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Advisory Firm Employee Ownership and Performance in Separately Managed Accounts

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Advisory Firm Employee Ownership and Performance in Separately Managed Accounts

by

Samuel White Yates

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ACCEPTANCE

This dissertation was prepared under the direction of the *SAMUEL WHITE YATES* Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Business Administration in the J. Mack Robinson College of Business of Georgia State University.

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ABSTRACT

Advisory Firm Employee Ownership and Performance in Separately Managed Accounts

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I describe in detail the structure of separately managed accounts (SMAs) and how those accounts compare to and differ from mutual funds and hedge funds. I then examine how employee ownership of advisory firms — that is, firms in which employees have partnership or stock interests — affects the performance, idiosyncratic risk, and R-square of each firm's SMA portfolios. In testing 14,484 different portfolios from more than 1,100 different advisory firms from 1995 to 2015, I find that SMAs at firms with employee ownership outperform SMAs at firms without it. The greatest impact is in the 25–50% employee-ownership range. Positive returns, risk, and R^2 all decrease as employee ownership increases beyond 50%, but SMA performance levels remain above those of firms in which the portfolio manager has no employee ownership. I also find that the Sharpe ratio is negatively related to employee ownership, reflecting a deterioration of risk-adjusted returns at higher employee-ownership levels. These results suggest both that the presence of advisor employee ownership is a significant, positive indicator for SMA performance and that those advisory firms assume more idiosyncratic risk to achieve

these higher returns. For investors, my results show that employee ownership of advisory firms can be used as a differentiating factor to aid them in making SMA choices between portfolios with otherwise similar characteristics.

INDEX WORDS: Separately Managed Accounts, SMA's, Employee Ownership, Performance

I.INTRODUCTION

"In terms of financial innovation, remember that the trend is toward institutional money management, delegated portfolio management."

—Gary Gorton (2010)

From its historical roots as a domain for institutional investors and pension funds, the investment industry has grown to a multitrillion-dollar asset class by expanding its reach to high net worth investors around the globe. According to the Investment Company Institute (2013), more than $20 trillion dollars is currently invested in separately managed accounts (SMAs), which Elton, Gruber, and Blake (2013) describe simply as asset portfolios "managed by a professional management firm." In contrast, $13 trillion is invested in open-ended mutual funds, $2.6 trillion in hedge funds, and $265 billion in closed-ended mutual funds. And, as Gerakos, Linnainmaa, and Morse (2016) estimate, these reports of assets held in SMAs may be small; according to their research, as of 2012, the total amount invested in delegated asset managers is $43 trillion.

As early as 1981, Sharpe indirectly called attention to SMAs when he studied optimal allocation and diversification in pension funds; since then, however, researchers have largely ignored SMA performance, makeup, and characteristics — despite the fact that they make up more than 50% of the investable market in securities. As I describe here, SMAs' long neglect in the investment research universe is partially due to the difficulty of defining what constitutes an SMA and what differentiates it from investment brethren such as mutual and hedge funds. A second challenge is the lack of high-quality data to analyze. Here, I resurrect the study of SMAs by examining their performance in relation to a single characteristic: employee ownership of advisory firms. This type of ownership is not a manager's co-investment in the fund's underlying assets, as described in the recent paper by Banerjee,

Stukalo, Yates, and Agarwal (2016); rather, it is a form of ownership — such as through stock or partnership interest — in the overall management company. As my research shows, the differential between employee-owned and non-employee-owned advisory firms is easily identifiable in SMAs. Using this variable to separate the two groups could be a valuable tool in helping investors discern the likelihood of positive outcomes for their investments.

I.1 Defining Employee-Owned Advisory Firms

The primary question here is whether employee ownership of advisory firms makes a difference in the characteristics and outcomes of the investment portfolios that the firms manage. To more fully define "employee-owned advisory firms," we can look to a question in the Informa database that I use for this study. As Appendix D shows, the question simply asks SMA managers the percentage of their advisory firm that is owned by employees; their answers ranged from 0 to 100%.

The broader question of what defines employee-owned firms can be answered only generally and in anecdotal terms from the data. Generally speaking, an employee-owned advisory firm is a private, smaller firm that forms as a partnership; its primary source of almost all revenue is separate account management. Typically, non-employee-owned firms are publicly traded, much larger, and offer diversified financial services. Appendix F offers examples of an employee-owned firm and non-employee-owned firm that report to the Informa database. Hahn Capital Management LLC is 100% employee-owned and reports managing approximately $1.6 billion in assets; it has 10 employees and has been in operation since 1988. Blackrock is a publicly traded company that reports zero firm ownership by its portfolio managers; it reports total assets under management of $4.89 trillion. Also founded in 1988, Blackrock has 10,000 employees.

I.2 Differentiating Separately Managed Accounts from other Investment Vehicles

Having offered a general SMA description — that is, *"*a portfolio of assets managed by a professional*"* (Elton, Gruber, and Blake, 2013) — I now focus on describing the unique features and characteristics that distinguish SMAs from other asset classifications, such as mutual and hedge funds (see Appendix C).

Insert Appendix C

A major benefit of the SMA structure is that, unlike mutual funds (Chevalier and Ellison, 1997; Brown, Goetzmann, and Park, 1997; Agarwal, Gay, and Ling, 2014) and hedge funds (Agarwal, Daniel, and Naik, 2011), SMA portfolios offer less incentive to engage in *window dressing* — that is, reporting higher holdings in winners and lower holdings in losers. Because mutual funds and hedge funds are pooled investment vehicles and report holdings only on a quarterly basis, funds can invest in different instruments during the quarter and "clean them up" just before it is time to report. By their very nature, SMAs are the most transparent asset vehicle available to investors. Each account is individually held and most (if not all) account holders can see their holdings online at any time. Further, SMAs do not have a regulatory mandate to disclose their holdings. Because SMA investors have an individual record of their account transactions — that is, the buys and sells — they would see any attempt at window dressing for what it was. Thus, with the incentives removed, SMA managers accrue no benefit by engaging in window dressing.

