

## Financial Literacy and Financial Well-Being Among Businesspersons from Victoria, Tamaulipas, Mexico

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### Abstract

This study aims to analyze the relationship between financial literacy and financial well-being among businesspersons in Ciudad Victoria, Tamaulipas, México. The applied methodology includes confirmatory factor analysis and multiple linear regression models. Our results indicate that financial literacy is related to financial well-being directly through its financial behavior component and inversely through financial attitude. Moreover, financial knowledge was not significantly associated with it. Hence, we propose the following recommendations for businesspeople and entrepreneurs: becoming more involved in healthy financial inclusion and financial literacy practices and inspiring their transition from models focused solely on profits to others considering their self-realization and satisfaction. Its main limitations and implications are the scarcity of data to perform an analysis by industry, its geographical outreach, and its public policy repercussions. Its originality lies in analyzing financial well-being among businesspeople, a topic rarely studied in Mexico. Our conclusions impact the implementation of the financial inclusion policy in Mexico and, therefore, contribute to achieving the Sustainable Development Goals.

*JEL Classification: D14, G40, G53, I31, M14, O17.*

*Keywords: financial literacy, financial well-being, financial knowledge, financial behavior, businesspersons.*

## Alfabetismo financiero y bienestar financiero entre empresarios de Victoria, Tamaulipas, México

### Resumen

El objetivo de esta investigación es analizar la relación entre el alfabetismo financiero y el bienestar financiero de los empresarios de Ciudad Victoria, Tamaulipas, México. La metodología aplicada incluye análisis factorial confirmatorio y modelos de regresión lineal múltiple. Los resultados indican que el alfabetismo financiero se relaciona con el bienestar financiero de manera directa a través del componente de comportamiento financiero y de forma inversa mediante la actitud financiera. Además, el conocimiento financiero no resultó significativamente asociado a este. Consecuentemente, se proponen las siguientes recomendaciones para empresarios: involucrarse más en prácticas saludables de inclusión y alfabetización financieras y transitar de modelos enfocados solamente en las ganancias a otros que consideren su autorrealización y satisfacción. Sus principales limitaciones e implicaciones son la falta de datos para un análisis por rama económica y su alcance geográfico, así como sus repercusiones en política pública. Su originalidad radica en el análisis del bienestar financiero entre empresarios. Las conclusiones de este trabajo tienen impacto en la instrumentación de la política de inclusión financiera en México y, por ende, en los Objetivos de Desarrollo Sostenible.

*Clasificación JEL: D14, G40, G53, I31, M14, O17.*

*Palabras clave: alfabetismo financiero, bienestar financiero, conocimiento financiero, comportamiento financiero, empresarios.*

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\* No source of funding for research development



## 1. Introduction

Financial well-being is the state in which people can satisfactorily fulfill their financial obligations, feel secure about their future, and make decisions that allow them to enjoy life (Consumer Financial Protection Bureau, CFPB, 2017a). In the case of businesspersons and entrepreneurs, financial well-being acquires greater importance because it is linked to their performance as economic agents and, at the same time, to their self-realization and satisfaction. Business owners who hire others or work on their account are responsible for leading their businesses successfully while achieving well-being for themselves and their families.

Traditionally, business success has been measured using profits and liquidity to meet short-term commitments or effectiveness, efficiency, and productivity (Ramírez, 2020; Vergiú and Bendezú, 2007). In this sense, financial literacy is seen as a mechanism that favors business success. It refers to how people improve their knowledge about financial products and risk management while developing skills to make effective financial decisions that enhance their financial well-being (OECD, 2005). In other words, better financially prepared businesspeople and entrepreneurs can achieve higher levels of well-being, contribute to economic activity, and improve the social development of people and institutions around them.

Studying the financial well-being of businesspersons and entrepreneurs is essential because of the impact that their productive activities have on themselves, their families, their customers, employees, and suppliers, and, in general, on society. Understanding its causes and consequences is helpful for several reasons. First, this understanding can motivate them to grow their businesses (Wiklund et al., 2019). Second, it can help them improve organizational climate and, therefore, the productivity of workers (Brüggen et al., 2017). Third, it is helpful to target with more precision government programs in favor of business (Brüggen et al., 2017). Furthermore, it is related to reducing dependence on welfare programs for both workers and employers (Sacks et al., 2012).

Therefore, this paper aims to analyze the relationship between financial literacy and the financial well-being of businesspersons in Ciudad Victoria, Tamaulipas. In this sense, our unit of study refers to individuals with business activity and business owners who carry out operations in this city. We seek to answer the question, what is the relationship between financial literacy and the financial well-being of businesspersons in Ciudad Victoria, Tamaulipas?

To accomplish this objective, we followed a quantitative methodological design based on data collected through convenience sampling. These data are analyzed, first, with confirmatory factor analysis to estimate the level of financial well-being. Then, financial literacy is assessed by measuring the levels of its components: financial knowledge, financial attitude, and financial behavior. Subsequently, the relationship between these variables is analyzed with a multiple linear regression model employing ordinary least squares.

This article is structured as follows. First, we present the background of financial well-being and the theoretical framework that supports this research. Next, the methodological design is described, detailing the data collection process and the conformation of variables and constructs. Later, the results are discussed and analyzed. Finally, we conclude by describing the study's limitations and recommendations for future lines of research.

## 2. State of the art

### 2.1 Financial well-being

Financial well-being refers to how happy people are with their finances. According to Brügger et al. (2017, p. 229), it is the "perception of being able to sustain current and anticipated desired living standards and financial freedom". It is a broad and multidimensional term comprising objective measures of a person's financial situation, satisfaction, behavior, and perception (Joo, 2008).

The financial well-being of businesspersons and entrepreneurs is a multidimensional construct in which two types of drivers interact: on the one hand, the subjective reasons that make entrepreneurs happy as a consequence of carrying out their activities; on the other hand, the objective evidence of their material progress, physical health, and social well-being (Wiklund et al., 2019).

According to the Consumer Protection Financial Bureau, CPFB (2017b), financial well-being is defined by four elements: (a) control over daily finances, (b) ability to absorb financial shocks, (c) financial freedom to make decisions that allow individuals to enjoy life, and (d) fulfillment of financial goals. These elements accurately describe some of the strategies followed by those who carry out business activities since, for entrepreneurs, (a) implementing an accurate control of their financial flow is necessary to have liquidity, (b) having the financial capacity to face a contingency enhances confidence to continue with their activities, (c) being able to spend on themselves generates a sense of fulfillment, and (d) having a financial plan allows them to monitor their performance on the way to reach their goals.

Furthermore, financial well-being has been presented as a valuable indicator for monitoring progress toward achieving several Sustainable Development Goals (SDGs): SDG-1 ending poverty, SDG-3 ensuring healthy lifestyles and promoting well-being, SDG-10 reducing inequality within and among countries, and SDG-16 promoting just, peaceful, and inclusive societies (Fu, 2020).

Measuring financial well-being has been challenging (Wiklund et al., 2019). Interest in this topic has increased because well-being has been presented as a new measure that offers information on the satisfaction and condition in which people live (Kaur et al., 2021). It has been measured mainly in recent decades using subjective indicators (Brügger et al., 2017; Cárdenas et al., 2020; Joo, 2008; Prawitz et al., 2006; Wiklund et al., 2019).

