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Relevancia valorativa de los intangibles: análisis comparativo entre empresas del sector financiero y no financiero cotizantes en el mercado de capitales argentino

Value relevance of intangibles: a comparative analysis between financial and non-financial sector firms listed on the Argentine capital market

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RESUMEN

El objetivo de este trabajo es analizar si existen diferencias en la relevancia valorativa de los activos intangibles (AI) y del capital intelectual (CI) entre empresas del sector financiero y de otros sectores. El enfoque adoptado es cuantitativo. Para el estudio empírico se construye un modelo de precios, basado en Ohlson (1995), que se plantea bajo la forma de un modelo para datos de panel, usando una especificación de efectos fijos. Se utilizan datos del período 2009-2018 que se recolectan directamente de fuentes primarias. La muestra se conforma con las 52 empresas que se han mantenido en cotización de manera continua en el mercado de capitales argentino durante dicho período. Los resultados obtenidos muestran que la relevancia valorativa de los AI y del CI difiere entre las empresas financieras y las no financieras. En las primeras, solo las dimensiones humana y estructural del CI revisten interés para los inversores. En cambio, tanto los AI identificables, como las tres dimensiones del CI, tienen influencia en la valoración de los bancos, lo que confirma la importancia de los intangibles en este sector. El trabajo aporta al conocimiento de la influencia de la industria en la valoración de los intangibles por parte del mercado, que es una línea poco explorada y, asimismo, del sector bancario, que ha sido menos estudiado por la investigación previa.

PALABRAS CLAVE
Activos intangibles; capital intelectual; relevancia valorativa; sector; modelos para datos de panel.

ABSTRACT

The objective of this study is to analyse whether differences exist in the value relevance of intangible assets (IA) and intellectual capital (IC) between firms in the financial sector and other industries. A quantitative approach was adopted. Drawing on the work of Ohlson (1995), an original price model is constructed in the form of a specified panel data model with fixed effects. Data from to 2009-2018, directly collected from primary sources, were used. The sample comprises 52 firms listed on the Argentine capital market without interruption throughout the period. The results show that the value relevance of IA and IC differs between non-financial and financial firms. Among the former, only the human and structural dimensions of IC were of interest to investors. In contrast, both identifiable intangible assets and the three dimensions of IC influence bank valuation, thereby confirming the importance of intangibles in this industry. The study contributes to knowledge of the impact of industry on market valuations of intangibles, which is a somewhat unexplored line of research and, likewise, to knowledge of the banking industry, a sector that has been less well studied in

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previous research.

KEYWORDS

Intangible assets; intellectual capital; value relevance; industry; panel data models.

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62J05.

1. INTRODUCTION

Over the past three decades, interest in intangible resources has grown steadily (Edvinsson et al., 2022). Firms can possess two types of intangibles: those which can be booked as "intangible assets" in financial reports and those which do not appear in financial statements because they are unlikely to be recognised in accounting terms due to the difficulties of identifying and measuring its various components (Pastor et al., 2017). These items can be included under the heading "intellectual capital", which can be employed to refer to a firm's varied range of human, organisational, and relational resources (Cañibano et al., 2002) that are considered as hidden assets (Edvinsson and Malone, 1997), precisely because they are not recognised in financial statements.

An important informational problem therefore persists with regard to intangibles, and one which financial accounting has yet to provide an answer. This concerns the latter's limited ability to provide comprehensive information related to the key factors for value creation within firms. Given this situation, the usefulness of accounting information has been questioned. Indeed, doubts have been raised over its ability to make sound contributions to the decision-making of its principal users, such as investors operating in capital markets, by presenting reasonable estimations of a firm's value through a prediction of future cash flows (Giner and Mora, 2019).

The above-mentioned problem has contributed to the development of a prominent line of research into value relevance (Barth et al., 2023), which focuses on evaluating whether accounting figures reflect the information that investors use to value a firm (Barth et al., 2001). Share values are generally employed as references for this value. In sum, market prices can be explained through various accounting figures or other information disclosures (Kothari and Wasley, 2019). In this regard, if the information is significantly associated with stock prices in capital markets, then it is considered relevant to investors (Barth et al., 2001).

Within this line of research, it is worth highlighting the tendency to demonstrate the value relevance of intangibles (Barth et al., 2023), which can offer insights into what influence a firm's key strategic resources might have on the firm's valuation, and then disclose information on the immaterial determinants of such value.

When studying this relationship, some contextual aspects are of great importance, given that certain particular characteristics of each organisation may condition the relative importance of information vis-à-vis share valuation (Giner et al., 2002). In particular, previous studies focusing on specific industries have shown how the economic sector to which a firm belongs is a key aspect (Bayraktaroglu et al., 2019; Ferguson et al., 2021; Liu et al., 2009; Nimtrakoom, 2015; Veltri and Silvestri, 2011; Wang, 2008; Yu and Zhang, 2008), revealing how the singularities that characterise different industries trigger differences in their intangibles and their impact on value creation and price formation.

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The intangible resources involved in the financial sector in particular are structured in a determined manner, stemming from the sector's unique production process, which is characterised by its primary inputs of nominal money and employment (Werbin, 2010). This means that knowledge and human factors are basic resources for banks (Appuhami, 2007; Tran and Vo, 2020), which are typified by the involvement of intangible items in different and more intensive ways than those found in tangible assets (Castilla and Ruiz, 2018).

These singularities make the financial sector a highly pertinent field for studying the value relevance of such items. In addition, there is a need to enhance existing empirical evidence on financial entities, given that these firms are usually excluded from research into intangibles (Ahmed et al., 2022; Cam and Ozer, 2022; Dahmash et al., 2009; Farooq and Ahmad, 2023; Ferraro and Veltri, 2011; Kimouche and Rouabhi, 2016a; Kimouche and Rouabhi, 2016b; Ocak and Findik, 2019; Oliveira et al., 2010; Saleem et al., 2022; Smriti and Das, 2018). As pointed out by Garanina et al. (2021), it should not be forgotten that analysing the influence of specific industry-related factors on information concerning intangibles is one of the principal trends within this field of study because it is a topic that requires further study.

Within the framework of the informational problem regarding intangibles, and bearing in mind the significant gap in previous research concerning the study of their value relevance by industries, particularly within the financial sector, this study evaluates what relevance the Argentine capital market (ACM) assigns to information that refers to both intangible assets and intellectual capital. Specifically, we aim to determine whether the relative importance of such information varies between firms in the financial and non-financial sectors.

The research was conducted between 2009-2018 in the context of the ACM, on which no published studies of this kind have been carried out. The analysis was performed using our own construction of a model based on the work of Ohlson (1995), with data collected from primary sources.

The study is structured as follows. A brief overview of the context of the study is first presented. The second section exposes the conceptual and theoretical framework together with a review of the previous literature in which the role of intangibles in the market has been analysed within different industries. The third section presents the research design, and the fourth section presents the results and discussion. Finally, the main conclusions and contributions of this study are outlined.