SMA transparency not only provides a defense against window dressing, it typically exhibits another characteristic that can benefit the investor and increase performance: monitoring. Because the very nature of an SMA is a custom account designed for each

investor, investors can monitor their holdings in almost real time, adding another dimension to the equation. Further, as Mullally (2016) points out, significant shareholders exercise substantial influence and governance over the management firms in which they invest. Here, I will argue that large investors act in a similar manner. In most SMA structures, the only income that the firm generates is the fee it charges, which is calculated as a percentage of the firm's total assets under management (AUM). If large investors are monitoring their accounts carefully and constitute a significant percentage of a manager's total assets, those investors will not only have carte blanche access to the manager and the team, they may also influence the manager from a personal standpoint. Large investors are also likely to have their own analytic team and software to ensure that the manager is performing and investing in a conventional manner. Monitoring also impacts the platforms that distribute the SMA. As part of their service to their clients, wire houses and banks often employ their own team of analysts and may even use an outside consultant to monitor and report on SMAs.

Finally, transparency and low barriers to entry/exit can work for or against an investor. In the SMA space, evidence shows that picking winners is not only possible but beneficial to the investor and, according to Busse, Goyal, and Wahal (2010), is a workable strategy. This approach comes at a cost — usually higher fees — and, once the manager posts persistent outperformance, large capital inflows follow, resulting in reduced alpha.

I.3 SMAs and Performance, Asset Flows, and Investor Behavior

Some researchers have compared SMA performance and risk characteristics with those of mutual funds and other investment vehicles. These researchers include Ippolito and Turner (1987); Lakonishok (1992); Coggin, Fabozzi, and Rahman (1993); Del Guercio and Tkac (2000); Busse, Goyal, and Wahal (2010); Peterson, Iachini, and Lam (2011); Elton,

Gruber, and Blake (2013); and Gerakos, Linnainmaa, and Morse (2016). On the whole, they found that SMAs outperformed mutual funds and performed at a similar level to index funds (Elton, Gruber, and Blake 2013).

Two other literature streams are prevalent in the study of SMAs. As the following examples show, the first stream focuses on the relationship between asset flows and performance. Berzins, Liu, and Trzcinka (2013) found conflicts of interest involving investment banks and asset management of mutual funds, hedge funds, and institutional funds as they chronically underperformed their counterparts. Ferson and Khang (2002) used SMA flow data to devise a new performance measure using conditioning information to look for bias in return-based tests. Del Guercio and Tkac (2002) found that, in contrast to mutual fund investor counterparts, SMA investors punish poorly performing managers by withdrawing assets under their management; the researchers also found that these institutional SMA investors do not run proportionately to recent winners.

The second stream focuses on SMA investors and the fund's behavior. This research includes Goyal and Wahal (2008), who reported that excess returns from institutional SMA manager terminations were indistinguishable from zero, although occasionally the changes made were positive. Heisler (2007) also looked at the hiring and firing of SMA managers and found that both benchmarks and total returns over a long period had a strong influence on investor decisions. Del Guercio and Tkac (2000) found that SMA investors are likely to be more sophisticated than mutual fund investors, and that they usually perform higher-level due diligence than the typical mutual fund investor. For example, both vehicles include quantitative screenings, but SMA investors are more likely to rely on risk-adjusted measures — such as Jensen's alpha and tracking error — for performance. Del Guercio and Tkac also

found that SMA investors are much less likely to chase excess returns than a mutual fund investor. Further, SMA investors often focus on nonperformance measures as well, including one-on-one meetings and the manager's reputation. However, like hedge fund investors, SMA investors are more likely to pull money from an underperforming fund than are mutual fund investors.

I.4 Employee Ownership of Advisory Firms and Performance, Risk, and R-square

Another key question is: When selecting SMAs to invest in, what are some key differences among SMA portfolios that can guide investors to make better choices? Elton, Gruber, and Blake (2013) gives us a clue as to one possible differentiator: "Separate accounts offered by management companies that have mutual funds with the same objective do not outperform the mutual funds with which they are matched. Rather, it is the independently managed separate accounts, and in particular, those with management companies organized as partnerships, that have the best performance" (p. 1719).

For the remainder of this paper, my focus will on answering and quantifying the observation that Elton, Gruber, and Blake (2013) made concerning how an advisory firm's ownership structure affects performance. The SMA structure's flexibility makes this research possible because SMA advisors have varying ownership structures, while hedge funds advisors are overwhelmingly set up in partnerships and mutual fund advisors have been historically owned by financial services companies.

To investigate this question, I will focus on how employee ownership of advisory firms impacts SMA performance, risk, and R-square characteristics using three hypotheses. The first hypothesis (*performance*) proposes that portfolios managed by principals who have some percentage of firm ownership will outperform those who do not have incentives

beyond those stipulated by their employment contracts. This hypothesis aligns line with a larger body of literature concerning incentives and performance. I limit my discussion here to the difference between employees and owners. That is, I am testing the hypothesis that portfolio managers with an ownership stake in their company outperform those portfolio managers who are employees only.

The second hypothesis (*risk)* predicts that employee owners will achieve these returns using more idiosyncratic risk in their portfolios, signaling that they are better informed/more skilled managers than employee-only portfolio managers. I define *idiosyncratic risk* as the portion of total risk that is unaccounted for by systematic risk of the market. Goyal and Santa-Clara (2003) found that idiosyncratic risk matters to a portfolio's return characteristics. This hypothesis will test the assertion that a positive relationship exists between the amount of total risk taken by employee-owned advisory firms and outperformance in comparison to their non-employee counterparts. This hypothesis will also clearly distinguish between manager co-investment in their underlying portfolios and managerial ownership in the corporate structure. Banerjee, Stukalo, Yates, and Agarwal (2016) found that, as co-investment increased, the idiosyncratic risk increased, but only to a certain point; at that point, the manager began to decrease risk-taking.

