Do Investment Funds Audited by the Big Four Firms Exhibit Different Performances? Evidence from Brazil

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Abstract: Investment funds manage a portfolio composed of financial instruments; therefore, their accounting reports should undergo a careful process of preparation and auditing. The main purpose of this study is to analyze the effect of being audited by a Big Four audit company on funds’ risk-adjusted performance. The database is composed of equity funds from the Brazilian financial market, with daily returns spanning from January 2005 to March 2023. The funds’ performance was measured based on three indicators, including the Sharpe Ratio and Jensen’s Alpha. Fama and MacBeth regressions were used to test the hypotheses. The main findings indicate that the benefits of audit quality also include a positive effect on the risk-adjusted performance of investment funds, as the coefficient of the variable “Big Four” was positive and significant based on the proxies for risk-adjusted performance. This study advances this area of research by demonstrating the effects of the type of audit on the risk-adjusted performance indicators of investment funds.

Keywords: risk; accounting information; financial instruments; mutual funds; Jensen’s Alpha; Sharpe index

1. Introduction

One of the resources that contributes to an efficient financial market is the quality of accounting information, since investors use financial statements and accounting indicators to make investment decisions. Together with the quality of accounting information, the quality of auditing is considered. “Large accounting firms offer their audit teams national access to technical accounting consultants, staff in multiple locations, and audit efficiencies resulting from unified nationwide training” (Bills et al. 2016, p. 768). Therefore, variables such as size, institutional environment, access to IT platforms, and participation in international accounting networks can affect audit quality (Bills et al. 2016; Mao et al. 2017), which, in turn, indicates that the quality of auditing also varies among audit firms.

The previous studies suggest that audit quality is an important factor for investment decisions. Shahzad et al. (2018) state that auditors help investors make better decisions by presenting an independent opinion on how well a company’s financial statements represent its financial position. Christensen et al. (2016) surveyed auditors and investors to learn their perspectives on audit quality. Concerning the investors’ responses, about 41% answered that it is always important, or most of the time, one should consider an audit report for investment decisions (Christensen et al. 2016). Therefore, an auditor report can provide assured and reliable information published by listed companies (Felix and Wilford 2023; Chen et al. 2024; Leng and Zhang 2024; Liu et al. 2024), which is related to many decisions made by participants in the financial market (Liu et al. 2024).
Besides audit quality, performance is also among the main aspects considered by investors when choosing a particular investment fund. Therefore, funds with higher past returns tend to attract more investments (Sirri and Tufano 1998; Berk and Green 2004; Ivkovic and Weisbenner 2009). Because of this, in some circumstances, fund managers may use accounting discretion to obtain better return estimations (Chandar and Bricker 2002). For example, funds may have underlying illiquid securities, which, since they are not actively traded and do not have their market prices always available, appear to be more valuable than they actually are, resulting in the funds’ returns not fully reflecting the available market information (Getmansky et al. 2004). In this sense, Goldie et al. (2018) argue that investors’ confidence in the truthfulness of a fund’s performance numbers increases from the instance that fund audits are perceived as high-quality.

Moreover, the portfolios of investment funds are broadly composed of financial instruments, and there are some accounting choices related to the accounting of financial instruments. These accounting choices can affect the quality of accounting information. In the specific case of investment funds, the accounting information is directly related to the number of total net assets and the value of the fund’s shares. Hence, the daily, monthly, or yearly returns of an investment fund could present different levels of quality based on the quality of accounting and the auditing of its operations.

Considering this scenario, the aim of this study is to test the effect of audit quality on investment funds’ accounting numbers. Since accounting numbers directly affect the risk measures and performance indexes, we analyzed the effect of audit quality on the risk-adjusted performance of investment funds. In this study, the audit quality is represented by a variable related to the Big Four audit firms, in line with previous research (Geiger and Rama 2006; Behn et al. 2008; Chou et al. 2014; Leng and Zhang 2024). Therefore, in this study, the Big Four is a dummy variable that receives a value of one for funds audited by Deloitte, EY, KPMG, or PwC. This study’s hypothesis is that investment funds audited by the Big Four auditing firms present better measures of performance and lower levels of risk.

