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Business Strategy of Multinational Trading Firm in Agriculture Sector: Case Study of Archer Daniels Midland Amid Pandemic and Geopolitical Conflict

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ABSTRACT

This research investigates how agricultural commodity trading companies formulate business strategies in response to pandemics and geopolitical conflicts. Using ADM (Archer Daniels Midland Company) as a case study, the study explores three key strategies: supply chain diversification, new market expansion, and risk mitigation. The research method involved analyzing ADM's annual reports and strategic actions during the COVID-19 pandemic and ongoing geopolitical conflicts. The theoretical framework is based on the concept of economics of commodity trading firms (Pirrong, 2014, 2015) and strategic management. The findings reveal that ADM effectively diversified its supply chain by securing raw materials from multiple global sources and investing in joint ventures and strategic partnerships. The company expanded into new markets through acquisitions and collaborations, thus broadening its business portfolio beyond agricultural commodities. Additionally, ADM's enterprise risk management (ERM) program helped mitigate risks related to operational efficiency, cyber-attacks, and geopolitical disruptions. The study concludes that ADM's comprehensive strategies not only minimized the adverse effects of external shocks but also positioned the company for sustainable growth. These strategies can serve as benchmarks for other companies in the agricultural sector to enhance resilience and contribute to sustainable development goals.

INTRODUCTION

The COVID-19 pandemic and geopolitical conflicts have become extraordinary events that have not only changed the global economic landscape but also politics and global defense and security. In this context, the Authors borrows the term from Taleb, namely 'black swan' phenomenon.' These are events that cannot be predicted or anticipated in advance, and when they occur, they change the existing structure, such as financial crises, revolutions, and others. (Antipova, 2020, p.365) states that coronavirus pandemic recognized as ‘Black Swan’ event according to considered signs from recent references and we can see severely challenges economic activity, social cohesion and even political stability. Taleb (2007, pp. xx-xxi) states that “black swan being unpredictable, we need to adjust to their existence (rather than naïvely try to predict them).

The COVID-19 pandemic is a 'black swan' event that has altered the structure of agricultural businesses globally and has had local impacts. These events affect the structure of supply and demand. The COVID-19 pandemic halted economic activities, thereby affecting the supply of agricultural commodities. Supplies became limited and scarce, but demand for agricultural commodities tended to increase. Research conducted by Sridhar et al. (2023, pp. 42509-42525) shows the effect of

COVID-19 on the agro-food system, leading to changes in food production, demand, price increases, security, and supply chain resilience.

The agricultural production value chain was disrupted due to COVID-19. This disruption began with the inputs: seeds, fertilizer, water supply, seed protection, and farming tools. Farming activities (cultivation & animal husbandry) were also disrupted, which had implications for the distribution of agricultural products, storage, and transportation (storage & associated services) until they ultimately reached consumers (households, vendors, cafes, hotels, supermarkets, and so on).

While the world was still grappling with COVID-19, on February 24, 2022, the Russia-Ukraine conflict shocked the entire world. As a 'black swan' event, this conflict has three implications. First, the Russia-Ukraine conflict contributed to changes in the global geopolitical constellation, leading to the emergence and balance of new powers in the world. Second, there is the potential use of nuclear power, as conflict actors and their alliances might resort to nuclear power as a 'last resort' to resolve the conflict. Third, this conflict has a systemic impact. Not only are the economic and energy sectors affected, but so are defense and security. Ukraine is one of the largest wheat-producing countries in the world. Wheat is the raw material for bread, which is a staple food for most people worldwide. This conflict also affected the supply of wheat, leading to an increase in the price of this strategic commodity.

During the period when the international community is experiencing these two 'black swan' events, the role of multinational companies in the agricultural commodity trading sector becomes very strategic and significant. According to Pawlowski, Rechtsteiner, and Schbram in a McKinsey report (April 4, 2024), supply chain disruption has constrained global trade activity. Both large-scale geopolitical developments (the COVID-19 pandemic and Russia's invasion of Ukraine) and local events (such as the slowing of cargo traffic in the Panama Canal due to drought and Houthi attacks on cargo ships in the Red Sea) have affected product availability and prices. The invasion of Ukraine has had wider implications beyond trade and supply chains.

