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## IMPLEMENTATION OF A DERIVATIVES TRADING DESK FOR WHOLESALE CLIENTS AT CAIXA ECONÔMICA FEDERAL

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**Abstract:** The agribusiness sector is known for having constant variations in product prices, due to various exogenous factors, such as production, weather forecasts, internal and external demand, and the price of inputs, and there is a need to protect against these variations. This makes risk management indispensable, a process through which decisions are made that involve accepting (or not) a known potential danger, or reducing it, using available instruments. Given the context presented of uncertainties and specificities involving agricultural activity and agribusiness as a whole, and the importance of the institutions responsible for operationalizing derivatives in Brazil, the aim of this work involves the implementation of a derivatives operations desk focused on wholesale clients at Caixa Econômica Federal. The research showed that the implementation of derivatives operations for wholesale clients at Caixa represents a significant step forward, in line with the practices of large global banks that already adopt hedge policy operations as an essential part of their financial results.

**Keywords:** Agribusiness. Derivatives. Federal Savings Bank. Hedge.

## INTRODUCTION

Agribusiness is the set of all the stages that encompass the production and distribution of agricultural supplies, from the input sector to the distribution of the final product in a given production chain. It is considered a complex activity in which many variables combine until the product is consumed. Inputs, services and production are some of the variables that combine in the phase known as “before the gate”. The “after the gate” phase includes logistics, storage and marketing activities (NEGRISOLO; AMORIM, 2022).

The agribusiness sector is known for having constant variations in product prices, due to various exogenous factors, such as

production, weather forecasts, internal and external demand, and the price of inputs, and there is a need to protect against these variations (RIBEIRO et al., 2021).

Given these factors, so-called risk management becomes indispensable, a process by which decisions are made that involve accepting (or not) a known potential danger, or reducing it, with the use of available instruments (MÜHLEN; CEZAR; COSTA, 2013).

In general, the idea of risk is associated with an event that implies some loss or damage that may occur with some probability, implying the existence of some uncertainty, but unlike this term, the so-called “risk” highlights the loss or negative part of the uncertainty, so that risk implies knowledge of some probabilities associated with an uncertain event. Agricultural activity has particular characteristics when compared to other economic activities. One of the most striking characteristics is the extent and nature of the risks to which it is exposed, since it includes biological processes subject to bad weather, pests and diseases (FERREIRA; CASTRO JR., 2020).

Negrisola and Amorim (2022) add that risk is constantly present in agribusiness. The need to work under the influence of nature, dealing with animals, plants, pest control, diseases and climatic variations, already guarantees uncertainty for the business. Knowing and identifying the risks, as well as planning ways of eliminating and/or reducing them, becomes important.

Agricultural activity has a number of adverse factors, such as climate, seasonality, diseases and pests, making it a high-risk activity. These uncertainties bring great volatility to prices and are the main cause of business inefficiency, since prices determine the income performance of people and companies. The agricultural derivatives

market therefore seeks to offer alternatives to reduce exposure to uncertainty by managing price risk. Price risks are the most difficult to avoid, as they are beyond the producer's control and vary according to the behavior of the external and internal markets (RAIFUR; GARCIA, 2008; MORAIS; CEZAR; SOUZA, 2011).

One of the main strategies for reducing price volatility used by producers, cooperatives, processors, among others, is the so-called *hedge* with futures contracts, with the aim of protecting themselves from the price risk arising from an increase or shortfall in the harvest (CALEGARI et al., 2012).

Negrisoló and Amorim (2022) add that derivatives gained notoriety in Brazil in 2008, when the crisis in the United States caused major losses for the companies Sadia and Aracruz, which used these tools to neutralize their exposures. In 2009, the G20 leaders pledged to increase the transparency of the OTC derivatives markets and reduce the systemic risk arising from them. In 2020, Brazil became the world leader in soybeans, fourth in world grain production and second in world grain exports.

Specifically in relation to the two companies mentioned above, losses on foreign exchange transactions caused Sadia (a giant food company) and Aracruz (one of the world's largest eucalyptus pulp producers) to record heavy losses on the financial market as a result of the US crisis. At the end of the trading session on September 26, 2008, the two companies led the losses on the São Paulo Stock Exchange, with a 35% drop in Sadia's shares and an approximately 17% drop in Aracruz's shares. In both situations, according to the companies, the amount of *hedge* protection operations was extrapolated (G1, 2008).

Derivatives are normally used to define financial instruments that are derived from

or dependent on the value of another asset. They can be derivatives defined by a standard and traded on organized secondary markets, or a contract between the parties. Derivatives are generally traded based on their nominal value, i.e. a value that represents the overall total being traded (MICELI, 2007).