One of the first studies introducing an instrument for measuring financial well-being was designed by Prawitz et al. (2006). They seek to measure the level of stress and well-being caused by a person's financial situation by defining an eight-item scale that fluctuates between financial distress and financial well-being. In the present research, we employ this subjective approach designed by Prawitz et al. (2006).

To capture an overview of what is happening in Latin America in terms of financial well-being, the Andean Development Corporation of the Development Bank of Latin America conducted a study to measure financial well-being in Chile, Colombia, Bolivia, Peru, Ecuador, Paraguay, and Argentina using a survey with the questions designed by the CPFB (Cárdenas et al., 2020). These include control over day-to-day finances, the ability to absorb financial shocks, the freedom to make life-enjoyable decisions, and fulfilling financial goals. Argentina showed the lowest financial well-being score of the

seven countries, with 55 points on a scale of 0 to 100, and the highest were Chile and Colombia, with 66 and 63, respectively.

In Mexico, financial well-being has been studied in recent years in specific groups other than business groups. For example, Mejía Córdova (2017) analyzed the relationship of financial well-being with stress among 183 workers of Petróleos Mexicanos in southeastern Mexico. Another case is that of Vallejo-Trujillo and Martínez-Rangel (2016), who analyzed data from university students and workers to demonstrate that financial well-being is a consequence of financial education. They found that 6% have a low level of financial well-being, 44% a high level, and 50% a moderate level. They confirmed that people in this study showed constant stress, generating less financial well-being and concern about covering their daily expenses.

## 2.2 Financial literacy

*Financial literacy* is the result of understanding basic financial concepts, developing the ability and confidence to make appropriate personal short-term financial decisions, and planning the financial future effectively (Remund, 2010). These decisions must solve practical problems and be based on evidence, while the skills developed must help people defend their rights as financial consumers.

Since individuals possess different cognitive abilities, life events and experiences uniquely alter their economic conditions. In this sense, their financial literacy is affected by different sociological factors that enable them to acquire financial knowledge, develop financial behaviors, and adopt financial attitudes with a long-term vision. For example, internationally, a gender gap in financial literacy has been observed in favor of men (Bottazzi and Lusardi, 2021; Hasler and Lusardi, 2017; Preston et al., 2023). Similarly, some studies have documented deficiencies in healthy financial behaviors among younger and older adults (Finke et al., 2017; Fong et al., 2021; Okamoto and Komamura, 2021). Likewise, marital status is positively associated with financial literacy (Baglioni et al., 2018; Cucinelli et al., 2019), as well as schooling (Klapper et al., 2015).

In Mexico, Antonio-Anderson et al. (2020) estimated a financial literacy level of 59%. They identified as its determinants, factors such as age, which works in favor of the elderly; marital status, which benefits people living with a partner; schooling, which favors the most educated; occupation, which relates positively to those who are working; and the level of income, which works for the benefit of top earners. However, this study does not distinguish between persons employed as employees and those engaged in entrepreneurial activities.

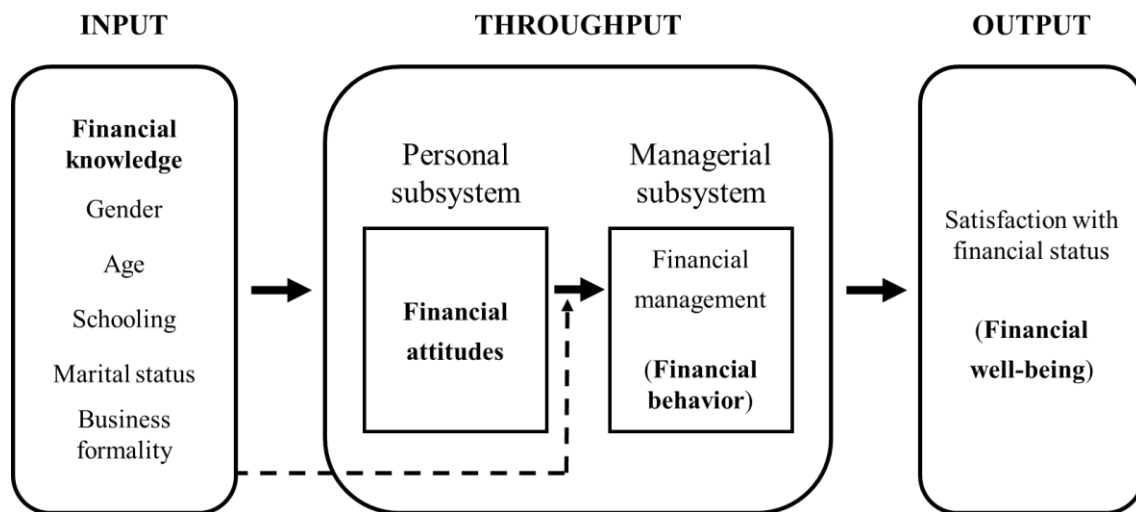
## 2.3 Financial well-being and the financial management model

Parrotta and Johnson's (1998) financial management model, inspired by Deacon and Firebaugh's family resource management model, explains the relationship between sociodemographic variables, financial management, and their effect on people's satisfaction with their financial status. It develops in three stages: input, process, and output.

Input is related to financial knowledge and sociodemographic variables. For this research, this factor relies on financial knowledge, gender, age, education, marital status, and the business formality of entrepreneurs. The process stage is divided into two subsystems: first, a personal

subsystem that is defined by financial attitudes, and second, a management subsystem that includes personal financial management. These subsystems are equivalent to the financial attitude and behavior analyzed in this research. Finally, the product stage refers to the satisfaction with the financial status, which in this article refers to the subjective financial well-being of entrepreneurs.

Additionally, in this research, a direct relationship between the input variables and the output variable is established. Therefore, financial knowledge, financial attitudes, and financial behavior are analyzed as independent variables and financial well-being as the dependent variable. Moreover, this theoretical model is appropriate to this research as it explains how people with different sociodemographic backgrounds develop financial skills, attitudes, and behaviors that enhance them to pursue healthy financial practices, leading them to achieve satisfaction with their current financial situation (see Figure 1).



**Figure 1.** Financial management model applied to financial well-being  
 Source: Authors' elaboration based on Parrotta and Johnson (1998).

## 2.4 Hypothesis and conceptual model

The financial capabilities of consumers are based on two main pillars: the ability to take advantage of financial resources and the availability of financial services (Fu, 2020). In this sense, an environment that makes financial services available to the population does not necessarily guarantee their financial satisfaction. It requires people to possess financial knowledge and the intention to apply it, thus aspiring to financial well-being. According to the Consumer Financial Protection Bureau (2017a), the goal of financial literacy should be financial well-being.

Financially educated people are more likely to save for retirement, invest in stock markets, pay attention to financial costs, and borrow at lower interest rates (Azar et al., 2018). Traditionally, financial literacy has been studied through three components: financial knowledge, financial attitude, and financial behavior (Atkinson and Messy, 2012).

Financial knowledge refers to the development of specific skills, as well as having information and knowledge about financial products. Making financial decisions involves knowing how to

interpret, analyze, and value this information. Therefore, financial knowledge is a necessary component of financial literacy.

Basic financial knowledge includes mastery of concepts such as inflation, risk diversification, the value of money over time, interest rate, and compound interest calculation. This knowledge is part of the financial capabilities determining the ability to conduct financial transactions and effectively solve finance-related problems (Christelis et al., 2010; Cole and Shastry, 2008).

