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Analysis of factors that influence the companies' market value in England, France, and Germany. How can managers maximize such value?

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Abstract

One of the classic issues in business administration is whether managers can maximize profit. Thus, this article aims to identify the causal factors regarding the maximization of companies' market value to subsidize decision-makers. The sample was extracted from the Capital IQ database and formed of non-financial public companies from Germany, France, and England, considering the period from 1999 to 2019, with quarterly frequency. The study finds theoretical support from market-to-book decomposition concepts as in Rhodes-Kropf, Robinson, and Viswanathan (2005), and uses the classical theory decision model with hypotheses proposed by Lindenberg and Ross (1981), Hirschey and Wirchem (1984), Habib and Ljungqvist (2005), Hertzel and Li (2010), and Belenzon (2012). The research adopted a *t-1* period lag in the independent variables in relation to the dependent variable to demonstrate the result of actions of independent variables in the dependent variable in subsequent periods. Subsequently, correlation and regression analyses were performed with panel data. The results show that the management of tangible and intangible assets, goodwill, revenue, Ebitda, return on assets, research and development, advertising, Capex, and return on equity contribute to increasing the companies' market value, and they can be maximized through good management. Therefore, because these variables are manageable, it is possible to infer that managers are in the position to maximize companies' market value.

Keywords: Market value. Germany. France. England. Decision making.

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Análise de fatores que influenciam o valor de mercado de empresas na Inglaterra, na França e na Alemanha. Como os gerentes podem maximizar?

Resumo

Uma das questões clássicas em administração de empresas é se os gerentes são realmente maximizadores de lucros. Assim, o presente trabalho tem como objetivo identificar os fatores causais que maximizam o valor de mercado de uma empresa, a fim de sugerir ações aos tomadores de decisão. A amostra é extraída da base de dados Capital IQ, de empresas públicas não financeiras de Alemanha, França e Inglaterra, no período de 1999 a 2019, com periodicidade trimestral. Como suporte teórico, foram utilizados conceitos da decomposição do *market-to-book* sob a óptica de Rhodes-Kropf, Robinson e Viswanathan (2005), bem como o modelo do processo de decisão da teoria clássica, com hipóteses propostas por Lindenberg e Ross (1981), Hirschey e Wirchem (1984), Habib e Ljungqvist (2005), Hertzel e Li (2010), além de Belenzon (2012). Considerou-se uma defasagem do período t-1 nas variáveis independentes em relação à variável dependente visando demonstrar o resultado das ações das primeiras na segunda em períodos subsequentes. Depois, foi feita uma análise de correlação e regressão com dados em painel. Os resultados mostram que a gestão de ativos tangíveis e intangíveis, *goodwill*, receita, Ebitda, retorno sobre ativos, pesquisa e desenvolvimento, propaganda, Capex e retorno sobre o patrimônio contribuem para o aumento do valor de mercado das empresas, sendo uma boa gestão de indicadores para maximizá-los. Portanto, como essas variáveis são gerenciáveis, conclui-se que os gestores podem aumentar o valor de mercado das empresas.

Palavras-chave: Valor de mercado. Alemanha. França. Inglaterra. Tomada de decisão.

Análisis de factores que influyen en el valor de mercado de empresas en Inglaterra, Francia y Alemania. ¿Cómo los gerentes pueden maximizarlo?

Resumen

Una de las preguntas clásicas en la administración de empresas es si los gerentes son realmente maximizadores de ganancias. Así, el presente trabajo tiene como objetivo identificar los factores causales que maximizan el valor de mercado de una empresa para sugerir acciones a los tomadores de decisiones. La muestra se extrajo de la base de datos Capital IQ, empresas públicas no financieras de Alemania, Francia e Inglaterra en el período de 1999 a 2019, con frecuencia trimestral. Como soporte teórico se utilizaron conceptos de la descomposición del *market-to-book* (valores de mercado contra valores contables) desde la perspectiva de Rhodes-Kropf, Robinson y Viswanathan (2005), y el modelo del proceso de decisión de la teoría clásica, con las hipótesis propuestas por Lindenberg y Ross (1981), Hirschey y Wirchem (1984), Habib y Ljungqvist (2005), Hertzel y Li (2010), y Belenzon (2012). Se consideró un desfase del período t-1 en las variables independientes con relación a la variable dependiente, con el objetivo de demostrar el resultado de las acciones de las variables independientes en la variable dependiente en períodos posteriores. Posteriormente, se realizó análisis de correlación y regresión con datos de panel. Los resultados muestran que la gestión de activos tangibles e intangibles, fondo de comercio, ingresos, Ebitda, retorno sobre activos, investigación y desarrollo, publicidad, Capex y retorno sobre el patrimonio contribuyen al incremento del valor de mercado de las empresas, y constituyen una buena gestión de indicadores para maximizarlos. Por tanto, dado que estas variables son manejables, se concluye que los administradores pueden maximizar el valor de mercado de las empresas.

Palabras clave: Valor de mercado. Alemania. Francia. Inglaterra. Toma de decisiones.

INTRODUCTION

Determining the market value of a company is not a simple task since there are several methodologies, even conflicting ones, and many of them present a number of subjective variables, which can be constructed or deconstructed according to the model used.

These suppositions are broad and involve not only equity elements, but also variables that are difficult to prove, such as market trends, strategies, and the capacity of the intellectual capital applied in the processes; as well as variables from external factors such as inflation rate, interest rate, unemployment rate, GDP trends, country risk, and exchange rate, among others which are not possible to manage.

For Habib and Ljungqvist (2005), the definition of a company's value is the value of the cash flows that a company's assets provide by means of the use of these assets and for growth in opportunities.