Studies about auditing typically focus on audited firms, not taking into account financial sector institutions, such as investment funds. Even the few studies about the subject that consider some financial institutions usually focus on banking institutions. Therefore, there are research gaps regarding the effects of audit quality on investment funds, and we expect to contribute to this field through this study. In addition, investment funds represent a significant part of the economy, thus being an important object of study (Goldie et al. 2018; Malaquias and Hernandes Júnior 2023).

2. Literature Review

Financial statements represent the main source of information about listed companies. Therefore, in order to be relevant for decision making, financial statements must be, among other factors, reliable. In this sense, Behn et al. (2008) affirm that external auditors may have a key role in firms’ financial reporting reliability since they provide an independent evaluation of the financial statements’ trustworthiness; in other words, an external audit shows whether a firm’s reported information is in accordance with the accounting principles and if it reflects their operation results and cash flows. Moreover, an external audit may work as a corporate governance mechanism that revises and evaluates firms’ internal controls and financial reporting, preventing material misstatements (Carcello et al. 2002; Habbash 2010).

Following this reasoning, there is a discussion about audit effectiveness between the so-called high-quality audits and non-high-quality audits. According to Francis (2004), evaluating audit quality is important because since audit quality is negatively related to audit failures, low-quality audits may lead to higher failure rates with possible material economic consequences. Other studies about audit quality consider different factors that define a high-quality audit, such as audit fees (Lennox 1999; O’Sullivan 2000; Hoitash et al. 2007), industry specialization (O’Keefe et al. 1994; Balsam et al. 2003; Dunn and Mayhew 2004).
and the Big Four audit firms (Geiger and Rama 2006; Behn et al. 2008; Chou et al. 2014; Leng and Zhang 2024). The literature also analyzes the relationship between the audit fees and variables, such as time pressures (Calabrese 2023); hedge fund activism (Chen et al. 2024); and environmental, social, and governmental (ESG) performance (Song et al. 2023). Table 1 indicates some benefits of high-quality audit services based on empirical evidence.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Benefits of High-Quality Audit</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lee and Lee (2013)</td>
<td>Improves value relevance of earnings and book value of equity.</td>
<td>Firms listed on Taiwan Securities and Exchange market with available data.</td>
</tr>
</tbody>
</table>

Source: own elaboration based on studies mentioned in Figure.

Using a sample of 35,665 mutual funds worldwide, of which 20 were from developed markets and 10 were from emerging markets, with investments in various firms from developed markets over the period between 1998 and 2009, Chou et al. (2014) found evidence that mutual funds increase investments in firms which had hired a Big Four auditor in the previous year. In other words, firms audited by the Big Four audit firms obtained more foreign investments. The main reason attributed to this effect is that the Big Four firms are perceived as high-quality auditors and have higher levels of certifications, which are highly valued by foreign investors. In addition to this, Chou et al. (2014) assert that the importance of auditor choice in mutual fund investment decisions has increased since the 2008 global crisis, such that firms audited by the Big Four outperformed the ones audited by non-Big Four during crisis times.

Geiger and Rama (2006) examined 1042 manufacturing firms receiving going concern report modifications and 710 financially distressed firms that filed for bankruptcy during the period between 1990 and 2001. Their aim was to analyze audit firms’ reporting errors, such as ongoing concern-modified audit reports related to firms that did not fail and audit reports without an ongoing concern modification for firms that later went bankrupt. Among the results of the research, the authors found evidence that the Big Four audit firms show lower rates of reporting errors than non-Big Four firms, suggesting higher audit quality from the Big Four firms. According to Geiger and Rama (2006), a possible reason for this may be related to the fact that the Big Four audit firms spend more resources on audit training and technology, which helps them to identify firms that will go bankrupt, thus minimizing reporting errors.

The research conducted by De Franco et al. (2011), using financial statement data and transactional details related to sales of U.S. privately held firms from 1994 to 2005, showed that a high-quality audit impacts sale proceeds. De Franco et al. (2011) found that, for a private seller with a firm value ranging from USD14 to USD18 million, for stock purchases, a decrease in firm value from USD3.9 to USD5.2 million occurs if a Big Four audit firm is not hired. For asset purchases, a private seller with a firm value ranging from USD10 to
USD12 million suffers a decline in value from USD2.6 to USD3.1 million if a Big Four audit firm is not hired. According to De Franco et al. (2011), this happens because buyers believe that Big Four auditors provide high-quality audits, making the due diligence process easier, and also have strong internal controls, qualified accounting personnel, and high-quality advisors, among other qualities.

