THE CONDITIONAL PERFORMANCE EVALUATION OF THE COLOMBIAN COLLECTIVE PORTFOLIOS

PAULA MARCELA PARDO ROSERO[1]

Trabajo de investigación 012/009

Máster en Banca y finanzas Cuantitativas

Directed by,

MIGUEL ANGEL MARTINEZ SEDANO[2]

Universidad Complutense de Madrid

Universidad de Castilla-La Mancha

Universidad Complutense de Madrid

Universidad del País Vasco

Universidad de Valencia

Bilbao, Spain. July 6th 2012

www.finanzascuantitativas.es

[1] Universidad Complutense de Madrid. Máster en Banca y Finanzas Cuantitativas candidate. I would like to thank Dr. Miguel Angel Martinez Sedano for direction this thesis and Sergio Benitez -Superintendencia Financiera de Colombia, Market Risk Supervisor- for the information provided. Any possible errors contained in this paper are exclusively my responsibility.

[2] Universidad del País Vasco.

THE CONDITIONAL PERFORMANCE EVALUATION OF THE COLOMBIAN COLLECTIVE PORTFOLIOS

Paula Pardo Rosero and Miguel A. Martínez Sedano.

July 6th, 2012

Abstract

This study aims to evaluate the performance of the mutual funds in Colombia. We apply the unconditional versus the conditional evaluation methodology in order to assess the relevance of the public information in the delegated portfolio management in Colombia. As a conclusion we found that with both methodologies we obtain similar results, highlighting that the conditional methodology has better results since May of 2009 until July of 2010, but to similar to the rest of the sample.

Introduction

The performance evaluation of mutual funds is an important issue to study, because of the global volume managed by this financial vehicle. In August of 2011, 28.5 trillion USD where invested in 181.988 mutual funds subscribed in the entire world. 51% of the global amount invested was in the US Market, 33% in Europe and 6% in Latin America. In September 2011, near 45% of the global GDP[3] where invested in mutual funds, in Colombia were found 193 mutual funds and the volume invested represents 7.8% of its GDP[4]. This topic has motivated questions about the way that this performance should be measured.

[3] Source: World Bank.
[4] Sources: Banco de la República de Colombia, Superintendencia Financiera de Colombia.

The Capital Asset Pricing Model (CAPM) Theory is the base for the unconditional performance measure introduced by Jensen (1968) called $Jensen - \alpha$, obtained as the excess fund returns once the market risk is considered, Assuming that the market beta is constant, this approach allows to identify if the portfolio has higher or lower returns than the market. Under this methodology, the alphas obtained are negative more often than positive, traduced in negative or poorly performance: shown by (among others) Ferson and Schadt (1996) and Coggings (2009) in the US mutual funds, and Ferruz, Vargas and Nievas (2008) for the Spanish mutual funds. However, this methodology has been hardly questioned because the assumption of constant risk parameters over the entire evaluation period; the changing market conditions make this assumptions very disapproving.

Otherwise, Ferson and Schadt (1996) realized that gains on investment given by an optimal market forecast based on public information it's not a result of a superior performance by the manager. Studies has shown that returns and risk over shares and bonds can be predicted by interest rates, dividend yields and some other variables (e.g: Fama and French, 1989; Silva, Cortez and Armada, 2003), these findings led to important on asset pricing models and on performance evaluation measures. As this information is public, investors and managers can use it to forecaste their returns. As a result, the performance measure should incorporate this time variation. Ferson and Schadt (1996) propose a model where the beta is a linear function of monthly public information with a one period lag; these variables are those which has predictive power of the future stocks returns. They conclude that under the conditional performance measure the managers have better performance that under the unconditional equivalent. These results can be also found in Coggings (2009) for the US mutual funds, and Ferruz, Vargas y Nievas (2008) for the Spanish case and Armada and Céu (2006) for the Portuguese.

The main contribution of this paper is to bring this conditional methodology to a country where the market is still very young. Colombia has the fourth largest GDP in Latin-American according to the International Monetary Fund (IFM) and its estimations

to 2011. The shares that quoted in the Colombian Stock Market (BVC - Bolsa de Valores de Colombia) in 2008 were 78, in 2012 quotes 87 shares. The largest traded volume in the Colombian financial market is the fixed income; in 2009 the 80% was traded in public debt and only the 2.01% as invested in national stocks as we can see in Graphic 1, this change in 2011, where the equity market traded volume growth to 12.74% and the public debt falls to 65%. By the other hand, the Colombian fund market is in a growth stage, as we can see in Table 1, this behavior is constant over the last years and should be explained by high performance portfolio management, but as we will conclude, the performance is high for the first half of the period, being even higher under the conditional measure, for the second half we obtain very low performance, in some periods negative, finding very similar the results under both methodologies.

This paper is presented as follows: Section 2 describes the data context and the sample used. Section 3 describes the methodology used. Section 4 presents the results for the predictability power of the macroeconomic variables used, and then the results for each methodology used to measure the performance. Finally, Section 5 resumes the main results and presents some conclusions.

