Discounted cash flow, earnings capitalization and excess earnings – the performance of valuation models on privatized companies in Brazil

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Abstract

The present work is meant to identify and discuss the main aspects related to valuation of companies, following a field research to collect data and proper statistics tabulation through a comparison of the performance of cash flow, exceeding earnings and earnings capitalization models on privatized companies in Brazil.

The author tried to identify some components and models which can be relevant in company valuation processes, as well as the possible results brougth forth by these models and how it works compared to models used by market analysts.

Analysis of the performance of the companies valuation models

It initiates that work citing Martins (2001, p.129), which expresses the following need: the measurement of goodwill allows the conciliation among global values and of the individual items of the patrimony of an entity. This characteristic is known as very important with regard to the identification of the wealth generation expectations. Perhaps, this be the desierest/wishedest information today by the owners, lots of managers and external users of the accounting demonstrations (mostly investors).

This proposed of discussion comes from encounter to the need to users' information of the accounting information.

For measurement of goodwill as valuation item, search perform the lacunas among valuation models, without however offer utilization exactness and full consensus by the investors or stockholders, still lacking lots of studies concerning about

Martins (2001, p.130) completes telling that depending on these factors, goodwill can constitute itself in an associates' repository values the several other patrimonial items, complicating a profitable analysis of this information. Because of this, important aspects can remain camouflaged, turning the less effective administration.

The proposal of this work, it is the one of identify and to validate the theoretical aspects involved in each introduced model, questioning their variable and considered elements, trying to reflect about the companies valuation in your larger amplitude, basing itself on companies privatized in Brazil.

The criticisms by any means they invalidate the models or disregard them, just serving as conceptual base for the proposal of this study and for the idealization of a new approach on the variables used in the models.

A brief analysis about value

Leaving for the managerial analysis, it verifies that the possibility, or even the right to exercise certain activity, it is not everything for carry out of a project. The economic viability of the enterprise requires the certainty or the great probability of if obtain an able to result generate the compensatory balance between gained profit, the risk and the employees means. This search of positive, translated results financially by the projection of the future profits, will depend on the current performance of this company and, as well, of your insert in terms of investment, technology and knowledge of the commercial scenery among others specific knowledges of the market.

One of the first concepts to consider is the one of value. Soon after, they should find the theories and the methods that will be used to determine the value of a company, according to value concept. And, so, the application of the studied methods will allow to consider a trial concerning about of the best form, statistically treated, of evaluate a company inside certain context with their specific parameters.

According to Csillag (1995, p.61) "Aristoteles described, more than 2.000 years ago, seven value classes: economic, politician, social, aesthetic, ethic, religious person and judicial". Csillag, in their comments, agrees with the expression Thursday of the dictionary Aurélio to define value. He concludes: "this way, value is expressed regarding something, therefore, by means of comparison, and it can be measured in terms of monetary".

For Falcini (1995, p.15), evaluate means to determine to was worth or value of something; esteem it means to determine, for calculation or valuation, the price, the value or was worth her of something; valuation or estimate has, therefore, the same meaning in the value determination.

He judges value as the result of an valuation process, naturally accomplished through some procedure acceptable methodologically.

In other field, the of the vision of the stockholder, has I win much space among studious of the subject. Copeland, Koller and Murrin (2002, p.4) cite that the managers should concentrate itself on value creation by the stockholders' influence in the process and by the performance that the economies geared to the stockholders seem have regarding other economic models.

According to Ross, Westerfield and Jaffe (1995, p.302), the managers should try to maximize the value of the company, and they complement explaining that the capital structure alterations benefit the stockholders if and only if the value of the company increases.

it arises then the need to relate the value of a company, methodologically calculated, to the value of the actions, which portray the profile of the market and of your valuation.

One of the great divergencies between accounting value of the companies and the value of her actions in the market seems to be exactly in this concept of value for the stockholder. The stockholder realizes the growth of the company, of the sector of your activity and her particularities and peculiarities, being sensitive the earnings and estimate projections of comparative results and to the economic and political tendencies. That reveals the expectation of the market, while the accounting reveals only the final result of the operations and the patrimonial situation of the entity, according to own methodology, which is very different from used by the market or by the stockholders. Thus the differences appear.

The accounting is not, so, been mistaken, but it is using a method that does not reveal market trends

Procianoy and Antunes (2003, p.5), runing or flow over about the impacts of the accomplished investments and the sensibility of the market, they tell that "the market realizes the information revealed by the companies (in their demonstrative financiers) and it adjusts profitability expectations future of the respective actions".