2. CONTEXT OF STUDY: THE ARGENTINE CAPITAL MARKET

The ACM is a particularly suitable context for the development of this research, since it has characteristics that significantly differentiate it from other stock markets. Indeed, the ACM is limited in its size, whether the market capitalization of the market is considered in relation to the gross domestic product of Argentina, or if it is compared with that of other markets in the same Latin American environment (Dapena, 2012; Tevas, 2022). Furthermore, it is characterized by a high concentration of traded volume in a few firms and by a low permanence of companies in stock market indices (Tolosa, 2013). This produces a situation of changes in the panel of listed firms that results in few firms that have continuity in that situation over time.

The low development of the ACM has its origin not only in economic factors, but also in aspects related to the legal and regulatory framework, institutional trust and the cultural environment (Lanús *et al.*, 2017). The cultural factor has special significance in the configuration of the ACM, where most firms do not consider the stock market as a primary source of financing. This is due, in part, to the lack of knowledge of the available alternatives and, furthermore, to the fear of the company's owners regarding losing control of it. On the other hand, there is no tradition of

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investment in the capital market (Erpen, 2010).

This results in the ACM being reduced in size, with only 95 firms making up the ACM's market capitalization (taking the average of the number of firms listed at the end of each of the years in the period 2009-2018). Of that total, 54.74% (52 firms) have remained listed throughout the entire period considered for this research. The banking sector is the one that concentrates the largest number of firms. Furthermore, banks are characterized by a high permanence in stock market indices. Thus, of the 95 firms listed in the period 2009-2018, 7 are banks and, of them, 6 have remained listed throughout that period.

The banking system has an important role in the modern economic world (Azmeh and Hamada, 2022). In Argentina, in particular, the financial sector plays a key role in the economy and evidences a number of particularities which justify analysing the value relevance of its intangibles. The Argentine financial system has time and again been hit by various economic and financial crises at both a national and international scale. This has shaped its structure and performance as a result of its having to adapt to a number of shifting contexts. Amongst other aspects, these adaptations have involved embracing new technologies and products as well as redefining commercial strategies (Golombek and Mareso, 2011) which, over the last few years, has enabled banking sector activity to expand substantially and to achieve high levels of profitability (Ramirez, 2019). The sector has also evolved in that there is now a major concentration of banks resulting from the privatization of publicly owned banks, together with mergers and acquisitions, all of which has led to a gradual reduction in the number of financial entities (David, 2019). Of the 167 banks that were operating in the early 1990s, only 63 currently remain, representing 0.01% of the 609,000 firms that provide employment in Argentina. Of the total of 63 banks, 7 have been financed through the stock market; that is, 11.11%. This shows that banks are also distinguished by a greater propensity to obtain this type of financing than non-financial firms.

3. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

3.1. Conceptual and theoretical framework

As mentioned in the introduction, the intangible resources upon which this study focuses may be classified into two broad categories: intangible assets (IA) and intellectual capital (IC).

IA includes items that fulfil the criteria imposed by accounting standards, which are generally restrictive regarding the inclusion of investments of an intangible nature, such as assets (Pastor *et al.*, 2017). In this sense, both the accounting regulations of the Argentine Federation of Professional Councils in Economic Sciences (FACPCE, 2023) and the International Financial Reporting Standards (IFRS), issued by the International Accounting Standards Board (IASB, 2022), require possible future economic benefits to be obtained, together with a reliable measurement, in addition to requiring identifiability in IAS 38 from the IASB.

Moreover, both regulatory bodies recognise two fundamental categories of IA when regulating their treatment: those arising from their classification under the criteria of identifiability, namely goodwill (GWGW), and other identifiable intangible assets (OIA) (such as brands, patents, concessions, franchises, licenses, intellectual property rights, *etc.*), only recognising the goodwill acquired through a business combination.

From the financial perspective of the concept adopted in this research, IC involves a varied range of intangible items that are not recognised in financial statements but are essential for value creation as well as for both creating and managing competitive advantage (Cañibano, 2018; Dumay, 2016; Edvinsson and Malone, 1997). One key component among these items is available

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knowledge, both at the individual and organisational levels (Ross *et al.*, 2001; Tiwari and Vidyarthi, 2018).

Most authors agree on the three broad categories of IC: human capital (HC), structural capital (SC), and relational capital (RC). HC includes the knowledge, capabilities, experience, and skills of a firm's employees (Cañibano *et al.*, 2002). Essentially, it is tacit knowledge (Bontis, 1998), considered a key component of IC because it is the fundamental source of other strategic resources (Smriti and Das, 2018) and the main driver of organisational growth (Lotfi *et al.*, 2021). SC is an infrastructure that incorporates, shapes, and sustains HC (Edvinsson and Malone, 1997). Thus, it includes the firm's procedures, systems, and structures through which internal knowledge may be accumulated (Singh *et al.*, 2016). However, SC also involves elements concerning the firm's ability to renovate and the outcomes of its innovation (Ochoa *et al.*, 2010), which has given rise to the distinction between its two sub-components: organisational or process-related capital, and technological or innovation-related capital. RC refers to a network of firm relations with different stakeholders (Forte *et al.*, 2019; Ross *et al.*, 2001). It is therefore an external dimension (Sveiby, 2018), which also includes the firm's reputation, based on its products and services and on the transactions undertaken with different stakeholder groups (Singh *et al.*, 2016).

The resource-based view (Wernerfelt, 1984) affords an appropriate framework to explain what impact intangibles have on the market value of firms operating in different industries. This theory considers the firm as a unique set of heterogeneous resources and skills (Grant, 1996) that may be tangible or intangible in nature. It is this uniqueness that determines the differences in terms of firms' profitability (Huerta *et al.*, 2004). This theory contends that it is the specific resources characterising the firms in a given sector that explain the differences in each industry's performance, as was empirically proved by Galbreath and Galvin (2008). Yet not all resources display the same capacity to generate revenue. Barney (1991) links a firm's potential performance to the availability of valuable, rare, imperfectly imitable and non-substitutable resources. Intangibles embody such characteristics, mainly due to the difficulty involved in their being imitated by rival firms, such that they are the main drivers of sustainable competitive advantage (Ferraro and Veltri, 2011; Lotfi *et al.*, 2021). As a result, intangibles can help increase firms' productivity and, consequently, their capital market value (Irsyahma and Nikmah, 2017).

3.2. Empirical literature review

Empirical research into the value relevance of intangibles has made enormous strides over the past two decades and has stressed that information concerning intangibles has an enormous impact on firms' market value since investors consider such information to reflect value creation drivers (Alvino et al., 2021; Barth et al., 2023; Garanina et al., 2021). However, it has developed with two major and clearly independent emerging lines that have progressed within what Andriessen (2004) identifies as the two different communities: the accounting community and the IC community. In the former, the value relevance of IA has been studied, and in the latter, the value relevance of different components of IC.