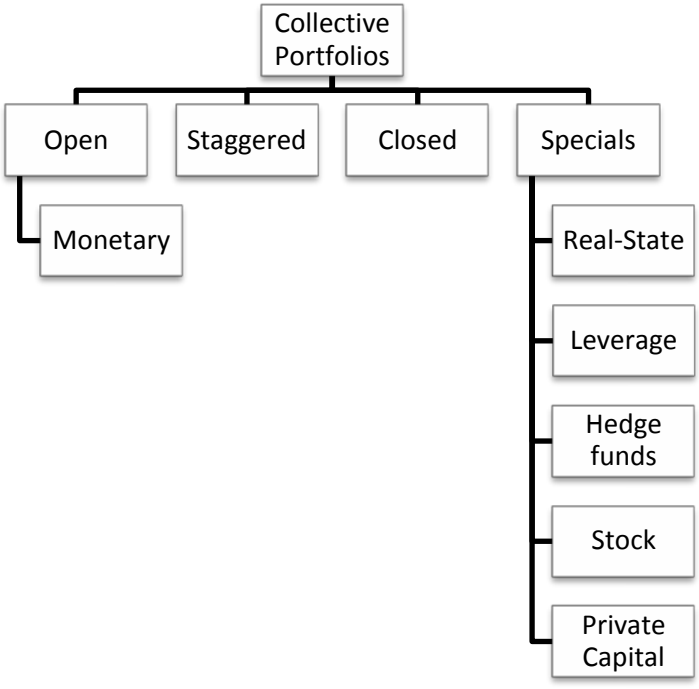
2. Data

2.1 Collective Portfolios in Colombia

The investors find attractive to invest their capital in a fund before investing directly in the market because of its advantages such as the lower transaction costs, the possibility that the investor has in choosing his risk profile, and the opportunity to be advised by a professional fund manager that has prevailing information, the technological tools and skills to access the market. The portfolio is well diversified and it also has advantages in financial and income taxes. The investor can withdraw his money at anytime, so the funds warrantee liquidity independent of the market situation.

In the Colombian case, the funds are known as *collective portfolios*[5] and they are supervised and monitored by the Superintendencia Financiera de Colombia[6]. The collective portfolios can only make investments in financial instruments that are subscribed in the national register of securities and issuers (RNVE – Registro Nacional de Valores y Emisores), securities issued by foreign firms and subscribed in known stock markets, bonds issued by any corporate creditor, foreign governments or public entities, shares in foreign funds and in other national collective portfolios, currencies (limited by the exchange regime), real-state, derivatives (limited) and saving accounts. The participants must be pertinent informed about their investment through public media such as the fund prospect, extracts, the web, semiannual reports and business advisors.

There are different types of collective portfolios which we resume in the following chart.



[5] This information can be found in the decree 2175/2007.
[6] Colombian Financial Supervisor

The open collective portfolios are those with a conservative/moderate risk profile, invest in fixed income and equity financial instruments, it demands a permanence up to 180 days, its units are shares and can be redeemed at any time.

The open - monetary portfolios have the same risk profile but invest only in high qualify fixed income financial instruments such as sovereignty debt. Like the open collective portfolios, its units are shares and can be redeemed also at any time. The maximum weighted average term to maturity of the assets in the portfolio must be lower than 365 days.

The staggered collective portfolios have a dynamic risk profile. Invest in fixed income, equity, factoring and real-state. Its units are nominative and can be redeemed in particular moments determined in the settlement contract.

The closed collective portfolios have a long term investor with a moderate risk profile as before, invest in fixed income, equity, factoring and property and can only be redeemed at the end of the portfolio collective life. The investor can gain periodic dividends.

The real-state special collective portfolios invest at least the 60% in Colombian or foreign real-state. It is allowed to invest in mortgage or real-state securitization or assets alike.

The leverage collective portfolios are defined for dynamic and high risk profile investors. Because of the elevated leverage, it is required for the investors to have wide financial market knowledge. This investment vehicle is susceptible of losing the entire capital invested; in addition it is necessary to keep available resources in order to maintain the required warrantee capital, e.g. maintain a position in derivatives required a percentage of the nominal value per contract in the clearinghouse at the settlement of the contract and later when the position value decrease.

The hedge or speculative funds are like the leverage collective portfolios where the investor can lose the entire capital invested due to the exposure to the market, credit and liquidity risk. The minimal capital invested per participant must be 55.260 USD[7].

The stock exchange especial collective portfolio, invests in assets that composed an index. The investors are not allowed to redeem their shares in money. It exist equivalence between the number of shares and an integer quantity of the assets in the portfolio.

The private capital funds are closed collective portfolios where two-thirds of the capital is invested in assets not subscribed to the RNVE. The minimal amount of capital necessary to establish shares in this kind of funds is 165.800 USD[8]. The minimal patrimony for a collective portfolio necessary to establish participations is 718.400 USD[9].

At least 10 investors must be participants in the open collective portfolios and bylaw any individual investor cannot hold more of the 10% of the portfolio patrimony. For the closed collective portfolios and the private capital portfolios are necessary two investors and there is no limit of participation per investor. The collective portfolios can only be managed by trust companies, brokerage firms and investment management companies.

In the Graphic 2 we can see that the percentage of the total value managed by the trust companies is much higher than the others, and in Graphic 3 the percentage of the total volume managed by collective portfolios is 85% fixed income, and only the 6% is invested in equity based portfolios. In the Graphic 4[10], we can see how the value of the

[7] This was calculated with the exchange rate COP/USD for December 31th2011. In Colombian pesos this must be 200 times the current legal minimum wage (CLMW)

[8] This amount is calculated with the exchange rate COP/USD for December 31th 2011. In Colombian pesos this must be 600 times the CLMW

[9] This amount is calculated with the exchange rate COP/USD for December 31th 2011. In Colombian pesos this must be 2.600 times the CLMW

[10] The investors of the Trust Companies Collective Portfolios are not included in this graphic because this information is not provided by Superintendencia Financiera de Colombia.

equity portfolios and the number of investors in equity based portfolios managed by brokerage firms and investment management companies have behave during the evaluation period, finding that during 2010, in both subscribed investors and portfolios value the growth was very pronounced, having the highest moment in November 2010 and decreasing since then, if we compare this evolution with the IGBC Index it is easy to find the similarity in both growth and recession periods.

2.2 Sample

In this document we focus on investigate the conditional and non conditional evaluation performance using eight Colombian equity collective portfolios, from May 13th 2008[11], to December 31th 2011, for a total of 889 daily observations[12]; two of these portfolios are managed by trust companies, and the rest of them by brokerage firms and investment management companies. This information was taken from the Colombian financial supervision, Superintendencia Financiera de Colombia, where is possible to find for each fund data about: the participation value, the portfolio value, the daily (or 30 and 180 days) returns, the number of subscribers[13], and the amount of shares. The portfolios where chosen according to the type of investment described in each prospect and analyzing each market beta of the CAPM model. We only took the portfolios with high betas and strong R^2 traduced in grater explanatory power by the market returns.

