The Agency Theory Applied to the Investment Funds[i]

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ABSTRACT: This article seeks to verify the existence of a relationship between the rate of remuneration charged by the administrators of investment funds and the profitability of these portfolios, under the perspective of the Agency Theory. The Agency Theory seeks to explain the conflicts of interest that can arise from the contractual relationship between a principal and an agent. The agent is the individual who, motivated by his own interests, undertakes to do certain tasks for the principal. This work was developed from a bibliographical review and, based on experimental research, empirical investigations were made, the principal object of which was the test of the hypothesis with relation to cause-effect that could exist between the administration tax and the profitability of the investment funds. However, the results obtained by means of the use of statistical tests did not sustain the hypothesis raised in this work.

Key words: agency theory, conflict of interests, investment funds.

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I. INTRODUCTION

Whenever an investor makes a decision to apply his money, acquiring any asset, he expects a return on the investment that is being made, however, exposed to a certain degree of risk[i].

Each asset, separately, has an individual risk, it being preferable for the investor to diversify his portfolio between various shares and securities. To bet all the money in a single investment is very risky. The diversification allows one to compensate the losses of one application with the gains of others.

However, for a single investor to diversify his portfolio very often it can be expensive; to know what to buy and when to buy demands time and experience. An alternative to minimize these problems is the application in investment funds.

The investment funds are condominiums incorporated with the objective of promoting the collective application of the resources of its participants. These funds, by means of the issue of quotas, gather applications from various individuals for investment in portfolios of titles and securities.

This collective form of investment principally favors the small individual investor who has the possibility of participating in the stock market. Apart from this, the management of the investment funds is under the responsibility of specialized professionals who seek to conciliate return with risk of a portfolio. A series of management and operational activities related to the quota holders and their investments is the responsibility of the fund administrator.

Currently the number of persons that outsource the administration of their capital is increasing, delegating this task to specialists. Who invests in a fund is betting that the administration is going to valorize the fund quota and bring better return for the investment. From this mechanism arises a relationship between the investor in investment funds and the administrator of this fund. This relationship is denominated, by the Agency Theory, as agency relationship[ii].

In the agency relationship the principal (fund investor who seeks greater return for his investments) delegates powers for the agent (fund administrator) to manage his resources.

In this relationship it is expected that the agent will make decisions that aim at satisfying the interests of the principal. However, the investment fund administrators can have personal objectives that compete with the maximization of the return of the investors.

In face of this impasse the following question arises: **does the remuneration of the investment fund administrators influence in the yield of these portfolios?**

A supposed reply to the problem to be investigated is the hypothesis that given the premises of the Agency Theory, the higher the rate of remuneration attributed to the investment fund administrators (agents) the greater the return for the investors (principals).

Thus, the principal objective of this work is to verify, under the perspective of the Agency Theory, if there exists a relationship between the remuneration of the investment fund administrators and the yield of these portfolios.

For such one intends, by means of bibliographical research, to establish the basis of the Agency Theory to emphasize the principal conflicts resulting from the agency relationships. Apart from this, experimental research will be done in which, by means of empirical-analytical investigations, one will seek to relate that theory to the investment funds.

The Agency Theory seeks to explain the conflicts of interest that can arise between a principal and an agent. These conflicts are inevitable because, initially, the agent, in exchange for remuneration, would have to act in accordance with the interests of the principal, however, this may not happen because the agent is also going to try to maximize his

own utility, that is, he will act motivated exclusively by his interests (MARQUES and CONDE, 2000).

With this article it is intended to show the relationship that can exist between the Agency Theory and the investment funds and in what way this relationship can or cannot be beneficial for an investor.

II. THEORETICAL REFERENTIAL

The conflicts of interest existent between administrators and shareholders initially were dealt with by Smith (1776 *apud* JENSEN and MECKLING, 1976), in the work The Wealth of the Nations. Berle and Means (1932) address the question with respect to the separation of the right of property and of control. Jensen and Meckling (1976) seek to give new focus to the studies existent up to then about the agency relationships, adding some behavioral aspects relating to the administration. Eisenhardt (1989) sets out that in general the Agency Theory is the relationship that mirrors the basic structure of *agency* of a principal and an agent.