Similarly, Lee and Lee (2013) studied public companies listed in the Taiwan Securities and Exchange market from 1996 to 2009. Their purpose was to examine the effects of audit quality, proxied by the Big Four audit firms, on the value relevance of financial statements information, specifically earnings and book value of equity. The results presented by Lee and Lee (2013) suggest that accounting measures of earnings and book value of equity are more relevant and better explain variations in stock returns for firms audited by the Big Four than those audited by non-Big Four. In this sense, the accounting information regarding earnings and the book value of equity, audited by the Big Four, are perceived as more relevant and reliable.

According to Almeida and Almeida (2009), a high-quality audit, proxied by Big Four auditing, implies low levels of firm discretionary accruals. This means that firms with high-quality audits have a greater potential to mitigate earnings management practices. To find those results, the above authors analyzed all firms listed on the Brazil Stock Exchange with available data from 1999 to 2005. Almeida and Almeida (2009) affirm that a possible explanation for the findings is based on the expertise of Big Four auditors, which may lead firms to mitigate earnings management practices. It should be emphasized that the findings on the constraints of firms’ earnings management practices by the Big Four audits are not unique to developing countries, such as Brazil. Van Tendeloo and Vanstraelen (2008) indicated that European privately held firms audited by the Big Four also exhibit fewer earnings management practices than the ones audited by non-Big Four.

From a theoretical point of view, Kim and Verrecchia (1991) demonstrated that, considering the assumption that investors are risk averse and their preferences correspond to a negative exponential utility function (i.e., the investor’s utility increases at a rate decreasing due to their risk aversion), the trading volume is proportional to the indicator of the accuracy of the information announcement. Therefore, according to Kim and Verrecchia’s (1991) model, there will be an increase in trading volume as long as information about the firm is reliable, while announcements without credibility will not generate significant market reactions.

Based on Kim and Verrecchia’s (1991) theory, Jang and Lin (1993) found empirical evidence of a significant relationship between audit quality and trading volume. The main results showed that stocks offered for the first time, whose companies were audited by Big Eight firms, had higher trading volume on the first day of trading than stocks of companies audited by non-Big Eight firms. Despite this, Jang and Lin (1993) observed that this effect is not persistent over time, as the results indicated that, on subsequent trading days, the trading volume of stocks of companies audited by the Big Eight became smaller than those audited by non-Big Eight firms.

More recent correlated studies corroborate the findings of Jang and Lin (1993). For example, Czerney et al. (2019) detected a higher trading volume in reaction to audit reports with explanatory language, suggesting its informative function to investors. Chen et al. (2014) state, with empirical data, that audited earning announcements are more informative and, as a consequence, temporarily increase the variability of stock returns and trading volume. Wang et al. (2015) found that investors are interested in the engagement audit partner experience, which is also perceived as a component of audit quality.

When institutional investors are dissatisfied with a particular firm in which they hold shares, they may attempt direct intervention with management to influence some changes in the direction they want or stop investing in the company by selling their shares (McCahey et al. 2016). One element that can cause institutional investors to leave firms is the poor quality of information. According to Fan and Fu (2020), institutional investors
may exit when the firm’s information environment is unsatisfactory, especially in response to bad news, which leads to an increase in firm crash risk.

Ng (2011) argues that investors pay attention to the quality of stock information when deciding to sell or buy shares of a company, especially in times of unexpected changes in market liquidity. According to Elaoud and Jarboui (2017), the efficiency of investment provided by the quality of accounting information increases when the audit is performed by a specialized auditor, suggesting that auditor specialization has a positive moderating effect on the relationship between the efficiency of investment and the quality of information.

Prior findings suggest that institutional investors are sensitive to information quality. Zhai and Wang (2016) state that institutional investors play a key role in this regard as they react quickly to abnormal financial information by withdrawing their investments from the firm, thus collaborating with the market in identifying inefficient resource applications. In the same way, Kim et al. (2020) found empirical evidence that institutional investors increase their sales of securities of firms with lower accruals quality, which was used as a proxy for firm-specific information risk.

3. Methods

We collected daily stock fund data from the Brazilian Securities and Exchange Commission (CVM) database. The sample period goes from January 2005 to March 2023, resulting in 219 monthly observations for each fund with complete data. All funds that do not have information on the name of the audit firm, fund size (total net assets at the beginning of each month), or daily returns to estimate performance were excluded.