For example, in Greece, Philippas and Avdoulas (2020) observed that university students with a high level of financial knowledge are better prepared to face financial emergencies, thus contributing to their financial well-being. They also found that those with healthy financial behaviors are more likely to achieve financial well-being in the future. Another example is that of Losada-Otálora et al. (2020) in Colombia, who demonstrated that increased transparency of banking information is positively related to the subjective financial well-being of customers. Likewise, they reported that subjective financial knowledge positively mediates the relationship between banking transparency and subjective financial well-being.

In the United States, Guo and Huang (2023) found that low-income entrepreneurs present low financial knowledge scores compared to high-income entrepreneurs and low-income non-entrepreneurs. Moreover, they observed that financial knowledge positively relates to financial well-being, except for low-income entrepreneurs. These observations suggest that "among low-income entrepreneurs, those with more financial knowledge are also more aware of the financial barriers and more concerned about their financial well-being," negatively affecting their entrepreneurial spirit and optimal use of financial services (Guo and Huang, 2023, p. 8).

Financial attitudes refer to the mental predisposition that promotes healthy financial practices, contributes to taking advantage of the resources available in the financial system, and relates to financial planning and risk prevention (Secretaría de Hacienda y Crédito Público, 2017). Some financial attitudes are associated with greater financial well-being, for example, having a long-term planning horizon and confidence in one's ability to achieve financial goals (Consumer Financial Protection Bureau, 2017a).

Some researchers have observed that financial attitude contributes to improving people's financial well-being (Ali et al., 2015; Brügggen et al., 2017; Consumer Financial Protection Bureau, 2017a; Gutter and Copur, 2011; Kempson and Poppe, 2018; Sang, 2021). For example, Sang (2021) conducted a study among young Vietnamese university students in which he found that financial attitude and financial behavior are directly related to student's financial well-being. In addition, financial skills and financial knowledge are indirectly related to financial well-being through financial attitude.

In Ireland, Kempson and Poppe (2018) emphasized the importance of financial attitude in how people take responsibility and control of their financial situation as a determinant of financial well-being. Likewise, Haque and Zulfiqar (2016) demonstrated that financial attitude is significantly and positively related to financial well-being. This research conducted among women working in non-financial sectors in Pakistan proposes that future-oriented financial attitudes strongly relate to financial well-being.

Financial behavior refers to practices to meet financial commitments and sustainable money management. An example of this is presented in the study conducted by Xiao and O'Neill (2018), in

which the results reveal that financial planning and other financial capabilities are significant for financial well-being. Other studies, such as that of Gutter and Copur (2011), also confirm the relationship of financial behavior with financial well-being with a model applied to university students in the United States. Their results show that those with positive financial behaviors exhibit a greater financial well-being. Additionally, in India, Carpena and Zia (2020) found that financial knowledge is not enough to achieve financial well-being; however, it is more effective when accompanied by healthy financial practices such as goal setting and spending planning.

The aforementioned empirical studies are consistent with the findings presented by Brügger et al. (2017), who, in their theoretical model, relate financial well-being to individuals' financial attitudes and financial behavior. They identified that the most critical component of financial well-being is financial behavior. Applying healthy financial practices and avoiding financially destructive habits, for example, overdrafts, accumulating debt, and defaulting on financial commitments, can increase financial well-being.

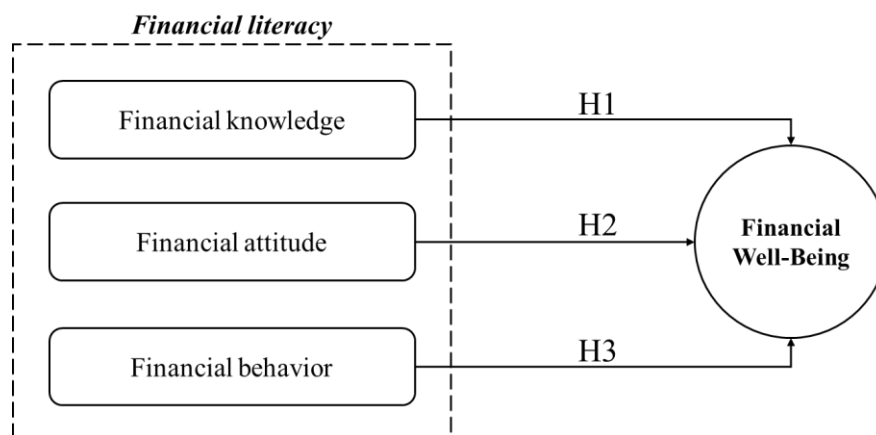
The studies mentioned above focus on the general population without giving specific results on the business sector. Due to the economic nature of business activities, measuring financial well-being in this segment is convenient because businesspeople could present different patterns from the rest of the population. Furthermore, analyzing financial well-being among entrepreneurs could become a more accurate indicator of business success because traditional measures such as financial performance, revenue, and return on investment omit evaluating subjective personal characteristics that, in the long run, have a positive repercussion on economic stability, social progress, satisfaction with life, and health (Zhao et al., 2020).

Therefore, this research tests the following hypotheses for businesspersons that operate in Ciudad Victoria, Tamaulipas (see Figure 2).

*H1: Financial knowledge relates significantly and positively to financial well-being.*

*H2: Financial attitude relates significantly and positively to financial well-being.*

*H3: Financial behavior relates significantly and positively to financial well-being.*



**Figure 2.** Conceptual model

Source: authors' elaboration

### 3. Method

Ciudad Victoria is the capital of Tamaulipas, a state located in northeastern Mexico, bounded on the north by the border with the United States and on the east by the Gulf of Mexico. It is a medium-sized city that has grown semi-concentrically in the last three decades, driven by its vocation mainly for services and its physical geography (De la Torre, 2017). Mexico has 121 medium-sized cities categorized by the number of inhabitants between 100,000 and 1,000,000. All in all, they comprise 64% of Mexico's total population (INEGI, 2021). Ciudad Victoria shares similar characteristics to the rest of these medium-sized cities, so achieving this study in this locality represents a noteworthy analysis for other mid-cities in Mexico and other emerging economies, making it a guide to replicate this research in other regions.

According to the National Statistical Directory of Economic Units (INEGI, 2022), by the end of 2021, there were 11,290 private economic units operating in Ciudad Victoria, of which 0.1% corresponds to the primary sector, 11.1% to the secondary sector, and 88.8% to the tertiary sector. These non-public companies generated two out of three jobs occupied by economically active people (INEGI, 2021).

The businesspersons who run these economic units design, invest, operate, and decide on a private business model. In this work, a businessperson is defined as a woman or man who performs productive activities for profit, whether by hiring others to work for them or working on their own, either formally or informally (Castro et al., 2015). In other words, they might be employers or self-employed. Hence, the analysis units that comprise the population under study are businesspersons who operate in Ciudad Victoria, Tamaulipas. Given this definition, people dedicated solely to working in someone else's business or non-profit organizations are not considered businesspersons.

In addition, the financial well-being of businesspersons is a construct that aims to evaluate their success in an alternative way beyond the revenues generated by the goods and services produced in their companies. It seeks to gauge how happy businesspersons feel with their current and prospective financial situation.

In this sense, the application of this study in Ciudad Victoria, Tamaulipas, was considered viable given that the models for measuring financial well-being can be applied to the study group and because the number of businesspersons in the locality is statistically sufficient to analyze the subject. Moreover, this research is relevant because studies of financial well-being among businesspeople are scarce, especially in the Mexican context, and because there are reasons to think that this group may present behaviors different from those obtained in studies applied to the general population.