Theoretically, companies seek to maximize their value and thereby provide a greater shareholder return. In order to do so, there are several factors that make up this increase in value, and many of them are not observable, thus, difficult to measure. With the intention of maximizing the results by means of a higher market value of the actions, the challenge arises as to how managers can optimize their actions in order to be more efficient and effective in their actions.

Konar and Cohen (2001) analyzed the relationship between the performance of the environment and the market value of firms. They also addressed the financial aspect over time and the effect of the external environment on the market value of companies. Hirschey and Wichern (1984) used accounting numbers to measure business performance because they are widely disseminated and present a conservative nature. The authors question the fact that accounting practices are different among countries, even though they maintain the qualitative observable in their bookkeeping.

External factors such as macro and micro economy, and political factors, as they are not subject to management by the managers, were not considered, especially because it is assumed that the historical behavior of accounting variables in the database of this study are impacted in the series.

The increase in the market value of the companies has been associated with an increase in the competitive advantage that this company has in relation to its competitors, and as a consequence, a greater expectation of future returns.

Vasconcelos, Forte and Basso (2019) relate intangible assets and their role in generating competitive advantage, and Peteraf and Barney (2003) state that competitive advantage occurs when the company is able to create more economic value in relation to its competitors, and for that it is necessary that the company has a structure by means of its intangible assets in order to maximize its economic value.

The market value is also estimated using the valuation method, and Damodaran (2006) explains that the major valuation methods are settlement valuation, multiple valuation, and discounted cash flow. In this manner, this paper aims to identify the variables that contribute to increase the market value of a company considering the 3 main economies of Europe according to GDP: England, France, and Germany. It is hoped that this paper contributes by indicating insights on how managers can maximize the market values of companies, adding knowledge to both the practical market and the readers of the newspaper.

THEORETICAL FRAMEWORK

Value and evaluation: first considerations

Damodaran (2007) clarifies that the difference between value and price is essential to the company's evaluation process. While price is the common agreement between seller and buyer at a given moment, since it is unique and exclusive of a specific transaction, the value depends on several subjective factors. In their neoclassical economic approach, Friedman and Miles (2002) argue that profit is the purpose of a company for its owners and shareholders, who invest capital expecting a return.

Freeman (1984) through the theory of stakeholders, recognizes a positive effect in this relationship between return and market value. Authors such as Jensen (2001), Brealey, Myers, and Allen (2008) discuss the importance of aligning the stakeholder expectations with the companies' financial and economic performance and results. Freeman (1984), Hill and Jones (1992) and Donaldson and Preston (1995) explain that this view corroborates the wealth generation process and directs the actions of the managers towards the business, aiming at maximizing the results.

Modigliani and Miller (1961) argue that in perfect markets, with the premise that there are no taxes or transaction costs, the dividend policy is irrelevant for the shareholders of the companies. The increase in the market value of the company's shares is directly related to the amount of dividends distributed, thus, the companies that pay more dividends tend to have a lower appreciation of their shares, making a return consistent with the investment risk to partners and shareholders of the company. The authors also state that companies that distribute less dividends tend to obtain a higher market value of the company by means of a greater appreciation of the company's shares. It is important to note that the return to the total shareholder corresponds to the dividends paid and the increase in the market value of its shares in order to compensate them in relation to the investment risk.

Vasconcelos, Forte and Barboza (2020) analyze the factors that impact a greater total return to the shareholder, suggesting to the managers which variables could be managed in order to maximize the total return to the shareholder, and as a consequence, the market value companies.

Gordon (1959) and Lintner (1956), in turn, according to the Dividend Relevance Theory (or Bird-in-Hand Theory), claim that shareholders prefer current dividends, thus contributing to stability and the reduction of uncertainty, therefore contributing to the increase of the company's market value. According to Black and Scholes (1974), studies of the monthly data on dividends, prices and returns for each common share listed on the NYSE index demonstrated the lack of a correlation between stock quotes and dividend policy, providing even more strength for the Dividend Irrelevance Theory.

Copeland, Koller and Murrin (2002) explain that the market value of a company is based on the expectation that investors have in relation to the future performance of the company; thus, the returns obtained by the shareholders depend more on expectations than on the company's effective performance. According to Muller and Teló (2003), the subjective factors on the part of the evaluators in relation to the methods and the measures used in the evaluations are directly impacted by the previous experiences of the evaluators who are preparing the evaluation.

Table 1 shows the main methods of valuation of companies, not exhaustive.

TABLE 1

Summary of company valuation methods

Balance sheet	Economic result	Mixed (Goodwill)	Discounted Cash Flow	Value creation	Options
Book value model	Profit value model	Classic model	Free Cash Flow	Economic Value Added – EVA	Black e Scholes
Adjusted book value model	Dividend value model	Simplified model of the European Union	Equity Cash Flow	Cash Flow Return on Investment - CFROI	Investment option
Settlement value model	Sales multiples model	European accounting experts model	Capital Cash Flow	Other models	Project expansion
Substantial value model	Other multiples models	Indirect method	Dividends model		Investment postponement
		Purchase method and annual profits	Adjusted Present Value – APV		Alternative uses
		Models of relative risk and free risk	Other models		
		Other models			

Source: Elaborated by the authors.

The gap between Book Value and Market Value

Vasconcelos and Marino (2020) state that there is a large gap between the book value and the market value of companies which generates a difference between the balance sheet and the market value of the entity and this impacts on the owners' equity. This fact is due to some factors, including conservatism and accounting prudence, especially in relation to the non-recognition of intangible assets, and pricing based on market expectations for future earnings.

Also, Vasconcelos, Forte and Basso (2019) emphasize that intangible assets have been a challenge for companies and market, both in the accounting aspect, recognition, measurement, and the valuation on the impacts in the value creation for the shareholder and market value.