The studies referred to the value relevance of IA examine how well accounting treatments of IA are related to stock market prices (Güleç, 2021). Most of these studies have been carried out using samples of firms from different industries and have presented solid evidence to support the positive influence of identifiable intangible assets on firms' market value (Da Silva et al., 2017; Dahmash et al., 2009; Ficco et al., 2021; Kimouche and Rouabhi, 2016a and b; Ocak and Findik, 2019; Oliveira et al., 2010). However, evidence regarding the value relevance of goodwill remains inconclusive. Although many researchers find that purchased goodwill is value relevant (Da Silva et al., 2017; Dahmash et al., 2009; Kimouche and Rouabhi, 2016a; Oliveira et al., 2010), findings from other studies suggest that this asset has no influence on setting share prices (Ficco et al., 2021;

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Infante and Ferrer, 2017) and may even present a negative association with these values (Kimouche and Rouabhi, 2016b). These results are largely explained by the particular nature of goodwill, which determines that the figure reported in the financial statement is only representative of the value of the intangible at the time of the business combination (Giner and Pardo, 2007).

Within the line of research into IC, studies exploring the value relevance of its different components within firms from different industries have yielded mixed results. Regarding HC, the literature has provided solid evidence concerning its positive impact on the firm's external valuation (Bayraktaroglu et al., 2019; Ficco et al., 2021; Liu et al., 2009; Nimtrakoom, 2015; Sardo and Serrasqueiro, 2017; Yu and Zhang, 2008; Wang, 2008, among others). However, the evidence is less consistent with respect to the value relevance of SC. Thus, while Ficco et al. (2021), Liu et al. (2009), Nimtrakoom (2015), Sardo and Serrasqueiro (2017), Smriti and Das (2018), and Wang (2008) found a significant and positive relationship with market prices, Sharma (2018) found a significant and negative association between innovation capital and assigned market values, as did Ferraro and Veltri (2011) between process capital and market prices. Furthermore, evidence from the aforementioned study, in agreement with Yu and Zhang (2008), suggests that innovation capital is not taken into account in the valuation of firms. The value relevance of RC has not been demonstrated in a conclusive manner. Ferraro and Veltri (2011) and Sharma (2018) concluded that this dimension was positively valued by investors, while Wang (2008) and Yu and Zhang (2008) found this to be partially the case, and only for some of the proxies they employed to measure it. In contrast, Bayraktaroglu et al. (2019), Ficco et al. (2021), Liu et al. (2009), and Nimtrakoom (2015) reported that RC had no impact on market-assigned corporate value.

With regard to the contextual aspects that characterise these studies and, in particular, the industry, most address firms operate within various industries. However, many of these studies exclude banks from their analyses (Ahmed et al., 2022; Cam and Ozer, 2022; Dahmash et al., 2009; Farooq and Ahmad, 2023; Ferraro and Veltri, 2011; Kimouche and Rouabhi, 2016a; Kimouche and Rouabhi, 2016b; Ocak and Findik, 2019; Oliveira et al., 2010; Saleem et al., 2022; Smriti and Das, 2018), principally because of the peculiarities of the banking sector and because banks are governed by special accounting standards (Castilla and Ruiz, 2018; Veltri and Silvestri, 2011).

In contrast, some studies have focused specifically on the relevance of financial entities' intangibles (Appuhami, 2007; Irsyahma and Nikmah, 2017; Mondal and Ghosh, 2012; Onumah and Duho, 2020; Tiwari and Vidyarthi, 2018; Tran and Vo, 2020; Veltri and Silvestri, 2011). However, these studies are scarcer in comparative terms, with most having centred on IC and applying the VAIC model (Pulic, 2000), which is commonly used in studies within the banking sector to measure its components (Singh et al., 2016). These studies provide overwhelming evidence and show that all IC dimensions are relevant for bank valuation (Appuhami, 2007; Irsyahma and Nikmah, 2017; Veltri and Silvestri, 2011). These results confirm the importance of IC within this industry, which is one of the most knowledge-intensive industries and is one in which IC generally represents a critical resource for value creation (Joshi et al., 2013).

Another prominent line of study, which is more abundant than the previous one, has explored the efficiency of IC and its effects on banking sector firm performance. The findings from these studies, which include Joshi et al. (2013), Mondal and Ghosh (2012), Neves and Proença (2021), Onumah and Duho (2020), Ozkan et al. (2017), and Tiwari and Vidyarthi (2018), suggest that efficiency in the use of IC positively influences banks' performance, thereby constituting clear evidence of IC's contribution to value creation.

The studies presented in this section has mostly been conducted in developed capital markets. Furthermore, the literature review shows the diversity of results obtained in relation to the link between intangibles and firms' market value, revealing that the approach to this relationship is

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still inconclusive. The review also confirms that previous research has analysed the value relevance of IA and IC separately. It also shows that the value relevance of intangibles in financial firms has been scarcely investigated.

This reveals the gap in empirical research and makes it clear that there are important issues that remain under-researched. In this respect, there is a need for more evidence on the value relevance of intangibles, especially for less developed markets. There is also a need to provide a comprehensive view on the intangible determinants of firm value, including both those recognised in financial statements (IA) and those not recognised in accounting terms (IC). In addition, there is a need to augment the limited existing evidence for firms in the financial sector and to shed light on how they may differ from firms in other sectors in terms of the value relevance of intangibles. To fill these gaps, we developed the empirical research whose hypotheses are presented below.

3.3. Hypothesis development

The review of the empirical literature reflects how the impact of information concerning intangibles in investors' valuation of the company may vary between firms who operate in different industries and, in particular, may evidence major differences for firms in the financial sector. The resource-based view provides the theoretical grounding to explain how intangibles affect variations in the performance of firms operating in different industries and how they impact the value assigned by the capital market to these firms. The existing empirical evidence, together with the explanations provided by said theory, lend support to the idea that different kinds of intangibles – both recognised and not recognised in financial statements (IA and IC) – may have a different value effect between firms in the financial sector and non-financial firms listed on the ACM. Therefore, the research hypotheses are expressed as follows:

> H1: The value relevance of IA is influenced by the industry in which the firm operates, such that it will vary between firms in the financial and non-financial sectors.
>
> H2: The value relevance of IC is influenced by the industry in which the firm operates, such that it will vary between firms in the financial and non-financial sectors.

4. RESEARCH DESIGN

A price model was constructed to examine the linkage between variables referring to both IA and IC and the market-assigned values of firms from the financial sector and from other (non-financial) sectors. As with most studies on value relevance, the model is based on Ohlson (1995) (Kothari and Wasley, 2019) and includes, as independent variables, the two fundamental categories of IA (GW and OIA) and the three dimensions of IC (HC, SC, and RC). The dependent variable is the firm's market value, represented by the share price (P). In addition, an indicator variable for the industry (SEC) was incorporated into the model to capture the industry effect and to analyse whether there are differences in the value relevance of the explanatory variables between the two sectors under study.