In simple terms, a multinational company is one that operates on a global scale. Buckley (2018, pp.1069-1076) defines multinational companies as 'firms that control economic activities across national boundaries.' Jean-Francois Hennart (2003, pp.127-149) defines a multinational company as 'a private institution designed to organize, through employment contracts, interdependencies between individuals located in more than one country.' These definitions indicate that a multinational company consists of economic control and cross-border operations.

Therefore, the Authors state that multinational companies act as intermediary organizations. These companies enter the agricultural supply domain by buying, processing, and sending products to consumers worldwide. In terms of demand and supply for commodities—especially world agricultural commodities—the numbers are quite significant. This research's main argument is that the pandemic and geopolitical conflict are external factors that force companies to formulate, adjust, or re-adapt their business strategies. Based on this argument, the research question is: How do agricultural commodity trading companies formulate their business strategies in response to and dealing with pandemics and geopolitical conflicts?

Pandemic and geopolitical conflict act as determinants of company strategy. Several studies support this argument. Research conducted by El Montasser, Belhoula and Charfeddine (2023, pp.1-15) examined price increases (bubbles) in soybeans, soybean oil, cereals, and wheat, predicting bubbles in Brent crude oil prices. Research conducted by Just and Echaust (2022, pp.1-5) focused on agricultural commodity markets from the COVID-19 period to the Russia-Ukraine war, where the prices of wheat, corn, and cereals (barley) experienced price shocks during the conflict.

The agricultural trade sector is often described as resilient to the COVID-19 pandemic. However, research by Arita et al (2022, pp.1-23) showed that the COVID-19 pandemic reduced aggregate trade in agricultural commodities by 5 to 10%. Some of the commodities affected include ethanol, cotton, and seafood. This is confirmed by research conducted by Khondoker, Kreuseman and Snapp (2022, pp.1-12), which examined that during the Russia-Ukraine armed conflict, wheat exports from Russia and Ukraine decreased drastically. The analysis results show that a 1% decrease in world wheat trade can increase wheat prices at the producer level by 1.1%. This increase can reduce wheat consumption by 0.59%. The lack of wheat exports from Russia and Ukraine could worsen and increase hunger rates in many developing countries. Therefore, to avoid such food crises in the future, developing countries must expand domestic wheat production.

Sokhanvar and Bouri (2023, pp.44-54) stated that apart from affecting commodity prices, the war in Ukraine and sanctions imposed on Russia affected the foreign exchange market—Canadian Dollar, Euro, and Yen. The increase in oil prices affects the depreciation or decline in the value of the Euro and Yen currencies. Besides the increase in oil prices, this depreciation was also influenced by increases in gas prices and wheat prices. Not only do geopolitical conflicts lead to open war, but volatility and fluctuations in commodity prices are also influenced by unarmed trade wars. This can be seen in research conducted by Cheng et al. (2023, pp.1-17). Therefore, pandemics and geopolitical conflicts are determinant factors that must be considered in formulating company strategies, considering the resulting influence and impact on the global situation.

RESEARCH METHOD

The research carried out was qualitative with a case study approach focused on Archer Daniels Midland (ADM). ADM is one of the four largest agricultural commodity trading companies in the world, collectively known as ABCD (ADM, Bunge, Cargill, Louis Dreyfus Company). The research examined ADM's business strategy through their annual reports, proxy reports, and interviews with company executives available in various media.

Using the concept of economics of commodity trading firms from Craig Pirrong and strategic management, this research aims to understand ADM's strategy in responding to and facing the challenges posed by the pandemic and geopolitical conflicts, which can be seen as 'black swan' events.

Table. 1. Analytical Framework
Compiled by Authors

	Pirrong's Concept of Economics of Commodity Trading Firms		
Strategic Management	**Space (Logistics)**	**Time (Storage)**	**Form (Processing)**
Supply Chain Diversification	Commodity trading firms optimize logistics to diversify their supplier base geographically. By sourcing from multiple regions, they	Commodity trading firms utilize storage facilities strategically to manage seasonal variations in supply and demand. This allows them to smooth	Through processing capabilities, firms add value by transforming raw commodities into processed products tailored to diverse market preferences.

	reduce dependence on single suppliers and mitigate risks related to geopolitical events or regional disruptions.	out price fluctuations and ensure consistent supply to markets.	This enhances market penetration and profitability.
New Market Expansion	Commodity trading firms optimize logistics to facilitate entry into new markets. This involves setting up efficient supply chains or leveraging existing networks to reach new geographical regions.	Investing in storage facilities in new markets helps manage inventory and respond swiftly to local demand fluctuations, enabling firms to establish a foothold and build market share.	Adapting products through processing to meet local preferences and regulatory requirements in new markets enhances market penetration and accelerates growth.
Risk Mitigation	Diversifying supply sources helps mitigate risks associated with geopolitical tensions or natural disasters impacting specific regions. This ensures continuity of supply and minimizes disruptions.	Maintaining adequate storage capacity allows firms to buffer against supply chain disruptions or unexpected changes in demand, reducing the impact on operations.	Flexible processing capabilities enable firms to adjust product offerings in response to market shifts or regulatory changes, thereby mitigating market-specific risks.