The Table 2 summarizes the main descriptive statistics of the daily returns of the entire sample. The mean of all portfolios are close to zero and their standard deviation changes among them: the portfolio G doubles the A, this last having the lowest of this group and the rest of the portfolios have this statistic closer to 1. We can see that all the funds have negative skewness, and high kurtosis which is expected in equity portfolios.

[11] The sample starts at May 13th of 2008 because it was not able to find the yield to maturity of the sovereign debt further back.

[12] We found that the portfolios have value unit for the entire year, including the non-trading days, so we took the unit value for the trading days and then we compute the daily returns. The returns do not include fees.

[13] Not available for the portfolios managed by Trust Companies.

The results of the Jarque-Bera test (1987) show that the null hypothesis of normality for the distribution of the excess returns on the risk free rate is rejected.

2.3 Macroeconomic Variables

We use four macroeconomic variables in order to condition the market returns: a liquidity premium (the yield to maturity spread between the 10-year and the two-year Colombian government bond), the net aggregate dividend yield of the IGBC Index, the book-to-market ratio of the same index, and the COP/USD exchange rate. The risk-free rate is approximated by the two-year public bond debt, and the market portfolio returns are those of the liquidity-weighted index IGBC. These variables are the most commonly used for this analysis in other countries and we also believe that determine the local market.

In the Table 3 we show the descriptive statistics for these variables, we can see that the exchange rate presents the higher standard deviation, followed by the excess market returns with 1.275% and the liquidity premium has the lowest with 0.002. This difference among variables volatilities is an important issue to stand out because this will have consequences on the significance test of the variables. The correlation matrix shows that the variables don't present high lineal relation among them. The highest correlation is between the dividend yield and the exchange rate with 0.697, followed by the book-to-market and liquidity premium with 0.672. It is important to analyze these aspect, in order to avoid multicollinearity among the explainable variables, just seen this linear relation will gave us an idea of the pairs of variables that won't have a good outcome like the two mentioned above, that later we will study and eliminate for the final variable set to condition the market returns.

3. Methodology

3.1 Unconditional Methodology. $Jensen - \alpha$

The unconditional methodology known as *Jensen*$-\alpha$ developed by Jensen (1968) is based in the Capital Asset Pricing Model (CAPM) Theory and is the most used portfolios performance measure. It finds the risk market adjust returns of a portfolio, and is the intercept (α_p^J) of the following expression[14]

$$R_p - r_f = \alpha_p^J + \beta_p\left(R_m - r_f\right) + \varepsilon_p \qquad (1)$$

Where

α_p^J : the excess return of portfolio *p,*

$R_p - r_f$: Excess portfolio returns of the risk free asset,

$R_m - r_f$: Excess market returns of the risk free asset,

β_p : The systematic risk of the portfolio,

And ε_p is the error term with $E\left(\varepsilon_p\right) = 0,\ \mathrm{cov}\left(\varepsilon_p, R_m\right) = 0,\ \mathrm{cov}\left(\varepsilon_p, \varepsilon_q\right) = 0$

If we obtain a statistically significant positive alpha indicates a good performance traduced in superior management in relation to the market, if we obtain the contrary, it would indicate poorly performance and inferior portfolio management.

The Jensen α is computed as an arithmetic mean of the difference between the market return and the portfolio return with the beta risk composed by the free risk asset and

[14] For further regressions, we use the Ordinary Least Squares methodology and we compute the Newey-West (1987) variance.

the market portfolio with beta as the proportion of invested amount in the market portfolio

$$\hat{\alpha}_p = \bar{R}_p - \bar{r}_f - \hat{\beta}_p\left(\bar{R}_m - \bar{r}_f\right) = \bar{R}_p - \left[\hat{\beta}_p \bar{R}_m + \left(1 - \hat{\beta}_p\right)\bar{r}_f\right]$$

As all the same beta portfolios must have the same expected return, the expected value alpha of any portfolio passively managed and which returns are computed before transaction costs, fees and taxes should be *zero.* This way, if the manager makes an active management portfolio obtains a positive *alpha*, so we are able to say that has superior performance as a result of the management and interpretation information with higher quality.

We will estimate the equation (1) obtaining one α_p^J, for each portfolio *p = A, B,, …H,* for the entire period evaluated. Parallel we will estimate the same equation under a rolling regression with a bandwidth of 246 observations, obtaining $\alpha_{p,t}^J$ for each portfolio in t. This period consists of one year back information losing the first year (246 observations) of the sample in order to compute the $\alpha_{p,1}^J$ for each portfolio and obtaining a series of this $\left|\alpha_{p,t}^J\right|_{t=1:T}$ where $t = 1, 2, \ldots 644$ days.

3.1 Conditional Methodology – Ferson and Schadt

The main idea behind the conditional performance measure is that the non-conditional measure (Jensen's alpha) does not consider that risk and expected returns vary with the economical cycle. If a managed portfolio risk exposure can be predicted according to the economical cycle, but the manager does not have high forecast capability, the traditional approach will confuse the effect between both, the fund risk and expected return with the higher manager capability of forecasting. Only the managers that use private and public information properly can be considered success managers.

The framework that allows us to make conditional performance evaluation has been propose by Ferson and Schadt (1996) and Crhistopherson, Ferson and Glasman (1998) and is based on the conditional CAPM

$$E\left(R_{p,t+1} - r_{f,t+1}\middle|Z_t\right) = \beta_{p,t}E\left(R_{m,t+1} - r_{f,t+1}\middle|Z_t\right) \quad (2)$$

Where

$R_{p,t+1} - r_{f,t+1}$: Fund returns in excess of the risk-free asset

$R_{m,t+1} - r_{f,t+1}$: Market returns in excess of the risk-free asset

Z_t: Set of macroeconomic variables.