In Brazil the Agency Theory is still little explored principally in terms of accounting research. However, highlighted are: Kayo and Fama (1997), who seek to show evidence that the positive and negative effects of the indebtedness can influence the formation of the capital structure of the Brazilian companies; Kimura, Lintz and Suen (1998), who seek to present a connection between the Agency Theory and the theory of options, focusing principally on a form of pricing the maximum cost of monitoring that the creditor could invest to be on guard against losses due to the decisions that would transfer his wealth to the shareholder; Marques and Conde (2000), who highlight that the Agency Theory seeks to explain the conflicts of interest that can arise between a principal and an agent; Nossa, Kassai and Kassai (2000), who apart from the theory of the firm and the theory of contracts, address the agency theory, its principal conflicts, the costs of agency, the principal types of controls and incentives for their minimization apart from establishing a relationship between the agency theory and the accounting; Brisola (2000), who addresses some relevant aspects of the relationships and interactions that occur in the business environment.

2.1 Agency Theory

This theory seeks to explain the relationship between two or more individuals. According to Hendriksen and Breda (1999, p. 139), "one of these two individuals is an *agent* of the other, called *principal* – from there the name of the *agency* theory. The agent undertakes to do certain tasks for the principal; the principal undertakes to remunerate the agent".

In this relationship it is expected that the agent will make decisions that aim at the interests of the principal, however, according to Eisenhardt (1989, p. 59), principal and agent are engaged in a corporative behavior but have different goals and different attitudes with relation to the risk.

Jensen and Meckling (1976, p. 5), define an agency relationship as "a contract by which one or more persons (the principal(s)) contract another person (the agent) to execute some service in favor of them and which involves delegating to the agent some authority of decision making" (our translation).

It is worth highlighting that the contract that regulates the relationships between the parties can be formal or informal, that is, they can be expressed and declared in a written contract signed by the parties or informally when the relationships are orientated by the uses and customs that sustain and give legitimacy to the actions practiced between the parties related (BRISOLA, 2000, p. 1).

When the Agency Theory highlights the relationship between the principal and the agent it does not refer only to the relationship between proprietor/shareholder and administrators/managers. The agency relationship can be established between diverse types of principal and agent, as seen in Table 1.

TABLE 1
Agency Relationships

Relationship Principal – Agent	What does the Principal Expect from the Agent?
Shareholders – Managers	The shareholders expect the managers to maximize their wealth (share value).
Debenture holders – Managers	The Debenture holders expect the manager to maximize their return.
Creditors – Managers	The creditors expect the managers to assure the fulfillment of financing contracts.
Clients – Managers	The clients expect the managers to assure the delivery of products with greater quality, less time, greater service and least cost.
Government – Managers	The government expects the managers to assure the fulfillment of the tax, labor and welfare obligations of the company.
Community – Managers	The community expects the managers to assure the preservation of the community, culture, values, environment interests, etc.
Shareholders – External Auditors	The shareholders expect the external auditors to certify the validity of the accounts statements having as focus the profitability and the efficiency.
Creditors – External Auditors	The creditors expect the external auditors to certify the validity of the accounts statements having as focus the liquidity and the indebtedness.
Managers – Internal Auditors	The managers expect the internal auditors to evaluate the operations under the optic of their efficiency and efficacy, generating recommendations that aggregate value.
Managers – Employees	The managers expect the employees to work with the best of their efforts, satisfying all the expectations.
Managers - Suppliers	The managers expect the suppliers to supply all their needs for materials at the necessary time and in the amounts requisitioned.
Property Owner – Real Estate Agent	The owner of property expects the Estate Agent of it to seek the best alternative of purchase.
Fund Investor – Fund Administrator	The fund investor expects the administrator of it to manager his investment and obtain the best return.