The third hypothesis (*R-square)* proposes that employee owners will be less correlated to the market. A negative R-square observation will show that a manager who has an ownership stake in a portfolio will exhibit less correlation to the market while achieving higher returns. This will also test the findings of Titman and Tiu (2011), who suggest that hedge funds with low R-square outperform funds with higher R-square.

I test all three hypotheses using data from the Informa Investment Solutions PRN enterprise database. Informa is a publicly traded company that serves commercial, professional, and academic communities in various sectors by creating and providing access to content and intelligence that helps people and businesses work smarter and make better decisions faster (for more, see http://informa.com/about-us/informa-at-a-glance). The PRN enterprise database contains more than 18,000 separately reporting portfolios from more than 1,100 different companies. Each portfolio reports individual returns for its particular strategy. For example, Aberdeen Asset Management PLC reports on more than 52 different portfolios across different strategies and investments, ranging from an international equity portfolio to a US high-yield portfolio.

I begin my analysis by examining the influence of employee ownership on *performance, idiosyncratic risk,* and *R-square.* To do this, I run a series of tests to determine whether employee ownership has any effect on these characteristics. The tests use return, standard deviation (SD) of return, and four generally accepted models of risk that build upon one another: the Capital Asset Pricing Model (CAPM) one-variable model (Sharpe, 1966); Fama and French's three-factor model (1993); Carhart's four factor model (1997); and Fung and Hsieh's seven-factor model (2004).

I obtained the employee ownership of advisory firms variable from the firm's answers to an annual questionnaire (see Appendix D). Unfortunately, if the firm updates or changes this answer, it does not change answers from previous years. As I explain in detail later, I account for this lack of annual variation in numbers by clustering the standard error term and using years in the regressions.

The results from these regressions begin to tell a story — namely, that employee ownership of advisory firms does influence returns positively and significantly, leading to an average of .338% annual outperformance over the 20-year period. This result alone would be of keen interest to investors. All factor models reinforce the direction of the coefficients, with a range of 0.038 to 0.120 positive alpha generations for the portfolios with employee ownership. As I layer in complexity and test for risk, I find that the SD of returns for employee-owned portfolios is 1.365% higher than nonemployee-owned portfolios. Similar results for direction are observed across all factor models, and they are all significant to the 1% level or better. When I test for R-square, I find that it is negative across all factor models with a range of –0.005 to –0.010. All of the previous results were significant to the 1% or better level, with the exception of age in the Fama and French model (Fama and French 1993) and the Fung and Hsieh model (Fung and Hsieh 2004). Based on these observations, I conclude that employee-owned portfolio managers take more idiosyncratic risk that is less correlated to the market to achieve their returns.

Having observed these results, I divide the employee-owned percentages into quartiles using 0.0–25% employee-owned as a lagged indicator, then follow with greater than 25% to less than or equal to 50%; greater than 50% to less than or equal to 75%; and greater than 75% to less than or equal to 100%. This shows a linear decrease in outsized returns, with the largest return residing in the second quartile of 0.806%, then decreasing to 0.319% in the third quartile and to 0.076% in the fourth. While employee ownership was beneficial across all quartiles, the benefits decreased in a linear direction from the first through the fourth quartiles. The first two quartiles were significant to the 1% and 5% level, respectively, while the fourth quartile result was not significant. Similar linear patterns were

captured across all models, with the highest observation in the Carhart model (Carhart 1997) at 0.190% and the lowest observed in the CAPM model at 0.012%.

When I examined the influence of employee ownership on risk, I found a similar linear pattern among the quartiles. The SD of return was positive and highest at the second quartile at 1.853%, with the third and fourth quartiles decreasing to 1.299% and 0.707%, respectively. All three observations were significant to the 1% level or better. The pattern followed across all factor models; all were positive, with the largest observation from the CAPM model at 1.788% in the second quartile and the smallest in the Fung and Hsieh model (Fung and Hsieh 2004) at 0.409% in the fourth quartile.

Finally, I examined the influence of employee ownership of advisory firms on R-square, and observed an increase in the R-square as employee ownership increases. The second quartile shows a higher negative R-square at –0.004 compared to the fourth quartile, which had a negative R-square of –0.002. Both observations were significant to the 1% level or better. The third quartile also reported a –0.002 but was not significant. The Carhart model (Carhart 1997) was the only model that captured significance across the board at the 1% level or better with observations of –0.013, –0.008, and –0.007 in the second, third, and fourth quartiles, respectively.

These results strongly suggest that employee ownership in an advisory firm has a salutary effect on performance, idiosyncratic risk-taking, and R-square for the SMAs that the firm is managing. By running the results through four of the most prominent factor models in academic literature — CAPM, Fama and French (Fama and French 1993), Carhart (Carhart 1997), and Fung and Hsieh (Fung and Hsieh 2004) — I was able to capture intricate patterns that would have been undetectable using any one model alone. Then, by further dividing the

data into quartiles, I observe the levels at which employee ownership has the most pronounced effect.

II.DATA SOURCES AND VARIABLE CONSTRUCTION

II.1 Data Sources

The data provider is the Informa Investment Solutions (IIS) PSN Enterprise investment manager database. Informa's PSN is a global database of more than 1,100 investment managers, representing more than 5,000 US and international investment products. PSN is a primary data collector, with each firm reporting directly to it. Each firm has more than 1,000 data points. The database contains information for 18,414 total funds, with 6,000 actively reporting. The service began collecting returns in 1979. The funds classify into 12 categories: Collective Trust, Commingled Funds, Exchange Traded Funds, Fund of Funds, Hedge Funds, Limited Partnerships, Managed Account (wrap), Mutual Fund, Offshore Fund, Single Representative Account, and Separate Account Composite. Of these 12 categories, 14,484 of reporting funds classify as Separate Account Composite. The second largest classification is Managed Account (wrap), with 1,196 funds reporting. A feature of the database is that, in addition to AUM, returns, and numerous other characteristics, it also reports employee-ownership percentage. In Appendix G, I define the categories used for calculating SMA performance as age, size, and ownership. Unlike Busse, Goyal, and Wahal (2010), who tested only active portfolio managers, I include the entire database of reporting firms for 1995–2015, as my hypothesis focuses on the influence of employee ownership on performance, risk, and R-square of all SMAs over the study period. I use 1995 as a starting point because, according to Busse, Goyal, and Wahal (2010), the database had survivorship concerns that were rectified beginning in 1995.