And the fund conditional beta on *t* is

$$\beta_{p,t} = \frac{cov(R_{p,t+1}, R_{m,t+1}|Z_t)}{var\left(R_{m,t+1}\middle|Z_t\right)}$$

The empirical estimation is then,

$$R_{p,t+1} - r_{f,t+1} = \beta_{p,t}\left(R_{m,t+1} - r_{f,t+1}\right) + \varepsilon_{p,t+1} \quad (3)$$

Where

$$E\left(\varepsilon_{p,t+1}\middle|Z_t\right) = 0$$

$$E[\varepsilon_{p,t+1}(R_{m,t+1} - r_{f,t+1})|Z_t] = 0$$

In this conditional context it's needed to understand that shocks on *Z* will make that the fund conditional betas vary with this set of informative variables. Ferson and Schadt

propose that the mutual fund beta in t is a linear function of public information at $t-1$, so

$$\beta_{p,t} = b_{0p} + \mathrm{B}'_{p,m} Z_{t-1} \tag{4}$$

Where

b_{0p}: Average beta of mutual fund p, equivalent to the traditional CAPM beta.

$\mathrm{B}'_{p,m}$: Measure the sensitivity of beta to the vector of public information variables, so we obtain one beta for each macroeconomic variable that represent the effect on the portfolio p returns.

z_{t-1}: The difference between the realization of the macroeconomic variables and their unconditional average, $[Z_{t-1} - E(Z)]$.

Including (4) in (3), we obtain the Ferson and Schadt (1996) model

$$R_{p,t+1} - r_{f,t+1} = \alpha_p^{FS} + b_{0p}\, r_{m,t+1} + \mathrm{B}'_p\left[Z_t (r_{m,t+1} - r_{f,t+1})\right] + \varepsilon_{p,t+1} \tag{5}$$

Where α_p^{FS} is the *conditional alpha,* that will represent the performance achieve by the portfolio p assuming that his manager take into consideration the information available in $t-1$. Under the null hypothesis that active management of mutual fund p does not provide better performance that the market average, $H_0: \alpha_p = 0$, a positive (negative) α_p suggest that active management of fund p achieves performance that is better (worse) that that of the average investor. These parameters are estimated with least squares method, and the significance test will include the Newey-West variance estimator.

To justify the conditional model for our sample, we will compute (4) and see which set of macroeconomic variables explained better the $\beta_{p,t}$ for each portfolio. This will give

us the starting point for the conditioned measure. Then we adapt the Ferson and Schadt (1996) model to the Colombian funds, taking the lag of the set of macroeconomic variables in 22 days, not taking directly the data for this lag, but computing the non conditional average of the last 22 days, rewriting the equation (5):

$$R_{p,t} - r_{f,t} = \alpha_p^{FS} + b_{0p}\, r_{m,t} + \mathrm{B}_p^{'}\left[(r_{m,t} - r_{f,t})E(Z_t)\right] + \varepsilon_{p,t+1} \qquad (6)$$

Where $E(Z_t) = E[Z_{t-1}, Z_{t-2}, \dots Z_{t-22},]$, this way we consider that the managers have the information and can make the changes in the portfolio in order to gain greater returns.

Also, we will estimate (6), obtaining $\alpha_{p,t}^{FS}$ for each portfolio in *t,* under a rolling regression methodology with a bandwidth of 246 observations that represents one year. This way we will obtain a series of $\left|\alpha_{p,t}^{FS}\right|_{t=1:T}$ with $t = 1,2, \dots 622$ days.

We will make a rolling regression with a bandwidth of 246 observations for both the traditional and the conditional performance measure, this way will obtain series of alphas and betas, a set for each date taking a year behind, and will compare the percentage of the positive and negative significant alphas for every portfolio.

4. Results

4.1 Justification of the Conditional Model in to the Colombian Collective Portfolios

In order to find out if this conditional methodology is reasonable and applicable to this sample, we need to obtain for the equation (4) statistically significant betas and high explanation power. We will compute this equation with subsets of the variables described above, liquidity premium, dividend yield, book-to-market and exchange rate. The R^2 resulting for each model is resumed in the Table 4. As is shown, the obtain results are similar with all the variables taken, so we need to consider the statistically significance of this variables for each model, being 1 for a statistically significant variable and 0 a non significant variable, we can see that the model 5 that is composed

by the dividend yield and the book-to-market variables has the best results. This way we set the conditional variables to this pair for further calculations.

4.1 Unconditional Performance Evaluation

Table 5 summarizes the results for the eight portfolios performance valuation for the entire sample under the CAPM traditional model. The betas show how all of them have a tight relation with the market movements, they all move in the same direction as the market does and with a relationship close to one except the portfolio A which moves less than the others. As for the alphas, we reject the null hypothesis $H_o: \alpha_{FS} = 0$ of the individual significant test with a significance level of 5%. In all the cases the global significant test null hypothesis $H_o: \alpha_{FC} = \beta_{MKT} = \beta_{MKT|Z} = 0$ is rejected. This shows us that according to the non-conditional framework, the portfolios have been better than the market in the entire period analyzed.

Table 6 summarizes the rolling regressions results; as is shown, the portfolio G has the better performance since 85.09% of the alphas are significantly positive and only 5.28% are negative. Portfolios C and H have less that 50% of their alphas significantly positive and 36% and 46% negative. If we take the last regression of the rolling that correspond to the 2011 performance measure, once again, we obtain all negative alphas except again the portfolio G. The results show that this fund has the better performance according to this methodology during the 2011 a year where the markets global crisis.

4.2 Conditional Performance Evaluation

Table 7 shows the results for the conditional methodology. We obtain like before, all significant positive alphas and betas. Only three of the portfolios have a better performance under this methodology compare to the traditional measure, but in all the cases we obtain better explanatoriness.

Looking into the rolling regression results summarized in Table 8, we obtain for six portfolios less negative alphas, only the portfolios A and G have more negative alphas compare to the unconditional performance measure. As for the positive, only two portfolios C and E improve their performance under this methodology. Again taking the last rolling regression that measures the performance during 2011, four of the seven significant alphas are less negative that the unconditional equivalent, this should be the expected result for all the portfolios, but as an example, the portfolio G that has a superior performance during 2011 under both methodologies, under the unconditional has better results.