Generally speaking, derivatives are financial instruments that transfer to the Bank the risk of unwanted variations in prices, rates or indices, providing greater security for its business. They are operations designed exclusively for financial protection (*hedge*). Some of the most common types of instruments used are currency forwards, commodity forwards, swaps and flexible options (BANCO DO BRASIL, 2024).

Table 1 specifically details the four instruments mentioned above.

Type of instrument	Key features
Currency Term	Participants carry out forward exchange rate purchase or sale transactions, for financial settlement on the transaction's maturity date, with no physical delivery expected.
Term of Goods	Participants carry out forward sales or purchases of commodities, with no physical delivery forecast, based on prices practiced on the futures market on national and international commodities exchanges,
Swap	It allows the exchange of indices, rates or currencies, applied separately, on the same initial value, where each party is active on one or more indices, for settlement or amortization on a given future date.
Flexible options	Contracts that give the buyer (holder) the right to buy (call) or sell (put) the US dollar on a future date, at a predetermined price, by paying a premium to the seller of the option (writer), resulting in protection against unfavorable movements in the exchange rate.

**Table 1** - Types of financial instruments

Given the context of uncertainties and specificities involving farming and agribusiness as a whole and the importance of the institutions responsible for operating derivatives in Brazil, the aim of this work involves implementing a derivatives trading

desk focused on wholesale clients at Caixa Econômica Federal. This paper seeks to highlight the benefits of a derivatives trading desk for wholesale clients at Caixa Econômica Federal in order to enrich and diversify the bank's financial services portfolio. This is particularly important for corporate clients, who often face complex exposures to financial risks, such as exchange rate and interest rate variations.

It should also be pointed out that the importance of banks in supporting Brazilian agribusiness goes beyond merely providing traditional financial products; it extends to offering mechanisms that ensure the long-term stability and prosperity of this vital sector.

Although this work focuses on Caixa Econômica Federal and an innovative implementation of derivatives operations for the wholesale segment, it carries with it the hope and expectation that its findings and strategies can reverberate throughout the Brazilian financial system. The aspiration is that the *insights* developed here can serve as a model and inspiration for other banks in the country, encouraging them to effectively support not only large industries, but also national production in all its diversity and breadth.

## **BIBLIOGRAPHIC REFERENCE**

### **PRICE RISK IN AGRIBUSINESS**

The concepts of risk and uncertainty have been widely used in economic theory, where they basically differ in terms of knowledge about the probability of income or resource use occurring. In general, risk is characterized by situations that occur with a known probability. Uncertainty, on the other hand, is characterized by the impossibility of calculating the probability of a given event occurring (MOREIRA, 2009).

The main sources of market risk are variations in the selling price of the products produced, the prices of the inputs needed for production and the levels of demand. These price variations are not easily predictable and occur after the producer has committed to the desired level of production, i.e. after the investment (MOREIRA, 2009).

Castro and Silva Neto (2018) add that in agriculture there are two risks for producers: those inherent in production and market risks. Specifically in relation to market risks, these arise from fluctuations in asset prices and the conditions imposed by the market. In addition, the prices of agricultural products are always subject to fluctuations, since the price formation of agricultural products is due to various aspects, such as: standardized products traded on the international market, such as commodities, seasonality of production, climatic and soil conditions and price changes in the input market.

For the producer, risk management aims to determine combinations of actions that represent different levels of risk and return. Some strategies seek to reduce risk. Others seek to transfer risk, such as futures contracts and production contracts (MOREIRA, 2009).

### **DERIVATIVES IN AGRIBUSINESS**

Derivative contracts are financial contracts whose characteristics are linked to other securities that serve as their reference. It is the name given to the family of markets in which operations with future settlement are implemented, making it possible to manage the price risk of various assets. Four types of contracts are traded in the following markets: "forward", "future", "options" and "swaps" (BM&F BRASIL, 2007).

Derivatives derive from a main asset and take the form of contracts with future physical or financial settlement, the price of which acts as a marker around which an expectation is

created regarding the price of the main asset on a given date. They are financial instruments whose value is derived from the value of an underlying asset, such as shares, commodities, currencies or interest rates. The origin of the term “derivative” is the idea that the prices of these contracts are closely linked, i.e. they derive from the prices of the asset underlying the contract (RIBEIRO et al., 2021).

Locatelli (2009) adds that a derivative is a financial instrument whose results and values depend on a primary asset. Derivatives are characterized as a tool used to change risk exposure. They are financial instruments based on the value of another financial asset. Derivatives can be financial, especially those that affect interest rates, currencies, shares and indices, and non-financial, which include oil and agricultural assets.

Aoun (2015) adds that in order to reduce or avoid the aforementioned risks, there is *hedging*, characterized as an operation in which the agent takes a certain position to combat price variations. The agent who takes a future position to avoid variations seeks to minimize price variations. When these agents take a position in futures, even if it is not a one-to-one spot ratio, they are *hedging*.