Source: Adapted from Nossa Kassai and Kassai (2000, p. 3-4).

In all the relationships demonstrated above, it is seen that the principal delegates powers to an agent who assumes them to make decisions and to establish lines of action. Nossa, Kassai and Kassai (2000, p. 4) characterize the principal in the figure of a subject asset and the agent in the figure of a subject liability.

Every agency relationship can, in principle, suggest a search for efficiency since the principal, for not having the experience, time, competence or qualification confers the task of management of resources and the execution of activities to the agent. However, as Jensen and Meckling highlight, (1976, p. 5) "if both the parties of the relationship are maximizers of utility there is good reason to believe that the agent will not always act in the best interests of the principal" (our translation).

According to Byrd *et al*. (1998, p. 14), the quality of the decisions of the agents do not depend only on their abilities but also on the incentives that are offered to them. Therefore, when an agent is disposed to maximize his utility function and not that of the principal, an agency conflict is identified.

2.2 Agency Conflicts

Smith (1776 *apud* JENSEN and MECKLING, 1976, p. 1) resumes an agency conflict in the following way:

From the directors of these companies (of joint shares) however, being the managers of the money of third parties and not of their own money, one cannot expect them to take care of it with the same anxious vigilance with which the partners of a private company zeal for their own money. Like the butlers of a rich man they tend to give attention to the small questions that do not favor the master and, easily, they tend to take advantage of him. Therefore, the negligence and the profusion must always prevail for more or less in the administration of the matters of a company of this type (our translation).

This example portrays the relationship between managers and shareholders. In principle the managers of the company should seek the maximization of the wealth of the shareholders but not always the gains for the manager are directly related to the value of the company. Therefore, the decisions that maximize the wealth of the shareholders do not necessarily increase the gains of the executives, this means to say that on delegating power to the executives the proprietors can be losing part of their wealth.

Whenever there is divergence of interest between principal and agent, as small as it may be, the latter can end up losing.

According to Kimura, Lintz and Suen (1998, p. 21),

It is common to have employees that take advantage of the material resources of the company or who allocate their efforts in an inadequate way in the sense of satisfaction of the interest of the employer, as for example, the reduction of performance and the lack of undertaking.

If the manager of a company has fixed remuneration he tends to defend, in the first place, his personal interests. On the other hand if he receives incentives, bonuses, participations in the profits or any other kind of benefit from the results presented, he tends to give priority to the objectives of the shareholders but can even act in a fraudulent way to achieve his own objectives.

It is worth highlighting that according to the Agency Theory there are agency costs[iii], as for example monitoring expenses, expenses with insurance coverage and residual losses (JENSEN and MECKLING, 1976), however, for the purposes of this work this approach will not be made.

2.3 The Agency Theory and the Investment Funds

According to the objective of this work one must highlight the conflicts existent in the relationship in which the principal is represented by the investor in investment funds and who delegates powers so that the administrator of this fund, who is constituted in the agent, manages his resources,

In certain circumstances, according to the Agency Theory, the administrator of an investment fund, on receiving the resources from the investor, can make decisions that generate an increase of his utility in detriment of the utility of the investor.

If the administrator of an investment fund is remunerated by means of a fixed payment independently of the profitability of this fund then there will not be motives for him to try to maximize the return of the investors. However, if this administrator is remunerated by means of the charging of a tax on the profitability of the portfolios that he administers he will be inclined to manage the assets in a way as to incur greater and greater risks with the intuit of obtaining greater return..

In this last case one can still suppose the success or the failure of this administrator. In the case of success of the investments risked, the gains would be of the investor and of the administrator, however, in the case of failure, the losses would only be of the investors.

From the examples cited above one sees that there exists the applicability of the Agency Theory to the investment funds. However, to give more empirical validity to the study one sought to analyze real and recent data of investment funds functioning in Brazil.

III. METHODOLOGY

3.1 Nature of the Study

The present work was developed from the bibliographical survey in books and articles about the Agency Theory. Apart from this experimental research was done in which by means of empirical-analytical investigations it was sought to relate that theory to the investment funds.