Figure 1 presents a model scheme for the analysis and the variables employed.

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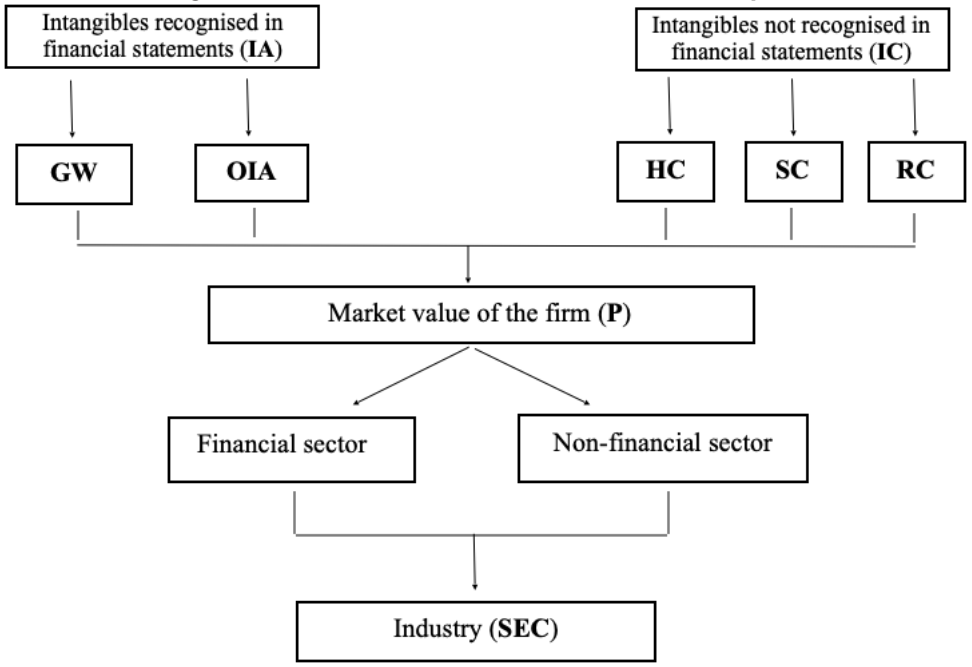
Figure 1. Model and model variables for the analysis.



Source: authors' own work

4.1. Model, variables and econometric specification

The model used to test the hypotheses was constructed from the version of Ohlson (1995), which is widely used in earlier research, and is formulated as follows:

$$P_{it} = \beta_0 + \beta_1 BV_{it} + \beta_2 NI_{it} + \beta_3 v_{it} + \varepsilon_{it} \quad (1)$$

where, P_{it} is the market value of shares belonging to firm *i* at time *t*, BV_{it} is the book value of firm *i* at time *t*, NI_{it} is the net income of firm *i* over period *t*, v_{it} is "other information" which influences the value of firm *i*, but that is not contained in its financial statements at time *t*, and ε_{it} is the residual for the *i-...th* firm at time *t*.

The construction of the model is based on the adaptation of expression (1) to include, on the one hand, the variables referring to IA and IC and, on the other, to be able to capture the industry effect on the value relevance of intangibles.

The inclusion of variables referring to IA and IC, in the same model, is done to overcome the limitations of previous research that has studied, separately, the value relevance of IA and IC. An innovative perspective is thus adopted for the analysis, which involves considering both recognised intangibles (IA) and those not recognised in financial statements (IC). This provides a comprehensive view of the relevance of the different intangible determinants of firm value, which allows for a better explanation of their influence on observed market prices. In this sense, Wang (2008) and Lui *et al.* (2009), although they have only assessed intangibles without accounting recognition, have shown that models that jointly consider all the components of IC are the ones that have the best explanatory power for the market value of firms.

Therefore, (1) was modified in two ways to incorporate variables related to different types of intangibles: recognised in financial statements (IA) and not recognised in financial statements

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(IC). BV was divided into two components: IA and the accounting value of net tangible items (TBV), following the original proposal of Ely and Waymire (1999). In turn, IA was divided into two categories: GW and OIA. The variable "other information" (v) was identified with IC in its different dimensions (HC, SC and RC), since the human, organisational and relational aspects of the firm, although not reflected in the financial statements, have an important capability to produce effects on its future performance and, therefore, on its value. The identification of the variable "v " with the IC has been also considered in previous studies (Cam and Ozer, 2022; Ferraro and Veltri, 2011; Liu *et al.*, 2009; Veltri and Silvestri, 2011; Wang, 2008; and Yu and Zhang, 2008) and is based on different theoretical positions that underpin the concept of IC (Barney, 1991; Wernerfelt, 1984), according to which it is conceived as an essential resource for value creation and the main driver of sustainable competitive advantage (Cañibano, 2018; Dumay, 2016; Edvinsson and Malone, 1997).

Due to the difficulties in measuring IC, proxy variables have been used to measure its components (HC, SC and RC). Two proxies were used to measure each of the three constituents of IC (PE and $Sales/PE$ are proxies for HC; $SGAE$ and $SGAE/Sales$ are proxies for SC; $Sales$ and ADV are proxies for RC). These proxies are based on accounting measures and framed within the financial methods of measuring IC (Andriessen, 2004). The measures selected are those that previous literature identifies as most representative of the different dimensions of IC. Indeed, most of the proxy variables are based on expenses that firms report in their financial statements (Personnel expenses –PE–, Selling, general and administrative expenses –$SGAE$– and Advertising expenses –ADV–), which are considered as investments in IC with high potential to produce future economic benefits (Cam and Ozer, 2022; Lev et al., 2016; Sharma, 2018). Accordingly, the investment-based approach has been adopted, which is one of the most accepted approaches to measure IC (Forte et al., 2017; Goebel, 2015). Sales have also been considered as a proxy for RC, as they are representative of the company's market share and customer loyalty (Ferraro and Veltri, 2011; Iazzolino et al., 2018; Kaplan and Norton, 2004). In this way, the proposed model also overcomes limitations of previous studies that have relied on flawed approaches to IC measurement (Iazzolino and Laise, 2013; Marzo and Bonnini, 2023).

In accordance with the above considerations, the model is formulated as follows:

$$P_{it+3} = \beta_0 + \beta_1 TBV_{it} + \beta_2 NI_{it} + \beta_{G3} GW_{it} + \beta_4 OIA_{it} + \beta_5 PE_{it} + \beta_6 Sales/PE_{it} + \beta_7 SG\&AE_{it} + \beta_8 SG\&AE/Sales_{it} + \beta_9 Sales_{it} + \beta_{10} ADV_{it} + \varepsilon_{it} \quad (2)$$

where variables are defined in accordance with the contents of Table 1.