It is worth noting that *hedging* is a defensive strategy that seeks to avoid the risk caused by price and rate variations in certain assumed or future positions, by offsetting the results produced by the underlying items and the financial instruments used for protection. It should be noted that by avoiding losses, hedging also nullifies the possibility of a gain, its economic objective being to transfer the risks inherent in operations to another agent with an opposite position (CAPELLETTO; OLIVEIRA; CARVALHO, 2007).

In general, there are three players in the derivatives markets: *hedgers*, speculators and arbitrageurs. *Hedgers* work in these markets to protect themselves against price fluctuations

in the assets they work with. The *hedger* is concerned with guaranteeing the purchase or sale price of a given asset on a future date and eliminating the risk of adverse price variations (BM&F BRASIL, 2007).

In a nutshell, *hedging* is a risk reduction strategy consisting of an operation that neutralizes the speculation implicit in any given deal. Normally, this operation boils down to buying or selling a futures contract with a value similar to the value of that particular business, i.e. any loss due to fluctuations is offset by a gain on the futures market (AZEVEDO, 2012).

For large exporting companies, derivatives perform several essential functions, including: currency hedging (a financial market operation aimed at protecting against variables in foreign currency exchange rates. Futures contracts and commodity swaps help to mitigate price risk) and cash flow management (derivatives can also be used to manage the cash flow of exporters, optimizing the schedule of receipts and payments in different currencies and dates) (TEIXEIRA, 2004; MOREIRA, 2009; AZEVEDO, 2012; MARTINS, 2019).

In addition, international competitiveness is increasing in an increasingly globalized world. The efficient use of derivatives can help companies maintain stable and predictable prices, contributing to an increasingly stronger position on the international market. Finally, it is possible to evolve on issues involving efficient financial management, since large exporters operate in complex environments with numerous financial and operational challenges (LIMA, 2012; MARTINS, 2019).



## MARKET TYPES AND DERIVATIVE OPERATIONS

Derivatives have a classification that makes it possible to understand their purposes and diversities in an introductory way, and these are characterized as symmetrical and asymmetrical derivatives, each with its own characteristics and purposes, symmetrical derivatives for the purpose of protection and hedging, and asymmetrical derivatives for the purpose of speculation and leverage. Symmetrical derivatives are designed to provide protection and hedge against financial risks, offering a direct relationship between risk and reward (VIANA, 2017).

The distinction between symmetrical and asymmetrical derivatives is essential to understanding the different purposes and characteristics of these financial instruments. While symmetrical derivatives are mainly used for protection and hedging against risks, asymmetrical derivatives offer opportunities for speculation and leverage, with the potential for substantial profits, but also significant losses (CAPELLETTO; OLIVEIRA; CARVALHO, 2007; VIANA, 2017).

Participants in the forward market include institutional investors, traders, companies and financial institutions. They use forward contracts for various purposes, such as hedging financial risks, speculating on price movements and arbitraging between different markets. This market plays a crucial role in financial risk management, allowing companies and investors to protect themselves against adverse fluctuations in the prices of financial assets, commodities and currencies. In addition, the derivatives forward market also offers speculation and arbitrage opportunities for investors and traders (ROSSI, 2011; FERREIRA; CASTRO JR., 2023).

The derivatives futures market allows participants to negotiate standardized

contracts to buy or sell an underlying asset on a specific future date. These contracts, considered an evolution of the forward market, are known as futures contracts, and establish the terms and conditions for the transaction, including the agreed price and maturity date, and their settlement occurs at a stipulated price on a future date, which is the main difference (PAPARIELLO JR., 2020).

The options market is a market where participants trade contracts that confer the right, but not the obligation, to buy (call option) or sell (put option) an underlying asset at a given price on a specific future date. These contracts, known as options, are standardized in terms of size, maturity and specifications of the underlying asset (ROSSI, 2011; PAPARIELLO JR., 2020).

The swap market is a contract between two parties to exchange future cash flows based on different financial variables, such as interest rates, foreign currencies, financial indices or commodities. The swap participants agree to exchange payments according to a specific schedule, based on a predefined formula. There are various types of swaps, each adapted to the different needs and preferences of market participants (FERREIRA; CASTRO JR., 2023).

There are differences in the settlements and trading patterns of derivatives contracts, where non-standardized contracts are traded over the counter, whose characteristics are determined directly by the contracting parties with their specificities, so they do not have market trading conditions, with low liquidity, mainly because they are very customized to the interests of the parties, while standardized contracts are traded on the stock exchange and have high liquidity, because they have characteristics that meet all market participants, and can be passed on to another at any time (ROSSI, 2011; FERREIRA; CASTRO JR., 2023).