Neiva (1999, p.11), however, tells that the valuation of a company ca not be made principles second of an exact science. The weight that the technicians in valuation attribute to the several factors involved in the valuation process is not uniform. That is due to a problem of personal trial of each appraiser who is influenced by the experience that this specialist accumulates, as well as by the reasons and goals of the valuation for the buyer or salesman.

you seem strange to disregard the scientific principles in valuation processes. Neiva, however, suggested an interesting problem, when reflecting about the experience accumulated of the appraiser and, mostly, about the result that is wished reach with the accomplished valuation.
It objectively can consider that the variable "reasons" and "goals" are important factors the being considered a valution process. In this work, for example, the reasons are essentially academic and as objective they seek demonstrate, scientifically and in own approach, the use and the result introduced by some valuation methods, revealing as these behave when valorizing a company and, statistically, as if they relate with the values of the actions in the market.

For hypothesis, it can consider how important methods as the ones of cash flow, ca notbe, in Brazil, the most adequate to know the correlation between value of the company and the market value of the company, through their actions. These methods can need complement informative for your real adaptation to the national reality.

it went as soon as they tried to find alternative, methodologically valid, to calculate the value of the companies, and verify as if they behave regarding the companies in Brazil.
Other important reference is done, to conclude that thought, and it is found in Boulton, Libert and Samek (2001). In the conclusion, the authors introduce a commented citation concerning about of value, given by Warren E. Buffett, where he does the distinction between intrinsic value and accounting value using an education of academic level as reference.
This work brings interesting focuses on the value creation, trying to differentiate what it is more important in this process, come in physical, financial active, employees and vendors, clients and another, including issues on the risk and the managerial models.

The comparison of the models

It accomplished an analysis of the market value of a company in comparison to the value of the company calculated through other models, scientific considered and technically valid.

The statistics assisted in the interpretation of the performance of the models that represented for measurement and the projection of the value of the companies in terms of market value of her actions, in Brazil, supplying options of quantitative analysis with foudations validated theoretical.

The accomplished analyses reflected the terms macroeconomics of the country and of the sectors that were represented. The sectorial values constitute important parameter in a value analysis.
Nakamura, Poker Jr and Basso (2001), analyzing risks in distinct markets conclude that
it was possible to verify indications that the sectorial average betas depend on the terms macroeconomics, in the period of your analysis, so that they can act like significant indicators of the sectorial differences.

It explains, so, the reason of the companies utilization of different segments in the made analyses.

By the introduced reasons and identified for each one of the introduced models, it used of the measurement of the corresponding values to a model based on cash flow, even for your traditional aspect and of great demand in the consultancy market, comparing the results introduced with other models that introduce foundations consistent theoretical and that could offer subsidies informatives complementary.

One of the models suggested for this approach was the of the earnings capitalization method and the another, the excess earnings method.

The excess earnings model and the earnings capitalization model

The choice of alternative models for the comparison with the models used most in Brazil depends on many subjective variables, given we are not absolute models and without any application limitation. As already cited and referenced in the problem of this work, Assaf Neto (2003) says that it is not simple task the one of evaluate a company and that the several existing models own, all, certain subjectivity degree.

The choice of the earnings capitalization model (ECM) and of exceess earnings model (EEM) like alternative models, it's given in function of your particularity and of your pragmatism.

Lippitt and Mastracchio (1996) argue the application and compare the models ECM and EEM for the companies valuation of closed capital. They introduce models and indicate that, although excess earnings method is broadly used, most literature is critical about him. In spite of the criticisms are theoretical, many are based on specific applications, and not in the model itself

The model of the free cash flow is essentially the even though the of the capitalized earnings, except that, instead of earnings, it uses the free cash flow. There are many definitions for free cash flow. Most, however, initiates the calculation with the earnings, adding the depreciation that had been deduced and, subtracting some expenses estimate.

ECM was recognized in the American market, according to Pratt (1986) as one of the models used most by the professionals. In this approach, fittings in the historical earnings are used to the forecast of the future results. The value of the company is estimate as being the present value of the earnings in a perpetuity. The capitalization rate is certain by the return rate, measured to the level of individual risk of each company. Without a doubt, the determination of the rate is the biggest problem, as in other models. ECM is a similar model to used by LeClair (1990).

