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This issue contains four research articles subjected to the peer-review process.

CBDC-MXN: Challenges and Perspectives in The Implementation as a Mexican Digital Currency, is the first article, written by Jessica Nallely Flores Gálvez and José Miguel Mata Hernández. It shows a proposal for developing of a Mexican Central Bank Digital Currency by Banco de México. Therefore, a dynamic SWOT matrix is used to present the strengths, weaknesses, opportunities, and threats of the development of the Mexican Central Bank Digital Currency. In addition, an analysis of the stablecoins of the Mexican peso is made to know their landscape and current use, the above making use of Blockchain explorers such as BscScan, Etherscan, Polygonscan, and Tronscan. MMXN, Moneta Digital, is the stablecoin of the Mexican Peso with the most significant number of users and transactions. According to the results obtained, it is shown that the Mexican CBDC is viable, but it must overcome challenges and issues to be implemented and used by the population.

The second article was written by Irma Cecilia Ortega Moreno, Emma Frida Galicia Haro, and Ana Lilia Coria Páez. Its title is *True Cost Accounting and Social Entrepreneurship as Key Factors for a New Food System*. The objective was to understand the problems of the food system, identify the value of food, and the role of social entrepreneurs in changing the status quo. Based on this objective, this documentary and descriptive work present a first approach to understanding the food system, and the search for solutions to measure the value of food and its key actors. The methodology was a documentary search on the world food crisis, true cost accounting, and social entrepreneurship.

Femvertising and its impact on psychological reactance and purchase intention of Mexican female consumers is the next article. Its authors are Silvia Hernández Willoughby and Patricia Lázaro Pernias. This work focuses on the study of the femvertising advertising strategy. It references the feminist theories and the theory of psychological reactance to understand the impact of femvertising on Mexican female consumers' psychological reactance and purchase intention. A mixed methodology was applied, with a content analysis and a reception questionnaire (N=666) to Mexican female consumers.

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The results show a higher purchase intention and a lower psychological reactance in female consumers to femvertising spots. The main conclusion is that the implementation of the femvertising strategy in advertising spots aimed at Mexican women produces an increase in their purchase intention and a decrease in psychological reactance compared to conventional (non-femvertising) ads because femvertising generates a greater identification of the consumers with the ad by projecting the woman in a more authentic and close way.

Michael Steggemann wrote *Collective Intelligence synergizing into individual and business Resilience*, which is the fourth article. The article is based on the premise that the integrity of the person and the group in the business engenders Collective Intelligence and thus synergistically strengthens the collective resilience, understood as the individual's and the company's resilience. Synergistically as shown, is the habit of creative interactively cooperation, so that each element or party increases the effect of the other. It was found that the concept of Collective Intelligence boosted by the integrity of the individual and the team gives meaning and comprehension based on a value structure, which leads to collective resilience, in seeing the world, the life as a phenomenon with meaning as a place to act.

We thank our authors for their papers. We thank the readers for recommending and citing Mercados y Negocios, and our editorial team for not giving up in times of hard work. We want to demand more of ourselves every day and relentlessly aim for achieving more.

José Sánchez Gutiérrez
Director

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CBDC-MXN: Challenges and Perspectives in The Implementation as a Mexican Digital Currency

*CBDC-MXN: desafíos y perspectivas en la implementación como divisa
digital mexicana*

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ABSTRACT

This research shows a proposal for developing of a Mexican Central Bank Digital Currency by Banco de México. Therefore, a dynamic SWOT matrix is used to present the strengths, weaknesses, opportunities, and threats of the development of the Mexican Central Bank Digital Currency. In addition, an analysis of the stablecoins of the Mexican peso is made to know their landscape and current use, the above making use of Blockchain explorers such as BscScan, Etherscan, Polygonscan, and Tronscan. MMXN, Moneta Digital, is the stablecoin of the Mexican Peso with the most significant number of users and transactions. According to the results obtained, it is shown that the Mexican CBDC is viable, but it must overcome challenges and issues to be implemented and used by the population.

Keywords: Central Bank Digital Currency; Central Banks; Stablecoins; Dynamic SWOT; Blockchain Explorers.

JEL CODE: E42, E58.



RESUMEN

Esta investigación muestra una propuesta para el desarrollo de una divisa digital del Banco Central de México. Por lo tanto, se utiliza una matriz FODA dinámica con el objetivo de presentar las fortalezas, debilidades, oportunidades y amenazas del desarrollo de la Central Bank Digital Currency de México. Además, se realiza un análisis de las stablecoins del peso mexicano para conocer su panorama y uso actual, haciendo uso de exploradores de Blockchain como BscScan, Etherscan, Polygonscan y Tronscan. MMXN conocida como Moneta Digital es la stablecoin del peso mexicano con el mayor número de usuarios y transacciones. De acuerdo con los resultados obtenidos, se demuestra que la CBDC mexicana es viable, sin embargo, debe superar desafíos y problemas para ser implementada y utilizada por la población.

Palabras clave: Moneda Digital de Banco Central; Bancos Centrales; Monedas Estables; FODA Dinámico; Exploradores Blockchain.

Código Jel: E42, E58.

INTRODUCTION

A central bank is a public entity with autonomy in its management and operation (Corder, 2014). This institution implements and enforces monetary, fiscal, and financial policies. It also focuses on issuing a country's currency and the stability of its purchasing power. In addition, a central bank controls the amount of money in circulation, reserves in foreign currency, functioning of payment systems, interest rates, and the performance report to the nation's public, among other activities (Sánchez et al., 2021).

Banco de México, also known by its acronym as Banxico, has as its primary function to guarantee the stability of the purchasing power of the monetary unit and to preserve its value, maintaining low and stable inflation over time and thereby strengthening monetary and fiscal policies related to national development (Banco de México, 2023).

Banco de México has responsibility for accountability and compliance with transparency criteria. It also promotes the management of the development of the financial system. In addition, it contributes to regulating the issuance and circulation of the national currency, intermediation, providing financial services, and facilitating payment systems (Gobierno de México, 1993).

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The activities promoting the sustained economic growth of Mexico's economy flow from implementing a current monetary policy oriented to the pursuit of price stability. Hence a central bank defines the terms in which the money might circulate in an economy and how it will be issued (BBVA Research, 2019).

As a unit of account, the currency is vital as a medium of exchange and payment to acquire goods and services. In addition, Banco de México must maintain a reserve of international assets, which serve as indicators of the degree of compliance with the commitments and obligations agreed in foreign currency, to give confidence and certainty to stakeholders.

Plan Nacional de Desarrollo 2019-2024 pursues the benefit and protection of financial products and services users; in addition, it is oriented to well-being and economic growth. One of its objectives is to increase digital payments among the population, businesses, commerce, and the three levels of government. Therefore, it proposes reducing, but not eliminating, the use of cash, considering increasing and improving the supply of digital payment means (CNBV, 2020).

The rise of cryptocurrencies and stablecoins in the last years has attracted the attention and interest of different regulatory bodies of different economies, central banks, and international

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institutions. In response to the need to regulate cryptocurrencies and stablecoins (Allen, Gu, & Jagtiani, 2022), some central banks and financial institutions have proposed strategies to address this situation. To keep up with technological advancements, they have also introduced Central Bank Digital Currencies (CBDCs), as promoted by Catalini et al. (2021).

Making cross-border payments cheaper and more efficient is a goal that policymakers and central banks worldwide have been searching for. Instead, Armelius et al. (2020) affirm that if a CBDC project uses standardized legislative frameworks, it could make international payments more manageable. Furthermore, Xu & Prud'homme (2020) argue that CBDCs can be implemented in international business to make faster operations.

According to Senado de la República (2022), Banco de México announced that it had initiated the development of a Central Bank Digital Currency. The CBDC will be an integral part of the monetary base and will operate with the same attributes as coins and notes; for that reason, it will function as a medium of payment, a unit of account, and a store of value. In addition, it is part of a long-term means of payment strategy. The estimated start date will be 2025 (Senado de la República, 2022).

The objective of this paper is to show the challenges, as well as the current perspectives of a project of a Mexican CBDC, and present proposals that could be implemented. Furthermore, explain the functioning of digital currencies issued by a central bank and their impact on the financial system. Finally, It also shows the current panorama of the Stablecoins of the Mexican peso.

METHODS

The methodology implemented in the present research makes use of the deductive method. In addition, we implement the SWOT analysis matrix using the dynamic approach of Carnap (2013). We use the proposed method of Armelius et al. (2020) for the implementation of a Mexican Central Bank Digital Currency. These approaches are used to understand the current challenges and perspectives. The study also uses of Blockchain Explorers to analyze the number of transactions and holders of stablecoins pegged to the Mexican Peso.

Humphrey (2005) comments that the SWOT matrix is a strategic tool for analyzing a company, institution, or project. It uses internal characteristics such as strengths and weaknesses, and analyzes external situations, including threats and opportunities. Instead, Carnap (2013) mentions that the dynamic methodology is a strategic analysis tool focused on mistakes, problems, successes, and goals. These methods are used to collect criteria for developing a project on Mexican Central Bank Digital Currency.

Armelius et al. (2020) expose that a Central Bank Digital Currency needs an architecture and a model for their development. For that situation, we implement the models of Armelius et al. (2020) and the Reserve Bank of India (2022) to create proposals for developing the Mexican CBDC. Furthermore, we implement the Blockchain’s explorers of BscScan (2023); Etherscan (2023); Polygonscan (2023); Tronscan (2023) to examine the number of transactions and holders of the stablecoins of the Mexican peso.

RESULTS AND DISCUSSION

There is a significant difference in the concepts of cryptocurrencies, virtual assets, tokens, central bank digital currencies, and Stablecoins due to the characteristics of each one being different (López et al., 2022). The definitions of these are presented in Table 1.

Table 1. Concepts of central bank digital currency, cryptocurrency, stablecoin, virtual asset, and token.

Type	Concepts
Cryptocurrency	Cryptocurrencies were created to be a decentralized payment method, using blockchain technologies and cryptography for conducting transactions. The operations carried out with these assets are unalterable, registrable, and public (Hernández, 2022).
Virtual asset	A virtual asset is the representation of value that is recorded electronically and is used among the public to be a payment method with all types of legal acts, from which its transfer is carried out only by electronic forms (Gobierno de Mexico, 2018).
Token	Blockchain tokens are units based on a distributed ledger such as Ethereum, Solana, or Avalanche. These tokens have different functionalities according to the project they participate (López et al., 2022).
Central Bank Digital Currency	A Central Bank Digital Currency is a new form of digital money by a central bank different from a cryptocurrency. This can be distinguished from reserves or settlement balances held by commercial banks by part of central banks. These are denominated in an existing unit of account and serve as a medium of exchange and a store of value (Gemini, 2022).
Stablecoin	The stablecoins are tokens created under a blockchain network with a fixed price and are usually linked to a reserve asset (Catalini et al., 2021). As a result of being linked to a reserve asset, it promises a more fixed price. An example of it is USDT which is pegged to the USD dollar; for this reason, each stablecoin has a reserve of 1 dollar that holds its value.

Source: Own elaboration (Catalini et al., 2021; Gemini, 2022; Hernández, 2022; Gobierno de México, 2018; López et al., 2022).

CBDC models

Rodríguez (2022) mentions that CBDCs have access, distribution, and structure models, which must be implemented for proper functioning. He also comments that for each of these models, there are different architectures and features. However, it can be observable in Figure 1.

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The access model can be Wholesale CBDC, which is focused on being a payment network that serves wholesale customers, so it would be a substitute for the interbank payment system. Instead, CBDC Retail is a model in which digital currencies are available to all users and would be a direct liability to the Central Bank.

Distribution models can be single-tier or two-tier (Reserve Bank of India, 2022). The single-tier model is also known as the direct model; in this one, the central bank operates the payment system and has the issuance and control of digital currencies. On the other hand, the two-tier model is known as the intermediate mode, and it can be indirect or hybrid. In the first one, the intermediaries are introduced into the process, which can provide a more excellent distribution of digital currencies. Instead, the hybrid method combines the direct and indirect models, where the Central Bank is responsible, but intermediaries are involved.

Structure models can be token-based or account-based (Rodríguez, 2022). In a token-based, a digital asset is created in token form, and digital wallets are used. At the same time, the account-based method is necessary for creating an account and using of an interface service.

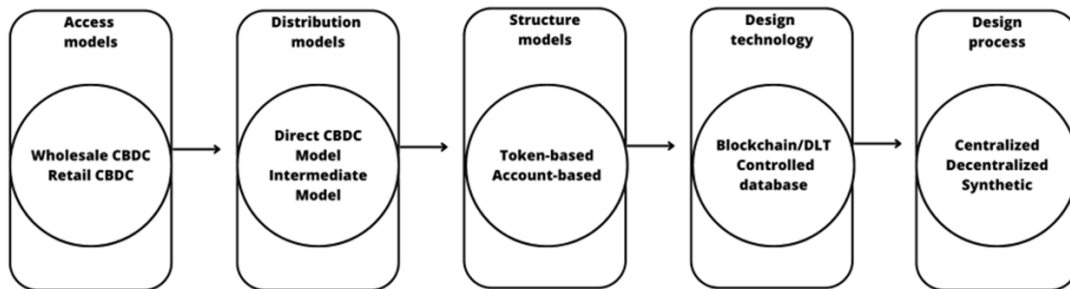
Blockchain technology is a distributed ledger technology; for this reason, the validation of transactions and the information are based on nodes (Hernández & Cruz, 2022). On the other hand, Permissionless Blockchain allows the public can observe the transactions and operations (Gemini, 2022).

The main Permissionless Blockchain are Bitcoin, Ethereum, Polkadot, Avalanche, and Cardano, to name a few. Nonetheless, in a permissioned Blockchain, only authorized users can access and view operations. Some central banks with CBDC development projects are developing their research and pilot projects through Permissioned Blockchain with Hyperledger and IBM technologies. Nevertheless, a CBDC project can be designed through a centrally controlled database.

Furthermore, Armelius et al. (2020) comment that the design process can be centralized, decentralized, and synthetic, each with different trade-offs. Finally, Armelius et al. (2020) mention that Sveriges Riksbank is developing pilot projects of CBDC focused on centralized and decentralized designs. The economic design, such as remuneration and subsidies, is paramount to the development.

Figure 1

The design concept for the CBDC architecture



Source: Own elaboration (Armelius et al., 2020; Reserve Bank of India, 2022; Rodríguez, 2022).

Dynamic SWOT of CBDC

The reason for choosing a dynamic SWOT matrix over a traditional SWOT matrix is that the former is a strategic analysis tool that not only focuses on mistakes, problems, successes, and goals but also considers the dynamic nature of the business environment. Table 2 shows the dynamic SWOT according to Carnap (2013).

The table shows the strengths, which are focused on the successes of CBDC projects carried out by the Bank of Jamaica (2023), Sand Dollar (2023), and eNaira (2023). We chose the digital currencies projects of the Sand Dollar, Naira, and Jamaican Dollar because the Bank of Jamaica and the Bank of the Bahamas have launched their own CBDC, and the Bank of Nigeria is working on their pilot project named eNaira (CBDC Tracker, 2023). The opportunities are focused on the objectives of a Central Bank’s digital currency project. On the other hand, weaknesses are based on errors or activities that may present a type of loss, while threats are related to the problems that may be faced.

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Table 2
Dynamic SWOT of CBDC

Weaknesses	Threats	Strengths	Opportunities
<ul style="list-style-type: none"> • Fault or null privacy. • Centralization. 	<ul style="list-style-type: none"> • Errors in the smart contracts. • Cybersecurity errors. • High cost of research and development. • Education of CBDC for Banxico officials and the population. • The implementation and management of CBDC's project. 	<ul style="list-style-type: none"> • A central bank backs them. • No fees are charged for transactions. • The emission of CBDC can be controlled. 	<ul style="list-style-type: none"> • Strengthening financial inclusion policy. • Better monitoring of transactions to prevent money laundering. • Transmission of a better and more efficient monetary policy. • It can be used for international payments.

Source: Own elaboration (Carnap, 2013).

CBDC-MXN: Challenges

In the discussion above, we present some relevant challenges of the development of Mexican CBDC and the issues of their implementation:

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- The creation of a digital currency that the population uses instead of stablecoins linked to the Mexican peso and cryptocurrencies.
- The CBDC project must coexist with the cash and have accordance with the money in circulation.
- The project could provide more excellent tracking of taxpayers and nontaxpayers with their operations and transactions.
- The role of commercial banks and how this will impact their deposit accounts.
- Government plans on the impact of the project, its projection, and user adoption.
- Promote financial inclusion as compliance and commitment through the CBDC project.
- On technical, logistical, and innovation issues, with a focus on where to store the creation of digital portfolios or special accounts for safekeeping.
- On disseminating knowledge and job creation, examine whether its development will allow the creation of new specializations, certifications, academic programs, and job opportunities.
- The relation of the monetary policy for international trade and how payments and conversion of digital currencies will be made.

Commercial banks in Mexico are concerned about the development and implementation of a CBDC by Banco de México because their account holders' deposits could be affected in the event of a bank run. On the other hand, the role of commercial banks and other financial institutions in Mexico with CBDCs takes on importance because they even charge fees for transfers made in foreign currencies if they are by SWIFT order, adding the exchange rate

difference, also known as the spread, which is reflected by the conversion from one currency to another.

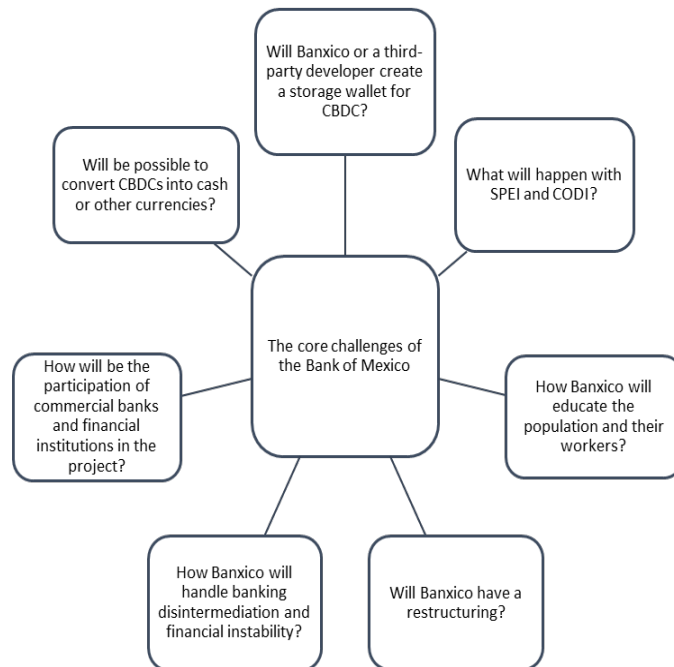
Therefore, implementing the CBDC will cause changes in the management of accounts and could limit the number of international user transactions by financial institutions. Similarly, converting CBDCs into cash or other currencies is another issue that the Banco de Mexico should address. Instead, for where CBDCs will be stored, it is necessary to analyze the model of ownership that would be implemented and if a digital wallet will be created.

Carrying out the project in the face of problems of financial instability and bank disintermediation is a challenge to overcome for Banxico because, in Mexico, a considerable part of the population needs access to financial or banking products.

