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The Existence and Disclosure of Intangibles versus Corporate Financial Performance in France

Abstract:

Aiming for superior performance, companies need to have and skillfully use rare, valuable, irreplaceable and inimitable resources, with special emphasis on intangibles, constructed in lengthy and risky processes or strategically accumulated via Mergers and Acquisitions (M&A). To analyze how financial performance, after 36 months of M&A, is related to the previous existence/disclosure of intangibles, we investigated one hundred and seventy-seven companies were in fifty-nine cases of M&A occurred in France among 1997 and 2007. We built textual-based indicators of disclosure and we used financial measures of intangibles existence to compare their explanatory power for growth and corporate profitability (performance dimensions analyzed). Using Structural Equations, via Partial Least Squares (SEM-PLS), we find positive relationships among these indicators, validating the strategic option for the M&A.

Keywords: Intangibles, Disclosure, Textual-Based and Financial Indicators, Mergers and Acquisitions, Financial Performance, Structural Equations, via Partial Least Squares (SEM-PLS).

1   Introduction

The allocation of resources has been a constant target of research. Corporate competitiveness has been the subject of several studies to understand the sources of a sustainable competitive advantage, to identify explanatory factors of certain firms' superior performance, with the development of analysis structures. The scenario's profound and constant transformations, potentiated by the advancement of technology, expansion in the services sector, growth and sophistication of markets and creation of wealth from information (Nonaka,1991), increasingly shifted the analytic focus towards intangible assets (Bounfour, 2003).

Two approaches stand out in the reflection on the evolution of corporate strategy (Lavie, 2006): the structural view of the industry, in which above-average returns arise from the firm's participation in a sector with favorable structural characteristics; and the Resource-Based View – RBV (for core concepts, see Barney (1986, 1991, 2001) and Peteraf (1993), among others), which suggests that the superior performance of a firm is essentially derived from its heterogeneity and from the specificity of its resources, where the company's ability to accumulate rare, valuable, irreplaceable resources and capacities that are hard to imitate leads this firm to a competitive advantage over its rivals. It is adopted here, given its influence for the study of intangibles.

In the RBV, the "strategic factor market" (Barney, 1986, p.1231) acquires fundamental importance to obtain high returns, directly proportional to its future revenue generation capacity, including in

the context of acquisition of other firms. Therefore, M&A are seen as competitive movements for retention or acquisition of strategic resources, especially intangibles, and as a way of shortening the time lag necessary for its accumulation, as an alternative to internal growth. This factor has been attractive for finance theoreticians, especially with regard to the results for the shareholders.

"The OECD economies have reached an inflection point: from now on, growth dynamics and value creation rest, especially, on immaterial elements" (Levy and Jouyet, 2006, p. 10). The role performed by intangible resources for the establishment of a sustainable competitive advantage is stressed in the discussion of several authors. The growing interest shown by experts, the variety of opinions issued and the extent of discussions indicate that the intangibles represent a vast field of research. As general objective, we analyze how firm performance (in its ramifications of profitability and of growth), resulting from M&A transactions after a minimum period of 36 months from the event, is related to the existence, the disclosure and to the nature of intangible assets at the organizations involved.

2   Theoretical background

2.1 Intangible assets

The importance of intangible assets has grown in terms of economic value, a phenomenon evidenced in several empirical surveys. "Intellectual assets have become strategic factors for value creation by firms", said the Organisation for Economic Co-Operation and Development - OECD (2007, p.1). This denotes the importance of the company knowing, and correctly measuring, valuating and administering its intangibles, especially in relation to value creation.

However, authors are unanimous about the lack of consensus with regards to the very concept of intangibles and of their constituent constructs, given the variety of constructs and also to the most appropriate measurement or valuation method. Frederick (2009); Kristandl (2006); Levy and Jouyet (2006); Yardimcioglu (2008), e.g. geared towards the elucidation of the aspects and variables that contribute most to the generation of wealth have highlighted the intangible aspects of organizations, which have been considered a source of sustainable and lasting competitive advantage for the party that holds them (brand or business reputation) and puts them to work in its favor (intellectual capital).

There is a tendency to use the expressions 'intangibles', 'intangible assets' and 'intellectual capital', and others, as synonyms. OECD (2007, p. 7) acknowledges that "they refer to the same reality: a non-physical asset with a potential flow of future benefits". As a "product of the active debate" (Holland, 2001, p. 7), there were several attempts to categorize and define components, various taxonomies, with the frequent adoption of a tripartite categorization. Andriessen (2005) highlight that classifications overlap and the importance of the synergy among the types of intangible resource.

At the same time, there is growing interest in the enhancement of the disclosure and transparency of information of firms. A lot of studies evidence the important role of financial reports in providing information to the stakeholders on the value of a company, but, "the evidence suggests there is a significant lacuna of reports related to intangible resources" (Zambon *et al.*, 2003, p.2). The attempts to measure and to assess the value of intangibles in surveys (on their existence and/or their disclosure) are incalculable and diversified, focusing on different dependent and independent variables, and on different levels of aggregation.