The excess earnings model (EEM), also evaluates the company based on present value of their future results. However, the part of the earnings is attributed to the tangible and capitalized active to a different rate from applied about the part of the earnings attributed to the intangible or to goodwill. Neiva (1999) denominates him of anglo-Saxon method, for translation.

Bodie, Kane and Marcus (2003) studied the equivalence of the models and introduce the consideration that the apparently different approaches from models of discounted dividends, capitalized earnings and of free cash flow they show equivalent. They mention that in the reconciliation of the approach of the free cash flow with the approaches of the discounted dividend or of the capitalized earnings, it is important to realize that the capitalization rate the being used in the calculation of the present value is different.

Lippitt and Mastracchio (1995) mention that in many circumstances, the business are evaluated

by some methodology that capitalizes the flow of results. This is other form of telling that the value of a business is function of the earnings flow that he produce and that probably will continue to produce. They affirm, in this aspect, which both models more usually used in the values estimate are earnings capitalization model and excess earnings model.

Excess earnings method - EEM

The excess earnings method is an valuation model based on earnings, presupposing that the value of a company is alike to the capitalized earning and that the earnings jail can be divided into two components: a normal return about the liquid tangible active and an exceeding amount. In the tangible active is not included the commerce fund (goodwill), which consists in additional factors that allow a company can obtain a differentiated return.

Neiva (1999, p.49) explains that: "for calculation of the normalized earning, sum itself to the net earning after the income tax swear it or paid financial responsibility as remuneration of the third party capital, less the due income tax about this remuneration".

The intention is the one of work with the possible returns generated by the liquid tangible assets of the obligations. The valuation of the intangible can be valid methodologically, however it will add only a subjective variable to the valuation process.

Objective methodological processes can be created, like formulas for determination of goodwill, however they are extrinsic valuations to the value of the company, they are a supplement to the value certain by the tangible active.

For the excess earnings method, the used formula is:

Value = (earnings - (tangible patrimony x Rn)) / Rg + tangible patrimony

For the calculation, Rn and Rg can be estimate statistically through regression for each activity branch or for a country. They explain Lippitt and Mastrachio (1996) which, for your nature, excess earnings model can be interpreted as an active valuation hybrid model and of earnings valuation. And they complement informing that the appraiser can determine both, the rate for the earnings that are attributed to the tangible active and the rate of the exceeding earnings.

The excess earnings method is a model that works with two theoretical approaches: the first is the one of that the value of a company is alike to the value of your capitalized earnings, and the second is the one of that the successive jail of earnings can be divided into two components, a normal return given by the active tangible liquids and an exceeding amount, which originates the name given to the model.

In this model, the liquid tangible assets term refers to the market value of the accounting active (box, stocks, receivable etc), liquid of the obligations. The tangible active do not include goodwill, which consists in additional factors that allow the company obtains larger returns many times

The model EEM capitalizes each component of the earnings to an appropriated rate, considered relatively normal for the activity for the calculation of the forecast of the earnings data by the liquid tangible active and to a rate elevated most for return foreseen by goodwill.

Mastracchio (1993, p.152) explains that there are three versions to EEM:

1) market version: where the return rates for the tangible and the intangible are estimate using the technique of the regression;
2) detailed version: which explores several active groups besides the tangible and intangible, when it subdivides the earnings in components of homogeneous risk; and
3) financial version: where an average rate for the return of the tangible and intangible active is used.

Dietrich (2003) introduces that, historically, the professional practices has been using the valuation with the utilization of excess earnings method, and it concludes that, if adequately ready with earnings normalization and important bases fittings, the model of exceeding earnings should represent a tool of useful valuation.

Hawkins (2003) explains the essence and the operation of the model, demonstrating that excess earnings method can continue to be useful in cases of equal distribution where a simplified trial demands your utilization. He explains that the capitalization of the earnings model has larger conceptual sense when the capitalization rate is derivative of data of market.

Earnings capitalization method - ECM

For the earnings capitalization model, the calculation of the value of the company is given by to division of the earnings volume for a capitalization rate, esteemed statistically through regression calculation of the earnings (cross-sectional regression) for each activity branch.