There are doubts about the future of payment platforms such as CODI and SPEI. However, according to Sánchez et al. (2021), the Mexican population uses the services of CODI and SPEI to do transactions supervised by Banxico due to these being the two principal payment methods in Mexico.

The adoption of CBDCs by the population and Banxico's workers is a subject of discussion that must be raised because promotion and education strategies must be developed. Moreover, as a novel product, this process must be implemented according to a structured action plan. The challenges of Banco de México are shown in Figure 2.

Figure 2
Core challenges of Banco de México on the development of CBDC



Source: Own elaboration (Rodríguez, 2022; Alfonso et al., 2022).

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Proposals of Mexican CBDC

The present proposals are based on the recommendations of Armelius et al. (2020) and the Reserve Bank of India (2022) to show a fully-fledged CBDC that Banco de México can develop. Furthermore, the selection of the proposals has been substantiated by the design and the architecture of digital currencies of the Indian Rupee and E-Krona.

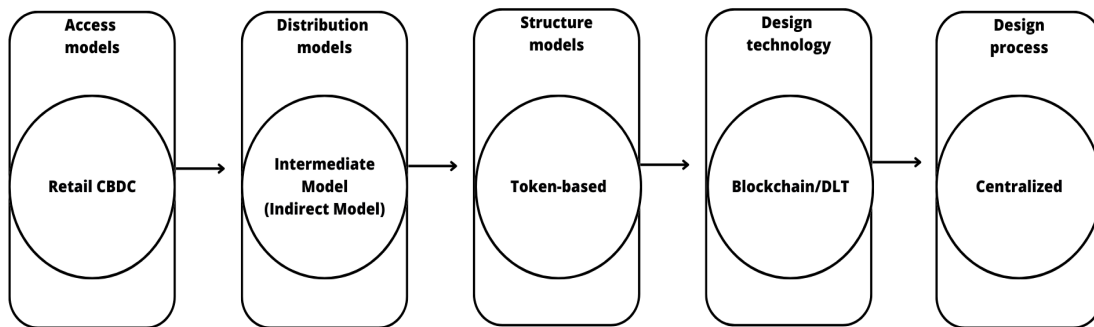
The proposals we did are based on Figure 1. The first is a centralized design using a token-based structure and blockchain technology. The second proposal is a centralized design implementing an account-based structure and blockchain technology. Finally, the third proposal is a decentralized design that employs a token-based structure and blockchain technology.

In Figure 3, we present proposal 1, which is focused on a centralized design process and uses Blockchain Technology or DLT. Furthermore, the access model is Retail, the distribution is indirect, and the structure is token-based. As mentioned above, this proposal could use the intermediation of commercial banks and financial institutions. Also, if the CBDC architecture is retail and token-based, a digital wallet would be necessary to hold the digital currencies.

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This proposal could be costly to implement, but it will receive the support of intermediaries to distribute and realize the Know Your Customer and Anti-Money Laundering process. It is opposite to the comment that the holders of the CBDCs would pay in business, although it is possible to change the CBDC tokens to bank money using the attorney's services.

Figure 3
Proposal 1 of Mexican CBDC

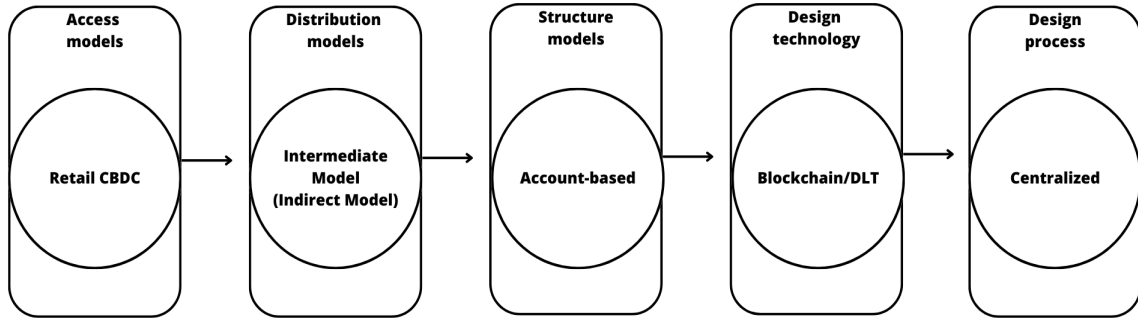


Source: Own elaboration (Armelius et al., 2022; Reserve Bank of India, 2022).

In Figure 4, we present proposal 2, which is focused on a centralized design process and uses Blockchain Technology or DLT. Proposal 2 is like Proposal 1, but it uses an account-based structure. This design could use a similar model that Banxico has with SPEI and the

commercial banks. A difference in the present proposal is that the holder of CBDC can change its units in the account to bank money.

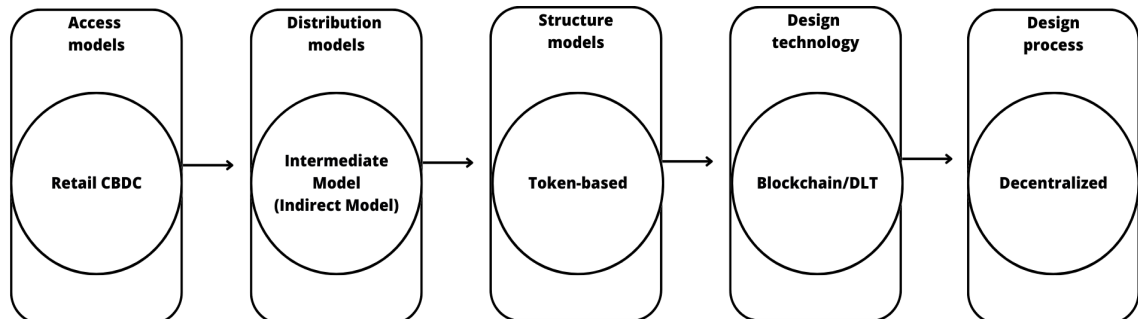
Figure 4
Proposal 2 of Mexican CBDC



Source: Own elaboration (Armelius et al., 2022; Reserve Bank of India, 2022).

In Figure 5, we present proposal 3, which is focused on a decentralized design process and uses Blockchain Technology or DLT. The present proposal has similarities to the one mentioned above, but it uses the power of nodes to validate the transactions. One advantage of it is that each node has a ledger of all transactions that have been implemented, and if one is affected, the other may continue with the process. On the other hand, Armelius et al. (2020) mention that a decentralized proposal could be a big challenge for a Central Bank because it can present problems with controlling and managing CBDCs.

Figure 5
Proposal 3 of Mexican CBDC



Source: Own elaboration (Armelius et al., 2022; Reserve Bank of India, 2022).

According to Ensástigue (2023), Banxico is in the first stage of its CBDC; nevertheless, he comments that the process has three stages. In the first stage, Banxico wants to create a platform that can permit the realization of transactions using an ID or cell phone number. In the second stage, the financial institutions will participate in developing a system compatible with SPEI. Finally, in the third stage, Banxico will launch the service to the population.

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Nonetheless, it is significant to comment that Banco de México wants to use the SPEI system over a DLT or a Blockchain. However, financial institutions could implement these technologies as part of the intermediation of CBDC. Although, understandably, Banxico could implement our proposal 2, the design technology might be the SPEI system with updates.

Stablecoins of the Mexican peso

Stablecoins are Blockchain tokens that aim to maintain a more fixed price than a cryptocurrency; for this reason, they are pegged to a Fiat asset or a commodity. The Fiat assets are currencies such as the USD dollar, Canadian Dollar or Mexican Peso, and the commodity assets are usually minerals such as gold and silver. The stablecoins projects have liquidity, transparency, regulatory compliance, and customer service. The adoption focuses on these tokens being exchanged at cryptocurrency exchanges, which can be used in digital wallet applications for payments and services (Tether, 2023).

For a user to make a peer-to-peer transfer, the sender must have the recipient's address. One way to obtain it is by scanning the QR code. However, it is essential to note that some of the risks presented using stablecoins are the loss of tokens due to a mistake in the sending address and the theft of keys and accounts.

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The stablecoins of the Mexican peso are a disruptive innovation that has had a boom in 2021 and 2022. Based on the above, cryptocurrency developers such as Tether, Jarvis, Moneta, and PXO have visualized that a Mexican peso stable is an alternative for remittances, payments, and transfers. The stablecoins projects linked to the Mexican peso with greater diffusion are the PXO token, MMXN, jMXN, and MXNT.

For the operation of the stablecoins of the Mexican peso, they must be developed within a Blockchain. Moneta Digital, PXO token, and MXNT are developed on the blockchains of Ethereum, Tron, and BNB Chain. De Azevedo Sousa et al. (2020) explain that making transactions on the Ethereum Blockchain involves paying commissions called gas. As a result, the tokens that are developed on the Ethereum Blockchain must pay commissions for each transaction. It is noteworthy that Ether is the native token of the Ethereum Blockchain. Hence, the increase in Ether's price increments each transaction's cost.

The main features of the stablecoins projects of the Mexican peso, according to Tether (2023), PXO Token (2023), Moneta Digital (2023), and Jarvis Network (2023), are shown in Table 3. In this analysis, it is observable that these projects are carried out in several blockchain protocols. They use smart contracts to operate each stablecoin; therefore, the transactions can be viewed through Etherscan, Tronscan, Bscscan, and Polygonscan. It

should be noted that in the visualized transactions of these stablecoins through scanners, MMXN is the stablecoin that has had more transactions than the others.

Table 3
Stablecoins' projects of the Mexican peso

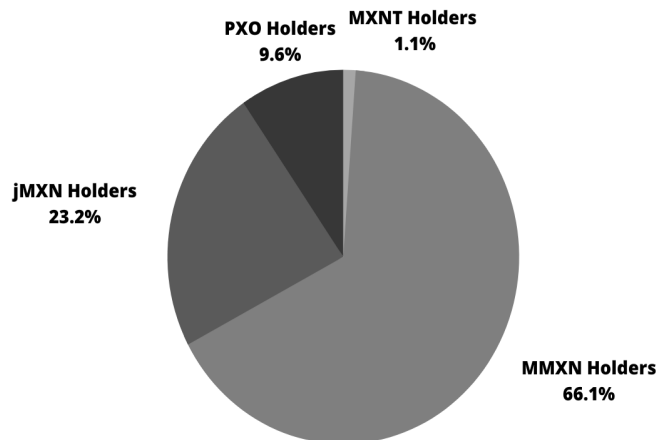
Description	MMXN	MXN₯	PXO Token	jMXN
Name of the stablecoin	Moneta Digital	Mexican Peso Tether	PXO Token	Jarvis Synthetic Mexican Peso
Blockchain networks	L1: Ethereum and Tron	L1: Ethereum	L1: BNB Chain and Ethereum L2: Polygon Network	L1: Ethereum L2: Polygon Network
Blockchain Explorer	Tronscan	Etherscan	BscScan	Polygonscan

Note. L1 is a Layer 1 Blockchain Network, which is a concept to describe a principal Blockchain; on the other hand, L2 is a Layer 2 Blockchain Network, which is a solution that operates through a principal Blockchain protocol.

Source: Own Elaboration (Tether, 2023; PXO Token, 2023; Moneta Digital, 2023; Jarvis Network, 2023).

The number of holders of each stablecoin of the Mexican peso is presented in Graph 1. It is observable that MMXM has a significant quantity of holders, with 66.1% of the total holders of stablecoins. Since 2021, Trubit, previously named Moneta, has been promoting the benefits of using their stablecoin MMXM for remittances (Moneta Digital, 2023). The present analysis was elaborated with the data of BscScan (2023); Etherscan (2023); Polygonscan (2023); Tronscan (2023) until November 27 of 2022.

Graph 1
Stablecoins' holders of the Mexican peso

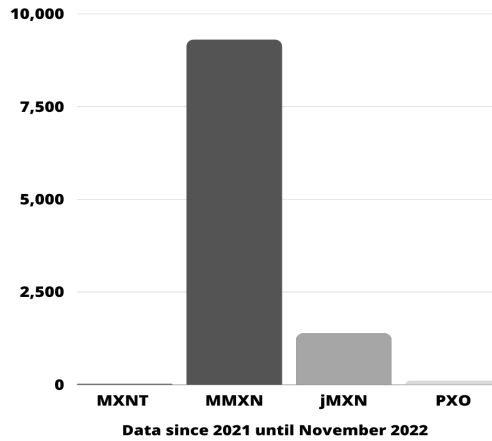


Source: Own elaboration (BscScan, 2023; Etherscan, 2023; Polygonscan, 2023; Tronscan, 2023).

It is observable in Graph 2 that the transactions of stablecoins of the Mexican peso are executed mostly with MMXN stablecoin, and jMXN is the second most used. Despite MXNT and PXO Token's efforts, they do not represent competition for Moneta's Stablecoin. The data we use to obtain information about the stablecoins' transactions are from 2021 until November 2022.

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Graph 2. Stablecoins' transitions of the Mexican peso.



Source: Own elaboration (BscScan, 2023; Etherscan, 2023; Polygonscan, 2023; Tronscan, 2023).

UST stablecoin case

16 Briola et al. (2022) explain that the failure that occurred with the Terra Labs project is relevant to analyze due to the events that occurred in May 2022, where the price of the Luna token and the algorithmic stablecoin UST lost 99.99% of its value. During the process of high price volatility suffered by Luna token and UST, both tokens were delisted from cryptocurrency exchange platforms to prevent more users from being affected, as they were also waiting for the response of the Terra Labs action plan. However, as Briola et al. (2022) mentioned, it had a significant impact on the cryptocurrency ecosystem, which affected the prices of Bitcoin, Ether, Binance Coin, Tron, and Dot, to name a few.

CONCLUSIONS

Cryptocurrencies were created to be a decentralized payment method focused on Blockchain and cryptography. Nevertheless, due to their price volatility, users use stablecoins for payments and transactions, such as USDT, BUSD, and MMXN. Currently, the Mexican regulatory entities have been implementing limitations on their use.

As a result of this policy, and with the recommendation of the Bank of International Settlements, Banco de México is developing its own Central Bank Digital Currency. The challenges that must be addressed for the Mexican CBDC include promoting financial inclusion, ensuring coexistence with cash, and maintaining consistency with the money in circulation. In addition, Banxico has been working to address adoption, technical, logistical, and innovation issues to develop a digital currency that performs optimally.

Central banks have been exploring ways to enhance and modernize their monetary policy. As part of this effort, many economies collaborate with research teams and institutions to develop projects to implement central bank digital currencies. Besides, the role of commercial banks is paramount; they must collaborate with Banco de México to implement the best strategies for implementing the Mexican CBDC.

The current project of Banco de México, which we discussed in the three proposals, is feasible, but it still faces specific challenges and issues that need to be addressed. Therefore, a fact is mandatory. Its implementation must be subject to thorough study and discussion. In the meantime, stablecoins denominated in Mexican pesos are being used as an alternative payment method, with MMXN having the highest number of transactions and holders.

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True Cost Accounting and Social Entrepreneurship as Key Factors for a New Food System

Contabilidad de Costos Reales y Emprendimiento Social como Factores Clave para un Nuevo Sistema Alimentario

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ABSTRACT

The paper aims to understand the problems of the food system, identify the value of food, and the role of social entrepreneurs in changing the status quo. Based on this objective, this documentary and descriptive work present a first approach to understanding the food system, and the search for solutions to measure the value of food and its key actors. The methodology was a documentary search on the world food crisis, true cost accounting, and social entrepreneurship¹.

Keywords: social entrepreneurship, food system, true cost accounting, value creation.

JEL CODE: Q18.



True cost Accounting and Social Entrepreneurship as Key Factors for a New Food System

RESUMEN

El artículo tiene como objetivo comprender los problemas del sistema alimentario, identificar el valor de los alimentos y el papel de los emprendedores sociales en el cambio del estatus quo del sistema alimentario. Partiendo de este objetivo, este trabajo documental y descriptivo presenta una primera aproximación a la comprensión del sistema alimentario, así como a la búsqueda de soluciones para medir el valor de los alimentos y los actores clave para ello. La metodología fue una búsqueda documental sobre la crisis alimentaria mundial, la contabilidad de costos reales y el emprendimiento social.

Palabras clave: Emprendimiento social; Sistema alimentario; contabilidad de costos reales; Creación de valor.

Código Jel: Q18

INTRODUCTION

The link between socioeconomic inequalities and global economic, environmental, technological, and geopolitical risks sets unprecedented challenges for the world economic system. Income inequality has increased in both developed and middle-income countries. "Initial analysis of data on income inequality due to COVID-19 suggests that the pandemic has created new inequalities and exacerbated existing income gaps" (WEF & Schwab Foundation for Social Entrepreneurship, 2022).

Conflict, low household purchasing power, and extreme weather conditions negatively affect access to nutritionally diverse diets, essential services, and a safe and healthy environment. At the same time, food supply chains and environments that are critical components of food systems are disrupted in emergencies, reducing household access to adequate nutritious food, and further contributing to the challenges of nutritional vulnerability (World Food Programm/FAO, 2022).

It translates into current levels of acute hunger, i.e., the number of people unable to meet their short-term food needs will increase by 40 million in 2021. The armed conflict between Russia and Ukraine is the leading cause of the food crisis for 139 million people from 24 countries (Stanley, 2022). In addition, shortages of wheat and fertilizer because of the armed conflict have increased food import costs in the most vulnerable countries by more than \$25 million (Edwards, 2022). According to the Food and Agriculture Organization of the United Nations (FAO, 2022), between 702 and 828 million people were affected by hunger in 2021, equivalent to almost 6.4 times the population of Mexico.

Table 1
Number of people suffering from hunger in the world

Region	Prevalence of undernourishment	Millions of undernourished people
North America and Europe	<2.5%	s.d.
Asia	9.1%	424.5
Oceania	5.8%	2.5
Africa	20.2%	278
Latin America	8.6%	56.5

Note: Values are based on the middle of the projected range.

Source: FAO (2022).

In Mexico, there are 4.8 million people with severe food insecurity, which means 3.7% of the total population in the country (FAO, 2022).

Table 2

People suffering from food insecurity around the world, in percentages

Region	Moderate and severe food insecurity ¹	Severe food insecurity ²
North America and Europe	8%	1.5%
Asia	24.6%	10.5%
Oceania	13%	4.5%
Africa	57.9%	23.4%
Latin America	40.6%	14.2%

Note: Values are based on the middle of the projected range.¹ People experiencing moderate insecurity face uncertainty about their ability to obtain food and have been forced to accept less quality or quantity in the food they eat. ² People experiencing severe insecurity go without food and, in the worst cases, go a day or more without food.

Source: FAO (2022).

This food crisis, like others, can also bring seeds of renewal. The crisis "is a spontaneous and discontinuous change... which alters and displaces forever the previously existing state of equilibrium" (Schumpeter, 1934, p.64). These seeds of renewal offer opportunities for innovative goods, new markets, transformed methods of production, new sources of supply, and new organization. Thus, according to the theory of creative destruction, entrepreneurs are critical actors in establishing a new equilibrium, creating prosperity and social wealth in the ashes of a destroyed equilibrium (Dushnitsky, Graebner & Zott, 2020).

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METHODOLOGY

In the context of the food crisis, the objective of this paper is to present the first approach to the understanding of the current food system and its externalities, the search for solutions to measure the value of food as a step towards the solution of market failures caused by externalities and the critical actors for change in the food system.