An indicator variable referring to the industry (SEC) was incorporated in model (2) to analyse whether differences in the value relevance of intangibles could be observed between firms in the two sectors under analysis.

The indicator takes a value of one for firms operating in the financial sector and zero for firms operating in other sectors. Variations caused by financial sector firms in the effects of the explanatory variables on share price (P) were captured by including interactions between those variables and the indicator (SEC), represented in the model with δ coefficients. Thus, the model can be expressed as follows:

$$P_{it+3} = \beta_0 + \delta_0 SEC_i + \beta_1 TBV_{it} + \delta_1 SEC_i \times TBV_{it} + \beta_2 NI_{it} + \delta_2 SEC_i \times NI_{it} + \beta_3 GW_{it} + \delta_3 SEC_i \times GW_{it} + \beta_4 OIA_{it} + \delta_4 SEC_i \times OIA_{it} + \beta_5 PE_{it} + \delta_5 SEC_i \times PE_{it} + \beta_6 Sales/PE_{it} + \delta_6 SEC_i \times Sales/PE_{it} + \beta_7 SG\&AE_{it} + \delta_7 SEC_i \times SG\&AE_{it} + \beta_8 SG\&AE/Sales_{it} + \delta_8 SEC_i \times SG\&AE/Sales_{it} + \beta_9 Sales_{it} + \delta_9 SEC_i \times Sales_{it} + \beta_{10} ADV_{it} + \delta_{10} SEC_i \times ADV_{it} + \varepsilon_{it} \quad (3)$$

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where variables are defined in accordance with Table 1.

Thus, the model constructed is original and has several advantages over those used in previous studies. First, it is based on Ohlson's (1995) model, which is the fundamental methodological basis for research on value relevance (Kothari and Wasley, 2019); not always respected in previous work. Secondly, the model exploits the possibilities opened up by Ohlson (1995) to rigorously incorporate variables from the two large groups of intangibles: IA and IC, which makes it possible to examine, jointly, their value relevance and better explain the influence of intangibles on the market value of firms. Thirdly, it includes proxy variables for all the components of IC, taking the most representative ones for their measurement, which overcomes the limitations of previous studies that have used deficient approximations to measure IC. Finally, the model constructed is also adapted to analyse whether there are differences in the value relevance of intangibles between different industries, which is achieved through the incorporation of an indicator variable referring to the sector and its interactions with the explanatory variables.

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Table 1. Definition of variables.

Variables	Symbology	Definition
Market Variable	P_{it+3}	Average price per share of firm i in the third month following the closure of financial year t (calculated with closing prices)
Basic accounting Variables	TBV_{it}	Tangible book value (per share) of firm i at closure of financial year t
	NI_{it}	Net income after tax (per share) of firm i for financial year t
Accounting variables referring to IA	GW_{it}	Goodwill (per share) reported in the financial statements of firm i at closure of financial year t (net of accumulated amortizations and losses due to devaluation that might be applicable)
	OIA_{it}	Other intangible assets (per share) reported in the financial statements of firm i at the closure of financial year t (net of accumulated amortizations and losses due to devaluation that might be applicable)
Proxy variables referring to HC	PE_{it}	Personnel expenses (per share) of firm i for financial year t
	$Sales/PE_{it}$	(Sales / Personnel expenses) of firm i for financial year t
Proxy variables referring to SC	$SG\&AE_{it}$	Selling, general and administrative expenses (per share) of firm i for financial year t (net of personnel and advertising expenses)
	$SG\&AE/Sales_{it}$	(Selling, general and administrative expenses * / Sales) of firm i for financial year t * net of personnel and advertising expenses
Poxy variables referring to RC	$Sales_{it}$	Net sales (per share) of firm i for financial year t
	ADV_{it}	Advertising expenses (per share) of firm i for financial year t
Indicator variable	SEC_i	Activity sector for firm i

Note: For financial firms, the variable "Sales" was adapted considering financial incomes and service incomes.
Source: authors' own work.

Regarding the definition of the variables, the share prices from the third month following the closure of the economic year of the firms were selected so as to take into account the delay in

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incorporating accounting information for investor decision-making. Moreover, the values of the explanatory variables from the financial statements were deflated by the number of shares, for the purposes of mitigating any bias that the scale effect might produce on the estimation of the econometric models (Barth and Clinch, 2009; Serrat *et al*., 2011).

Panel data were selected for the econometric specification of model (3) because of the correlated nature of the available data, given that the variables were measured for each firm over different points in time (years). Among other advantages, the use of this technique offers the chance to capture otherwise unobservable individual heterogeneity (Baltagi, 2013), which refers to the specific peculiarities of each firm and which are difficult to identify and quantify. Nevertheless, they have a direct effect on business decisions and affect the response variable under study. An independent term specific to each organisation was added to the regression model to account for these non-observable effects. This was treated as a random variable (Cameron and Trivedi, 2005), yielding a fixed effects specification, which is the most appropriate for most accounting research, as pointed out by De Jager (2008). Furthermore, a transformation of Pwas considered in order to resolve value-dispersion problems related to the response variable. For this reason, the natural logarithm of the share price (nlP) was used. Thus, the model to be estimated was as follows:

$$nlP_{it+3} = \beta_0 + \delta_0 SEC_i + \beta_1 TBV_{it} + \delta_1 SEC_i \times TBV_{it} + \beta_2 NI_{it} + \delta_2 SEC_i \times NI_{it} + \beta_3 GW_{it} + \delta_3 SEC_i \times GW_{it} + \beta_4 OIA_{it} + \delta_4 SEC_i \times OIA_{it} + \beta_5 PE_{it} + \delta_5 SEC_i \times PE_{it} + \beta_6 Sales/PE_{it} + \delta_6 SEC_i \times Sales/PE_{it} + \beta_7 SG\&AE_{it} + \delta_7 SEC_i \times SG\&AE_{it} + \beta_8 SG\&AE/Sales_{it} + \delta_8 SEC_i \times SG\&AE/Sales_{it} + \beta_9 Sales_{it} + \delta_9 SEC_i \times Sales_{it} + \beta_{10} ADV_{it} + \delta_{10} SEC_i \times ADV_{it} + \mu_i + \varepsilon_{it} \quad (4)$$

where is a random variable used to capture heterogeneity between the firms that make up the sample, and the other variables are defined in accordance with Table 1.

4.2. Estimation and diagnostic tests

The fixed-effect panel model shown in equation (4) was estimated using the within estimator, which is the most appropriate technique available for this kind of model since it allows consistent estimations of the parameters (Cameron and Trivedi, 2005).

In order to ascertain specific effects, we tested to verify whether the variability of the specific ordinate is significant, using an F test to determine if . Rejection of this hypothesis confirms the validity of the specific subject model which includes an ordinate for each firm.

