

REPORT OF INTERNATIONAL RISK MANAGEMENT TOPIC:

* Purchase of Coffee for Danone

Professor: catherine.refait-alexandre

Team members: Kimleng BUN, Oppong, MEMEL Nelly, MEMEL Lorie

Introduction

Context

What do an Activia yogurt, a Danette, a bottle of Evian, Badoït, or Volvic, and a Blédina baby product have in common? They are all part of the Danone group. As one of the world's leading food and beverage companies, Danone is committed to providing high-quality, sustainable products. This report focuses on the risks associated with coffee procurement for Danone, a critical ingredient in several of its products. The objective is to analyze the factors driving coffee price fluctuations and propose strategies to effectively manage these risks.

We will explore the underlying causes of coffee price volatility, including climatic conditions, geopolitical factors, and global demand trends. The analysis will incorporate real market data to assess the financial impact of these fluctuations on Danone's operations.

The report will identify both external risks, such as supply chain disruptions and exchange rate fluctuations, and internal risks, like inventory management inefficiencies. Based on this, we will propose strategies such as diversifying suppliers, leveraging predictive analytics for demand forecasting, and negotiating long-term contracts to stabilize procurement costs.

Finally, the report will offer actionable recommendations to help Danone mitigate these risks, ensuring a stable coffee supply, maintaining cost control, and protecting the company from unexpected price surges.

This report will begin with an introduction to Danone and the issue at hand, providing an overview of the company's operations and the challenges it faces in securing a stable coffee supply. Following this, the report will delve into a risk analysis, examining the key risks associated with coffee procurement, such as price fluctuations, exchange rate volatility, and logistical disruptions. We will then explore coffee price volatility in detail, looking at historical trends and the factors that drive price changes in the global market. The report will also propose both internal and external solutions for managing these risks, including strategies like supplier diversification and financial instruments such as futures contracts and currency hedging. Additionally, we will offer economic explanations for the use of these financial tools to mitigate risks. Finally, the report will conclude with practical recommendations for Danone, aimed at stabilizing its coffee supply and protecting against future uncertainties in the market.

I. Presentation of the company and Issue

About Danone

Danone is a globally recognized leader in the food and beverage industry, renowned for its commitment to health, sustainability, and innovation. Founded in 1919 and headquartered in Paris, France, the company operates across more than 120 markets worldwide, bringing nutritious and sustainable food solutions to millions of consumers every day.

Danone's diverse product portfolio encompasses four key segments:

- **Dairy and Plant-Based Products:** Including yogurts, fermented dairy products, and plant-based alternatives. This segment emphasizes the importance of balancing taste, nutrition, and sustainability.
- **Waters:** Delivering premium bottled water brands while actively promoting sustainable water management practices.
- **Specialized Nutrition:** Providing tailored nutritional solutions for various stages of life, including medical nutrition and products for infants and young children.
- **Early Life Nutrition:** Supporting healthy growth and development during early childhood through a range of scientifically formulated products.

Danone is not only a pioneer in offering high-quality, health-oriented products but also a champion of sustainable practices. The company is dedicated to reducing its environmental impact through initiatives like reducing plastic usage, promoting regenerative agriculture, and striving to achieve carbon neutrality across its value chain. Its "One Planet. One Health" vision underscores the interconnectedness of human health and the planet's well-being, driving its efforts to create shared value for society and the environment.

Objective

To maintain its competitive edge and uphold its commitment to quality and sustainability, Danone must address challenges related to its reliance on essential raw materials like coffee. This report focuses on:

Securing a consistent coffee supply at competitive prices.

- Minimizing the impact of coffee price volatility on profit margins.
By effectively managing these risks, Danone can ensure operational stability while continuing to meet consumer expectations for quality and sustainability

II. Risk Analysis

Main Risks in Coffee Procurement for Danone

Danone faces several significant risks in its coffee procurement strategy, stemming from the inherent volatility of the market and external pressures. These risks include price fluctuations, quality concerns, and evolving regulations, all of which can directly impact the company's operations and profitability.

