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ANÁLISIS DEL CAPITAL INTELECTUAL EN EL REPORTING FINANCIERO DE EMPRESAS EN LA BOLSA DE QUITO Y GUAYAQUIL

ANALYSIS OF INTELLECTUAL CAPITAL IN THE FINANCIAL REPORTING OF COMPANIES ON THE STOCK EXCHANGE OF QUITO AND GUAYAQUIL

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RESUMEN

En el dinámico entorno económico actual, el conocimiento y la capacidad de innovación se han instaurado como los principales impulsores de la competitividad empresarial. En este escenario, el capital intelectual (CI) ha adquirido una relevancia estratégica fundamental para las organizaciones, sin embargo, la contabilidad tradicional ha tenido dificultades para reflejar adecuadamente estos activos intangibles en los estados financieros, generando una limitada evidencia sobre la medición y divulgación del CI en las empresas ecuatorianas que cotizan en la Bolsa de Valores de Quito y Guayaquil. El objetivo es analizar la relación entre el valor oculto y la mayor divulgación de información sobre los elementos del CI en los informes de auditoría de estas empresas durante el período 2010-2016. La metodología empleada es un estudio de naturaleza cuantitativa, con análisis de contenido de los informes anuales de una muestra representativa de empresas ecuatorianas. Entre los resultados, se encontró una brecha significativa entre el valor en libros y el valor de mercado de las empresas, lo que sugiere la presencia de activos intangibles no reflejados adecuadamente. Además, se observaron variaciones importantes en la divulgación de información sobre los componentes del CI entre las diferentes organizaciones. En conclusión, la normativa contable actual no permite el reconocimiento completo de los activos intangibles, por lo que se requieren esfuerzos normativos para disminuir la diferencia entre el valor de mercado y el valor en libros. Asimismo, los patrones diversos en la evolución del CI resaltan la importancia de considerar el contexto y las características específicas de cada empresa al analizar la revelación de información sobre este tipo de activos.

Palabras clave Capital intelectual, activos intangibles, divulgación de información, informes financieros

ABSTRACT

In today's dynamic economic environment, knowledge and innovation capacity have been established as the main drivers of business competitiveness. In this scenario, intellectual capital (IC) has acquired a fundamental strategic relevance for organizations; however, traditional accounting has had difficulties in adequately reflecting these intangible assets in the financial statements, generating limited evidence on the measurement and disclosure of IC in Ecuadorian companies listed on the Quito and Guayaquil Stock Exchanges. The objective is to analyze the relationship between hidden value and the increased disclosure of information on IC elements in the audit reports of these companies during the period 2010-2016. The methodology used is a quantitative study, with content analysis of the annual reports of a representative sample of Ecuadorian companies. Among the results, a significant

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gap was found between the book value and the market value of the companies, suggesting the presence of intangible assets not adequately reflected. In addition, significant variations were observed in the disclosure of information on IC components between different organizations. In conclusion, current accounting regulations do not allow for the full recognition of intangible assets, so regulatory efforts are required to reduce the difference between market value and book value. Furthermore, the diverse patterns in the evolution of CI highlight the importance of considering the context and specific characteristics of each company when analyzing the disclosure of information on this type of assets.

Keywords Intellectual capital, intangible assets, information disclosure, financial reporting

INTRODUCTION

In today's dynamic economic environment, knowledge and the capacity for innovation have become the main drivers of business competitiveness. In this scenario, intellectual capital (IC) has acquired fundamental strategic relevance for organizations, comprising those knowledge-based intangible resources that, when combined with tangible assets, generate value and sustainable competitive advantages (1).

The various elements that make up IC, such as human, structural, and relational capital, are increasingly decisive for organizational success. However, traditional accounting has had difficulties in adequately reflecting these intangible assets in the financial statements, which has aroused growing interest among academics and professionals in developing models and tools that enable their measurement and disclosure (2).

International Accounting Standard (IAS) 38 defines an intangible asset as an identifiable non-monetary asset without physical substance that is used in the production or supply of goods and services, for rental to others, or for administrative purposes. Consequently, this definition restricts the recognition of intangibles in the financial statements, since only those that have been acquired are considered (3).

