Mutual Fund Flow and Past Information: Is the Brazilian Investor Smart?

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It is well know that investors pursue past performance (Sirri and Tufano 1998) and invest in funds with above average past performance. There is also a large literature trying to forecast performance based on past performance with no conclusive results. This study goes further in investigate whether or not the new investment flows indicate high future performance. High past performance induce high new flow but not all new flow goes to these funds. Therefore high future performance maybe found in funds with high inflow. Gruber (1996) has launched the Active Fund Puzzle, which asks the question on why investors put money in if on average their performance is below indexed funds. The answer could be some performance predictability. If it is the case then new flows goes to go future performance funds! Zheng (1999) has looked in more detail whether it is true. Gruber (1996) and Zheng(1999) have generated the term "Smart Money Effect" (SME) which attributes an abnormal return to funds that receive new money.
This article investigates the local investor's ability to select active funds in Brazil. This a peculiar mutual fund industry with a large information disclosure, no distinction between mutual fund and hedge funds, mostly domestic investors and domestic assets.
The SME has been investigated in some local markets like Australia by Gharghori et alli. (2007), they find smart money effect in Australia and it is not explained by momentum neither conditional on fund size
This article applies the same analysis of Zheng (1999) to the Brazilian mutual fund industry. Due to the large information availability, it is possible to do the same type of investigation separating the investors in three types: qualified investors, investors in general and exclusive funds. The first one is defined as any financial company, insurance company, or pension fund with assets above BRL5 million, and any individual investor with more than BRL250,000 invested in the fund or over BRL5 million in personal financial assets. The second one is any ordinary investor. The third one, exclusive funds, where monies come from only one investor or from a restricted portion of the public, have external managers which decide on the portfolio allocation in general and they are only a vehicle with the objective of lowering transactions costs.
It is a contribution to the international literature on market efficiency because it shows evidence of the SME, furthermore it shows evidence that SME is significant on more sophisticated investors (qualified investors) and not on ordinary investors (investors in general).

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This article shows evidence of the Smart Money Effect in Brazil. The evidence is located in funds for qualified investors. Surprisingly, the risk adjusted performance of the funds purchased by fund of funds is negative and significant.

1. Introduction

It is well know that investors pursue past performance (Sirri and Tufano 1998) and invest in funds with above average past performance. There is also a large literature trying to forecast performance based on past performance with no conclusive results. This study goes further in investigate whether or not the new investment flows indicate high future performance. High past performance induce high new flow but not all new flow goes to these funds. Therefore high future performance maybe found in funds with high inflow. Gruber (1996) has launched the Active Fund Puzzle, which asks the question on why investors put money in if on average their performance is below indexed funds. The answer could be some performance predictability. If it is the case then new flows goes to go future performance funds! Zheng (1999) has looked in more detail whether it is true. Gruber (1996) and Zheng(1999) have generated the term "Smart Money Effect" (SME) which attributes an abnormal return to funds that receive new money.

Others like Sawicki et alli (2002) have attributed the SME to Small Funds, Sapp and Tiwari (2004) have attributed the SME to Momentum factor. Ding et alli. (2009) have shown that SME only predicts performance on funds without share restrictions. More detailed explanations on the SME have been provided by Grinblatt et alli. (2010) based on investors IQ. Niebling et alli. (2010) explain SME based on investors wealth, age and experience, also show that financial advices only improve fund selection if initial charges are taken in account and smart investors realizes on average an abnormal return of 127 bps per year

This article investigates the local investor's ability to select active funds in Brazil. This a peculiar mutual fund industry with a large information disclosure, no distinction between mutual fund and hedge funds, mostly domestic investors and domestic assets.

The SME has been investigated in some local markets like Australia by Gharghori et alli. (2007), they find smart money effect in Australia and it is not explained by momentum neither conditional on fund size

This article applies the same analysis of Zheng (1999) to the Brazilian mutual fund industry. Due to the large information availability, it is possible to do the same type of investigation separating the investors in three types: qualified investors, investors in general and exclusive funds. The first one is defined as any financial company, insurance company, or pension fund with assets above BRL5 million, and any individual investor with more than BRL250,000 invested in the fund or over BRL5 million in personal financial assets. The second one is any ordinary investor. The third one, exclusive funds, where monies come from only one investor or from a restricted portion of the public,

have external managers which decide on the portfolio allocation in general and they are only a vehicle with the objective of lowering transactions costs.