1. **Price Volatility** Coffee prices are highly susceptible to climatic conditions, global demand, and geopolitical tensions. For instance, extreme weather events such as droughts or frosts in major coffee-producing countries like Brazil and Vietnam can drastically reduce supply, driving up prices. Additionally, speculative activities in coffee futures markets further exacerbate price instability, creating challenges for budget forecasting and cost management.
2. **Exchange Rate Risk** As coffee transactions are predominantly conducted in USD, Danone is exposed to fluctuations in currency exchange rates. An appreciation of the USD against the EUR or other local currencies can increase procurement costs, directly impacting the company's margins.
3. **Quality Risk** The quality of coffee is heavily influenced by climatic conditions, such as temperature, rainfall, and soil quality. Adverse conditions can lead to lower-quality crops, necessitating higher procurement costs to maintain production standards. This poses a challenge for Danone, which relies on consistent quality to meet consumer expectations.
4. **Logistical Risk** Supply chain disruptions, including delays in shipping and delivery, can further exacerbate the challenges in ensuring a steady coffee supply. Factors such as port congestion, labor strikes, or political instability in transit regions can create bottlenecks, impacting production schedules and increasing operational costs.
5. **Regulatory Changes** Evolving food regulations pose an additional layer of complexity for Danone. For example, the introduction of stricter nutritional labeling requirements in the European Union in 2016 imposed new obligations on food companies to provide detailed information on product packaging. Compliance with such regulations requires continuous monitoring and adaptation, potentially increasing operational costs.
6. **Volatility in Other Raw Material Prices** In addition to coffee, the volatility of other essential raw materials such as milk, wheat, and soy also affects Danone's cost structure. Market conditions, climatic factors, and geopolitical events can lead to price swings, creating a cumulative impact on overall production costs. Managing these volatilities is critical to maintaining the company's competitiveness and profitability.
7. **Sustainability and Environmental Risks**

Consumer demand for sustainably sourced coffee is increasing. Failure to align with sustainability goals or address environmental concerns in coffee sourcing could impact Danone's brand reputation and market competitiveness

By identifying and addressing these risks, Danone can implement a robust risk management strategy, ensuring stability and sustainability in its coffee procurement processes.