#### 3.1 Data collection

The population universe for this study was based on 11,290 companies operating in Ciudad Victoria, Tamaulipas (INEGI 2022). This figure was considered to approximate the total number of businesspersons ( $N=11,290$ ), from which a sample size of  $n=281$  was estimated, with a margin error of 5% and a confidence level of 95%.

Due to the difficulties in conducting a household survey, we chose convenience sampling. The survey was built using *Google Forms* and distributed through social media, email, and instant



messaging. Previously, it was reviewed by several academics and tested on a pilot group, whose recommendations helped precise the writing, understanding, and presentation of the survey items. We also visited the Chamber of Commerce (CANACO, by its acronym in Spanish) chapter Victoria and the National Chamber of the Restaurant and Seasoned Food Industry (CANIRAC, by its acronym in Spanish), where we applied several face-to-face surveys. Likewise, we approached entrepreneurs in a personal way through different popular business fairs organized by the Victoria City Council and the Young Entrepreneurs of Tamaulipas Association, among others. We administered this survey from September to December 2022.

The survey consisted of 34 questions classified into six sections: businessperson's demographic data, business data, financial knowledge, financial attitude, financial behavior, and financial well-being. Of these, the questions related to economic activity were omitted from the analysis because they presented inaccuracies and were so diverse that no industry constituted a representative sample on its own. Likewise, data on income were also not considered for analysis due to the paucity of responses.

### 3.2 Variables

In this study, the dependent variable is financial well-being, which was constructed from the items used by Prawitz et al. (2006) for measuring the subjective financial well-being of an individual. Analogously, the independent variables correspond to financial literacy components: financial knowledge, financial attitude, and financial behavior. Likewise, control variables are gender, age, education, marital status, and business formality, which refer to personal and business data questions. Gender, marital status, and business formality are binary, schooling is ordinal, and age is continuous. Table 1 presents a summary of these variables.

**Table 1.** Description of variables

Variable	Description	Type	Range	Source
<i>Dependent variable</i>				
Financial well-being (FWB)	Index constructed using factor analysis from nine items measured on a Likert scale from 1 to 5; the higher the score, the higher the level of agreement with the statement.	Continuous	[1,5]	Prawitz et al. (2006)
<i>Variables independientes</i>				
Financial knowledge (FKNO)	Number of hits on the seven financial knowledge questions that evaluate concepts related to inflation, risk diversification, simple interest and compound interest.	Ordinal	[0, 7]	Atkinson and Messy (2012)
Financial attitude (FATT)	Average of the responses on a Likert scale of 1 to 5 associated with five items that assess the predisposition to save and future orientation.	Continuous	[1, 5]	Atkinson and Messy (2012)
Financial behavior (FBEH)	Average of Likert scale responses from 1 to 5 associated with five items evaluating financial planning and financial obligations compliance.	Continuous	[1, 5]	Atkinson and Messy (2012)
<i>Variables de control</i>				
Gender (Gen)	Gender with which it is identified: male (0) or female (1).	Dichotomic	[0, 1]	

Age (Age)	Age in years.	Continuous	[18, 90]	
Schooling (Sch)	Highest level of schooling: no schooling or elementary (0), highschool (1), undergraduate (2), and postgraduate (3).	Ordinal	[0, 3]	
Marital status (Mar)	Married or in a common law union (1); widowed, separated, divorced or never before married (0).	Dichotomic	[0, 1]	
Business formality (For)	If the business in which you work is formally constituted before the SAT (1); otherwise (0).	Dichotomic	[0, 1]	

Source: authors' elaboration from the sources indicated in the same table.

### 3.3 Constructs

Financial well-being was calculated with an eight-item model designed by Prawitz et al. (2006). Before this, we performed the Kaiser-Meyer-Olkin KMO sample suitability test with an acceptance criterion higher or equal to 0.7. Likewise, we evaluated the feasibility of performing a factor analysis on the data by calculating the Bartlett sphericity coefficient, considering an acceptance criterion of  $p < 0.05$ . In addition, we estimated the determinant of the correlation matrix to verify that the correlations between variables are sufficient to justify the factor analysis. Additionally, correlations between pairs of variables were observed to rule out multicollinearity problems.

We validated the internal consistency of the items by calculating Cronbach's alpha coefficient for all the variables and, separately, for each of them. In this way, individual tests help identify the effect that omitting each variable would have on the coefficient estimated for the whole set.

Once we performed these validation tests, the items were processed using a principal component factor analysis with varimax rotation. In this analysis, factors with an eigenvalue greater than one are retained (Kaiser, 1970), considering items with a factorial load greater than 0.5. Finally, after factor analysis, we estimated an indicator of financial well-being for businesspersons in Ciudad Victoria, Tamaulipas. Table 2 presents a list of the items.

**Table 2.** Items used to measure financial well-being

Item	Financial well-being	Answer (code)
WB1	At present, my level of financial stress is zero	(1) Completely disagree
WB2	I am very satisfied with my current financial situation	(2) Disagree
WB3	My current financial situation makes me feel great	(3) Not disagree nor agree
WB4	I am worried about being able to cope with normal monthly expenses	(4) Agree
WB5	I could get in a week 20,000 pesos to pay for an emergency	(5) Completely agree
WB6	I can afford to go out for dinner, to the movies, or do anything else without getting financially stressed.	
WB7	I live up to date financially.	
WB8	In general, my personal finances cause me stress	

Source: Prawitz et al. (2006).

Items were classified into two groups. In the first group, we have *WB1*, *WB4*, *WB7*, and *WB8*, which refer to the worry and stress related to the financial situation in the short term. The last three of them were reverse-coded. In the second group, we have *WB2*, *WB3*, *WB5*, and *WB6* concerning satisfaction, well-being perception, and the ability to cover certain expenses. The financial well-being indicator, *FWB*, was constructed based on equation 1:

$$FWB = w_1 * WB1 + w_2 * WB2 + \dots + w_8 * WB8 \tag{1}$$

Where *WB1*, ..., *WB8* fluctuate between one and five, representing the responses to each item and  $w_i (i=1, \dots, 8)$  represents the weight of each item in the indicator, given by the coefficients resulting from the factor analysis. To facilitate the understanding of the indicator, we applied a transformation using a scale from 0 to 100, in which 100 represents the maximum well-being, according to the following equation:

$$FWB_0 = 100 \times \frac{FWB - \min(FWB)}{\max(FWB) - \min(FWB)} \tag{2}$$

Similarly, the relationship between financial well-being and the components of financial literacy is analyzed with an ordinary least squares multiple linear regression model, constructed as shown in the following equation:

$$FWB_0 = \alpha_i + \beta_1 * FKNO + \beta_2 * FATT + \beta_3 * FBEH + \beta_4 * Gen + \beta_5 * Age + \beta_6 * Sch + \beta_7 * Mar + \beta_8 * For + error \tag{3}$$

Where, for all records  $i=1 \dots n$ , financial well-being ( $FWB_0$ ) is explained by the independent variables financial knowledge (*FKNO*), financial attitude (*FATT*), and financial behavior (*FBEH*), as well as control variables: gender (*Gen*), age (*Age*), schooling (*Sch*), marital status (*Mar*), and business formality (*For*). The model also includes a residual value (*error*).

We analyzed financial literacy components individually, as shown in previous studies since they can fluctuate in opposite directions (Baglioni et al., 2018). We used the questions recommended by the OECD (Atkinson and Messy, 2012) to construct indicators for each.

