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Study of financial risk from the capital structure in textile SMEs

Estudio del riesgo financiero desde la estructura de capital en las PyMes textiles

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Abstract

Objective: This article aimed to determine the importance of capital structure in textile SMEs belonging to ISIC C13-C14-C15, as expressed in terms of risk, sustainability, and economic value generation in Ecuadorian companies from 2015 to 2020. **Method:** To achieve this, the aforementioned financial metrics were used to analyze the environment. Two insolvency assessments—Altman and Kanitz—were used, and WACC, EVA, and ROIC were employed to manage value and risk. **Results:** The bias in insolvency valuations revealed that, while Altman provided a general conclusion, Kanitz allowed for sample-based comparisons. In line with this, a capital structure with a higher debt burden did not inhibit the generation of economic value, nor did it impair financial sustainability. **Discussion**: The findings challenged the negative perceptions of leveraged companies, demonstrating that, despite high commitments to third parties, these companies managed to meet their obligations and generate profits. **Conclusions**: Future research should focus more on strategic, technological, and corporate management to establish correlations with the prolonged and significant use of foreign resources in the development of these organizations.

Keywords: Debt, capital structure, financial insolvency, financial risk, financial sustainability.
JEL Clasification: G32, G33.

Resumen

Objetivo: El propósito fundamental de este artículo fue determinar la importancia de la estructura de capital en las PyMes textiles pertenecientes al CIIU C13-C14-C15, expresado en valores de riesgo y generación de sostenibilidad y valor económico en las empresas ecuatorianas en los periodos del 2015 al 2020. **Método:** Para cumplir con lo antes aludido se usó métricas financieras para observar el entorno, se usó dos valoraciones de insolvencia con Altman y Kanitz; en la gestión del valor y riesgo, el WACC, EVA, ROIC. **Resultados:** El sesgo en las valoraciones de insolvencia permitió observar que, Altman posee una concluyente general, sin embargo, Kanitz permite comparar el resultado en base a una muestra determinada, en congruencia con lo anterior, la estructura de capital con mayor carga al pasivo no inhibe la generación de valor económico, ni perjudica la sostenibilidad financiera de la misma. **Discusiones:** los hallazgos encontrados permitieron catapultar las pésimas consideraciones existentes de las empresas apalancadas, demostrando que, aunque su compromiso con terceros sea elevado logran satisfacer sus obligaciones y generar beneficios. **Conclusiones:** Las futuras observaciones hacia una entidad, debe enfocarse más en la gestión estratégica, tecnológica y corporativa, para establecer una correlación sobre el uso prolongado y significativo de recursos ajenos para su desarrollo corriente.

Palabras clave: Deuda, estructura de capital, insolvencia financiera, riesgo financiero; sostenibilidad financiera.
Clasificación JEL: G32, G33.

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Introduction

Currently, the market represents all kinds of sizes, shapes and dimensions, whether these are corporations or sole proprietorships, for profit or non-profit, production or services (Díaz, 2009). Within the global environment, SMEs represent about 80% of the organizations that form 50% of the total employment (Cabana, 2009). For Ecuador, a 2017 study found that SMEs create seven out of ten jobs out of the total gross domestic product (GDP), without distinction (Amores & Castillo, 2017). It is important to mention that SMEs represent a high level of participation in the market and in the economy of the country. In addition, from a wealth-generating point of view, SMEs generate great flexibility and adaptability when exposed to the environment. Moreover, their innovative scope allows them to adapt more easily to potential customer demands (Luna & Güenaga, 2019).

In this regard, at the end of 2018 in Ecuador, a total of 899,208 companies were registered nationwide. From these, a total of 1,189,741 jobs were created by large enterprises, while 236,038 jobs were created by medium-sized enterprises A and 285,517 jobs were created by medium-sized enterprises B; microenterprises created 740,658 jobs; and small companies created 561,228 jobs (National Institute of Statistics and Census [INEC], 2020).

SMEs with strategic and systemic thinking are becoming the backbone of the economies of all countries (Cleri, 2007; Palacio & Soriano, 1999). Although they are categorized as a substantial source in an economy, they also face major problems such as: financing, training, research and development, access to information, bureaucratic management and entrepreneurial culture (Angelelli & Koenig, 2001; Murillo, 2004; Viéytez, 2002).

One of the most controversial and discussed topics of the business world is the formula or model for the substantial growth of SMEs (Barbero, 1980). There are several studies seeking to clarify what the problems that drive SMEs business failure are (Viéytez, 2002).

According to Beltrán et al. (2004) and Venegas (2020), the disadvantages of this type of organization are the following:

- The lack of strategic planning limits the competitiveness context in a local market and thus impacts growth.
- The controversial financial, accounting, legal, operational and administrative management is informal and haphazard.
- Access to financing and external investment is a noticeable difficulty due to the high risk of default on the part of debtors.

According to several studies, Haro (2021) confirmed that, in the context of SMEs, small firms are more productive and have low financial costs. López and Hernández (2019) argued that the lack of liquidity and low portfolio turnover are variables that limit the growth of SMEs. However, since large companies have different economic practices, it is important to clarify that the analysis of the context by size is a priority in the data analysis.

The lack of participation and information provided by the governments in power shows the negligible importance of SMEs for public policies. For this reason, an insight into all aspects would allow the creation and design of criteria that would theoretically benefit the survival of SMEs (Alomoto, 2010). Moreover, different environmental rules make it possible to adapt information to global understanding, thus improving internal knowledge and changing behavior to lead each company to long-term growth (Botello, 2021).

After clarifying the shortcomings and impact of the management of SMEs and their elevated risk level in the domestic market and external competitiveness, it is of great importance to analyze the textile sub-sector, because between 2015-2017, the sales generated in this sub-sector plummeted by 28.4%, affected by the slowdown of the country's economy. In 2018, there is a recovery and for 2019 there are good expectations (El Telégrafo, 2019).

Regarding the impact of governments on SMEs' sustainability, Megginson (2002) and Vértice (2011) argue that for a country to have a competitive and healthy sector dedicated to risk capital operations, it must consider the following key operations:

- The establishment of activities such as entrepreneurship and risk-taking as traditional diligence.
- A stock market with a comprehensive system protecting and safeguarding investors.
- A public sector that is open to allow for expansion, but without promoting interventionism.
- Stable regulations that do not penalize start-ups.
- A free and competitive labor market with plenty of engineering knowledge and development.
- A tax system that does not penalize, but which is partly restrictive and allows the use of stock options.
- Research, development and innovation (R&D&I) as the basis for a new industry.
- An active and free market for IPO (Initial Public Offering) transactions.

The research problem is to eliminate the common thought that indebtedness and leverage are elements that a company should not count on. Regarding this, Gallego (2018) argued that not all companies manage debt in the same way, which means that each company has a different approach to risk depending on the use of the leveraged resource. In line with the foregoing, Haro (2021) stated that debt exists in two ways,

depending on the ratio: in terms of equity, it hinders the creation of economic value, while in terms of assets, it contributes to the generation of profit.

With the above arguments, the basis of the research is to find out the characteristics of the textile sector regarding over-indebtedness. Several authors have mentioned that a high level of liability to third parties hinders growth and limits long-term sustainability. Insight into the peculiarities of each sector, however, would make it possible to clarify whether this group overall is following this pronounced trend.

Stratifying indebtedness levels in relation to the variables of activity affordability, insolvency risk and value-added indexes will allow a precedent to be established in observing the behavior of textile companies in the economic-financial environment. Therefore, this study aimed to determine whether the capital structure affects the insolvency, risk, and value generation metrics in the textile companies of ISIC C13, C14, and C15, with the purpose of arguing whether an excessive burden of liabilities affects the operational and financial development of the organization.

The research covered a group of companies manufacturing textile, clothing, leather, and related products. It is important to reiterate that the eligibility of each of the ISICs was due to their strong similarity, from the financial structure approach. The study only considered companies that had significant information for 2015 to 2020, as long as the data were in a harmonized distribution and with a controlled level of variance.