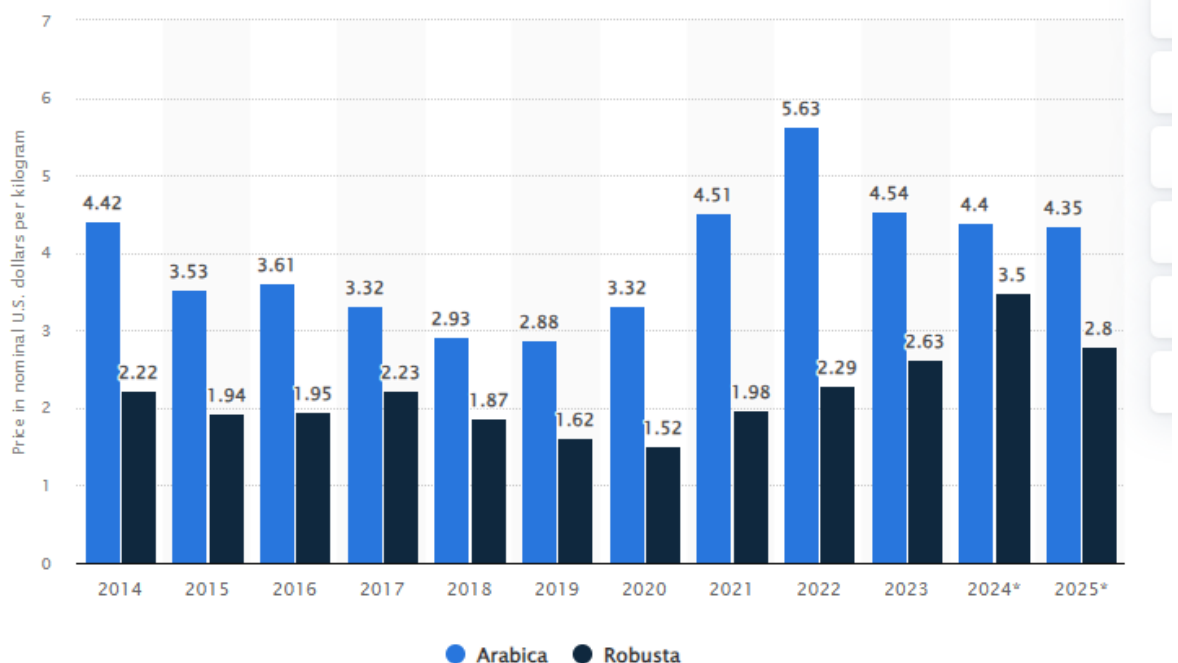
III. Study of Coffee Price Volatility

a) Price Graphs:

We will analyze price variations of Arabica and Robusta coffee over the past 10 years (e.g., via ICE Futures US or NYSE indices). The data will be represented as:

- Price evolution graphs.

Average prices for Arabica and robusta coffee worldwide from 2014 to 2025(in nominal U.S. dollars per kg)

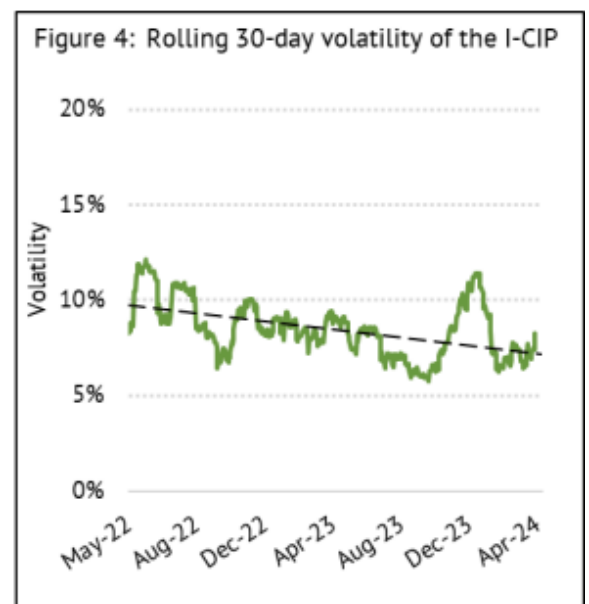
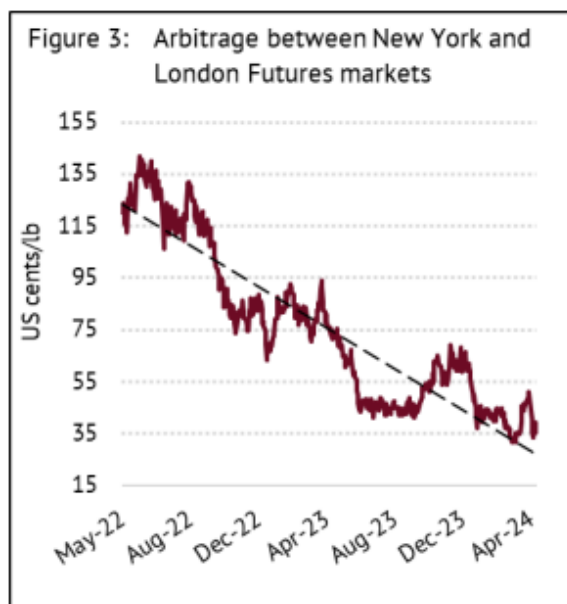