Financial knowledge (*FKNO*) evaluates whether an individual understands the concepts of inflation (*FKNO1* and *FKNO2*), risk diversification (*FKNO3* and *FKNO4*), simple interest (*FKNO5* and *FKNO6*), and compound interest (*FKNO7*), as displayed in Table 3.

**Table 3.** Items used to measure financial knowledge

Item	Financial knowledge	Answer (code)
<i>FKNO1</i>	Inflation means that the price of things increases	(1) True (0) False / Don't know
<i>FKNO2</i>	If you receive 1,000 pesos, but you must wait one year to spend them. In that year, inflation is 5%. This means you could buy... what you could buy today.	(1) Less than (0) The same compared to / More than / Don't know
<i>FKNO3</i>	If someone offers you the possibility to earn money easily, you can also easily lose it.	(1) True (0) False / Don't know

<i>FKNO4</i>	It is better to save money in two or more ways or places than in just one (a savings account, investing in a business, etc.) True or false?	(1) True (0) False / Don't know
<i>FKNO5</i>	If you lend 25 pesos to a friend and the next week, he or she gives you back exactly the 25 pesos, how much did you receive as interest?	(1) Nothing / Zero (0) Other amount / Don't know
<i>FKNO6</i>	Suppose you deposit 100 pesos into a savings account that pays you an interest rate of 2% a year. If you don't make further deposits or withdrawals, how much will you have in that account at the end of one year, including interest?	(1) Exactly 102 pesos (0) More than 102 pesos / Less than 102 pesos / Don't know
<i>FKNO7</i>	If you deposit 100 pesos in a savings account that pays you an interest rate of 2% a year. If you don't make further deposits or withdrawals, how much will you have in that account at the end of five years, including interest?	(1) More than 110 pesos (0) Exactly 110 pesos / Less than 110 pesos / Don't know

Source: authors' elaboration based on Atkinson and Messy (2012).

Each item corresponds to a binary-coded question: 1 for correct answers, 0 otherwise. This indicator is calculated by the arithmetic sum of the codes assigned to the seven answers. It varies between 0 and 7, where 0 means no correct answers and 7 that all questions were answered correctly, as shown in equation 4:

$$FKNO = FKNO1 + FKNO2 + FKNO3 + FKNO4 + FKNO5 + FKNO6 + FKNO7; FKNO \in [0,7] \quad (4)$$

Financial attitude (FATT) was constructed using the average of five items coded on a Likert scale, ranging from 1 for "strongly disagree" to 5 for "strongly agree". These items were taken from the model proposed by Atkinson and Messy (2012) and are presented in Table 4.

**Table 4.** Items used to measure financial attitude

Item	Financial attitude	Answer (code)
FATT1	Before I buy something, I carefully consider whether I will be able to afford it	(1) Completely disagree (2) Disagree (3) Not disagree nor agree (4) Agree (5) Completely agree
FATT2	I usually live in the present, for tomorrow, I will worry later	
FATT3	Spending money gives me more satisfaction than saving it for the future	
FATT4	I am willing to take the risks involved in investing or starting a business at any time	
FATT5	Money was made to be spent, not to be saved	

Source: authors' elaboration based on Atkinson and Messy (2012).

This indicator evaluates careful spending (FATT1), future orientation (FATT2), satisfaction with consumption (FATT3), attitude towards risk (FATT4), and propensity to spend instead of saving for the future (FATT5). It should be noted that FATT2, FATT3, and FATT5 were reverse-coded. For example, if the person agrees with spending the money instead of saving it, then their answer is granted one point instead of five. The computation of this indicator is shown in equation 5:

$$FATT = \frac{FATT1+FATT2+FATT3+FATT4+FATT5}{5}; FATT \in [1, 5] \tag{5}$$

Finally, the financial behavior indicator (*FBEH*) was constructed using the average of five items coded according to a Likert scale, ranging from 1 "strongly disagree" to 5 "strongly agree", as recommended by Atkinson and Messy (2012) (see Table 5).

**Table 5.** Items used to measure financial behavior

Item	Financial behavior	Answer (code)
FBEH1	To keep track of my finances, I follow a budget or keep a record of my income and expenses.	(1) Completely disagree (2) Disagree (3) Not disagree nor agree (4) Agree (5) Completely agree
FBEH2	I have long-term financial goals and strive to achieve them (e.g., buying a car, going on vacation, starting a business, etc.)	
FBEH3	In my family, the money we earn or receive in a month is always enough to cover our expenses	
FBEH4	If my family had an economic emergency for an amount equal to what is earned or received in a month, we could cover this with savings without asking anyone else for money	
FBEH5	In my family, we always pay bills on time (utilities, rent, etc.)	

Fuente: elaboración propia a partir Atkinson y Messy (2012).

This indicator measures financial behavior through financial planning (*FBEH1* and *FBEH2*), timely payment of obligations (*FBEH3* and *FBEH5*), and contingency preparedness (*FBEH4*). It fluctuates between 1 and 5, where 1 means the respondent has poor financial habits and 5 means the respondent has desirable financial habits, as shown in equation 6:

$$FBEH = \frac{FBEH1+FBEH2+FBEH3+FBEH4+FBEH5}{5}; FBEH \in [1,5] \tag{6}$$

As part of additional analysis, we opted for including a set of moderating factors (*MF*), which are given by the product of the dichotomic control variables (gender, marital status, and business formality) with each of the components of financial literacy, as shown in Equation (7):

$$MF = \beta_{GK} \times Gen \times FKNO + \beta_{GA} \times Gen \times FATT + \beta_{GB} \times Gen \times FBEH + \beta_{MK} \times Mar \times FKNO + \beta_{MA} \times Mar \times FATT + \beta_{MB} \times Mar \times FBEH + \beta_{FK} \times For \times FKNO + \beta_{FA} \times For \times FATT + \beta_{FB} \times For \times FBEH \tag{7}$$

This expression is added to Equation 3 to test whether any of these control variables changes the effect of financial knowledge, financial attitude, or financial behavior on businesspeople's financial well-being.

## 4. Results and discussion

The results of this research are presented in four sections. First, we report the outcomes of factor analysis after applying the tests of sampling adequacy, multicollinearity, and Cronbach's alpha coefficients. In the second section, we detail the descriptive statistics of financial well-being by financial literacy component, as well as by gender, age, schooling, marital status, and business formality. Later, we comment on the findings after performing an econometric analysis based on three multiple linear regression models using ordinary least squares. Finally, we include a section summarizing and discussing these results.

### 4.1 Factorial analysis

To determine financial well-being, we performed a confirmatory factor analysis. Previously, different tests were carried out to determine if the data could be evaluated with this type of analysis. First, the Kaiser-Meyer-Olkin coefficient, KMO, was computed using the eight items for measuring financial well-being. We obtained  $KMO=0.846$ , which indicates that the sample is meritorious (Kaiser, 1974). Then, we performed Bartlett's test of sphericity, resulting in a statistical value of  $\chi^2=685.8$ , with  $p<0.05$ , which means that there are sufficient correlations between the variables to justify factor analysis. Finally, the determinant of the correlation matrix was estimated at 0.084, confirming a certain degree of correlation between the variables sufficient to apply the factor analysis.

Similarly, we accomplished a multicollinearity test to identify redundancy problems between pairs of variables. Although no problems of multicollinearity were identified, it was observed that WB7 presents a non-significant relationship with variables WB1, WB2, WB3, and WB4. However, we kept it for the subsequent analysis stage (see Table 6).