Moreover, the gap between the book value and the market value becomes larger in intangible assets in subsequent recognitions, because according to IAS 38, the taxable events that could capitalize intangible assets should be recognized as expenses for the year. The book value reflects a position of the present and the past, derived from the accounting records. The market value reflects the fair value of the asset, which has expectations of future gains or losses (Damodaran, 2006).

Hirschey and Wichern (1984) state that the market value observes the present value and the expectation of future profits of a company. In this manner, according to Fama (1970), on the premise

of an efficient capital market, the prices of the market provide an unbiased estimate of the present value of a company's expectations of future profit and discounted cash flow, as a contrast, there are also studies by authors such as Dontoh, Radhakrishman and Rones (2007) that suggest that the prices of the shares may not be an appropriate reference to ascertain or contain information about two counted profits.

For Sharpe, Alexander and Bailey (1995), market value is based on the cash flow that an investor expects to receive in the future, and this cash flow must be discounted by a discount rate that reflects the risk of the company and the country risk, and then the present value of this flow is added (COPELAND, KOLLER and MURRIN, 1995). In turn, Gordon (1959) states that the market value is driven by the estimate of future dividends that grow at constant rates, and that future dividend flows are brought to present value based on the records of the company.

It is noteworthy that Gordon's model is also known as an evaluation model with a constant growth rate. This is a simplified alternative to assess the company's share value because it does not consider a gradual growth different from dividends, a fact that usually occurs in companies in the real economy. Moreover, Damodaran (2006) and Ross and Westerfield and Jaffe (2016) state that intangible assets influence the value of companies and modify their capital structure, their ability to generate cash, value generation, and market value of the companies.

Decision taking

When approaching decision making, we consider vast field of science that has consequences for success and failure. Ineffective decisions can be disastrous for a company, because it can impact its survival and performance for years. However, when decisions are made correctly and with planning, they can lead companies to pursue the best performance results. Based on our intangible assets, what decisions should be made to maximize the brand value of the company? In order to contribute to the empirical results of this study, it is important to understand decision-making process.

One of the variances of the decision-making process is explained by Camerer, Loewenstein and Prelec (2005) by their classical theory that individuals are rational, thus the process takes place in controlled or automatic facts, so that individuals are based on cognition, that is, on reason; and on affection or emotion. Similar to solving a mathematical problem, or to a programming logic, the controlled processes direct the decision maker to use technical data to solve problems or fulfill their objectives. They use reason as the major weighting point in the construction of their reasoning.

Complementing, and at the same time opposing to the controlled decision process, there is the automatic process, which is characterized as an unconscious, simultaneous process that requires much less effort compared to controlled processes. The automatic process then presents itself in a secondary and automatic way in the individual, such as the act of eating or walking while performing another activity.

Other studies assume that individuals do not act as rationally as defended by classical theorists. Thaler (2016), for instance, explains that individuals are more likely to make decisions by analyzing the short term in relation to the long term. In order to facilitate the positive decision process, nudges were created, that is, procedures with positive results as counterparts of sludges. Thus, it is imperative to determine procedures that bring good results, as opposed to expected biases or bad procedures.

Breakdown of market value into tangible and intangible assets

For Lev (2001), the company's market value is conceptually reflected by the return provided by its tangible and intangible assets. The role of intangible assets is observed by the growth of the market-to-book ratio, which, according to Golubov and Konstantinidi (2019), represents the deviation of assets by means of market multiples.

In the literature, many authors have tried to break the market value in different ways according to their study bias, either by spending on research and development (JAFFE, 1986) or on advertising (MEGNA and MUELLER, 1991) and branding (SIMON and SULIVAN, 1993).

Rhodes-Kropf, Robinson and Viswanathan (2005) broke the market-to-book into market-to value and value-to-book, making the estimates by the fundamental value based on the industry's valuation and observable characteristics. The study was conducted with companies that carry out mergers and acquisitions compared to the stock market-to-book in the period, and they concluded that asset pricing failures vary according to the types of errors, with the buyer generally reaching a value of up to 20% higher than the target; cases that reach 60% are due to specific errors of the company, and this generates an overestimation in relation to the real value of the asset.

Due to the traditional view that the company uses its intangibles and tangibles assets on its operation, it was considered the market value breakdown suggested by Lindenberg and Ross (1981) is adopted for this study:

$$VM_{it} = \beta_{oi} + AT_{t-1} + AI_{t-1} + \varepsilon_{t-1} \quad (1)$$

Where:
VM = Market Value
AT = Tangible Assets
AI = Intangible Assets

In turn, intangible assets can be broken down into intangible assets properly accounted for and into the goodwill, where:

$$IA_{it-1} = IA_{t-1} + GW_{t-1} + \varepsilon_{t-1} \quad (2)$$

Thus, the market value can be broken down into:

$$MV_{it} = \beta_{oi} + TA_{t-1} + IA_{t-1} + GW_{t-1} + \varepsilon_{t-1} \quad (3)$$

Where:
GW = Goodwill
MV = Market Value
AI = Intangible Assets
TA = Tangible Assets

In order to answer the research problem of this paper, the assumptions based on the studies were used: adjusted hypothesis (H1) - in the proposal by Lindenberg and Ross (1981) were used; hypotheses 2 and 3 (H2 and H3) - in the studies of Hirschey and Wirchem (1984); hypothesis 4 and 5 (H4 and H5) - in the studies by Habib and Ljungqvist (2005); hypothesis 6 (H6) - in the proposal of Hertzel and Li (2010); hypothesis 7 and 8 (H7 and H8) - in Belenzon's proposal (2012), and hypotheses 9 to 14 (H9 to H14) - as an improvement in the authors' understanding of the theme, making a total of 14 hypotheses.