Respecting the European Commission's taxonomy (OECD, 2006, p.10), seeking inspiration in Andriessen (2004) and in Yardimcioglu (2008), we classify 'intangible assets' into three categories: Human Capital, Relational Capital, and Structural Capital:

Human Capital – relates to the knowledge, competences and know-how that workers "take with them when they leave at night ". Examples are: innovation capacity, creativity, know-how, previous experience, teamwork capacity, culture, employee flexibility, tolerance for ambiguity, motivation, satisfaction, learning capacity, loyalty, formal training and education.

Relational Capital – concerns the resources arising from the external relationships of the company with customers, suppliers and R&D partners. It comprises that part of human capital and structural capital involved with the company's relations with such stakeholders. Examples are: image [corporate], customer loyalty, customer satisfaction, relations with suppliers, commercial power and negotiating capacity with financial entities.

Structural Capital – refers to the knowledge that stays with the company "after the staff leaves at night". It comprises organizational routines, processes, systems, databases, the documentation service, the existence of a knowledge center, the general use of information technologies and organizational learning capacities.

(OECD, 2006, p.10)

Existence of intangibles – financial proxies

Andriessen (2004) lists and discusses 25 techniques for the valuation of intangibles and Sveiby (2001- updated 2009) lists 34 different methodologies, aiming to establish one that will achieve widespread recognition. OECD (2006; 2007) and others agencies have made an effort to establish a form of standardization that is acceptable to the majority.

To assess the value of intangibles, researchers e.g. Chung and Pruitt (1994) and Lock Lee, Guthrie and Gallery (2009), use financial metrics as a general indicator of global intangibility or presence of intangibles in the organization. Tobin's q is renowned for being one of the most widely used indices in studies of the kind, despite its limitations, pointed by Andriessen (2004). The use of a global indicator, however, does not allow us to envisage the true source of value creation, requiring an evaluation of the nature of intangibles present at the company (Wyatt, 2002). Among others, Low (2000) modeled a value creation index, highlighted different weights for the factors, according to the type of economic activity, and in Europe, it was been developed a methodology called "*Baromètre du Immatériel*", that organizes the measurement, the comparison and the evolution of 10 fundamental assets, 71 analysis criteria and 175 measurement indicators for the studied firms (*L'Observatoire of l'Immatériel*, 2009).

Based on the academic literature (see Table 1), we used numerical proxies derived from financial accounting reports of the companies that made up the sample group, which were tested by type.

Disclosure of intangibles - textual indicators

Researchers need to be capable of justifying the specific research methods that they use to collect empirical data, which is examined in order to provide support and to test opinions in relation to different management approaches and the intellectual capital report (Guthrie *et al*., 2004). Accordingly, Bounfour (2003), Holland (2001), and Zambon *et al.* (2003), examined the disclosure of intangibles by firms from several European countries. Wyatt (2002) shows the insights resulting from the Australian experience in structuring of financial reports on intangibles.

Among the methods available for researchers to be able to examine and understand intellectual capital, the content analysis of annual reports of companies is the most widely used tool (Guthrie *et al*., 2004). A list of words, reflecting the OECD classification (2006) and the previous studies, with adaptations, was validated and used in this study.

Intangible asset disclosure indicators were built for the various natures of these assets, through the application of this technique (Bardin, 2007) to the financial accounting reports of the firms studied, prior to the M&A. The word was the chosen unit of analysis; there was the automated detection and the attribution of relative importance to words in the categories of intangible assets, used as context units. The methodological precautions were applied in the various phases of the study. The indicators built are in Table 1.

2.2 Corporate financial performance

Superior corporate performance has been the target of the strategic action of firms and of countless academic surveys, and in business strategy surveys, as one of the most important concepts, always being compared with various explanatory factors. Krauter and Sousa (2007) show that the choice of the measure used in the performance appraisal depends on the managers' intended purpose, whereas there is no measurement superior to the others in absolute terms. Along the same lines, Cameron (1986, *apud* Brito and Vasconcelos, 2005, p.1) points out that performance indicators are selected with a basis on the convenience and simplicity of obtaining data and not on the rational selection of this data.

Gardès (2005), studying M&As of the European banking industry, points out the main sources of superior performance: 1) Market power, where greater market concentration is expected to influence performance; 2) Economies of scale, since a reduction of unit production costs is expected to occur after an M&A, due to the increase in the quantity produced; 3) Economies of Scope, expecting cost reduction due to the bias of complementarity; 4) Efficiency and synergy, since an improvement in efficiency, costs and profits is expected to result from the reduction of risk, increase of size or dissemination of managerial and administrative efficiency between the acquiring and acquired companies.

Lock Lee, Guthrie and Gallery (2009) linked corporate capital and its components to firm performance, at 155 companies in the information technology sector. They revealed that human capital is the best predictor of corporate performance. Others theorists consider that corporate performance is more likely to be typified as a multidimensional construct and proposed models (Brito and Vasconcelos, 2005). Carton and Holfer (2006) studied the conceptualization and measurement of corporate financial and economic performance and maintain that this is a multidimensional construct; it should be analyzed and evaluated from more than one perspective and at different moments in time.