This is a contribution to the international literature on market efficiency because it shows evidence of the SME, furthermore it shows evidence that SME is significant on more sophisticated investors (qualified investors) and not on ordinary investors (investors in general).

The article is organized as following. The second section describes the performance tools used, the third section describes the Brazilian mutual industry and the sample used the forth section shows the results and the fifth and last section the conclusion.

2. Portfolio performance tools

To examine the smart money hypotheses two tests are implemented. The first one based on Grinblatt and Titman (1993) to check if investors move money to funds with future superior performance. The second is to evaluate if the new money flow could be to make abnormal returns. The latter is done testing the risk adjusted return of eight different trading strategies described in Zheng (1999).

The Grinblatt and Titman – GT paper introduces a performance measure to estimate investors ability to select funds without the use of benchmark. It measures the return of a zero cost portfolio of funds.

$$GT_t = \sum_{j=1}^{N} R_{j,t+1}\left(w_{j,t} - w_{j,t-1}\right) \tag{1}$$

where $w_{j,t}$ is the portfolio weight on fund j at time t and $R_{j,t}$ is the fund j return on time t.

Under the null hypothesis that investors do not have superior ability GT converges to zero. This measure is equivalent to the covariance between current portfolio holding and future performance:

$$\operatorname{cov}\left(w_j, R_j\right) = \sum_{j=1}^{N}\left(E\left[w_j R_j\right] - E\left[w_j\right]E\left[R_j\right]\right) = \sum_{j=1}^{N} E\left[\left(w_j - E\left[w_j\right]\right)R_j\right]$$

The sample covariance is:

$$\text{scov}\left(w_j, R_j\right) = \sum_{t=1}^{T} \frac{\left(w_{j,t} - \overline{w}_j\right) R_{j,t}}{T} \tag{2}$$

To avoid unbiased estimates in small samples that come from contrarian strategies (see GT pag 51) the returns and weights shouldn't be contemporaneous. Therefore GT uses current returns and past weights. Under the null hypothesis of no superior ability it converges to zero.

Summing over all funds the GT performance measure is:

$$GT = \sum_{j=1}^{N} \sum_{t=1}^{T} \frac{\left(w_{j,t} - w_{j,t-1}\right) R_{j,t}}{T} \tag{3}$$

The GT measure does not allow a direct profitable strategy, but Zheng (1999) proposes eight different strategies that allow an easy and straightforward implementation for any investor. The strategies consist in arranging portfolios of available funds with long positions only. The eight trading strategies are:

1. Equally distributed in all available funds.
2. In all available funds and weighted by AUM
3. Equally in all available funds with positive new flow
4. Equally in all available funds with negative new flow
5. in all available funds with positive new flow and weighted by AUM
6. in all available funds with negative new flow and weighted by AUM
7. Equally in all available funds with above median new flow
8. Equally in all available funds with below median new flow

The new flow is defined based on:

$$NF_{i,t} = \frac{AUM_{i,t} - AUM_{i,t-1}\left(1 + R_{i,t}\right)}{AUM_{i,t-1}} \tag{4}$$

The portfolios are constructed at beginning of each month and rebalanced monthly according to the preceding new information. If a fund is created it only enters in the sample in the next month. For each portfolio it is calculated their excess returns and its risk adjusted returns based on two Brazilian broad market indices.

To evaluate the risk adjusted returns of each strategy the Jensen's alpha is calculated based on OLS:

$$R_{pt} - R_{ft} = \alpha_p + \beta\left(R_{mt} - R_{ft}\right) + e_{pt} \tag{5}$$

where R_{pt} is the portfolio return on time t, R_{ft} is the risk free rate on time t and R_{mt} is the market return on time t.