In addition, a robust estimation was performed based on White's correction (White, 1980). The standard robust errors allow us to obtain estimators of the standard errors consisting of the presence of heteroscedasticity and auto-correlation (Baltagi, 2013).

In order to test multicollinearity, and from amongst the practical rules suggested in the literature, we applied the condition number proposed by Belsley et al. (1980), who point out that this problem is present if said number exceeds 20, and that the problem is serious if it exceeds 30.

4.3. Temporal space, sample and data

The sample includes firms belonging to different industries listed on the ACM. The period spanning 2009 to 2018 was selected. The cut-off points were mainly considered on the basis of contextual aspects, such that it commenced in 2009 in order to rule out any distortion which data corresponding to 2008 might generate, in view of the international crisis as well as certain

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national macroeconomic events that had significant impacts on the ACM. For similar reasons, the period concluded in 2018, meaning that data from 2019 and 2020 were excluded. During these two years, stock capitalisation and the number of ACM transactions were also badly shaken in reaction to political events that took place in 2019, as well as the COVID-19 pandemic that broke out in 2020.

The fact that the ACM is characterised by short-lived registration periods of firms on the stock market indexes, which leads to continual changes among listed firms, was also taken into consideration. Only those firms that remained listed throughout the years 2009-2018 (a total of 52) were selected for the sample.

These firms account for a very significant part of the volume traded on the ACM (71.55%). Table A.1 in the Appendix lists the 52 firms in the sample, the industry to which they belong and the annual volume traded by them. The total annual volume traded on the ACM is also shown. The data in Table A.1 show that, although the financial sector is made up of only 6 firms, the volume traded by banks represents 35.98% of the total volume traded by the firms in the sample.

The accounting and market-related information required for the research was then gathered, providing a total of 520 annual observations. From this total, observations for which book value and/or net income entered negative values were deleted because of their inconsistency with Ohlson's (1995) valuation framework. A total of 118 observations met this condition, and the total number of observations was reduced to 402. Observations with extremely atypical values were deleted, which led to the deletion of 53 observations, leaving a final sample comprising 349 observations corresponding to 46 firms. Six of these were banks, with the remaining 40 belonging to other industries.

Data were gathered directly from primary sources and were obtained from both the annual consolidated financial statements that firms submitted in compliance with the reporting standards of the National Securities Commission of Argentina, and the records of share transactions on Argentine Exchanges and Markets (BYMA).

In the period selected for analysis, firms applied different accounting standards to prepare their financial statements. Specifically, non-financial firms applied, between 2009 and 2011, the standards of the Argentine Federation of Professional Councils in Economic Sciences (FACPCE). And, as of 2012, they began to apply IFRS. Financial firms were governed by particular standards between 2009 and 2017, and began to apply IFRS from 2018. However, it is important to note that the changes in standards do not generate significant differences, either in the measurement or in the disclosure of the information contained in the financial statements used to measure the variables of this study.

5. RESULTS AND DISCUSSION

This section presents the results of the empirical study and its discussion. Its content has been divided into three parts. The first one presents the descriptive statistics that characterize the sample and each sector under study. The second part shows the results of the estimation of the model developed to test the hypotheses – model (4) –. The third part is dedicated to the discussion of the results.

5.1. Descriptive statistics

Table 2 presents the descriptive statistics that characterise the sample and each sector under

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study.

The explanatory variables present high variation ratios, reflecting their high levels of dispersion. However, the higher scatter of the variation ratios within the non-financial sector is understandable, as it includes firms with heterogeneous activities. It can also be seen that the transformation of P to the logarithmic form (nlP) reduces the data scatter related to prices. All the explanatory variables, except GW and $Sales/PE$, present higher mean values for financial firms, which reveals specific aspects of the banks vis-à-vis their expenditure structure, as they are characterised by having very significant administrative and staff-related expenditures (Díaz *et al.*, 2017; Werbin, 2010). Advertising expenses are also higher in the financial sector under study, reflecting the importance of advertising in the banking business (Acar and Temiz, 2017).

Table 2. Principal descriptive statistics for the Financial Sector (FS) and Non-Financial Sector (NFS).

Variables	Mean		Standard deviation		Variation ratio		Minimum		Maximum	
	FS	NFS	FS	NFS	FS	NFS	FS	NFS	FS	NFS
$P*$	31.06	19.09	38.22	34.95	1.23	1.83	1.31	0.19	31.06	19.09
nlP	2.71	2.07	1.28	1.32	0.47	0.64	0.27	-1.66	2.71	2.07
$TBV*$	10.91	5.98	11.84	7.79	1.09	1.30	1.19	-7.49	10.91	5.98
$NI*$	3.04	1.56	3.23	2.61	1.06	1.67	0.13	0.00	3.04	1.56
$GW*$	0.02	0.02	0.04	0.21	2.00	10.50	0.00	-1.48	0.02	0.02
$OIA*$	0.44	0.34	0.49	1.20	1.11	3.53	0.00	0.00	0.44	0.34
$PE*$	3.34	2.36	3.07	2.92	0.92	1.24	0.18	0.01	3.34	2.36
$Sales/PE*$	4.94	9.03	0.92	16.14	0.19	1.79	3.48	0.00	4.94	9.03
$SG\&AE*$	3.31	1.59	4.28	2.84	1.29	1.79	0.12	0.00	3.31	1.59
$SG\&AE*$	0.18	0.13	0.11	0.23	0.61	1.77	0.09	0.00	0.18	0.13
$Sales*$	17.00	15.99	17.24	21.84	1.01	1.37	1.09	0.00	17.00	15.99
$ADV*$	0.20	0.13	0.18	0.38	0.90	2.92	0.01	0.00	0.20	0.13

Note: * Values shown in Argentine currency (pesos) per share.
Source: authors' own work.

5.2. Explanatory analysis

Table 3 shows the results of the estimation for model (4).

As preventive measure, any possible multicollinearity between the explanatory variables was examined. The condition number proposed by Belsley et al. (1980) is equal to 10. So, there is no evidence of multicollinearity between the variables, in the sense that the condition number is below 20.

It may be noted that the intraclass correlation coefficient (rho = 0.7530) shows that an important part (75.30%) of total variability is due to the variability between firms, which points to

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heterogeneity between them, underlining the adequacy of the fixed-effects model. The F test of specific effects gives a p-value<0.01, revealing that the fixed effects of the firms are different, with at least 99% confidence, such that the model with specific ordinates is appropriate.