**Table 6.** Correlations between items to measure financial well-being

	WB1	WB2	WB3	WB4	WB5	WB6	WB7	WB8
WB1	1.000							
WB2	0.428*	1.000						
WB3	0.382*	0.725*	1.000					
WB4	0.341*	0.482*	0.483*	1.000				
WB5	0.257*	0.332*	0.405*	0.311*	1.000			
WB6	0.237*	0.390*	0.462*	0.388*	0.468*	1.000		
WB7	0.091	0.045	0.085	0.098	0.156*	0.160*	1.000	
WB8	0.347*	0.512*	0.514	0.535*	0.363*	0.359*	0.131*	1.000

Significance: \* $p<0.05$ .

Source: authors' elaboration with the support of Stata.

Next, we estimated Cronbach's alpha coefficients for the set of eight variables and for each of them separately, assuming that the variable in question is omitted. The alpha coefficient for all variables is 0.80, which is acceptable. Nevertheless, we observed that if WB7 is removed,

Cronbach's alpha coefficient of all items rises to 0.83. Therefore, we confirmed the convenience of omitting this variable for the rest of the analysis (see Table 7).

**Table 7.** Alpha coefficients and principal component factor analysis with varimax rotation

Items	Cronbach's Alpha coefficient	Factor 1
WB1	0.79	0.5817
WB2	0.76	0.8021
WB3	0.75	0.8229
WB4	0.77	0.7201
WB5	0.78	0.6118
WB6	0.77	0.6567
WB7	0.83	-
WB8	0.76	0.7416
	Alpha of all items 0.80	Explained variance 0.5050

Source: authors' elaboration with the support of Stata.

Once these tests were passed, we performed a principal component factor analysis with varimax rotation. From this analysis, it turns out that a single factor is sufficient to explain 50.5% of the variance. This factor has an eigenvalue equal to 3.533. It is the only one that meets Kaiser's criteria to be retained; the rest of the factors were omitted for presenting eigenvalues lower than one (Kaiser, 1970). After varimax rotation, we observed that each of the seven variables analyzed presents a factorial load greater than 0.5. With these results, we estimated the financial well-being indicator for each businessperson who participated in the study, as described in the following section.

## 4.2 Descriptive statistics of financial well-being

On average, the 281 businessmen and businesswomen who took part in this study recorded a financial well-being index of 59.0 points on a scale from 0 to 100, in which 100 represents the maximum well-being, with a standard deviation of 20.8. Assuming that the financial well-being scores distribution is normal, one can notice that it is slightly biased to the right, which means that entrepreneurs are closer to achieving satisfaction with their financial situation than being unsatisfied. Moreover, this score varies with financial literacy components and control variables.

Financial behavior is the only component of financial literacy that shows a significant association with financial well-being ( $F=42.21$ ;  $p<0.001$ ). Businesspersons who scored between 3.5 and 5.0 in financial behavior, that is, those who practice financial planning and timely fulfill their commitments, show a financial well-being of 65.4 points on average. Conversely, those who scored between 1.0 and 2.5, characterized by not sticking to a budget and lacking an emergency fund, scored 40.1 on financial well-being. Therefore, this relationship indicates that businesspeople are more likely to experience financial well-being when they employ far-sighted financial practices. In contrast, financial knowledge and attitude did not significantly correlate with financial well-being (see Table 8).

**Table 8.** Average financial well-being by financial literacy component

Variable / Category	Observations		Average	Standard deviation	Statistic F (p-value)
	Frequency	%			
Financial Knowledge					0.91 (0.502)
0	7	2.5	68.9	38.1	
1	2	0.7	77.0	32.5	
2	3	1.1	43.3	7.5	
3	23	8.2	61.0	19.0	
4	61	21.7	56.9	24.1	
5	80	28.5	58.0	20.3	
6	80	28.5	59.2	18.6	
7	25	8.9	62.1	16.4	
Financial Attitude					1.92 (0.149)
1.0-2.5	22	7.8	57.6	18.5	
2.5-3.5	202	71.9	60.4	21.0	
3.5-5.0	57	20.3	54.4	20.7	
Financial Behavior					42.21 (0.000) ***
1.0-2.5	14	5.0	40.1	20.5	
2.5-3.5	69	24.6	44.2	15.0	
3.5-5.0	198	70.5	65.4	19.2	
	281	100.0	59.0	20.8	
Two-tailed ANOVA was applied to calculate the p-value. Significance: ***p<0.001					

Source: authors' elaboration with the support of Stata.

On average, businesspersons scored 4.9 points on a range from 0 to 7 in financial knowledge, with a standard deviation of 1.4. This value means their level of financial skills is closer to a high dominion of financial knowledge than to complete ignorance. In this sense, we found a statistically significant difference in favor of businessmen, who obtained 5.2 correct answers on average, compared to businesswomen, who reached 4.7 ( $p<0.05$ ). By age, young businesspeople exhibit a lower level of financial knowledge ( $p<0.05$ ). For example, those between 17 and 24 scored 4.66 on average, while those over 54 obtained 5.55. Likewise, the most educated registered an average score of 5.91, while those who did not continue their studies after high school obtained 4.88 ( $p<0.01$ ). Additionally, financial knowledge presents a significant difference in favor of formally registered businesspeople over unregistered ones ( $p<0.001$ ). In contrast, marital status did not present any significant difference in financial knowledge.

The average financial attitude score obtained by the surveyed businesspersons is 3.40 on a scale of 1 to 5, where 5 represents an attitude oriented to saving and reducing risk. This score means that they present an attitude close to average, slightly biased to cautious spending but not as wary as the general population. As a percentage, this result is equivalent to 60.0%. In contrast, at the national level, this indicator reached 65.0% for all Mexican adults (SHCP and CNBV, 2019). Moreover, we observed that younger businesspersons show greater willingness to use their resources and face risks to invest in businesses in comparison to older businesspeople ( $p<0.001$ ). Those aged 17-24 recorded an average of 3.6 in financial attitude, while those aged 45 to 54 recorded 3.1. By marital



status, singles have an average of 3.4 and married 3.2, a statistically significant difference ( $p < 0.05$ ). An average of 3.5 was registered for businesspersons who operate informally, while those who are formally constituted obtained 3.3 ( $p < 0.01$ ). Gender and schooling showed non-significant differences regarding financial attitudes among businesspeople.

Finally, we estimated an average financial behavior score of 3.9 points, on a scale of 1 to 5, for the businesspeople who participated in the study. This result represents 72.5% and is higher than the nationally calculated average of 48.2% for the general adult population (SHCP and CNBV, 2019). It means businesspersons generally exhibit healthier financial practices than the rest of the adult population in Mexico. Furthermore, schooling is significantly linked to this indicator ( $p < 0.01$ ); likewise, business formality is associated with good performance in financial behavior ( $p < 0.01$ ). In contrast, gender, age, and marital status did not present any significant relation to financial behavior (see Table 9).