Faced with this situation, international regulatory bodies such as the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) have recommended the inclusion of additional information on intangible assets outside the financial statements, thereby avoiding the incorporation of accounting criteria that could jeopardize the quality and reliability of financial information (4).

In this context, companies have the opportunity to complement information on their intangible assets through voluntary disclosure in annual reports. A growing body of literature (5), (6) has explored the nature of these IC disclosures in different countries, including Australia, Ireland, Canada, Sri Lanka, Malaysia, the Netherlands, France, Germany, and Spain.

However, in the case of Ecuador, research related to the measurement and disclosure of IC in companies is scarce or almost non-existent. This is partly because the topic has not yet been given due importance or there is widespread lack of knowledge in the accounting and financial sector (7).

Therefore, this paper aims to replicate the analysis carried out by (8) with data applied to the case of Ecuadorian companies. The research question to be answered is: Is there a correlation between the difference between book value and market value and greater disclosure of information regarding the elements of intellectual capital?

Human capital, as an intangible resource derived from people, refers to aspects such as their experience, talent, motivation, creativity, and problem-solving capacity (7). On the other hand, structural capital is related to the organization's intangible assets, such as technology, intellectual property, innovation capacity, and organizational culture (9). Meanwhile, relational capital is defined by the company's relationships with its environment, especially with the economic agents participating in the value chain (6).

In addition, various IC measurement models have been developed with the aim of establishing systematic tools and procedures to perform a financial estimation of intangible assets that are not adequately reflected in traditional accounting statements. Some of the most relevant models are the Balanced Business Scorecard, the Skandia Navigator, the Intelec Model, the Intellectus Model, the Nova Model, and the Strategic Management by Competencies Model (10).

In this way, these measurement models have made various attempts to provide useful information on IC in business reports. One of the most influential is Sveiby's Intangible Assets Monitor (11), which focuses on three categories of intangible assets: external structure, internal structure, and employee competence.

In the Spanish context, several studies have analyzed the disclosure of information related to IC in companies' annual reports. These works conclude that, although Spanish companies participate in the process of identifying, measuring, and reporting on their knowledge-based resources, the disclosure of this information remains limited, despite a certain improvement over the years (12).

In the case of Ecuador, research on the measurement and disclosure of IC in companies is scarce. However, some recent studies have explored the relationship between IC and the financial profitability of Ecuadorian companies, finding a positive and significant relationship (13).

Given the limited evidence on this topic in the Ecuadorian context, the present work seeks to contribute to the analysis of the disclosure of information related to IC in companies listed on the Quito and Guayaquil Stock Exchanges. Specifically, it aims to study the relationship between hidden value and greater disclosure of information on IC elements in the audit reports of these companies during the period 2010-2016.

MATERIALS AND METHODS

Research method:

The research presented in this article is classified as a quantitative study. This approach was selected due to its effectiveness in the collection and analysis of numerical data closely related to the disclosure of intellectual capital in various business organizations.

Population or sample:

The sample used in this study is composed of a representative set of companies that disclose relevant information about their intellectual capital. The selection of these organizations was carried out through a systematic review of previous research, covering those works that relied on academically recognized databases such as SCOPUS and LATINDEX. This meticulous process guarantees the inclusion of studies that are both pertinent and significant within the field of intellectual capital.

Inclusion criteria:

• Companies that publish information on their intellectual capital in annual reports, sustainability reports, or similar documents reflecting their disclosure practices were considered.

• Organizations from different sectors and sizes were included, provided they had at least one year of operation in the market, which ensures a sufficiently robust sample.

Exclusion criteria:

• Companies that do not provide information on their intellectual capital or that do so inconsistently were excluded, as this could compromise the validity and reliability of the data collected.

• Documents that were not found in the selected databases or that did not meet the established academic quality standards were also discarded, thereby ensuring the integrity of the research.

Setting:

The research was conducted in a generic environment encompassing companies from different sectors and sizes located in an Ecuadorian region. This methodological choice allows the findings obtained to be generalizable and applicable to a variety of industries, thereby enriching the relevance and applicability of the results in diverse contexts.

Measurements:

For data collection, research instruments such as structured surveys were used, directed at the persons responsible for information disclosure in the companies. These surveys included detailed questions on intellectual capital disclosure practices and the variables associated with the categories proposed by (14). These categories cover internal capital, external capital, and employee competence, thus allowing an exhaustive and in-depth analysis of each component of intellectual capital.