The general design of the research is cross-sectional. Therefore, it sought to analyze the significance of the capital structure with respect to the generation of economic value in the companies of the textile sector for 2015 to 2020.

The time and space limit were companies in the entire Ecuadorian territory. The theoretical limit was the contemporary theories of cost, income and indebtedness, explained based on the structure of optimal financing and the internal and external environment.

Theorical Foundation

Proximal risk and management methods

Barajas et al. (2013) and Murillo, (2006) emphasized that Peter Drucker confirmed the term "risk" in a context that increases fear, and fear in small organizations lies in the lack of sustainability and financial freedom. However, this author has emphasized that eliminating risk in companies is unimportant or useless because risk is inherent to an organization's existence.

A traditional way to manage existing risks and try to mitigate them, as per Morales (2016), are as follows:

- Identification: It is the identification of potential threats existing in an organization.
- Quantification: The process of weighing how significant or serious the threat is in terms of severity and frequency.
- Risk Economic Management Plan: It is the planning or treatment process for such a threat. A clear example of this is the risk management matrix.

Similarly, Seoane (2005) mentions that risk assessment is a formal process for identifying and assigning a priority level to the risks in an organization in order to prioritize them before taking action. This author categorizes the following steps as the optimal ones for risk assessment:

- Step 1: Identifying assets
- Step 2: Identifying threats
- Step 3: Identifying vulnerabilities
- Step 4: Estimating the exposure of the assets
- Step 5: Identifying controls and potential attacks
- Step 6: Assigning a priority level to risks

Each organization has a different orientation and is biased by the mission, vision and pre-established values. However, there are organizations that do not limit their purpose or their goals may be unrealistic, so it is the responsibility of senior management to set the goals prior to the design and implementation of an internal control system through a formal or informal process, depending on the organization (Carvajal & Escobar, 2013; Longenecker et al., 2012; Valencia, 2002).

Debt management and fundamentals of debt in organizations

From a financial approach, the structure of any given organization will depend on the equity and indebtedness perspective to satisfy its interests (Masgrau, 2005). Moreover, it is emphasized that high indebtedness levels could cause the organization to not meet certain obligations, with respect to current payments, wages and salaries (Córdova et al., 2018). A positive contribution to the debt burden is justified for companies undergoing expansion as they seek to create a new appropriate environment based on market share and competitiveness. It is also noted that this risk, inherent in the ability to borrow and the willingness to risk everything to grow, attracts investors. (Fracica, 2009).

The idea of reaching an optimal solvency level is based on the need to meet the commitments made, and at the same time, ensure that these are met by the productive and financial activity of the organization (Llanes, 2012). By analyzing the liability items, it is clearly emphasized that the failed companies are those

that are in the zone of excessive indebtedness, i.e. the high burden of obligations with intermediary financial institutions, accounts payable and suppliers (Espinosa et al., 2015). It is important to emphasize that the situation of high indebtedness is detrimental to the company's insertion into a capital market, as it entails a low level of net worth and corporate solvency (Pesce et al., 2015).

Thus, determining whether indebtedness is detrimental to business growth is particularly important in the administrative and managerial environment. Carriel and Flores (2020) revealed that the company's results will depend on its resource acquisition. They also argued that indebtedness has a proportional impact on profitability at corporate level.

Although reasons abound for researching and analyzing SMEs, it is necessary to conduct detailed research with a focus on selected groups with the same characteristics, so that the research is relevant to the sub-industry and helps establish new administrative and financial policies with the aim of forging financial ideals to the backbone of the organization based on promoting stability and corporate image, as well as sustained growth (Venegas, 2019).

Economic value generation and its impact

The analysis and study of the economic feasibility of any given organization should become an ongoing assessment method. Also, it should be implemented by assessing what influence certain strategies have over business development, for the purpose of foreseeing different scenarios through income, costs and expenses forecasts (Eslava, 2003, 2016). Markets are increasingly complex and competitive, which forces companies to evolve so as to avoid failure.

Segura (1994) found in 12 sectors and in a sample of 191 organizations, that in terms of economic profitability, the sectors that operate with a large volume of capital obtain a lot of profit, but extremely low turnover. Financial decisions are a broad but limited subject. The need to adjust financial level strategies in all procedures plays a key role in the comprehensive management of a healthy company, which is why it is important for competitiveness and profitability (Flores, 2013). Though, measuring based on competition and market dominance, through business expansion, is a major contrast that ensures the present and future of sustained performance and undoubted survival (Salazar & Soto, 2009).

Robust liquidity, solvency, and management through planning and benchmarking are critical to determining a company's status and its ability to compete with other companies in today's environment. In addition, the correct interpretation of financial ratios requires a critical path of knowledge. This contribution would allow structuring for value creation (Porter, 1987).

Entering an industry requires optimal structuring to measures customers' needs; observing whether there is the possibility of being competitive within the cost ratio; considering if the preparation and specialization is sufficient for sustainability, that is, if all the conditions achieve a value generation necessary for subsistence (Morillo, 2001; Rubio & Baz, 2015).

Method

Design

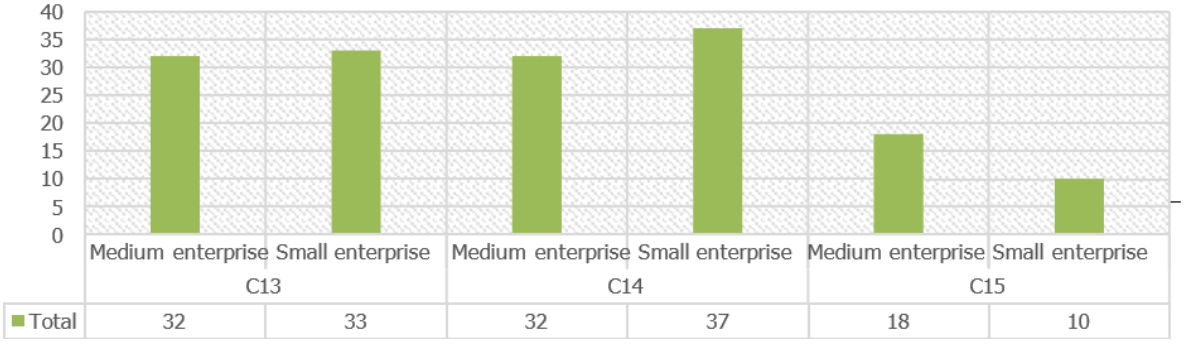
For this study, the following research approach and research scope were considered as research clauses:

- Approach: Approach: quantitative-qualitative, since we worked with data and at the same time empirically interpreted the capital structure of the textile companies previously selected
- Research design: Quasi-experimental, because the variables processed did not undergo any change per se, but pilots were performed by means of SOLVER to review the sensitivity of alpha (α) with respect to the absolute error. Such variables were performed in six timelines (2015-2020), classified by income level, economic activity and capital structure.

Participants

For the development and calculation of the methodology proposed, we worked on a period of 6 years, from 2015 to 2020, with Ecuadorian textile companies belonging to ISIC C14, C14 and C5. When specifying SMEs, the framework was based on small companies with 10 to 49 workers with an income of between USD 100,000 to USD 1,000,000. Finally, medium-sized companies with 10 to 49 workers with an income of between USD 1 to 5 million (Superintendent of Securities and Insurance Companies [SUPERCIAS], 2020b). After stratifying the study subjects based on the foregoing; they totaled 162 companies.

Figure 1. *Study Subjects*



Source: SUPERCIAS (2020a)

Note: These data were recorded through the differentiation proposed in the stratified sample of a total of 162 study subjects.