At this point, we have a panel dataset with cross-sectional observations over 219 months. The final sample contains 6362 different investment funds, resulting in a dataset of 148,162 fund/month observations. The main independent variable in this study is the Big Four audit firms. Big Four is a dummy variable that receives 1 for funds audited by Deloitte, EY, KPMG, or PwC (alphabetical order) and 0 for other cases.

Regarding the dependent variables, we used four different measures that are directly affected by accounting information: (i) standard deviation of the fund’s monthly returns; (ii) the Sharpe index (Sharpe 1966); (iii) the Sharpe index, considering the adjustment presented by Israelsen (2005) regarding funds with negative risk premium; and (iv) Jensen’s Alpha. For each three-month period, the dependent variables were calculated using three-month moving windows and daily data for fund returns. This procedure allows having a database with monthly measurements, for example, a Jensen’s Alpha for each fund each month. As a proxy for the risk-free rate, we used the Brazilian Selic interest rate, a fundamental resource used by the Central Bank of Brazil.

We also included three control variables in the quantitative models: Fund Size, measured through the natural logarithm of fund’s TNA at the beginning of each month; Fund Age, indicating the age of each fund in years at the beginning of each year; and Fund’s Net Inflow, which is the ratio between the average daily net inflow (investments minus redemptions) during the quarter and the fund’s total net asset at the beginning of the quarter. Through the winsorizing procedure at 2% (1% in each tail), we eliminated the potential effects of extreme outliers on the scalar variables.

To test the study hypotheses, we used the Fama and MacBeth (1973) regression. Through the Fama and MacBeth (1973) model, we are able to test, each month, the effect of the variable of interest (“Big Four”) on the dependent variable (risk-adjusted proxies or fund’s risk), also considering the three controls mentioned above (Fund Size; Fund Age; Fund’s Net Inflow). Finally, an average of these coefficients over time is reported, which allows their behavior/persistence to be analyzed.

4. Results and Discussion

The initial descriptive statistics (Table 2) of the sample indicate a significant preference for hiring a Big Four audit firm since 97% of the sample observations are audited by Big Four companies (Deloitte, EY, KPMG, and PwC). Previous research also presented a large
percentage of sample firms audited by one of the Big Four (Behn et al. 2008; De Franco et al. 2011; Lee and Lee 2013). For example, 85% of the observations in the Lee and Lee (2013) database are audited by the Big Four firms. These findings may be related to the arguments of Krishnamurthy et al. (2006) on the influence of the reputation of audit firms on the perceived quality of the audit, assuming that investment funds demand high-quality audits due to the complexity of their natural operations. This assumption would explain why the funds in this study predominantly hired Big Four companies.

Table 2. Descriptive statistics of the study variables.

<table>
<thead>
<tr>
<th>Variables</th>
<th>n</th>
<th>Mean</th>
<th>S.D.</th>
<th>Min.</th>
<th>p25</th>
<th>Median</th>
<th>p75</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Std. Dev. Ret.</td>
<td>148,162</td>
<td>0.0124</td>
<td>0.0040</td>
<td>0.0049</td>
<td>0.0249</td>
<td>0.0098</td>
<td>0.0121</td>
<td>0.0144</td>
</tr>
<tr>
<td>Sharpe</td>
<td>148,162</td>
<td>−0.0088</td>
<td>0.1358</td>
<td>−0.2908</td>
<td>0.2835</td>
<td>−0.1030</td>
<td>−0.0177</td>
<td>0.0885</td>
</tr>
<tr>
<td>SharpeADJ</td>
<td>148,162</td>
<td>0.0514</td>
<td>0.0778</td>
<td>−0.0001</td>
<td>0.2835</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0885</td>
</tr>
<tr>
<td>Jensen’s Alpha</td>
<td>148,162</td>
<td>−0.0001</td>
<td>0.0010</td>
<td>−0.0030</td>
<td>0.0021</td>
<td>−0.0006</td>
<td>−0.0001</td>
<td>0.0004</td>
</tr>
<tr>
<td>BIG4</td>
<td>148,162</td>
<td>0.9785</td>
<td>0.1451</td>
<td>0.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td>Age</td>
<td>148,162</td>
<td>4.2753</td>
<td>4.3696</td>
<td>0.0000</td>
<td>19.0000</td>
<td>1.0000</td>
<td>2.0000</td>
<td>6.0000</td>
</tr>
<tr>
<td>Size</td>
<td>148,162</td>
<td>17.4021</td>
<td>1.7901</td>
<td>4.6015</td>
<td>24.3577</td>
<td>16.2095</td>
<td>17.4179</td>
<td>18.6167</td>
</tr>
<tr>
<td>Net Inflow</td>
<td>148,162</td>
<td>0.0008</td>
<td>0.0062</td>
<td>−0.0093</td>
<td>0.0326</td>
<td>−0.0010</td>
<td>0.0000</td>
<td>0.0003</td>
</tr>
</tbody>
</table>