The five-year period is the time horizon used most often for strategic plans, but Brealey and Myers (2003, p. 36) warn that the separation between short and long terms is a clearly artificial convention. In microeconomic terms, said Pindyck; Rubinfeld (2002), long term is an interval of time necessary for the modification of all the production factors. So, Kronmeyer and Kliemann (2005, p. 7) typified the company as "a temporal economic chain", that convert corporate tangible and intangible assets into tangible results; they demonstrated that investments in human, technological and organizational capital will result through the chain in satisfied shareholders after 3 years:

the financial or shareholding results, which are being obtained at time$_{zero}$, herein considered the present time, are a consequence of results obtained from customers at past time t-1, which arise from the execution with efficiency and efficacy of the value generation processes executed at t-2, which are a consequence of the mobilization of human, technological and organizational capital at t-3. Likewise, investments in human capital at time t$_{zero}$ will result through the chain in satisfied shareholders at t+3.

(Kronmeyer and Kliemann, 2005, p. 7)

The above concepts guide this study. Here we analyzed financial performance of firms resulting from M&A operations, with at least three years after the event. The study covered more than one perspective, as recommended: Profitability and Growth were chosen. The analytical dimensions of the corporate financial performance construct were measured through financial indices, as detailed in Table 1.

3   Methodology

The cornerstone was the adequacy and validity of the use of publicly available information. Underlying the investigation, as predominant assumption, was the existence of a positive relation between the retention, use and disclosure of intangible assets by the firms involved in M&A and the superior corporate performance, translated into favorable financial and accounting indices.

We detail the central hypothesis (H$_0$), the sub-hypotheses relating to the Existing Intangible Assets and Financial performance constructs (H1$_a$ and H1$_b$) and referring to the Disclosure of Intangible Assets and Financial performance constructs(H2$_a$ and H2$_b$):

H0: The Profitability and the Growth of the company resulting from an M&A, after the minimum interval of 36 months subsequent to the event, are related to the level of intangibility of the companies involved and to the disclosure by these companies of their intangible assets.
H1a: The Existence of intangible assets is positively related to Profitability.
H1b: The Existence of intangible assets is positively related to Growth.
H2a: The Disclosure of the intangible assets is positively related to Profitability.
H2b: The Disclosure of the intangible assets is positively related to Growth.

The sample consisted of M&A processes between 1997 and 2007, listed on the website of *Autorité des Marchés Financiers*-AMF, the monetary entity in the French market.

Table 1: Survey variables

Variables observed and [Theoretical basis]	Constructs (Latent Variables)		
	1st order	2nd order	3rd order
Return on assets-ROA$_i$ – Return on equity-ROE$_i$ Operating return on assets – R_Op_A$_i$ –Operating Margin – MOp$_i$	Profitability$_i$	Financial performance (post M&A firm) DES_F&A$_i$	
Variation in gross sales-Cresc_Vendas$_i$ – Variation in total assets-Cresc_Ativos$_i$	Growth$_i$		
[Carton and Holfer (2006), Kronmeyer and Kliemann (2005)]			

(In the above table, the leftmost column contains the vertical label "DEPENDENT".)

Variables observed and [Theoretical basis]	Constructs (Latent Variables)		
	1st order	2nd order	3rd order
Number of employees [Edvinsson and Malone (1997), Liebowitz and Suen (2000), Gandia (2003), Herman and Kauranen (2005), Huang and Wang (2008), Wang (2008), Liu, Tseng and Yen (2009)]	Human Capital (CH_A_ prox and CH_c_ prox)	Indicators of the existence of intangible assets (acquiring and acquired companies) (quantitative basis – accounting proxies) At_Int_A_ prox and At_Int_c_ prox	AT_ INT_ F&A
Sales per employee [Liebowitz and Suen (2000), Stewart (2001), Koka and Prescott (2002), Tsan (2002), Wu (2003), Chen (2004), Huang and Wang (2008)]			
Net income per employee [Brennan and Connell (2000), Dzinkowski (2000), Tsan (2002), Wang (2008), Huang and Wang (2008), Liu, Tseng and Yen (2009)]			
Operating income per employees [Lacroix and Zambon (2002), Huang and Wang (2008)]			
Personnel Expenses Intensity [Lacroix and Zambon (2002)]			
Growth rate of sales [ASTD (1999), Buren (1999), Brennan and Connell (2000), Dzinkowski (2000), Tsan (2002), Marr and Adams (2004), Huang and Wang (2008), Wang (2008), Liu, Tseng and Yen (2009)]	Structural Capital (CE_A_prox and CE_c_ prox)		Intangible assets involved in the M and A operation
Firm longevity [Florin, Lubatkin and Schulze (2003), Herman and Kauranen (2005), Huang and Wang (2008)]			
Dilution of shareholding structure [Cerbioni and Parbonetti (2006), Schadewitz and Blevins (1998)]			
Growth Rate of Operating Income - Marketing exp. per share [Huang and Wang (2008)]			
Net income per share [Huang and Wang (2008), Wang (2008)]			
Net income/sales [Koka and Prescott (2002)]			
Selling and administr. expenses / employee [Edvinsson and Malone (1997), Roos et al. (1997), ASTD (1999), van Buren (1999), Stewart (2001), Tsan (2002), Wang (2008)]	Relational Capital (CR_ proxy)		
Degree of stability of the company in the period studied [Huang and Wang (2008), Herman and Kauranen (2005)]			
R and D expenses/net income [Huang and Wang (2008), Gandia (2003), Lacroix and Zambon (2002)]			
R and D expenses / share - Assets/share - Selling and administr. expenses/sales [Wang (2008)]			