H1. The higher the tangible assets (TA), intangible assets (IA), and goodwill (GW), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + AT_{t-1} + AI_{t-1} + GW_{t-1} + \varepsilon_{t-1} \quad (3)$$

H2. The higher the ratio of tangible assets (TA) by revenue (REV), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + \frac{\beta_1 AT_{it-1}}{\beta_1 REV_{it-1}} + \varepsilon_{t-1} \quad (4)$$

H3. The higher the tangible assets (TA), intangible assets (IA), research and development (RD), and advertising expenses (ADVER), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + AT_{t-1} + AI_{t-1} + RD_{t-1} + ADVER_{t-1} + \varepsilon_{t-1} \quad (5)$$

H4. The higher the expenses with research and development (RD), advertising (ADVER) and capital (CAPEX), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + RD_{t-1} + ADVER_{t-1} + CAPEX_{t-1} + \varepsilon_{t-1} \quad (6)$$

H5. The higher the expenses with research and development (RD), advertising (ADVER), capital (CAPEX), and revenue (REV), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + RD_{t-1} + ADVER_{t-1} + CAPEX_{t-1} + REV_{t-1} + \varepsilon_{t-1} \quad (7)$$

H6. The higher the tangible assets (TA), intangible assets (IA), capital expenditure (CAPEX) and expenses with research and development (RD), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + AT_{t-1} + AI_{t-1} + CAPEX_{t-1} + RD_{t-1} + \varepsilon_{t-1} \quad (8)$$

H7. The higher the revenue (REV), and expenses with capital (CAPEX) and research and development (RD), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + REV_{t-1} + CAPEX_{t-1} + RD_{t-1} + \varepsilon_{t-1} \quad (9)$$

H8. The higher the tangible assets (TA), intangible assets (IA), expenses with research and development (RD), and revenue (REV), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + AT_{t-1} + AI_{t-1} + RD_{t-1} + REV_{t-1} + \varepsilon_{t-1} \quad (10)$$

H9. The higher the expenses with research and development (RD), advertising (ADVER), and goodwill (GW), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + \beta_1 RD_{it-1} + \beta_1 ADVER_{it-1} + \beta_1 GW_{it-1} + \varepsilon_{it-1} \quad (11)$$

H10. The higher the expenses with research and development (RD) and advertising (ADVER), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + \beta_1 RD_{it-1} + \beta_1 ADVER_{it-1} + \varepsilon_{it-1} \quad (12)$$

H11. The higher the investment in research and development (RD), capital expenditure (CAPEX) selling, general and administrative expenses (SGA), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + \beta_1 RD_{it-1} + \beta_2 CAPEX_{it-1} + \beta_3 SGA_{it-1} + \varepsilon_{it-1} \quad (13)$$

H12. The higher the earnings before interest, taxes, depreciation, and amortization (EBITDA), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + \beta_1 EBITDA_{it-1} + \varepsilon_{it-1} \quad (14)$$

H13. The higher the return on assets (ROA), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + \beta_1 ROA_{it-1} + \varepsilon_{it-1} \quad (15)$$

H14. The higher the return on equity (ROE), the higher the market value (MV).

$$VM_{it} = \beta_{oi} + \beta_1 ROE_{it-1} + \varepsilon_{it-1} \quad (16)$$

METHODOLOGY

This present paper is aimed to verify whether the decision process follows a maximizing procedure. The first step is to measure the variables that contribute to the market value of a company, using the concepts of the breakdown of the market-to-book in the view of Rhodes-Kropf, Robinson and Viswanathan (2005) and the model of the decision process of the classical theory.

The database is Capital IQ. Data were obtained from 1999 to 2019, in a quarterly basis, and econometric tests were performed with the Stata-15 software. After the loss of the degree of freedom, due to the delay of 1 period, as well as the missing data in part of the inexistent database, the final sample of the research is composed of 42,427 observations, as shown in table 2.

The 1-period lag in the independent variables is due to the term of the impacts of the variables not being immediately in the dependent variable, assuming a period of maturation of the lag for the impacts.

In this study, companies from England, France, and Germany were selected because, according to the website https://europa.eu/, they have the three highest gross domestic product (GDP) in 2019, in this way as a premise it was considered that the companies wished countries present a greater economic representativeness among the countries of Europe.

TABLE 2

Observations per country

Country	Observations
England	23,798
France	9,610
Germany	9,019
Total	**42,427**

Source: Elaborated by the authors.

Research variables

Table 3 shows the variables extracted from the Capital IQ database, as well as their respective acronyms, description, and code in the database.

TABLE 3

Research variables

Acronym	Code (Capital IQ)	Meaning
ADVER	IQ_ADVERTISING	Advertising Expenses
CAPEX	IQ_CAPEX	Capital expenditure
EBITDA	IQ_EBITDA	Earnings before interest, taxes, depreciation and amortization
GW	IQ_GW	Goodwill
IA	IQ_GROSS_INTAN_ASSETS	Intangible Assets
LSP	IQ_LASTSALEPRICE	Market price - Year End
RD	IQ_RD_EXP	Research and development
REV	IQ_TOTAL_REV	Net Revenue
SGA	IQ_SGA	Selling, General and administrative
SO	IQ_SHARESOUTSTANDING	Stock number
TA	IQ_GROSS_TAN_ASSETS	Tangible Assets
TOA	IQ_TOTAL_ASSETS	Total Assets

Source: Elaborated by the authors.

Construction of variables

According to table 4, some variables in the database were calculated in this work in order to analyze the market value of the companies.

TABLE 4

Construction of variables

Variable	Variable description	Variable calculation
MV	Market Value	MV = Market price Year End x Stock number
ROA	Return on Assets	ROA = Net Income/ Total Assets
ROE	Return on Equity	ROE = Net Income/ Equity
RTAREV	Ratio of Tangible Assets and Net Revenue	RTAREV = Tangible Assets/ Net Revenue

Source: Elaborated by the authors.