Thus, the methodology was a documentary search on the world food crisis, obtaining reports from international organizations, non-governmental organizations, and academic articles to present a context of the food system. At the same time, information was obtained from documentaries that allowed visualizing and confirming the food system's problems.

It was found that: *i*) it is a complex problem with diverse edges, but within this multiplicity, it is necessary to have measures allowing a correct evaluation of the production value of each kind of food to guide the solutions and provide more symmetrical information to eliminate the externalities that affect the food system; *ii*) within the food system there are critical actors

for change: social entrepreneurs. Because of this, we delved into one of the tools to know the value of each food: true cost accounting and research were conducted on social entrepreneurship to understand the key actors to produce a change in the food system.

THE FOOD SYSTEM: THE VALUE OF FOOD

As Müller and Richardson (2022) mentioned, "Identifying harmful externalities in our food systems can make it possible to drive change in sectors as disparate as climate, public health, and poverty reduction." In this way, a transformation in food systems can disrupt various global crises such as climate, health, nutrition, economic independence, and even the COVID-19 pandemic. The world's challenges faces are interconnected (WEF & Schwab Foundation for Social Entrepreneurship, 2022).

The need for more information in quantifying externalities is an information asymmetry problem leading to food market failure. The social costs associated with food production are not quantified, let alone reported to consumers. Therefore, it is necessary first to know the externalities produced in food systems to quantify them and then to communicate them.

Table 3
Summary of the main externalities in the food systems

<i>Type of externality</i>	<i>Example of externalities</i>	<i>Endpoint impact(s)</i>
<i>Environmental (effects on natural capital)</i>	Air, water, and soil pollution GHG-emissions Land use Overuse of renewable resources Soil depletion Use of scarce materials Water use	Contribution to climate change, health effects, depletion of abiotic resources, and depletion of biotic resources including ecosystem services and biodiversity.
<i>Social (effects on social rights and human & social capital)</i>	Animal welfare Child and forced labor Discrimination and harassment High and variable prices Training Underpayment and underearning	Poverty, well-being, food security, and human skills.
<i>Health (effects on human health)</i>	Antimicrobial resistance Undernutrition Unhealthy diet composition Zoonoses	Human life (mortality and the quality of life), Economic (medical costs, informal care, lost working days)
<i>Economic (effects on financial, manufactured, and intellectual capital)</i>	Food waste Tax evasion	Increased food demand, and a decrease in public funds

Source: Global Alliance for the Future of Food (2021).

True cost Accounting and Social Entrepreneurship as Key Factors for a New Food System

The negative externalities produced by the behavior of companies have a negative environmental impact on society. However, an environmental regulation that seeks to reduce these externalities and make the polluter pay for the environmental degradation caused needs to be revised (OECD, 2021). Externalities are hidden impacts of market actors' choices and make sustainable and healthy food less affordable for consumers and less profitable for producers (Global Alliance for the Future of Food, 2021).

In 2021, it was estimated that current externalities are approximately twice (USD 19.8 trillion) the current total world food consumption (USD 9 trillion). These externalities comprise \$7 trillion in environmental costs, \$11 trillion in costs to human life, and \$1 trillion in economic costs. Therefore, it indicates that food is about one-third cheaper than it would be if these externalities were included in market prices (Global Alliance for the Future of Food, 2021; UNFSS, 2021).

Despite the joint and constant struggle of cooperatives, social enterprises, small farmers, non-governmental organizations, and government agencies that have prioritized social and environmental value (WEF & Schwab Foundation for Social Entrepreneurship, 2022; Gasparin et al., 2021), they have also worked towards building sustainable and healthy food systems. SMEs and entrepreneurs are considered part of the solution to climate change mitigation (OECD, 2021).

These actors are disadvantaged as they compete in a biased market with misguided incentives to produce as much as possible at the lowest cost regardless of negative externalities impacting climate, health, workers' rights in the sector, or equitable distribution (Müller & Richardson, 2022).

Additionally, an asymmetry in the information leads to some market failures, affecting how individuals evaluate the quality of goods and services available in the market. Consequently, the market does not produce equilibrium prices and cannot coordinate transactions efficiently. One way to reduce the negative impacts of information asymmetries is through information disclosure signaling, incentive structures and monitoring (Barbaroux, 2014).

The first step in correcting externalities' hidden costs is redefining food prices. For this reason, with a growing awareness of measuring and quantifying the hidden costs of food systems, an approach is needed to level the playing field and prove that transforming food systems can accelerate progress on global challenges.

This tool is known as "true cost accounting" (TCA), which is "a decision-making approach that captures the positive and negative impacts that food systems have on the economy, environment, and society" (Baker et al., 2020; Müller & Richardson 2022). It is an extension of traditional economic accounting systems that aim to identify externalities, including cost-benefit analysis. A TCA assessment can be performed at various levels: a food system, a policy, a region, an organization, an investment, or a product, according to Baker et al. (2020).

To begin a TCA evaluation, the objective and scope of the evaluation are identified, and a unit of analysis and system boundaries are established. Then the various externalities are evaluated qualitatively or quantitatively, and the methods used vary in terms of the maturity of their development (Global Alliance for the Future of Food, 2021). For this reason, their results are not perfect, but they provide food chain actors with much more information on the value of food than is currently available to them. (Global Alliance for the Future of Food, 2021; UNFSS, 2021)

Quantification begins with measuring or evaluating inputs and outputs, the measurable direct effects of production and consumption. Once externalities are quantified, they can be valued, in monetary terms or in a way that expresses them in a standard unit. To capture the value that is not reflected in market prices, a TCA assessment requires either an implicit or explicit measure of welfare (Global Alliance for the Future of Food, 2021; UNFSS, 2021).

Industrial food systems are some of the biggest drivers of climate change, habitat destruction, biodiversity loss, displacement of indigenous peoples, disease, and the double burden of malnutrition (Müller & Richardson, 2022; Global Alliance for the Future of Food, 2021). Moreover, in various parts of the world, food production directly inflicts conflict, poverty, and the mistreatment of workers (DW Documental, 2020, 7m10-58s).

However, these costs due to the negative externalities presented are not considered. There are reports by institutions such as the Rockefeller Foundation and the document of the scientific group of the United Nations Summit on Food Systems indicating that the current externalities of food systems are almost double the current value of global food consumption (Müller & Richardson, 2022). Table 4 is a TCA measurement.

True cost Accounting and Social Entrepreneurship as Key Factors for a New Food System

Table 4

Costs from quantitative metrics across 14 key metrics¹, annual (bn USD)

Human Health	1145
Cost of obesity/overweight	359
Other NCDs (e.g., CVD, hypertension, cancer, diabetes)	604
Food insecurity	146
Impact of pollution (e.g., air, water)	36
Environment	442
Greenhouse gas emissions from food production	300
Greenhouse gas emissions from plastics	15
Water use	60
Soil erosion	67
Biodiversity	453
Cropland use	181
Grazing land use	162
Nitrogen pollution	110
Livelihoods	134
Child labor ²	1
Underpayment (wages) ²	33
Lack of benefits	76
Occupational health/safety ²	24
Economy	21
Subsidies	21
Total	2195

Notes: 1. Some metrics do not capture all connected costs due to low data availability or accessibility. 2. Estimates were found to be particularly low due to underreporting exploited labor along the value chain (e.g., incarcerated, and undocumented persons).

Source: The Rockefeller Foundation (2021).

Consequently, innovators and change agents can only compete if the negative externalities of unsustainable, unhealthy, and industrial or ultra-processed foods are considered in decision-making. That is, if the metrics remain volume (yield per hectare) and price (price per unit), then poor outcomes will continue to be incentivized, and better, less harmful practices will not be able to thrive. It is also pointed out by Gustavo Oliveira, an expert in agriculture (DW Documenta, 2020, 21m18s).

The True Value report showed significant benefits, among which are: a reduction in health costs due to improved disease burden as a consequence of reduced pesticide use; improved crop yields as a result of reintroducing traditional knowledge and agroecological farming practices; and increased local food security thanks to the exchange of indigenous seed

varieties through seed banks, as well as helping farmers adapt to changing climates and gain financial independence by moving away from synthetic fertilizers. These impacts can only be perceived through "true value" (Müller & Richardson, 2022; Global Alliance for the Future of Food, 2021).

Patel (2021), for his part, points out the lack of consumer choice in the marketplace and highlights this in the documentary "Obesity and corporate greed" (DW Documental, 2022). However, Müller and Richardson (2022) argue that not everyone has the power of individual choice over food, as hunger and malnutrition are determined by economic power and access. In that sense, "people often do not have enough money to buy healthy food, while food environments are the cultural and socioeconomic contexts that shape how accessible, affordable, desirable, and convenient these foods are." Case in point are Bangladesh, Nigeria, Pakistan, and India do not have the purchasing power to increase meat consumption as noted by Dan Basse, Chicago farmer market analyst (DW Documental, 2020, 10m17s).

Being aware of the true costs of food systems and valuing them allows us to reduce harmful externalities and increase positive externalities. It translates into a significant disruption of the industrial status quo and will challenge those interested in continuing with the current way of doing business. However, this is essential for progress on climate, food, health, and other issues of global concern.

A second step is to redesign food economics to internalize price externalities. In this way, a price adjustment would be more inclusive than harming third parties with reductions or penalties so that actual pricing could make sustainable and healthy food more affordable and profitable (Global Alliance for the Future of Food, 2021).

One of today's significant challenges is creating a food system that can feed a growing population in step with climate change and without damaging the industrial food system. According to Storton and Aston (2019), one in nine people in the world cannot access nutritious and healthy food; an example is that in the United States, there are 17.6 million people without access to healthy food.

The use of technology focused on growing food with fewer resources is not the only way to solve the food supply problem; in this framework, small farmers are working to strengthen regional food systems in a way that gives local communities a more extraordinary voice in the allocation of resources and at the same time allows the creation of quality jobs and land stewardship. Moreover, these small enterprises constitute a resilient food system. Smallholder farmers feed 70% of the world's population (Storrton & Aston, 2019).

In the United States, small farms supported by Iroquois Valley Farmland REIT (Food Systems Focused Fund) at 50% are run by millennials who grow, produce, and raise pastured

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meats and dairy using organic methods and expand access to organic food (Storron & Aston, 2019). Meanwhile, in France, according to Amslem and Gendron (2019), "most social entrepreneurs come from top business schools and belong to a younger generation of millennials and digital natives."

Tony Weis of the University of Western Ontario states "We need to think about our food to reorganize agriculture" (DW Documental, 2020, 38m55s).

Food systems initiatives are fundamental to change as they feed and improve communities, and their positive impact counts and feeds the world.

In this way, social enterprises offer the potential to solve major social and environmental problems (Chinchilla, 2019). At the same time, they give the most disadvantaged individuals the opportunity to integrate or reintegrate into the labor market while contributing to building more cohesive and creative societies.

Also, various stakeholders, such as politicians, entrepreneurs, citizens, and investors are interested in social enterprises and social entrepreneurship (OECD/EU, 2017; Ramadani et al., 2022). In addition, consumers favor supporting these social projects, as evidenced by fair trade and social purchasing. Participatory financing models such as crowdfunding and crowdlending have also been developed (OECD/EU, 2017).

SOCIAL ENTREPRENEURSHIP

The social economy comprises multiple models for a more inclusive and sustainable economic paradigm. It comprises a "heterogeneous set of private actors, including associations, cooperatives, foundations, non-profit organizations, volunteer groups, and social enterprises" (WEF & Schwab Foundation for Social Entrepreneurship, 2022).

In crises, entrepreneurship can be seen as pursuing opportunities regardless of the context: startup or corporate, for-profit, or not-for-profit, public or private, discovery or creation. Moreover, entrepreneurship occurs under great uncertainty and with an intense scarcity of resources. These conditions also characterize crises (Dushnitsky, Graebner & Zott, 2020).

The critical distinction between entrepreneurship and social entrepreneurship lies in the value proposition. The proposition for the former is to anticipate and organize to serve markets that can comfortably pay for the new product and/or service; thus, it is designed to generate

financial returns. It was recalled that what distinguishes the social economy is that it puts purpose before profit (WEF & Schwab Foundation for Social Entrepreneurship, 2022).

"Profit is a sine qua non, essential to the sustainability of any enterprise and the means to its ultimate end in large-scale market adoption and ultimately a new equilibrium" (Martin & Osberg, 2007). Of course, markets are not perfect, but they function as a proxy for value creation, especially for value creation customers are willing and able to pay for. Thus, the ability of entrepreneurs to attract resources in a competitive market is a reasonable indication of productivity. In this sense, "value is created in business when customers are willing to pay more than it costs to produce the good or service being sold" (Dees, 2001). If companies fail to generate value, they exit the market.

However, markets do not work as well for social entrepreneurs since markets need to do a better job of valuing social improvements, public goods and harms, and benefits for people who cannot pay. It is, therefore, more complicated to know whether a social entrepreneur is creating enough social value to justify the resources used in creating that value (Dees, 2001).

Therefore, social entrepreneurship seeks value through large-scale transformative benefits that accrue to a significant segment of society. It is a process of creating value through new ways of combining resources to explore and exploit opportunities to create social value by stimulating social change or meeting social needs (Short et al., 2009).

Thus, it assumes that a market can pay for innovation and provide a substantial advantage for investors. "The value proposition targets an underserved or highly disadvantaged population that lacks the financial means or political clout to achieve the transformative benefit on its own." This does not preclude the value proposition from being for-profit. Social entrepreneurship is distinguished by the primacy of social benefit, i.e., mission-related impact. Thus, they "conduct activities in the interest of their members and beneficiaries (collective interest) or society at large (general interest) and are governed accordingly" (WEF & Schwab Foundation for Social Entrepreneurship, 2022, p.9).

Social entrepreneurship has various conceptualizations as follows:

Dees (2001) point out "the pursuit of innovative resources and opportunities for the strategic intent to achieve an improvement in social conditions." In addition, Pedraza and Acosta (2017) indicate that this undertaking can be carried out by non-profit entities, for-profit entities, and the public sector, but with a perspective of continuity and not only as a single act.

The mission of this type of entrepreneurship highlights the creation and sustainment of social value, the recognition of opportunities, and the commitment to innovation and learning, as

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well as the adaptation to the environment to provide proposals that solve social problems (Merino 2013 cited in Pedraza and Acosta 2017).

Bornstein and Davis (2010) point it out as the process in which citizens build and transform institutions to provide solutions to social problems such as poverty, diseases, illiteracy, environmental destruction, human rights abuses, and corruption, creating a new balance in society.

For Skoll Centre for Social Entrepreneurship of the University of Oxford, they conceive it as combining opportunities, innovation, and ingenuity to address critical social and environmental challenges.

Then, the aspects that address social entrepreneurship are not circumscribed to financial aspects such as profit maximization but go beyond seeking sustainability of entities and improvement in social conditions (Pedraza & Acosta, 2017). For entrepreneurs, creating wealth is a way of measuring value creation. It determines whether the value is being created; for social entrepreneurs creating wealth is only a means to achieve the social mission. This explicit social mission becomes the central criterion affecting how entrepreneurs perceive and evaluate opportunities (Dees, 2001).

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The social enterprise "has a positive impact on the environment or society, and at the same time, is profitable as a business" (BBVA, 2021).

For Chinchilla (2019), social enterprise is "an organization created to solve a social problem under the rules of the market."

Another conception is that the OECD identifies a social enterprise as "an operator in the economy whose main objective is to have a social impact rather than to make a profit for its owners or shareholders" (European Commission, 2011). It operates within a market by providing goods and services in an entrepreneurial and innovative way and uses its profits to achieve its objectives. "It is managed in an open and accountable manner and, in particular, involves employees, consumers, and stakeholders affected by its business activities" (European Commission, 2011).

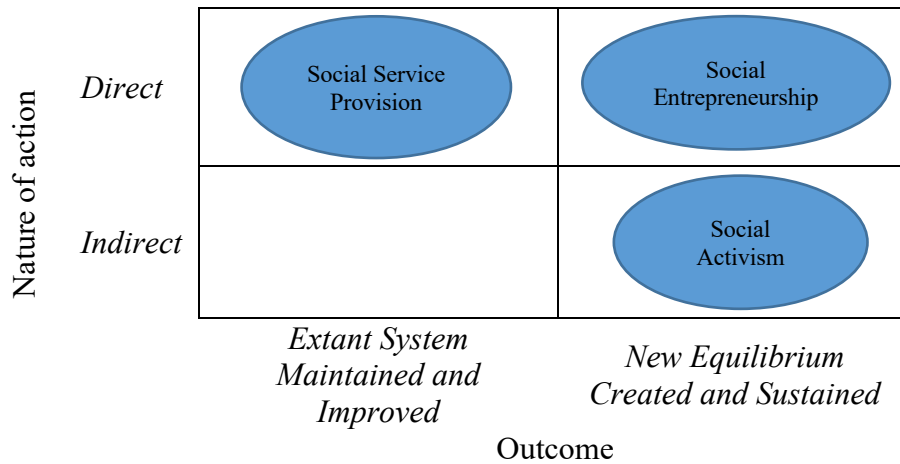
According to the World Economic Forum, "social enterprises ... prioritize social or environmental purposes and often employ an entrepreneurial, for-profit and innovative way to provide goods and services" (WEF & Schwab Foundation for Social Entrepreneurship, 2022, p.10). Additionally, they are democratically governed and can share profits.

For Martin and Osberg (2007), social entrepreneurship includes three components: "(i) identifying a stable but inherently unjust equilibrium that causes the exclusion, marginalization or suffering of a segment of humanity that lacks the financial means or political clout to achieve any transformative benefits for itself; (ii) identifying an opportunity in this unjust equilibrium, developing a social value proposition and bringing inspiration, creativity, direct action, courage, and fortitude, thus challenging the hegemony of the stable state; and iii) forge a new and stable equilibrium that releases the trapped potential or alleviates the suffering of the target group and, through imitation and the creation of a stable ecosystem around the new equilibrium, ensures a better future for the target group and even for society at large. "

One of the most representative characteristics of social enterprises is that they generate decent jobs with good salary conditions, which makes them more resilient and stable in the face of economic crises (BBVA, 2021).

It should be noted that social entrepreneurship is distinguished from social service enterprises and social activism. Social service enterprises have limited results and do not spread, i.e., there is no impact from being replicated and changing the status quo. On the other hand, social activism attempts to create change through indirect actions to influence others to act.

Figure 1
Pure forms of social engagement



Source: Martin & Osberg (2007).

Consequently, the social entrepreneur who is considered successful will take direct action and produce a new sustainable equilibrium.

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"We believe that social entrepreneurship is as vital to the progress of societies as entrepreneurship is to the progress of economies and deserves more rigorous and serious attention than it has so far attracted" (Martin & Osberg, 2007).

Characteristics of social entrepreneurs

Theorists universally associate entrepreneurship with opportunity. Entrepreneurs are thus conceptualized as people with an exceptional ability to see and seize new opportunities, who have the commitment and drive to pursue them, and an immutable willingness to take the inherent risks (Martin & Osberg, 2007).

An entrepreneur is a person who stimulates economic progress by finding new and better ways of doing things (Dees, 2001). According to Jean Baptiste Say, "the entrepreneur moves economic resources from an area of lower productivity to an area of higher productivity and higher output," quoted in Dees (2001).