Pirrong's concept highlights how commodity trading firms optimize value through logistical, storage, and processing strategies that align with supply chain diversification, new market strategies, and risk mitigation efforts. By effectively managing transformations in commodities across space, time, and form, these firms enhance their ability to adapt to market dynamics, mitigate risks, and capitalize on new opportunities in global markets. These strategies collectively reinforce the dynamic capabilities necessary for sustained competitiveness and resilience in the commodity trading sector.

RESULTS AND DISCUSSION

Commodity trading, in simple terms, is the buying and selling of commodities like agriculture, energy, and industrial commodities (metals, minerals, and others). But can individuals buy wheat or oil directly? No, they cannot. There is always an intermediary, which in this case is a commodity trading company/firm. Commodity trading companies add value and generate profit by engaging in three main business activities. According to Pirrong (2014, pp. 6-7) states that commodity trading firms add value by identifying and optimizing transformations in commodities that reconcile mismatches between supply and demand in space (using logistics), in time (through storage) and in form (with processing). Their primary function is to perform physical arbitrages that enhance value through these transformations.

For instance, Company A buys wheat from the United States at USD 5. The wheat is shipped, stored in silos or sophisticated storage areas with controlled humidity and temperature, and then processed. Due to demand, the wheat can be sold for USD 10-15 after these processes. This value addition leads to profits for the company. However, unexpected events like civil wars, geopolitical conflicts, natural disasters, or political regime changes pose risks to commodity trading companies. The rewards these companies obtain are directly proportional to the risks they face.

Risk is inherent in business decisions, and commodity trading companies face several overlapping risk categories. They have limited exposure to flat price risk but usually hedge physical commodity transactions with derivatives, exchanging flat price risk for basis risk—the difference between the physical commodity price and the hedging instrument. Basis risk is the risk of differential changes (Pirrong, 2014). Commodity trading companies also manage financial market risks, including margin and volume risks. Their profits depend largely on traded volume and the margin between purchase and sale prices. Margin and volume are positively correlated.

These companies also encounter various liquidity risks (Pirrong, 2015, 19-26): 1) Hedging liquidity: Companies use futures exchanges to protect commodities, incurring daily costs that are offset by profits when the physical commodity is sold. 2) Market liquidity: In some markets, it may be difficult to profit from trading positions quickly. 3). Funding liquidity: High commodity prices require substantial capital for effective trading. Operational risks are managed through insurance audits, information technology, health and safety measures. Other risks include political, legal/reputational, contract performance, and currency risks. Companies can mitigate risks through diversification, trading in multiple commodity markets to reduce overall exposure, and integration, owning assets across the value chain to cushion against market shocks.

In simple microeconomic terms, companies in any industrial sector must adhere to the economic law of supply and demand. This applies to agricultural commodity trading companies, which profit from geographic, time, and technical arbitrage, and by adding value to commodities through storage and blending. They also participate in financial markets for profit and risk management.

Agricultural commodity traders deal with many farmers, providing opportunities to gather valuable market information. This strategic role ensures food availability and security. As Hillary Clinton stated, "Food security is not just about food. It is about security—economic, environmental, even national" (Blas & Farchy, 2021, p.241).

According to Murphy (2012) and Kiezebrink and Hietland (2024), ADM is one of the four largest multinational companies in the agricultural commodities trading industry. Founded in 1902 by George A. Archer and John W. Daniels, ADM has grown through organic and inorganic strategies. Organic growth involves increasing revenue and sales via internal operations, while inorganic growth involves mergers and acquisitions (M&A).

In its early years, ADM reinvested profits into stock dividends, plant improvements, and growth projects, helping it survive economic downturns. ADM's growth strategies now include acquisitions, such as Neovia in 2019, and various other companies in subsequent years. Despite pandemics and geopolitical conflicts, ADM continued to acquire more businesses, demonstrating an aggressive growth strategy.