Notes: Std. Dev. Ret. = standard deviation of fund’s daily returns of each fund during each quarter; Sharpe = the Sharpe index (Sharpe 1966) of each fund during each quarter; SharpeADJ = the Sharpe index (Sharpe 1966) considering the adjustment presented by Israelsen (2005) of each fund during each quarter; Jensen’s Alpha = the Jensen’s Alpha of each fund during each quarter; BIG4 = a dummy variable which receives 1 for funds audited by Deloitte, EY, KPMG, or PwC, and 0 for the other cases; Age = the age of the fund, in years, at the beginning of each year; Size = the natural logarithm of average of monthly fund’s TNA at the beginning of each quarter; Net Inflow = the ratio between the average daily net inflow (investments minus redemptions) during the quarter and the fund’s total net asset at the beginning of the quarter; all scalar variables were winsorized at 2% (1% in each tail).

Table 2 also indicates that the average age of the funds is 4.27 years and that more than half of the funds presented more redemptions than new applications during the period since the median is negative. The performance of the funds, on average, was negative in both the Shape Ratio and Jensen’s Alpha. Table 3 contains the results related to the Fama and MacBeth regressions, using the first dependent variable considered: the standard deviation of the fund’s daily returns.

Table 3. Results for the Fama and MacBeth Regression (Std. Dev. Ret.). This table reports the results for the Fama and MacBeth (1973) two-step procedure, Newey–West-corrected S.E. (lag length: 1). Dependent variable: Std. Dev. Ret. = standard deviation of fund’s daily returns of each fund during each quarter.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coef.</th>
<th>F.M.S.E.</th>
<th>t</th>
<th>sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIG4</td>
<td>−0.0001</td>
<td>0.0001</td>
<td>−1.2600</td>
<td>0.2080</td>
</tr>
<tr>
<td>Age</td>
<td>0.0002</td>
<td>0.0000</td>
<td>9.8600</td>
<td>0.0000***</td>
</tr>
<tr>
<td>Size</td>
<td>−0.0001</td>
<td>0.0000</td>
<td>−8.9600</td>
<td>0.0000***</td>
</tr>
<tr>
<td>Net Inflow</td>
<td>−0.0103</td>
<td>0.0033</td>
<td>−3.1000</td>
<td>0.0020***</td>
</tr>
<tr>
<td>Constant</td>
<td>0.0132</td>
<td>0.0003</td>
<td>40.7000</td>
<td>0.0000***</td>
</tr>
</tbody>
</table>

Notes: Dependent variable: Std. Dev. Ret. = standard deviation of fund’s daily returns of each fund during each quarter; BIG4 = a dummy variable which receives 1 for funds audited by Deloitte, EY, KPMG, or PwC, and 0 for the other cases; Age = the age of the fund, in years, at the beginning of each year; Size = the natural logarithm of average of monthly fund’s TNA at the beginning of each quarter; Net Inflow = the ratio between the average daily net inflow (investments minus redemptions) during the quarter and the fund’s total net asset at the beginning of the quarter; *** indicates the significance level at 1%.