Coffee



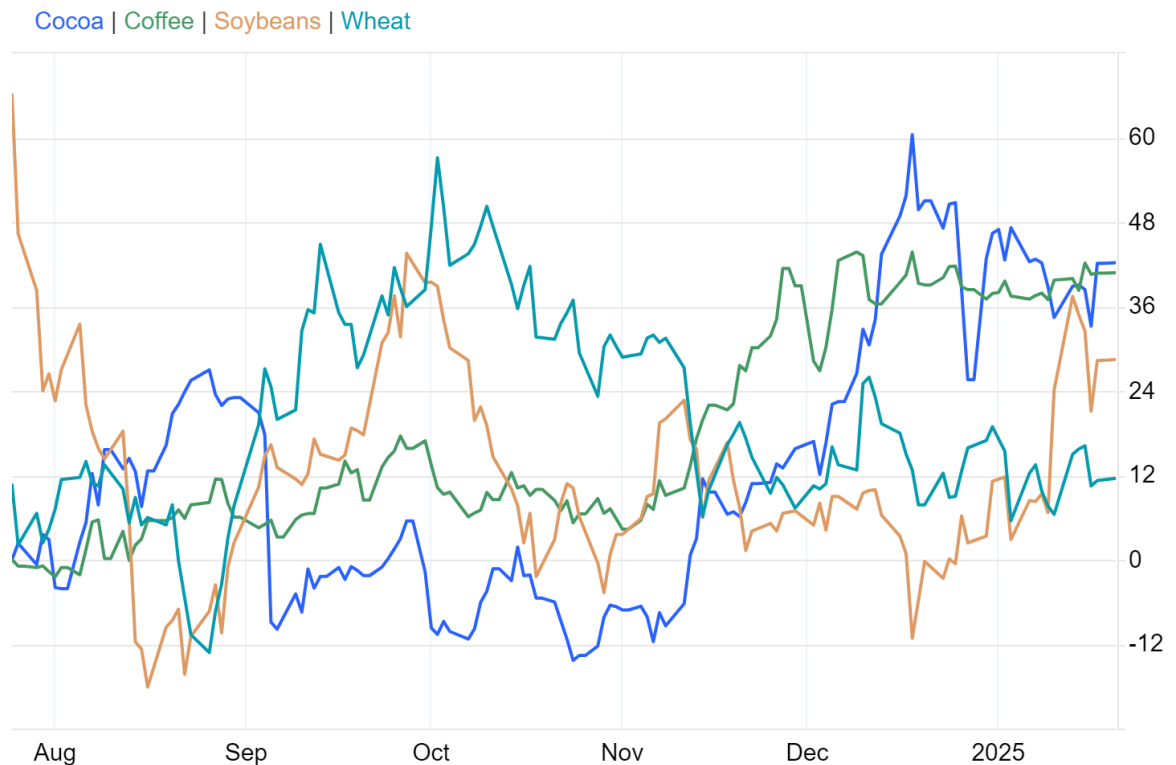
source: tradingeconomics.com

- Monthly and annual volatility.



The downtrend of the Arabica and Robusta arbitrage, as measured between the London and New York Futures markets are now over two years long, falling from 130.30 US cents/lb in April 2022 to 41.93 US cents/lb in April 2024, i.e. a 67.8% decline. However, measured against March 2024, the arbitrage expanded by 16.3% in April 2024.

- Comparison with other similar commodities.



source: tradingeconomics.com

Statistical Analysis:

- Calculation of historical volatility (standard deviation).
- Indicators like the Coefficient of Variation (CV) to compare relative volatility.
- Impact of major events: droughts, conflicts in producing countries (Brazil, Colombia, Vietnam).

b) Analysis of Volatility Causes

1. Climatic Factors:

For Danone, coffee is a crucial raw material, particularly for certain products like ready-to-drink beverages or within its strategy for diversification in the food sector. However, the volatility of coffee prices presents a significant challenge, influenced by climatic and geopolitical factors.

Climatic conditions have a direct impact on coffee production and availability. Coffee cultivation, whether Arabica or Robusta, is particularly sensitive to climate variations. The main climatic effects influencing coffee prices are:

- **Drought:** Extended droughts, such as those that have occurred in Brazil (the world's largest coffee producer), can reduce coffee production and limit supply. This can lead to a decrease in availability, causing prices to rise.
- **Frost:** Frost in coffee-producing regions, such as Brazil and Central America, can be particularly damaging to coffee crops. Frost events can destroy coffee plants, leading to a short-term shortage, which in turn causes prices to spike.
- **Extreme Weather Events:** Phenomena like El Niño or La Niña, which affect global weather patterns, can have severe consequences for coffee production. By altering weather conditions, these events can result in poor or irregular harvests, further increasing price volatility.