Finally we compute the cross sectional mean of the resulting alphas. This way we obtain a series of alphas under both methodologies. The Graphic 5 shows their evolution during the evaluated period, both series behave almost identically. The portfolios had a better performance during the last months of 2009 and the first half of 2010 when the IGBC Index has a bullish tendency, and then during 2011 their performance have been worse coinciding with the more volatile IGBC Index segment. Under the conditional model, during the bullish market tendency, the performance is higher than the unconditional measure, but when the portfolio performance is inferior, at some periods the conditional performance is more negative that the unconditional.

If we test the difference between the cross sectional mean under the Jensen (1968) approach and under the Ferson and Schadt (1996), we don't reject the null hypothesis $H_0: \bar{\hat{\alpha}}_{jensen} = \bar{\hat{\alpha}}_{FS}$ with a significance level $\alpha = 0.05$, so this series have statistically the same mean.

5. CONCLUSIONS

We analyze the performance of the Colombian collective portfolios under the unconditional and conditional methodology. To condition the market, we use the variables that explained better the CAPM beta of the portfolios (dividend yield and book-to-market) and have better explanatory power. It was used the conditional model

taking the mean of the conditional information with a lag of 22 days, and then we obtain two results under each approach, a full sample regression and a rolling regression. Finally we compute a cross sectional mean for each methodology and obtain two series of measures.

After this study we conclude that we have better explanatoriness under the conditional methodology for this sample, so this methodology should be used instead of the traditional unconditional model based on the CAPM model. Also we conclude that the Colombian funds do not improve strongly their performance results under this approach, only a slight improvement is observed in some portfolios during some stages in the period evaluated. Anyway, it can be said that the Colombian managers have better performance in bulling than in volatile scenarios, being the conditional measure more positive in bulling stages than the traditional and more negative in the bearish stages. The similarity found in this study under both methods could be a reason for further investigation on this topic in the Colombian case.

It is important to stand out the lack of information provided by the Superintendencia Financiera de Colombia about this investment vehicle under the scope for this paper, also, to note the lack of studies made about topic for the Colombian case, which is becoming more interesting and is acquiring mayor important in invested volume terms.

REFERENCES

Armada, P. and M. Cortez, 2006, Conditional Performance Evaluation: Evidence for the Portuguese Mutual Fund Market. *International Journal of Business,* 14(3), 175-198.

Coggings F., 2009. Mutual Fund Daily Conditional Performance. *The Journal of Financial Research*. Vol. XXXII, No.2, 95-122.

Fama E, and French, K (1989), Business Conditions and Expected Returns on Stocks and Bonds, *Journal of Finance, 25 (2) 383-417.*

Ferson, W. and R. Schadt June 1996. Measuring Fund Strategy and Performance in Changing Economic Conditions. *The Journal Finance* 51, 425-462.

Ferruz, L., M. Vargas, and F. Muñoz, 2008. Used of Privated Information by the Spanish Managers of Investment Funds. *Panorama Socioeconómico* Año 26, N° 36, 76-85.

Ferruz, L., M. Vargas, and J. Nievas, 2008. ¿Utilizan los Gestores Españoles de Fondos de Inversión Información Privada en sus Labores de Gestión? *Estudios de Economía aplicada,* Vol. 26, Núm. 3. 1-21.

Jensen, M. 1968. The Performance of Mutual Funds in the Period 1945-1964. *Journal Finance* 23, 389-416.

Marín, J. and G. Rubio, 2001, Economía Financiera. Ed. Antoni Bosch.

Newey, W. K. and K. D. West, 1987, A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix, *Econometrica* 55, 703-808.

Silva, F., M. Cortez and M. Armada, 2003, Conditioning information and European Bond Fund Performance, *European Financial Management* 9(2), 201-230.

TABLES

Table 1. Funds Patrimony by Management Society

Annual Variation

	2008	2009	2010	2011*
Trust Companies	46.80%	43.80%	6.70%	13.70%
Brokerage Firms	19.30%	23.00%	51.60%	64.60%
Investment Management Companies	48.80%	67.90%	48.30%	54.80%

* Nov. 2010/Nov. 2011

Source: Superintendencia Financiera de Colombia

Table 2. Collective Portfolios

Descriptive Statistics

	A	B	C	D	E	F	G	H
Mean	0.062	0.038	0.034	0.059	0.039	0.047	0.078	0.050
S.D	0.799	1.092	1.266	1.137	1.148	0.988	1.618	1.014
Max	5.045	8.485	8.831	5.539	6.751	5.870	9.900	6.205
Min	-4.813	-7.833	-8.053	-5.075	-7.746	-4.879	-8.336	-5.811
JB Stat	1198.523	2980.475	2012.424	345.948	2024.579	580.135	787.498	1036.590
Skewness	-0.348	-0.375	-0.486	-0.514	-0.663	-0.266	-0.027	-0.358
Kurtosis	8.628	11.937	10.300	5.870	10.254	6.919	7.614	8.231

Source: Superintendencia Financiera de Colombia.

A: Collective Portfolio Seguridad Bolivar, SEGURIDAD COMPAÑIA ADMINISTRADORA DE FONDOS DE INVERSION S.A. B: Open Equity Collective Portfolio Suramericana, ADMINISTRADORA DE CARTERAS COLECTIVAS SURAMERICANA S,A. C: Open Collective Portfolio Índice IGBC (IGBC Index), ASESORES EN VALORES S.A.COMISIONISTAS DE BOLSA, D: Acciones BYR, BOLSA Y RENTA S.A. COMISIONISTA DE BOLSA. E: Acción, CORREDORES ASOCIADOS S.A. COMISIONISTA DE BOLSA, F: Serfinco Acciones, SERFINCO S.A.COMISIONISTA DE BOLSASERFINCO S.A.COMISIONISTA DE BOLSA. G: Open Collective portfolio Acciones Sistema de Valor Agregado, HELM TRUST S.A., H: Open Collective Portfolio Indeacción, FIDUCOLOMBIA.