Methods

In order to continue our analysis, we observed the financial indicators of the textile sub-sector. The aim of this observation was to approach the economic behavior in the business cycle. These indicators were classified as follows:

Tabla 1. *Background Analysis*

Concept and Criterion	Ratios
Liquidity: The extent to which a company meets its obligations maturing in the short term; therefore, liquidity means the ability to convert assets into cash (Rubio Domínguez, 2007).	$Current\ Liquidity = \frac{Current\ Assets}{Current\ Liabilities}$ $Prueba\ ácida = \frac{Current\ Assets - Inventory}{Current\ Liabilities}$
Indebtedness: Debt ratios are long-term solvency ratios, which describe the degree to which a company is financed by third-party borrowed money (Griffin, 2005).	$Asset\ Indebtedness = \frac{Total\ Liabilities}{Total\ Assets}$ $Equity\ Indebtedness\ = \frac{Total\ Liabilities}{Net\ Equity}$
Management: provide information on the profitability and business cycle of the company through the income statement, measuring the profitability of its resources, including working capital, asset turnover, use of assets and recovery of values (Dueñas et al., 2010; Business Organizations Superintendence, 2020).	$Portfolio\ Turnover = \frac{Sales}{Total\ Assets}$ $Average\ collection\ period = \frac{Accounts\ Receivable}{Purchases}$ $Average\ payment\ period = \frac{Accounts\ Payable}{Purchases}$
Profitability: This is understood to be the rate at which the company remunerates all the resources (investments or assets) used in its operation. It is intended to measure the capacity of the company's assets to generate profits in order to remunerate both liabilities and shareholders (Eslava, 2003).	$Gross\ Income = \frac{Income - Costs}{Income}$ $Net\ Income = \frac{Net\ Income}{Income}$

Source: Compiled by the authors (2019).

In this step, the calculation of several equations was considered in order to observe the behavior of the manufacturing sector, the textile subsector, focusing on financial risk. These were classified as follows:

Table 2. *Explication and Order Variables*

Concept and Criterion	Ratios
Altman Z-Score: This is a formula used to determine whether a company is about to fail. It takes into account profitability, leverage, liquidity, solvency and activity ratio. Altman with a Z value close to 1.8 indicates that the company may be about to go bankrupt, while a score closes to 3 indicates that the company is financially sound (Kenton, 2020). According to the research of (Cordoba Restrepo et al. (2018) and Sarango (2021), the criteria for Altman show that, if the value is greater than 3, the company is safe; a value between 2.7 and 2.9 means the company is in the precautionary area; a value between 1.8	$Z = 1{,}2(X1) + 1{,}4(X2) + 3{,}3(X3) + 0{,}6(X4) + 0{,}999(X5)$ • X1 = Work/Total Assets Capital • X2 = Retained Earnings/Total Assets • X3 = Earnings before interest and taxes/total assets • X4 = Market value of equity/book value of total debt • X5 = Sales/Total Assets

to 2.7 means the company is in the warning area; and, finally, a value less than 1.8 represents insolvency.	
Kanitz's Thermometer: Kanitz promoted, in the early 1970s, one of the firsts, if not the first, study on bankruptcy forecasting in Brazil by means of statistical modeling. From 5 (five) indexes taken from financial statements, he built an equation with math that adopts multiple regression techniques and discriminant analysis (Weil, 1980).	$X_1 = \frac{Current\ Assets}{Net\ Equity}$ $X_2 = \frac{Current\ Assets + Disponsable\ LP}{Short\ Term\ Liabilities + LP\ Overdue}$ $X_3 = \frac{Current\ Assets - Inventory}{Short\ Term\ Liabilities}$ $X_4 = \frac{Short\ Term\ Liabilities + LP\ Overdue}{Net\ Equity}$

Source: Compiled by the authors (2019).

In this step, the calculation of several equations was considered in order to observe the behavior of the manufacturing sector, the textile subsector, focusing on financial risk. These were classified as follows:

Table 3. *Explication and Order Variables*

Concept and Criterion	Ratios
Capital Structure: This is determined as the balance or mix between long-term and capital debt amounts (Díaz, 2012).	$Capital\ Structure = \frac{Debt}{Capital}$
Weighted average cost of capital (WACC): This is the cost of financing a project based on financial debt and equity, from the relative perspective (Delaux, 2017; Horne and Wachowicz, 2002).	$CPCC = Ke * [E/(E+D)] + Kd * (1-T) * [D/(E+D)]$ *Kd:* Cost of the Financial Debt: *Ke:* Cost of Company's Own Funds *β:* Company's Beta $\beta = TAi = \frac{\Sigma \ln Ai}{n}$ *TAi:* Company size calculated as the average of the averages of the natural logarithms (ln) of total assets (Ai). *D:* Financial Debt *E:* Company's Own Funds
Economic Value Added (EVA): According to Amat (2000), EVA could be defined as the amount after deducting from income all expenses, including the opportunity cost of capital and taxes; in other words, EVA considers all the factors used in business activity.	$EVA = UAIDI - Activos\ (x)\ WACC$
Return On Invested Capital (ROIC): This is the percentage obtained by dividing the net operating profit after tax (NOPAT) minus income tax, by the total capital invested in the company, which is both equity and financial debt, i.e., it is the rate of return on invested capital (Novalvos, 2014)	$ROIC: \frac{NOPAT}{Company's\ Own\ Funds + Financial\ Debt}$

Source: Compiled by the authors (2019).

Statistical Analysis

Analysis of variances (ANOVA.)

This is a statistic that was created in 1930 by Fisher and is recognized as an essential tool for the study and analysis of one or more factors on the mean of a continuous variable. The aim of the statistic is to compare whether or not the groups have a significant difference between them (Girden, 1992).

The parametricity conditions classify the difference between individuals and their stratification in groups, as well as by categories. But how do we know if we need to use the analysis of variance (ANOVA)? This is derived from the number of groups studied. If the study has two variables, it is advisable to use Student's T, if the characteristics evaluated adjudicate more than two categories, it is appropriate to apply ANOVA (Stihle & Wold, 1989).

In the view of Diez et al. (2019), the statistic named ANOVA analyzes the F ratio, which is the value studied between the variances of the means of the groups. Specifically, if S_1^2 is the variance of a sample of size $n1$ drawn from a normal population of variance σ12 and $S22$ is the variance of a sample of size n_2 created based on a normal population of variance σ_2^2 and both samples are independent, the quotient would be as follows:

$$F_{ratio} = \frac{\frac{{S_1}^2}{{\sigma_1}^2}}{\frac{{S_2}^2}{{\sigma_2}^2}}$$

As per the research of Rubio-Hurtado and Berlanga-Silvente (2012), the hypotheses for ANOVA analysis are:

- H_0: This affirms that the variables analyzed are not related to each other.
- H_1: This affirms that there is certain level of relation between each other.

The process to accept or reject hypothesis lies in the review of the P-value, which indicates the significance of an assessment. The null hypothesis is rejected, and the alternative is accepted when p<0.5; if p>0.05 the null hypothesis is accepted as per which there is no correlation or association.

Due to the aforementioned, the goal of the approach was to investigate whether there is a significant difference in the indicators with respect to capital structure, and thus verify the impact of the high burden of liabilities to third parties in the different approaches shown.

Multiple Correspondence Analysis (ACM).

This is a methodological analysis, mainly for nominal categories, whose purpose is to show the structure of a data set and its extent for three or more variables. Its representation is designed using the AC algorithm and is shown in a TDC full isolation table or in a Burt table generated based on variables. The rows show individuals, the columns show binary indices, and the Burt table is symmetric. It is similar to that of the diagonal matrix and the continuous covariance matrix (Olivares, 1996). Soria and Hugo (2016) explain that this methodology constitutes an advanced tool for analyzing data in relational space and seeks to capture interdisciplinary matter that are analytically constructed in the space.

The first parameter to be considered is the proximity index between the values. The equation is as follows:

$$d^2(i,i') = \sum_{j=1}^{J} \frac{1}{f_{+j}} \cdot \left(\frac{f_{ij}}{f_{i+}} - \frac{f_{i'j}}{f_{i'+}} \right)^2$$

The relative frequency is evaluated as a means of significance weighted over other means and its calculation corresponds to the following equation:

$$f_{ij} = \frac{n_{ij}}{N}$$

The contrast of assumptions when proposing in this type of table lies in their inherent consistency, that is to say:

- H0 proposes that the variables are independent.
- H1 confirms that there is a dependency contrast.