INDEPENDENT (numerical proxies for existence of intangibles)

We conducted an investigation in fifty-nine (59) cases of M&A occurred in France in the period, with one hundred and seventy-seven (177) companies (59 acquirer firms, 59 acquired firms and 59 resulting firms), in a multi-method, pluralistic, qualitative and quantitative research.

The time interval was chosen based on convenience and judgment, as it is a recent period of greater economic stability with availability of reliable data, and encompasses the possible results of the events in the desired timeframe (Kronmeyer and Kliemann, 2005), with an impact on financial performance (Carton and Holfer, 2006).

The independent manifested variables were the indicators of the Disclosure of Intangible Assets construct (based on textual data) and the proxies variables (financial indicators), potentially represent the Existing Intangible Assets at companies construct. All the independent variables collected or built over the course of the survey and their constructs refer to the situation of the acquiring and acquired companies, on dates immediately prior to the occurrence of the M&As.

The dependent manifested variables were financial indices calculated for the Profitability and Growth of resulting firms, the chosen dimensions to represent the Corporate financial performance construct. The dependent variables and their constructs are an allusion to subsequent dates, at least 36 months after the event. Table 1 summarizes the main variables used.

To carry out the survey, the independent variables of both constructs, for the acquiring and acquired firms, were compared in terms of their explanatory power, with the Corporate financial performance construct, measured by financial indices calculated for the Profitability and Growth (dependent variables). We employed correlation, factor and multiple regression analyses, besides structural equation modeling, with the use of partial least squares-SEM-PLS. The main findings are summarized in Results.

4   Results and Discussion

The 59 cases of M&A and the companies involved were examined under various and different perspectives. Some features: the sample can be considered diversified and comprehensive in terms of the French economy, because it reaches 08 industries, 27 sectors and 45 sub-sectors of activity of the Industry Classification Benchmark - ICB (2009), with predominance in the firms of the financial segment (28.8% of the sample); all acquirers firms maintained their headquarters in France and only 08 acquired firms (04 Segment Technology) maintained their headquarters in other countries; there was a higher incidence (64%) of cases in the four initial years of the study period; only 16 companies (13.6% of the sample) had no profitability prior to M&A, 09 of which were acquirers; 37 acquirers companies (62.7% of them) and 54 acquired firms (91.5% of them) had no previous experience operations in M&A.

In derivation of the analysis of the economic chain classification of the companies in the sample, and based on Wright, Kroll and Parnell (2000) and on Brealey and Meyers (2003), we can to prospect the strategic objective pursued. By type of M&A, there were 44 cases of "horizontal" M&A, i.e. occurred between firms in the same link of the production chain (same classification), that indicates market expansion or cost reduction as the probable strategic objectives; there were 08 cases of "vertical" M&A, i.e. between companies in the same production chain (identical super-sectors), showing the probable interest in cost reduction, standardization and quality improvement; and there were 07 cases of "unrelated" M&A, i.e. between firms of different production chains (different super-sectors), pointing to the goal of reducing risk by diversification.

The separate treatment of the chosen dimensions of the construct representing Financial Performance (Profitability and Growth) was tested, by a factor analysis, and it was confirmed the Carton and Holfer (2006) view. The variable "Profitability" was subdivided, by factor analysis, into: Profitability for Shareholders and Corporate Profitability.

Growth, in turn, remained a single construct, observed through the indicators Growth of Assets and Growth of Sales of the companies resulting from the M&A examined.

Profitability for Shareholders was evaluated by the Rate of Return on Invested Capital (ROEi); and Corporate Profitability, measured jointly by the indicators Rate of Return on Assets (ROAi), Rate of Operating Return on Assets (R_Op_Ai) and Operating Margin (M_Opi).

In the averages tests, only few significant differences were revealed in the observed variables averages, between acquirers companies and acquired firms, since any differences in averages were not statistically significant in 30 of the 36 characteristics investigated. The summary of tests significant differences between the independent variables collected by company type (acquirers companies and acquired firms) is listed in Table 2:

Table 2: Significant differences of averages between acquiring x acquired firms

EXISTING INTANGIBLE ASSETS CONSTRUCT	Sig..	Comparison
Human Capital: Quantity of Employees	1%	Acquiring companies > acquired companies
Structural Capital: Degree of Stability of the firm in the sample	5%	
Relational Capital: Firm longevity	1%	
Dilution of Shareholding Structure	1%	
Structural Capital: Apportionment of R&D Expenses per share	1%	Acquiring companies < acquired companies
Overall Intangibility: "Amortization of Intangibles" item	1%	
DISCLOSURE OF INTANGIBLE ASSETS CONSTRUCT	NS	Acquiring companies = acquired companies

Notes: a) 1%, 5% and 10% = levels of significance; NS = not significant at the levels studied; b) The t-critical values corresponding to 58 degrees of freedom and to the chosen significance levels are approximately 2.663; 2.002 and 1.672, respectively, for two-tailed test;

c) The z-critical values, for the levels of significance cited, are approximately 2.58; 1.96 and 1.65, respectively, for two-tailed test.