As Appendix B shows, the one drawback in this literature is that the data for reporting employee-ownership percentage is not collected in a time series manner. To account for the time invariance of my independent variable, I cluster the standard errors.

Clustering the standard errors by firm corrects the standard error by accounting for the fact that the error terms are correlated. I will also strongly argue that, although the percentages of employee ownership may change over time, there will be almost no cases where a company reports employee ownership, then no employee ownership, then employee ownership once again. If anything, there would be a high likelihood of an upward bias in the reporting of the non-employee-owned numbers.

The reason is straightforward. A company may go from employee-owned to non-employee-owned in two ways: through a buyout or through an initial public offering (IPO). In both cases, the likelihood of either a company (in the buyout case) or a group of investors buying stock in an IPO for an underperforming company is very remote. As we have seen for mutual funds, hedge funds, and SMA portfolios, strong performance equals inflows. Investors buy cash-flow companies that are growing their revenue.

One example of a company going from employee-owned to non-employee-owned is Silvercrest Asset Management. Silvercrest was founded in 2002 as a private partnership structured as a Limited Liability Corporation. It offers seven different SMAs to its clients: Equity Income, Focused Value, Large Cap Value, Multi Cap Value, Special Situations Muni, Smid Value, and Small Cap Value. All of the portfolios are ranked in the top quartile of performers over the past 10 years, with one ranking first. Until 2013, Silvercrest was a partnership owned substantially by its employees. In June 2013, the company went through an IPO. After that date, it no longer listed any employee ownership in the database. In effect, the salutatory benefits of employee ownership accrued to the non-employee numbers, actually narrowing the performance gap between the two groups.

Source: http://psn.informais.com/help/psn_enterpriseV2/WebHelp/index.htm

II.2 Variable Construction

I employ six measures for performance; all measures are for the period 1995–2015 unless otherwise stated. *Return* is the portfolio's average annual return for the period. The *Sharpe ratio* is the 20-year average of the portfolios' monthly excess returns — that is, the stated return minus the risk-free rate, divided by the SD of the returns during the same period. I then estimate *alpha* using four widely accepted models: *CAPM Alpha* is a (Sharpe 1966), *Fama and French Alpha* is a three-factor model (Fama and French 1993), *Carhart Alpha* is a four-factor model (Carhart 1997), and *Fung and Hsieh Alpha* is a seven-factor model (Fung and Hsieh 2004). The formulas for these regressions follow.

CAPM

$$r_a = r_{rf} + \beta_a(r_m - r_{rf}),$$

where

- a = asset,
- r_{rf} = a risk-free security's rate of return,
- r_m = the expected return of the broad market, and
- β_a = the assets beta.

Fama and French three-factor model

$$r = R_f + \beta_3(K_m - R_f) + b_s \cdot SMB + b_v \cdot HML + \alpha,$$

where

- R_f = a risk-free rate of return,
- β = beta of the portfolio,
- K_m = market portfolio return,
- *SMB* = small minus big market capitalization, and
- *HML* = high minus low book to market ratio.

Carhart four-factor model

$$R - R_f = \text{a} + \beta_1 * \left(Mkt - R_f\right) + \beta_2 * SMB + \beta_3 * UMD,$$

where

- R = return of the asset,
- R_f = a risk-free rate,
- a = the unexplained return,
- *Mkt* = US market return,
- *HML* = high minus low book to market ratio,
- *SMB* = small minus big market capitalization, and
- *UMD* = up minus down (the momentum factor that mimics the portfolio's return).

Fung and Hsieh seven-factor model

$$R_i = \alpha_i + \beta_{1,i} BTFF + \beta_{2,i}\, XTFF + \beta_{3,i}\, CTFF + \beta_{4,i}\, EMF + \beta_{5,i}\, SSF + \beta_{6,i}\, BMF + \beta_{7,i}\, CSF,$$

where

- *BTFF* = bond trend-following factor,
- *XTFF* = currency trend-following factor,
- *CTFF* = commodity trend-following factor,
- *EMF* = equity market factor,
- *SSF* = size spread factor,
- *BMF* = bond market factor, and
- *CSF* = credit spread factor.

I then examine the influence of the percentage of employee ownership on performance, risk, and R-square using *Return*, CAPM Alpha, Fama and French Alpha, Fung and Hsieh Alpha, and the Sharpe ratio, with *Age* and *Size* as control variables. I also look at the influence of employee ownership as a dummy variable on performance, risk, and R-square using the same regressions mentioned above. Alpha is calculated as an in-sample regression intercept. For each company in each year, I run the regression against factors and get alpha (intercept) and R-square. I then multiply alpha by 12 to annualize it.

II.3 Summary Statistics

Table 1 presents summary statistics of employee ownership, performance, idiosyncratic risk, and R-square measures over the 20-year period from January 1995 to December 2015.

Insert Table 1 here

As the table shows, the mean employee-ownership percentage of the sample is 51.150%, the mean return is 9.021%, and the mean Sharpe ratio is 0.880. The mean annual alphas from the four models range from 0.617 to 1.109%. The average idiosyncratic risk for the four models ranges from 6.83 to 12.19%. The range of the R-square is from 0.091 to 0.659. For control variables, the mean portfolio age is 8.49 years; the mean portfolio size is $543.1 million AUM. I report the 1995–2015 findings using monthly returns. To capture a reliable age for the portfolios reporting, I also included the 1985–1995 time frame. I further restrict the data to only SMAs and similar portfolios and to reported employee ownership. If the fund did not answer the question in Informa, the funds were shown as *N/A* and excluded from the sample. Using this time period yielded 18,380 reporting portfolios; of those, 11,751 reported employee ownership of greater than zero while 6,629 funds reported employee ownership as zero. Of the remaining portfolios, 64% reported some employee ownership.