## **BRAZILIAN REGULATIONS ON DERIVATIVES**

The development of state regulation of derivatives initially involves understanding the legal nature of the object, defining the competence of government entities and the delimitation of regulatory power. In the United States, the regulation of derivatives is debated, especially in non-brokered bilateral contracts, creating uncertainty between the SEC and the CFTC. In Brazil, Law No. 6.385/76 initially followed French corporate law, with a restricted concept of securities. With Law 10.198/2001, the concept was expanded, inspired by US law, to include derivatives in CVM regulation, regardless of the underlying assets (BRASIL, 1976; BRASIL, 2001).

Law 10.303/2001 classified derivatives as securities in Brazil, differentiating them from other securities due to their main function of transferring risks between economic agents. In the United States, the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC) divide the regulation of securities and derivatives (BRASIL, 2001).

The CVM regulated the authorization and supervision of derivatives contracts through Instruction 467/2008. When drawing up this rule, the CVM's main proposals were: to ensure that derivative contract models traded on organized markets are submitted for approval by the authority; to regulate the internal procedures for approving derivative contract models at the CVM, in a similar way to the procedures for granting other registrations; to require the approval of derivative contracts registered on organized markets by the respective managing entity (e.g. BMFBovespa and CETIP) (BRASIL, 2008; BM&FBOVESPA, 2015).

Thus, contracts traded bilaterally or on an unorganized over-the-counter market do not require CVM approval. However, if the

parties choose to register these contracts, they must obtain the approval of the administrative entity whose application for registration was submitted. In 2011, due to concerns about the transparency of information regarding operations carried out in the derivatives markets, Provisional Measure 539/2011 (converted into Law 12,543/2011) was enacted, introducing two important changes to the legal framework for derivatives set out in Law 6,385/76: the insertion of §4 in art. 2, establishing as a requirement for the validity of derivatives contracts their registration with clearing houses or providers of clearing, settlement and registration services authorized by the Central Bank of Brazil or the Securities and Exchange Commission; the insertion of item VI in art. 3, giving the Monetary Council the power to approve the registration of derivatives contracts. Although CVM has been responsible for regulating derivatives markets and contracts since 2001, the Central Bank of Brazil and the National Monetary Council also act as indirect regulators when financial institutions are involved, especially in over-the-counter transactions (BRASIL, 2013; BM&FBOVESPA, 2015).

More recently there has been a new regulatory update, where CMN Resolution 5.070/23, implemented by the National Monetary Council, brought significant progress in the regulation of credit derivatives in Brazil. These instruments, used to transfer credit risks without moving the underlying asset, now have more modern rules in line with international practices (BRASIL, 2023).

The history of financial regulation of derivatives in Brazil, with direct action by entities such as the CMN, CVM and Bacen, reflects the evolution of the market towards international standards of reliability and transparency. These entities work together to ensure that national regulations are in line with global best practices. This is crucial

for strengthening domestic confidence in the financial system and for facilitating the integration of the Brazilian financial market with the global economic scenario.

### **NON-DELIVERABLE FORWARDS (NDFs)**

*Non-Deliverable Forwards* (NDFs) are characterized by being a foreign currency forward contract or exchange contract, without physical delivery. It is negotiated through a financial institution or via a stock exchange in which they agree to settle the amounts agreed in the contract on a future date, guaranteeing protection against exchange rate fluctuations (OLIVEIRA JR.; AZEVEDO; MEDEIROS, 2021).

Settlement takes place in Reais for the financial difference between what was agreed and the market value on the maturity date, so the NDF is able to protect against currency fluctuations. It is therefore widely used by exporting and importing companies or those with assets or liabilities in foreign currency, in which case it is used as a *hedging* instrument (MAIS RETORNO, 2021).

In general, the advantages of the NDF include certain factors, such as: there is no daily adjustment and no initial cash disbursement, only at the end of the contract; there is no physical delivery of the currency, with the realization being made through a financial adjustment; values, contract size, rate, currency and term are negotiated in advance with the financial institution; guarantees can be used in the event of default by one of the parties and contracts can be settled in advance (OLIVEIRA JR.; AZEVEDO; MEDEIROS, 2021).

### **SWAP TRANSACTIONS**

A swap is a type of derivative that represents an agreement between two parties to exchange cash flows based on a reference value, a term and other pre-established conditions and criteria. They are usually defined as an exchange of “risks”, in which the participants negotiate the returns of two different assets or commodities (INFO MONEY, 2022).

Mattos (2008) adds that swaps are over-the-counter operations which allow great flexibility in negotiations, giving specific characteristics to each contract, such as the calculation formula, term and volume, as well as other conditions defined between the parties. Their main economic function is to allow two economic agents to exchange the profitability and/or indexing of their receivables or payables with the aim of reducing the risks involved in the variations of these profitability and/or indexing to which their assets or liabilities are subject.

