A COMPARATIVE ANALYSIS OF THE PERFORMANCE OF MUTUAL FUNDS FOR "LOWER-END" AND "UPPER-END" INVESTORS: AN ASSESSMENT BASED ON BRAZILIAN DATA

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Abstract:

The main goal in this paper is to select one type of fund -- in this case, multi-market funds in the Brazilian financial sector -- and explore two different categories of investors. In one group of funds, there are entrance barriers (a significant minimum investment requirement) and, in the other, there is no entrance barrier and low share values, so that "lower-end" investors would feel more inclined to take part. The main indicator used to gauge the performance of the two groups of funds was the Sharpe ratio. The conclusion based on data from 2009 to 2011 is that, contrary to intuition, there are not differences in performance between the lower-end and upper-end groups. However, one is led to believe that the conclusion of similar performances is significantly affected by a distortion present in Brazil's financial markets, namely, the extremely high level of interest rates in real terms on government debt securities, causing most portfolios to be heavily based on those assets.

Key words:

Performance evaluation of mutual funds; Mutual funds in the Brazilian market; Macroeconomic perspective in financial investment.

INTRODUCTION

The performance of mutual funds is most often evaluated following the traditional broad classification -- that is, money market, bond and stock funds -- and several possible measures of performance have been proposed in the available literature.[1] In this paper, though, the main goal is to choose one type of fund -- in this case, multi-market funds in the Brazilian financial sector -- and explore two different categories of investors. In one of these groups there are entrance barriers to investors or, more

[1] For some enlightening recent accounts, see BERK and GREEN (2004), DOWD (2000), and ELING, and SCHUHMACHER (2007).

precisely, there is a minimum requirement for the initial investment. In the following sections, these multi-market funds will be referred to as "funds for upper-end investors". In the other group, there is no minimum initial value and we assume that such funds are linked to "lower-end investors".

Intuition would suggest that funds for upper-end investors would provide, on the average, better results than the average return for the more popular funds -- and certainly, there has been marketing efforts, in Brazil and elsewhere, to establish this kind of association. One reason, in particular, for this assumed superiority is that upper-end funds would, in general, have fewer and more stable investors and, therefore, their managers are able to devise and implement investment strategies not available to the lower-end funds -- which must be prepared to provide more frequent repayments to a larger number of investors. The main goal of the paper is to test this intuitive assumption, more explicitly, that funds linked to upper-end investors have, on average, better performances than their more popular (lower-end) counterparts.

This paper is divided into five sections. In the first, an overview of mutual funds in Brazil is provided. Then, the multi-market funds used in the paper are described. The third section provides the main macroeconomic trends in the period for the data that was used in the comparative analysis. The results for the performance of funds in the lower-end and upper-end groups, especially the Sharpe ratio, are presented in section 4. Finally, section 5 contains some concluding remarks.

1. OVERVIEW OF BRAZILIAN MUTUAL FUNDS

In Brazil's financial sector, mutual funds form a relatively recent addition, having been established in a consistent fashion only after the monetary stabilization, which occurred in 1994 with the renowned Real Plan. Before that period, extremely high inflation -- above 30% per month -- made the effective management of portfolios of securities an almost impossible task.

Mutual funds are tightly regulated in Brazil, both formally -- through the Government agency equivalent to the U. S. Securities and Exchange Commission (Comissão de Valores Mobiliários, CVM) -- and informally, that is, complying with rules established by the institution that represents most financial firms in the country (Associação Brasileira das Entidades dos Mercados Financeiro e de Capitais, ANBIMA). From a regulatory perspective, funds are classified according to the composition of their portfolios and must maintain minimum ratios (and, in certain cases, not exceed maximum ones) established for each class of fund. As one would expect, the main groups are money market, bond and stock funds.

One type of mutual fund that has increasingly attracted the attention (and the cash) of investors in the Brazilian financial sector is the multi-market category. In funds of this kind, managers are allowed to invest in different types of securities, including derivatives and foreign currencies. From an international perspective, hedge funds are the ones closer to Brazil's multi-market funds due to their potentially wide range of investment strategies. Nevertheless, as will be shown below, this possibility is not commonly put into use and effectively diversified portfolios are not the rule.

