event was the rise in the U.S. dollar exchange rate in 2022 due to the Federal Reserve's continuous interest

rate hikes to combat hyperinflation, as well as a variety of global events. This has had a significant impact on The Coca-Cola Company's profitability due to the large amount of foreign currency revenue it generates. As a result, the Coca-Cola Company reduced its assets designated as hedging derivatives and significantly increased its liabilities designated as hedging derivatives to hedge against foreign currency fluctuations. Finally, the research proposes an optimized hedging strategy using commodity swap strategies in managing risk exposure. This optimized strategy, based on the standard commodity swap, incorporates foreign exchange factors, thus adding two variables. This approach can effectively reduce potential losses and foreign exchange fluctuation risks arising from global events in business operations.

This paper only discusses the general direction of using commodity swaps for risk hedging. In the future, models of commodity swaps may be developed based on specific cases in conjunction with econometrics.

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