### **METHODOLOGY**

This paper presents objectives related to the promotion and implementation of a derivatives trading desk for wholesale clients at Caixa Econômica Federal, with the aim of enriching and diversifying the bank's financial services portfolio. In order to fulfill the objectives outlined for the research, a case study and bibliographic review were used.

The literature review plays a critical role in academic research by allowing researchers to build on existing work, identify gaps in the literature and propose research that advances knowledge in the field (FINK, 2014).

Specifically in relation to the case study, Yin (2001) and Miguel (2007) emphasize that the case study is an empirical study that investigates a phenomenon in the context of real life (the context that the research is investigating concerns the implementation of the derivatives trading desk for Caixa



Econômica Federal clients), in which any fact relevant to the chain of events that describe the phenomenon is considered potential data for the case study.

Bressan (2000) adds that the case study methodology has been widely used in many fields of study, in situations where the phenomena studied cannot be manipulated, but where it is possible to make direct observations by means of systematic interviews and surveys, especially when in-depth explanations of a particular phenomenon are sought.

Denzin and Lincoln (2011) are references in the field of qualitative research, and their handbook is considered essential reading for researchers wishing to deepen their knowledge of qualitative methods. It offers detailed insights into conducting and analyzing case studies.

Regarding the case study, Flyvbjerg (2006) adds that it allows for a complex and detailed understanding of a case in its entirety, including understanding the various views and nuances present in the phenomenon studied, which is essential in complex and dynamic fields such as financial operations and derivatives.

It should be noted that Eisenhardt (1989) discusses how research based on case studies can be used to develop theories. It offers a systematic approach to collecting and analyzing data in multiple case studies, which may be particularly relevant to the study of the implementation of a derivatives trading desk. The author points out that case study research is particularly suitable for new areas of research, where the phenomenon is not yet well understood, and can help formulate more precise research questions and emerging theories.

The survey questionnaire was administered in February 2024 to the manager of the foreign exchange and derivatives operations desk at Caixa Econômica Federal's national treasury department, in the wholesale vice-presidency. The questions addressed in the interview

and their respective answers are included in the results of this study. The answers were qualitatively analyzed in order to meet the research objectives.

## RESULTS AND DISCUSSIONS

The questionnaire applied and the respective responses from the foreign exchange and derivatives operations desk manager at Caixa Econômica Federal's national treasury management department are detailed in Chart 2.

Based on the scenario presented in Caixa Econômica Federal's 2022 balance sheet, it is clear that the institution already has the internal capacity to operate derivatives, as evidenced by the presence of revenues from these operations on its balance sheet. However, in order to leverage this capacity and expand its operations, it is necessary to further develop this area in order to make derivatives products available to clients in the wholesale segment.

It is important to note that derivatives operations are intrinsically linked to the financial activities of the institution's treasury, which reflects an internal protection approach against adverse market variations. However, in order to meet the demands and needs of customers in the wholesale segment, Caixa should expand its range of derivative products.

The target audience for this expansion, large companies, comprises corporate entities operating in different segments of the economy, including, but not limited to, construction, infrastructure and agribusiness.

In addition, Caixa's entry into the wholesale banking segment is indicative of a broader transformation within the institution, signaling a transition to a more diversified and modern approach to banking services. This implies an in-depth understanding of market dynamics and the specific needs of its new target audience.