The choice of this methodology was due to the fact of the hypothesis raised needing verification.

3.2 Collection of Data

The data with respect to the investment funds was obtained in the *homepage* of the National Association of the Investment Banks (ANBID), which is an entity of representation of the segment of the financial institutions that operate in the capital market.

Amongst the different types of investment funds listed in this site, five were selected with variable income[iv]: IBOVESPA Asset Shares, IBOVESPA Asset Shares with Leverage, Other Shares With Leverage and Multimarkets with Variable Income with Leverage. Table 1 demonstrates the type and quantity of investment funds analyzed.

TABLE 1
Investment funds Analyzed

Types of Investment Funds	Number of Funds Analyzed
IBOVESPA Asset Shares	143
IBOVESPA Asset Shares with Leverage	087
Other Shares with Leverage	091
Multimarkets with Variable Income	296
Multimarkets with Variable Income with Leverage	664
TOTAL	1,281
Note: month Base – Feb/2003	

3.3 Choice of the Variables

The rate of remuneration ("administration tax") charged by the administrators of the investment funds and the profitability obtained in the month of February of 2003 by each one of the funds analyzed were chosen as variables for analysis,

3.4 Treatment of the Data

After the collection of the data with respect to the administration tax charged by the investment fund administrators they were grouped according to their typology.

Within each group (IBOVESPA Asset Shares, IBOVESPA Asset Shares with Leverage, Other Shares with Leverage, Multimarkets with Variable Income and Multimarkets with Variable Income with Leverage), the values of the samples were ordered in an increasing way, classified based on the administration tax, that is, from the least remuneration charged by the administrators of the fund to the most.

From these samples were excluded the investment funds that did not have movement in the month Base (Feb/2003) analyzed, as Table 2 demonstrates.

TABLE 2
**Investment funds Excluded from the Analysis**

Types of Investment funds	Number of Funds Excluded
IBOVESPA Asset Shares	0
IBOVESPA Asset Shares with Leverage	0
Other Shares with Leverage	0
Multimarkets with Variable Income	1
Multimarkets with Variable Income with Leverage	8
TOTAL	9

In each one of the samples the amounts ordered of the administration tax variable were divided into four equal fourths, obtaining three quartiles.

Below the first quartile (Q_1) were 25% of the smallest administration taxes charged by the administrators of each investment fund and above the third quartile (Q_3) were 25% of the largest, as presented in Figure 1.

FIGURE 1
Ordering of the sample data
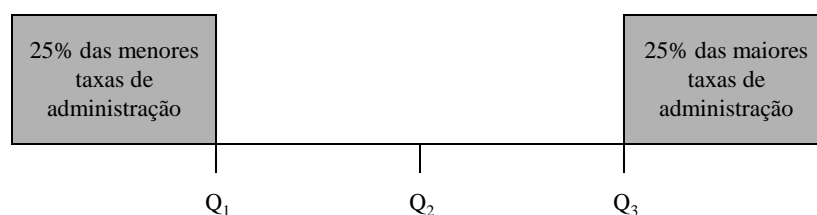
The respective yield of the investment fund referent to the month of February of 2003 was associated to the administration tax.

After all the procedures of ordering of the sample data the mean and the variance of the yields of the lowest investment funds to the first quartile (Q_1) and the highest to the third (Q_3), were calculated according to Table 3.

TABLE 3
Mean and Variance of the Yields of the Investment Funds

Types of Investment Funds	Mean of the Yields Referent to the Lowest Administration Taxes (μ_1)	Mean of the Yields Referent to the Highest Administration Taxes (μ_2)	Variance of the Yields Referent to the Lowest Administration Taxes (S_1)	Variance of the Yields Referent to the Highest Administration Taxes (S_2)
IBOVESPA Asset Shares	-4.81	-5.55	5.07	3.27
IBOVESPA Asset Shares with Leverage	-3.99	-4.45	9.29	9.06
Other Shares with Leverage	-3.24	-4.26	6.51	17.53
Multimarkets with Variable Income	1.66	1.85	4.28	0.53
Multimarkets with Variable Income with Leverage	2.02	1.91	8.32	1,32

IV. ANALYSIS AND EVALUATION OF THE RESULTS

With the above described procedures the objective was to verify if the investment funds that charged the highest administration taxes obtained the highest yields.