These climatic events can disrupt the coffee supply chain, leading to increased costs for Danone, which may be forced to either raise its prices or absorb the additional costs.

As the former CEO of Danone, Emmanuel Faber, said: 'We have no choice, because financial markets can be a fundamental driver of transformation by enabling investments in companies that will support this climate transition.' This can also impact the volatility of commodity prices, such as coffee, as growing pressures for more sustainable practices and related investments can lead to fluctuations in production costs and agricultural yields.

2. Economic Factors:

- **Global Supply and Demand: Increasing Coffee Consumption in Asia** The rising demand for coffee in Asia, driven by urbanization and changing consumer preferences, significantly impacts the global coffee market. As the middle class expands, more consumers in countries like China, India, and Southeast Asia are adopting coffee drinking habits, further fueling the demand. This shift creates opportunities for coffee producers, but it also puts pressure on supply chains and drives price fluctuations, as the growing demand may outstrip supply, particularly in regions where coffee cultivation faces challenges such as climate change or labor shortages.
- **Speculation on Coffee Futures Markets** Speculation in coffee futures markets plays a key role in determining coffee prices. Investors and traders who anticipate future price changes, driven by factors like weather conditions, political instability, or shifts in consumer demand, engage in buying and selling contracts. These speculative activities can introduce volatility in coffee prices, which may not always align with actual supply and demand conditions. As such, market speculation can amplify price fluctuations, creating uncertainty for producers and consumers alike while also affecting the profitability of coffee-related businesses.

Geopolitical Factors:

In addition to climatic conditions, geopolitical factors can also significantly impact coffee price volatility.

- **Political Instability in Coffee-Producing Countries:** Major coffee producers like Brazil, Vietnam, and Colombia can be affected by internal political crises, conflicts, or strikes, which disrupt production or export. For instance, instability in Brazil, affecting ports or logistics infrastructure, may slow down exports and lead to a reduction in supply, thus driving global prices higher.
- **Government Policies:** Agricultural or economic policies in coffee-producing countries also influence coffee prices. For example, the introduction of subsidies for local producers or export restrictions could limit the coffee supply on global markets, pushing prices up.
- **Trade Tensions and Tariffs:** International trade policies, such as tariffs or trade wars, can also affect coffee supply. For example, an increase in import tariffs on coffee exports from producing countries could result in higher prices for importers like Danone.

In conclusion, these geopolitical factors can make coffee prices even more volatile, increasing risks for Danone in its procurement processes and impacting its profit margins.

IV. Solutions and Risk Management

CASE STUDY

In the context of commodity price volatility and currency fluctuations, Danone can implement a series of external strategies to secure its coffee supply while effectively managing financial risks. Below is a detailed overview of the various possible external strategies:

1. Bank Forward Cover

Bank forward cover is a method that allows a company to secure future costs by setting a purchase price in advance, thus reducing the risk of fluctuations in currencies or commodity prices.

Application:

Danone can borrow funds in euros to finance its coffee purchase in USD and then use bank forward cover to lock in the exchange rate and the amount to be repaid at maturity. This method protects the company against exchange rate fluctuations and ensures predictable cash flows.

Example:

Planned purchase: 1,000 tons of Arabica coffee.

Unit price: 180 USD/100 pounds.

Total amount: 4,000,000 USD to be paid in 3 months.

Current exchange rate: 1 USD = 0.95 €.

Euro loan: 3,800,000 €.

With this strategy, Danone ensures a fixed cost in euros for the coffee purchase, eliminating uncertainty related to exchange rate fluctuations.

2. Futures Contracts on Derivatives Markets

Futures contracts provide Danone with a solution to secure future purchasing costs, particularly for large quantities of raw materials like coffee.

Application:

Futures contracts allow Danone to lock in a purchase or sale price at a future date, stabilizing costs in the face of market uncertainties. Although these contracts lack flexibility, they help protect against price increases.