Questions	Answers
<p>How does Caixa Econômica Federal's management currently assess the importance of implementing derivatives operations within the institution, considering the potential for sustainable development and support for Brazilian exporting companies?</p>	<p>There are no ongoing discussions for this implementation. We currently carry out operations to protect only some of Caixa's positions taken in 2011, 2012 and 2013, but we understand that the inclusion of derivatives operations aims to strengthen our portfolio, aligning it with the practices of large banks and the risk management needs of our clients, especially exporters.</p>
<p>What are the main challenges identified for the implementation of derivatives operations at Caixa?</p>	<p>I believe that before we talk about increasing the portfolio of derivatives for clients, we have to consolidate ourselves as a foreign market bank, increasing the supply of products such as FINIMP and 4131, which are important for exporting clients. A major need for Caixa is to increase its dollar position, which is currently very small, and this is a prerequisite for having a more appropriate product portfolio. Offshore is an imminent challenge that has already been discussed, but has fallen off the agenda. Also, a technological tool that allows us to operate and record this type of operation properly.</p>
<p>Considering that Caixa already carries out some derivatives operations for internal protection and simple foreign market operations, how can this previous experience contribute to expanding these operations in a more complex and comprehensive way?</p>	<p>The team is familiar with these operations, we are much more focused on foreign exchange than precisely discussing hedges, but we have the principles to achieve knowledge, but the great difficulty is that we don't have an adequate number of people to absorb negotiations with clients and we don't have standards in which directorate this type of operation would be conducted.</p>
<p>How is Caixa's treasury management preparing to comply with CMN, CVM and Bacen regulations, guaranteeing the compliance and security of derivatives operations?</p>	<p>Caixa is in constant dialogue with regulators such as the CMN, CVM and Bacen, seeking to align operations with current regulations and international best practices. We are fully up to speed on our existing operations, but if we expand to other operations, we will naturally evolve towards the necessary knowledge and suitability.</p>
<p>How would Caixa need to organize itself to overcome the challenges related to qualified manpower and technological infrastructure needs to support these operations?</p>	<p>Aware of the significant challenges we will face in expanding our portfolio to include derivatives operations, especially with regard to the training of our team and the technological infrastructure required to support these operations. I recognize that while there is a strong intellectual capacity in-house, there is a gap in terms of the specific expertise required to operate effectively in the derivatives market, especially to meet the complexities of our wholesale clients' needs. A specialized consultancy will certainly be needed to move forward with quality. Also, some inter-bank cooperation could be considered, especially with Banco do Brasil.</p>
<p>Are there any plans to carry out comparative analyses and benchmarking with large Brazilian banks that already operate with derivatives, with a view to incorporating successful practices and a study for implementation within Caixa?</p>	<p>At Caixa, we are currently expanding our studies with the aim of increasing the supply of foreign market operations - COMEX, mainly to make it possible to carry out more dollar structures within Caixa's balance sheet. I recognize the importance of providing effective tools for managing foreign exchange risks, but we need to lay a structural foundation in order to move forward with hedging. The training and infrastructure needed to support these operations are being carefully planned, but there is a need to expand studies and seek external advice to cover the complexities of these operations, given our current limitations in terms of specialized manpower and technological infrastructure.</p>
<p>What are the next steps in terms of studies and analysis to ensure the viability, effectiveness and sustainability of the derivatives operation within Caixa, considering the economic scenario and the institution's position in the financial market?</p>	<p>To ensure the viability, effectiveness and sustainability of the derivatives operation within Caixa, it is imperative that we make comprehensive investments on several fronts, as discussed above. These include the need to establish offshore operations, advance in technology, and develop dollar-denominated foreign trade products, among other critical areas. Each of these initiatives requires a substantial commitment in terms of financial resources, time and expertise. However, it is essential to understand that the materialization of these investments and the advancement of these operations depend intrinsically on a strategic decision and clear direction from Caixa's top management. There have been times when discussions about these initiatives have begun, but they have not progressed due to the challenges and obstacles identified, which range from the need for significant investment to adapting our technological infrastructure and training our staff. I firmly believe that it is possible to overcome these challenges and make derivatives operations a reality within our institution, provided there is genuine interest and commitment from senior management. From there, the next steps would involve a series of detailed studies and in-depth analysis to fully understand the economic implications, risks and opportunities that such operations would bring to Caixa, considering our positioning in the financial market and the current economic scenario. These studies would include scenario assessment, risk analysis, economic feasibility study and strategic planning, all designed to provide a solid basis for informed decisions.</p>

Chart 2 - Questionnaire applied to a Caixa Econômica Federal employee

Source: Prepared by the author, 2024.

By targeting derivatives operations specifically at these clients, Caixa underlines its understanding of the complexities of international trade and the exposure to risk that large corporations face. The use of derivatives as hedging tools allows these companies to protect themselves against adverse variations in the financial markets, ensuring greater financial predictability and contributing to the economic stability of their operations.

### **DERIVATIVE TRANSACTIONS AT CAIXA ECONÔMICA FEDERAL**

The Brazilian export market has been a vital source of revenue and economic growth for the country. Large exporting companies play a key role in this scenario, contributing significantly to the trade balance and generating jobs and investment. However, these companies face significant challenges, including exchange rate volatility, fluctuations in commodity prices and geopolitical uncertainties.

The successful implementation of derivatives banking operations for large exporting clients will require a strategic and results-oriented approach. The following steps are proposed, highlighted in Chart 3.

### **BENEFITS OF THE IMPROVED PROJECT FOR CAIXA ECONÔMICA FEDERAL**

The benefits involve technological capacity building, involving investments in advanced technologies to improve operational efficiency and responsiveness to market dynamics. Reinforcement of the institutional image, positioning Caixa as an innovative financial institution and leader in financial solutions for the export market. Strategic expansion, aimed at opening up new markets and business opportunities, not just in derivatives, but in other related financial products.