III.RELATIONSHIP BETWEEN EMPLOYEE OWNERSHIP, PERFORMANCE, IDIOSYNCRATIC RISK, AND R-SQUARE

I begin my analysis by conducting tests to analyze the relation between employee ownership and performance, idiosyncratic risk, and R-square.

III.1 Influence of Employee Ownership on Performance

Table 2 shows the relationship between employee ownership and performance.

Insert Table 2

Consistent with my hypothesis, I find that employee ownership is both positive and significant at 1% level or better for all factor models in relation to performance, with the exception of Sharpe ratio, which was negative and significant. The range of the factor models was from 0.0003 to 0.001. Also, the modeled *Return* coefficient is positive (coeff = 0.001) but not significant. This result implies that higher employee ownership leads to higher returns through higher alpha. The negative Sharpe ratio coefficient (coeff = –0.0001) indicates a very slight to almost nonexistent drag on portfolios' excess returns, which are an interesting conundrum as all of the other factor models reported a positive coefficient.

When *Age* is added as a control factor, the results were positive and significant at the 5% level (coeff = 0.012). *Age* was significant at the 1% or better level only in the Fung and Hsieh model (Fung and Hsieh 2004) and was negative (coeff = –0.003). The Sharpe ratio was positive and significant at the 1% level or better (coeff = 0.006). The result implies that the longer a manager is in business, the better the performance, although alpha may be negatively affected. Interestingly, when I add *size* as a control variable, the result turns negative (coeff = –0.284) and is significant at the 1% level or better. *Size* is also negative and

significant across all factor models at the 1% level or better with a range of –0.024 to –0.040. The Sharpe ratio is negative and significant at the 5% level (coeff = –0.004). This result suggests that SMA managers may have some of the same capacity constraint challenges that Naik, Ramadorai, and Stromqvist (2007) found in their study of hedge funds. The regression for the former table is as follows:

$$Return_t = const + \beta_1 EmplOwnership + \beta_2 Age_t + \beta_3 Size_{t-1} + \sum_{i=1}^{20} \sum_{k=4}^{24} \beta_k Year_i + \varepsilon_t,$$

where

- *Return* = a performance measure (annual return or a corresponding factor alpha),
- *EmplOwnership* = employee ownership in percentage terms,
- *Age* = total period of reporting in years,
- *Size* = log (AUM), and
- φt = time factor.

III.2 Influence of Employee Ownership on Risk

Table 3 shows the relationship between employee ownership and risk.

Insert Table 3

Consistent with my hypothesis, employee ownership is positive and significant at the 1% level or better for the SD of returns and across all models in relation to risk. The SD of return was positive at 0.008. The factor models' range was 0.004–0.008. The *Age* and *Size* control variables were both negative and significant to the 1% or better level across all factor models with the coefficients for *Age* ranging from –0.046 to –0.073. The coefficients for *Size* ranged from –0.059 to –0.152. These results indicate that while *Age* does increase the SD of

returns in younger and smaller portfolios, as the manager gains assets and manages over time ownership results in lower risk-taking. The regression for Table 3 is as follows:

$$Risk_t = const + \beta_1 EmplOwnership + \beta_2 Age_t + \beta_3 Size_{t-1} + \sum_{i=1}^{20} \sum_{k=4}^{24} \beta_k Year_i + \varepsilon_t,$$

where

- *Risk* = a measure of risk (SD of returns as a measure of total risk or SD of residuals of corresponding factor models as a measure of idiosyncratic risk),
- *EmplOwnership* = employee ownership in percentage terms,
- *Age* = total period of reporting in years,
- *Size* = log (AUM), and
- φt = time factor.

III.3 Influence of Employee Ownership on R-square

Table 4 shows the relationship between employee ownership and R-square.

Insert Table 4

Consistent with my hypothesis, I find a negative relation between portfolio R-square and employee ownership, significant at 1% or better for all factor models except Fung and Hsieh (Fung and Hsieh 2004). For example, the CAPM coefficient on employee ownership is negative (coeff = –0.00002) and significant at the 1% level. When adding *Age* as a control variable, the results are significant and positive at the 1% level or better (coeff = 0.0002). However, when adding *Size* as a control variable, the results turn negative and significant at the 1% or better level (coeff = –0.001). This implies that higher employee ownership during the prior year is associated with lower R-square over the following year; that diminishes with age, but turns lower again as portfolio managers increase their AUM. This result also implies

that managers with an ownership position are more likely to have better skills and information than non-owners. Interestingly, the coefficient of the quadratic term of employee ownership is significantly positive across all models. As employee ownership increases, managers tend to become more risk averse. This tendency is logical, as partnership may represent a significant portion of the managers' net worth and they therefore may take fewer risks in the portfolios in return for a stable company, especially as the organization grows its assets. The regression for the Table 4 is as follows:

$$R_t^2 = const + \beta_1 EmplOwnership + \beta_2 Age_t + \beta_3 Size_{t-1} + \sum_{i=1}^{20} \sum_{k=4}^{24} \beta_k Year_i + \varepsilon_t,$$

where

- R^2 = a measure of factor models fit (R-square of a corresponding factor model regression),
- *EmplOwnership* = employee ownership in percentage terms,
- *Age* = total period of reporting in years,
- *Size* = log (AUM), and
- φt = time factor.

IV.INFLUENCE OF EMPLOYEE OWNERSHIP USING A DUMMY VARIABLE ON PERFORMANCE, RISK, AND R-SQUARE

I divided the data into two sets, using a dummy variable of (1) if employee ownership is greater than zero and (0) if employee ownership is reported as zero. I then conducted tests to analyze the relation between employee ownership and performance, idiosyncratic risk, and R-square to paint a broader picture of employee ownership's effect on SMA portfolios.