Hu et Al (2003) developed a study of case on the companies capital cost using, among others, the earnings capitalization model, portraying that the growth of the earnings of a company is other aspect that should be considered in the tells determine your value in the long term

Lippitt and Mastracchio (1995) explain the use of the regression techniques to the links establishment between capital companies open for the models, simplifying the choice of comparable companies inside the sector that can be selected. They explain that, in ECM, one of the more important aspects is to determine the rate appropriated for the capitalization and that that is gotten so much through implicit rates given by the market in the capital companies comparison open (publicly traded companies) how much through a process known as accumulation method (build-up method).

In this method, the appraiser initiates the process with a free rate of risk and adds her, subjectively, an amount appropriated for the risk of the investment in the company that is being evaluated. Once that the appropriated rate has been certain, explain, the value of the company is just calculated by the division of the fittings earnings by the capitalization rate. This is the model.

The basic formula for ECM can be defined, so, as being:

V = E / C

where: V = value of the company
E = earnings of the company
C = rate appropriated of capitalization

The calculation presumes the not existence of active not operational. there are active not operational, the effect of these active should be fitting to the earning and an valuation separated for the not operational active should be accomplished and added to the value of the company given by the operational active for the determination of the total value.

For Mastracchio (1993), ECM was developed using a capital companies database open of a specific branch and employing a regression for minimum squares for the value of the earnings. In the process, the intercept represents the component of the value of the company that is independent of earnings. He explains that that value can be associate with investments in active not lucrative or can represent future earnings related the expenses in items as publicity or research and development. Additionally, it comments that for companies with null accounting or negative results is a common occurrence have positive values.

The coefficient of the earnings represents the value rate of the earnings for the companies in that certain branch or activity. Still second Mastracchio (1993), once that the model is estimate starting from companies inside a specific branch, the coefficient of the earnings represents the rate related to value of the earnings of the sector.

The result of Lopes' Research and Teixeira (2003) exhibition that the earnings capitalization model (ECM) is not well appropriated for ordinary actions. They complement informing that the model, despite modest explanatory force, is very own for preferential actions. The result shows how the earnings are important in terms of dividends distribution in Brazil.

Additional considerations about the models EEM and ECM

Olsson and Ashbaugh (2002) accomplished an exploratory study about valuation, using accounting models based on earnings, inside the American Accounting Principles and of the International Rules of Accounting.

They identified that the earnings capitalization model is the valuation dominant model when the listed companies used the International Rules of Accounting in her demonstrations, and the introduced earnings represented eighty-five percent of the values of the actions of the companies that used the International Rules.

That study showed that a certain model can be better used under a certain set of accounting rules. Would it be different in Brazil? To test the models, it is necessary to identify a companies sample and to collect information of result, of patrimony, determine the value and to segment for activity sector.

Study of the valuation models in privatized companies

It verified the performance of the companies valuation models, using to the comparison the model of free cash flow and another two models little searched in Brazil. The calculations enabled the comparative analyses and the hypothesis tests allowed the validation of these models with quantitative treatments and are being introduced in the doctorate thesis of the author of this work, introduced to the Santa Catarina's Federal University, in Brazil.

The valuation of the companies in market level was obtained through the multiplication of the value of the actions in each shutdown quarterly by the quantity of emitted actions.

Besides the cash flow model were used two alternative models, having their compared results: the excess earnings model and the earnings capitalization model.

The exam of these models allowed to balance quantitative parameters and to generate coherent analyses with her theoretical bases. The practice application of the models turned the effective research, with the possibility of the empiric estimate of the results and of your comparision in terms of statistical.

The differences occurrence or of different results from estimate for the models, however, did not refute the hypothesis of work, which suggests the alternative utilization of the models ECM and EEM as complementary subsidy to the calculations made by the analysts in Brazil.

Historical brief of the privatizations in Brazil

According to national Bank of Economic and Social Development (Bndes), since the creation of the National Program of Desestatization in 1991, they were privatized 68 companies and federal shareholders state owned companies participations. The results demonstrate that, among sectors that obtained larger volume of results (in billions dollars), are the one of electric power, the one of telecommunications and the one of mining.

They were nine the sectors that had companies privatized in desestatization process federal. The global result in the total value of US$ 105,56 billion, it is composite for partial results obtained with the programs of federal privatizations, including itself the telecommunications and NDP, and the partial results obtained with the programs of state privatizations.

The picture 1 demonstrates the results accumulated in each one.