By offering derivatives and other financial solutions that help agribusiness exporters manage exchange rate and commodity price risks, Caixa plays a vital role in ensuring the resilience and continued growth of this sector. In addition, the institution contributes to the greater competitiveness of Brazilian products on the international market, benefiting the country's trade balance.

Contribution to sustainable economic development will evolve, as Caixa, by supporting exporters, especially in agribusiness, plays a crucial role in Brazil's sustainable economic development. This includes not only economic growth, but also the promotion of responsible and sustainable commercial practices, which are increasingly valued in international trade.

Implementing this project at Caixa Econômica Federal has the potential to generate significant and multifaceted benefits, reinforcing its position as a leading financial institution in Brazil, supporting the national economy, and making a decisive contribution to the country's international projection on the global economic stage. This project represents a significant step for Caixa Econômica Federal towards becoming a consolidated financial institution on the international stage, effectively supporting Brazilian exporters in an extremely competitive market, but one in which Brazil has a place of participation and relevance.

### **FINAL CONSIDERATIONS**

This paper offers an initial proposal for the stages, processes and developments necessary for the success of Caixa's derivatives project. It highlights the importance of this operation for large exporters, which could become an aggregate product of bilateral and capital market operations. It is based on market studies and analysis of internal and external scenarios, providing support for the bank management's decision to implement this type of operation for wholesale clients.

Stage	Features
1 Market assessment and customer selection	Conduct a detailed analysis of the export market, identifying sectors and companies with greater exposure to currency, commodity and interest rate risks. We will use specific criteria, such as export volume, risk sensitivity and financing capacity, to select the most suitable target clients to participate in the derivatives operations program.
2 Development of customized solutions	Work closely with our teams of derivatives specialists to develop customized financial solutions that meet the specific needs of each client. Adapt products and services to offer currency hedging, commodity hedging and interest rate hedging as required, providing clients with a comprehensive range of risk management options.
3 Structuring and Negotiating Contracts	The legal and negotiation team will work on the structuring and negotiation of derivatives contracts, ensuring that all terms and conditions are transparent, fair and mutually beneficial for both parties. Active involvement of our financial product specialists to ensure clients fully understand the benefits and risks of each contract.
4 Implementation of Internal Processes	We will establish robust internal processes to ensure the efficient and safe execution of derivatives transactions, including risk assessment procedures, transaction approval and ongoing monitoring. We will train our staff in all relevant aspects of derivatives operations, ensuring that they are fully prepared to offer technical and advisory support to clients throughout the process.
5 Continuous Monitoring and Adjustment	Implementing an ongoing monitoring system to track the performance of derivatives operations and make adjustments as necessary to ensure that they remain aligned with clients' objectives and needs. Regular communication with clients to assess the impact of the hedging strategies implemented and make adjustments as appropriate to optimize results.
6 Evaluation of results and feedback	Periodic evaluations of the results of derivatives operations, analyzing key metrics such as hedge effectiveness, return on investment and impact on clients' financial results. We will use client feedback to identify areas for improvement and opportunities to expand the program, ensuring that we continue to provide world-class financial solutions that add value to our clients and drive growth for Caixa Econômica Federal.

**Chart 3** - Proposal for implementing banking operations with derivatives.

Source: Prepared by the author, 2024.

It should be noted that Caixa Econômica Federal plays a fundamental role in Brazil's socio-economic history, acting on various social fronts and offering credit for the personal and professional development of the Brazilian population. The inclusion of derivatives operations in its portfolio is a step in line with its nature as a public company, aimed at the sustainable development of the country.

The implementation and offer of derivative products aimed at financial hedging by banks is a fundamental pillar for the stability of the global financial system and the sustainability of client companies. Historically, the speculative use of derivatives without proper risk management has led to significant financial crises, exemplified by events such as the collapse of Barings Bank in 1995 and the global financial crisis of 2008, where the lack of transparency and understanding of derivatives products played a central role. This context highlights the critical importance of

banks focusing on offering derivatives as hedging tools, rather than vehicles for pure speculation.

In the current scenario, marked by rapid technological evolution, artificial intelligence (AI) is emerging as a vital tool in expanding banks' ability to offer derivatives focused on hedging. AI can analyze large volumes of market data in real time, identify trends, and predict market changes with greater accuracy than traditional methods. In addition, the technology can customize hedging solutions to meet the specific needs of each client, taking into account a wide range of variables and scenarios.

The importance of banks offering derivative products focused on hedging, rather than speculation, lies in the ability of these instruments to provide financial stability and promote a healthy business environment. Advanced technical financial intelligence capabilities, complemented by

the strategic use of AI, are key to analyzing, developing and offering effective hedging solutions. This approach not only mitigates the risks associated with the improper use of derivatives, but also ensures that banks can fulfill their role as strategic partners for companies in risk management. Therefore, the successful operation of derivatives in today's financial landscape depends on a combination of human financial expertise and advanced analytical capabilities provided by AI technology, reinforcing the financial resilience of companies and the stability of the financial system as a whole.