Once the considerations and interpretations are known, the MCA calculation is as follows:

$$x^2 = \sum_i \sum_j \frac{(n_{ob} - n_{es})^2{}_{ij}}{(n_{es})_{ij}}$$

Where nob are the absolute frequencies and ne are the expected frequencies under the null hypothesis correspondence, the expected frequencies are met by the following equation:

$$n_{es} = \frac{n_{i.} . n_{.j}}{N}$$

When the findings are applied, we also analyze how they are distributed with respect to the degrees of freedom of $(i - 1)$. $(i - 1)$. If this finding shows that the P value is less than alpha 0.05, then the null hypothesis is rejected. The residuals that fit a type are calculated with the following expression:

$$r_{ij} = \frac{n_{ob} - n_{esp}}{\sqrt{n_{esp}} \sqrt{\left(1 - \frac{n_{i.}}{N}\right)\left(1 - \frac{n_{.j}}{N}\right)}}$$

The aim of this methodological validation was to observe the association of the variables in categorical perspectives, thus providing evidence for the existing affinity between the proposed indicators and their different perspectives in this sector of the economy.

Results

Current liquidity serves to evaluate the managed values of current assets vs. current liabilities in each period. As per the basic theory, in the worst-case scenario, it should be equal to 1, and in the best-case scenario, analyzing the use of money in time and leisure, it should be less equal to 1.5 (Senderovich & Telias, 1983).

Current liquidity in ISIC-C13 presented satisfactory values with an average of 1.3843 and a deviation of 0.1093. In ISIC-C14, it showed normal values with an average of 1.2612 and a deviation of 0.1990. In ISIC-C15, it showed satisfactory values with an average of 1.4184 and a deviation of 0.1605.

The **acid test** sets a similar criterion to current liquidity. However, in this category, it discounts inventories from the calculation, the acid test assessment mentions that it should be greater than 0.75 and less than 1. The ISIC-C13 acid test comprises values with a mean of 0.7932 and a deviation of 0.088. In ISIC-C14, it comprises values with a mean of 0.5915 and a deviation of 0.1904. ISIC-C15 comprises values with a mean of 0.916 and a deviation of 0.1076.

Asset indebtedness shows evidence for the company autonomy when relating them to third parties, and the optimal gap according to theory is 40% to 60% (Burguete, 2016). When relating the sector's commitment to third parties, it could be determined that ISIC-C13 had greater autonomy as it showed an average of 54.67% and a deviation between data of 0.0711. In C14-C15, the same conditions were found, and it was observed that the average between these is 65.34% and the deviation stands at 0.0201. In this context it is shown that these sectors have not been as efficient as C13 regarding indebtedness to third parties.

Equity **indebtedness** does not have a set theory regarding the optimal value of the mix between debt and equity, therefore this ratio sought to determine the capital structure managed by the company in a given period of time (Burguete, 2016). The equity indebtedness of ISIC-C13 was managed efficiently and effectively. It is necessary to mention that from the three categories, it is the best managed one in this source with an average of 0.910 and a deviation of 0.0994. In ISIC-C14, an average of 1.066 and a deviation of 0.203 was obtained. ISIC-C15 shows the most significant values of the debt impact with respect to the studied sub-sector's capital with an average of 1.4510 and a deviation of 0.1618.

Portfolio turnover serves to observe collection of money in a period of time, in other words, the number of times accounts receivable are cashed. In ISIC – C13 we can see a portfolio turnover of 3.1648 times (every 114 days) on average and a deviation of 0.6836. In ISIC – C14 a turnover of 3.0854 (every 117 days) times on average and a deviation of 0.5214406. In ISIC – C15, there is a turnover of 3.2204 times (every 112 days) on average and a deviation of 0.5066.

Average collection period vs. average payment period. Here the objective is to determine the freedom of companies to meet their obligations without recourse to external sources. In a relationship between PPC and PPP, it has been observed that there is a satisfactory margin between them, which allows them, as companies, to recover the portfolio and thus make the payment of their obligations to third parties.

The **margin or gross profit** is that which compares the first stage profit, i.e. the income pertaining to the business cycle vs. costs. The results found in ISIC-C13 show an average of 44.3% with a deviation between data of 4.1%. In ISIC-C14, there is an average of 50.12% with a deviation between data of 6.07%. In ISIC-C15, there is an average of 41.7% with a deviation between data of 3.97%.

Net income is the last phase in the income statement, this value reflects revenues minus all expenses incurred in the business cycle (Horngren et al., 2000). In ISIC-C13 the average net profit is 2.05% with a deviation of 0.94%. In ISIC-C14. The average is 1.64% with a deviation of 0.91%. In ISIC-C15, the average is 1.54% with a deviation of 1.10%.

In order to meet the research goal, we analyzed whether the capital structure significantly affects risk, value generation and insolvency, using ANOVA analysis of variances to determine the distribution of the data between the groups:

Table 4. *ANOVA – Altman Z*

ANOVA de un factor

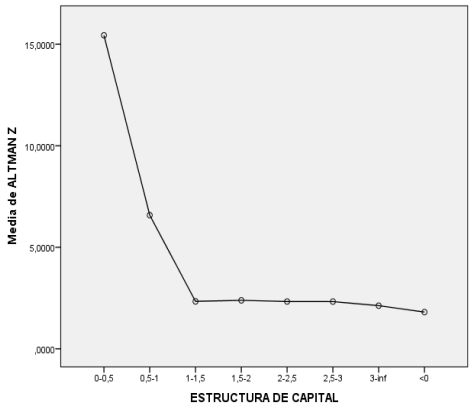
ALTMAN Z

	Suma de cuadrados	gl	Media cuadrática	F	Sig.
Inter-grupos	31343,167	7	4477,595	1,905	,066
Intra-grupos	2265371,558	964	2349,970		
Total	2296714,725	971			

Prueba de homogeneidad de varianzas

ALTMAN Z

Estadístico de Levene	gl1	gl2	Sig.
4,019	7	964	,000



Source: Compiled by the Authors (2019) by means of statistical SPSS v.21

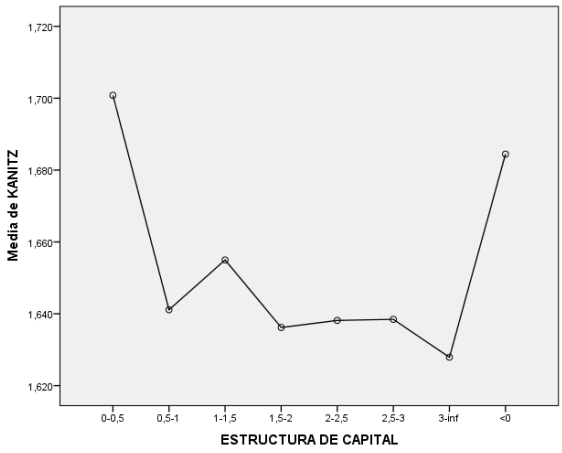
The one-factor ANOVA with a *P-value of 0.066* indicates that there is no significant difference between the study subjects. However, the value is very close to *0.05*, so using Levene's statistic with a significance level of 0.000 affirms that the variances between subjects are relatively different.

Table 5. ANOVA –Kanitz

ANOVA de un factor

KANITZ

	Suma de cuadrados	gl	Media cuadrática	F	Sig.
Inter-grupos	,818	7	,117	13,161	,000
Intra-grupos	8,563	964	,009		
Total	9,381	971			



Source: Compiled by the Authors (2019) by means of statistical SPSS v.21

The one-factor ANOVA with a *P-value of 0.000* indicates a significant difference between the study subjects, and Levene's statistic with a significance level of *0.000* confirms that the variances between subjects are relatively different.