Table 3. Macroeconomic Variables

Descriptive Statistics

	Market Returns	Liquidity Premium	Dividend Yield	Book to Market	COP/USD
Mean	0.013	0.000	0.000	0.000	0.000
S.D	1.275	0.002	1.017	0.328	199.328
Max	9.160	0.010	2.302	0.596	620.999
Min	-8.716	-0.005	-1.388	-0.677	-322.961
JB Stat	1874.338	165.443	76.787	39.564	248.576
Skewness	-0.343	-0.817	0.339	0.020	1.227
kurtosis	10.080	4.341	1.730	1.967	3.829
Covariance Matrix					
Market Returns	1	0.055	0.057	0.034	0.034
Liquidity Premium	0.055	1	-0.073	0.672	-0.248
Dividend Yield	0.057	-0.073	1	-0.521	0.697
Book to Market	0.034	0.672	-0.521	1	-0.633
COP/USD	0.034	-0.248	0.697	-0.633	1

Source: Bloomberg

Table 4. Possible Models

R-squared and Significance Test

	A	B	C	D	E	F	G	H
Model 1	0.48805	0.78228	0.67841	0.74765	0.06392	0.84598	0.09645	0.49679
DY	0	0	0	0	0	0	0	0
LQP	0	0	0	0	0	0	0	0
Model 2	0.48822	0.79093	0.68307	0.75260	0.06464	0.85045	0.11598	0.49714
DY	0	0	0	0	0	0	0	0
LQP	0	0	0	0	0	0	0	0
COP/USD	0	0	0	0	0	0	0	0
Model 3	0.31980	0.33879	0.33296	0.29976	0.04342	0.45085	0.09264	0.28710
LQP	0	0	0	0	0	0	0	0
BTM	0	0	0	0	0	0	0	0
Model 4	0	0	0	0	0	0	0	0
LQP	0.36482	0.58289	0.40630	0.52880	0.04687	0.62068	0.11603	0.35865
BTM	0	0	0	0	0	0	0	0
COP/USD	0	0	0	0	0	0	0	0
Model 5	0.49123	0.82578	0.65531	0.79848	0.00744	0.84820	0.06239	0.49429
DY	1	1	1	1	1	1	1	1
BTM	1	1	0	1	0	1	0	0
Model 6	0.49169	0.84023	0.65886	0.80849	0.00762	0.85360	0.07834	0.49461
DY	0	0	0	0	0	0	0	0
BTM	0	0	0	0	0	0	0	0
COP/USD	0	0	0	0	0	0	0	0
Model 7	0.48500	0.78507	0.65878	0.75108	0.00725	0.85034	0.07765	0.49406
DY	0	0	0	0	0	1	0	0
TRM	0	0	0	0	0	0	0	0

Significance Test Results: 1 reject the null hypothesis, 0: don't reject the null hypothesis

DY: Dividend Yield, LQP: Liquidity Premium, BTM: Book-to-Market, COP/USD: exchange rate

Table 5. Unconditional Performance Measure Results

Complete sample

	A	B	C	D	E	F	G	H
$\hat{\alpha}_p^J$	0.0345*	0.0078*	0.0013*	0.0277*	0.0080*	0.0172*	0.0444*	0.0196*
$\hat{\beta}_m$	0.5443*	0.7298*	0.9415*	0.8054*	0.8315*	0.7067*	0.9667*	0.7264*
R^2	0.7547	0.7261	0.8983	0.8157	0.8530	0.8317	0.5799	0.8345
GST	1	1	1	1	1	1	1	1

The individual significance test is made with $\alpha = 0.05$. the global significance test GST is made with a significance level $\alpha = 0.05$, $\mathcal{F}_{(\alpha,1,888)}$. 1: reject the null hypothesis.

Table 6. Unconditional Performance Measure Results

Rolling 246 observations bandwidth

	A	B	C	D	E	F	G	H
$\hat{\alpha}_{p,t}^J$*> 0	432	470	297	538	418	465	548	309
%	67.08%	72.98%	46.12%	83.54%	64.91%	72.20%	85.09%	47.98%
$\hat{\alpha}_{p,t}^J$*< 0	159	48	233	80	118	121	34	298
%	24.69%	7.45%	36.18%	12.42%	18.32%	18.79%	5.28%	46.27%
$\hat{\alpha}_{p,2011}^J$	-0.02815*	-0.01034*	-0.00036	-0.03358*	-0.01432*	-0.00843*	0.05177*	-0.01434*

The individual significance test is made with $\alpha = 0.05$. the global significance test GST is made with a significance level $\alpha = 0.05$, $\mathcal{F}_{(\alpha,1,888)}$. 1: reject the null hypothesis.

Table 7. Conditional Performance Measure Results

Complete sample

	A	B	C	D	E	F	G	H
$\hat{\alpha}_p^{FS}$	0.0333*	0.0095*	0.0070*	0.0237*	0.0056*	0.0156*	0.0504*	0.0162*
$\hat{\beta}_m$	0.5550*	0.7878*	0.9421*	0.8520*	0.8375*	0.7403*	0.9493*	0.7473*
$\hat{\beta}_{m\|DY}$	0.00065	0.0063*	-0.0353*	0.0353*	0.0095*	0.0141*	0.0129*	0.0222*
$\hat{\beta}_{m\|BTM}$	0.1094*	0.5981*	0.0689*	0.4021*	0.0245*	0.3144*	-0.1791*	0.1722*
R^2	0.7613*	0.7810*	0.9022*	0.8383*	0.8559*	0.8517*	0.5829*	0.8443*
GST	1	1	1	1	1	1	1	1

The individual significance test is made with $\alpha = 0.05$. the global significance test GST is made with a significance level $\alpha = 0.05$, $\mathcal{F}_{(\alpha,1,888)}$. 1: reject the null hypothesis.