This research identified that ADM implements three derivative segments as the business strategy. We can find these strategies in ADM Annual Reports and Chairman and CEO of ADM, Juan Ricardo Luciano in Harvard Business Review (September-October 2023, pp. 32-33) states that:

"Nine years later we have done just that: We've reorganized the company into three segments: agricultural services and oilseeds, which procures, transports, trades, crushes, and processes oilseeds and grains; carbohydrate solutions, which focuses on processing corn and wheat into starches, sweeteners, and inputs for industrial and consumer products; and nutrition, which develops and supplies flavors, specialty ingredients, and formulation services for food, beverage, and animal nutrition customers, along with solutions oriented toward health and well-being. In all three units we now sell not just raw or processed commodities but differentiated products. And we have identified three long-term global macro trends— food security, sustainability, and health and well-being—around which we are making capital-allocation, strategic, and operational decisions"

1. Strategy of Supply Chain Diversification

The Ag Services and Oilseeds segment encompasses global activities involving the origination, trade, transportation, and storage of agricultural raw materials. It includes the crushing of grains like soybeans and soft seeds (cottonseeds, sunflower seeds, canola, rapeseed, and flaxseed) to produce vegetable oils and protein foods. Vegetable oil products are marketed across segments including foodstuffs, feed, energy, and industrial applications. Crude vegetable oils are either sold as-is to customers or undergo refining, blending, bleaching, and deodorizing processes to produce salad oils and other food products. Additionally, some refined oils are used for biodiesel production or sold to industrial producers for use in chemicals and paints. Oilseed protein foods are primarily sold as ingredients for livestock and poultry feed.

The Ag Services and Oilseeds segment is a major supplier of peanuts and derivatives in both the United States and export markets. In North America, it produces cotton cellulose pulp for chemical and industrial markets. The segment also handles seed sourcing, grain transportation via barge, ship, truck, rail, and containers, providing reliable service to corporate customers and agricultural processing operations. Furthermore, it engages in the export and import of agricultural commodities, feed products, global distribution, and structured trade finance activities.

The Carbohydrate Solutions segment engages in wet and dry corn and wheat milling activities. It converts corn and wheat into various products and ingredients for the food and beverage industry, including sweeteners, starches, syrups, glucose, wheat flour, and dextrose. This segment also produces alcohol through dextrose fermentation, used in industrial applications such as hand sanitizer and as an octane booster in gasoline. By-products like corn gluten feed, distillers grains, and corn germ are utilized in animal feed or further processed into vegetable oils and protein flour. Additionally, the segment produces citric acid used in food and industrial products.

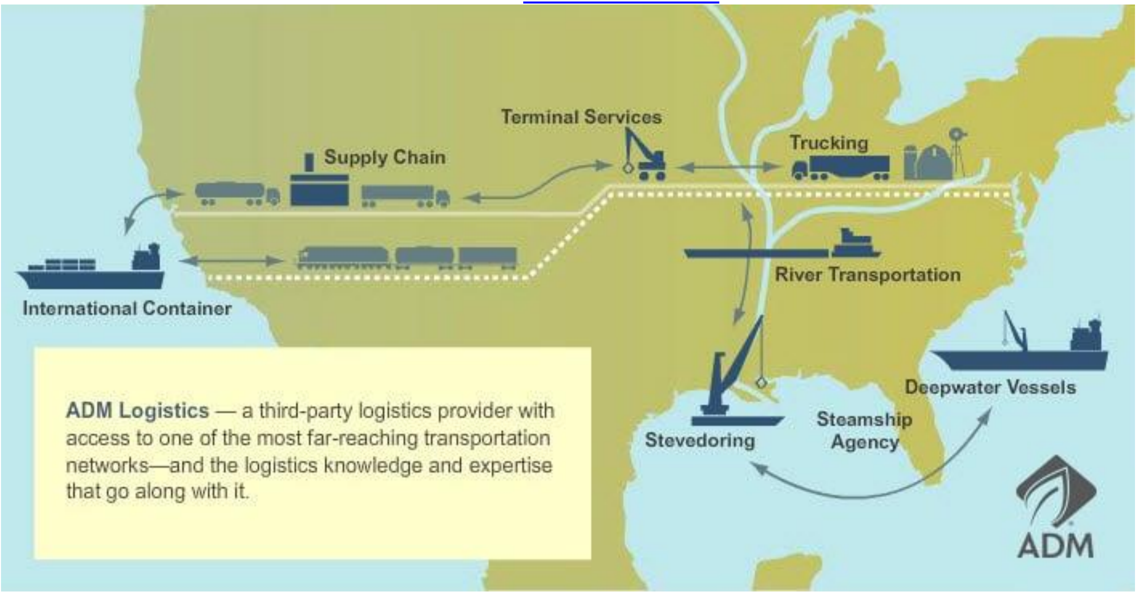
The Nutrition segment serves diverse markets such as food, beverages, nutritional supplements, and animal feed. It manufactures, sells, and distributes various ingredients and solutions, including vegetable proteins, natural flavors, colorants, emulsifiers, soluble fibers, polyols, hydrocolloids, probiotics, prebiotics, enzymes, plant extracts, and food ingredients. This segment also includes activities related to edible nuts procurement, processing, and distribution, as well as the formulation and distribution of feed and animal health products. ADM's diversified strategy mitigates direct exposure to commodity price fluctuations, enhancing stability amidst market volatility.