The coefficients and p-values expressed in Table 3 show that the variables NI, PE, $SGAE/Sales$ and ADV are statistically significant for non-financial firms at a significance level of 10%, indicating that net income, HC (measured with the proxy of personnel expenses), SC (measured with the indicator reflecting the proportion represented by SGA expenses in relation to sales), and RC (measured with the proxy of advertising expenses) all influence the valuation of non-financial firms. In contrast, the variables TBV, GW, OIA, $Sales/PE$, $SGAE$ and $Sales$ are not significant and therefore have no influence on the market values of those firms. However, the coefficients of the variables NI, PE and $SGAE/Sales$ are all positive, maintaining a direct relationship with the market prices of non-financial firms. In contrast, the ADV coefficient is negative, suggesting that the increased advertising expenses of these firms have a negative impact on prices.

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Table 3. Value relevance of IA and IC by industries.

Variables	Coefficients	p-values
TBV	0.010047	0.590
$SEC\ x\ TBV$	-0.088591**	0.026
NI	0.131939*	0.068
$SEC\ x\ NI$	-0.004369	0.968
GW	-0.913821	0.205
$SEC\ x\ GW$	-0.300875	0.878
OIA	0.065460	0.116
$SEC\ x\ OIA$	0.368886**	0.042
PE	0.144916**	0.048
$SEC\ x\ PE$	0.914761***	0.004
$Sales/PE$	0.002614	0.394
$SEC\ x\ Sales/PE$	0.475769***	0.003
$SG\&AE$	0.060519	0.219
$SEC\ x\ SG\&AE$	-0.304921***	0.009
$SG\&AE/Sales$	0.238051***	0.004
$SEC\ x\ SG\&AE/Sales$	4.848526***	0.000
$Sales$	0.01007	0.339
$SEC\ x\ Sales$	-0.857233	0.121
ADV	-0.571855*	0.059
$SEC\ x\ ADV$	1.024472***	0.004
$Constant$	0.734056***	0.000
Num. Observations	349	
Num. Firms	46	
R2 within	0.5057	
Intraclass correlation (rho)	0.7530	

Note: The within estimator was used to estimate the model, and a robust estimation was performed based on White's correction (White, 1980).
Symbols ***, **, and * denote variables that are significant at confidence levels of 1%, 5%, and 10%, respectively.
Source: authors' own work.

The coefficients and p-values expressed in Table 3 show that the variables NI, PE, $SGAE/Sales$ and ADV are statistically significant for non-financial firms at a

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significance level of 10%, indicating that net income, HC (measured with the proxy of personnel expenses), SC (measured with the indicator reflecting the proportion represented by SGA expenses in relation to sales), and RC (measured with the proxy of advertising expenses) all influence the valuation of non-financial firms. In contrast, the variables $TBV, GW, OIA, Sales/PE, SGAE\ and\ Sales$ are not significant and therefore have no influence on the market values of those firms. However, the coefficients of the variables $NI, PE\ and\ SGAE/Sales$ are all positive, maintaining a direct relationship with the market prices of non-financial firms. In contrast, the ADV coefficient is negative, suggesting that the increased advertising expenses of these firms have a negative impact on prices.

The statistical significance of the interactions between $TBV, OIA, PE, Sales/PE, SGAE, SGAE/Sales\ and\ ADV$ and the indicator variable SEC reveals that the net tangible items, identifiable intangible assets, HC (measured with personnel expenses and the productivity indicator of that investment), SC (measured with the SGA expenses and the indicator of their proportional relation with sales), and RC (measured with advertising expenditure) change their value relevance for financial firms. In contrast, given that the interactions in which the variables $NI, GW\ and\ Sales$ intervene were not significant, the value relevance of those variables did not vary between the financial and non-financial sectors.

The total effect on the share prices of the banks of each regressor that changed its value relevance is determined by the sum $\left(\hat{\beta}+\hat{\delta}\right)$, the results of which are presented in Table 4. It can be seen that all the variables which present changes in their value relevance for firms in the financial sector are significant for the valuation of those firms. The coefficients of the variables $OIA, PE, Sales/PE, SGAE/Sales\ and\ ADV$ are positive, implying that these variables maintain a direct relationship with the market value of the banks. The negative sign of the coefficients of the variables $TBV\ and\ SGAE$ shows that the increases in both variables trigger a reduction in the share prices of firms from the financial sector.

Table 4. Coefficients and p-values of the variables whose value relevance changes for the financial sector.

Variables	Coefficients	p-values
TBV	-0.078543**	0.024
OIA	0.434346**	0.015
PE	1.059677***	0.001
$Sales/PE$	0.478382***	0.003
$SGA\&E$	-0.244401**	0.018
$SGA\&E/Sales$	5.086576***	0.000
ADV	0.452616***	0.005

Note: Symbols ***, **, and * denote variables that are significant at confidence levels of 1%, 5%, and 10%, respectively.
Source: authors' own work.

In Table 5, we summarise the coefficients and p-values corresponding to each of the explanatory variables of the estimated model for each of the sectors under analysis.

Table 5. Coefficients of the variables and p-values by industries.

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Variables	Non-financial Sector		Financial sector	
	Coefficients	p-values	Coefficients	p-values
TBV	0.010047	0.590	-0.078543**	0.024
NI	0.131939*	0.068	0.131939*	0.068
GW	-0.913821	0.205	-0.913821	0.205
OIA	0.065460	0.116	0.434346**	0.015
PE	0.144916**	0.048	1.059677***	0.001
$Sales/PE$	0.002614	0.394	0.478382***	0.003
$SGA\&E$	0.060519	0.219	-0.244401**	0.018
$SGA\&E/Sales$	0.238051***	0.004	5.086576***	0.000
$Sales$	0.01007	0.339	0.01007	0.339
ADV	-0.571855*	0.059	0.452616***	0.005
$Constant$	0.734056***	0.000	----	----

Note: Symbols ***, **, and * denote variables that are significant at confidence levels of 1%, 5%, and 10%, respectively.
Source: authors' own work.

These results highlight the important differences in the value relevance of intangibles between the two sectors. Thus, evidence was found to support the ideas proposed in hypotheses H1 and H2 regarding differences in the value relevance of IA and IC between firms from the financial sector and non-financial firms with shares quoted on the ACM.

5.3. Discussion

The results presented above show that the ACM values information concerning firms' intangibles, although the results also clearly show that intangibles are more relevant for investors in the financial sector.

With regard to IA, neither category is seen to be relevant for the valuation of non-financial firms, while the category corresponding to identifiable intangible assets does influence bank valuation. One reason for this may be the greater importance attached to these assets within these firms (Kohlbeck and Warfield, 2007). The results for goodwill, which showed that it is not a variable of interest for investors from either sector, are in line with those of Ficco et al. (2021) and Infante and Ferrer (2017). The results are also consistent with the proposals of Giner and Pardo (2007), insofar as this accounting figure is only representative of the intangible value at the time of its acquisition.

In relation to IC, only HC and SC are value-relevant in the non-financial sector. RC does not provide relevant information to investors on firms in this sector. Moreover, advertising expenses are negatively valued because they can be seen as expenditures that can affect net benefits, as pointed out by Wang (2008). These findings concur with those of Ficco et al. (2021), Liu et al. (2009), Nimtrakoom (2015), Sardo and Serrasqueiro (2017), and Wang (2008) for firms within a range of economic sectors.