DISCUSSION OF RESULTS

Concerning to answer whether managers are performance maximizers, we identified the insights that may increase the market value of the company, Panel data tests and regressions were performed and summarized in tables 5, 6 and 7, where data descriptive statistics are presented, and tables 8, 9 and 10 present the correlations of the data by hypothesis.

In order not to generate bias in survival analysis, the database presented a panel with unbalanced data, especially due to missing data, Thus, in order to avoid losing a degree of freedom as an assumption of stationary data, the Unit Root Test was not considered, with no prejudice to analysis.

According to table 2, the database is composed of non-financial publicly traded companies from England, France, and Germany available in the Capital IQ database, There were 23,798 observations from 483 companies in England; 9,610 observations from 157 companies in France and 9,019 observations from 158 companies in Germany.

The values of RD, ADVER, and CAPEX are negative because they decrease the economic effect on the Income Statement; while MV, TA, IA, and GW are positive because they are values capitalized in the balance sheet, and REV for presenting an economic increase in the Income Statement. French companies did not present values for ADVER in the Capital IQ database for the period.

TABLE 5

Descriptive statistics - England

Variable	Obs.	Mean	Std. deviation	Min.	Max.	Nº of Companies
ADVER	23798	-1,26E+02	5,84E+03	-333709	0	483
CAPEX		-1,76E+06	9,66E+06	-2,15E+08	0	
EBITDA		4,55E+06	2,17E+07	-5,66E+07	7,08E+08	
GW		2,33E+07	2,17E+08	0	7,63E+09	
IA		7,07E+06	9,97E+07	0	4,35E+09	
MV		1,19E+13	6,56E+13	0	2,59E+15	
RD		-7,40E+04	1,00E+06	-3,04E+07	0	
REV		3,27E+07	124000000	7,70E-04	1,98E+09	
ROA		-1,01E+01	1,68E+03	-259331	3,22E+03	
ROE		3,78E+02	6,16E+04	-2,58E+06	6,43E+06	
RTAREV		4442393	6,00E+07	0,000013	5,39E+09	
SGA		-3,65E+06	1,55E+07	-4,02E+08	0	
TA		1,37E+08	4,95E+08	0	8,41E+14	

Source: Elaborated by the authors.

TABLE 6

Descriptive statistics - France

Variable	Obs.	Mean	Std. deviation	Min.	Max.	Nº of Companies
ADVER	9610	0,00E+00	0	0	0	157
CAPEX		-2,45E+04	1,27E+05	-3778615	0	
EBITDA		1,34E+05	1,06E+06	-2,32E+06	5,73E+07	
GW		7,57E+04	3,14E+05	0	1,11E+07	
IA		3,40E+04	235880,3	0	5,82E+06	
MV		8,02E+11	7,28E+12	0	1,73E+14	
RD		-4,78E+03	3,93E+04	-7,62E+05	0	
REV		6,45E+05	2190689	3,50E-03	4,12E+07	
ROA		-5,29E+02	5,34E+04	-5235868	1,36E+05	
ROE		3,65E+03	3,24E+05	-3,70E+06	2,73E+07	
RTAREV		205887	8,61E+06	0,0000205	5,32E+08	
SGA		-1,32E+05	4,92E+05	-1,28E+07	0	
TA		2,14E+06	7,57E+07	0,11557	4,95E+09	

Source: Elaborated by the authors.

TABLE 7

Descriptive statistics – Germany

Variable	Obs.	Mean	Std. deviation	Min.	Max.	Nº of Companies
ADVER	9019	-1,12E+03	21098,18	-984921	0	158
CAPEX		-2,13E+04	267710,2	-11900000	0	
EBITDA		1,49E+05	2,14E+06	-7,07E+06	1,25E+08	
GW		1,22E+05	7,63E+05	0,00E+00	1,29E+07	
IA		4,65E+04	3,60E+05	0	1,01E+07	
MV		7,33E+11	8,15E+12	0	1,72E+14	
RD		-1,40E+04	1,29E+05	-3,37E+06	0	
REV		7,36E+05	3306104	5,10E-04	1,08E+08	
ROA		-2,43E+01	2,39E+03	-226228	9,19E+03	
ROE		-8,19E+02	2,10E+05	-1,31E+07	1,41E+07	
RTAREV		882519,2	4,06E+07	0,0000164	2,71E+09	
SGA		-1,44E+05	6,38E+05	-1,93E+07	0	
TA		22855068	1,57E+07	0,664	8,85E+08	

Source: Elaborated by the authors.

The correlation in tables 8, 9 and 10 indicate that there is a positive relationship between MV and TA, IA, GW, REV, EBITDA, and ROA, showing that the higher their values, the higher the MV of the companies, while RD, ADVERT, CAPEX, and ROE indicate that there is a negative correlation with MV. Since RD, ADVERT, CAPEX, and ROE are graphically represented by negative values, it can be concluded that the higher the expenses on these variables, the higher the company's MV. The correlations among the variables by hypotheses in general were low correlations among the variables and the MV.

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TABLE 8

Correlation – England

Variables	MV	TA	IA	GW	RTAREV	RD	ADVER	CAPEX	REV	SGA	EBITDA	ROA	ROE
MV	1,0000*												
TA	0,5103*	1,0000*											
IA	0,3738*	0,1775*	1,0000*										
GW	0,5564*	0,2751*	0,5484*	1,0000*		-0,0383	0,0023*						
RTAREV	-0,0133*				1,0000*								
RD	-0,0958*	-0,2005*	-0,1069*			1,0000*		0,0670*	-0,1246*				
ADVER	-0,0039*	0,0056*	0,0015*			-0,0016*	1,0000*						
CAPEX	-0,7138*	0,06700*	-0,0039*			0,0670*	-0,0039*	1,0000*	-0,6694*				
REV	0,5836*	0,7152*	*0,2796	-0,6694*		-0,1246*			1,0000*				
SGA	0,6013*					0,1145*		-0,5581*		1,0000*			
EBITDA	0,7355*										1,0000*		
ROA	0,0011*											1,0000*	
ROE	-0,0060*												1,0000*

* Significance at the level of 1%.
** Significance at the level of 5%.
*** Significance at the level of 10%.
Source: Elaborated by the authors.