2. DESCRIPTION OF THE MULTI-MARKET FUNDS USED

The variable used to classify Brazilian multi-market funds into the two groups defined in the Introduction was the minimum value required for the initial investment. In the case of lower-end funds, there is no such minimum, whereas funds with minimum initial capital requirement are considered to be available, in general, to upper-end investors.

Moreover, the basic variable used to include a fund in the sample that was ultimately analyzed was Net Asset Value (NAV) -- that is, funds in each group were classified according to NAV and, as a general rule, the fifteen multi-market funds with greater value were selected in each group. However, in the case of lower-end funds, another characteristic was considered: the share value of the fund. The supposition behind this decision is that, if the value of the fund's share can be considered too high, lower-end investors would feel less inclined to enter. The effective rule, in this case, was to discard funds with a share value above R$ 25, and the final result was that that six funds, out of fifteen, changed position in the sample.

In the case of upper-end funds, a rule for a minimum entrance barrier was adopted -- that is, funds with a minimum initial investment below R$ 20.000 were discarded -- and this rule caused the change of four funds in the sample for this group (previously included according to NAV). A broad description of the funds in each group appears in Tables 1 and 2. As can be perceived from these Tables, there is not a significant difference in the two groups in terms of Net Asset Value.

Table 1. Selected multi-market funds for lower-end investors

Fund's Manager	Funds in sample		Net Asset Value (R$ 1,000)
BTG Pactual	5	Maximum	4,298,404
Citibank	3	Minimum	275,402
Bradesco	3	Average	1,280,496
ItauCard	2	Median	710,919
Votorantim	2	Stand. deviation	1,297,241
Total	15		19,207,442

Table 2. Selected multi-market funds for upper-end investors

Fund's Manager	Funds in sample		Net Asset Value (R$ 1,000)	Initial Investment (R$)
BTG Pactual	4	Maximum	5,374,120	100,000
ItauCard	3	Minimum	391,532	20,000
BNY Mellon	3	Average	1,137,320	38,000
Banco do Brasil	2	Median	670,995	25,000
BEM	1	Stand. deviation	1,265,206	21,196
Credit Suisse	1			
Western Asset Manag.	1			
Total	15		17,059,805	

In the following Table and Figures, additional information is provided for the top two funds in each group -- named Lower End 1 and 2, and Upper End 1 and 2. In the lower-end group, the top two funds accounted for above 43% of the total NAV of the fifteen funds included in the sample, with virtually the same share for each one. In the upper-end group, the top two funds accounted for 42% of the sample's total, but the NAV of the first was three times higher then that of the second. For perspective, information for the benchmark index in the Brazilian stock market -- the Ibovespa -- is also provided.

Table 3. Statistical information for the top 2 funds in each group and Ibovespa*

	Lower End 1	Lower End 2	Upper End 1	Upper End 2	Ibovespa
Average (% annually)	15.69	9.84	9.79	9.01	12.53
Stand. deviation (% annually)	15.35	0.18	0.22	0.16	20.64
Minimum (% daily)	-7.47	0.00	-0.02	0.00	-4.75
Maximum (% daily)	7.82	0.10	0.10	0.07	5.91
Kurtosis#	21.299	5.835	4.336	1.419	1.584
Skewness	0.421	0.909	0.729	0.005	-0.150
Sample size (days)	411	411	411	411	411

*From daily returns from Sep. 1st 2009 to April 24th 2011; the average risk-free rate of return in this period was 9.8%. #Normal distribution = 3.

Table 3 reveals several distinct aspects of the main multi-market funds analyzed. Initially, three of the funds described have virtually no difference at all in terms of their distribution of daily returns. On the other hand, the first Lower-End fund is distinct from the other three in the sense that it is the only one based on equities -- therefore it follows more closely the distribution of the stock-market index (Ibovespa). In contrast, the other three funds are essentially money-market portfolios, that is, they invest heavily on federal government short-term securities. This happens despite the fact that they are classified, according to CVM and ANBIMA standards, as multi-market funds and, therefore, could apply more diversified strategies.

This latter Table illustrates what has been the major distortion of Brazil's financial market in the last decade in a half, namely, the extremely high level of interest rates in real terms on government debt securities, which cause most portfolios to be heavily based on those assets. This trend clearly diminishes the availability of capital in other markets, and especially in the stock market. The predominance of federal government securities leads, in general, to extremely low standard deviations in multi-market funds, which are allowed to pursue diversified investment strategies. It also blurs the differences among classes of mutual funds in Brazil -- especially, differences in performance between lower-end and upper-end multi-market funds.