PICTURE 1 – NDP – Acumullated results – 1991/2002 (US$ millions)

Program	Revenues	Transferred debts	General results
FederaLPrivatizations	**59.530**	**11.326**	**70.856**
Telecommunications	29.050	2.125	31.175
NPD	30.481	9.201	39.682
State Privatizations	**27.949**	**6.750**	**34.699**
Total	**87.480**	**18.076**	**105.556**

Source: BNDES (2003)

It realizes that, inside the scope of the federal privatizations, the biggest volume occurs in companies of the telecommunications branch. There was the transformation of a situation of public monopoly for a new system of public concession for private operators.

The privatization of the System Telebras occurred July on the 29th 1998 through 12 auctions. Inside the introduced global result, only the telecommunications represented US$ 29.050 million, corresponding to 27,52% from the total.

The picture 2 your exhibition composition.

PICTURE 2 – NDP – Telecommunications – 1991/2002 (US$ millions)

Companies	Auction results	Transferred debts	General results
1. Federal companies:	**19.237**	**2.125**	**21.362**
Fixed telecom and long distance call services	11.970	2.125	14.095
Celular telecom – Band A	6.974	-	6.974
Employees offering	293	-	293
2. Permissions:	**9.813**	-	**9.813**
Total	**29.050**	**2.125**	**31.175**

Source: Adopted from BNDES (2003)

The biggest bit, therefore, fits to the specific segment of fixed telephony and long distance services, whose larger company in the process is for TELESP, like demonstrated in the picture 3.

PICTURE 3 – Fixed telecom and long distance call services –NDP results (US$ millions)

Companies	Auctons results
Telesp	**4.967**
Tele South Center	1.778
Tele North Center	2.949
Embratel	2.276
Total	**11.970**

Source: BNDES (2003)

And this way, with Bndes' Data, it identified the biggest companies of the sectors that provided the biggest result in the process for the application and comparison of the studied models.

Inside the telecommunications sector it identified for TELESP, privatized in 29 of July 1998, with corresponding value to R$ 88,79 for actions lot. For TELESP already owned actions in the stock exchange when for TELESP was dismembered, what it allowed, as well, easy access to the information.

For the electric sector it identified Light, with sale in 21 of May 1996 by the value of R$ 2,230 billion, corresponding to R$ 420,81 for actions lot and in the mining sector Rio's Sweet Valley Company (CVRD), sold in 06 of May 1997 by the value of R$ 3,381 billion, equivalent to 41,73% of the company, with value of R$ 32,00 for actions lot.

Additionally, and to allow for comparision with companies inside a same sector, were identified other companies, according to your postage, for the accomplishment of the statistical calculations. They were selected for the telecommunications sector the companies Telebras and Telemig; for the electric sector, the companies Copel and Escelsa, and for the mining sector Caemi and Samitri, regardless of your participation in the privatization process, given to inexistence of other companies with equal liquidity in the stock and same market postage.

Additional considerations about the made analysis

The model ECM determines the value of the company by the division of the fittings earnings of the company by the rate appropriated of capitalization. For the calculation of the rate in each period, it used EBIT (earnings before interests and taxes).

For Panty and Marques (2000, p.16), EBIT "it corresponds to a earning more associate measure to the result of operational nature gained by the society". And they add that, "when related to number of actions in circulation, it expresses the slice of the genuinely attributable operational earning to each action of the institution".

Famá and Leite (2003) say that "the companies valuation methods that use discounted future cash flows are the spreadest and used by analysts of the finance market". Additionally, they presuppose that "like the companies do not own term certain of operation, the calculation of your value depends on the estimate of infinite flows". They introduce the companies valuation model of Edwards-Bell-Ohlson (EBO), who part of the premise that the value of the company arises of the sum of the accounting value of your active added to the value of the intangible (goodwill), estimate by the discount of the cash flow of a perpetuity to a liquid rate of discount of the growth rate.

The model simplified for the cash flow suggests an adaptation of the model of Gordon (dividends flow) with rate of constant growth. Your validation arises in the models proposition as the one of Ohlson. Oliveira, Warrior and Securato (2002) introduce the presupposition that the residual earning can grow constantly along time and of compatible form with the growth rate of the economy. Damodaran (1997, p.241) explains that, although the exigency of the model be to a growth rate waited of the dividends, the analysts should be able of replace her by the rate waited of growth in the earnings and to obtain exactly the same result, in case the company really be in a balance state.

The free cash flow is certain by the adjustment to the operational net earning, through the addition of the depreciation and of the subtraction of the financing amortization bits and of investments in the working capital, like described by Rodrigues (2003, p.4).