In 2019, ADM achieved an EBITDA of USD 3.5 billion and distributed dividends amounting to USD 940 million, with an EPS of USD 3.24. The company simplified its business model, resulting in efficiencies exceeding USD 300 million, and expanded into new markets by integrating Algar Agro's assets in Brazil. The Carbohydrate Solutions Division alone generated an operating profit of USD 644 million and inaugurated a new flour milling plant in Mendota, Illinois. Looking ahead, ADM anticipates growth opportunities in seven global trends, including alternative proteins, nutrition, microbiome health, clean labels, sustainable ingredients, and renewable resources.

In case of ADM, the company has access to an unparalleled transportation network and the logistics knowledge to design effective and competitive solutions (www.adm.com). The Company has access to one of the most far-reaching transportation and logistics networks in the world. It leverage that network to secure excellent pricing and pass it along to you. The Company has far-reaching capabilities in truckload, less than truckload, expedited, oversize and over-dimension flatbeds, railcars, barges, deepwater vessels, intermodal, stevedoring, steamship agency and more. ADM has four gulf export elevators as well as two floating rigs to load DDGS or combination commodity vessels.

U.S. Grains Council states that ADM has three exclusive container loading facilities and also utilizes two additional public container loading facilities. Export capabilities include vessel, barge, rail car and container shipments. The Company utilizes storage facilities for by-products like corn gluten feed and distillers grains, which are further processed or used in animal feed, demonstrating effective inventory management.

Figure 1. ADM Logistic
Source: www.adm.com



According to Chairman and CEO of ADM, Juan Ricardo Luciano in Harvard Business Review (September-October 2023, p.32) states that:

> *"My goal was to focus our business not just on the buying, processing, and selling of commodities—which had for too long left us vulnerable to market volatility—but also on value-added nutrition products and services, which represented a more stable sector in which we could move closer to our customers and build a broader base for growth and impact. We needed to think more deeply about the end consumers of ADM's offerings—billions of people and animals around the world—and better serve them."*

This diversification strategy reduces ADM's dependence on a single commodity, spreading risk across various segments and markets.

2. Strategy of New Market Expansion

In this strategy, ADM expands to enter new markets through mergers and acquisitions, as well as joint ventures or strategic partnerships with similar companies.

Ag Services and Oilseeds Segment

In this segment, the company holds a 32.2% interest in Pacificor (formerly Kalama Export Company LLC), which operates grain export elevators in Kalama, Washington, and Portland, Oregon. In August 2020, ADM sold some of its shares in Wilmar International Limited (Wilmar), a Singapore public company, reducing its stake from 24.8% to 22.2%. Wilmar—Asia's leading agribusiness and packaged food oils company—is a strategic partner and one of ADM's largest customers. ADM first partnered with Wilmar and its affiliated companies in the early 1990s when they jointly built a network of soybean processing operations in China, and ADM has been a significant investor in Wilmar since 1994. Today, Wilmar is a key component of ADM's strategy in emerging markets, including Asia Pacific; an important trade partner; and co-owner of joint venture Olenex, a major European provider of specialty oils.