Later, Schumpeter indicates that the entrepreneur is an agent of change in the economy, while for Druker, entrepreneurs are exploiters of change, astute and committed. Finally, following this idea, Kirzner indicates that the entrepreneur's most important skill is identifying alertness, i.e., he observes the need for change, responds to it, and exploits it as an opportunity (Martin & Osberg, 2007).

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Qualities of social entrepreneurs according to Ashoka (2022):

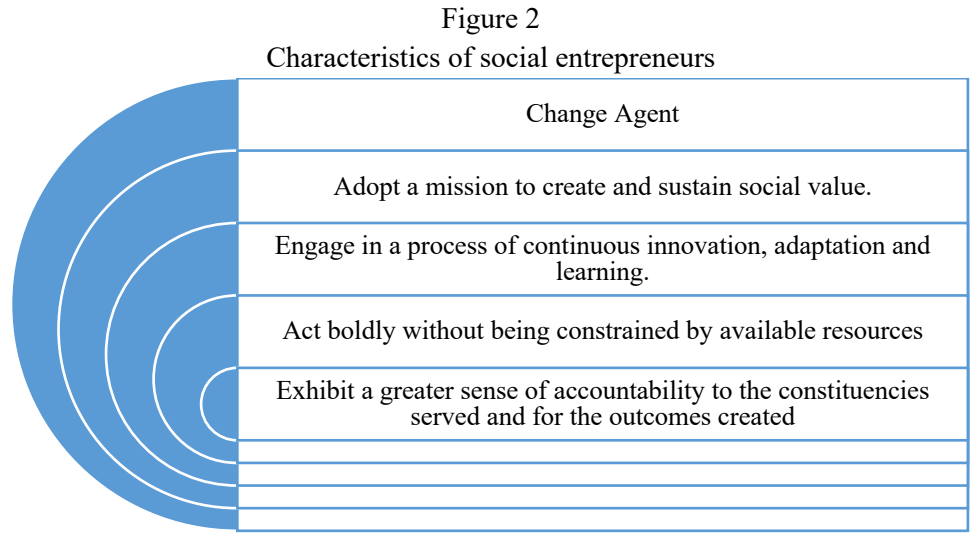
1. A new idea. That is a new solution or approach to a social problem with the potential to change the pattern, in other words, a truly transformational innovation, not just a tiny approach.
2. Creativity. In its objectives and in providing practical answers to problem-solving.
3. Business quality. The drive is the vision of the solution to the problem, working on it, and will only rest once an idea becomes the new standard of society. Likewise, they are willing to fight against the challenges and/or challenges that come their way.
4. Social impact of the idea. The idea must have the potential to significantly change the field in which it is presented and have a national impact. This idea must be new, practical, and valuable enough to be adopted and become the new industry standard.
5. Ethical Fiber. The entrepreneur will have to inspire change on a large scale and to diverse stakeholders, so if he or she is not trustworthy, his or her chances of success are significantly reduced.

Entrepreneurs are attracted by suboptimal equilibriums (inconvenient situations that must be tolerated) and see in them the opportunity to provide a new solution, product, service, or process. In this sense, the characteristics of entrepreneurs are:

1. Inspiration. To alter the unpleasant balance either because they are frustrated users or feel empathy for these users.
2. Creativity. Develop a new solution that breaks radically from the existing one and seeks a new way to address the problem.
3. Communication with direct action. Takes direct action by creating a new product or service and promoting it. It involves affecting other indirect and supportive actions. With actions seeks to influence first investors, then colleagues and employees, and finally, customers who will buy his ideas and innovations.
4. Courage. It includes bearing the burden of risk and facing failure head-on, so take significant risks and do things considered reckless or impossible.
5. Fortitude. This characteristic is necessary to push the creative solution found to fruition and market adoption. The entrepreneur must find creative ways to overcome barriers and challenges.

All these characteristics are fundamental to innovation, but those who are more innovative in their work and achieve more significant social improvements will be categorized as more entrepreneurial.

For Dees (2001), social entrepreneurs are agents of change and must have the characteristics indicated in the following figure.



Source: Dees (2001).

However, the evidence presented by Martin and Osberg (2007), "entrepreneurship describes a combination of a context in which an opportunity is situated, a set of personal characteristics required for the identification and pursuit of this opportunity, and the creation of a particular outcome."

Social Entrepreneurs and their relationship to Innovation

Christensen, Baumann, Ruggles, and Sadtler (2006) point out that the innovation sought by social entrepreneurs is characterized by being scalable, sustainable, and promoting systems change. However, in the context of social entrepreneurship, innovation does not imply improving competitiveness but seeking alternatives to the significant challenges of the 21st century (Auvinet & Loret, 2015, p. 239).

The social entrepreneur should be understood as someone who targets an unfortunate but stable equilibrium that causes the abandonment, marginalization, or suffering of a segment of humanity; who brings to this situation his inspiration, direct action, creativity, courage, and fortitude; and who targets and ultimately affects the establishment of a new stable equilibrium that ensures a permanent benefit for the target group and society at large (Martin & Osberg, 2007).

Thus, social innovation is new ideas that meet unmet needs and improve people's lives (Mulgan et al., 2007, p.7). Thus, social entrepreneurs use entrepreneurial mechanisms to solve old social problems with social innovation (Ramadani et al., 2022). In addition, these innovations seek to contribute to social and ecological resilience to help communities create social value despite the capacity of the existing system (Gasparin et al., 2021).

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However, van Leeuwen and Mohen (2017) found that resource-saving eco-innovations improve processes and increase productivity in firms, but innovation that reduces pollution tends to reduce productivity. Hence, smaller firms are more likely to pioneer radical and disruptive innovations by exploiting market opportunities neglected by more prominent firms (OECD, 2013).

Consequently, innovation in social entrepreneurship does not seek to improve competitiveness but instead seeks different approaches to the significant challenges of the 21st century (Vernis, 2009; Auvinet & Lloret, 2015).

For both Christensen et al. (2006) and Auvinet and Lloret (2015), innovations within social entrepreneurship are catalytic innovations that, although they are a subset of disruptive innovations, the focus that distinguishes them is national social change. They seek to inspire the private sector to more inclusive and sustainable business practices.

These catalytic innovations have the following qualities:

1. They create systemic social change through scale and replication.
2. They meet a need that needs to be more satisfied (the solution is more complex) or unmet.
3. They offer more superficial and less expensive products and services than existing alternatives, which may be perceived as lower performing but need to be considered adequate by users.
4. They obtain resources from donations, grants, volunteer labor, or intellectual capital in ways that could be more attractive to established competitors.
5. They are often ignored, disparaged, or even encouraged by existing players for whom the business model could be more attractive and attractive and therefore avoid or withdraw from the market segment.

In this sense, social objectives are prioritized rather than profit, which allows for exploring niche opportunities within markets and unlocking new sectors for excluded groups, while pursuing a combination of social, environmental, inclusion, and economic objectives. In addition, this allows for cooperation and collective social innovation with local actors that often produce jointly developed and locally fixed solutions (WEF & Schwab Foundation for Social Entrepreneurship, 2022; Chia et al., 2022).

PRELIMINARY RESULTS

The results are diverse and include the state of people suffering from hunger between 720 to 811 million people, with Asia being the continent with the largest population of 424 million people, followed by Africa with 278 million people, in third place is Latin America with 56.5 million people, continuing with Oceania with 2.5 million people. The percentage of the population with severe food insecurity is found in Africa at 23.4%, Latin America at 14.2%, Asia at 10.5%, Oceania at 4.5%, and North America and Europe at 1.5%.

Another relevant fact is that the value of food must consider the environmental, social, health and economic externalities produced in its production. In this sense, indicators of human health, the environment, biodiversity, livelihoods, and the economy must be considered to value food production correctly.

Therefore, it is necessary to know the processes of food production to know their externalities and their cost. In this way, through true cost accounting, information can be integrated into the price of food to reduce the asymmetry of information available to consumers and allow producers who produce food with minor externalities to compete in a food market. Although true cost accounting is a tool to know the value of food, it does not have specific methods

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and is still under development; neither does it give an exact value of production, but it gives an approximation of the value of goods, which is essential for detecting areas of opportunity in food production.

Also, an important fact is the knowledge that social entrepreneurship can and has contributed to the change in the food system. Social entrepreneurs possess the characteristics required to change the status quo and are a crucial element. Thus, they seek innovations that enable systemic social change through scale and replication to improve the conditions of a society. They may not seek to improve competitiveness with their innovations but to impact vulnerable populations by strengthening their resilience and adaptation (Dougherty-Choux, 2014).

Then, social entrepreneurs can use the cost strategy to compete in the market if the true costs of the products are considered, i.e., including externalities. Consequently, "the creation and growth of social enterprises more than an isolated phenomenon is a trend on the right path to achieve well-being as a society" (Chinchilla, 2019).

Finally, the topic of the food system is deep and complex, as well as its implications and impacts. However, this first approach allows a reflection on food prices, the true costs, the externalities left out of its valuation, and a new way of considering competitiveness, including the valuation of externalities.

CONCLUSIONS

This first approach to the complex problems of the food system provides the following conclusions:

- The food crisis is a complex problem with diverse factors that generate it. However, at the same time, it is an opportunity for multidisciplinary work with diverse areas of opportunity to seek and/or contribute to solving it.
- The food crisis affects the entire world to varying degrees and may worsen if we do not act to change the current status quo of the food system.
- It is necessary to measure the current costs of food processes, including their negative externalities, to have a parameter to guide actions to reduce these impacts and achieve higher quality production and process improvement.
- Within the food system, social entrepreneurs are a vital factor in achieving change, as they seek a sustainable change of the status quo.

- The characteristics of social entrepreneurs are those required to find innovative solutions that enable a change in societies and processes where the most disadvantaged and vulnerable populations benefit.
- Evidence shows that externalities not considered in food production affect countries globally.
- A tool such as true cost accounting makes it possible to understand and value food correctly and create true value in the processes.
- The tool of true cost accounting and social entrepreneurship are key elements to achieve a change in the current food system, as they contribute to an understanding of it and, therefore, to the search for solutions.
- It is necessary to expand and improve education and research on social innovation, social enterprises, and social economy in schools and universities to increase the visibility of the social economy and achieve an impact that favors joint solutions to the food crisis.

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Femvertising and its impact on psychological reactance and purchase intention of Mexican female consumers

Femvertising y su impacto en la reactancia psicológica e intención de compra de consumidoras mexicanas

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ABSTRACT

This work focuses on the study of the femvertising advertising strategy. It references the feminist theories and the theory of psychological reactance to understand the impact of femvertising on Mexican female consumers' psychological reactance and purchase intention. A mixed methodology was applied, with a content analysis and a reception questionnaire (N=666) to Mexican female consumers. The results show a higher purchase intention and a lower psychological reactance in female consumers to femvertising spots. The main conclusion is that the implementation of the femvertising strategy in advertising spots aimed at Mexican women produces an increase in their purchase intention and a decrease in psychological reactance compared to conventional (non-femvertising) ads because femvertising generates a greater identification of the consumers with the ad by projecting the woman in a more authentic and close way.

Keywords: Femvertising; gender; advertising; purchase intention; psychological reactance.

JEL CODE: M37.



RESUMEN

Este trabajo se centra en el estudio de la estrategia publicitaria femvertising, y toma como referentes las teorías feministas y la teoría de la reactancia psicológica, esto con el objetivo conocer el impacto de la femvertising en la reactancia psicológica e intención de compra de consumidoras mexicanas. Se aplicó una metodología mixta, con un análisis de contenido y un cuestionario de recepción (N=666) a consumidoras mexicanas. Los resultados evidencian una mayor intención de compra y una menor reactancia psicológica en las consumidoras ante los spots femvertising. La principal conclusión es que la implementación de la estrategia femvertising en los spots publicitarios dirigidos a las mujeres mexicanas, produce un incremento en su intención de compra y una disminución en la reactancia psicológica en comparación con los anuncios convencionales (no femvertising), esto debido a que la femvertising genera una mayor identificación de las consumidoras con el anuncio al proyectar a la mujer de una forma más real y cercana.

Palabras clave: Femvertising; género; publicidad; intención de compra; reactancia psicológica.

INTRODUCTION

Advertising is present in people's lives daily. As a result, consumers are exposed to increasing advertising impacts. Authors such as Ortega (1997) and Kotler and Armstrong (2013) agree that advertising is a form of communication whose objective is to publicize an idea, service, or product to influence the purchasing decisions of potential consumers.

Guamán (2013) defines advertising as a process that evolves along with the society and culture in which it is carried out. Advertising messages are transmitted through different platforms and/or media. The advertisement/spot in advertising is considered one of the most effective advertising resources (Muriel, 2018), which is why it has served as one of the tools brands use to reach their target audience. However, the fact that advertising reaches its target does not guarantee to purchase the advertised product or service, especially when the content fails to connect with the recipients.

Advertising has used various strategies to highlight the advantages and benefits of its products and services compared to those of its competitors. It uses product elements as a claim or representation of the consumer, seeking to make the target public feel identified and wish to purchase it. Since the emergence of advertising until today, it has used the image of women to promote products and/or services aimed at both women and men.

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According to Navarro & Martín (2011), the representation of the female figure in advertising is mainly based on the use of roles and stereotypes, especially negative ones, as well as on the sexualization and objectification of her body. Among the most common stereotypes in which women are represented in Mexican advertising are housewife women responsible for the children and the home, submissive and self-sacrificing women, weaker sex, woman concerned about her physique and beauty, sexual object women, working women and modern and independent woman (García, 2005; Rimbaud, 2013).

Currently, female consumers disapprove of this form of representation and consider that advertising should stop pigeonholing women in roles and stereotypes such as sexualized women or submissive wives, or exclusively in mother or homemaker since they do not feel identified with this type of representation and they generate disapproval, as they authentically represent them (García & López-Paredes, 2019; García, 2018; Menéndez, 2019b).

Hence the emergence of the advertising strategy called femvertising, which focuses "on one of the most controversial social demands of recent times: feminism"(García & López-Paredes, 2019, p.199).

FEMVERTISING

To target a specific audience, it needs to know them, but above all, to understand them. Knowing what and how women think is a reality that no business can ignore. Therefore, it is essential to readapt strategies to be present in their mental map of purchasing decisions (puromarketing, 2010).

Although the image of women in advertising has been changing over time, there are still remnants of stereotypes, roles, and archaic discourse, especially regarding products for men or beauty, fashion, and cosmetics. As a result, many advertisements have modified the context in which women interact, but how they are represented remains attached to the traditional canons of beauty (García & López-Paredes, 2019).

According to a 2015 study conducted by Unilever, 40% of the female consumers surveyed indicated that they did not feel identified with the women and situations they see in advertising, in addition to the fact that they consider that the ads show them under a man's perspective and gaze, not their own (Sherman, 2017). These results reflect what consumers think and confirm the need for the messages to represent the target audience more accurately.

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Femvertising was unveiled by the agency SheKnows Media during the panel of top brands and creative minds at Advertising Week, held in New York, United States, in 2014, where the advertising movement in favor of women and what those who seek to sell to them should implement to inspire them and attract their attention was discussed. The term femvertising refers to a form of advertising that challenges the stereotypes and advertising roles traditionally attributed to women (Åkestam et al., 2017) and comes from the union of the Anglo-Saxon terms feminism and advertising, understood as feminist advertising (Becker-Herby, 2016; Mora, 2018; Menéndez, 2019).

Femvertising questions gender stereotypes and promotes female empowerment (Menéndez, 2019a). It seeks, through communication and advertising, to show women under a reality that contrasts with patriarchal paradigms, being now the spokeswoman for equality and empowerment (Carrillo, 2016).

Banet-Weiser (2004), Becker-Herby (2016), Castillo (2014), Condon (2015), Jalakas (2016), Júdez and Cernuda (2014), Menéndez (2019a), and Sirr (2015) consider femvertising as a strategy that provides complementary benefits and affirm that its implementation triggers positive responses in consumers by showing the female figure closer to reality, playing roles that project their empowerment and independence.

In addition to improving women's image in advertising and generating a greater identification with advertising content among consumers, it also benefits brands by connecting with their target audience. It is reflected in an increase in purchase intent and generates the fulfillment of the main objective of advertising, the sale of the product or service.

Femvertising is considered a valuable way to effectively engage with female consumers (Case, 2019) by having a different approach than previously employed and seeking to stop fostering negative stereotypes and attitudes that portray women as weak, dependent, and submissive, as well as denigrating their integrity. Traditional advertising is replaced by one that promotes equality between women and men and represents female consumers positively and realistically. Since it emerged as an advertising proposal in 2014, femvertising has gained significant strength and popularity.

Becker-Herby (2016) states that an advertising strategy to be considered femvertising, it must include five fundamental pillars. The first of these is the diversity of female talents (female diversity), the second is pro-women messages (empowering), the third is the displacement of traditional and mostly negative gender roles and stereotypes, the fourth pillar is the minimization of sexuality (sexuality that does not cater to the male gaze), and finally, the fifth pillar is the authentic representation of women and girls.

Porroche-Escudero (2017) proposes adding to the elements of femvertising the four principles that empowerment should contain: the promotion of the capacity to make decisions critically; the proposal of one's discourse as opposed to that of an expert voice; the incorporation of valuable, relevant, and practical information for consumers; and the promotion of individual and collective political awareness. According to Menéndez (2019a), these nine variables are essential for an advertisement to be considered femvertising. However, in this research, and after an exhaustive literature review, thirteen categories were established, as presented in Table 1.

Table 1
Elements present in femvertising.

<i>Ranking</i>	<i>Content</i>
<i>Category 1</i>	Diversity of female talents Female diversity (presence of women with different characteristics such as complexion, skin color, age, race, size, social class, personality, profession, religion, and preferences.). (Becker-Herby, 2016).
<i>Category 2</i>	Messages in favor of women promote female empowerment. Messages and content that are inspirational, positive, inclusive, and empowering seek to provide consumers with feelings of motivation and self-confidence rather than inferring that they are not good enough and that the product in question is the key to "fixing" their imperfections or flaws. Instead, the message reinforces and celebrates something constructive and positive (Becker-Herby, 2016).
<i>Category 3</i>	Breaking down negative stereotypes or gender mandates

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	Multidimensional women. It shows women contrasting patriarchal paradigms in activities, roles, or situations that were not attributed to them before. Instead, they contain new stereotypes (independent, modern, professional, hard-working, leader, strong, free from social impositions) (Becker-Herby, 2016).
Category 4	Sexuality minimization Sexuality that does not attend to the male gaze, deconstruction of sexism. Women's exposed skin or body attributes are displayed in a relevant and authentic way (for example, female athletes working out in sports bras) (Becker-Herby, 2016).
Category 5	Authentic and natural representation of women The advertisement has the presence of women, products, scenarios, situations, and authentic and transparent messages, showing situations in a natural and non-idealized way (Becker-Herby, 2016).
Category 6	Development of critical decision-making skills Women are the decision-makers. No one decides for them or tells them what to do or how to do it. Instead, they make decisions for themselves (Porroche-Escudero, 2017).
Category 7	Proposal of its discourse as opposed to that of an expert and exogenous voice. Women should be the ones to construct the message in the advertisement, as opposed to conventional advertising, in which, most of the time, the prescriptive and expert voice is male (Porroche-Escudero, 2017).
Category 8	Valuable, relevant, and practical information Advertisements should contain data and information that may be interesting or real for female consumers (Porroche-Escudero, 2017).
Category 9	Promoting political awareness, not only individually but also collectively Collective work, showing women collaborating, working, and fighting together. Shared knowledge and collective efforts are essential for creating feminist messages (Porroche-Escudero, 2017).
Category 10	The positive image of women They show a pro-woman image and project women in a positive light (Halling & Netterman, 2017).
Category 11	Self-identification Appeals are based on emotions, association, and experiential stimuli. They seek that the consumer recognizes herself in character, empathizes, and identifies with the situation or some memory of lived experiences (Abreu, 2016; Jalakas, 2016).
Category 12	Promotion of gender equality They do not show gender inequality in their content; women, men, girls, and boys have the same rights, importance, and roles (Abreu, 2016; Karulkar et al., 2019).
Category 13	Promotion of non-violence against women (physical, psychological, sexual). The advertisements do not contain violence or show violence in situations of subordination or male domination (Carrillo, 2016).