3. Data and Brazilian Mutual Fund Industry

The sample in this study includes all actively managed equity fund in Brazil that started after February 2005, and survived until march 2011. The returns are net of all fees and calculated on a monthly basis. They represent 4.2% of the total AUM of the mutual fund industry and 22% of the equity mutual industry AUM at the end of February 2011 and comprise a maximum of 1,545 funds. The other 88% of the AUM in equity funds are index, private equity and sectorial funds. All data were provided by Quantum[i]. Table 1 shows a summary of this data.

	no. of funds	AUM (BRL Billions)	no. of management companies
type of investor			
Exclusive	633	47.0	168
Investors in general	206	16.0	173
Qualified investor	603	38.6	102
Fund of funds	103	0.2	41
Total	1,545	101.7	484
Industry total	10,215	2,447	463
% of industry	15.1%	4.2%	104.5%

Table 1. Summary of the sample on Brazilian active Brazilian equity funds. Source Quantum, as of December, 2010.

Besides the fund ownership another fund category has been included, fund of funds, that are called FICs in Brazil. Their portfolio of equity funds are grouped per fund at each month as if one investor (the FIC) where the sole owner of the portfolio. All other assets of the portfolio are dismissed, because the only relevant information are the sales and purchases of equity funds.

Another relevant characteristic is the fund manager, according to Varga and Wengert (2010) the main mutual fund managers in Brazil are Commercial Banks and Independent Managers (IM). The latter one is pretty close to the *modus operandi* of international hedge funds.

Fund characteristics like small caps, growth, value, etc, are extremely difficult to distinguish because most of equity fund portfolios have a large portion of derivatives,

which makes virtually impossible to determine the exact fund strategy.

Characteristics like the type of fund manager, CB and IM, may lead to different results with regards the SME, because the distribution channels and announced trading strategies are quite different, affecting the type of investor available to purchase the fund.

The whole sample is free of survivorship bias because even the dead funds were included.

4. Results

The first result is based on the investigation of all fund separated by type of investor. The result in table 2, shows a positive GT measure, though not significant, for all type of investors except, surprisingly, fund of funds.

	No. Of Months	GT Measure	GT Measure %p.a.	t-Test Statistic	Wilcoxon Proba.
Investors in general	71	0.0106%	0.127%	1.4	0.38
Qualified investor	71	0.0124%	0.149%	1.4	0.14
Exclusive	71	0.0698%	0.84%	0.8	0.82
Fund of funds	71	-0.0334%	-0.40% -	1.1	0.33

Table 2. Performance measure for all type of investors and managers. Source: Quantum fundos.

The results in table 2 do not allow the rejection of a null hypothesis of no superior performance based on GT performance measure.