Example:

Current spot price: 180 USD/100 pounds.

Futures price: 200 USD/100 pounds (anticipated increase).

Total quantity: 1,000 tons of coffee.

By opting for this strategy, Danone locks in the purchase price in advance, preventing the impact of a price increase of 400,000 USD compared to the current spot price.

3. Commodity Options

Options offer Danone maximum flexibility, allowing the company to hedge against price increases while benefiting from price decreases if they occur.

Application:

With options, Danone pays a premium to guarantee a specific purchase price. If market prices are more favorable than the option's exercise price, Danone can choose not to exercise the option and buy at the market price.

Example:

Exercise price: 190 USD/100 pounds.

Premium: 5% of the total option amount.

Total quantity: 1,000 tons of coffee.

If prices rise above 190 USD/100 pounds, Danone exercises the option and saves 20,000 USD. If prices fall, the loss is limited to the premium paid of 95,000 USD.

4. Interest Rate Swaps

Interest rate swaps allow Danone to protect itself against interest rate fluctuations, especially in the case of variable-rate financing.

Application:

If Danone has a variable-rate loan to finance the coffee purchase, it can exchange this rate for a fixed rate through an interest rate swap. This prevents the company from being exposed to rising rates, which would increase the total cost of borrowing.

Example:

Loan amount: 3,800,000 €.

Current variable rate: 3.5%.

Fixed rate in the swap: 4.0%.

This strategy ensures the cost of financing remains stable in the event of rising interest rates, providing greater predictability of costs.

a) Internal Strategies:

Supplier Diversification

Expanding sourcing regions: Collaborating with producers from different regions (Latin America, Africa, Asia) helps spread the risks associated with local events (political, climatic, or economic). By diversifying suppliers, price fluctuations can be mitigated, and the impact of a sudden halt in deliveries from a single supplier can be limited.

Reducing risks related to currencies and raw materials: By diversifying geographical areas, purchases can be made in different currencies, thus reducing exposure to a single exchange rate. This strategy can also be strengthened by selecting raw materials or products with price variations that are not correlated.

Stock Optimization

Building strategic reserves: By maintaining a well-calibrated safety stock, the company can cushion the effects of sudden price fluctuations or supply disruptions. This strategy is essential for ensuring operational continuity in the face of unforeseen crisis.

Accurate demand forecasting: With advanced tools like predictive analytics software, it becomes possible to anticipate needs based on market trends. This avoids both the costs associated with excess inventory and those caused by supply shortages.

Innovation in Production

Investments in research and development: By developing alternatives to traditional coffee blends or optimizing current formulas, the company can reduce costs related to raw materials while offering competitive products. For example, using substitutes or adjusted blends based on the prices of ingredients can help maintain profit margins even during periods of cost increases.

Contract clauses to share risks: When negotiating with suppliers, including monetary or proportional adjustment clauses helps distribute the impact of exchange rate or price fluctuations. For example:

- Proportional adjustment clauses automatically pass on variations in rates or prices between the two parties.
- Risk-sharing clauses divide the costs or benefits of fluctuations equally. These approaches help reduce uncertainty and stabilize production costs.

Financial Hedging

- Using futures contracts and options to stabilize coffee prices over the long term.
- Currency hedging through swaps or forward contracts to manage exchange rate risks.

Sustainability Initiatives

- Partnering with certified coffee producers to ensure adherence to environmental and social standards.
- Supporting reforestation projects and sustainable farming practices in coffee-producing regions to enhance supply chain resilience.

Collaboration with Producers

- Engaging with farmer cooperatives to secure consistent supply and implement fair pricing mechanisms.
- Offering technical support and financial incentives to improve production quality and sustainability.

These strategies enable Danone to mitigate the diverse risks associated with coffee procurement while ensuring long-term stability and competitiveness.

Global Risk Management

Integrated risk management at the balance sheet level: This approach involves aligning assets and liabilities to balance cash flows and reduce overall exposure to risks. For example, using foreign currencies to finance international purchases can mitigate the impacts of exchange rate fluctuations.