Source: Own elaboration.

Femvertising has been adopted by several companies targeting women, and they have begun to bet on its implementation after realizing that it favors women's response to the advertised product or service as they feel more identified with the representations of their gender contained in the advertisements. Among the brands promulgating the femvertising strategy that are doing an excellent job according to the opinion of female consumers are: Adidas, Always, Asos, Bodyform, Boohoo, Covergirl, Dove, John Lewis, L'Oréal Paris, M&S, Nike, New Look, Olay, Pantene and Venus (Maram, 2017; SheKnows Media, 2016).

Such has been the impact of femvertising in the advertising world that in 2015 the digital media company SHE Media, previously called SheKnows Media, created the Femvertising Awards, whose objective was to reward and recognize those brands with advertising content that challenges the negative roles and stereotypes linked to women and girls. Among the most awarded brands with this recognition between 2015 and 2019 are: Always, Audi, Bumble, Coca-Cola, Dove, Pantene, P&G, and Under Armour (SHE Media, 2020). More and more companies have begun to look towards femvertising as an advertising strategy that should be implemented in their campaigns.

We believe it is important to distance the femvertising strategy from what was called commodity feminism. Goldman (1992) points out that advertising underwent a radical transformation at the end of the 1980s since it faced significant challenges, such as the anger of women who felt constantly pigeonholed in sexual roles and idealized and stereotyped images in advertising.

In the 1990s, "an advertising linked to feminism appears, within the framework of Commodity Feminism, in which gender stereotypes merge with feminist ideals with a commercial objective" (Menéndez, 2019, p.89). Such advertising arises as a response to social demands. Especially those made by women, advertisers were forced to develop a new advertising strategy that tried to incorporate the cultural power of feminism and, in turn, tame the criticism that the feminist movement was making towards advertising.

They linked feminism with advertising through the concept of Commodity Feminism or commercial/mercantile feminism. The term Commodity feminism was introduced by Goldman, Heath, and Smit (1991), who see it as the redefinition of feminism through consumption and purchasing behavior in which products are given meaning and then equated with feminist goals, which dilutes and depoliticizes feminism and allows it to be easily digested by audiences. Ideals merge with feminine stereotypes to form an ironic association, co-opting fundamental feminist principles to sell products to women. Gill (2008) sees this as how feminist ideas and icons are appropriated and adapted for commercial purposes, emptied of their political meaning, and offered to the public in a commodified form, usually turned into advertising.

THEORETICAL FRAMEWORK

Feminist theories

The origin of feminist theories dates to the 18th century. However, it was during the Enlightenment when the first positions in favor of the integration of women at the social level were issued. Additionally, the inequality in socially accepted behaviors that gave way to the repression and subjugation of women was evidenced (Amorós, 2005; Villarroel, 2007).

These theories differ from women's studies in their strategic perspective. In addition to analyzing, they explicitly seek ways to transform the situation in society and are among the perspectives that break with traditional schemes (Villarroel, 2007; Gamba, 2008).

They show a different way of understanding the world by incorporating a social sense that improves the human condition without privileging a specific reality (Villarroel, 2007). They question the system of male domination and are a critical approach to power because they seek to eradicate the repression and invisibilization of women. They are also considered a group of ideas that debate the philosophical approaches that position women as weak and inferior beings who depend on men and constantly find themselves in unfavorable situations simply because they are women.

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Feminist theories are based on the assertion that gender is a social and cultural construction that has always been reflected in masculine dominance over feminine" (Martín, 2009). They transfer women's struggles to theoretical grounds from where they criticize, analyze, and make visible gender inequality to generate a change in favor of the situation of women in society and defend the rights and interests of women (Mora, 2013; Sales, 2017).

In their different versions, feminist theories uncover all the ideological structures and mechanisms that reproduce the discrimination or exclusion of women from the different spheres of society. Also, they seek to insert the issue of women into the international agenda. In that sense, their primary criticism is that the whole conception of the world, the categories, and branches of knowledge are biased with a male vision, which leaves aside the way of understanding and seeing things from the perspective of women (Villarroel, 2007).

In addition to raising strong criticism of social relations based on gender inequality, one of the main applications of feminist theories in the field of advertising is the visibility of the way it has used women, expressing severe criticism of the way they are represented, as well as the stereotypes and roles that are assigned to them in advertising messages, seeking that the image projected of them is more realistic and less stereotyped, defending their rights and

interests. Feminist theories provide a critical perspective to the research, starting from the historical context that allows us to visualize the representation of women in advertising over the years.

Psychological reactance and purchase intention

The theory of psychological reactance was established by Brehm in 1966, classifying it as a theory that would mainly influence the field of social psychology by contributing to the description of human behavior and how it is related to its perception in each social context.

Brehm (1966) states that individuals highly value their freedom to act and decide so that when they experience the feeling of deprivation, they experience a motivational state of rejection through which they seek to reestablish the freedom they have felt threatened. It often manifests itself in behavior opposite to what was expected due to increased resistance to persuasion.

The degree of psychological reactance will depend on the value assigned by the individual to the behavior he/she has felt threatened. Stanojlovic (2015) states that reactance can mediate a persuasive message's effect and the receivers' various responses, such as attitude change and behavioral intentions.

Psychological reactance is "one of the most potent forms of resistance in persuasion" (Stanojlovic, 2015, p.6). Regarding its application in advertising, Añaños (2011), Ceballos (2018), and Edwards et al. (2002) agree that psychological reactance to an advertisement is characterized by provoking in consumers a feeling of rejection after seeing its message or content, generating a more excellent resistance to the stimuli presented and obtaining a result contrary to that desired by the advertiser.

It usually happens when the advertisements contain representations far from reality, or their persuasive charge is evident (Moyer-Gusé & Nabi, 2010; Quick & Stephenson, 2008; Rodríguez, 2016). "The perception of realism decreases reactance, reducing the perception of threat and encouraging narrative transportation and identification with the characters" (Cevallos, 2018, p.89).

Åkestam et al. (2017) have addressed the relationship between femvertising and psychological reactance in their research, obtaining results that lead them to conclude that femvertising positively affects the psychological reactance of those subjected to this type of advertising. Furthermore, because the advertisement's identification level with the consumers is significant and their purchase attitudes improve, the perception of realism reduces the perception of threat and decreases the reactance.

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On the other hand, purchase intention refers to how likely the consumer will purchase a product or service of a particular brand being advertised during the purchase process. Therefore, it serves as a critical indicator of the behavior that will be adopted by the consumer in a genuine purchase when choosing a specific brand or product (Chu & Lu, 2007; Crosno et al., 2009; Dodds et al., 1991; Kim & Kim, 2004; Morwitz & Schmittlein, 1992).

Advertising and the content of its messages, as well as consumer attitudes and perceptions, are among the main factors influencing the construction of purchase intent (Mirabi et al., 2015; Vahdati & Mousavi, 2016).

"The purchase intention is not a behavior that depends exclusively on the quality of the product or service offered but is directly related to the sensations and feelings that it produces in the consumer" (Galvis, 2017, p.30).

It is a future projection of whether an individual is interested in acquiring the product or service offered. Some authors, including Drake (2017) and Karulkar et al. (2019), have addressed in their research the influence of femvertising on purchase intention, observing that femvertising spots generate a better perception among female recipients.

52 Those advertisements that appeal to female empowerment and show women realistically and positively generate in consumers a greater liking and emotional connection, which could positively influence their purchase intention (Prakash, 1992). Therefore, purchase intention will allow us to identify the degree to which Mexican female consumers would be willing to consume or buy a specific product or service that is being advertised.

In this sense, the hypothesis of this research is formulated as follows:

Femvertising ads, by opposing patriarchal paradigms and being more realistic advertising, generate less psychological reactance and greater purchase intention in Mexican female consumers than non-femvertising spots (traditional advertising).

METHODOLOGY

This research has allowed us to determine whether implementing the femvertising strategy in advertisements aimed at Mexican female consumers generates a decrease in psychological reactance and an increase in purchase intention as opposed to traditional advertisements (non-femvertising).

For this purpose, a mixed methodology was used, combining qualitative methods of a prospective nature and, later, a quantitative approach. First, through an exhaustive

bibliographic review, the elements that characterize the femvertising advertising strategy and the leading brands that promulgate this strategy were identified and categorized. Then, the most popular brands that had a presence in Mexico were selected: Nike, Dove, L'Oréal Paris, and Pantene. Subsequently, a content analysis was conducted to select spots containing these same brands' femvertising elements and non-femvertising spots (conventional).

The appropriateness of this selection was corroborated by the first questionnaire to female consumers. They were asked several questions about identifying the presence of each of the thirteen categories in the advertisements. We discarded those that did not obtain robust results and kept only those corresponding to the brand's Dove and L'Oréal Paris, from which we proceeded to select a non-femvertising spot.

Finally, to carry out a comparative analysis of both types of advertising, a reception questionnaire was applied in which the two ads per brand were included, one femvertising and the other non-femvertising, and both the purchase intention and the psychological reactance generated by Mexican consumers were measured.

The reception questionnaire contained dichotomous questions specially designed to determine sociodemographic data, the respondent's relationship with the brands evaluated, previous knowledge and opinion about them, to know if there is a change after seeing each spot. In addition, Likert-type questions were also included to evaluate the purchase intention and psychological reactance developed in Mexican consumers when exposed to certain types of advertisements, in this case, femvertising and non-femvertising spots, to identify which of these advertisements generated a better response. Finally, a Manipulation Check question was also included to identify if the respondents attended to the stimuli presented in the questionnaire.

DISCUSSION AND ANALYSIS OF RESULTS

The thirteen categories in which the elements that characterize femvertising were grouped were used to identify the femvertising spots of the brands that promulgate this advertising strategy, which have a presence in Mexico, allowing us to determine those brands and ads that would be studied in the research.

With the content analysis, it was possible to select four advertisements with femvertising elements. Subsequently, through a questionnaire directed to Mexican consumers, the thirteen femvertising categories in the four selected spots were verified, and the ads with the highest femvertising load were identified.

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Table 2
Elements in femvertising

<i>Spot</i>	<i>Mean</i>
<i>Nike</i>	3.36
<i>Pantene</i>	3.354
<i>L'Oréal Paris</i>	3.381**
<i>Dove</i>	4.065**

Note: ** Higher means.

Source: Own elaboration.

As shown in Table 2, the Dove and L'Oréal Paris ads obtained a more consistent response, so the other ads were discarded. Afterward, a conventional spot was selected for each of the brands (Dove and L'Oréal Paris), which allowed a comparative analysis between femvertising and non-femvertising (conventional) advertising through a questionnaire (N=666) of reception directed to Mexican women between 18 and 65 years old, in which the purchase intention and the psychological reactance that these ads generated in the consumers were measured.

54 The predominant educational level among the participants was a bachelor's degree at 56.76%, followed by a master's degree at 26.43%, high school with 11.26%, doctorate with 4.05%, high school with 1.35%, and elementary school with .15%. Their occupation was also considered; 41.14% of the participants are employed in public or private companies, 22.67% work independently, 19.37% work at home, 10.21% are students, 4.80% are unemployed, 1.50% are retired, and 0.30% are pensioners.

The sample was selected through a purposive or convenience sampling technique, and the questionnaire was applied through an open call on Facebook, Instagram, and WhatsApp. A total of 713 questionnaires were obtained, of which those that did not meet the selection criteria were discarded, with a total of 666 questionnaires being considered valid. The processing of the data obtained was carried out through inferential statistics.

To validate the instrument and confirm its reliability, its Cronbach's Alpha internal consistency index was calculated, which allowed us to know to what "degree the instrument measures what it should measure" (García et al., 2019). Considering .70 as the minimum acceptable for each set of questions (Bowling, 2005), we can affirm that the instrument is sufficiently reliable since all the values obtained are above .82, as can be seen in Table 3.

Table 3
Internal consistency indexes Cronbach's alpha

<i>Femvertising purchase intention L'Oréal</i>	$\alpha=0,947$
<i>Femvertising psychological reactance L'Oréal</i>	$\alpha=0,881$
<i>Non-femvertising purchase intention L'Oréal</i>	$\alpha=0,949$
<i>Non-femvertising psychological reactance L'Oréal</i>	$\alpha=0,893$
<i>Femvertising purchase intention Dove</i>	$\alpha=0,952$
<i>Femvertising psychological reactance Dove</i>	$\alpha=0,822$
<i>Non-femvertising purchase intention Dove</i>	$\alpha=0,954$
<i>Non-femvertising psychological reactance Dove</i>	$\alpha=0,883$

Source: Own elaboration.

Subsequently, it was necessary to unify the brands into a single variable for femvertising psychological reactance and a single variable for femvertising purchase intention, the same for non-femvertising. Four new variables were obtained that facilitated a joint treatment since the hypothesis does not seek to compare brands but to know what happens with Mexican female consumers' psychological reactance and purchase intention when they are exposed to a femvertising spot and a non-femvertising (conventional) spot.

With the new variables, normality tests were performed to determine whether the data were normally distributed. Unfortunately, a significance of less than .05 was obtained in all cases, so we can conclude that the data do not have a normal distribution and nonparametric tests will have to be used.

The Wilcoxon nonparametric tests confirmed the existence of significant differences ($p < 0.05$) in the purchase intention and psychological reactance of Mexican female consumers when presented with a femvertising and a non-femvertising advertisement, as can be seen in Table 4, which confirms that the stimuli presented in both types of advertising have different effects on the participants.

Table 4
Wilcoxon nonparametric tests

<i>Femvertising and non-femvertising purchase intention</i>	Z	-9.770 ^b
	Asymptotic sig. (bilateral)	0
<i>Femvertising and non-femvertising psychological reactance</i>	Z	0-4.596 ^b
	Asymptotic sig. (bilateral)	0

Source: Own elaboration.

Subsequently, a comparison of means was made between the femvertising and non-femvertising purchase intention variables and the femvertising and non-femvertising

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psychological reactance variables. According to the results obtained, sufficient evidence was found to affirm that femvertising ads generate higher purchase intention (higher mean) and lower psychological reactance (lower mean) than non-femvertising ads, as seen in Table 5.

Table 5
Comparison of mean purchase intention and psychological reactance between femvertising and non-femvertising spots.

<i>Spot</i>	<i>Mean purchase intention</i>	<i>Mean psychological reactance</i>
<i>Femvertising</i>	4.9866**	2.0285**
<i>Non-femvertising</i>	4.4982	2.2693

Source: Own elaboration.

Spearman's correlation was used to estimate the effect of psychological reactance on the purchase intention construct, allowing us to observe that the variables in the case of the femvertising ads correlate by 42% and have a sig. <.001, while the variables in the non-femvertising ads correlate by 39.1% and have a sig. <.001 (see Table 6). Considering as acceptable those correlations between .30 and .50 (Ajzen & Fishbein, 1980; Cohen, 1992), we can affirm that the variables correlate and are associated with each other.

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In both cases, the psychological reactance variable is negatively correlated with purchase intention, which means that when psychological reactance decreases, purchase intention increases and vice versa.

The results obtained in Spearman's correlation provide us with the empirical evidence to accept the hypothesis that when femvertising is used in the advertisements, less psychological reactance and greater purchase intention are generated in Mexican consumers, as opposed to what happens with non-femvertising spots (traditional advertising).

These results are consistent with those obtained in the study by Sternadori and Abitbol (2019), in which they confirmed that consumers favorably impact their attitude toward femvertising ads.

Table 6
Spearman correlation between purchase intention and psychological reactance femvertising and non-femvertising spots.

Femvertising ads	Correlates at -.420	Sig. <.001
Non-femvertising ads	Correlates at -.391	Sig. <.001

Source: Own elaboration.

CONCLUSIONS

The reactions generated by advertising in the target audience will depend mainly on their perception of the stimulus to which they are exposed (Åkestam et al., 2017). Therefore, this study was governed under the assumption that femvertising plays a determining role in the decrease of psychological reactance and the increase in purchase intention of Mexican female consumers exposed to this advertising since they feel more identified and represented.

Implementing the femvertising strategy in advertising spots aimed at Mexican women increases their purchase intention compared to non-femvertising ads. It is due to a greater identification with the advertisement and how the woman is projected. Findings support the results obtained in previous studies, such as the one conducted by Drake (2017) and Karulkar et al. (2019), in which they identify that femvertising ads positively impact the purchase intention of the female consumers studied.

Regarding the psychological reactance, this decreases with the implementation of the femvertising strategy in the spots aimed at Mexican female consumers, compared to that produced in conventional advertisements (non-femvertising). The results obtained are consistent with the results obtained by Åkestam et al. (2017) and Teng et al. (2021), in which it is demonstrated that femvertising advertisements generate less psychological reactance in consumers than conventional advertising (non-femvertising), in addition to favorable influencing the responses of consumers. It makes sense when we are aware of the evolution of women's roles in society, seeing with more excellent rejection and a lesser degree of identification those advertisements that do not represent such changes.

According to the results obtained, it has been observed that the femvertising advertising strategy positively influences both the psychological reactance and the purchase intention of the participating Mexican female consumers by producing a higher degree of identification and liking in them.

Therefore, how women are represented in advertising plays a fundamental role in consumers purchasing a product or service. For this reason, brands should not only consider the preferences of their target audience but should also adapt to the social and cultural context. Although the results cannot be generalized since it is a convenience sample, they nevertheless point to a close relationship between femvertising and positive consumer decisions.

This study proposes the thirteen femvertising categories and identifies women's empowerment as the fundamental pillar. In addition, it has been observed that although both brands have a high level of popularity among the participants when shown the non-

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femvertising advertisements, neutral and negative opinions predominated, as well as a higher level of dissatisfaction and rejection of the brand and the advertised product.

It shows that it is not enough to be a recognized brand to generate consumer acceptance. It is necessary to communicate naturally, away from stereotypes and traditional roles, implementing strategies based on gender equity and contributing to women's empowerment, thus connecting with them.

Regarding this study's limitations, it was only possible to analyze some of the existing brands and femvertising spots since the emergence of this strategy up to the present, which would allow us to know if the same results are obtained with all the ads. Moreover, convenience sampling was used, so it is not possible to generalize or projections of the results to the entire population. In addition, the study focused only on Mexico and its female consumers, so a comparison with other countries was not conducted. Nevertheless, it would let us know if the same results would be obtained.

In addition, the analysis of the use of femvertising focused only on audiovisual advertising, so it was not possible to know how effective it is in other types of advertising, such as print or audio ads.