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TABLE 9

Correlation - France

Variables	MV	TA	IA	GW	RTAREV	RD	ADVER	CAPEX	REV	SGA	EBITDA	ROA	ROE
MV	1,0000*												
TA	0,0110*	1,000*											
IA	0,0112*	0,0034*	1,0000										
GW	0,0593*	0,0308*	0,4220*	1,0000*		-0,2413*	0,0000						
RTAREV	-0,0026*				1,0000*								
RD	-0,0076	-0,0034*	-0,4425*			1,0000*		0,1320*	-0,1609*				
ADVER	0,0000	0,0000	0,0000			0,0000	1,0000*						
CAPEX	-0,0106*	0,1320*	0,0000			0,1320*	0,0000	1,0000*	-0,5135*				
REV	0,0024*	-0,1609*	0,0000	-0,5135*		-0,1609*			1,0000*				
SGA	-0,0182*					0,0663*		0,3136*		1,0000*			
EBITDA	0,032*										1,0000*		
ROA	0,0011*											1,0000*	
ROE	-0,0012*												1,0000*

*Significance at the level of 1%.
**Significance at the level of 5%.
***Significance at the level of 10%.
Source: Elaborated by the authors.

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TABLE 10

Correlation - Germany

Variables	MV	TA	IA	GW	RTAREV	RD	ADVER	CAPEX	REV	SGA	EBITDA	ROA	ROE
MV	1,0000*												
TA	0,0110*	1,0000*											
IA	0,0103*	0,0541*	1,0000*										
GW	0,0119*	0,1778*	0,1521*	1,0000*		-0,0775*	-0,1066*						
RTAREV	-0,0019*				1,0000*								
RD	-0,0063*	0,0034*	-0,2968*			1,0000*		-0,0021*	-0,0157*				
ADVER	-0,0048*	-0,014*	*0,0008			-0,0058*	1,0000*						
CAPEX	-0,0067*	-0,0021*	-0,0042*			-0,0021*	-0,0042*	1,0000*	-0,2321*				
REV	0,0179*	-0,0157*	-0,391*	-0,2321*		-0,0157*	-0,0391*	-0,2321*	1,0000*				
SGA	-0,0115*					-0,0067*		0,0056*		1,0000*			
EBITDA	0,0043*										1,0000*		
ROA	0,0009*											1,0000*	
ROE	0,0009*												1,0000*

*Significance at the level of 1%.
**Significance at the level of 5%.
***Significance at the level of 10%
Source: Elaborated by the authors.

Tables 11, 12, and 13 show the econometric results of the 14 hypotheses by country.

For companies in England and Germany, the hypotheses H1, H3, H4, H5, H6, H7, H8, H9, H11 and H12, using the R^2, the independent variables indicated a high percentage of explanation for the dependent variable.

For companies in France, only the hypotheses H1 and H9, through R^2, indicated that the independent variables have a high percentage of explanation of the dependent variable, the other hypotheses presented a low explanatory power.

The panel 1 compares the results of the hypotheses of this study, with the studies previously carried out, and it is noticed an adherence of the variables to the results obtained. All hypotheses after using the Hausman tests, they presented a panel model with a fixed or variable effect, after the Wald test, the results indicated the presence of heteroscedastic data and after the Wooldridge test, the results indicated the presence of non-auto correlated data. All hypotheses had a significance level of 1%.

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TABLE 11

Econometric results - England

Model	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	Hypothesis 7	Hypothesis 8	Hypothesis 9	Hypothesis 10	Hypothesis 11	Hypothesis 12	Hypothesis 13	Hypothesis 14
Dependent Variable	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV
Constant	5.82E+12	8.77E+12	3.72E+12	5.13E+12	3.54E+12	2.28E+12	3.54E+12	2.10E+12	8.32E+12	8.53E+12	4.05E+12	4.54E+12	8.77E+12	8.78E+12
ADVER	-	-	-24551314	-1123163.00	-1.08E+06	-	-	-	-3101712	-511336.1	-	-	-	-
CAPEX	-	-	-	-2825222.00	-2463897	-3028545	-2464233	-	-	-	-2705476	-	-	-
EBITDA	-	-	-	-	-	-	-	-	-	-	-	1418461	-	-
GW	-6340.45	-	-	-	-	-	-	-	27862.59	-	-	-	-	-
IA	7.25E+04	-	85268.42	-	-	85410.18	-	61636.99	-	-	-	-	-	-
RD	-	-	916162.3	3246462.0	2797282	884771.3	2797421	971588.6	4670660	4379674	3174655	-	-	-
REV	-	-	-	-	8.48E+04	-	8.48E+04	1.21E+05	-	-	-	-	-	-
ROA	-	-	-	-	-	-	-	-	-	-	-	-	210.1152	-
ROE	-	-	-	-	-	-	-	-	-	-	-	-	-	214.7915
RTAREV	-	-507.4182	-	-	-	-	-	-	-	-	-	-	-	-
SGA	-	-	-	-	-	-	-	-	-	-	463900.2	-	-	-
TA	42533.88	-	48019.48	-	-	24381.36	-	35775.21	-	-	-	-	-	-
Hausman	-15002.14*	0.0069*	0.0079*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0012*	0.2919*	0.0000*	0.0000*	-42.84*	-5.16E+01
R^2 / Within	0.0567	0.0000	0.0666	0.1276	0.1388	0.1538	0.1388	0.0846	0.0033	0.0031	0.1356	0.0637	0.0000	0.0000
R^2 / Between	0.5778	0.0088	0.4465	0.7629	0.7513	0.7464	0.7513	0.5254	0.5574	0.0189	0.8278	0.9495	0.0324	0.0339
R^2 / Overall	0.3729	0.0002	0.2984	0.5106	0.5282	0.5332	0.5282	0.3654	0.2399	0.0092	0.5584	0.5410	0.0004	0.0005
Heterodedasticity	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*
Autocorrelation	0.1126*	0.1308*	0.1015*	0.1401*	0.1339*	0.1112*	0.1339*	0.0986*	0.1457*	0.1255*	0.1725*	0.1362*	0.1308*	0.1307*
Model Statistics	*	7.29	9.67	573.70	399.25	7661.29	400.44	1244.97	13.40	2.46	3836.39	6906.03	*	*
Observations	23798	23798	23798	23798	23798	23798	23798	23798	23798	23798	23798	23798	23798	23798