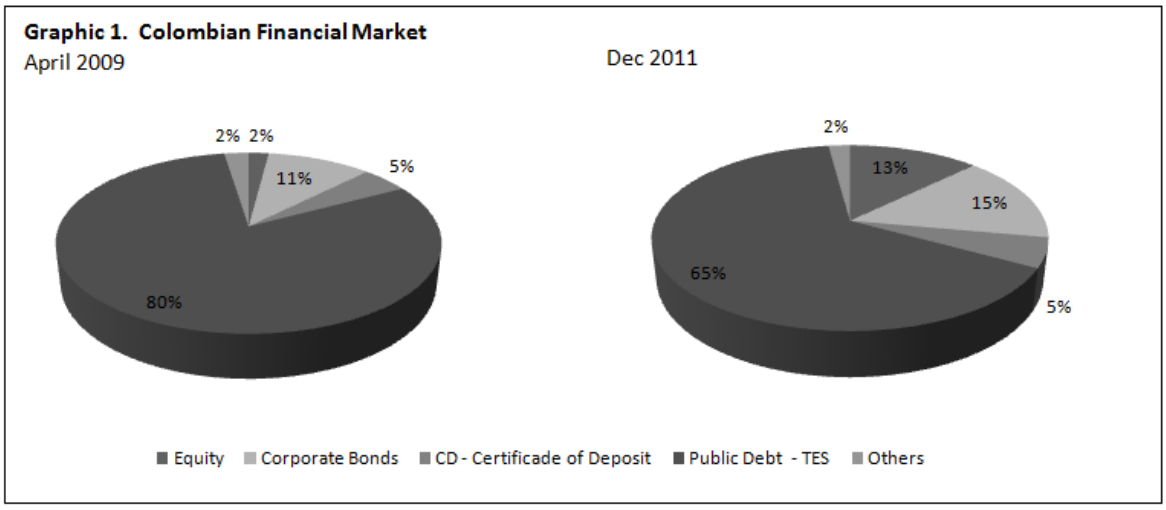
Table 8. Conditional Performance Measure Results

Rolling 264 observations bandwidth

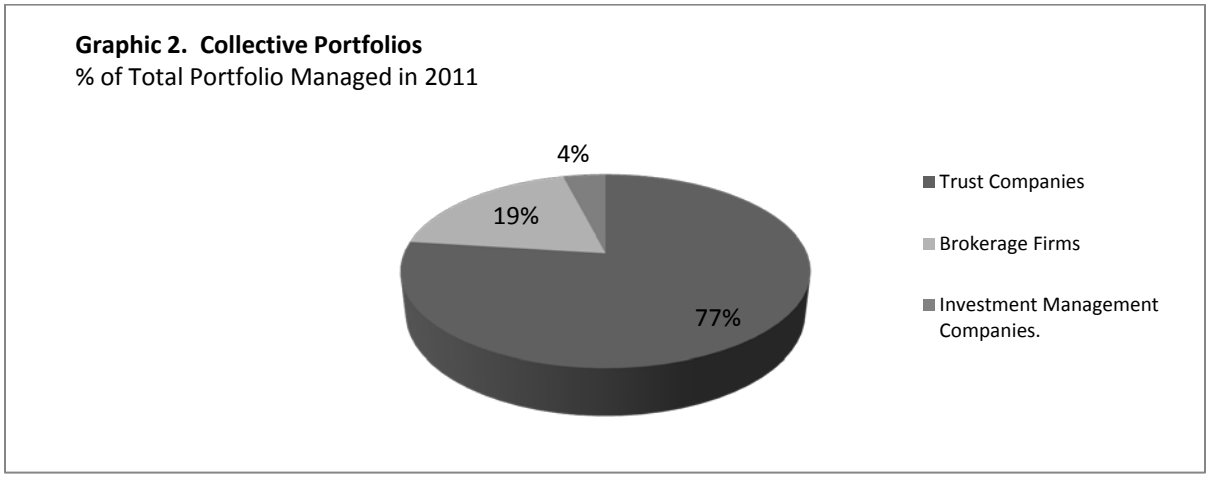
	A	B	C	D	E	F	G	H
$\hat{\alpha}_{p,t}^{FS}$*> 0	383	439	327	489	478	446	410	286
%	61.58%	70.58%	52.57%	78.62%	76.85%	71.70%	65.92%	45.98%
$\hat{\alpha}_{p,t}^{FS}$*< 0	192	37	208	75	59	88	44	267
%	30.87%	5.95%	33.44%	12.06%	9.49%	14.15%	7.07%	42.93%
$\hat{\alpha}_{p,2011}^{FS}$	-0.02435*	-0.01822*	-0.00027	-0.03640*	-0.01189*	-0.00628*	0.04655*	-0.00849*
GST	1	1	1	1	1	1	1	1

The individual significance test is made with $\alpha = 0.05$. the global significance test GST is made with a significance level $\alpha = 0.05$, $\mathcal{F}_{(\alpha,1,888)}$. 1: reject the null hypothesis.