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On the other hand, by identifying and recognizing this study's limitations, future research lines emerge that can be addressed in subsequent studies. Among these areas of opportunity is the realization of studies that include other brands and their femvertising advertisements to determine if the same results are obtained as those used in this study. It is also proposed to conduct studies on femvertising in other countries, including those with more chauvinist traditions. It would allow us to know consumers' perceptions and how they respond to this type of advertising. In this sense, another possible future line of research is the implementation of the cultural context as a study variable.

It is intended that this study will contribute to women's struggle and achieve gender equality and equity, not only in the advertising sector but also in the labor, social and educational sectors, as well as in their rights and opportunities.

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Collective Intelligence synergizing into Collective Resilience

Inteligencia Colectiva sinergizando en Resiliencia Colectiva

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ABSTRACT

The essay is based on the premise that the integrity of the person and the group in the business engenders Collective Intelligence and thus synergistically strengthens the collective resilience, understood as the individual's and the company's resilience. Synergistically as shown, is the habit of creative interactively cooperation, so that each element or party increases the effect of the other. It was found that the concept of Collective Intelligence boosted by the integrity of the individual and the team gives meaning and comprehension based on a value structure, which leads to collective resilience, in seeing the world, the life as a phenomenon with meaning as a place to act.

Keywords: Collective Intelligence, Integrity, Resilience, Power.

JEL CODE: M160.



RESUMEN

El ensayo parte de la premisa que la integridad de la persona y del grupo engendra la Inteligencia Colectiva en la empresa y así fortalece sinérgicamente la resiliencia colectiva, entendida como la resiliencia del individuo y de la empresa. Como se muestra, sinérgicamente es el hábito de trabajar creativamente juntos de manera interactiva, de modo que cada elemento o parte realce el efecto del otro. Se encontró que el concepto de inteligencia colectiva, impulsado por la integridad del individuo y del grupo, da orientación y comprensión, basada en una estructura de valores, lo que conduce a una resiliencia colectiva, viendo el mundo, la vida como un fenómeno con sentido, como un lugar para actuar.

Palabras claves: Inteligencia Colectiva, Integridad, Resiliencia, Poder.

Código Jel: M160.

INTRODUCTION

There is awareness that we live in a volatile, uncertain, complex, fast-moving, and vigorous world. Companies are not working in predictable environments. To explore and exploit their markets and market potentials, Collective Intelligence and resilience are becoming increasingly important (Mignenan, 2021; González, 2021; Al-Omouh et al., 2022).

The main products of most companies are commodities, which are replaceable or will be replaceable soon.

That means, that the parameters of the environment of the market of the company's activities and the added value must be more refined and clearly defined, as a guideline by which the company operates. For example, who are the customers, and what do they value? What is the true difference of the company's product compared to its competitors? Suppose there are no possibilities of differentiation in the company's core business. In that case, it should focus on the additional attributes that accompany the business, such as excellent service and processes, qualified and motivated personnel, strong customer relationship management (CRM), innovation and future trends research.

This guideline is the vision and mission statement by which the company exploits and explores its markets and market potential in a competitive world. The mission and vision of a company and its organizational chart are the framework for any action inside and outside the organization. A company's mission declares the purpose of the company and its vision the long-term goals, developed and verified through Collective Intelligence and resilience as a prevention concept for managing any risks and resulting opportunities (Lyons, 2008; Linnenluecke, 2017).

Generally, the people involved are embedded in socio-political, cultural, and economic structures as they are employees and managers, acting according to what is understood as professionalism in management and business administration. However, it is not free of certain opportunistic behavior and naturally impacts on the outcome (Wathne & Heide, 2000; Choi, 2014; Wong, 2021).

The Mission & Vision of a business must be complemented by a local strategy to be resilient. What does the future look like and in which direction is the journey going? What will the world look like in 5-10 years and what is the direction to take to still exist in 5-10 years? Then, it must be examined how to improve the existing business model or business models, to manage the existing ones and on the other hand, how to invent new products and business

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models to still be relevant in 5-10 years? Strategy is a vision of the future, a direction on how to get there and still exist in 10 years. (Osterwalder, 2022)

It is about imagining risk and opportunity, about trial and error. New fundamental ideas are generated bottom-up but must fit the top-down vision. It prepares the business for the current and upcoming challenges and makes the business resilient and its performance immune in vigorous surroundings. Collective Intelligence is needed to develop a vision of the future (Grasso & Convertino, 2012). The strategy and a direction on how to get there are long-term, but ideas and their implementation are short-term, based on a situational vision with a high learning effect.

This essay is based on the premise, that the integrity of the person and the group in the business engenders Collective Intelligence and, thus, synergistically strengthens the collective resilience, understood as the individual and the company's resilience. Furthermore, the integrity of the individual and the team gives meaning and comprehension based on a value structure, which leads to collective resilience, in seeing the world, the life as a phenomenon with meaning as a place to act.

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In this work, we constantly balance between the company and the personal view as people thinking meets group thinking. The idea is to review how the integrity of the person and the group in the business boosts Collective Intelligence resulting in collective resilience. The document base are the lectures of Jordan B. Peterson (2017b) about meaning and personality at Toronto University, the studies of Shalom H. Schwartz about values at the Hebrew University of Jerusalem and the author's professional experience.

To understand the context of this essay, we would like to set the boundaries for the main concepts used, like Collective Intelligence, the integrity of the person and the group and resilience in the dynamic business environment, before trying to be understood, that the integrity of the person and the group in the business engenders the Collective Intelligence and, thus, synergistically (Dictionary, 2023)¹ strengthens individual and business resilience.

Main Part

Objects or situations can be perceived an infinite number of ways (Aguilar, 1999), and each action or event has infinite consequences (Peterson, 2013). It all depends on the context and the goals to be accomplished.

¹ To act synergistically is the habit of creative cooperation interactively so that each element or party increases the effect of the other.

Virtually all organizations are marketing-, engineering- or manufacturing-driven on the micro level, but on the macro level, organizations are either project- or non-project-driven. (Kerzner, 2002)² Project-driven organizations adopt matrix organizational structures; non-project-driven organizations usually adopt line or functional ones.

However, in the context of this work, we are considering any endeavor of a company a project, independently of its nature, project-driven or non-project-driven.

Because of the dynamics of the relationships inside our economized world of management, we will define a project as:

A temporary endeavor with a beginning and an end undertaken in the socio-political and economic surroundings, focused on a well-defined goal, driven by cooperation – coordination- collaboration mechanisms, the complementary actions of its team members.

This definition puts the project context with constraints in the focus instead of the technical definition of a project (Soderlund, 2011; Svejvig, 2014; PMI, 2013).³

These constraints define:

- the perception of meaning,
- the comprehension of the individual based on his or her structure of values,
- the resulting rationality, influenced by emotions and motivations as a surface of thought of the individual for cooperation and coordination,

² The author describes as a non-Project-driven organization (NPDO) manufacturing which requires only low technology. In NPDOs the results are measured on vertical or functional lines. In this type of organization, projects exist merely to support the product or functional lines. Resources are assigned to the revenue-producing functional line activities rather than the projects. In a Project-driven organization (PDO), such as software, construction, or engineering, all work is characterized through projects, each as a separate cost center. PDOs direct most of their work as projects or adopt the project approach, as opposed to the functional approach of most non-Project-driven organizations.

³ In classical project management, a common understanding is that a project has a definite beginning and end, and it is a temporary endeavor to create a unique product, service, or result (PMI, 2013). Given the diversity of applications and schools of project management, there is not one agreed definition of project management (Soderlund, 2011). The Project Management Institute (PMI) defined project management in 2013 as “the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.”

This definition sees a project and its management from a technocratic point of view as a mechanism designed to get to a predefined unique product, service, or result, independent of the context, the world of project management. Per Svejvig and Peter Andersen (2014) submitted a structured review of the rethinking project management (RPM) literature regarding the classification and analysis of 74 contributions. Based on their analysis a total of 6 overarching categories emerged: contextualization, social and political aspects, rethinking practice, complexity and uncertainty, the actuality of projects and broader conceptualization.

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- a guide for action and decision-making. Project management is people business, group thinking meets people thinking, conscientiousness and openness to experience.

We are talking about working in a team when we are talking about projects. The collective application of competencies such as knowledge, skills, tools, norms, rules, values, habitus, purpose, and techniques that organize activities to meet the project requirements. This is a definition of “Collective Intelligence” referring to a group or a team’s combined capacity and capability” not necessarily of the best in class ...”to perform a wide variety of tasks and solve diverse problems.” (Chikersal et al., 2017) It is the concept of the meritocracy of ideas⁴ (Dalio, 2023).

“The primary difference between the individual Intelligence and the Collective Intelligence is the social dimension and the ability of groups to achieve unity of purpose, action and thought. Teams with high levels of Collective Intelligence achieve a state of interdependence and flow when they are working together.” (Chikersal et al., 2017)

Artificial intelligence is not considered here as part of Collective Intelligence. It is an instrument used by the individual and between the team members, but it lacks any social dimension to achieve, for example, unity of purpose. Today, artificial intelligence helps with creativity, with suggestions on how something could be tested, for example, but not yet how to implement it.

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The definition of Collective Intelligence refers to the coordination and effective mobilization of the competencies, needed for example, to define and adjust a company’s strategy, typically top-down by a smaller group incorporating ideas bottom up.

The experienced performances of the coordination and mobilization of the competencies (real experiences, subjective perception, fulfillment of individual requirements) are weighted by the group and the individuals according to their expectations, such as individual levels of expectation, performance promises and information about alternatives. The gap between the individuals’ and business (group) expectations and experienced performance is a measure of the integrity of the individual with the team.

⁴ i.e., a system that brings together intelligent, independent thinkers and has them productively dis-agree to come up with the best possible collective thinking and resolve their disagreements in a believability-weighted way—will outperform any other decision-making system. (Dalio, 2023)

Figure 1
The integrity of the person and the team

The integrity of the person and the team is the result of the comparison between

➤ **the individual's expectations and team levels of expectations**

- based on individual and team level values and vision

➤ **and the experienced performance**

- subjective and at team level as fulfillment of individual and team level requirements
- ➔ Individual satisfaction includes opinions and evaluations
- ➔ Individual satisfaction determines team performance

expectations



performance

Source: Own elaboration

The integrity of the person and the team results from comparing the expectations and the experienced performance at individual and team levels.

Tradition, organizational culture, and code of conduct within a transnational company can lead to tensions and internal conflicts (Steggemann, 2015). However, a complementary point of view, understanding its positive impact on organizational competitiveness, reduces the conflict potential and establishes temporary order because of the contribution power of complementarity.

No order is natural. Order is the result of power. In the end, everything is falling apart. Entropy is the normal condition. Power provokes resistance. Power is not exercised. It is not an essence. It is not a thing. Power is a relationship. There is no such thing as a central power. Power exists in small details.

We exercise power as soon as we act when we seduce, induce, clarify and explain. A relationship without order is chaos, understood here as a search for stability. Power is everywhere. It is structure, it is truth, and it is who and what defines truth. We internalize relations of power within ourselves that allow many external relations to function. (Roderick, 1991)

Power is associated with responsibility and the importance of meaning something for our life is proportional to the responsibility that we assume. (Peterson, 2017b)

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Power has to do with potential. The human being is a potential (Möglichkeit) as he has possibilities on how to shape his life (Gestaltungsmöglichkeiten), as Heidegger (1993) describes it.

Power is, at the same time, authority, and competence. Competence is understood as the personal ability to contribute. Contribution is given to help a person or play a significant part in making something happen (Merriam Webster, 2023). It is goal-directed and implies the power to do so.

Competences include skills, knowledge, and qualifications, but cannot be reduced to them. Knowledge resources and skills are necessary, but more prerequisites are needed. Action or contribution power results from a fundamental attitude of the human being, in which understanding, agreement and meaning converge at a specific place and time.

Power relates to the person's relationships, as he is exercising power as soon as he acts: when he seduces, induces, clarifies, explains and contributes. Thus, contribution power competence (CPC) is understood in the following as:

A leader or group's time and space-limited ability and competence focused on an event to support a particular development purposefully via coordination and cooperation and aimed to the optimal adaptation to the situation.

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Organizational or structure-wise competence is the official competence, authority and line competence, which has nothing to do with ability, but with attribution from others.

The different departments or areas of a company have authority and power as an institution but are not necessarily competent in solving or achieving something. So, the department is receiving psychological support from the assigned authority, underpinning its engagement in valued activities.

It is essential to know when analyzing the collaboration of different people in teams. There is a difference in power regarding the outcome, its influence, its contribution, belonging to a group and individual people. There might be more differences between the people but not within groups: group thinking meets people thinking.

The struggle of what is acceptable or not acceptable is stronger within the people and their belief system, as it affects their integrity, than between people or groups organized by a common inter-est.

Using the same “meaning”, understood as the implementation of norms, methods, processes, and practices, can be a problem in teams or projects, if the integrity of the individual is

affected and if the individual is refusing to cooperate, because as he perceives the world based on his rationality, he is facing chaos. Chaos is “where the world and I do not match”. (Peterson, 2017b)

Rationality is “making decisions based on clear thought and reason” (Cambridge-Dictionary, 2023). So, on the one hand, it is founded on what the human being made up in his mind following a logical way of thinking, and on the other hand, it is created by reasoning on how the human being perceives the world with his senses. Rationality is context-dependent.

Merriam-Webster defines “thinking” as “the action of using one's mind to produce thoughts” and “thought” as the "reasoning power" to conceptualize; “reason” is defined as "a rational ground or motive" or "the power of comprehending, inferring, or thinking, especially in orderly rational ways" or related to intelligence as “the ability to learn or understand or to deal with new or trying situations”. (Merriam Webster, 2023)

Human rationality is nested inside a Meta-physic structure of the human being, developed over millions of years. The old hypothalamic dopaminergic system runs on Serotonin and Dopamine (Kravitz, 2000). Therefore, it is crucial to consider that rationality is primarily based on emotions and motivation, as Jordan Peterson (2017a) explains in his lectures.

Rationality is the surface of thought. Rationality is knowledge and power. Rationality is the competence to guide activity and to perceive the world as a phenomenon with meaning, as a place to act.

Perception is a relationship between a subject and an object of perception: thus, reality is perceived as real (Russels, 2013). However, perception is only possible by situating the mind in a body with certain constraints or goals. A form without a being is without essence, a being without form is formless, non-existent (Küng, 1995).

There is no perception for human beings without goals because there is no filtering mechanism to determine the level of resolution at which they perceive (Peterson, 2017b). We need a set of guidelines or goals to make the connection between perception and the rest of our knowledge to form concepts, to simplify our world (Gibson, 1987)⁵. These goals require a value hierarchy to make decisions.

Human beings do not expect things as much as they desire them. They value the current state less than a chance in the future. Desire is motivation (Peterson, 2013) and it is a motivational

⁵ The world of ecological reality, as we have been trying to describe it, does. If what we perceived were the entities of physics and mathematics, meanings would have to be imposed on them. However, if what we perceive are the entities of environmental science, their meanings can be discovered. (Gibson, 1987)

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system that fundamentally gives rise to the motivation-action-perception scheme (MAP) (Peterson, 2013). Based on our rationality, this desire is the motivating stimulus that forces us to act.

The human being needs a goal to proceed. Having a goal gives motivation, while achieving the goal gives temporary satisfaction.

The goals and objectives are coming from the outside, they are given by other people. Purpose gives a direction. Purpose is not static, it is a process, it is what is giving a meaning. The goal is like having an end. The question of purpose doesn't seem to end like a goal or an objective when it is accomplished. Goals are not important. What is important to know is the distinction between goals and purpose. What is also important to objectively know is the distinction between the outcome of goals and the outcome of purposes. So, there are different elements when talking about purpose. It is not aim, objective nor goal. Why is purpose that important? What is it that gives someone a meaning? Because someone can be completely busy, spending his time, spending his life in a very meaningless way. The human being is a biological organism.

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Life will just happen to him and then he is dying. The question is finding this meaning, this purpose. Having a purpose is important because it gives a new meaning, a new sense of identity, a new sense of self-awareness, it nurtures the human being (Peterson, 2017a).⁶ Moreover, it makes him resilient. As Nietzsche expressed, "If you have your why for life, you can get by with almost any how" (Nietzsche, 1998).

Donya Gilan et al. (2021) state that because of the complexity of crises and upheavals, individuals and societies are called upon to develop collective resilience. It raises the question of protective factors that enable companies to deal flexibly with crises and social upheavals.

Resilience is not only discussed at the individual level as a concept that provides meaningful answers to different challenges and crises but also when it comes to the business immune system.

Resilience and robustness are based on a system having reserves to withstand shocks; however, there is a crucial difference: robustness means that the buffers guarantee complete stability and if the system is exposed to unexpected shocks, it can be non-resilient and collapse. Resilience means that fluctuations are only dampened and then balanced out again;

⁶ "There is a point in the middle, the line between ying and yang, order and chaos, the Daoist say that it is life, that it is existence. Order is the place where you are and what you do to make it work and chaos is when it doesn't work. And no matter where you go order and chaos exist. Your job is to be right on the border of order and chaos." (Peterson, 2017a)

Robustness is static and resilient systems are flexible; constant fluctuations strengthen their powers, just like an immune system. (Brunnermeier, 2021)

Resilience is a relevant prevention concept. By imagining risk and opportunity, as a vision of the future and applying Collective Intelligence, the collective application of competencies, resilience and Collective Intelligence can be supportive to work on a wide variety of questions. It is a system “that brings together smart, independent thinkers and has them productively dis-agree to come up with the best possible collective thinking and resolve their disagreements in a believability-weighted way” (Dalio, 2023).

Resilient systems are dynamic and in combination with the concept of Collective Intelligence, the focus should, therefore, not only be on self-reflexivity and responsiveness but also on structural improvement measures. Resilience needs fluctuation, variation, alternatives, and interchange with others and rests on relationship.

The aim of promoting collective resilience in a business is the development of a culture of learning, exploring, appreciation and dialogue in companies, like Collective Intelligence. A business's most critical competitive advantage is the corporate culture, the way things are done inside and outside the company (Steggemann, 2011). It is about how we are living the company values, combined with our values, to fulfill the Mission and Vision of the company. It is about the company’s purpose, the passion, transparency, honesty, trust, humility, social commitment, and responsibility we take about it, to name just a few.

Taking responsibility is one thing and should not be mistaken for accountability, which is frequently used in traditional hierarchical organizational forms. Accountability is assigned and relates to punishment. It is a condition. In a performance-oriented society, members are rewarded for performance improvements and excellence.

Performance is considered a value; therefore, it is a reason for action and to regulate that action. The performance can be analyzed quantitatively as the number of pieces produced, a physical dimension, or qualitatively as in the social sciences, the behavior, quality, feelings, cooperation, and coordination, among others. In the personality system, in the individual motivational psychological structure, performance is essential as a need for achievement, in the economic system because of production and in the cultural context as a value. (Seibel, 1973)

There are different types of value (Silva, 1998)⁷. Value is the intrinsic meaning of any action; in economics, a value is a utility; a value in politics is power; a value in science is knowledge.

⁷ Value is not the same as values. The author describes it in his little essay "Lo que vale". The author says that values do not exist; only people and valuable things exist. Today the price of things is confused with its value.