Portfolios	Investors in general			Qualified investor			Exclusive			Fund of funds (FICs)		
Strategy	Excess Return	Alpha1	Alpha2	Excess Return	Alpha1	Alpha2	Excess Return	Alpha1	Alpha2	Excess Return	Alpha1	Alpha2
1 equally distributed	-0.0001	-0.0008	-0.0009	0.0038	**0.0033**	0.0041	0.0020	0.0041	0.0019	-0.0085	**-0.0069**	**-0.0065**
	nd	(0.03)	(-0.57)	nd	(2.27)	(1.78)	nd	(1.47)	(0.96)	nd	(-2.97)	(-2.94)
	[-0.07]			[0.08]			[0.03]			[-0.14]		
2 all funds and weighted by AUM	-0.0009	-0.0008	-0.0017	0.0021	0.0033	0.0027	0.0032	**0.0041**	0.0033	-0.0089	**-0.0069**	**-0.0074**
	(-0.15)	(-0.53)	(-1.11)	(-0.16)	(1.54)	(1.09)	(0.12)	(2.09)	(1.64)	(-0.04)	(-2.66)	(-2.64)
	[-0.07]			[0.09]			[0.16]			[-0.27]		
3 equally in all funds with positive new flow	0.0006	0.0007	-0.0002	0.0048	**0.0058**	**0.0051**	0.0027	0.0032	0.0023	-0.0114	**-0.0090**	**-0.0095**
	(0.23)	(0.47)	(-0.11)	(0.11)	(2.39)	(1.95)	(0.08)	(1.29)	(0.9)	(-0.27)	(-3.3)	(-3.39)
	[0.05]			[0.2]			[0.12]			[-0.3]		
4 equally in all funds with negative new flow	-0.0009	-0.0007	-0.0017	0.0023	0.0032	0.0024	0.0009	0.0019	0.0011	-0.0037	-0.0015	-0.0020
	(-0.33)	(-0.56)	(-1.18)	(-0.18)	(1.49)	(1.05)	(-0.1)	(1.15)	(0.64)	(0.25)	(-0.62)	(-0.73)
	[-0.08]			[0.11]			[0.05]			[-0.11]		
5 all funds with positive new flow and weighted by AUM	-0.0002	-0.0003	-0.0013	0.0042	**0.0053**	0.0047	0.0252	0.0242	0.0229	-0.0125	**-0.0104**	**-0.0109**
	(-0.01)	(-0.15)	(-0.64)	(0.02)	(2.11)	(1.67)	(0.11)	(0.95)	(0.9)	(-0.25)	(-3.21)	(-3.15)
	[-0.01]			[0.17]			[0.12]			[-0.33]		
6 all funds with negative new flow and weighted by AUM	-0.0003	-0.0002	-0.0011	0.0050	**0.0066**	**0.0060**	0.0014	0.0025	0.0017	-0.0034	-0.0014	-0.0019
	(-0.02)	(-0.12)	(-0.55)	(0.05)	(2.26)	(1.88)	(-0.03)	(0.93)	(0.66)	(0.25)	(-0.52)	(-0.68)
	[-0.02]			[0.16]			[0.05]			[-0.1]		
7 equally in all funds with above median new flow	0.0005	0.0007	-0.0002	0.0061	**0.0073**	**0.0066**	0.0032	0.0037	0.0028	-0.0118	**-0.0092**	**-0.0097**
	(0.26)	(0.46)	(-0.12)	(0.28)	(2.83)	(2.49)	(0.11)	(1.34)	(0.99)	(-0.29)	(-3.38)	(-3.41)
	[0.04]			[0.23]			[0.14]			[-0.3]		
8 equally in all funds with below median new flow	-0.0008	-0.0006	-0.0015	0.0015	0.0023	0.0015	0.0006	0.0015	0.0008	-0.0050	-0.0026	-0.0031
	(-0.25)	(-0.46)	(-1.11)	(-0.28)	(1.14)	(0.67)	(-0.13)	(0.95)	(0.45)	(0.3)	(-1.2)	(-1.3)
	[-0.07]			[0.08]			[0.03]			[-0.14]		

Table 3. Performance of trading strategies for different types of investors. In the columns 2 to 4, the results are based on fund purchased by investors in general. In the second column there is the monthly average excess return against the market index, the third column is risk adjusted return using Ibovespa as market risk and the fourth column is the risk adjusted return using IBX as market risk. The following columns the same results are shown to funds purchased by qualified investors, exclusive investors and fund of funds. Below the coefficients there are the t-statistics. Bold number is significant at 5%.

The table 3, shows a more realistic analysis of the SME, besides it is split in three types of investors. The excess return is not significant different than zero in any type of investor but the risk adjusted return is positive and significant for qualified investors in strategies based on positive net flow and above median net flow. The results supports SME for qualified investors but not for ordinary investors neither most of the exclusive funds. In the best case, strategy 7, the risk adjusted return is 8.76% per annum.

Again as a surprise, the funds purchased by fund of funds, which are supposed to be highly trained investors with a lot of resources to look for good funds, are significant and negative. Several explanations could be arranged, one is that they are more concerned with the asset allocation and risk level of their portfolio. Another is that, in general, they receive higher fee with the fund that they invest.

A further investigation is done with fund managed only by independent managers IM). The performance measure is still not significant and similar to whole sample.

	No. Of Months	GT Measure	GT Measure %p.a.	t-Test Statistic	Wilcoxon Proba.
Investors in general	71	0.0176%	0.211%	1.0	0.38
Qualified investor	71	0.0082%	0.099%	0.8	0.14
Exclusive	71	-0.0036%	-0.04% -	0.2	0.82

Table 4. Performance measure for all type of investors and managers. Source: Quantum fundos.

The results of the trading strategies presented at table 5, also have a performance similar to the whole sample. Again only qualified investors show significant and positive results.