IV.1 Influence of Employee Ownership (Dummy Variable) on Performance

Table 5 shows the relationship between employee ownership (dummy variable) and performance.

Insert Table 5

Consistent with my hypothesis, the relationship between employee ownership and performance is positive and significant at a 1% or better level across return and all factor models. The Sharpe ratio is again negative. The coefficient for Return (coeff = 0.338) is of particular interest which implies that investors in portfolios with employee ownership of greater than zero received a 0.338% higher return annually over the study's 20-year period than investors who put their capital with portfolio managers who had no employee ownership. The alphas generated from the factor models were positive and statistically significant at the 1% level or greater with a range of 0.038 to 0.120. The Sharpe ratio was once again negative and statistically significant at the 1% level or better (coeff = –0.071). When adding the control variable of Age, the results were positive and statistically significant at the 10% level (coeff = 0.011) for Return, but were once again negative and statically significant (coeff = –0.003) in the Fung and Hsieh model (Fung and Hsieh 2004);

this is similar to the findings of the broader performance statistics reported in Table 2. Size also reflected similar results to those shown in Table 2 in that the return was negative and statistically significant at the 1% level or better (coeff = –0.277) and the factor models were negative and statistically significant at the 1% level or better with a range of –0.023 to –0.040. Finally, the Sharpe ratio was negative and statistically significant at the 5% level (coeff = –0.003). The regression Table 5 is as follows:

$$Return_t = const + \beta_1 EmplDummy + \beta_2 Age_t + \beta_3 Size_{t-1} + \sum_{i=1}^{20}\sum_{k=4}^{24} \beta_k Year_i + \varepsilon_t,$$

where

- *Return* = a performance measure (annual return or a corresponding factor alpha),
- $EmplDummy$ = the employee-ownership dummy variable that takes a value of 1 if employee ownership is positive,
- *Age* = total period of reporting in years,
- *Size* = log(AUM), and
- φt = time factor.

4.2 *Influence of Employee Ownership (Dummy Variable) on Risk*

Table 6 shows the relationship between employee ownership (dummy variable) and risk.

Insert Table 6

Consistent with my hypothesis, employee ownership (dummy variable) and idiosyncratic risk is positive and significant at a 1% or better level across the SD of return and all factor models. The SD of return is 1.365. The range of the factor models is 1.136 to 1.315. The coefficient of the quadratic term is positive across all factor models, implying that

employee ownership has a dampening effect on risk-taking. However, as reported in Table 3, the results turn negative and statistically significant at the 1% level or better for the SD of return as well as for the factor models when the control variables *Age* (coeff = –0.075) and *Size* are introduced. The regression for Table 6 is as follows:

$$Risk_t = const + \beta_1 EmplDummy + \beta_2 Age_t + \beta_3 Size_{t-1} + \sum_{i=1}^{20} \sum_{k=4}^{24} \beta_k Year_i + \varepsilon_t,$$

where

- *Risk* = a measure of risk (SD of returns as a measure of total risk or SD of residuals of corresponding factor models as a measure of idiosyncratic risk),
- $EmplDummy$ = the employee-ownership dummy variable that takes a value of 1 if employee ownership is positive,
- *Age* = total period of reporting in years,
- *Size* = log(AUM), and
- φt = time factor.

4.3 *Influence of Employee Ownership (Dummy Variable) on R-square*

I now analyze the relationship between employee ownership and R-square using a dummy variable.

Insert Table 7

As Table 7 shows, consistent with my hypothesis, a negative relationship exists between portfolio R-square and employee ownership (the dummy variable), significant at 1% or better with all factor models except CAPM, which was significant at the 5% level. The range of the four models is –0.005 to –0.010. Once again, as in Table 4, the control variable *Age* was statistically significant and positive at the 1% level or better across all factor models

(with a range of 0.0002 to 0.001), and the control variable *Size* (lagged) was negative and statistically significant at the 1% level or better for two of the four factor models: CAPM (coeff = –0.001) and Fung and Hsieh (coeff = –0.002). The regression for Table 7 is as follows:

$$R_t^2 = const + \beta_1 EmplDummy + \beta_2 Age_t + \beta_3 Size_{t-1} + \sum_{i=1}^{20} \sum_{k=4}^{24} \beta_k Year_i + \varepsilon_t,$$

where

- R^2 = a measure of factor models fit (R-square of a corresponding factor model regression),
- $EmplDummy$ = the employee-ownership dummy variable that takes a value of 1 if employee ownership is positive,
- *Age* = total period of reporting in years,
- *Size* =log (AUM), and
- φt =time factor.

V.INFLUENCE OF EMPLOYEE-OWNERSHIP RANGES ON PERFORMANCE, IDIOSYNCRATIC RISK AND R-SQUARE

As I now describe, I conducted various tests to analyze and compare the relation and differences between employee ownership and performance, idiosyncratic risk, and R-square within quartiles using the control variables of *Age* and *Size*.

V.1 Influence of Employee Ownership (Ranges) on Performance

I now analyze the influence of employee ownership on performance using quartiles to examine the differences between ownership percentages.

Insert Table 8

As Table 8 shows, the results are interesting in that the return and factor models are uniformly positive and significant to the 1% level or better across the board — with two exceptions. The return for employee ownership between 50–75% is positive and statistically significant at the 5% level, while employee ownership at 75–100% shows no significance. The Sharpe ratio is once again negative, with a decreasing range of –0.081 to –0.049. Return decreases with increased ownership, with the most pronounced effect from the second quartile (25–50%) to the third quartile (50–75%), of 0.806 to 0.319 to 0.076%. This 0.73% annual decrease in return could be costly to investors over a 20-year time period. The alpha also decreases with increased ownership across all models; Carhart (Carhart 1997) shows the greatest range, with a high of 0.190 in the second quartile to a low of 0.012 in the fourth. The highest return and alpha figures are in the range of 25–50% employee ownership, implying that outside ownership SMAs may have a positive effect. This result is in line with Mullally

(2016), who explored the effects of outside ownership in hedge funds and concluded that they were positive.