According to Chairman and CEO of ADM, Juan Ricardo Luciano (August 23, 2020) states that:

> *"We are exceptionally pleased with our longstanding relationship with Wilmar. This transaction provides ADM with additional capital while retaining that strong relationship. We have no plans to sell additional Wilmar shares, and look forward to continuing our partnership for years to come."*

ADM has a 50% interest in Stratas Foods LLC, a joint venture between ADM and ACH Jupiter, LLC, a subsidiary of Associated British Foods, which procures, packages, and sells edible oils in North America. The company also has a 50% interest in Edible Oils Limited, a joint venture with Princes Limited, which sources, packages, and sells edible oils in the UK. Furthermore, ADM has formed a joint venture with Princes Limited in Poland to procure, package, and sell edible oils in Poland, the Czech Republic, Slovakia, Hungary, and Austria (ADM Annual Reports).

ADM holds a 37.5% interest in Olenex Sarl (Olenex), a joint venture with Wilmar that produces and sells a comprehensive portfolio of vegetable oils and fats worldwide. Olenex markets refined oils and fats from ADM's plants in the Czech Republic, Germany, the Netherlands, Poland, and the United Kingdom. ADM also has a 50% interest in SoyVen, a joint venture with Cargill that provides soybean meal and oil to customers in Egypt. The company supplies raw materials to Wilmar, Stratas Foods LLC, Edible Oils Limited, SoyVen, and Olenex (ADM Annual Reports).

Carbohydrate Solutions Segment

Effective January 1, 2020, ADM began reporting its newly established dry ethanol plant subsidiary, Vantage Corn Processor (VCP), as a sub-segment within the Carbohydrate Solutions segment. VCP replaced the Bioproducts sub-segment, which included the combined output of ADM's dry and wet corn ethanol plant operations. Wet ethanol plant operations previously reported in Bioproducts are now included in the Starches and Sweeteners sub-segment. VCP markets ethanol produced at ADM's facilities. These changes had no impact on the segment's total results (ADM Annual Reports).

In November 2021, ADM sold its ethanol production facility in Peoria, Illinois. In August 2022, ADM entered into two joint ventures with LG Chem, namely GreenWise Lactic and LG Chem Illinois Biochem, to produce lactic acid and polylactic acid for plant-based products, including bioplastics (ADM Annual Reports).

ADM has a 50% interest in Hungrana Ltd., which operates a wet corn milling plant in Hungary, and a 50% interest in Almidones Mexicanos S.A., which operates a wet corn milling plant in Mexico. Additionally, ADM has a 40% interest in Red Star Yeast Company, LLC, a joint venture with Lesaffre that produces and sells fresh and dry yeast in the United States and Canada, and a 50% interest in Aston Foods and Food Ingredients, a Russia-based sweeteners and starches business (ADM Annual Reports).

Nutrition Segment

In January 2020, ADM acquired Yerbalatina, a producer of extracts from natural plants. In October 2020, ADM launched PlantPlus Foods, a 30% joint venture with Marfrig, one of the world's leading beef producers, to offer a wide range of prepared plant-based food products throughout North and South America. ADM also signed an agreement with Spiber Inc. (Spiber) to expand production of Spiber's innovative polymer, Brewed Protein™, for use in clothing and other consumer products. ADM holds a 45.3% stake in Vimison S.A. de C.V., a leader in the animal nutrition industry in Mexico (ADM Annual Reports).

Financial Sector

ADM Investor Services, Inc. (100% ownership) is a member of the commodity exchange and futures exchange registered in the United States. ADM Investor Services International, Limited is a member of the commodity and derivatives exchanges and a clearinghouse in Europe. ADMIS Singapore Pte. Limited is a company registered as a member of the Singapore Exchange, and ADMIS Hong Kong Limited provides brokerage services in Europe and Asia (ADM Annual Reports).

Insurance Sector

ADM owns Agrinational Insurance Company (Agrinational) and its subsidiaries, which provide protection insurance for certain property, accident, marine, credit, and other risks obtained by the company. Agrinational also offers third-party reinsurance services (ADM Annual Reports).

Investment Sector

ADM Ventures, founded in 2016, invests in high-potential new product development projects and alternative business models. Prior to 2020, ADM held a 43.7% share in Compagnie Industrielle et Financiere des Produits Amylaces SA (Luxembourg) and its affiliates (CIP), targeting investment in the food, feed ingredients, and bioproducts business. This company was divested in December 2019 (ADM Annual Reports).