The distortion mentioned in the previous paragraph is very likely the main factor behind one apparent singularity of Brazilian mutual funds, namely, that funds in the country have "odd-shaped [lognormal] distributions (…). One straightforward reason for non-normality is that individual assets available have, themselves, odd-shaped distributions. This is the case of Brazilian funds".[2] In relation to this point, the hypothesis that is being formulated in this paper is that the availability of zero-risk, high-return government securities might be contaminating the rest of Brazilian investment securities, leading to return distributions increasingly different from the normal and similar to the lognormal -- that is, non-negative returns, with an elongated right tail. In order to explore this possibility, the distributions of returns of the portfolios in Table 3 are described in Figures 1 to 4.

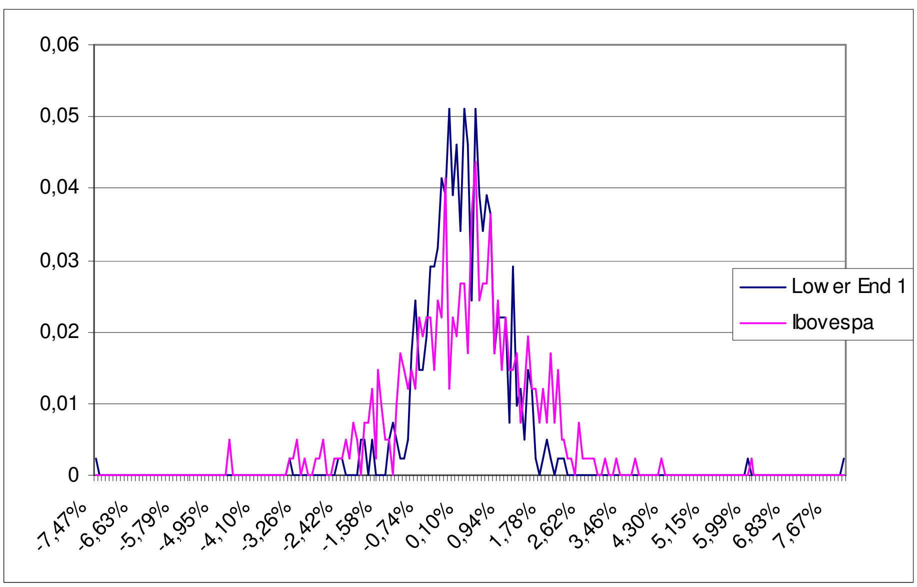

Figure 1. Histogram for daily returns: selected multi-market fund and Ibovespa.

[2] ORNELAS, SILVA Jr. and FARIAS (2011), p. 2.

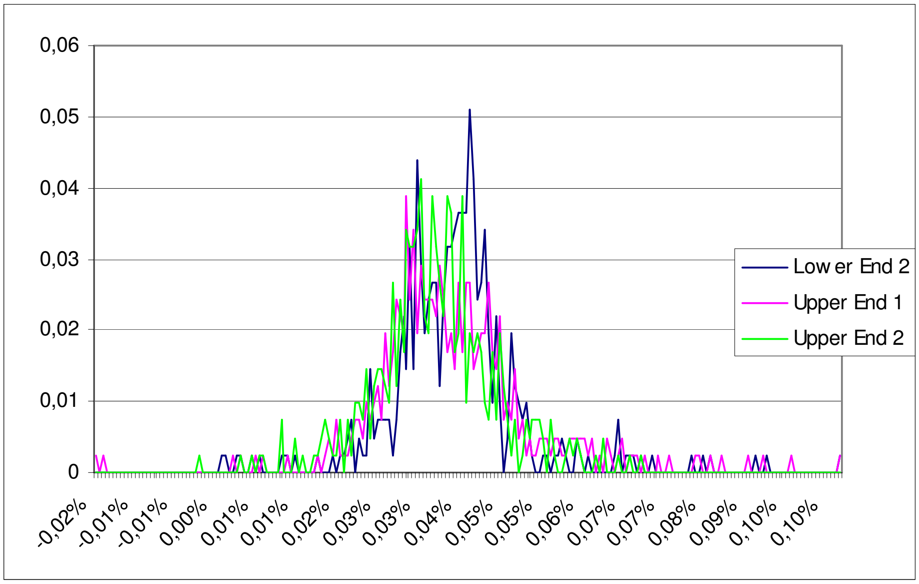

Figure 2. Histogram for daily returns: selected multi-market funds.