Collective Intelligence synergizing into Collective Resilience

In the world of projects, 'value' is a quantitative measure of money and a qualitative measure of the personality system of the members of the organization, customers and stakeholders, among others, that influences the performance of the action and activity of the individual, as well as of the group. It is reflected in its profitability and competitiveness, and it is condensed in the creation of economic value for the company. (Steggemann, 2011)

As described earlier, the individual and group's actions and activity are guided by its rationality. What is considered rational is defined by the perception of what is acceptable or not acceptable in the individual's world. This reasoning and thoughts are based on subconscious values and their corresponding beliefs - perceptible as attitudes - of the individual when relating to the social world. Attitudes are subject to framing effects. They are context-dependent concepts. (Sherman, 1999)

According to the research of Schwartz (2016), fundamental values share several characteristics, and each is a belief about the importance of a desirable goal and functions as criteria for judging whether people, behaviors, events, policies, or other objects are good or bad (Bardi & Schwartz, 2003).⁸

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The motivation or the goal is what makes the difference. Values are ordered by importance relative to one another. The hierarchy of values in the person is transformed according to the circumstances. Heidegger is talking in this context about individuals living authentic and unauthentic lives. Merriam-Webster defines authentic as "not false or imitation" or "true to one's personality, spirit, or character" (Merriam Webster, 2023), one's identity. Someone who lives an authentic life makes decisions according to his self, unlike someone who relies on the "it is said", who bases his life on what is already "created" and stays with what is already "established" —all of us, in our own lives, like to lose ourselves in the great masses. At best, we go to a concert or a soccer game and there we scream like everyone else and we do not know why. Where we cannot do this is in our professional life.

⁸ Schwarz S. H. summarized the main conceptions of the fundamental values as follows:

1. Values are beliefs and cognitive structures that are closely linked to affect.
2. Values refer to desirable goals. For example, social equality, fairness and helpfulness are all values.
3. Values transcend specific actions and situations. Obedience and honesty, for example, may be relevant with family, friends, or strangers at work or in school, in sports, business, and politics.
4. Values serve as standards or criteria. Values guide selecting or evaluating actions, policies, people, and events.
5. Values are ordered by importance relative to one another. The ordered set of values forms a system of value priorities.
6. The relative importance of the set of relevant values guides action. Any attitude or behavior typically has implications for multiple values.

The findings of value, research done by Bardi and Schwartz (2003), "can be interpreted as an indication that values motivate behavior, but that normative pressures partly obscure the relation between values and behaviors." (Bardi & Schwartz, 2003) Therefore, to ensure the integrity of the individual and the group, what needs to be reflected, for example, according to the research of the investigators, is:

- What are shared values and priority values?
- What determines the nature of these values?
- Do values have the same or similar meanings among the different groups of persons?
- Can we identify a comprehensive set of values?
- Does a value structure exist?
- What is accountability as the group members see it?
- Why are values collapsing, and which ones are?
- Etc.

It allows the individual to act by his values at different levels. It generates integrity, a comprehension based on the individual's value structure. It is about how the individuals are living the company values, combined with their values and vision, to fulfill the Mission and Vision of the company. It creates meaning to be situated at the right place at the right time, turning truth into being; it builds identity, integrity and resilience of the individual with the company's values; it unifies the team members to achieve the vision of the company. Group thinking meets people thinking.

CONCLUSION

The postulated premise in the introduction is coherent as laid out. The concept of Collective Intelligence, boosted by the integrity of the individual and the team with its contribution power competence, gives meaning and comprehension based on a value structure resulting in collective resilience, in seeing the world, the life as a phenomenon with meaning, as a place to act. The meaning of our life, of our actions, working in teams and projects, is proportional to the responsibility we take. It is a synergy generated between the individual and the company's resilience, a habit of creative cooperation interactively so that each element or party increases the effect of the other.

We propose to deepen the concept of the integrity of the person and the team as described here to review if the lack of integrity disturbs the Collective Intelligence and, thus, weakens the collective resilience, the individual's and the company's resilience.

Collective Intelligence synergizing into Collective Resilience

Furthermore, it would be interesting to know how artificial intelligence, not considered here as part of the Collective Intelligence, as it lacks any social dimension to achieve, for example, unity of purpose, affects the integrity of the person and the team.

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FINANCIAL AND ECONOMIC INDICATORS

Equilibrium prices of the titles:

Sharpe and the Securities Valuation Model (CAPM)

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The Capital Asset Pricing Model (CAPM) is a model used to calculate the profitability that an investor must demand when making an investment in a financial asset, depending on the risk he is assuming.

Asset valuation models did not exist until before the publications of the capital asset valuation model (CAPM) by William Sharpe (1963) and John Lintner (1965). These models embodied the first principles about the nature of tastes and investment opportunities as well as clear and testable predictions of risk and return.

William Sharpe was born in 1934 in Massachusetts, studied at the University of California at Los Angeles UCLA, worked as a researcher at the RAND Corporation, was a professor at the University of Washington (Seattle), (1961-1968), at the University of California at Irvine and professor at Stanford University (since 1970).

Sharpe was awarded the Nobel Prize in Economics in 1990, shared with Harry M. Markowitz and Merton M. Miller for their pioneering work in the theory of financial economics.

Harry Markowitz and William F. Sharpe developed the Capital Asset Valuation Model (CAPM), the model is based on the proposition that any required rate of return on a stock is equal to the risk-free rate plus a risk premium, where this reflects diversification.

Initially, estimating profits through Markowitz's theory of Portfolio Selection was impractical since estimating the benefits of diversification required calculating the covariance of returns between each pair of securities. William F. Sharpe initiated the study of the valuation of securities in 1960, for this, he worked with Markowitz on portfolio analysis based on a simplified model of the relationships between securities. This analysis at Markowitz's suggestion was called by Sharp the "single index model", now known as the



Equilibrium prices of the titles: Sharpe and the Securities Valuation Model (CAPM)

"one-factor model". The basic assumption of this model is that security returns are related only by their responses to a common factor. Sharpe published in the article called (A simplified model for portfolio analysis, 1963), the normative results.

In 1968, Eugene Fama, when referring to the models of Sharpe and Lintner, used the terms "capital asset pricing models", and in 1970 the first references to the acronym, CAPM, were made.

Sharpe mentions that the CAPM is constructed using an approach that is familiar to a microeconomist. First, the maximization behavior is adopted, and then, the conditions under which the market equilibrates are investigated. In 1965, Jack Treynor in his article (How to rate management of investment funds); and, in 1965, Linter in his article (Security prices, risk, and maximal gains from diversification) came to similar conclusions. In 1966, Jan Mossin published (Equilibrium in a Capital Asset Market) a version that also reaches the same relationship with a more general mode.

The proposal of Jack Treynor (1965) proposes that the evaluation of past performance is performed with a coefficient using as a measure of portfolio risk, the indicator is then designated as "beta coefficient".

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Beta is the key element of CAMP. The Beta coefficient is the key element of the CAMP, it is a measure of the market risk of the stock and the degree to which the returns of a given stock move with the stock market.

Economic and financial indicators are useful tools that benefit organizations by facilitating timely and appropriate decision-making in relation to their corporate and financial strategies.

Next, the evolution of some economic and financial indicators of the Mexican environment is described and shown to facilitate decision-making related to personal and business strategies in an integral manner.

1. National Consumer Price Index (INPC, Spanish)
2. The Price and Quotation Index of the Mexican Stock Exchange (IPC, Spanish)
3. Exchange rate
4. Equilibrium interbank interest rate (TIIE, Spanish)
5. CETES rate of return
6. Investment units (UDIS, Spanish)

1. NATIONAL CONSUMER PRICE INDEX (INPC)

Born in 1995 and reflecting changes in consumer prices, measures the general increase in prices in the country. It is calculated fortnightly by the Bank of Mexico and INEGI (2021). INPC is published in the Official Gazette of the Federation on the 10th and 25th of each month. The reference period is the second half of December 2010.

Table 1
Accumulated inflation in the year (Base: 2nd. Fortnight of December 2010 = 100 with data provided by *Banco de México*)

Periodo	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Enero	1.48	0.77	0.98	0.79	0.90	-0.09	0.38	1.70	0.53	0.09	0.48	0.86	0.59	0.76
Febrero	2.15	1.42	1.47	1.46	1.15	0.09	0.82	2.29	0.91	0.06	0.90	1.50	1.43	1.24
Marzo	2.52	1.84	1.55	1.99	1.43	0.51	0.97	2.92	1.24	0.44	0.85	2.34	2.43	1.51
Abril	1.98	0.72	0.69	1.81	1.24	0.25	0.65	3.04	0.90	0.50	-0.17	2.67	2.98	1.47
Mayo	0.60	-0.70	-0.65	0.95	0.91	-0.26	0.20	2.92	0.73	0.21	0.22	2.88	3.17	
Junio	0.49	-0.41	-0.41	1.12	1.09	-0.09	0.31	3.18	1.12	0.27	0.76	3.43	4.04	
Julio	0.56	-0.04	0.32	1.14	1.42	0.06	0.57	3.57	1.66	0.65	1.43	4.04	4.81	
Agosto	0.91	0.30	0.92	1.31	1.73	0.27	0.86	4.08	2.26	0.63	1.82	4.24	5.54	
Septiembre	1.27	0.73	1.12	1.61	2.18	0.27	1.47	4.41	2.69	0.89	2.06	4.88	6.19	
Octubre	2.35	2.33	2.12	2.77	2.74	1.16	2.09	5.06	3.22	1.44	2.68	5.76	6.79	
Noviembre	3.89	4.87	3.86	4.57	3.57	1.71	2.89	6.15	4.10	2.26	2.76	6.97	7.41	
Diciembre	4.19	5.81	3.97	5.21	4.08	2.13	3.36	6.77	4.83	2.83	3.15	7.35	7.82	

Source: Own elaboration (INEGI, 2023). Route: Indicadores económicos de coyuntura > Índices de precios > Índice nacional de precios al consumidor. Base segunda quincena de julio de 2018=100 > Mensual > Índice > Índice general

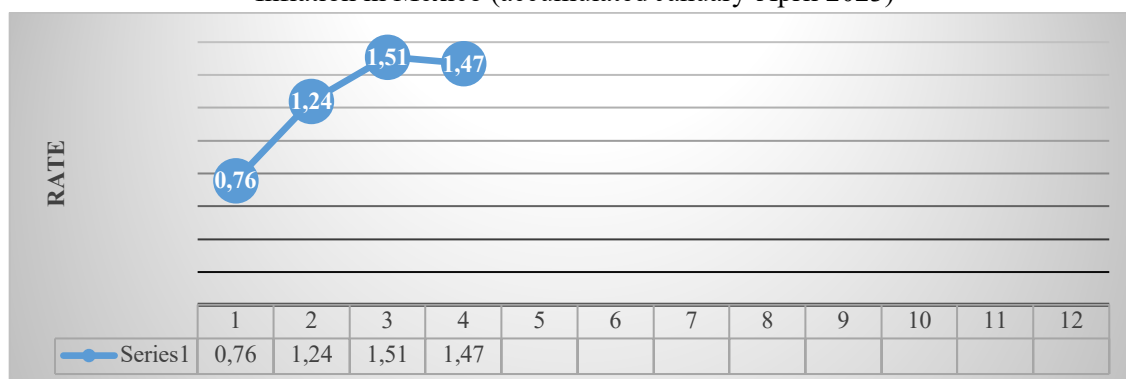
Graph 1.
Inflation in Mexico (2010-2022 accumulated at the end of the year)



Source: Own elaboration (INEGI, 2023). Route: Indicadores económicos de coyuntura > Índices de precios > Índice nacional de precios al consumidor. Base segunda quincena de julio de 2018=100 > Mensual > Índice > Índice general

Equilibrium prices of the titles: Sharpe and the Securities Valuation Model (CAPM)

Graph 2
Inflation in Mexico (accumulated January-April 2023)



Source: Own elaboration (INEGI, 2023). Route: Indicadores económicos de coyuntura > Índices de precios > Índice nacional de precios al consumidor. Base segunda quincena de julio de 2018=100 > Mensual > Índice > Índice general

2. THE PRICE AND QUOTATION INDEX OF THE MEXICAN STOCK EXCHANGE (IPC)

Represents the change in the values traded on the Mexican Stock Exchange concerning the previous day to determine the percentage of rising or fall of the most representative shares of the companies listed therein.

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Table 2

The Price and Quotation Index of the Mexican Stock Exchange (Base: October 1978, 0.78=100)

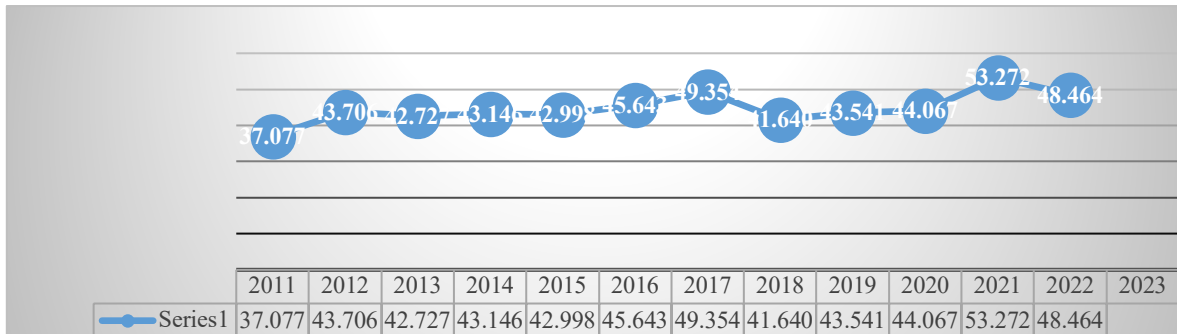
2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
36,982	37,422	45,278	40,879	40,951	43,631	47,001	50,456	43,988	44,862	42,986	51,331	54,564
37,020	37,816	44,121	38,783	44,190	43,715	46,857	47,438	42,824	41,324	44,593	53,401	52,758
37,441	39,521	44,077	40,462	43,725	45,881	48,542	46,125	43,281	34,554	47,246	56,537	53,904
36,963	39,461	42,263	40,712	44,582	45,785	49,261	48,354	44,597	36,470	48,010	51,418	55,121
35,833	37,872	41,588	41,363	44,704	45,459	48,788	44,663	42,749	36,122	50,886	51,753	
36,558	40,199	40,623	42,737	45,054	45,966	49,857	47,663	43,161	37,716	50,290	47,524	
35,999	40,704	40,838	43,818	44,753	46,661	51,012	49,698	40,863	37,020	50,868	48,144	
35,721	39,422	39,492	45,628	43,722	47,541	51,210	49,548	42,623	36,841	53,305	44,919	
33,503	40,867	40,185	44,986	42,633	47,246	50,346	49,504	43,011	37,459	51,386	44,627	
36,160	41,620	41,039	45,028	44,543	48,009	48,626	43,943	43,337	36,988	51,310	49,922	
36,829	41,834	42,499	44,190	43,419	45,286	47,092	41,733	42,820	41,779	49,699	51,685	
37,077	43,706	42,727	43,146	42,998	45,643	49,354	41,640	43,541	44,067	53,272	48,464	

Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=7&accion=consultarCuadro&idCuadro=CF57&locale=es>

Graph 3

The Price and Quotation Index of the Mexican Stock Exchange, 2011 - 2022 (Score at the end of each year)

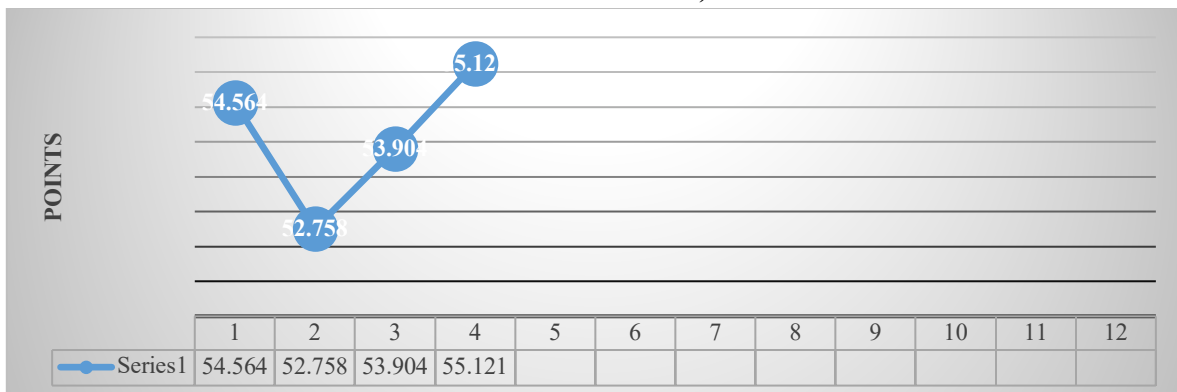


Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=7&accion=consultarCuadro&idCuadro=CF57&locale=es>

Graph 4

The Price and Quotation Index of the Mexican Stock Exchange, January-April 2023 (Score at the end of each month)



Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=7&accion=consultarCuadro&idCuadro=CF57&locale=es>

3. EXCHANGE RATE

It is the value of the Mexican peso with respect to the dollar calculated with the daily average of the five most important banks in the country, which reflects the spot price (cash), negotiated between banks. It is highly related to Inflation, the interest rate, and the Mexican Stock Exchange.