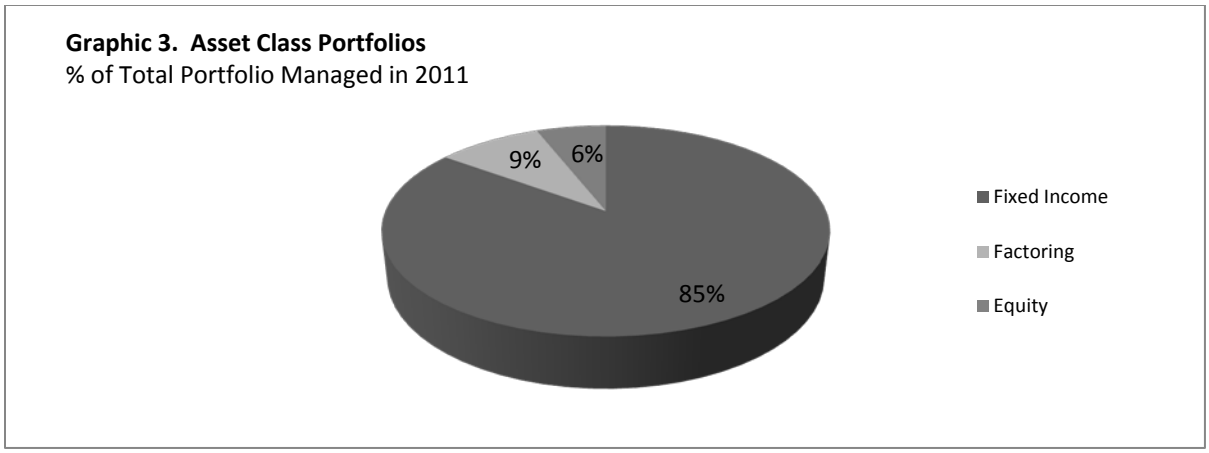
GRAPHICS



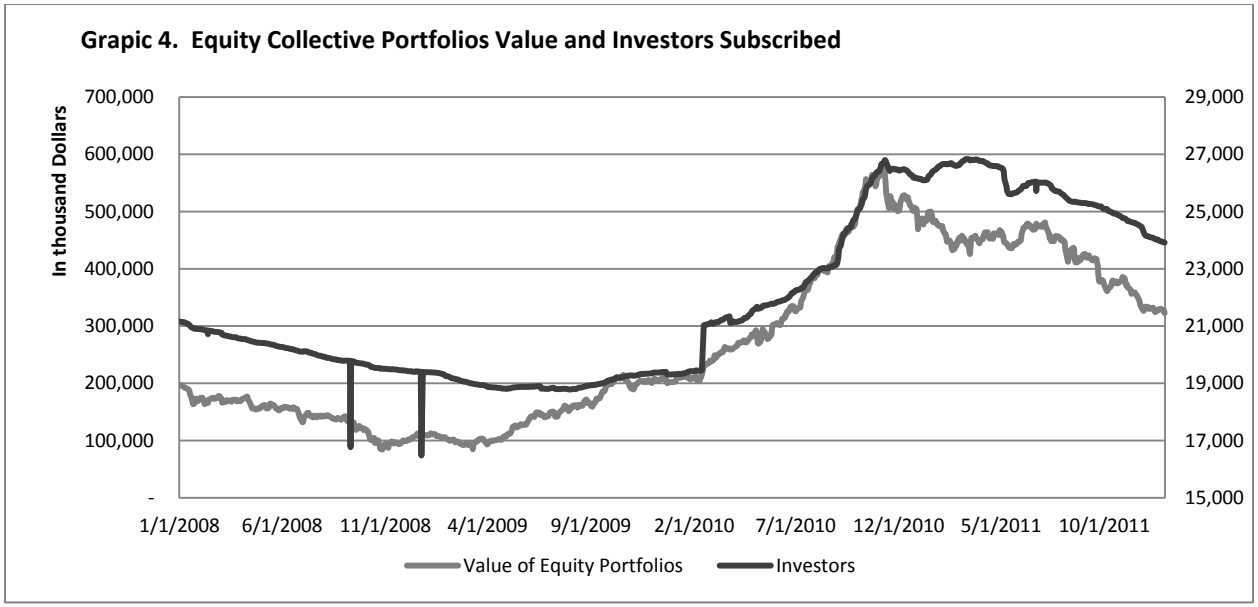
Source: Bolsa de Valores de Colombia – Informes Bursátiles Históricos



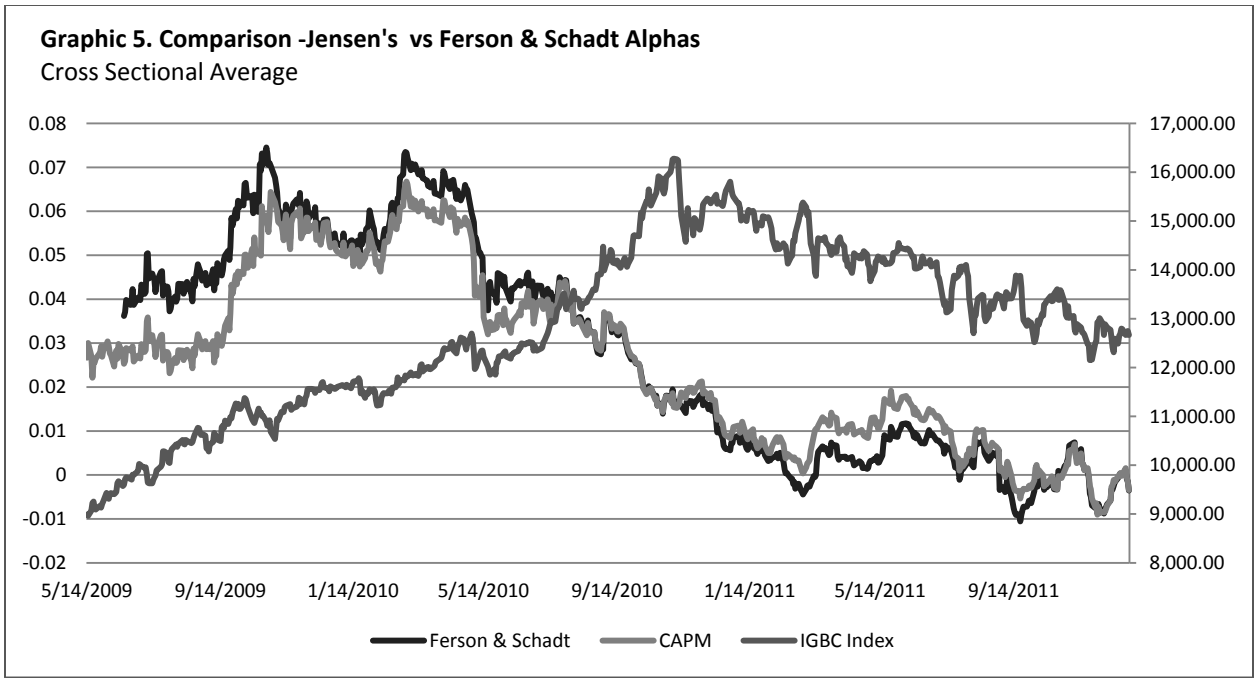
Source: Ultrabursátiles S.A - Educación Financiera Para Todos - AMV.



Source: Ultrabursátiles S.A - Educación Financiera Para Todos - AMV.



Source: Superintendencia Financiera de Colombia.
Investors only available for Brokerage Firms and Investment Management Companies.



The secondary axis corresponds to the IGBC Index level.