The histogram in Figure 1 does not support the assumption of non-normal returns for Brazil's stock market and, more generally, for funds based on stocks. This conclusion is reinforced by the Q-Q plot in Figure 3. On the other hand, there is some basis for assuming a lognormal pattern in the case of funds based on money-market securities, especially the second Lower-End and first Upper-End funds -- but this is not necessarily the case of the second Upper-End fund (Figures 2 and 4).

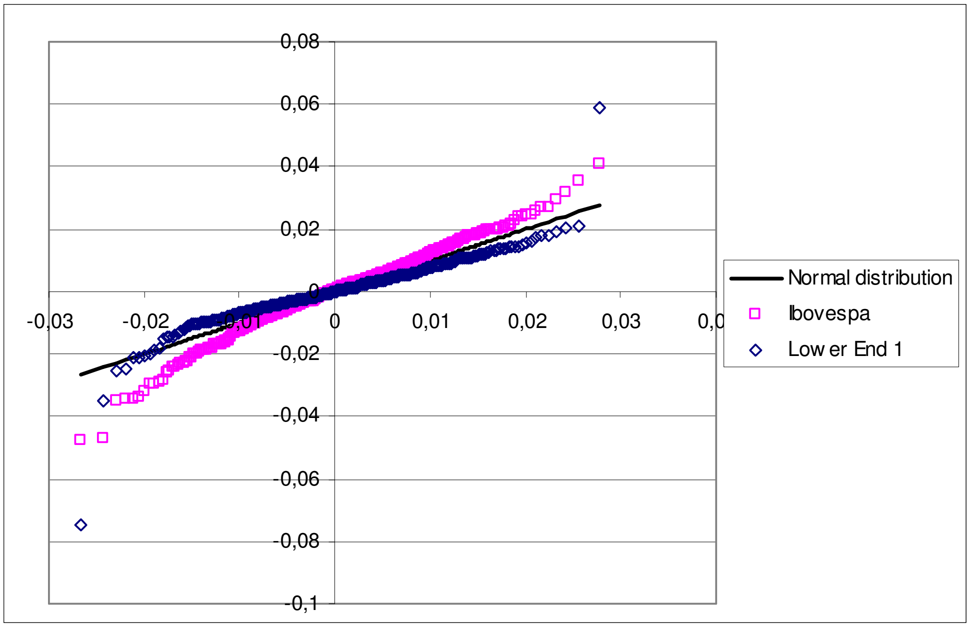

Figure 3. Q-Q plot for daily returns: selected multi-market fund and Ibovespa.