The control variables of *Age* and *Size* continued to have similar results as described in Tables 2 and 5. *Age* was positive and significant to the 5% level for *Return* (coeff = 0.013). As in the previously mentioned tables, *Age* was negative and significant at the 1% level or better only in the Fung and Hsieh (Fung and Hsieh 2004) factor model (coeff = –0.003). *Size* was negative and significant at the 1% level or better for *Return* (coeff = –0.282) and across all factor models, with a range of –0.023 to –0.040. The regression for Table 8 is as follows:

$$Return_t = const + \sum_{i=1}^{3} \beta_i EmplFactor + \beta_4 Age_t + \beta_5 Size_{t-1} + \sum_{i=1}^{20} \sum_{k=6}^{26} \beta_k Year_i + \varepsilon_t,$$

where

- *Return* = a performance measure (annual return or a corresponding factor alpha),
- $EmplFactor$ = the employee-ownership quantile factor variable,
- *Age* = total period of reporting in years,
- *Size* = log (AUM), and
- φt = time factor.

V.2 Influence of Employee Ownership (Ranges) on Risk

I now analyze the influence of employee ownership on risk using quartiles to examine the differences between ownership percentages.

Insert Table 9

As Table 9 shows, the results are again uniformly positive and significant at the 1% level or better for the SD of returns and across all models. The SD follows the performance pattern in that it is higher at the lower levels of ownership, with an observation of 1.853 in the second quartile, and then decreases in a linear and rather pronounced way to 0.707 in the fourth quartile. The risk is also reduced across the board, with the highest observation in CAPM of 1.788 in the second quartile and the lowest observation in Fung and Hsieh (Fung and Hsieh, 2004) of 0.615 in the fourth quartile. This result continues to strengthen the hypothesis that higher ownership leads to a decrease in risk-taking activity.

Also, adding the control variables of *Age* and *Size* (lagged) have an observed effect on decreasing risk-taking. *Age* and *Size* were negative and significant to the 1% level or better for both SD of return: *Age* (coeff = –0.071) and *Size* (coeff = –0.163) and in all factor models with a range of –0.044 from the Fung and Hsieh model (Fung and Hsieh 2004) to –0.069 in CAPM for *Age*, and a range of –0.058 from the Fung and Hsieh model (Fund and Hsieh 2004) to –0.150 for CAPM. The regression for Table 9 is as follows:

$$Risk_t = const + \sum_{i=1}^{3} \beta_i EmplFactor + \beta_4 Age_t + \beta_5 Size_{t-1} + \sum_{i=1}^{20} \sum_{k=6}^{26} \beta_k Year_i + \varepsilon_t,$$

where

- *Risk* = a measure of risk (SD of returns as a measure of total risk or SD of residuals of corresponding factor models as a measure of idiosyncratic risk),
- $EmplFactor$ = the employee-ownership quantile factor variable,
- *Age* = total period of reporting in years,
- *Size* = log (AUM), and
- φt = time factor.

V.3 Influence of Employee Ownership (Ranges) on R-square

I now analyze the influence of employee ownership on R-square using quartiles to examine the differences between ownership percentages.

Insert Table 10

As Table 10 shows, the results of the analysis on R-square proved to be a mixed bag. The only model that showed significance at the 1% level or better across all ranges was the Carhart model (Carhart 1997). The observations were negative beginning in the second quartile (coeff = –0.013) and decreased in a linear manner to the third quartile (coeff = –0.008) and finally to the fourth quartile (coeff = –0.007). *Age* was positive and significant at the 1% level across all models with a range of 0.0002 to 0.001. *Size* was negative and statistically significant as observed only in CAPM (coeff = –0.001) and the Fung and Hsieh model (coeff = –.0002) (Fung and Hsieh 2004). The regression for Table 10 is as follows:

$$R_t^2 = const + \sum_{i=1}^{3} \beta_i EmplFactor + \beta_4 Age_t + \beta_5 Size_{t-1} + \sum_{i=1}^{20} \sum_{k=6}^{26} \beta_k Year_i + \varepsilon_t,$$

where

- R^2 = a measure of factor models fit (R-square of a corresponding factor model regression),
- $EmplFactor$ = the employee-ownership quantile factor variable,
- *Age* = total period of reporting in years,
- *Size* = log (AUM), and
- φt = time factor.

VI.ACADEMIC DISCUSSION

In this paper, I accomplished two objectives: I explained the relationship between employee ownership of advisory firms and SMAs in terms of performance, risk, and R-square; and I defined SMAs as an asset structure and described how they differ from other structures, such as mutual funds and hedge funds. Defining and then differentiating SMAs from hedge and mutual funds was critical as it helps situate the study's results within a broader context. Mullally (2016) examined hedge fund advisors that sell ownership stakes; the implication being that hedge fund managers were full owners of their respective funds at a point prior. Unlike mutual funds, which are dominated by a few large firms with de minimis employee ownership, SMAs sit at the crossroads, with some advisory firms having substantial employee ownership, while others have no employee ownership. SMAs are thus a unique structure through which to study the ownership phenomena and perhaps generalize the benefits of ownership across structures.

My results confirmed the tested hypotheses. In testing performance between the two distinct groups of separate account management firms — those with and without employee ownership — I found that the employee-owned firms strongly outperformed the non-employee-owned firms from a total return perspective over the 20-year study.