According to Chairman and CEO of ADM, Juan Ricardo Luciano in Harvard Business Review (September-October 2023, p.34) states that:

> *"We identified six growth platforms: differentiated grain (such as non-GMO or locally sourced); sustainable solutions (such as biofuels and eco-friendly packaging); biosolutions (plant-based industrial materials); alternative proteins; microbiome modulation (such as prebiotics and probiotics for metabolic, digestive, and immune-system health); and microbial solutions (using synthetic biology such as fermentation to produce food and sustainable materials)… And in 2016 we went one step further and launched ADM Ventures, a dedicated group to explore new business opportunities within our six target areas."*

This expansion strategy not only strengthens ADM's position as a multinational company trading in agricultural commodities but also allows ADM to have a diverse business portfolio across the agricultural, financial, insurance, and investment sectors. A diverse portfolio helps spread out risks, preventing them from being concentrated in a single business sector (See Appendix A).

3. Strategy of Risk Mitigation

The majority of ADM's raw materials are agricultural commodities. In addition, specific resources such as fruits, vegetables, and nuts are extracted to create flavors and colors. Each year, the availability and prices of these commodities depend on several factors, including changes in weather conditions, planting, government programs and policies, competition, changes in global demand, changes in living standards, and competitive production of similar crops on a global level. ADM obtains raw materials from thousands of farmers, grain processors, and wholesalers in North America, South America, Europe, the Middle East, Africa, Asia, and Australia, based on term agreements (less than one year) or on a spot basis. The company does not depend on any particular grower, elevator, or trading company as a source of raw materials.

To mitigate risks, ADM implements an Enterprise Risk Management (ERM) program, which all directors and employees must adhere to. The ERM program is monitored by the ERM Team and the Chief Risk Officer and focuses on protecting and maintaining shareholder value. The areas mitigated by the company include operational efficiency, cyberattack prevention, strategy, ESG solutions, economic factors, and food safety (ADM Annual Reports).

As ADM has become a multinational company, global operations risk is something that must be mitigated. In responding to the pandemic, ADM has effectively addressed the risks arising from COVID-19 and has implemented mitigation measures across global operations, positively impacting customers, employees, local communities, and other stakeholders. If a more virulent virus variant emerges, ADM could be materially impacted in the future, disrupting business operations. In such circumstances, ADM may not be able to fully perform its contractual obligations, and its critical global supply chain network and logistics may be impacted, leading to increased costs and working capital requirements. These increased costs may not be fully recoverable or adequately covered by insurance. Additionally, demand for certain products ADM produces, particularly biofuels and ingredients used in food and beverages, could be significantly impacted by a prolonged regional or global outbreak, leading to lockdowns, quarantines, or other government-enforced restrictions.

In terms of geopolitical risks, ADM may experience severe property damage and business disruption due to geopolitical conflicts, acts of terrorism (e.g., intentional counterfeiting of the company's products), and war. Company assets and operations located in conflict-affected areas, such as Ukraine, are at increased risk of property damage, loss of inventory, business disruption, and confiscation. These conflicts may continue to impact global margins due to rising commodity, energy, and other input costs. The Black Sea region is a major exporter of wheat and corn, and supply disruptions could cause volatility in prices and margins for these commodities and related products. ADM operates a grain port terminal in Odesa, an oilseed crushing plant in Chornomorsk, five inland and one river silos, and a trading office in Kyiv, employing more than 630 people. It has shuttered its facilities in Ukraine, including an oilseed crush plant and a grain export terminal after Russia invaded the country (Reuters, February 25, 2022).

ADM's joint ventures are also subject to these risks. Although the company has a compliance program, ADM and its related parties may be exposed to risks from trading with sanctioned partners, such as Russia. For example: the Ibred plant.

Figure 2. The Aston-ADM Ibred mill, as seen from above in 2020
Source: Map Data Google, CNES/Airbus, Hunterbrook

The Ibred plant is not an ordinary Russian enterprise. It is a joint venture between Aston Foods, a Russian conglomerate, and ADM. The Ibred wet mill sits roughly 300 kilometers from the center of Moscow. In 2020, the plant reportedly produced more than $42.6 million in goods and services. In 2023, per Russian sources, the plant brought in more than $82.8 million in revenue, with more than $24 million in profit. ADM to acquire a 50 percent equity stake in the sweeteners and starches business of Russia-based Aston Foods and Food Ingredients. Under the terms of the agreement, ADM will become 50 percent owner of Aston's corn wet mills in Ibred and Novlyanka, which are strategically located close to major customers in the Russian food and beverage industry (ADM Official Website, Hunterbrook).