In your work, Rodrigues (2003) introduces a companies valuation process with the purpose of making available information on the Liquid more probable Present Value, the corresponding risks and the present reliable degree in the accomplished estimate.

For Panty and Marques (2000, p.20),
the measure of the free cash flow (FCF) consists in an adaptation and/or adjustment of the operational cash flow, so as to reach determined purposes, especially the valuation models elaboration of business that are based on cash flows

Cassettari (2000, p.58) identifies that "more recently, new models category started to win sympathizers. It is to what it has as it sifts the cash flows utilization as fundamental variables for the correct valuation of a company". And it complements, citing Damodaran, who "it is the case of the methods known as it brake Cash Flow have Firm (FCFF) and it brake Cash Flow have Equity (FCFE)".

And still Saint (2002) promoted study on the determination of the value of the company using the free cash flow, where it defines that "FCF is the true operational cash flow of a company".

According to Fernández (2002a) there are ten different models and nine theories for the companies valuation through the models of discounted cash flow. He explains that all the ten models always result at the same value. That result is logical, once that all the models analyze the same reality under the same hypotheses; they only differ in the taken cash flow as initial point for the valuation. Therefore, there should not be inconvenience or significant difference in the utilization of a simplified model, as in the procedures of this research.

Procianoy and Antunes (2003, p.10) reveals the results of your research on the variation of the prices of the actions given by investment decisions, concluding that "the results supply evidences of a relation among variations of the active (permanent wave and immobilized) and the price of the action in the capitals market".

They applied the models for, so, are analyzed the results, evidencing the foreseen ability for the models in the hypothesis, as well as her differences and critical, besides formalizing answers to questions lifted at the beginning of this work.

Among specific goals is the one of verify as these models answer to the needs involved in the companies valuation processes. These processes, however, also can reveal utilization possibilities of the made analyses as measured of performance. Pereira and Eid Junior (2002) introduce this possibility in your work, informing that "perhaps the main utilization of the indicators of analyzed value should not be the forecast of the price of the actions, and yes your capacity of serving as administration tool".

The purpose of this study, therefore, was the one of re-exam the valuation methods, notedly the cash flow, ECM and EEM, of the point of view of a theoretical base and of an empiric base.

Earnings capitalization method it uses of historical earnings fittings as forecast item for future results. Esteem itself that the value of the company be alike to the present value of the earnings flow in a perpetuity.

The rate of appropriated capitalization is certain by the analyst, being the rate of compatible return with the risk level of the company in your sector. Without a doubt, as well as in other models, the determination of the rate of applicable capitalization is one of the largest problems in the companies valuation.

Collins, Pincus and Xie (1999) explain about ECM's Utilization in companies that report prejudices and suggest the bad specification of the introduced negative coefficient in this situation. However, they say that the results are consistent with the accounting values serving as important base for the future expectation of normal earnings for companies with prejudices in general.

Excess earnings method, known as treasury method in the United States, also evaluates the company based on present value of the future earnings, using, however, different rates for the earnings attributed to the tangible active and for the earnings attributed to the intangible active. It is an interesting approach of the north American academic point of view, with little utilization in Brazil.

The statistical calculations were accomplished with the help of the softwares SPSS (Statistical Package is the Social Sciences) and Statgraphics.

In short, the statistical calculations they introduced, for the three models, of the following form:

The statistical analysis of the companies of the telecommunications sector, it allowed the valuation observational-comparative of the relations among variables, introduced in the correlation head office in the picture 4.

PICTURE 4 – CORRELATION ON ECM, DCF AND EEM MODELS – TELECOMMUNICATIONS SECTOR COMPARATIVE

ECM	Telesp		Telebrás		Telemig	
	EBIT	Rate(C)	EBIT	Rate(C)	EBIT	Rate(C)
Value	0,33	-0,59	0,71	0,30	0,59	0,05
DCF	Telesp		Telebrás		Telemig	
	FCF	Rate(C)	FCF	Rate(C)	FCF	Rate(C)
Value	0,15	-0,39	0,25	-0,33	0,19	-0,11
EEM	Telesp		Telebrás		Telemig	
	Rn	Rg	Rn	Rg	Rn	Rg
Value	0,00	-0,45	0,50	0,09	0,57	-0,29

Source: Own

The relations introduced among variables uses the statistical technique of the correlation analysis and show that the models they introduce relatively equal in terms of informatives, having been, for each company, one their the most adequate

The model ECM, however, compared with the rest models, it introduces the biggest associations

among variables that compose the estimate of the value of the company, introducing itself the one of best performance in the sector, considering itself mostly the variable Rate(C) like reference.