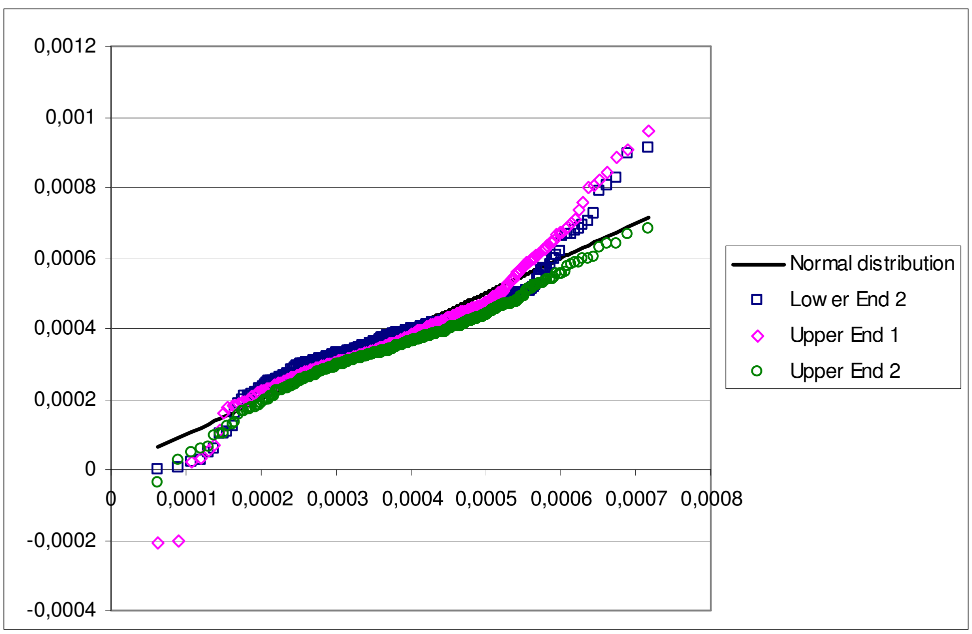

Figure 4. Q-Q plot for daily returns: selected multi-market funds.

3. MACROECONOMIC PATTERNS OF THE PERIOD CHOSEN

The period used for the performance evaluation of multi-market funds -- September 2009 to April 2011 -- was marked by a strong upsurge of production and income in Brazil, following the downswing caused by the 2008 financial crisis. However, this trend of strong growth was short-lived and, by the end of the performance-evaluation period, GDP was accommodating to far more moderate growth rates (Figure 5).

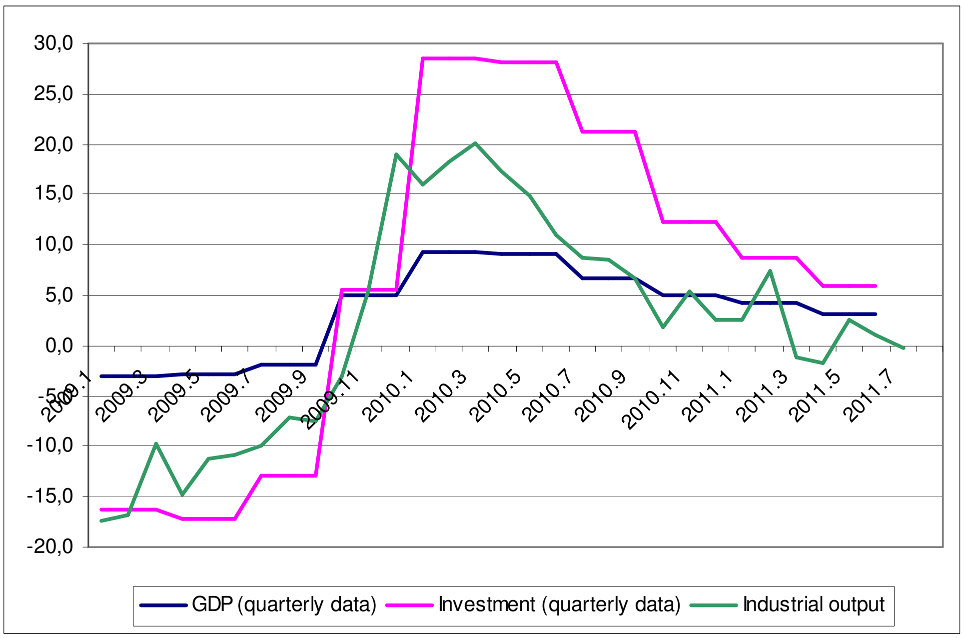

Figure 5. Annual real rates of change for macroeconomic data and industrial production: 2009-11.

Source: Brazil's Central Bank (www.bcb.gov.br).

Also, inflation remained quite strong, but since interest rates on short-term government securities were kept at record levels by the Central Bank, very high real interest rates were observed along the period (Figure 6). High interest rates, among other factors, contributed to attract foreign capital, leading to a consistent fall of the US currency in relation to the real. Part of the international capital available to invest in Brazilian securities was also attracted to equities, and the stock exchange displayed some impressively high returns -- and one can also observe very high volatility in this market.