Source: data from the survey, analyzed using SPSS software.

The Regression analyses carried out resulted in five models, all with 5% of statistical significance. They indicate that:

- Growth of the companies resulting from the M&A is related to variables relating to the Relational Capital: Growth Rate of Sales and Firm; longevity, Marketing Expenses per share and Dilution of the Shareholding Structure (acquiring companies) and Previous profitability (acquired company).

- Corporate Profitability of the resulting firms is influenced by Previous experience in M&A (acquired firms).

Besides the models established by multiple regression analysis, diagrams of relationships among the examined constructs were built using SEM-PLS. SEM, particularly through the use of PLS, is a powerful statistical technique for obtaining better and more reliable results, even with samples of reduced size, allowing a more accurate analysis of the relations between the variables studied (Grace and Bollen, 2005). The main results of the structural models built using SEM-PLS are in Table 3.

Table 3: Synopsis of the significant results of the Structural Models built

Structural model	Structural relation between				Explanatory power R^2	Significance of the structural coefficients
	Dependent VL	Independent VL regressor				
		Acronym (Constructs)	Order	Nature		
1	Corporate Profitability	AT_INT_F&A_text (Disclosure of Intangible Assets)	3rd	Semantic	7.2%	Sig. at 1%
	Growth				3.8%	Sig. at 5%
2	Corporate Profitability	At_Int_A_proxy (Existing Intangible Assets)	2nd	Financial	4.4%	Sig. at 5%
2A	Corporate Profitability	At_Int_A_proxy (Existing Intangible Assets)	2nd	Financial	4.6%	Sig. at 5%
	Growth	At_Int_c_proxy-direto (Existing Intangible Assets)	1st		5.2%	Sig. at 5%
3	Corporate Profitability	AT_INT_F&A [1] (Existing Intangible Assets and Disclosure of Intangible Assets)	4th	Semantic and Financial	6.8%	Sig. at 1%
	Growth				3.5%	Sig. at 10%
3A	Corporate Profitability	Ind_At_Intg_F&A [1] (Existing Intangible Assets and Disclosure of Intangible Assets)	1st	Semantic and Financial	7.9%	Sig. at 1%
3B	Corporate Profitability	Indictors_ AT_INT_F&A [1] (Existing Intangible Assets and Disclosure of Intangible Assets)	1st	Semantic and Financial	7.1%	Sig. at 5%
3C	Corporate Profitability	Indictors_At_Int_Exist_F&A (Existing Intangible Assets)	1st	Financial	4.5%	Sig. at 10%

Notes: 1. Constructs created from the relaxation of the limits of factor loadings, AVE and CC, permitted in exploratory surveys (Hulland, 1999, p.198). 2. Models developed in the SmartPLS 2.0.M3 software (Ringle *et al.*, 2005). 3. All the measurement models appear with validity and reliability according to parameters recommended by the good SEM-PLS technique and with significant coefficients. 4. The significance of the coefficients, in all the models, was estimated, in the software, by bootstrap with 1000 repetitions.

Source: Data from the research.

In examining Table 3, these aspects merit special emphasis:

- The dependent VL Corporate Profitability had its variance explained, with statistical significance, in the seven structural models developed, three of them at 1%;

- In all the models, the dependent variables, Corporate Profitability and Growth, were designed as 1st order VLs;

- The dependent VL Corporate Profitability had its variance explained by five different constructs of the independent variables, in the seven models;

- In only three of the seven structural models, the variance of the dependent VL Growth was explained with statistical significance, at 5% and at 10%;

- Three models concomitantly combined greater explanatory power and better significance level (at 1%), all referring to the VL Corporate Profitability, where Structural Model 1was based on semantic indicators and Structural Models 3 and 3A were of a mixed data nature (textual and financial origin);

- The models that used constructs consisting entirely of financial proxies exhibited lower explanatory power and significance level at 5%, with intermediate complexity level.

The structural models were analyzed and discussed separately and the two most significant ones are represented graphically here, via software SmartPLS 2.0.M3 (Ringle *et al.*, 2005):

Structural Model 1 - Intangible assets disclosed x Profitability and Growth

It was the second most complex, with one 3rd order VL, two 2nd order VLs and six 1st order VLs, adding up to 11 constructs, two of which refer to the dependent variables. The indicators manifested in this configuration, are of semantic origin, "textual", relating to the disclosure of intangible assets.