Table 6. *ANOVA –WACC*

ANOVA de un factor

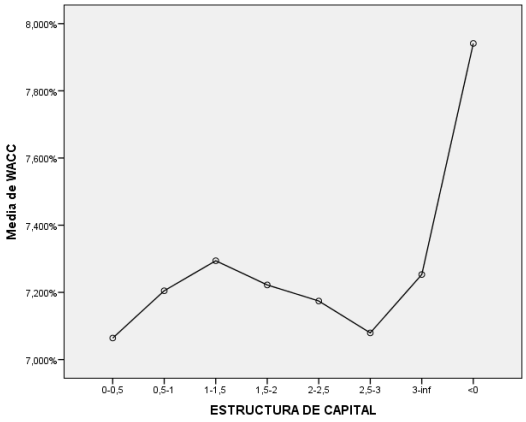
WACC

	Suma de cuadrados	gl	Media cuadrática	F	Sig.
Inter-grupos	12,346	7	1,764	2,886	,005
Intra-grupos	589,116	964	,611		
Total	601,462	971			

Prueba de homogeneidad de varianzas

WACC

Estadístico de Levene	gl1	gl2	Sig.
15,755	7	964	,000



Source: Compiled by the Authors (2019) by means of statistical SPSS v.21

The one-factor ANOVA with a *P-value of 0.005* indicates that there is a significant difference between the study subjects, and Levene's statistic with a significance level of *0.000* confirms that the variances between subjects are relatively different.

Table 7. *ANOVA – EVA*

ANOVA de un factor

EVA

	Suma de cuadrados	gl	Media cuadrática	F	Sig.
Inter-grupos	56977820597	7	8139688657	,509	,828
Intra-grupos	1,540E+13	964	15977914029		
Total	1,546E+13	971			

Prueba de homogeneidad de varianzas

EVA

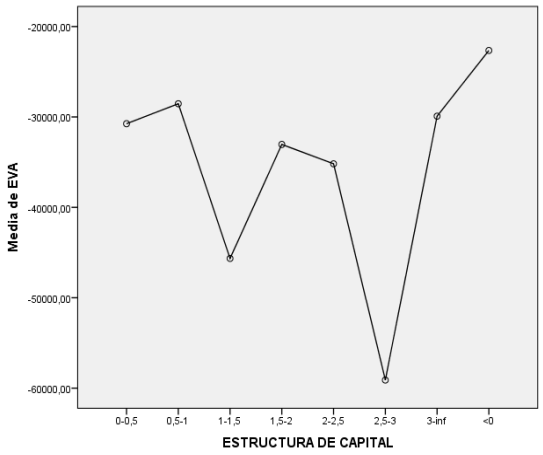
Estadístico de Levene	gl1	gl2	Sig.
4,261	7	964	,000

Pruebas robustas de igualdad de las medias

EVA

	Estadístico[a]	gl1	gl2	Sig.
Welch	,709	7	127,115	,664
Brown-Forsythe	,654	7	613,203	,711

a. Distribuidos en F asintóticamente.



Source: Compiled by the Authors (2019) by means of statistical SPSS v.21

The one-factor ANOVA with a P-value of 0.828 indicates that there is no significant difference between the study subjects, using the Levene's statistic with a significance level of 0.000 confirms that variances between subjects are relatively different. This counter-replication is confirmed by the Welch and Brown-Forsythe robust test, which does not assume that the variances are equal, and with a significance level of 0.664 and 0.711, it is confirmed that the distribution between subjects is different.

Tabla 8. *ANOVA –ROIC*

ANOVA de un factor

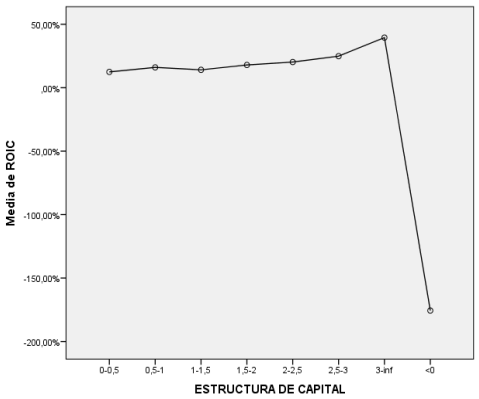
ROIC

	Suma de cuadrados	gl	Media cuadrática	F	Sig.
Inter-grupos	459748,731	7	65678,390	21,701	,000
Intra-grupos	2917609,394	964	3026,566		
Total	3377358,125	971			

Prueba de homogeneidad de varianzas

ROIC

Estadístico de Levene	gl1	gl2	Sig.
68,163	7	964	,000



Source: Compiled by the Authors (2019) by means of statistical SPSS v.21

The one-factor ANOVA with a P-value of 0.000 indicates that there is a significant difference between the study subjects, and Levene's statistic with a significance level of 0.000 confirms that the variances between subjects are relatively different.

Finally, by means of the Multiple Correspondence Analysis, it is expected to observe the categorical variables with affinity with one another, through the diagram, in order to ratify if the capital structure is related to effects and specifics of risk, value generation and insolvency:

Tabla 9. ACM and other discriminant measures.

Historial de iteraciones

Número de iteraciones	Varianza explicada		Pérdida
	Total	Incremento	
100[a]	9,517037	,000035	14,482963

a. Se ha detenido el proceso de iteración debido a que se ha alcanzado el número máximo de iteraciones.

Resumen del modelo

Dimensión	Alfa de Cronbach	Varianza explicada		
		Total (Autovalores)	Inercia	% de la varianza
1	,944	10,494	,437	43,726
2	,921	8,540	,356	35,582
Total		19,034	,793	
Media	,934[a]	9,517	,397	39,654

a. El Alfa de Cronbach Promedio está basado en los autovalores promedio.

Correlaciones de las Variables transformadas

Dimensión: 1

	ESTRUCTURA	ALTMANZSCORE	KANITZ	WACC	EVA	ROIC
ESTRUCTURA	1,000	,607	,226	,114	,040	,248
ALTMANZSCORE	,607	1,000	,180	,264	,302	-,100
KANITZ	,226	,180	1,000	,093	-,011	,043
WACC	,114	,264	,093	1,000	,020	-,063
EVA	,040	,302	-,011	,020	1,000	-,470
ROIC	,248	-,100	,043	-,063	-,470	1,000
Dimensión	1	2	3	4	5	6
Autovalores[a]	10,494	5,187	2,969	2,702	1,491	1,156

a. Los autovalores de la matriz de correlaciones ponderada con las ponderaciones de las variables.

Correlaciones de las Variables transformadas

Dimensión: 2

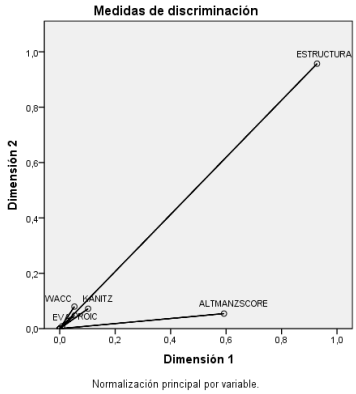
	ESTRUCTURA	ALTMANZSCORE	KANITZ	WACC	EVA	ROIC
ESTRUCTURA	1,000	,124	,166	,180	,080	,127
ALTMANZSCORE	,124	1,000	,091	,050	,035	-,040
KANITZ	,166	,091	1,000	,082	,083	,019
WACC	,180	,050	,082	1,000	,005	,053
EVA	,080	,035	,083	,005	1,000	-,126
ROIC	,127	-,040	,019	,053	-,126	1,000
Dimensión	1	2	3	4	5	6
Autovalores[a]	8,540	4,237	3,654	2,934	2,754	1,881

a. Los autovalores de la matriz de correlaciones ponderada con las ponderaciones de las variables.

Medidas de discriminación

	Ponderación de la variable	Dimensión		Media
		1	2	
ESTRUCTURA	8	,928	,957	,943
ALTMANZSCORE	4	,592	,054	,323
KANITZ	3	,102	,072	,087
WACC	3	,053	,080	,066
EVA	2	,009	,009	,009
ROIC	4	,054	,048	,051
Total activo[a]		10,494	8,540	9,517
% de la varianza		43,726	35,582	39,654

a. Las ponderaciones de las variables están incorporadas en los estadísticos de Total activo.