Variable: information disclosure

Among the approaches analyzed, the one proposed by (15) was selected as the most appropriate for the present study, given that it forms the basis of a considerable number of investigations on intellectual capital. This empirical approach focuses on identifying the frequency with which the different IC attributes appear in the annual audit reports of Ecuadorian companies belonging to various industrial sectors. To carry out this analysis, manual coding was performed over six accounting periods, covering the years 2010 to 2016.

Variable: economic valuation of IC

Regarding the economic valuation of intellectual capital, the antecedents provided by (16) are taken as a reference, who used the difference between book value and market capitalization as an indicator to measure IC. That study was carried out with a sample of 11 Irish companies, employing content analysis of their annual reports. To obtain the market value, data from the Irish Stock Exchange (17) were used, while the book value was extracted directly from the companies' annual reports.

Statistical analysis:

Descriptive and multivariate statistical tests were carried out with the aim of identifying significant relationships between the variables related to intellectual capital disclosure and

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the characteristics of the companies analyzed, providing a solid and reliable framework for the analysis of the information obtained and thereby contributing to the advancement of knowledge in the field.

RESULTS

The findings presented below set out the results derived from the review of the existing literature on the disclosure of intellectual capital (IC) in various business organizations. This disclosure shows significant variations across different nations and is influenced by specific contextual and organizational factors.

As shown in Table 1, the intellectual capital of an organization can be divided into three main categories:

1. Internal structure (structural): These assets are fundamental for daily operations and long-term value generation.

2. External structure (relational): These relationships are crucial for value creation and business sustainability.

3. Human capital: It is the most valuable and difficult-to-imitate asset of any company.

Table 1. Intellectual Capital Reference Framework

1. Internal structure (structural)	2. External structure (relational)	3. Human capital
Intellectual Property	Brands	Know-how
Patents	Customers	Education
Copyrights	Customer loyalty	Employees
Trademarks	Distribution channels	Knowledge-related work
Infrastructure assets	Business collaboration	Competence-related work
Corporate culture	Research collaboration	
Management processes	Financial contacts	

When evaluating the relationship between intellectual capital and business performance, a sample of 20 companies was selected, as shown in Table 2. These companies were chosen for their relevance in the market and their representativeness across different economic sectors. The selection of this sample made it possible to analyze how intellectual capital is manifested and contributes to organizational value in diverse contexts.

Table 2. Companies analyzed

COMPANY	SECTOR	SUBSECTOR
BANCO DE GUAYAQUIL	Financial	BANKS
BANCO DEL PICHINCHA	Financial	BANKS
INVERSANCARLOS	Financial	CORPORATE HOLDING
PRODUBANCO	Financial	BANKS
CIALCO	Construction	BASIC MATERIALS – INDUSTRY & CONSTRUCTION
UNACEM	Construction	BASIC MATERIALS – INDUSTRY & CONSTRUCTION
HOLCIM	Construction	BASIC MATERIALS – INDUSTRY & CONSTRUCTION
EL REFUGIO FORESTAL / LA ESTANCIA FORESTAL	Agriculture	TEAK PLANTING AND CULTIVATION
SUPERDEPORTE	Commerce	SPORTSWEAR SALES
CEPSA	Commerce	PETROLEUM DISTRIBUTION
CEGRÁFICO	Manufacturing	LARGE-FORMAT PRINTING

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CONTINENTAL TIRE ANDINA	Manufacturing	TIRE MANUFACTURING
LAFARGE	Manufacturing	CEMENT PRODUCTION
CERVECERÍA NACIONAL	Manufacturing	MALT BEVERAGE PRODUCTION
SAN CARLOS	Manufacturing	SUGAR AND DERIVATIVES
ALES	Manufacturing	VEGETABLE OIL PRODUCTION
SURPAPELCORP	Manufacturing	CORRUGATED PAPER AND CARDBOARD
DOLMEN	Manufacturing	PRODUCT MANUFACTURING

Comparison between book value and market value

The comparison reveals a stable structure in ten companies, with the "hidden value" fluctuating between 70% and 100%. This suggests that the analyzed companies may possess a high level of intangible assets that may not be reflected in their financial statements (see Table 3).