Strategic alignment with suppliers: By selecting business partners who offer flexibility in pricing or delivery times, the company can better manage its financial commitments.

b) External Strategies for Coffee Procurement

Danone can combine these different strategies to create comprehensive coverage against the risks associated with fluctuations in coffee prices, currencies, and interest rates:

Bank Forward Cover: Secures the exchange rate, ideal for international purchases in foreign currencies.

This technique consists of transferring the risk (totally or partially) to an external entity (a bank or financial company for example).

Application :

- Term bank coverage allows you to set the price at which you will buy or sell a currency in the future.
- The bank undertakes to sell (or buy) foreign currency at a certain date and price.
- The bank's term hedging is therefore a tool to protect against currency risk

Settings :

- Buyer : located in France / Seller : located in United-States of America
- Number of T to be purchased : 100t

- Price / T : \$7,210
- Must pay : \$721,000 in 3 months
- 1 USD -> 0.96 €
- The US three-month rate of 4.43
- The European rate of 3.02%.

1 - The bank is to borrow EUR 751041 for 3 months at a European rate of 3.02%.

$$•721000 / 0.96 = 751041 \text{ EUR}$$

2 - Sells them for USD and thus obtains 528.000 USD

$$•751041 \text{ EUR} \times 1/0.96 = 782334.375 \text{ USD}$$

3 - It places them on the U.S. market

• $X_e \times (1 \text{ USD} / 4)$ - placement earned

$$•1.05\% \times (0.0443 / 4) = 0.675$$

Bank doesn't risk any

$$•X_e \times (1 \text{ USD} / 4) \times \$721,000$$

$$•1.05 \times (0.0443 / 4) \times \$721,000$$

$$•8 \text{ 384.32 USD}$$

$$X_e \times (1 + i_{\text{USD}} / 4) = S_x (1 + \text{EUR} / 4)$$

$$•s = 1.05 \times (1 + 0.0443 / 1 + 0.0302) / 4 = 1.09$$

$$721,000 \text{ USD} / 1.09 = \mathbf{661467.89 \text{ USD}} \Rightarrow \text{good for French buyer}$$



Futures Contracts: Stabilizes future costs, effective for standardized volumes.

Options: Provides maximum flexibility, protecting against price increases while allowing for price decreases.

Buyer: Danone (France)

Seller: Supplier based in Brazil

Purchase Quantity: 100 tonnes of coffee

Price Per Pound: \$3.27

Price Per Tonne: \$7,210

Payment: \$721,000 in 3 months

Exchange Rate: 1 USD = 0.96 EUR (01/25)

Strike interval: **0.025 per pound**

Strike price = \$7390 / T = \$7395 x 0.96 = **€ 7094.4**

Quantity total = **100**

Quantity per option = **17**

Quantity options = 100/ 17= **5.88 (6)**

Premium = 3% of the option amount

Maturity date = in 3 months

→ Danone faces risks related to price volatility and currency fluctuations.

Premium of the option

Q / options x strike price x maturity date

17 x € 7094.4 x 0.03 = **€ 3618.14**

For 6 options : **€ 21,708**

If price rises to \$7,500 (€7200)

Option :

$(Q / \text{option} \times \text{price}) + \text{premium}$

$(17 \times 7094.4 \text{ €}) + \text{€ } 3618.14$

€124,222.94 / option

X Option :

$(Q / \text{option} \times \text{price spot}) + \text{premium}$

$(17 \times \text{€}7200) + \text{€}3618.14$

126,018.14 € / option

If the strike is lower than the spot = abandon option

If resale = $(7200 - 7094.4) \times 17 = 1795.2 \text{ €}$

Interest Rate Swaps: Protects against rising interest rates, ensuring stable borrowing costs.

By combining these strategies, Danone can secure its coffee procurement while effectively managing the risks related to market fluctuations and financial rates. This will allow the company to ensure better cost predictability while minimizing financial risks.

V. Economic Explanations

Why Use Derivatives?