In this model, the intangible assets disclosed by both the companies involved in the M&A were gathered in the construct AT_INT_F&A_text. This construct had statistically significant relationships established with the dependent VLs of interest of this survey: with Corporate Profitability, 7.2% of its variance, with statistical significance at 1% and with the VL Growth (measured by the growth of assets and of sales), explaining 3.8% of its variance, with significant structural coefficient at 5%.

For better visualization, see the model in Figure 1.

*Structural Model 2 - Existing Intangible Assets x Profitability and Growth*

It refers to the existence of intangibles at the merged organizations and it is composed of proxies financial indicators, respecting the types of intangible capital assets and grouping them in 2nd order VLs. In this model it was not possible to form a variable gathering the financial indicators of the acquiring and acquired companies. With statistical significance at 5%, the intangible assets existing at the acquiring companies account for 4.4 % of the variance of Corporate Profitability; the other structural or path coefficients appeared non-significant, according to a bootstrap estimation with 1000 and with 5000 repetitions, via SmartPLS 2.0.M3 (Ringle *et al.*, 2005).

Considering the above result, and aiming to obtain better and more reliable results, we conceived an alternative design, the Structural Model 2A: Intangible Assets Existing at the Acquiring and Acquired Companies x Profitability and Growth, composed of the 2nd order VL representing the Intangible Assets Existing at the Acquiring companies and of the 1st order VL Intangible Assets Existing at the acquired companies.

In relation to the foregoing model, the Structural Model 2A offered greater explanatory power, with statistical significance at 5%, over the VLs Corporate Profitability (4.6%) and Growth (5.2%).

Bear in mind that for the acquired firm, the intangible assets were composed directly, without respecting the category of intangible capital, since in including them, the model undergoes reduction of the already very low predictive power, especially over the dimension growth.

Figure 1: Structural Model 1: Intangible Assets Disclosed *x* Profitability and Growth
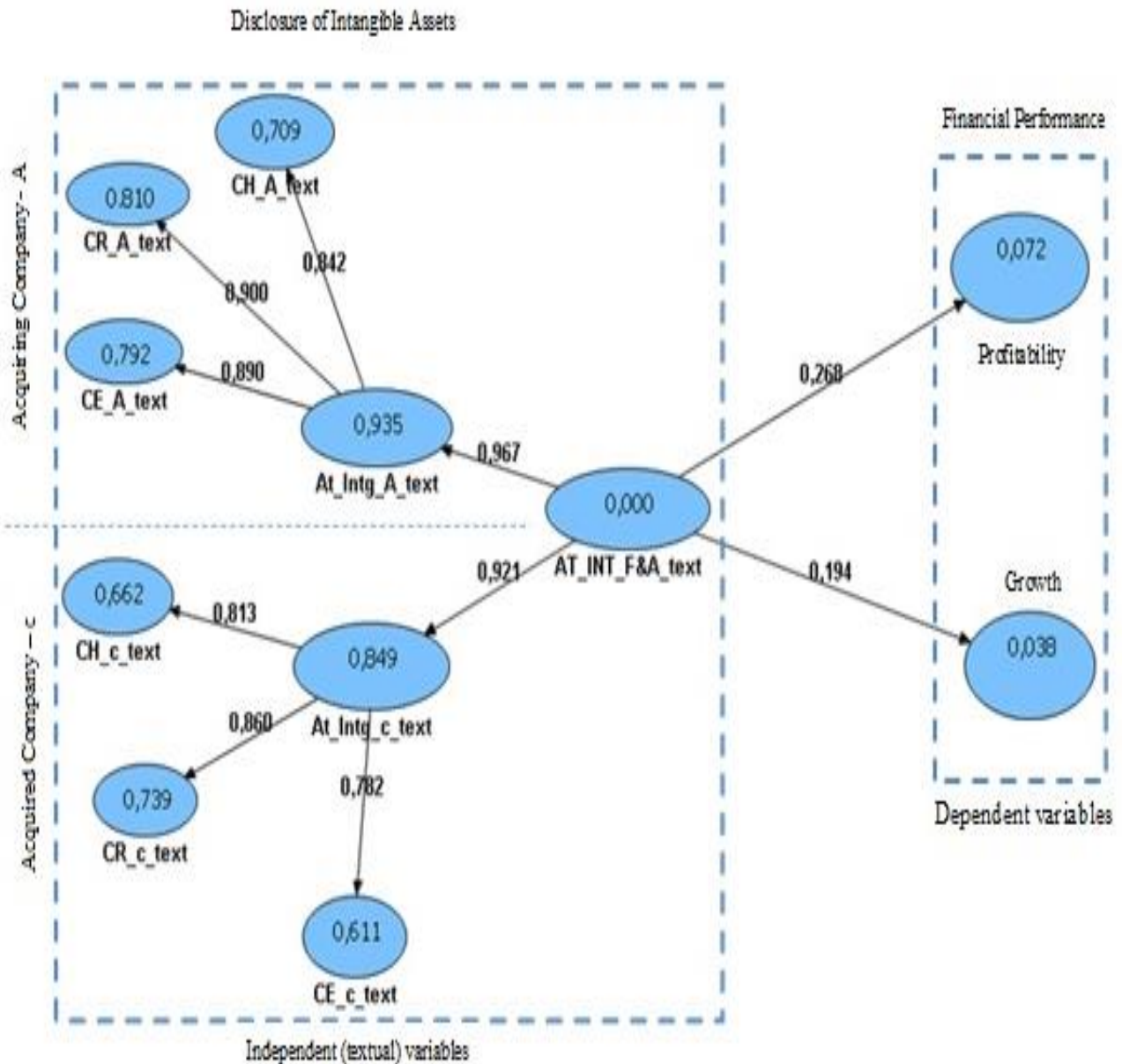
Note: Only the coefficient of the variable M_Op appeared non-significant; the other coefficients appear highly significant ($p < 0.01$); the structural coefficient of the VL Profitability appeared highly significant ($p < 0.01$) and the VL Growth was significant at 5%.