The results of Table 3 indicated that funds audited by Big Four firms, on average, did not present lower volatility in their returns each quarter compared to other funds that are
not audited by a Big Four auditing firm. The coefficient of the variable “Big Four” was not statistically significant, as shown in Table 3. Previous studies show the benefits of Big Four auditing firms, such as mitigation of earnings management practices (Van Tendeloo and Vanstraelen 2008; Almeida and Almeida 2009), high sale proceeds (De Franco et al. 2011), and fewer reporting errors (Geiger and Rama 2006), among others. However, the results of the quantitative tests did not show a significant difference in terms of volatility of returns (Std. Dev. Ret.) for the funds in the sample in relation to the BIG4 variable. Regarding fund characteristics, the results suggest that large funds and funds that received more applications during the period tend to be willing to take on lower levels of risk. On the other hand, the effect of “Age” was negative and statistically significant. This negative effect of age may have two implications: (i) younger funds tend to be willing to assume higher levels of risk, probably in order to achieve better levels of returns and a better position in the market; and (ii) older funds, or funds already established in the market, may choose to maintain a moderate position in terms of their risk level, avoiding exposure to the market.

Panel A of Table 4 contains the results considering the Sharpe Index as the dependent variable. According to the results reported in Table 4, the coefficient of the variable “Big Four” was positive and statistically significant at the 1% level on risk-adjusted performance, measured by the Sharpe Index (see Panel A). Moreover, considering other proxies for risk-adjusted performance (see Panels B and C of Table 4), the results remain equivalent and also indicate a positive effect of the “Big Four” variable on risk-adjusted performance.

Table 4. Results for the Fama and MacBeth Regression. This table reports the results for the Fama and MacBeth (1973) two-step procedure, Newey–West corrected S.E. (lag length: 1). Panel A: dependent variable = the Sharpe index (Sharpe 1966) of each fund during each quarter. Panel B: dependent variable = the Sharpe index (Sharpe 1966) considering the adjustment presented by Israelsen (2005) of each fund during each quarter. Panel C: dependent variable = Jensen’s Alpha = the Jensen’s Alpha of each fund during each quarter.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coef.</th>
<th>F.M.S.E.</th>
<th>t</th>
<th>sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIG4</td>
<td>0.0137</td>
<td>0.0036</td>
<td>3.850</td>
<td>0.000 ***</td>
</tr>
<tr>
<td>Age</td>
<td>−0.0007</td>
<td>0.0010</td>
<td>−0.740</td>
<td>0.458</td>
</tr>
<tr>
<td>Size</td>
<td>0.0034</td>
<td>0.0005</td>
<td>7.310</td>
<td>0.000 ***</td>
</tr>
<tr>
<td>Net Inflow</td>
<td>0.9786</td>
<td>0.1145</td>
<td>8.550</td>
<td>0.000 ***</td>
</tr>
<tr>
<td>Constant</td>
<td>−0.0503</td>
<td>0.0123</td>
<td>−4.100</td>
<td>0.000 ***</td>
</tr>
</tbody>
</table>

n = 148,162
n° time periods = 219
avg. r-squared = 6.51%

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coef.</th>
<th>F.M.S.E.</th>
<th>t</th>
<th>sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIG4</td>
<td>0.0073</td>
<td>0.0018</td>
<td>4.130</td>
<td>0.000 ***</td>
</tr>
<tr>
<td>Age</td>
<td>−0.0010</td>
<td>0.0007</td>
<td>−1.360</td>
<td>0.176</td>
</tr>
<tr>
<td>Size</td>
<td>0.0014</td>
<td>0.0003</td>
<td>4.360</td>
<td>0.000 ***</td>
</tr>
<tr>
<td>Net Inflow</td>
<td>0.5469</td>
<td>0.0708</td>
<td>7.720</td>
<td>0.000 ***</td>
</tr>
<tr>
<td>Constant</td>
<td>0.0389</td>
<td>0.0066</td>
<td>5.850</td>
<td>0.000 ***</td>
</tr>
</tbody>
</table>

n = 148,162
n° time periods = 219
avg. r-squared = 5.65%
Table 4. Cont.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coef.</th>
<th>F.M.S.E.</th>
<th>t</th>
<th>sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIG4</td>
<td>0.0001</td>
<td>0.0000</td>
<td>2.9200</td>
<td>0.0040 ***</td>
</tr>
<tr>
<td>Age</td>
<td>0.0000</td>
<td>0.0000</td>
<td>−1.2600</td>
<td>0.2080</td>
</tr>
<tr>
<td>Size</td>
<td>0.0000</td>
<td>0.0000</td>
<td>6.6900</td>
<td>0.0000 ***</td>
</tr>
<tr>
<td>Net Inflow</td>
<td>0.0096</td>
<td>0.0011</td>
<td>8.8000</td>
<td>0.0000 ***</td>
</tr>
<tr>
<td>Constant</td>
<td>−0.0007</td>
<td>0.0001</td>
<td>−6.4300</td>
<td>0.0000 ***</td>
</tr>
</tbody>
</table>