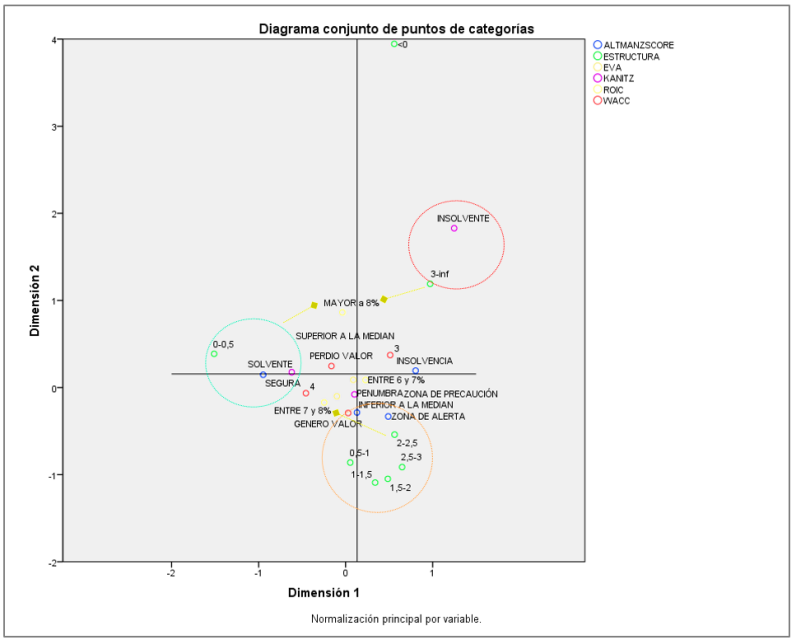
Source: Compiled by the Authors (2019) by means of statistical SPSS v.21

Therefore, it is affirmed that 100% of the cases inserted were admitted. The process ended when the test for convergence reached 100 interactions, Cronbach's alpha (reliability coefficient) determined a value for the first dimension of 0.944 and of 0.921 for the second one, which affirms that the instrument and its responses are reliable. The variance expressed in each dimension is different, dimension (1) is more variable

than (2), with an absolute gap of 8.144. Moreover, calculations show that dimension (1) is more reliable, with a difference of 0.023. Both have an equivalent value of inertia, which predicts a semi-direct relationship.

The discrimination measures dimension (1 and 2) is mainly explained by the capital structure with 0.928 and 0.957. Moreover, this is supported by the Altman calculation with a value of 0.529 and 0.054 respectively. The graph represents the same information and shows a relative and visible significance.

Figure 2. Study Subjects



Source: SUPERCIAS (2020a)

The category scatter plot shows the map of correspondences with all categorical variables. The lower left quadrant contains the highest number of capital structures (0.5 to 3) associated with value creation, caution and alert zone, as well as a WACC between 6 and 7% and a ROIC below the median. In addition, a structure greater than 3 indicates that it is in the upper right quadrant, which is associated with insolvency according to Kanitz and Altman. Finally, the structure (0 to 0.5) in the upper left quadrant is associated with solvency and economic value loss.

Discussion

Canales and Cubillo's (2020) comments on the limitations that occur in full solvency are valid. Through an analysis of financial ratios different extensions are found, with which a criterion of an organization's baseline situation is issued, and with these investors may decide whether to make a contribution or not. However, Naranjo (2009) mentions that, although an organization may be overindebted, it is important to

understand that the expansion factor is a bold risk that many industries take in order to participate in a competitive market, and it is also important to emphasize that this risk is attractive to a certain group of investors.

This research work found that companies, although they may have a high level of indebtedness, manage to satisfy their current and non-current needs. They also manage to generate an economic value to survive, and this can be seen in the ROIC criterion. The suggestion evaluated in the XIX century in a Spanish environment completely differs from the one in Ecuador today, as the use of liabilities to generate profits is considered a risk, but a solution for the solvency of working capital, for which the research depicts the same empirical conditions as those by Masgrau (2005). The emphasis on which structure is optimal will depend on the level of needs and the interest a company requires at a certain moment.

The question is whether over-indebtedness poses risks to sustainability and value creation. The answer is incomplete. Pesce et al. (2015) mentions that the difficulty of accessing a capital market is negligible when the level of indebtedness is too high and is characterized by minimal capital and high negative risk. However, although the criterion is correct, in Ecuador the stock market does not generate a significant participation and is not considered a relevant source of financing for SMEs.

The analysis of a company in the context of business failure or insolvency is superfluous, if only analyzed from that approach. Therefore, it is important to provide a complete representation of the management of a given sector and its biases to avoid syllogisms that could cloud a favorable criterion. Espinosa et al. (2015) emphasized that highly indebted companies are the most likely to fail, but there are exceptions. Analyses show that the reason why most companies go bankrupt in any given period is the lack of current liquidity and the difficulty to finance their working capital, which drive companies to certain failure. In this dramatic scenario, however, the debt itself is not a critical factor from the point of view of comparing financial expenses and net income. If the former is higher than the latter, it would entail a difficulty for the high cost of capital. In this scenario, debt would be a complex factor to evaluate.

In this research section, from the textile stratification approach, it was proved that the costs and expenses are fully covered. In addition, it allowed to personify the debt as a means of progress in the expansion factor. In line with the above, Sarango (2021), in his study, agrees that the appropriate level of debt depends on the context of the organization and its economic activity. It also confirms that debt is not a variable that influences the loss of economic value. Thus, it is necessary to take into account the ideas of Botello (2021) that the financial information organized and segmented as per a given standard allows feasible and coherent decisions to be made.

Seoane (2005) created a completely accurate criterion, although risk is imminent and exists by virtue of an organization's very existence, there are infinite ways to manage it to mitigate its consequences. Venegas (2019) also comments on financial auditing and business management and proposes that an organization continuously evaluates whether the profits generated are in line with the strategic positions proposed. Moreover, in an ordinary environment, not all companies use analytical resources, usually, their behavior is empirical and narrowly traditional, which would become an obvious intrinsic risk.

In short, this study has allowed us to observe different approaches. One of them is that the relevance observing from a single angle is insignificant for a key criterion; another is that the determinants of insolvency and financial risk are varied, and this is rooted in the sectoral behavior and the level of participation in a business environment. Porter establishes a substantial precedent consisting of the quantification of competitiveness and the management of customer sustainability in the market, emphasizing that an industry must be able to observe its position and if it is capable of growing.

Conclusions

This study included a review of the textile company setting, in order to determine an indication for a second investigation into the impact on other economic sectors. The variables studied revolve around and are related to the capital structure, which we have discussed in a broad and extensive manner. In addition, different perspectives have been gathered and different criteria have been analyzed, this premise allows us to observe and completely eliminate any prejudice or bias with respect to debt, however, there are innumerable existing studies with respect to the capital structure of the textile industry.

It is interesting to observe the aspects of the insolvency methods and the different results obtained. But why is this so? It should be clarified that Altman makes a review based on proposed indicators that seek to review the context and evolution of a company. Kanitz, on the other hand, evaluates his equation on the basis of a regression that is carried out and adjusted according to the context of the companies analyzed on the basis of a liquidity premise. The results obtained are shown below:

One of the questions is which ISIC is more efficient and effective. It is important to mention that each ISIC handles different conditions, such situations lie in the products or services offered, the stratification of the study C13-C14-C15 have similar characteristics with respect to the economic situation. Analyzing from baseline conditions such as liquidity, indebtedness, management and profitability, companies belonging to ISIC C13 create less sustainability and sensitivity compared to others, but this does not mean that ISIC C14 and C15 have bad results, but that their development presented a minimal gap with ISIC C13, which is not very significant.

From the insolvency approach, Altman determines that ISIC C13 and C14 have a more significant solvency rank. Moreover, ISIC C15 has a greater insolvency burden. From the perspective of company size, small companies have a higher solvency index, and companies categorized as medium-sized are 7.19% more likely to become insolvent. Per the Kanitz criterion, most companies fall in the gray area, but some are notable, since according to Kanitz's evaluation, medium-sized companies are more solvent, and small companies have a higher insolvency rate. As regards ISIC, C13 companies are more solvent, on the contrary, C14 and C15 companies exchange the same scenarios with a gap of 0.66%.