Equilibrium prices of the titles: Sharpe and the Securities Valuation Model (CAPM)

Table 3

Exchange rate (National currency per US dollar, parity at the end of each period)

Periodo	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Enero	12.02	12.95	12.71	13.37	14.69	18.45	21.02	18.62	19.04	18.91	20.22	20.74	18.79
Febrero	12.17	12.87	12.87	13.30	14.92	18.17	19.83	18.65	19.26	19.78	20.94	20.65	18.34
Marzo	11.97	12.80	12.36	13.08	15.15	17.40	18.81	18.33	19.38	23.48	20.44	19.99	18.04
Abril	11.59	13.20	12.16	13.14	15.22	19.40	19.11	18.86	19.01	23.93	20.18	20.57	18.00
Mayo	11.63	13.91	12.63	12.87	15.36	18.45	18.51	19.75	19.64	22.18	19.92	19.69	
Junio	11.84	13.66	13.19	13.03	15.57	18.91	17.90	20.06	19.21	23.09	19.91	20.13	
Julio	11.65	13.28	12.73	13.06	16.21	18.86	17.69	18.55	19.99	22.20	19.85	20.34	
Agosto	12.41	13.27	13.25	13.08	16.89	18.58	17.88	19.07	20.07	21.89	20.06	20.09	
Septiembre	13.42	12.92	13.01	13.45	17.01	19.50	18.13	18.90	19.68	22.14	20.56	20.09	
Octubre	13.20	13.09	12.89	13.42	16.45	18.84	19.15	19.80	19.16	21.25	20.53	19.82	
Noviembre	14.03	13.04	13.09	13.72	16.55	20.55	18.58	20.41	19.61	20.14	21.45	19.40	
Diciembre	13.99	13.01	13.08	14.72	17.21	20.73	19.79	19.68	18.87	19.91	20.47	19.47	

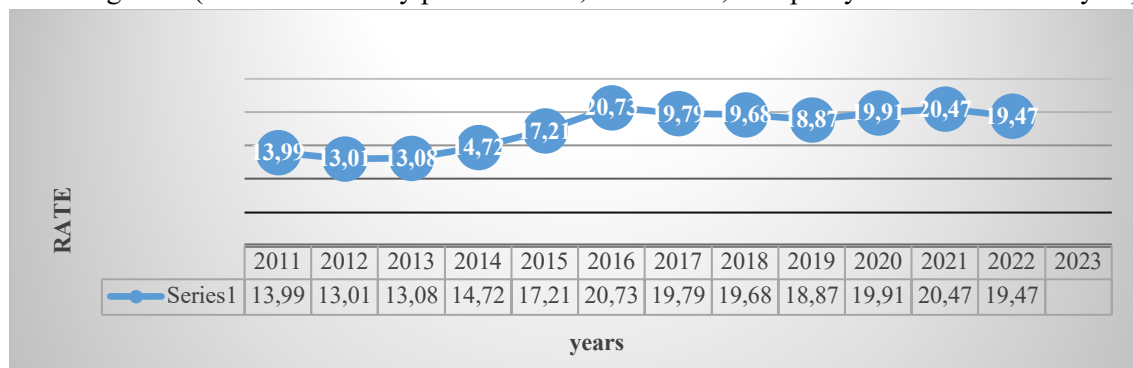
NOTE: Exchange rate FIX by The Banco de México, used for settle obligations denominated in foreign currency. Quote at the end

Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=6&accion=consultarCuadro&idCuadro=CF102&locale=es>

Graph 5

Exchange rate (National currency per US dollar, 2011-2022, FIX parity at the end of each year)

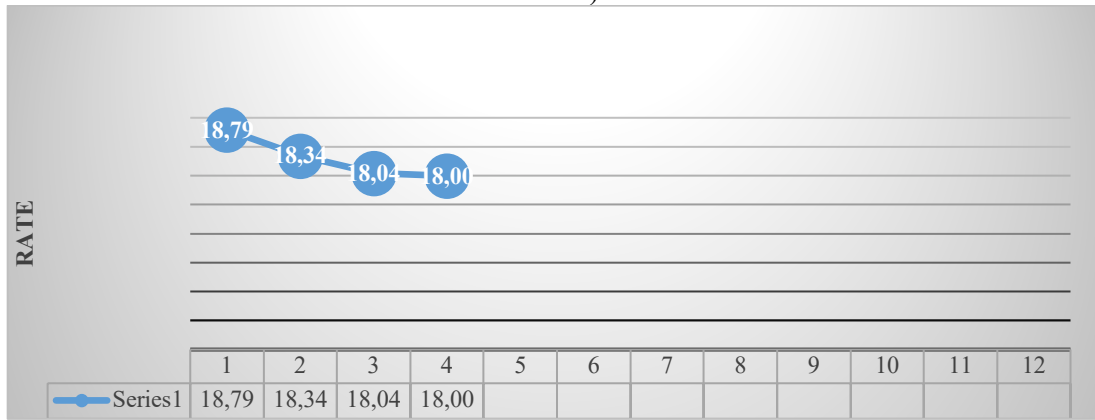


Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=6&accion=consultarCuadro&idCuadro=CF102&locale=es>

Graph 6

Exchange rate (National currency per US dollar, January-April 2023, FIX parity at the end of each month)



Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=6&accion=consultarCuadro&idCuadro=CF102&locale=es>

1. EQUILIBRIUM INTERBANK INTEREST RATE (TIE)

On March 23, 1995, the Bank of Mexico, to establish an interbank interest rate that better reflects market conditions, released the Interbank Equilibrium Interest Rate through the Official Gazette of the Federation.

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Table 4
Equilibrium interbank interest rate (28-day quote)

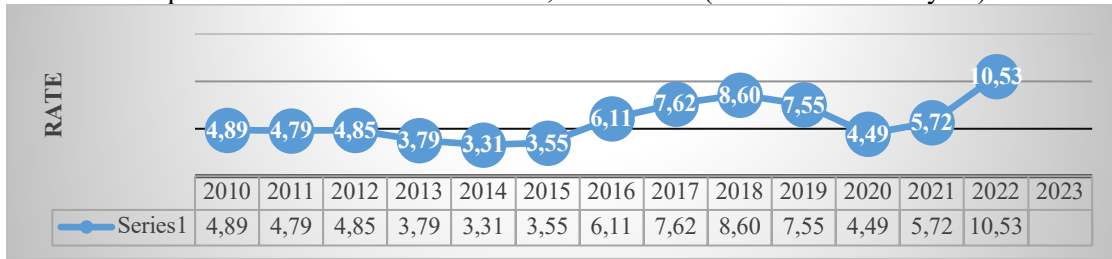
Periodo	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Enero	4.91	4.86	4.79	4.84	3.78	3.29	3.56	6.15	7.66	8.59	7.50	4.47	5.72	10.78
Febrero	4.92	4.84	4.78	4.80	3.79	3.29	4.05	6.61	7.83	8.54	7.29	4.36	6.02	11.10
Marzo	4.92	4.84	4.77	4.35	3.81	3.30	4.07	6.68	7.85	8.51	6.74	4.28	6.33	11.34
Abril	4.94	4.85	4.75	4.33	3.80	3.30	4.07	6.89	7.85	8.50	6.25	4.28	6.73	11.53
Mayo	4.94	4.85	4.76	4.30	3.79	3.30	4.10	7.15	7.86	8.51	5.74	4.29	7.01	
Junio	4.94	4.85	4.77	4.31	3.31	3.30	4.11	7.36	8.10	8.49	5.28	4.32	7.42	
Julio	4.92	4.82	4.78	4.32	3.31	3.31	4.59	7.38	8.11	8.47	5.19	4.52	8.04	
Agosto	4.90	4.81	4.79	4.30	3.30	3.33	4.60	7.38	8.10	8.26	4.76	4.65	8.50	
Septiembre	4.90	4.78	4.81	4.03	3.29	3.33	4.67	7.38	8.12	8.04	4.55	4.75	8.89	
Octubre	4.87	4.79	4.83	3.78	3.28	3.30	5.11	7.38	8.15	7.97	4.51	4.98	9.56	
Noviembre	4.87	4.80	4.85	3.80	3.31	3.32	5.57	7.39	8.34	7.78	4.48	5.13	10.00	
Diciembre	4.89	4.79	4.85	3.79	3.31	3.55	6.11	7.62	8.60	7.55	4.49	5.72	10.53	

Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=18&accion=consultarCuadro&idCuadro=CF101&locale=es>

**Equilibrium prices of the titles:
Sharpe and the Securities Valuation Model (CAPM)**

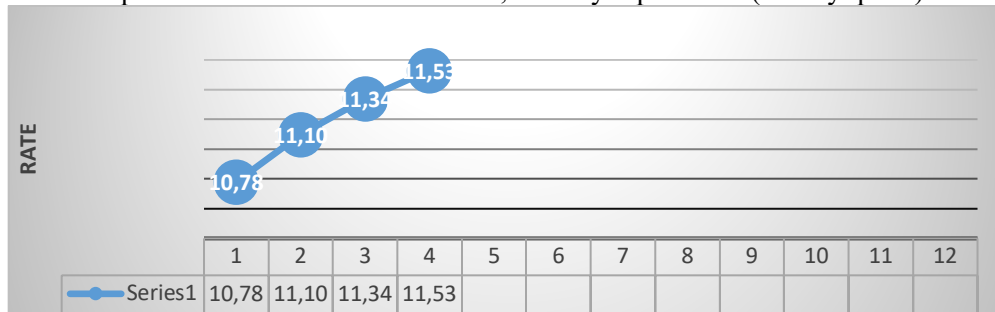
Graph 7
Equilibrium interbank interest rate, 2010- 2022 (at the end of each year)



Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=18&accion=consultarCuadro&idCuadro=CF101&locale=es>

Graph 8
Equilibrium interbank interest rate, January-April 2023 (28-day quote)



Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=18&accion=consultarCuadro&idCuadro=CF101&locale=es>

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5. CETES RATE OF RETURN

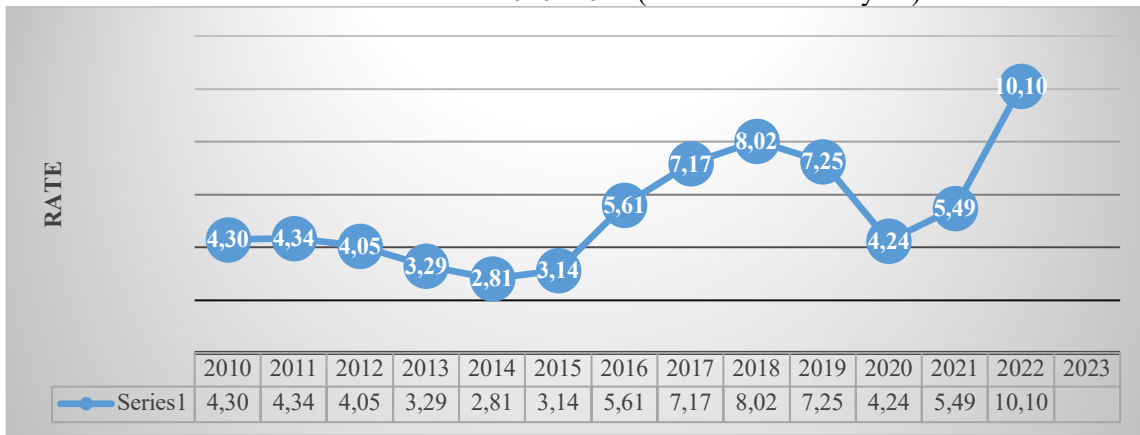
Table 5
CETES rate of return (28-day)

Periodo	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Enero	4.49	4.14	4.27	4.15	3.14	2.67	3.08	5.83	7.25	7.95	7.04	4.22	5.50	10.80
Febrero	4.49	4.04	4.32	4.19	3.16	2.81	3.36	6.06	7.40	7.93	6.91	4.02	5.94	11.04
Marzo	4.45	4.27	4.24	3.98	3.17	3.04	3.80	6.32	7.47	8.02	6.59	4.08	6.52	11.34
Abril	4.44	4.28	4.29	3.82	3.23	2.97	3.74	6.50	7.46	7.78	5.84	4.06	6.68	11.27
Mayo	4.52	4.31	4.39	3.72	3.28	2.98	3.81	6.56	7.51	8.07	5.38	4.07	6.90	
Junio	4.59	4.37	4.34	3.78	3.02	2.96	3.81	6.82	7.64	8.18	4.85	4.03	7.56	
Julio	4.60	4.14	4.15	3.85	2.83	2.99	4.21	6.99	7.73	8.15	4.63	4.35	8.05	
Agosto	4.52	4.05	4.13	3.84	2.77	3.04	4.24	6.94	7.73	7.87	4.50	4.49	8.35	
Sep.	4.43	4.23	4.17	3.64	2.83	3.10	4.28	6.99	7.69	7.61	4.25	4.69	9.25	
Oct.	4.03	4.36	4.21	3.39	2.90	3.02	4.69	7.03	7.69	7.62	4.22	4.93	9.00	
Nov.	3.97	4.35	4.23	3.39	2.85	3.02	5.15	7.02	7.83	7.46	4.28	5.05	9.70	
Dic.	4.30	4.34	4.05	3.29	2.81	3.14	5.61	7.17	8.02	7.25	4.24	5.49	10.10	

Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=22&accion=consultarCuadro&idCuadro=CF107&locale=es>

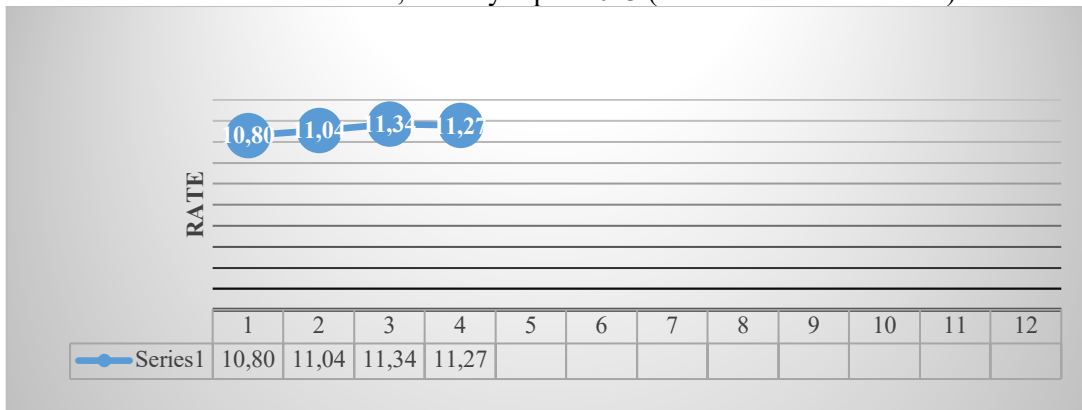
Graph 9
 CETES rate of return 2010- 2022 (at the end of each year)



Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=22&accion=consultarCuadro&idCuadro=CF107&locale=es>

Graph 10
 CETES rate of return, January-April 2023 (at the end of each month)



Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?sector=22&accion=consultarCuadro&idCuadro=CF107&locale=es>

Equilibrium prices of the titles: Sharpe and the Securities Valuation Model (CAPM)

6. INVESTMENT UNITS (UDIS)

The UDI is a unit of account of constant real value to denominate credit titles. It does not apply to checks, commercial contracts, or other acts of commerce.

Table 6

Investment units (value concerning pesos)

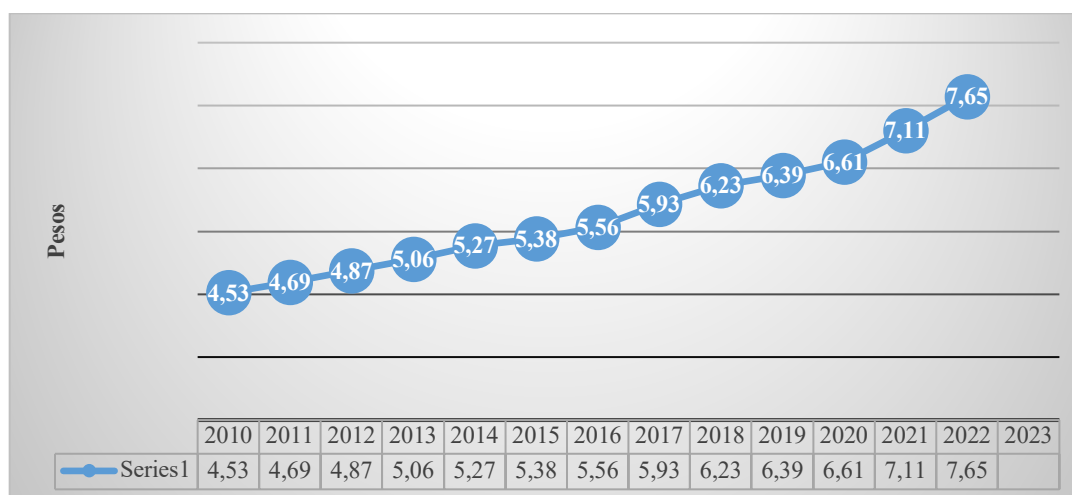
Periodo	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Enero	4.37	4.56	4.73	4.89	5.10	5.29	5.41	5.62	5.97	6.25	6.44	6.64	7.12	7.69
Febrero	4.41	4.57	4.75	4.92	5.13	5.29	5.43	5.69	6.00	6.25	6.46	6.70	7.18	7.74
Marzo	4.44	4.59	4.75	4.94	5.15	5.30	5.44	5.71	6.02	6.26	6.49	6.75	7.24	7.77
Abril	4.46	4.59	4.75	4.97	5.15	5.32	5.45	5.75	6.03	6.28	6.43	6.79	7.31	7.78
Mayo	4.43	4.58	4.71	4.96	5.13	5.29	5.42	5.75	6.01	6.27	6.42	6.81	7.33	
Junio	4.41	4.55	4.74	4.95	5.13	5.28	5.42	5.75	6.01	6.26	6.44	6.83	7.36	
Julio	4.42	4.57	4.77	4.95	5.14	5.28	5.42	5.76	6.04	6.27	6.49	6.87	7.43	
Agosto	4.43	4.58	4.78	4.95	5.16	5.29	5.44	5.79	6.07	6.29	6.52	6.90	7.47	
Septiembre	4.44	4.59	4.80	4.97	5.18	5.31	5.45	5.82	6.11	6.29	6.55	6.92	7.53	
Octubre	4.47	4.61	4.83	4.99	5.20	5.33	5.49	5.84	6.13	6.31	6.57	6.97	7.57	
Noviembre	4.50	4.64	4.85	5.02	5.23	5.36	5.53	5.89	6.17	6.35	6.60	7.04	7.62	
Diciembre	4.53	4.69	4.87	5.06	5.27	5.38	5.56	5.93	6.23	6.39	6.61	7.11	7.65	

Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?accion=consultarCuadro&idCuadro=CP150&locale=es>

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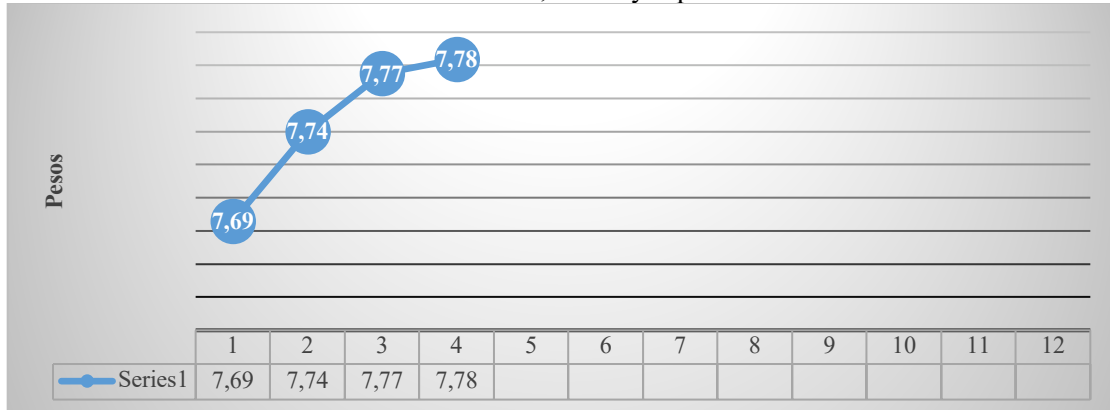
Graph 11
Investment units 2010-2022 (At the end of the year)



Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?accion=consultarCuadro&idCuadro=CP150&locale=es>

Graph 12
Investment units, January-April 2023



Source: Own elaboration (BANXICO, 2023).

<https://www.banxico.org.mx/SieInternet/consultarDirectorioInternetAction.do?accion=consultarCuadro&idCuadro=CP150&locale=es>

At the 2004 symposium marking the fortieth anniversary of Sharpe's paper, Fortieth Anniversary of CAPM, André Perold notes that CAPM revolutionized modern finance, providing the first coherent framework for relating an investment's return and risk. Its diffusion is widespread, and it is a basic piece for the teaching of finance.

Six decades later, the CAPM is still widely used in estimating the cost of equity capital to firms and evaluating the performance of managed portfolios. The appeal of CAPM is its logic and simple predictions about how to measure risk and about the relationship between expected return and risk.

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Sharpe and the Securities Valuation Model (CAPM)**

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