n = 148,162
n° time periods = 219
avg. r-squared = 6.55%

Notes: BIG4 = a dummy variable which receives 1 for funds audited by Deloitte, EY, KPMG, or PwC, and 0 for the other cases; Age = the age of the fund, in years, at the beginning of each year; Size = the natural logarithm of average of monthly fund’s TNA at the beginning of each quarter; Net Inflow = the ratio between the average daily net inflow (investments minus redemptions) during the quarter and the fund’s total net asset at the beginning of the quarter; *** indicates the significance level at 1%.

Strong audit processes can contribute to corporate governance (Carcello et al. 2002), benefiting the internal management of investment funds, and this statement is in line with the empirical results found in this study. Moreover, when observing the effect of Big Four audits on fund performance (Table 4), other benefits provided by Big Four firms have also been found. This evidence is equivalent among the three proxies for performance: the Sharpe index, the adjusted Sharpe index, and Jensen’s Alpha.

Therefore, the results of this study are in line with the findings of Chou et al. (2014), which observed that firms audited by the Big Four outperform those audited by non-Big Four. Comparing Tables 3 and 4, the effect of the “Big Four” variable on fund performance seems not to be related to a managerial decision to assume higher or lower levels of risk, as funds audited by Big Four firms did not present higher or lower levels of volatility in their returns (according to Table 3). Individual and institutional investors can consider this characteristic of funds (being audited by a Big Four firm) when making decisions regarding the portfolio composition involving quotas of investment funds.

Chou et al. (2014) also observed that mutual funds tend to increase investments in firms audited by a Big Four audit firm. Based on the results of this study, the funds in the sample showed a preference for hiring a Big Four audit firm (see Table 2), and these funds, on average, achieved better risk-adjusted performance. Therefore, the decision to hire a Big Four audit firm may also represent a strategy to convey to potential clients the reliability of investing in a given fund since the allocation of resources in mutual funds naturally represents an activity that involves risk.

Regarding the other characteristics of the funds, large funds presented better performance, as well as those funds that received more applications during each quarter. In contrast to the results in Table 3, the fund age did not have a significant effect on performance; therefore, if, on average, younger funds tend to present higher levels of risk, these funds do not necessarily achieve better performance.

5. Conclusions

The aim of this study was to analyze the effect of being audited by a Big Four audit firm on fund risk and fund performance. The database contains data on the performance of stock funds during the period from January 2005 to March 2023. Since we constructed a measure for fund performance each month, considering daily data for the three-month period (a quarter), Fama and MacBeth (1973) regressions were used to test the study hypotheses.

We found evidence of the benefits of audit quality in the context of entities that use financial instruments to develop their daily activities. Funds audited by the Big Four audit firms presented better performance measurements based on risk-adjusted indexes. However, the level of risk when comparing funds audited and not audited by the Big Four audit firms seems to be equivalent.
The results presented in this paper contribute to the accounting literature by showing the benefits provided by the Big Four audit firms in the context of institutional investors. Specifically, this study empirically indicates that the Big Four audits are associated with better measurements of risk-adjusted performance. These findings have special implications for fund managers in choosing their auditors, as well as for those investors who invest directly in investment funds.

The results obtained in this study also have implications for the literature that considers the positive relationship between audit quality and corporate governance mechanisms. Strong corporate governance practices and internal controls benefit fund managers, and their effects also extend to fund shareholders, as they can achieve better performance indexes.

This study has some limitations. The first limitation is related to sample composition since we only considered funds in the stock fund category. Future research can also analyze the effect of the Big Four dummy variable in the context of other investment fund categories. Another limitation is related to the number of funds that usually hire a Big Four audit firm since 97% of the observations are from funds with this characteristic. Therefore, new research may consider alternative procedures for comparing fund performance based on the variable of being audited by a Big Four firm. For future research, we also suggest an analysis that considers the value of audit fees and its potential relationship with fund risk and fund risk-adjusted returns.


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Data Availability Statement: The primary raw data used for analysis in the study are openly available on the Brazilian Securities and Exchange Commission website (CVM).

Conflicts of Interest: The authors declare no conflicts of interest.

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