Regarding the capital structure, most authors and methodologies consider that the more debt a company has, the more it remains on the verge of bankruptcy. Although the criterion is partially correct, it does not mean that the company is doomed. Thus, management and financial factors are key to demonstrating the contrary. In this research work, it was determined that companies with high debt to capital weighting obtain a moderate weighted average capital cost as the other structures. In the profit generation criterion by the economic value added methodology, we can see that the capital structure does not influence the creation of wealth, so it is insignificant to say that companies with great debt to third parties are inefficient.

It is important to note and recommend that the management framework together with the financial factor ensures and demonstrates that companies should not be criticized for their debt burden, but rather, for how it handles effectiveness criterion. Although the current sources of financing are extensive and the cost of debt varies, it is imperative that companies evaluate the impact on the benefits received. In addition to being a potential source of the country's economy, the government of the day needs to monitor the impact of external economic factors on the business of small and medium-sized enterprises. The goal is to ensure that they remain sustainable in the long term. In addition, it is essential that the companies and the people who are in charge of them are in constant training in the field of finance, human resources, economic and management theories.

From all these arguments, it can be concluded that debt and leverage are not factors that influence the creation of economic value. Rather, they become a circumstantial element in insolvency models. It should also be noted that this research can become an essential element in the analysis of other economic sectors.

In addition, to avoid statistical interpretation problems, it is necessary to validate the variability of the proposed indicators due to the impact of the pandemic. Therefore, it is necessary to point out that not all companies manage resources properly. In other words, companies will determine their financial benefits in terms of management and operational efficiency.

Referencias

Alomoto, N. (2010). Diseño de una metodología para diagnosticar la situación actual de las Pymes en el Ecuador. *Revista Politécnica, 29*(1), 29-41. https://revistapolitecnica.epn.edu.ec/ojs2/index.php/revista_politecnica2/article/view/284

Amat, O. (2000). *E.V.A. Valor Económico Agregado.* Editorial Norma.

Amores, R., y Castillo, V. (2017). Las PYMES ecuatorianas: Su impacto en el empleo como contribución del PIB PYMES al PIB total. *Revista Espacios, 38*(53), 1-15. https://www.revistaespacios.com/a17v38n53/a17v38n53p15.pdf

Angelelli, P., y Koenig, V. M. (2001). *Las pymes exportadoras argentinas exitosas: Hacia la construcción de ventajas competitivas*. FUNDES.

Barajas, S., Hunt, P., y Riba, G. (2013). *Las finanzas como instrumento de gestión de las pymes: Un manual divulgativo para los propietarios, gerentes y gestores de pymes.* Libros de Cabecera. https://librosdecabecera.s3.amazonaws.com/book/42/capitulo-gratis-las-finanzas-como-instrumento-de-gestion-de-las-pymes.pdf

Barbero Navarro, J. (1980). Análisis del capital de trabajo en los proyectos de inversión. Universidad de la República, Facultad de Ciencias Económicas y de Administración.

Beltrán, A., Torres, E., Camargo, R., y Pérez, C. (2004). Pymes, un reto a la competitividad. Universidad Externado de Colombia. https://econpapers.repec.org/bookchap/extadmone/34.htm

Botello-Peñaloza, H. (2021). Normas contables NIIF y la valoración del riesgo de las empresas colombianas. *Desarrollo Gerencial, 13*(1), 1-20. https://doi.org/10.17081/dege.13.1.4049

Burguete, A. (2016). *Análisis financiero.* Editorial Digital UNID.

Cabana, G. (2009). Las Pymes: Un mundo de posibilidades. *Desarrollo Gerencial, 1*(1), 41-44. https://revistas.unisimon.edu.co/index.php/desarrollogerencial/article/view/3949

Carriel Canales, F., y Flores Cubillo, J. (2020). El Endeudamiento y la rentabilidad empresarial: Análisis empírico de las empresas manufactureras de la provincia del Guayas-Ecuador para el período 2015 - 2017. http://dspace.ups.edu.ec/handle/123456789/19522

Carvajal, A., y Escobar, M. (2013). Herramienta integrada de control interno y administrador de riesgos, enmarcada en un buen Gobierno Corporativo para pequeñas y medianas empresas en Colombia. Apuntes Contables (16), 19-37. https://revistas.uexternado.edu.co//index.php/contad/article/view/3357

Cleri, C. (2007). *El libro de las pymes.* Ediciones Granica S.A. https://granicaeditor.com/libro.asp?isbn=9789506415006

Córdoba Restrepo, L., Restrepo, L., y Leiva, L. (2018). Análisis del riesgo financiero de impago en las pymes del sector manufacturero de Colombia, subsector elaboración de alimentos. *Science of Human Action (histórico), 3*(1), 34-64. https://doi.org/10.21501/2500-669X.2711

Córdova León, F., Duque Espinoza, G., y González, M. (2018). Responsabilidad social empresarial. Una visión desde el endeudamiento y el empleo. https://www.researchgate.net/publication/328150255_Responsabilidad_social_empresarial_Una_vision_desde_el_endeudamiento_y_el_empleo

Delaux, H. (2017). *Planeamiento Estrategico y Creación de Valor: Reestructurar en Crisis.* Editorial Redactum.

Díaz, C. (2009). Calidad y excelencia en la gestión de las pymes españolas. Fundación EOI. https://www.eoi.es/es/savia/publicaciones/20513/calidad-y-excelencia-en-la-gestion-de-las-pymes-espanolas

Díaz, I. (2012). *Finanzas Corporativas en la Práctica.* Delta Publicaciones.

Diez, D., Çetinkaya-Rundel, M., & Barr, C. (2019). *OpenIntro Statistics.* Fourth Edition.

Dueñas, L., Martínez, A., Fernández, F., y Marcos, M. (2010). Metodologías del diseño aplicado y gestión de proyectos para ingenieros químicos. Universidad de Castilla La Mancha. https://publicaciones.uclm.es/metodologias-del-diseno-aplicado-y-gestion-de-proyectos-para-ingenieros-quimicos/

El Telégrafo. (2019, abril 1). Empresas textiles reflotan luego de dos años de crisis. https://www.eltelegrafo.com.ec/noticias/economia/4/sector-textil-signos-recuperacion-ecuador

Eslava, J. (2003). *Análisis Económico-Financiero de Las Decisiones de Gestión Empresarial.* ESIC Editorial.

Eslava, J. (2016). *La rentabilidad: Análisis de costes y resultados.* ESIC Editorial.

Espinosa, F., Molina, Z., y Vera-Colina, M. (2015). Fracaso empresarial de las pequeñas y medianas empresas (pymes) en Colombia. *Suma de Negocios, 6*(13), 29-41. https://doi.org/10.1016/j.sumneg.2015.08.003

Flores, M. (2013). Rentabilidad y competitividad en la PYME. C*iencia Administrativa*, (2), 80-86. http://www.uv.mx/iiesca/files/2014/01/11CA201302.pdf

Fracica Naranjo, G. (2009). La financiación empresarial y la industria del capital de riesgo: Estructura y conceptos. *Revista EAN*, 66, 31. https://doi.org/10.21158/01208160.n66.2009.472

Gallego Escobar, D. (2018). Estructura de capital en Pymes: Estudio de caso de empresa colombiana [Tesis de maestría, Universidad EAFIT]. Repositorio digital. http://repository.eafit.edu.co/handle/10784/12425

Girden, E. R. (1992). *ANOVA: Repeated Measures.* SAGE.

Griffin, R. W. (2005). *Negocios.* Pearson Educación.

Haro, A. (2021). Análisis del desempeño financiero y su incidencia en la generación de valor: Una evaluación a la industria de la construcción. *Revista 593 Digital Publisher CEIT6*(5), 241-250. https://doi.org/10.33386/593dp.2021.5.511

Haro Sarango, A. (2021). El tamaño de la empresa y su influencia en la productividad del sector comercio. *INNOVA Research Journal, 6*(3). https://doi.org/10.33890/innova.v6.n3.2021.1781

Horne, J., & Wachowicz, J. (2002). *Fundamentos de administracion financiera*. Pearson Educación.