However, in 80% of the types of funds analyzed it was seen that the investment funds that charged the lowest administration taxes obtained the highest yields or the lowest losses (TABLE 3).

With the intuit of evaluating if the above statement about the means of the yields of the funds was true, the test of the hypothesis of the difference of the means was applied using the statistical analysis tool *Test-Z: Two Samples for Means*.

According to Stevenson (1986, p. 223), the test "consists of checking if a sampling statistic observed can reasonably come from a population with the alleged parameter".

4.1 Test-Z: Two Samples for Means

Admitting the level of significance α, of the hypothesis test equal to 0.05 and z critical two-tailed equal to 1,96, two hypotheses were established:

✿ H_0: $\mu_1 = \mu_2$

✿ H_1: $\mu_1 \neq \mu_2$

Where,

➢ μ_1 represents the mean of the yields referent to the lowest administration taxes; and

➢ μ_2 represents the mean of the yields referent to the highest administration taxes.

As the samples were large (the size of the two samples in each type of investment fund is greater than 30), the difference between the two means was normalized and one obtained Z observed (Z) in each one of the groups of investment funds, according to Tables 4, 5, 6, 7 and 8.

TABLE 4
Test-Z: Two Samples for Means (IBOVESPA Asset Shares)

Position in the Quartile	Lower than Q_1	Higher than Q_3
Mean	-4.81	-5.55
Variance known	5.07	3.27
Observations	36	36
Hypothesis of the difference of the mean	0	
Z	1.55	
P(Z<=z) one-tailed	0.06	
z critical one-tailed	1.64	
P(Z<=z) two-tailed	0.12	
z critical two-tailed	1.96	

The P-value or P (Z<=z) two-tailed equal to 0.12 is greater than the level of significance α equal to 0.05, therefore the decision is to accept H_0, that is, the mean of the yields referent to the lowest administration taxes (μ_1) of the IBOVESPA Asset Shares investment funds type is not statistically different to the mean of the yields referent to the highest administration taxes (μ_2).

TABLE 5
Test-Z: Two Samples for Means (IBOVESPA Asset Shares with Leverage)

Position in the Quartile	Lower than Q_1	Higher than Q_3
Mean	-3.99	-4.45
Variance known	9.29	9.06
Observations	22	22
Hypothesis of the difference of the mean	0	
Z	0.50	
P(Z<=z) one-tailed	0.31	
z critical one-tailed	1.64	
P(Z<=z) two-tailed	0.62	
z critical two-tailed	1.96	

The P-value or P (Z<=z) two-tailed equal to 0.62 is higher than the level of significance α equal to 0.05, therefore the decision is to accept H_0, that is, the mean of the yields referent to the lowest administration taxes (μ_1) of the investment funds IBOVESPA Asset Shares with Leverage type is not statistically different to the mean of the yields referent to the highest administration taxes (μ_2).

TABLE 6
Test-Z: Two Samples for Means (Other Shares with Leverage)

Position in the Quartile	Lower than Q_1	Higher than Q_3
Mean	-3.24	-4.26
Variance known	6.51	17.53
Observations	23	23
Hypothesis of the difference of the mean	0	
Z	1.00	
P(Z<=z) one-tailed	0.16	
z critical one-tailed	1.64	
P(Z<=z) two-tailed	0.32	
z critical two-tailed	1.96	

The P-value or P (Z<=z) two-tailed equal to 0.32 is higher than the level of significance α equal to 0.05, therefore the decision is to accept H_0, that is, the mean of the yields referent to the lowest administration taxes (μ_1) of the investment funds Other Shares with Leverage type is not statistically different to the mean of the yields referent to the highest administration taxes (μ_2).