The statistical analysis of the companies of the energy sector, it allowed the valuation observational-comparative of the relations among variables, introduced in the correlation head office in the picture 5.

PICTURE 5 – CORRELATIONS ON ECM, DCF and EEM MODELS – ELÉTRIC SECTOR COMPARATIVE

ECM	Light		Copel		Escelsa	
	EBIT	Rate(C)	EBIT	Rate(C)	EBIT	Rate(C)
Value	0,43	0,45	0,03	-0,29	0,04	0,10
DCF	Light		Copel		Escelsa	
	FCF	Rate(C)	FCF	Rate(C)	FCF	Rate(C)
Value	0,28	0,21	0,20	-0,05	0,04	0,15
EEM	Light		Copel		Escelsa	
	Rn	Rg	Rn	Rg	Rn	Rg
Value	0,51	0,43	-0,39	0,03	0,01	-0,04

Source: Own

The model ECM, for this sector, compared with the rest models, it introduces the biggest associations among variables that compose the estimate of the value of the company, introducing itself the one of best performance, considering itself the variable Rate(C) like reference. Just for the company Escelsa, it had the second best performance.

The statistical analysis of the companies of the mining sector, it allowed the valuation observational-comparative of the relations among variables, introduced in the correlation head office in the picture 6.

PICTURE 6 – CORRELATIONS ON ECM, DCF e EEM MODELS – MINING SECTOR COMPARATIVE

ECM	CVRD		CAEMI		SAMITRI	
	EBIT	Rate(C)	EBIT	Rate(C)	EBIT	Rate(C)
Value	0,13	-0,04	0,52	0,18	-0,36	-0,32
DCF	CVRD		CAEMI		SAMITRI	
	FCF	Rate(C)	FCF	Rate(C)	FCF	Rate(C)
Value	-0,26	-0,44	-0,25	-0,01	-0,11	-0,24
EEM	CVRD		CAEMI		SAMITRI	
	Rn	Rg	Rn	Rg	Rn	Rg
Value	-0,34	0,32	-0,31	0,22	-0,60	0,05

Source: Own

The introduced relations show that the models they introduce relatively equal in terms of informatives, having been, for each company, one their the most adequate

The model EEM, however, compared with the rest models, it introduces the biggest associations among variables that compose the estimate of the value of the company, introducing itself the one of best performance in the sector, considering itself mostly the variable Rate(C) and Rn as reference. In the ECM model, the variable EBIT deserves highlight in his correlations.

Lopes and Carvalho (2003), when studying the dividends and the earnings in Brazil, they conclude that,

for the Brazilian corporations with actions negotiated in stocks exchange the found results confirm the importance of the accounting as communication instrument with the market. On the other hand, the low relevance of the accounting earning indicates the need to disclosure additional of elements related to performance.

In this work, however, the statistical results in the analysis of the earnings (EBIT) showed that the model ECM, who uses the variable, introduced good performance, comparatively to the too much models. Applied to the companies of the telecommunications sector, it revealed the model with better answer for for TELESP, where the correlation of the variable EBIT with the value of the company belonged to 0,33, what it provoked a correlation of -0,59 between rate and the value of the company. Also in the company Telebras the level of 0,71 demonstrates strong correlation among variables EBIT and Value. In all of these cases the correlation was significant.

Also in the electric sector, the model ECM introduced better performance in the company Light, with 0,43 of correlation of EBIT with the Value of the company, originating a rate with correlation of 0,45 with the variable Value, both with coefficient of 0,01. In the too much companies of the sector, Copel and Escelsa, however, the correlation was weak.

And still in the mining sector, the analysis of the company Caemi introduced correlation of 0,52 between variable EBIT and the variable Value, to the level of 0,01. In the company Samitri, however, in spite of introducing correlation of -0,36 and -0,32 to EBIT and Value, it was not significant to the wished level.

Studied the bases of these two models and applied her formulas to the Brazilian companies privatized with larger volume of result, it has this study the scientific importance oughted to, in a theoretical and empiric approach, which will serve, certainly, like base to other studies related to companies valuation.