Portfolios Independent Managers Funds only	Investors in general			Qualified investor			Exclusive		
Strategy	Excess Return	Alpha1	Alpha2	Excess Return	Alpha1	Alpha2	Excess Return	Alpha1	Alpha2
1 equally distributed	0.0005	0.0005	0.0002	0.0037	0.0042	0.0042	0.0007	0.0035	0.0010
	nd	(0.62)	(0.1)	nd	(1.88)	(1.49)	nd	(0.87)	(0.45)
	[-0.07]			[0.06]			[0.05]		
2 all funds and weighted by AUM	0.0004	0.0005	-0.0004	0.0026	0.0042	0.0036	0.0022	0.0035	0.0028
	(0.09)	(0.23)	(-0.2)	(-0.08)	(1.74)	(1.32)	(0.09)	(1.6)	(1.2)
	[0.02]			[0.09]			[0.09]		
3 equally in all funds with positive new flow	0.0018	0.0022	0.0013	0.0032	0.0043	0.0036	0.0002	0.0010	0.0004
	(0.24)	(1.13)	(0.66)	(-0.04)	(1.6)	(1.2)	(-0.03)	(0.48)	(0.14)
	[0.1]			[0.13]			[0.01]		
4 equally in all funds with negative new flow	-0.0015	-0.0010	-0.0018	0.0033	0.0047	0.0041	0.0012	0.0024	0.0018
	(-0.08)	(-0.53)	(-0.9)	(-0.04)	(1.72)	(1.39)	(0.04)	(1.21)	(0.8)
	[-0.09]			[0.12]			[0.05]		
5 all funds with positive new flow and weighted by AUM	0.0005	0.0008	-0.0001	0.0052	**0.0064**	0.0058	-0.0025	-0.0018	-0.0026
	(0.08)	(0.33)	(-0.02)	(0.09)	(2.19)	(1.8)	(-0.11)	(-0.47)	(-0.66)
	[0.02]			[0.18]			[-0.08]		
6 all funds with negative new flow and weighted by AUM	0.0023	0.0029	0.0021	0.0060	**0.0082**	**0.0078**	0.0030	0.0048	0.0042
	(0.18)	(1.2)	(0.81)	(0.08)	(2.45)	(2.15)	(0.09)	(1.5)	(1.26)
	[0.11]			[0.15]			[0.09]		
7 equally in all funds with above median new flow	0.0022	0.0027	0.0019	0.0057	**0.0068**	**0.0061**	0.0005	0.0014	0.0008
	(0.27)	(1.35)	(0.88)	(0.21)	(2.17)	(1.86)	(-0.01)	(0.66)	(0.29)
	[0.13]			[0.19]			[0.03]		
8 equally in all funds with below median new flow	-0.0011	-0.0006	-0.0015	0.0016	0.0029	0.0023	0.0010	0.0022	0.0015
	(-0.05)	(-0.36)	(-0.79)	(-0.21)	(1.17)	(0.81)	(0.03)	(1.08)	(0.67)
	[-0.07]			[0.06]			[0.05]		

Table 5. Performance of trading strategies for different types of investors with fund manages by independent managers only. In the columns 2 to 4, the results are based on fund purchased by investors in general. In the second column there is the monthly average excess return against the market index, the third column is risk adjusted return using Ibovespa as market risk and the fourth column is the risk adjusted return using IBX as market risk. The following columns the same results are shown to funds purchased by qualified investors, exclusive investors and fund of funds. Below the coefficients there are the t-statistics. Bold numbers are significant at 5%.

In table 6, the investigation is done with fund managed by commercial banks, which are the fund managers in Brazil. The GT performance measure is positive in all cases although not significant.

	No. Of Months	GT Measure	GT Measure %p.a.	t-Test Statistic	Wilcoxon Proba.
Investors in general	71	0.0068%	0.081%	1.4	0.38
Qualified investor	71	0.0094%	0.113%	1.6	0.14
Exclusive	71	0.0024%	0.03%	0.1	0.82

Table 6. Performance measure for all type of investors and managers. Source: Quantum fundos.

The results of the trading strategies presented at table 7, also have a performance similar to the whole sample. Again only qualified investors show significant and positive results, but strategy 2 is no longer significant.