Source: Data from the research.

Structural Model 3 - Intangible Assets in M&As x Profitability and Growth

Structural Model 3 followed the theoretical model conceived for this survey. It was prepared with a higher level of complexity and abstraction, involving one 4th order VL, two 3rd order VLs, four 2nd order VLs and twelve 1st order VLs, adding up to 19 constructs, two of which refer to the dependent variables. This model can be seen in Figure 2.

This configuration uses manifest variables originating from data of a semantic and financial nature, in an exploratory manner, that is: using relaxation of the limits of factor loadings, AVE and CC, with a theoretical basis on Hulland (1999, p.198).

Figure 2: Structural Model 3 - Intangible Assets in M&As x Profitability and Growth
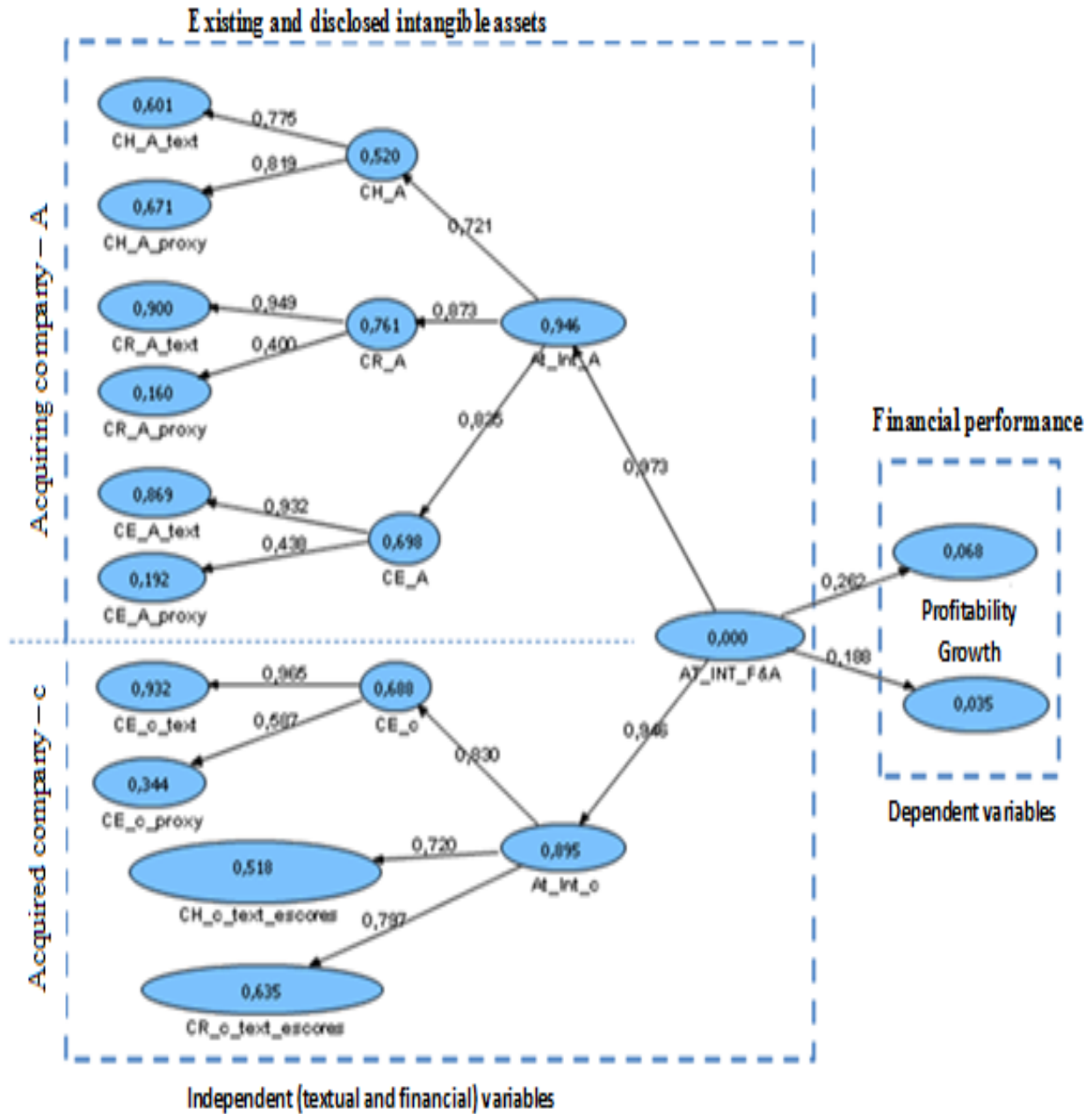
Path coefficient between		t-value	p-value	Significance
Independent VL	Dependent VL	(by bootstrap)		
AT_INT_F&A	Corporate Profitability	3.102	0.002	Sig. at 1%
AT_INT_F&A	Growth	1.803	0.072	Sig. at 10%

Note: All the coefficients of the manifest variables and factors in the measurement models appear significant (p < 0.01).