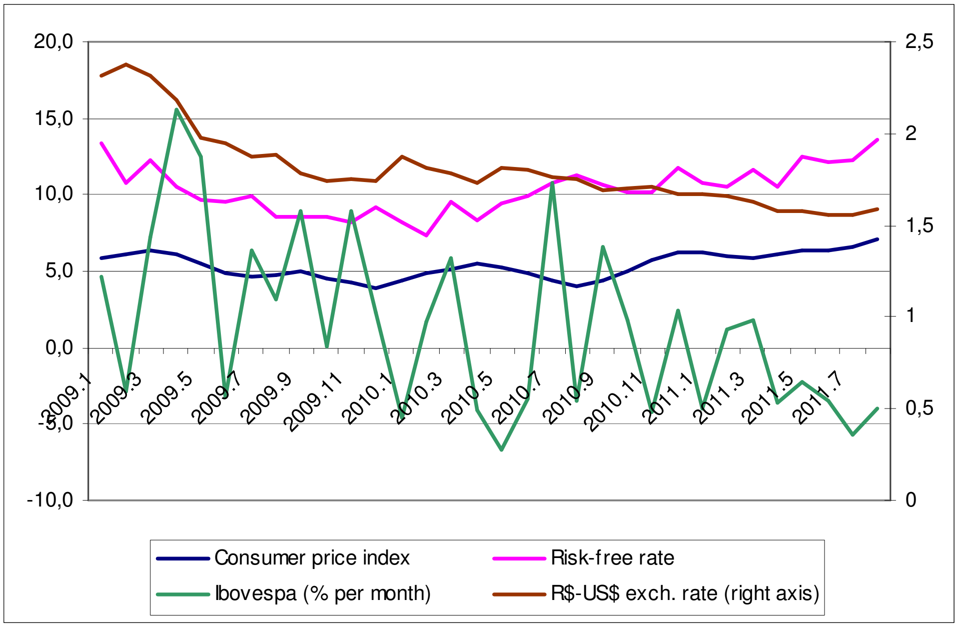

Figure 6. Selected macroeconomic indicators for the Brazilian economy -- 2009-11.

Source: Brazil's Central Bank (www.bcb.gov.br).

4. PERFORMANCE RESULTS

The main indicator used to gauge the performance of the two groups of funds was the Sharpe ratio. The results are described in Table 4 -- together with information for return and risk -- and Figures 7 and 8. In the case of the upper-end group, there was an outlier (average return of -25.11% and risk of 52.39% in the period analyzed) that caused some distortion in the average results for that group. Yet, it seems fair to conclude, based on results for the medians, that there is not a significant difference between the two groups in the case of both return and risk. Further, results for the Sharpe ratio (using the medians) indicate that, contrary to intuition, there are not differences in performance between the lower-end and upper-end groups -- at least, there is no indication of a superior performance of the second group.

Actually, the available indicators are in favor the lower-end-investor group, and the main explanation for this counter-intuitive result seems to be that some multi-market portfolios in the lower-end group relied more heavily on equity securities than the ones in the upper-end group, which, as a rule, appeared to be less diversified. And this characteristic allowed them to reach some favorable combinations of risk and return. This conclusion is especially based on Figure 7, which reveals a pattern of investment in the upper-end group more concentrated in money-market securities -- and, therefore with very low levels of risk -- in comparison with its lower-end counterpart.

Table 4. General results for the two groups of funds (% per year)

	Lower-end investors	Upper-end investors
Average return	10.39	8.29
Minimum	8.80	-25.11
Maximum	15.69	15.67
Median	9.84	9.80
Average risk	2.23	4.43
Minimum	0.08	0.08
Maximum	15.35	52.39
Median	0.26	0.72
Average Sharpe ratio	0.40	-0.18
Minimum	-5.18	-4.67
Maximum	13.14	2.38
Median	0.11	0.09
Sample size (funds)	15	15