*Significance at the level of 1%.
**Significance at the level of 5 %.
***Significance at the level of 10%.
Source: Elaborated by the authors.

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TABLE 12

Econometric results - France

Model	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	Hypothesis 7	Hypothesis 8	Hypothesis 9	Hypothesis 10	Hypothesis 11	Hypothesis 12	Hypothesis 13	Hypothesis 14
Dependent Variable	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV
Constant	4.99E+11	7.20E+11	7.28E+11	7.31E+11	6.71E+11	7.31E+11	6.71E+11	6.74E+11	4.68E+11	7.27E+11	7.26E+11	6.83E+11	7.20E+11	8.02E+11
ADVER	-	-	0	0.00	0.00E+00	-	-	-	0	0	-	-	-	-
CAPEX	-	-	-	178544.90	1026071	178534.2	1026071	-	-	-	218598.5	-	-	-
EBITDA	-	-	-	-	-	-	-	-	-	-	-	291482.9	-	-
GW	2914893	-	-	-	-	-	-	-	2827870	-	-	-	-	-
IA	-1.20E+06	-	-75051.92	-	-	-64145.38	-	-228960.4	-	-	-	-	-	-
RD	-	-	-1160331	-1107011.0	-1654006	-1108590	-1654006	-1775886	-3352355	-1160149	-1116924	-	-	-
REV	-	-	-	-	1.28E+05	-	1.28E+05	1.01E+05	-	-	-	-	-	-
ROA	-	-	-	-	-	-	-	-	-	-	-	-	10.14916	-
ROE	-	-	-	-	-	-	-	-	-	-	-	-	-	14.56528
RTAREV	-	-79.15721	-	-	-	-	-	-	-	-	-	-	-	-
SGA	-	-	-	-	-	-	-	-	-	-	47585.75	-	-	-
TA	903.598	-	1267.345	-	-	1269.12	-	1232.814	-	-	-	-	-	-
Hausman	0.0203*	0.7846*	0.9506*	0.9553*	0.6458*	0.9683*	0.6458*	0.6750*	0.0059*	0.9653*	0.8303*	0.5388*	0.8083*	0.5997*
R^2 / Within	0.0577	0.0000	0.1666	0.1976	0.1188	0.1138	0.1088	0.0846	0.0133	0.0000	0.1256	0.0537	0.0000	0.0000
R^2 / Between	0.5448	0.0004	0.5465	0.7120	0.7114	0.7161	0.7113	0.5254	0.5172	0.0002	0.7274	0.7495	0.0003	0.0014
R^2/ Overall	0.3929	0.0000	0.2382	0.5605	0.5080	0.5231	0.5122	0.3654	0.2498	0.0002	0.5181	0.4410	0.0000	0.0000
Heterodedasticity	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*
Autocorrelation	0.1968*	0.1868	0.1870*	0.1869*	0.1875*	0.1870*	0.1875*	0.1875*	0.1965*	0.1868*	0.1869*	0.1868*	0.1868*	0.1868*
Model Statistics	7.79	0.07	0.10	0.09	1.66	0.25	1.66	1.53	10.26	0.00	0.88	0.38	0.06	0.28
Observations	9610	9610	9610	9610	9610	9610	9610	9610	9610	9610	9610	9610	9610	9610

*Significance at the level of 1%.
**Significance at the level of 5%.
***Significance at the level of 10%.
Source: Elaborated by the authors.