**Table 9.** Financial literacy and financial well-being of businesspersons in Victoria, Tamaulipas

Variable	Category	Freq.	Financial literacy			Financial well-being
			Knowledge [0,7]	Attitude [1,5]	Behavior [1,5]	
Gender	Male	114	5.2 (1.3) *	3.4 (0.6)	4.0 (0.8)	61.1 (19.5)
	Female	167	4.7 (1.5) *	3.4 (0.7)	3.9 (0.8)	57.5 (21.6)
Age	17-24	108	4.6 (1.5) *	3.6 (0.7) ***	4.0 (0.8)	59.7 (22.1)
	25-34	78	4.8 (1.4) *	3.2 (0.6) ***	4.0 (0.7)	59.4 (20.5)
	35-44	42	5.2 (1.5) *	3.3 (0.6) ***	3.8 (0.9)	59.2 (15.9)
	45-54	31	5.1 (1.0) *	3.1 (0.6) ***	3.9 (0.8)	57.0 (22.8)
	55+	22	5.5 (0.9) *	3.2 (0.5) ***	3.7 (1.0)	56.1 (22.5)
Schooling	Up to elementary	26	4.9 (0.8) **	3.4 (0.7)	3.6 (1.0) **	61.6 (19.8)
	Highschool	97	4.7 (1.4) **	3.5 (0.6)	3.8 (0.7) **	55.5 (20.2)
	Undergraduate	136	4.8 (1.6) **	3.3 (0.7)	4.0 (0.8) **	60.4 (22.2)
	Postgraduate	22	5.9 (0.9) **	3.2 (0.5)	4.2 (0.8) **	62.4 (14.8)
Marital status	Single	164	4.8 (1.5)	3.4 (0.7) *	3.9 (0.8)	58.2 (22.9)
	Married	117	5.0 (1.4)	3.2 (0.5) *	4.0 (0.8)	60.0 (17.6)
Business formality	Informal	144	4.5 (1.5) ***	3.5 (0.8) **	3.8 (0.8) **	56.4 (21.3) *
	Formal	137	5.3 (1.2) ***	3.3 (0.5) **	4.1 (0.7) **	61.7 (20.1) *
Total		281	4.9 (1.4) 70.0%	3.4 (0.7) 60.0%	3.9 (0.8) 72.5%	59.0 (20.8)

Significance: \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

Source: authors' elaboration with the support of Stata.

Financial well-being shows a less volatile pattern when contrasted with the components of financial literacy. Although businesswomen in Ciudad Victoria register lower financial well-being than businessmen, with 57.5 and 61.1 points, respectively, when performing the analysis of variances, we observe that this difference is not statistically significant. Similarly, businesspeople show no statistically significant differences when analyzing differences in financial well-being by age, schooling, and marital status. The only control variable that escapes this trend is business formality.

Businesspersons who operate formally present greater financial well-being, with 61.7 points, compared to the informal ones, who register 56.4 ( $F = 4.7$ ;  $p < 0.050$ ).

### 4.3 Econometric analysis

The econometric analysis aims to demonstrate if there exists a relationship between financial well-being and the components of financial literacy among businesspeople in Victoria, Tamaulipas. For this purpose, we constructed three models: the first includes only the three components of financial literacy as independent variables, the second adds the control variables to the first model, and the third tests the impact of gender, marital status, and business formality over the relationship between the components of financial literacy and businesspeople financial well-being.

Previously, we carried out a correlation analysis with which we sought to identify multicollinearity problems between the explanatory variables. As shown in Table 10, there is no significant multicollinearity between pairs of variables ( $|\text{corr } x, y| < 0.5$ ).

**Table 10.** Correlations between independent and control variables

n=281		FKNO	FATT	FBEH	Gen	Age	Sch	Mar	For
Financial knowledge	FKNO	1.000							
Financial attitude	FATT	0.2302	1.000						
Financial behavior	FBEH	0.0611	0.0029 **	1.000					
Gender	Gen	-0.1789 **	0.0433	-0.0491	1.000				
Age	Age	0.1738 **	0.1102 **	-0.0735	-0.1747 **	1.000			
Schooling	Sch	0.1609	0.1841 **	0.2123 ***	-0.0418	-0.0527	1.000		
Marital status	Mar	0.0996	0.1221 *	0.0157 *	-0.3549	0.4663 ***	0.0893	1.000	
Business formality	For	0.2896 ***	0.1043	0.2034 ***	-0.3903	0.3291 ***	0.3331 ***	0.2920 **	1.000
Relations between dichotomic variables (gender, marital status, and business formality) were tested with tetrachoric rho coefficients. Relations between continuous variables (age, financial attitude, and financial behavior) were tested with Pearson coefficients. The rest of the relations (between continuous and categorical variables) were tested with Spearman's rho. Significance: *** $p < 0.001$ ; ** $p < 0.01$ ; * $p < 0.05$ .									

Source: authors' elaboration with the support of Stata.

With Model 1, we confirmed that financial behavior is significantly associated with the financial well-being of businesspersons in Victoria, Tamaulipas ( $p < 0.001$ ). Thus, there is evidence not to reject H3: Financial behavior is significantly and positively related to financial well-being. Every time businesspeople raise their financial behavior score by one unit, their financial well-being increases by 16.419 points. This fact suggests that future-oriented financial habits, expenditure control, efficient management of resources, and timely compliance with financial obligations are characteristics of entrepreneurs who enjoy high financial satisfaction and low financial stress.

On the other hand, we observed that financial attitude is significantly related to financial well-being ( $p < 0.01$ ); however, this relationship is negative ( $\beta_2 = -6.204$ ). Therefore, we reject H2: Financial attitude is significantly and positively related to financial well-being. This result can be explained, in

part, by the preference for risk that characterizes entrepreneurs and businesspersons (Alvarez-Sousa, 2019), while Atkinson and Messy's (2012) model regards consumers' conservative attitudes as desirable.

Additionally, financial knowledge presented a non-significant relationship with financial well-being; thus, H1 is rejected. This result is unexpected; nevertheless, it suggests two possible divergent causes. On the one hand, it means that businesspersons' financial judgment contrasts with the decisional common sense that most consumers apply based on the information available. On the other hand, it means that businesspeople's financial well-being depends on factors different from those analyzed in this work (see Table 11).

**Table 11.** Analysis of the relationship between financial well-being and financial literacy

Variables	Model 1	Model 2	Model 3
	$\beta$ (SE)	$\beta$ (SE)	$\beta$ (SE)
Financial knowledge (FKNO)	-0.371 (0.691)	-0.595 (0.730)	-0.584 (1.704)
Financial attitude (FATT)	-6.204 (2.099) **	-5.927 (2.166) **	-11.061 (4.760) **
Financial behavior (FBEH)	16.419 (1.191) ***	16.602 (1.242) ***	14.943 (2.986) ***
Gender (Gen)		-1.993 (2.079)	-27.288 (18.317)
Age (Age)		0.031 (0.083)	0.025 (0.085)
Schooling (Sch)		-1.345 (1.391)	-1.338 (1.418)
Marital status (Mar)		1.346 (2.235)	-9.602 (18.225)
Business formality (For)		0.641 (2.260)	-9.917 (18.444)
Gen $\times$ FKNO			-0.532 (1.665)
Gen $\times$ FATT			3.370 (4.706)
Gen $\times$ FBEH			4.362 (2.804)
Mar $\times$ FKNO			0.009 (1.515)
Mar $\times$ FATT			8.617 (4.747)
Mar $\times$ FBEH			-4.285 (2.676)
For $\times$ FKNO			0.530 (1.677)
For $\times$ FATT			-0.169 (4.811)
For $\times$ FBEH			2.329 (2.797)
Constant	15.582 (8.125)	2.090 (41.443)	41.443 (19.774)
Frequency	281	281	281
p>F	0.000	0.000	0.000
Adjusted R <sup>2</sup>	0.413	0.410	0.415
AIC (df)	2,360.8 (4)	2,366.3 (9)	2,365.9 (18)
Significance: ***p<0.001; **p<0.01. SE: Standard Error. AIC: Akaike's Information Criterion; df: degrees of freedom.			