Horngren, C., Sundem, G.., & Elliott, J. (2000). *Introducción a la contabilidad financiera*. Pearson Educación.

Instituto Nacional de Estadística y Censos [INEC] (2020). *Encuesta a Empresas.* https://www.ecuadorencifras.gob.ec/encuesta-a-empresas/

Kenton, W. (2020, junio 15). *Altman Z-Score.* https://www.investopedia.com/terms/a/altman.asp

Llanes, M. (2012). *Análisis contable con un enfoque empresarial.* http://www.eumed.net/libros-gratis/2012b/1229/index.htm

Longenecker, J., Hoy, F., Palich, L. E., & Petty, W. (2012). Administracion de Pequeñas Empresas: Lanzamiento Y Crecimiento de Iniciativas de Emprendimiento. CENGAGE Learning. https://clea.edu.mx/biblioteca/files/original/65fb99f2f7dce69900c89b17a8f96699.pdf

López Gómez, G.., y Hernández Orozco, Y. A. (2019). Análisis del impacto del endeudamiento sobre la rentabilidad de las pymes del sector comercial alimentos y bebidas no alcohólicas en Santiago de Cali, periodo 2017-2018 [Tesis doctoral, Universidad Santiago de Cali].Repositorio digital. https://repository.usc.edu.co/bitstream/handle/20.500.12421/1572/AN%C1LISIS%20DEL%20IMPACTO.pdf;jsessionid=D4DEE374B79426D20149D5B9B1BC5679?sequence=1

Luna, J., & Güenaga, J. (2019). *Gestión de la innovación empresarial: Conceptos, modelos y sistemas.* Fondo Editorial de la PUCP. https://www.fondoeditorial.pucp.edu.pe/categorias/936-gestion-de-la-innovacion-empresarial.html

Masgrau, E. G. (2005). El apalancamiento financiero: De cómo un aumento del endeudamiento puede mejorar la rentabilidad financiera de una empresa. *Revista de Contabilidad y Dirección*, (2), 71-91. https://accid.org/wp-content/uploads/2018/09/analisis_castellano_071-091.pdf

Megginson, W. (2004). Towards a Global Model of Venture Capital?. *Journal of Applied Corporate Finance, 16*(1). https://ssrn.com/abstract=321962 or http://dx.doi.org/10.2139/ssrn.321962

Morales, A. (2016, julio 5). ¿Qué es la Administración de Riesgos?. Red Global de Conocimientos en Auditoría y Control Interno. https://www.auditool.org/blog/control-interno/700-administracion-de-riesgos-

Morillo, M. (2001). Rentabilidad financiera y reducción de costos. *Actualidad Contable FACES, 4*(4), 35-48. http://www.redalyc.org/articulo.oa?id=25700404&iCveNum=676

Murillo, A. (2006). Peter Drucker, Innovador Maestro De La Administración De Empresas. *Cuadernos Latinoamericanos de Administración, 2*(2), 69-89. https://revistas.unbosque.edu.co/index.php/cuaderlam/article/view/1492

Murillo, Ó. (2004). *PYMES: Un componente importante del sector productivo en Costa Rica.* Editorial Universidad de Costa Rica.

Novalvos, M. (2014, septiembre 25). *¿Qué es el ROIC?.* https://www.novalvos.com/que-es-el-roic/

Olivares, J. (1996). Modelo de análisis de correspondencias múltiples. Revista de ciencias sociales, 2(2), 183-196. https://dialnet.unirioja.es/servlet/articulo?codigo=4276768

Palacio, J., y Soriano, D. (1999). Creación y dirección de Pymes. Ediciones Díaz de Santos. https://www.editdiazdesantos.com/libros/ribeiro-soriano-domingo-creacion-y-direccion-de-pymes-L03003970101.html

Pesce, G., Esandi, J. I., Briozzo, A. E., y Vigier, H. P. (2015). Decisiones de financiamiento en PyMEs: Particularidades derivadas del entrelazamiento empresa-propietario. *REGE - Revista de Gestão, 22*(3), 357-380. https://doi.org/10.5700/rege567

Porter, M. (1987). *Ventaja Competitiva: Creación y sostenimiento de un desempeño superior.* Grupo Editorial Patria.

Rubio Domínguez, P. (2007). *Manual de análisis financiero. Biblioteca virtual de derecho, economía, ciencias sociales y tesis doctorales.* https://www.eumed.net/libros-gratis/2007a/255/index.htm

Rubio, L., y Baz, V. (2015). *El poder de la competitividad*. Fondo de Cultura Economica.

Rubio-Hurtado, M., y Berlanga-Silvente, V. (2012). Cómo aplicar las pruebas paramétricas bivariadas t de Student y ANOVA en SPSS. Caso práctico. https://core.ac.uk/display/39101713

Salazar, A. L., y Soto, R. C. (2009). Estrategia y decisiones financieras: Factores de competitividad empresarial. *Observatorio de la Economía Latinoamericana*, 123. https://econpapers.repec.org/article/ervobserv/y_3a2009_3ai_3a123_3a5.htm

Sarango, A. (2021). La estructura financiera y el fracaso empresarial: Una apreciación a las grandes empresas de pesca y acuicultura. *Revista Ciencia Multidisciplinaria CUNORI, 5*(1). https://doi.org/10.36314/cunori.v5i1.148

Segura, A. (1994). La rentabilidad económica y financiera de la gran empresa española. Análisis de los factores determinantes. *Revista Española de Financiación y Contabilidad, 23*(78), 159-179. https://www.jstor.org/stable/42781061

Senderovich, I. A., y Telias, A. J. (1983). *Análisis de balances ajustados por inflación.* Ediciones Contabilidad Moderna.

Seoane, E. (2005). *Estrategia para la implantación de nuevas tecnologías en PYMEs*. Ideaspropias Editorial S.L.

Soria, A., y Hugo, V. (2016). El "Análisis de Correspondencias Múltiples" como herramienta metodológica de síntesis teórica y empírica. R*evista Latinoamericana de Metodología de las Ciencias Sociales*, 6, http://sedici.unlp.edu.ar/handle/10915/54585

Stihle, L., & Wold, S. (1989). Analysis of variance (ANOVA). Chemometrics and Intelligent Laboratory Systems, 6(4), 259-272. https://doi.org/10.1016/0169-7439(89)80095-4

Superintendencia de Compañías, Valores y Seguros [SUPERCIAS]. (2020a). *Estados Financieros por Ramas.* https://reporteria.supercias.gob.ec/portal/cgi-bin/cognos.cgi?b_action=cognosViewer&ui.action=run&ui.object=%2fcontent%2ffolder%5b%40name%3d%27Reportes%27%5d%2ffolder%5b%40name%3d%27Estados%20Financieros%27%5d%2freport%5b%40name%3d%27Estados%20Financieros%20x%20Rama%27%5d&ui.name=Estados%20Financieros%20x%20Rama&run.outputFormat=&run.prompt=true

Superintendencia de Compañías, Valores y Seguros [SUPERCIAS]. (2020b). RankingCias. Empresas Sujetas Al Control De La Superintendencia De Compañías, Valores Y Seguros. https://appscvs.supercias.gob.ec/rankingCias/

Superintendencia de Compañías, Valores y Seguros [SUPERCIAS] (2020). *Tabla de indicadores.* https://www.supercias.gob.ec/bd_supercias/descargas/ss/20111028102451.pdf

Valencia, J. (2002). *Administración de pequeñas y medianas empresas*. Thomson.

Venegas, H. (2019). *Auditoría financiera del capital de trabajo en PyMES: Evaluación integral para su negocio.* IMCP.

Venegas, H. (2020). *Capital de trabajo: Modelos de negocio con valor económico agregado.* IMCP.

Vértice, E. (2011). *Gestión integral de pymes.* Publicaciones Vértice SL.

Viéytez, E. (2002). *Desafios y oportunidades de las PYMES salvadoreñas: Construyendo una agenda de desarrollo.* FUNDES.

Weil, K. (1980). Como prever falências. *Revista de Administração de Empresas, 20*(2), 80-81. https://doi.org/10.1590/S0034-75901980000200014