The company may also face increased cyber risks given Russia's extensive capabilities for cyberattacks. Accounts receivable may have a higher risk of default, and other third-party risks may impact ADM's ability to generate revenue if suppliers are unable to pay debts or face bankruptcy, as certain supplies may not be obtainable due to sanctions and/or restrictions on cross-border transactions.

Companies could be materially impacted if—in a worst-case scenario—the conflict spills over into other countries. In such circumstances, trade policies and global supply chains, as well as the company's logistics network, could be affected, disrupting ADM's ability to fulfill contractual obligations and increasing the need for working capital. Insurance may not adequately cover these risks. ADM production, particularly that supporting the food service channel, could be significantly impacted. The company continues to monitor the conflict in Ukraine and other political tensions and evaluate alternatives to mitigate the impact of these risks.

Based on the research results above, it is significant to see how ADM's strategy responds to and deals with pandemics and geopolitical conflicts, which of course impact the business model run by ADM and the risks managed by the company. In summary, ADM's strategies of supply chain diversification, new market expansion, and risk mitigation allow the company to navigate and thrive despite 'black swan' events and the inherent volatility of the commodity trading industry.

Table. 2. Research Finding

Strategy	**Space (Logistics)**	**Time (Storage)**	**Form (Processing)**
Supply Chain Diversification	ADM optimizes logistics for sourcing, transporting, and storing agricultural raw materials globally. This includes efficient grain transportation via various modes (barge, ship, truck, rail, containers) to ensure reliable supply chain operations.	Utilizes storage facilities for by-products like corn gluten feed and distillers grains, which are further processed or used in animal feed, demonstrating effective inventory management.	ADM processes soybeans and other oilseeds into vegetable oils and protein foods, refining them for diverse applications in food, feed, energy, and industrial sectors. This processing adds value through product differentiation and customization to meet market demands.
New Market Expansion	ADM's investments in joint ventures like Pacificor and Wilmar allow it to optimize logistical operations in grain export and oilseed processing across North America, Europe, and Asia. These ventures facilitate efficient transportation and	Through strategic partnerships with Wilmar and joint ventures in various regions, ADM mitigates temporal risks associated with commodity price fluctuations by diversifying sourcing and production timelines, ensuring	ADM's acquisitions in Hungary and Mexico for wet corn milling plants diversify its transformational capabilities in producing starches, sweeteners, and other corn-derived products for regional and global markets.

	distribution of agricultural products globally, enhancing market reach and operational efficiency.	consistent supply to global markets.	
Risk Mitigation	ADM's global sourcing network across multiple continents allows it to mitigate logistical risks associated with localized disruptions. By diversifying suppliers and transportation routes, ADM reduces dependency on any single region or supplier, enhancing resilience against supply chain disruptions caused by geopolitical tensions or pandemics.	ADM's ERM program focuses on identifying and managing risks in real-time, enabling timely responses to temporal shifts such as sudden changes in commodity prices or regulatory environments due to geopolitical events. This proactive approach helps ADM to maintain operational continuity and financial stability amidst uncertainties.	During the COVID-19 pandemic, ADM implemented mitigation measures globally to safeguard operations and stakeholders. This includes enhancing cybersecurity protocols to mitigate transformational risks posed by cyber threats, ensuring uninterrupted operations and safeguarding sensitive data amidst increasing digital dependencies.

CONCLUSION

The pandemic and geopolitical conflicts are external factors that force companies to formulate, adjust, or re-adapt their business strategies. Therefore, the question answered in this research was how agricultural commodity trading companies formulate their business strategies in responding to and dealing with pandemics and geopolitical conflicts.

Based on the explanation above, ADM is implementing three strategies: supply chain diversification, new market expansion, and risk mitigation. Although the effects of the pandemic and geopolitical conflicts could not be anticipated by companies directly, companies tend to be pessimistic. However, with the company's massive acquisition strategy and optimization of production, ADM has made efforts to minimize the effects of the pandemic and ongoing geopolitical conflicts.

Suggestions for further research include using ADM's strategy as a benchmark to measure the extent to which similar companies operate globally. This can be adapted by private companies and state-owned enterprises. Agricultural commodities are highly strategic, and the role of companies like ADM is vital. It is hoped that in the future, more companies will contribute not only to profit from agricultural commodities but also to help achieve sustainable development goals, namely zero hunger and partnerships.

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