In contrast, the results reveal that all the dimensions of IC are relevant for the valuation of banks.

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With regard to HC, and considering that the two proxies used to measure HC are based on personnel expenses, the results reflect that even when these expenses are very significant in Argentine banks (Díaz et al., 2017; Werbin, 2010) and higher than those reported by non-financial firms, the market values them positively and from an investment perspective (Tran and Vo, 2020). The ACM thus perceives them as indicators of banking investments in HC, which constitutes a fundamental means of adding value to the business (Joshi et al. 2013). These findings are consistent with those of previous studies (Appuhami, 2007; Irsyahma and Nikmah, 2017; Mondal and Ghosh, 2012; Ozkan et al., 2017; Tiwari and Vidyarthi, 2018; Veltri and Silvestri, 2011).

With regard to SC, the results show that banks' administrative expenses are not perceived as generators of value when considered in absolute terms, presenting an inverse relation with prices. This can be understood if we consider that these expenses are also very high in Argentine banks and that they constitute a variable which presents a negative relation with the net benefits of these firms (Díaz et al., 2017; Werbin, 2010). In contrast, when analysed in relative terms, taking the proportion of administrative expenses in relation to the income of those organisations, these expenses might reflect an adequate level of investment in SC, in which case they could provide relevant information for investors. These results concur with those of Appuhami (2007), Mondal and Ghosh (2012), Tiwari and Vidyarthi (2018), and Veltri and Silvestri (2011), reflecting how the ACM understands the special importance of SC within the banking industry as a support for and as a driver of HC, with said industry requiring significant technological capital and a high level of innovation, together with other important structural factors, in order to develop its business model (Veltri and Silvestri, 2011).

Evidence has also been found that the ACM attached importance to RC in the bank valuation process, understanding that it is an industry based on reputation (Veltri and Silvestri, 2011) and that the relationship with clients constitutes a fundamental pillar of the business (Joshi et al., 2013). Specifically, our results show that investors positively value bank advertising expenditures, even when this value is very high. This suggests that investors understand the key role advertising plays in constructing long-term relations with clients, which is consistent with the findings of Acar and Temiz (2017) and Chen (2020), who analysed the influence of this type of expenditure on banks' financial performance.

These results support the arguments espoused by the resource-based view by clearly showing that heterogeneity in the provision and configuration of those intangible resources that characterise firms in the two sectors studied can mark out the differences in each industry's performance. This is then reflected in the different importance that investors attach to these resources when valuing firms in the financial and non-financial sector.

6. CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH PERSPECTIVES

To evaluate whether the industry in which firms operate might determine the relative importance of information on recognised and non-recognised intangibles for share valuations, this study assesses the relevance of such information to ACM. Specifically, we examine whether there are differences in the value relevance of intangibles between firms in the financial and non-financial sectors. Such a distinction is of particular interest because it means that banks, which are intensive knowledge-based firms and in which intangibles assume a critical and differentiated role, can be studied separately.

The results show that the value relevance of both IA and IC differs between non-financial and financial firms. With regard to the former, the results reflect that only HC and SC are of interest to investors, which concurs with the studies of Ficco et al. (2021), Liu et al. (2009), Nimtrakoom (2015), Sardo and Serrasqueiro (2017), and Wang (2008) on firms from various economic sectors. In

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contrast, both the identifiable intangible assets of banks and the three dimensions of IC influence their market valuation.

These findings reveal that intangibles contribute information for the evaluation of the different investment opportunities in ACM and that they contribute to the valuation of ACM listed firms. However, the greater importance of intangibles for the valuation of banking entities is also quite evident, reconfirming affirmations from previous literature vis-à-vis the singular role they play in the banking business (Castilla and Ruiz, 2018; Joshi et al., 2013; Sing et al., 2016).

In this sense, our findings underline the varied range of intangible resources held within banks, which investors value as determinants of value creation, revealing that investors understand the importance of the three dimensions of IC: HC as the primary component of IC and the predominant means of value creation; SC, as the support and driving force of the human factor, which requires technological capital and innovation to develop and sustain the particular model of banking business, and RC, because of its crucial role in forging corporate reputation and long-term client relations, which are key pillars of the business. The relevance assigned to identifiable intangible assets is consistent with the above insofar as they involve elements that reveal the firms' ability to innovate, and are the accumulated result of past investments in generators of value recognised in financial statements.

These findings concur with those of previous studies exploring the relevance of intangible assets for banks (Acar and Temiz, 2017; Appuhami, 2007; Chen, 2020; Irsyahma and Nikmah, 2017; Mondal and Ghosh, 2012; Ozkan et al., 2017; Tiwari and Vidyarthi, 2018; Veltri and Silvestri, 2011) and, in particular, help to increase the limited empirical evidence on the role of intangible assets in the stock market valuation of such entities. Our study thus expands the current knowledge of the banking industry, a sector which has been less well studied in the literature.

We also provide further insights into the industry and its influence on the valuation of intangibles within such markets, which remains an unexplored line of research as pointed out by Garanina et al. (2021). We also contribute to filling another research gap concerning intangibles that has emerged from the review carried out by the above-mentioned authors since our work expands the study context to embrace the hitherto unexplored area of South America. We thereby reach out beyond works that have traditionally tended to publish studies addressing the areas of Australia, Europe and the USA.

Our findings also have several practical implications for policymakers, managers, investors and other stakeholders. On the one hand, they provide useful information for standard setting bodies, in particular financial sector regulators, in order for them improve current standards for intangibles. Indeed, the findings concerning the value relevance of intangibles in the context of the ACM highlight the need to include a greater amount of information related to these resources in financial statements – or in specific complementary reports – in order to enhance information usefulness. Our findings may also help managers, particularly those involved in the financial sector, to understand the importance of intangibles for firm valuations. This might encourage them to improve both the quantity and quality of information concerning intangibles that is voluntarily revealed. The new reports that might emerge could benefit both current and potential investors as well as other stakeholders – both internal and external – since they would have more and better information about the main drivers of company value creation when taking different decisions related to those firms.

However, this study had certain limitations. The low number of firms contained in the sample, which is attributable to the small size of the ACM, has conditioned the sectoral analysis, since applying a representative classification of the existing diversity by type of activity would have resulted in sectors with very few firms. It might therefore be worth replicating this study with a sample that could include firms from other countries in order to explore in greater depth the

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industry's influence on the value relevance of intangibles. Furthermore, with a view to future inquiry, other proxies might be used to measure intangibles that are currently not recognised, and which could be constructed by analysing the information on IC disclosed by firms through channels other than their financial statements, in particular, through integrated reports, which constitute an important source of information on IC.

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