The path coefficient referring to the Profitability construct was highly significant (p < 0.01). That in allusion to the Growth construct proved significant at 10%.

Source: Data from the research.

All the variables present in this configuration were gathered in the 4th order, which succeeding in forming significant relationships with the Corporate Profitability construct (it can be held accountable for 6.8% of the variance of this VL, with statistical significance at 1%) and with the Growth construct (explaining 3.5% of the variance of the VL, with statistical significance at 10%).

Aiming to obtain the highest content validity, respecting the categories of capital of the intangible assets and covering them all, both in the "textual" variables relating to the Intangible Assets Disclosed (of the acquiring and acquired firms) and in the "numerical" financial proxies referring to the Existing Intangible Assets (of the acquiring companies only), we developed Structural Model 3A: Indicia of Intangibility prior to the M&A x Profitability and Growth. Thus we obtained the highest explanatory percentage (7.9%) on Corporate Profitability, with a significance level of 1%. Considering the exploratory nature of Structural Model 3A, textual variables with minimum load of 0.4 were allowed (Hulland,1999, p.198) and, although the minimum parameters of AVE and CC were met, this is considered a methodologically weaker model.

To minimize this issue, variables with loads below 0.5 were discarded, arriving at Structural Model 3B: Indicia of Intangible Assets in M&A x Profitability and Growth. This presents lower content validity, as it does not encompass all the categories of capital of intangible assets, in the "textual" variables. The results show explanatory power of 7.1% only over the variance of the Corporate Profitability construct, at 5% of statistical significance.

Finally, only the indicators with loads above 0.7 were taken into account again in Structural Model 3C: Indicia of Existing Intangible Assets in the M&A, originating from the Acquiring Company x Corporate Profitability. In this model, only the variables of the proxy type observed in allusion to the existence of Intangible Assets at the acquiring company remained, forming the 1st order construct, which accounts for 4.5% of the variance of Corporate Profitability, with path coefficient significant at 10%.

5   Conclusions

We find statistically significant positive relations among the main constructs examined in our study. We considered validated: the central hypothesis H_0 specified here (tested through Structural Model 3 - Intangible Assets in M&As x Profitability and Growth); the sub-hypotheses in allusion to the relation between the constructs Existing Intangible Assets and Financial Performance (tested through Structural Model 2A (alternative configuration): Intangible Assets Existing at the Acquiring and acquired companies x Profitability and Growth); and the sub-hypotheses in allusion to the relation between the constructs Disclosure of Intangible Assets and Financial performance (tested through Structural Model 1: Disclosed Intangible Assets x Profitability and Growth).

The possibility of incorporating knowledge accumulated in the development of the actual work, agreeing with Grace and Bollen (2005, p. 294), it was one of the greatest benefits arising from the use of SEM-PLS.

Comparing Structural Model 1 with Structural Model 3, the two that offered the best and most comprehensive results in terms of explanatory power and significance, we perceive the superiority of Structural Model 1, which offers a lesser degree of complexity, with methodological robustness. Using this model, we find evidence that disclosed intangible assets are related to both profitability and growth.

The analysis via SEM-PLS yielded better results in terms of explanatory power of the dependent variables and of the level of statistical significance, when using models built with manifest indicators of semantic origin (created by the content analysis technique, applied on the documents published by the companies involved in the M&A operations studied), in comparison to the results obtained from the models that used only financial indicators.

The results suggest that the information of a textual nature (semantic), converted into intangible asset disclosure indicators, have greater relationship, simultaneously, with corporate profitability and with growth, the two dependent variables, in comparison to information based on proxy independent variables from a financial and accounting perspective.

Due to the use of an intentional sample, selected by judgment and convenience, the results cannot be generalized for the universe, in the traditional analysis techniques, even though they respect the calculated study power. This is a strong restriction on this study, notwithstanding the other types of generalization, from the phenomenological perspective, following inductive logic. For further studies, we suggest more extensive research on the intangible assets that imply relational capital of merged companies, more specifically on the value of their client portfolio, from the financial viewpoint. The authors also suggest, as natural ramifications: the use models of 3rd and 4th order formative constructs, with the actual variables from the database analyzed; the incorporation of intervening or moderating variables into the modeling. On the other hand, a replication of this study, using the models developed here, applying them to other samples, which will allow their validation and the performance of comparative analyses and future generalization in a meta-analysis.

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