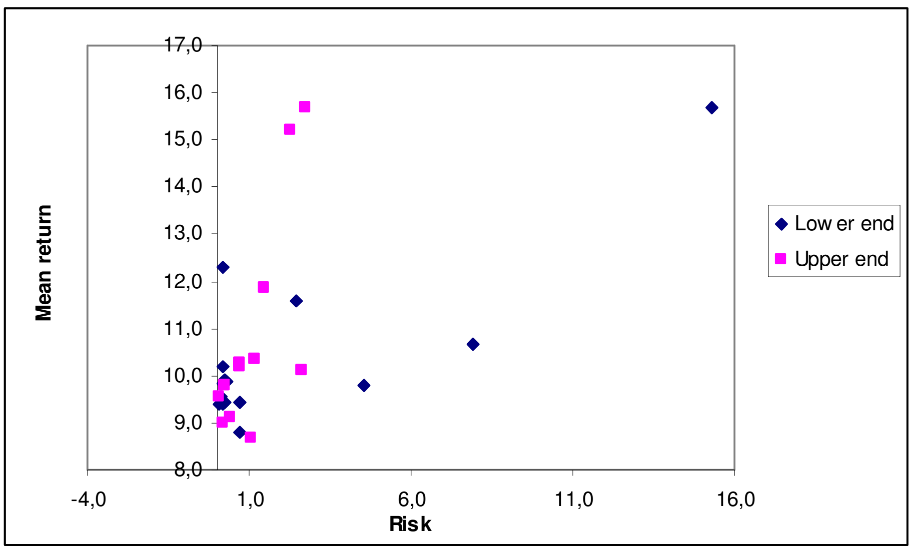

Figure 7. Mean returns and risks for the two groups of funds (% per year).

Note: An outlier was omitted.

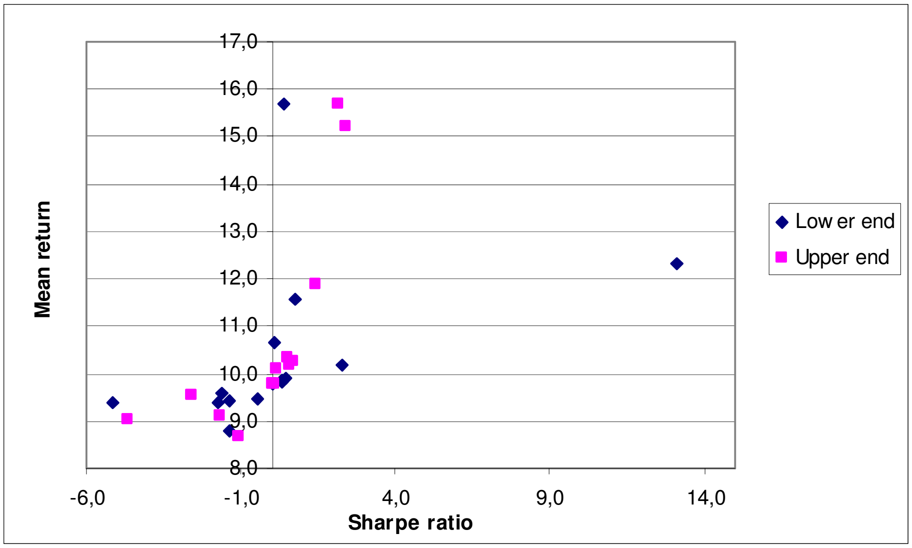

Figure 8. Mean returns and Sharpe ratios for the two groups of funds.

5. CONCLUSIONS

Intuition would suggest that funds for upper-end investors would provide, on the average, better results than the average return for the more popular funds (without any entrance barrier), and the main goal of the paper is to test this intuitive assumption. The data use to evaluate this hypothesis come from a type of mutual fund that has increasingly attracted the attention of investors in the Brazilian financial sector -- multi-market funds. In funds of this kind, managers are allowed to invest in different types of securities, including derivatives and foreign currencies.

The variable used to classify Brazilian multi-market funds into the two groups defined in the paper was the minimum value required for the initial investment. In the case of lower-end funds, there is no such minimum, whereas funds with relatively high minimum initial capital requirement are considered to be available, in general, to upper-end investors. Further, the basic variable used to include a fund in the sample that was ultimately analyzed was Net Asset Value -- that is, funds in each group were classified according to NAV and, as a general rule, the fifteen multi-market funds with greater NAV were selected in each group.

An initial analysis of the funds included in the samples reveals that they invest heavily on federal government short-term securities. This happens despite the fact that they are classified as multi-market funds and, therefore, could apply more diversified strategies. An explanation suggested for this behavior, which seems to affect the shape of their distribution of returns (significantly different from the normal, in some cases) is that the extremely high level of interest rates in real terms on government debt securities causes most portfolios to be heavily based on those assets. This trend leads, in general, to extremely low standard deviations in multi-market funds and blurs the differences among classes of mutual funds in Brazil -- especially, differences in performance between lower-end and upper-end multi-market funds.

The main indicator used to gauge the performance of the two groups of funds was the Sharpe ratio. The conclusion, based on results for each sample, is that, contrary to intuition, there are not differences in performance between the lower-end and upper-end groups -- at least, there is no indication of a superior performance of the second group.

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