It should be noted that this work represents the start of a broader structural project within Caixa Econômica Federal, aimed at advancing derivatives operations. The intention is to develop a robust and well-founded structure, capable of informing and influencing the company's board to invest in these operations, not only with a focus on financial results, but also on the sustainability and stability of Brazilian exporting companies.

A great example of success in this area is Banco do Brasil, which has a long history of operating in the Brazilian financial market, with a strong presence in various sectors of the economy. Recognizing the importance of agribusiness and exports to the national economy, the bank has developed a proactive strategy to meet the specific needs of its exporting clients.

Banco do Brasil has adopted a holistic approach when offering derivatives operations to its exporting clients. In addition to providing sophisticated financial instruments to hedge against currency and commodity risks, the bank seeks to centralize its relationships with these clients by offering a comprehensive range of financial and advisory services. This strategy has generated significant financial results for Banco do Brasil.

In general, the main advantage of derivatives lies in their ability to mitigate risks associated with variations in exchange rates, interest rates and commodity prices. Companies with a large exposure to these risks can use derivatives such as NDF (*Non-Deliverable Forward*) for currency hedging, or interest rate swaps to change their debt exposure from a pre-fixed to a post-fixed condition, and vice versa. This risk mitigation is essential for the financial sustainability of companies in a volatile global market.

Expanding the range of derivatives offered by banks responds to a critical need for security and stability on the part of large companies. The ability to hedge their operations protects companies against the volatility of the financial and exchange markets, contributing to the predictability of their cash flows and financial results.

However, there are challenges to overcome, especially when it comes to setting up a derivatives desk for clients. One of these challenges is the complexity of the offshore context, which is crucial for derivatives operations on the international stage. This implies understanding and adhering to varied international regulations, managing exchange rate and market risks, and offering products that are both competitive and suited to the specific needs of clients involved in foreign trade. The ability to overcome these challenges is linked to Caixa's capacity to adapt and innovate in the face of global financial market dynamics.

Comparing the points highlighted in this section with the literature on the subject, it is important to point out the challenges of implementing agricultural derivatives, as highlighted by Gasparotto (2009), who states that the management of price and credit risks by banks, agribusinesses, exporters, funds and companies in general has become essential in recent years. The author points out that



Banco do Brasil's share of rural credit already exceeds 65% of the amount made available by the National Financial System, 28% of which is applied to agribusiness. In view of the risks inherent in agricultural activity and Banco do Brasil's involvement in agribusiness, the author questions the need for Banco do Brasil to invest in the sale of contracts involving agricultural derivatives.

Castro (2007) points out in a case study on futures and options contracts carried out in Maringá - PR, that the derivatives market has emerged so that economic agents can better manage risks related to the high volatility of agricultural *commodity* prices and among the instruments used are futures contracts and call or put options. The author points out that one of the objectives of the study was to find out the reasons why rural producers who were clients of a specific agency located in Maringá - PR preferred to take risks rather than protect themselves by participating in the futures and shares market and it was found that most of the participants in the survey had no knowledge of the futures and options market and approximately 11% of those interviewed knew about the derivatives tool, but were afraid to operate in this market.

Demarchi (2011) sought to identify the target audience for agricultural derivatives at Banco do Brasil. The author points out that despite the importance of agricultural price protection mechanisms for both the producer and Banco do Brasil, it was identified that the tools are not being used by rural producers in the branches analyzed, with emphasis on the fact that no futures and options contracts

were registered in the branches analyzed. The study presents facts that corroborate the work of Castro (2007), highlighting the lack of knowledge of both rural producers and bank employees with regard to price protection tools.

Amaral (2020) sought to identify the reasons why Brazilian financial companies stopped using *hedge accounting*. The author identified several factors that make it difficult for Brazilian banks to designate *hedge accounting* mechanisms. Firstly, the difficulty smaller banks have in interpreting the accounting standard that deals with the subject and the lack of technological systems that can handle and account for operations correctly. In order to start work on building a new *hedge accounting* system, it is necessary to involve various teams within the institution, which is a major challenge.

In order to continue this study, it is suggested that comparative analyses of the successful implementation of derivatives operations by large Brazilian banks be carried out. In addition, it would be valuable to analyze the practices of large Brazilian companies in derivatives operations and their main products. We recommend an advanced and comprehensive study detailing the financial needs, timeline, necessary investments, manpower, systems and other essential requirements to structure the feasibility of this project to implement derivatives operations at Caixa Econômica Federal. This study should include a detailed market analysis, risk assessment, expected return and operational impact, ensuring that the institution can move forward safely and effectively.

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