TABLE 7
Test-Z: Two Samples for Means (Multimarkets with Variable Income)

Position in the Quartile	Inferior a Q_1	Superior a Q_3
Mean	1.66	1.85
Variance known	4.28	0.53
Observations	74	74
Hypothesis of the difference of mean	0	
Z	-0.75	
P(Z<=z) one-tailed	0.23	
z critical one-tailed	1.64	
P(Z<=z) two-tailed	0.45	
z critical two-tailed	1.96	

The P-value or P (Z<=z) two-tailed equal to 0.45 is higher than the level of significance α equal to 0.05, therefore the decision is to accept H_0, that is, the mean of the yields referent to the lowest administration taxes (μ_1) of the investment funds Multimarket with Variable Income type is not statistically different to the mean of the yields referent to the highest administration taxes (μ_2).

TABLE 8
Test-Z: Two Samples for Means (Multimarkets with Variable Income with Leverage)

Position in the Quartile	Lower than Q_1	Higher than Q_3
Mean	2.02	1.91
Variance known	8.32	1.32
Observations	164	164
Hypothesis of the difference of mean	0	
Z	0.46	
P(Z<=z) one-tailed	0.32	
z critical one-tailed	1.64	
P(Z<=z) two-tailed	0.64	
z critical two-tailed	1.96	

The P-value or P (Z<=z) two-tailed equal to 0.64 is higher than the level of significance α equal to 0.05, therefore the decision is to accept H_0, that is, the mean of the yields referent to the lowest administration taxes (μ_1) of the investment funds, Multimarkets with Variable Income with Leverage type is not statistically different to the mean of the yields referent to the highest administration taxes (μ_2).

As in all the types of investment funds the statistic test is in the region of acceptance, the null hypothesis (of Test-Z: Two Samples for Means) cannot be rejected. It was concluded then that the difference between the two sample means is probably the result of the causal variation due to the random sampling.

V. FINAL CONSIDERATIONS AND SUGGESTIONS FOR NEW RESEARCH

This work addresses the Agency Theory, the relationships existent between the principal and the agent and what are the conflicts that can arise from these relationships. In the light of this theory evidence was sought of its applicability to the investment funds.

The results obtained statistically, before and after Test-Z, did not confirm the hypothesis raised in this research that the higher the rate of remuneration attributed to the administrators of the investment funds the greater will be the return for the investors.

The use of only one month (Feb/2003) can have been a factor of limitation of the research but the observation of a historical series apart from the choice of other variables is suggested for new tests.

A new alternative arises to be tested. Instead of the use of the administration tax (remuneration), one could use the types of remuneration (fixed or variable) received by the administrators of the investment funds.

In this case the hypothesis could be: a fund administrator that has fixed remuneration for his services will tend to firstly defend his personal interests. On the other hand, if he receives fixed remuneration plus a variable for the results presented, he will tend to prioritize the objectives of the investors to satisfy his own interests.

The conflicts of interest resulting from the relationships between agent and principal make much empirical research possible, still little explored in Brazil.

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[i] According to Brigham, Gapenski & Ehrhardt (2001, p. 202), "the risk can be defined as a probability that some unfavorable event will occur".

[ii] According to Brigham, Gapenski & Ehrhardt (2001, p. 39), "an *agency relationship* arises when one or more individuals, called principals, , (1) contract another individual or organization, called *agent*, to do some type of service and (2) these then delegate authority of decision making to that agent".

[iii] The costs of agencing, according to Nossa, Kassai & Kassai (2000, p. 7), "are the expenses incurred in the prevention and solving of conflicts between the principal and the agent, that is, those associated to the contracting between the parties as well as the losses resulting from the opportunistic attitudes of the agent".

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iv The funds of variable income are concentrated in only one type of produce: the Investment Fund of Titles and Securities (Source: http://www.investshop.com.br).