Derivatives are essential for managing risks associated with price volatility and market fluctuations. By using derivatives, companies can:

- **Reduce Uncertainty through Hedging:** Derivatives like futures, options, and swaps allow companies to lock in prices or exchange rates, providing predictability and minimizing the financial impact of market fluctuations.
- **Optimize Costs Compared to Direct Purchases:** Derivatives enable businesses to secure more favorable terms or prices than they would through direct purchasing in volatile markets. This helps manage procurement costs and improve budgeting accuracy.

Impact of Exchange Rates:

When the USD appreciates against the EUR, the cost of coffee for Danone in euros increases. This exposes the company to higher costs and financial risks due to currency fluctuations.

Solutions:

- **Hedging with Currency Swaps:** One effective solution is using currency swaps, which allow Danone to exchange currencies at a fixed rate over a set period. By locking in the exchange rate, Danone can protect itself from the adverse effects of currency fluctuations, ensuring a stable cost structure for its coffee procurement.

This strategy helps mitigate the impact of currency volatility, ensuring that the cost of coffee remains predictable despite changes in the foreign exchange market.

VI. Recommendations

To address the risks associated with coffee supply, Danone must adopt a proactive approach that combines internal and external strategies to ensure cost stability and supply continuity. First and foremost, supplier diversification appears to be an essential solution to reduce dependence on specific producing regions and limit the impact of climatic or geopolitical uncertainties. By expanding its supplier network across different geographical areas, Danone can better distribute the risks related to production fluctuations and currency variations.

Furthermore, stock optimization is a key measure to mitigate the effects of price fluctuations. Implementing rigorous stock level management, supported by predictive analytics tools, will allow the company to adjust supply volumes based on market trends and demand forecasts. This will help reduce costs associated with excessive storage while ensuring sufficient flexibility in the face of potential supply chain disruptions.

In addition, Danone should strengthen its financial resilience by utilizing hedging instruments such as futures contracts, options, and currency swaps. These financial tools will help stabilize coffee purchasing costs and limit the impact of exchange rate fluctuations on the company's margins. Establishing long-term contracts with suppliers, and incorporating price adjustment clauses based on market indices, is also an effective solution to secure supplies and avoid sudden price increases.

Finally, it is recommended to adopt a collaborative approach with suppliers and local cooperatives to enhance transparency and traceability throughout the supply chain. By investing in sustainable development initiatives and supporting responsible

agricultural practices, Danone can contribute to production stability while reinforcing its commitment to more sustainable food practices.

By integrating these various strategies, Danone will be able to mitigate the risks associated with coffee price volatility, ensure reliable supply, and control costs while maintaining product quality and preserving its competitiveness in the market.

VII. Conclusion

The volatility of coffee prices presents a significant challenge for Danone, influencing both cost structures and overall profitability. Through a comprehensive analysis of the risks associated with coffee procurement—including price fluctuations, exchange rate risks, quality concerns, logistical challenges, and regulatory changes—we have identified key areas that require strategic management.

To ensure a stable and competitive coffee supply, Danone must adopt a proactive approach that integrates both internal and external risk management strategies. Internally, supplier diversification, stock optimization, and innovation in production will help mitigate supply chain vulnerabilities and cost pressures. Additionally, contractual risk-sharing mechanisms can provide further protection against unexpected market fluctuations.

Externally, the use of financial instruments such as futures contracts, options, and currency hedging strategies will allow Danone to secure favorable pricing and reduce exposure to exchange rate volatility. Forming partnerships with coffee producers and cooperatives can also enhance supply chain resilience and promote sustainability.

By combining these approaches, Danone can achieve greater stability in its coffee procurement operations, safeguard profit margins, and continue delivering high-quality products to consumers despite the inherent uncertainties of the global coffee market. Implementing a robust risk management framework will not only enhance the company's competitive edge but also ensure long-term sustainability in an evolving economic and geopolitical landscape.

source

<https://www.letemps.ch/economie/finance/emmanuel-faber-expatron-danone-climat-on-ne-gagnera-seul?srsId=AfmBOooB3ZLyE79qiE-XTbQDKLEtisd1uuuXeJGia-sf-EExEI0QNIZS>