Source: authors' elaboration with the support of Stata.

Similarly, with Model 2, we found that only financial behavior is significantly and positively related to businesspeople's financial well-being ( $\beta_3=16.602$ ,  $p<0.001$ ). Even the weight of this variable increased from Model 1 to Model 2, which considers control variables, going from 16.419 to 16.602. In contrast, the weight of financial attitude, which remains negative and significant ( $p<0.01$ ), passed from -6.204 to -5.927. Likewise, financial knowledge was not significant in either model.

Furthermore, Model 2 confirms that the analyzed control variables are not significantly related to financial well-being among the businesspersons who participated in this study. Conversely, this result means that entrepreneurship and business development offer a democratic occupational option in which financial well-being can be achieved regardless of gender, age, schooling, marital status, and business formality. On the other side, it implies that financial well-being is explained by other variables not considered in the model.

This last fact can also be observed in the goodness of fit for all models ( $R_1^2=0.413$ ;  $R_2^2=0.410$ ;  $R_3^2=0.415$ ), which capture just over 41% of the explained variance. Moreover, we noticed that business formality is not significant in explaining financial well-being, in contrast to what was reported in the descriptive statistics. Analogously, Model 3 shows that the interactions between gender, marital status, and business formality with each financial literacy component are not statistically significant; therefore, in this research, we can discard them as moderators of financial literacy on businesspersons' financial well-being.

Finally, Akaike's information criterion (AIC) confirms that Model 1 best describes the analyzed relationships by capturing with only three variables almost the same variance explained as Model 3, which added up to 18 degrees of freedom, nine more than Model 2.

#### **4.4 Discussion of results**

With this study, we have answered the general research question: how is the relationship between financial literacy and financial well-being among businesspersons in Ciudad Victoria, Tamaulipas? In this endeavor, financial well-being and financial literacy components were estimated separately.

Our results confirm that the financial well-being of the businesspersons who participated in this study is comparable to that of the general population in other countries. They scored 59.0 points on a scale of 0 to 100, where 100 is maximum financial well-being. This score is consistent with those reported by the CFPB (2017b), which estimated an average of 54.0 points for adults in the United States. It is also congruent with the results obtained by Fu (2020), who calculated 58.0 points for adults from eleven economies: six emerging (Brazil, Croatia, Hungary, Jordan, Russia, South Africa) and five developed economies (Canada, Hong Kong, the Netherlands, New Zealand, the United Kingdom). It should be noted that the scales used in these last two studies differ slightly from those used in this work; however, they concur in essence and analysis technique. Therefore, the results of this research suggest that business activity in Ciudad Victoria, Tamaulipas, is a mechanism that enhances people's financial well-being and offers a productive option that can contribute to their social progress.

Regarding financial literacy, we found that, on average, businesspersons in Ciudad Victoria, Tamaulipas, obtained a score of 70.0% in financial knowledge, 59.5% in financial attitude, and 72.5% in financial behavior. Compared to similar estimates made for the adult population in Mexico, it is worth noticing that those who participated in this research achieved better financial knowledge and financial behavior scores but were lower in financial attitude (SHCP and CNBV, 2019). Their results can be associated with business and entrepreneurial activity but are not enough to assert whether they are the consequence of entrepreneurial experience or the drivers that lead people to start a business.

Our research has shown that two financial literacy components have a statistically significant relationship with financial well-being among businesspeople. Financial behavior is positively associated with it, while financial attitude is inversely related. These facts confirm the link between financial literacy and financial well-being and reveal two distinctive characteristics of the businesspersons who participated in the study. The first refers to the fact that they consider good financial habits as a factor strongly related to feeling satisfied with their financial situation. The second characteristic emphasizes their willingness to give up the comfort of saving in exchange for investing, which also defines their financial well-being (Alvarez-Sousa, 2019).

**Table 12.** Summary of research results

Hypotheses			Results	
	Description	Proposed relation	Observed relation	Conclusion
H1	Financial knowledge relates significantly and positively to financial well-being.	Positive	Non- significant	Rejected
H2	Financial attitude relates significantly and positively to financial well-being.	Positive	Significant Negative	Rejected
H3	Financial behavior relates significantly and positively to financial well-being.	Positive	Significant Positive	Accepted

Source: authors' elaboration

Regarding financial knowledge, we found no positive nor significant relationships concerning the financial well-being of businesspersons. This fact suggests that to address the financial issues of their businesses, they trust other people or do not consider this knowledge necessary to strengthen their decision-making. This missing relationship means they might be relying on empirically learned habits and their way of managing risk instead of getting financially educated.

We conclude that businesspersons in Victoria, Tamaulipas, are more practically oriented. This practicality means they trust their financial management skills and behavior as critical elements to determine their financial well-being. Similarly, their attitude toward behavior helps shape their financial well-being, especially, if this attitude favors risk and opposes the general population's financial conservatism. Furthermore, the common sense indicating that the better financially educated businesspeople are the most successful does not relate to the financial well-being of those who participated in this study.

Finally, gender, age, education, marital status, and business formality did not present any significant relationship with financial well-being. On the one hand, this implies that financial well-being is explained by other variables not considered in this research. On the other hand, business development offers a democratic occupational option in which financial well-being can be achieved regardless of gender, age, schooling, marital status, and business formality.

## 5. Conclusions, recommendations, and final considerations

This research is valuable because it presents an alternative in the study of business motivation by offering a different way to measure the success of businesspersons and entrepreneurs. It is helpful because it provides an innovative model that includes factors other than income, productivity, and business profits as parameters of individual achievement. At the same time, it is based on the evaluation of perceptions that measure their satisfaction, concerns, and expectations generated by their financial situation.

One of the main limitations of this study was the difficulty in obtaining data from businesspeople. They are overly busy and concerned about security and privacy issues. Some businesspersons who participated in the study expressed little confidence that the data provided would result in helpful information for their businesses. In general, there is a need for more effective ties between higher education institutions, civil associations, and business organizations to build trust, improve participation, and disseminate the results of academic research.

Furthermore, we expect this work to help develop other lines of research that contribute to the body of knowledge on financial well-being. First, we recommend analyzing the application of this model in other cities, involving different demographic variables, and expanding it to a state or national level.

As a second line of research, we propose investigating further the possible gender gap regarding financial matters among businesspersons. Although businesswomen did not register statistically significant differences with men in terms of financial well-being, more profound research is necessary, particularly on the causes of this observed equity and from the perspective of other factors, such as financial literacy and financial inclusion.

A third line of research is inquiring into the levels of financial well-being by the business sector and business formality. Businesspersons from various segments of the economic activity participated in this work; however, none of these constituted a significant sample on their own. This segmentation would allow focusing policies on strategic business sectors.

Finally, this work is relevant because it contributes to the body of knowledge of financial well-being among businesspersons, a topic scantily studied in Mexico. Even internationally, few studies establish a relationship between financial well-being and financial literacy among entrepreneurs and businesspeople. Another benefit of this research is raising awareness among businesspersons about the importance of financial education and the redefinition of business success. It can also contribute to implementing public policies and programs that favor the development of business and social well-being.

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