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TABLE 13

Econometric results - Germany

Model	Hypothesis 1	Hypothesis 2	Hypothesis 3	Hypothesis 4	Hypothesis 5	Hypothesis 6	Hypothesis 7	Hypothesis 8	Hypothesis 9	Hypothesis 10	Hypothesis 11	Hypothesis 12	Hypothesis 13	Hypothesis 14
Dependent Variable	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV	MV
Constant	5.91E+11	5.81E+11	0.00E+00	5.90E+11	5.92E+11	7.49E+11	5.92E+11	5.96E+11	5.91E+11	5.90E+11	5.93E+11	5.81E+11	5.81E+11	7.33E+11
ADVER	-	-	139976.5	12363.78	25290.18	-	-	-	11198.06	10864.85	-	-	-	-
CAPEX	-	-	-	11257.34	3552.714	-704.1866	3569.44	-	-	-	737.179	-	-	-
EBITDA	-	-	-	-	-	-	-	-	-	-	-	-460.2304	-	-
GW	-1067.049	-	-	-	-	-	-	-	-16542.05	-	-	-	-	-
IA	-6.62E+04	-	8206.478	-	-	-2015.925	-	-15530.49	-	-	-	-	-	-
RD	-	-	166004.2	-740939.8	-739732.4	-751080.9	-739485	-693122	-741950.5	-740815.4	-736197.3	-	-	-
REV	-	-	-	-	-3.09E+03	-	-3.10E+03	7.28E+01	-	-	-	-	-	-
ROA	-	-	-	-	-	-	-	-	-	-	-	-	38.93362	-
ROE	-	-	-	-	-	-	-	-	-	-	-	-	-	47.21995
RTAREV	-	-27.79754	-	-	-	-	-	-	-	-	-	-	-	-
SGA	-	-	-	-	-	-	-	-	-	-	-24455.79	-	-	-
TA	-2701.614	-	883.0435	-	-	-2359.192	-	-2398.699	-	-	-	-	-	-
Hausman	0.9859*	0.8598*	0.9955*	0.9504*	0.9551*	0.9032*	0.8858*	0.9480*	0.9779*	0.9558*	0.9439*	0.7795*	0.8995*	0.9538*
R^2 / Within	0.0473	0.0000	0.1567	0.1987	0.1488	0.1538	0.1382	0.1145	0.0432	0.0001	0.1356	0.0637	0.0000	0.0000
R^2 / Between	0.5141	0.0002	0.4463	0.6121	0.7711	0.7464	0.6913	0.5653	0.5374	0.0000	0.7576	0.7796	0.0002	0.0000
R^2/ Overall	0.3829	0.0000	0.2781	0.5805	0.5182	0.5634	0.4922	0.3654	0.2397	0.0000	0.5387	0.4511	0.0000	0.0000
Heterodedasticity	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*	0.0000*
Autocorrelation	0.0501*	0.0591*	0.0501*	0.0501*	0.0501*	0.0501*	0.0501*	0.0501*	0.0501*	0.0501*	0.0501*	0.0501*	0.0501*	0.0501*
Model Statistics	0.15	139675.34	0.20	0.35	0.67	1.04	0.65	0.73	0.20	0.09	0.38	0.08	0.02	0.01
Observations	9019	9019	9019	9019	9019	9019	9019	9019	9019	9019	9019	9019	9019	9019

*Significance at the level of 1%.
**Significance at the level of 5%.
***Significance at the level of 10%.
Source: Elaborated by the authors.

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PANEL 1

Summary of the results - previous studies by hypotheses

Author	Country	Sector	Hypothesis													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
Lindenberg e Ross (1981)	United States	All	Confirmed	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested
Hirschey e Wirchem (1984)	United States	Food, Transportation, Chemicals and Primary metals	Not tested	Confirmed	Confirmed	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested
Habib and Ljungqvist (2005)	S&P Super Index firms	All	Not tested	Not tested	Not tested	Confirmed	Confirmed	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested
Hertzel e Li (2010)	Security Data Company (SDC)	All	Not tested	Not tested	Not tested	Not tested	Not tested	Confirmed	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested
Belenzon (2012)	United States	All	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested	Confirmed	Confirmed	Not tested	Not tested	Not tested	Not tested	Not tested	Not tested
Vasconcelos, T; Forte, D. (2020)	England	All	Confirmed	Not confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Not confirmed	Confirmed	Confirmed	Not confirmed	Not confirmed
Vasconcelos, T; Forte, D. (2020)	France	All	Confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed	Not confirmed
Vasconcelos, T; Forte, D. (2020)	Germany	All	Confirmed	Not confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Confirmed	Not confirmed	Confirmed	Confirmed	Not confirmed	Not confirmed

Source: Elaborated by the authors.

FINAL CONSIDERATIONS

The present study was aimed to identify whether managers are maximizers, and for that, the determinants that contribute to the increase in the company's market value were analyzed. Accounting and financial measures were studied in order to analyze their influence on the market value, thus serving as a useful tool for decision makers in order to improve the assertiveness in the decision-making process to increase the market value of a company.

In order to carry out this research, 14 hypotheses were tested using the panel data model and samples extracted from the Capital IQ database of publicly traded companies in Germany, France and England, except financial companies, from 1999 to 2019 on a quarterly basis.

The lag of 1 period in the independent variables was performed in relation to the dependent variable. These companies were analyzed using a regression model with panel data. In all cases, the results indicate that the independent variables are good measures of MV measurement, however only the hypotheses H1, H3, H4, H5, H6, H7, H8, H9, H11, and H12 plus the independent variables had a good percentage of explanation of the dependent variable for companies in England and Germany.

For companies in France, only hypotheses H1 and H9 had a good percentage of explanation for the dependent variable. Besides the regression outputs the explanatory variables are not significant, concerning the correlations, there were positive and negative correlations with the MV, and in both cases they are aligned with the hypotheses because the positive correlations and the independent variables have negative values because they refer to expenses in the Income Statement. Such results are in line with the research carried out on the decomposition of the market-to-book in the view of Rhodes-Kropf, Robinson, and Viswanathan (2005), and the model of the decision-making process of classical theory, with hypotheses proposed by Lindenberg and Ross (1981), Hirschey and Wirchem (1984), Habib and Ljungqvist (2005), Hertzel and Li (2010), Belenzon (2012).

In general, through this study, it is suggested that the management of the variables TA, IA, GW, REV, EBITDA, ROA, RD, ADVER, CAPEX, and ROE contribute to the increase of companies' MV, and they are good drivers for the decision makers maximize the companies' market value.

It is noteworthy that this article does not claim to end up all aspects of the issue, but to be a means and aim at a better understanding. As a suggestion for improvement and future studies: (1) separating companies by segments, (2) using other independent variables to test their influence on MV, (3) incorporating total shareholder return in the modeling (TSR) in relation to market value and (4) using macroeconomic factors in modeling.

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