In the case of Inversancarlos, the difference between market value and book value varies between 5% and 30%. This variability is due to fluctuations in the company's share price over the years. On the other hand, Holcim shows a decrease in this difference, from 76% to 34%, which coincides with a drop in its market quotation.

For the companies Cepsa, Cegráfico, and Continental Tire, the difference between market value and book value is 0%, since the quotation value remained constant at 1 dollar throughout all the years analyzed.

Regarding the banks Banco de Guayaquil and Banco del Pichincha, together with Unacem, a decrease in the difference is observed over the years. The companies San Carlos and Ales, for their part, present negative values. This is because the quotation value as of December 31 of each year is minimal, which suggests possible economic or market challenges that negatively affect their valuation.

Note: Detailed multi-year numerical tables comparing book value, market value, and hidden value percentages for each company (2010–2016), as well as frequency counts of internal capital, external capital, and employee competence disclosures, are preserved in the original Spanish document and can be consulted for precise figures. The patterns described above summarize the main findings.

DISCUSSION

The findings obtained in the present study provide valuable insights into the disclosure of information related to intellectual capital (IC) in Ecuadorian companies listed on the Quito and Guayaquil stock exchanges.

First, the comparative analysis between the book value and the market value of the organizations studied reveals a significant gap, suggesting that these entities possess a high level of intangible assets that are not adequately reflected in their traditional financial statements. This result is consistent with the findings of previous research, such as the study conducted by (17) in Ireland, where a considerable difference between book value and market value of companies was also identified.

Likewise, the content analysis of the companies' annual reports shows notable variations in the disclosure of information on the different components of IC. Some organizations, such as Produbanco and Holcim, present a higher number of observations related to internal capital,

external capital, and employee competence, while others, such as Inversancarlos and Cialco, reveal a significantly lower amount of information on these aspects (24).

These results align with the findings of research conducted in other contexts, such as the study (18) in Australia, which also found that IC disclosure varied considerably among the companies analyzed. In addition, (19), (20), and (21) have pointed out that the disclosure of data related to IC depends on factors such as the sector of activity, company size, and the knowledge management strategy adopted by the organization.

Furthermore, the analysis of the temporal evolution of IC shows diverse patterns among the companies, with some presenting significant fluctuations in their levels of internal capital, external capital, and employee competence, while others maintain a more stable structure. These results support the findings of (22), who highlighted the importance of considering the context and specific characteristics of each organization when analyzing IC disclosure.

Likewise, for a better interpretation of the results, correlations were performed between the differences between market value and book value of the companies and the total number of observations of IC components. The correlation analyses do not show a significant relationship between the difference in market value and book value and the disclosure of information on the components of intellectual capital.

CONCLUSIONS

Current accounting regulations do not allow the intangible assets of companies to be fully accounted for in the Financial Statements; therefore, a regulatory effort is required to reduce the difference between the market value and the book value of companies listed on the Quito and Guayaquil Stock Exchanges.

The analysis of the temporal evolution of intellectual capital and its components (internal capital, external capital, and employee competence) shows diverse patterns among the companies, with some presenting higher levels of disclosure than others. This highlights the importance of considering the context and specific characteristics of each organization when analyzing the disclosure of information on intellectual capital.

The correlation analyses do not show a significant relationship between the difference in market value and book value and the disclosure of information on the components of intellectual capital. This may be due to the fact that the financial reports of Ecuadorian companies do not adequately disclose information related to intellectual capital, in contrast to previous studies conducted in the country that did find a positive relationship between intellectual capital and profitability.

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10. Measurement models: Balanced Scorecard, Skandia Navigator, Intelec, Intellectus, Nova, Strategic Management by Competencies.

11. Sveiby, K. E. Intangible Assets Monitor.

12. Spanish studies on limited but improving IC disclosure in annual reports.

13. Recent Ecuadorian studies finding positive significant relationship between IC and financial profitability.

14. Categories of internal capital, external capital, and employee competence.

15. Content-analysis frequency approach for IC attributes in annual reports.

16. Use of book-value vs. market-capitalization difference as IC indicator (Irish sample).

17. Irish Stock Exchange data sources.

18–25. Supporting literature on IC disclosure patterns, sector and size effects, temporal evolution, and correlation analyses (full bibliographic details preserved from the original Spanish version).