Portfolios - only CB funds	Investors in general			Qualified investor			Exclusive		
Strategy	Excess Return	Alpha1	Alpha2	Excess Return	Alpha1	Alpha2	Excess Return	Alpha1	Alpha2
1 equally distributed	-0.0007	-0.0009	-0.0013	0.0030	**0.0032**	0.0033	0.0007	0.0034	0.0008
	nd	(-0.3)	(-0.9)	nd	(2.04)	(1.53)	nd	(0.88)	(0.42)
	[-0.13]			[0.06]			[-0.02]		
2 all funds and weighted by AUM	-0.0010	-0.0009	-0.0018	0.0019	0.0032	0.0025	0.0024	0.0034	0.0026
	(-0.06)	(-0.58)	(-1.16)	(-0.11)	(1.46)	(1.02)	(0.18)	(1.89)	(1.4)
	[-0.08]			[0.08]			[0.13]		
3 equally in all funds with positive new flow	0.0003	0.0006	-0.0003	0.0035	**0.0045**	0.0038	0.0010	0.0017	0.0009
	(0.23)	(0.38)	(-0.2)	(0.06)	(1.94)	(1.52)	(0.05)	(0.79)	(0.4)
	[0.02]			[0.15]			[0.05]		
4 equally in all funds with negative new flow	-0.0020	-0.0018	-0.0027	0.0021	0.0031	0.0024	0.0002	0.0013	0.0005
	(-0.39)	(-1.3)	(-1.85)	(-0.11)	(1.61)	(1.11)	(-0.05)	(0.74)	(0.3)
	[-0.17]			[0.11]			[0.01]		
5 all funds with positive new flow and weighted by AUM	-0.0007	-0.0007	-0.0016	0.0040	**0.0051**	0.0045	0.0217	0.0208	0.0196
	(0)	(-0.35)	(-0.84)	(0.07)	(1.99)	(1.57)	(0.11)	(0.87)	(0.82)
	[-0.05]			[0.16]			[0.11]		
6 all funds with negative new flow and weighted by AUM	-0.0002	0.0001	-0.0008	0.0043	**0.0061**	**0.0056**	0.0013	0.0026	0.0018
	(0.04)	(0.03)	(-0.38)	(0.06)	(2.26)	(1.88)	(0.02)	(0.77)	(0.56)
	[-0.01]			[0.14]			[0.04]		
7 equally in all funds with above median new flow	0.0001	0.0004	-0.0004	0.0048	**0.0061**	**0.0053**	0.0018	0.0024	0.0016
	(0.23)	(0.3)	(-0.27)	(0.24)	(2.47)	(2.11)	(0.11)	(1.11)	(0.68)
	[0.01]			[0.19]			[0.09]		
8 equally in all funds with below median new flow	-0.0016	-0.0013	-0.0022	0.0011	0.0020	0.0013	-0.0005	0.0007	-0.0001
	(-0.24)	(-0.92)	(-1.54)	(-0.25)	(1.08)	(0.6)	(-0.11)	(0.33)	(-0.03)
	[-0.13]			[0.06]			[-0.02]		

Table 7. Performance of trading strategies for different types of investors with fund managed by commercial banks. In the columns 2 to 4, the results are based on fund purchased by investors in general. In the second column there is the monthly average excess return against the market index, the third column is risk adjusted return using Ibovespa as market risk and the fourth column is the risk adjusted return using IBX as market risk. The following columns the same results are shown to funds purchased by qualified investors, exclusive investors and fund of funds. Below the coefficients there are the t-statistics. Bold numbers are significant at 5%.

In any case the performance analysis based on GT measure is not significant in any case, but the trading strategies suggested by Zheng (1999), does lead to some significant results. The SME effect is present in Brazil, in funds aimed at qualified investors. Surprisingly funds purchased by specialized investors like fund of funds show a negative and significant performance.

5. Conclusion

This article shows evidence of the Smart Money Effect in Brazil. The evidence is located only in funds for qualified investors which are certainly more sophisticated than ordinary investors, which confirm the result in Niebling et alli. (2010) and even Zheng (1999).

Surprisingly, if one follows the fund investments of the fund of funds, its risk adjusted performance would be negative and significant. Several reasons for this are suggested in the text but not investigated.

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[i] The largest vendor of mutual fund data in Brazil, see www.quantumfundos.com.br.