My first hypothesis was that SMA portfolios managed by employees with a stake in the firm would outperform those managed by those without a stake in the firm. I confirmed this hypothesis, with the results showing that the employee-owned SMA portfolios outperformed non-employee-owned SMA portfolios by an average of 0.338% annualized over the life of the study. The most notable outperformance here was in the 25–50% ownership range, which reported an average outperformance of 0.806% annualized over the study period. These two results are in line with the findings of Elton, Gruber and Blake

(2013) who noted that partnerships, which are employee-owned by definition, outperformed all other management structures for SMA portfolios. Berzins, Liu, and Trzcinka (2013) also found that institutional fund portfolios run by people employed by investment banks underperformed those who weren't. This is their paper's key finding; after all, performance is the one requisite ingredient for a firm's survival and long-term success. Although flows are the direct mechanism for a firm's increased revenue, without performance, firms eventually wither and die. This follows on Lim and Weisbach (2016), who found that, among money management firms, good current performance is an indirect incentive as it increases future inflows of capital, leading to higher future fees. Further, in their study, the best performance seems to have come from firms that included outside ownership of up to 75% of their company. This leads to further questions about who these outside owners are and what their role is in determining manager success. My results also bode well for the literature stream on SMA portfolio performance persistence led by Busse, Goyal, and Wahal (2010). In finding that employee-owned firms outperform non-employee-owned firms, it would follow that flows would increase and thus further benefit the manager. In reporting on investor behavior following outperformance, Coggin, Fabozzi, and Rahman (1993), Del Guercio and Tkac (2002), and Heisler et al. (2007) all find that flows did increase and persist, thus leading to a virtuous cycle rewarding both manager and investor.

My second hypothesis — that employee-owned SMA portfolio managers take more idiosyncratic risks than their non-employee-owned counterparts — was also validated by the study's results. The standard deviation was 1.365 with employee-owned portfolios versus non-employee-owned using a dummy variable; the observation was most pronounced at the ownership range of 25–50%, which is similar to the performance measurement's result of

1.853. This risk result aligns with Goyal and Santa-Clara (2003) who found that idiosyncratic risk matters in achieving higher returns.

My third hypothesis — that R-square would be lower with employee-owned versus non-employee-owned SMA portfolio managers — was also observed. In each regression I ran, the sign was consistently negative and significant. These results support Titman and Tiu (2011), who asserted that higher-performing portfolios usually exhibited a lower correlation to the market, as reflected in the R-square result.

I have offered several potential explanations for the risk result, which I think is the most interesting finding to emerge from this research. The most logical explanation is that managers who open their own firms already have a strong track record of success. If their record had been mediocre, the likelihood of their leaving an existing position and bringing clients with them would be very low. So, opening a firm strongly suggests that the founders/portfolio managers are better skilled and more confident than their counterparts in non-employee-owned firms both at identifying risk and capitalizing on it to provide higher returns. This follows the logic expressed by Brown, Goetzmann, and Park (2010) and Chevalier and Ellison (1998), who found that higher-performing managers tended to be richly rewarded, while lower-performing managers tend to disappear from the investing industry.

A second possible explanation is that the incentives for a portfolio manager to avoid herd behavior are strong. In an industry as competitive and transparent as portfolio management, managers have strong incentives to outperform. If you outperform your peers and are on the right platforms, you will have a strong flow of dollars to manage. If you

underperform, the barriers to investors leaving you are essentially only the tax consequences of the change; positions can be liquidated and the money sent to a new manager in a single day. By their very nature, employee-owned firms are much less likely to have as high a turnover as non-employee-owned firms. In an employee-owned firm, when you fire the portfolio manager, you are, in effect, firing yourself; as a result, a fund shuts down. In the mutual fund industry, turnover is more common. Kostovetsky and Warner (2015) studied the period 1995–2009 and found that approximately 14% of all portfolio managers were terminated annually, resulting in 11,405 departures. The most common correlation they found was between termination and fund underperformance. Chevalier and Ellison (1998) also found that mutual fund managers were terminated for performance-related reasons. According to their research, younger managers were more likely to be terminated than older ones, leading portfolio managers to avoid unsystematic risk and to tend toward herd behavior and investments in more conventional portfolio investments. In their work, Guerrieri and Kondor (2009) described the "reputational premium" phenomenon: when investors believe managers have the talent to perform, those managers are more willing to take on default risk to avoid being fired. Once those managers gamble and take on a higher risk profile, one of two things happens: they are rewarded for that risk with higher performance or they are fired. The ones who are rewarded then have other options, such as to move to a hedge fund or another mutual fund for higher compensation. Depending on their experience, the ones who are fired are likely to resume their career in the mutual fund industry at another firm. Managers who do not take on a higher risk profile are likely to exhibit herding behavior, purchasing securities that are in line with the style standard and thus greatly reducing their ability to outperform their competitors.

One final and somewhat controversial finding that merits discussion is that, although there is a clear and beneficial difference in performance between firms that have employee-ownership and those that don't, as firms increase their percentage of employee ownership, they seem to obtain higher returns at the expense of higher risk. This is revealed through the negative coefficient for the Sharpe ratio when interpreting the effect of employee ownership on performance. The summary statistic on the Sharpe ratio was positive, which suggests that the firms with higher employee ownership take more risks to achieve higher returns; this suggestion was reiterated in the findings on risk. It is certainly an area that merits further study.

VII.PRACTITIONER DISCUSSION

This paper contributes to industry practitioners in two key ways that parallel the academic discussion. First and foremost, I have identified one easily sortable characteristic that can help even novice investors choose better managers. As a practitioner for nearly 25 years, this idea was a driving factor of my research. My results show that investors looking at SMAs can benefit from asking one simple question: "Does the advisory firm have employee ownership? By choosing an employee-owned SMA, investors immediately give themselves a higher likelihood of ultimately capturing that 0.338–0.806% of annual outperformance over time.

As investors grow more sophisticated, they can look at the percentage of employee ownership to gain further potential advantage. My results indicate that 25–50% employee ownership is optimal for achieving the highest portfolio performance. In such cases, at least 50% of the firm's ownership is external to the employees, which constitutes a strong influence and thus might increase the portfolio manager's discipline. As the ownership grows above 50%, the benefit dissipates in a linear fashion, but is still present at 100% ownership. The tradeoff here seems to be that the managers are taking more risks than their counterparts to get their returns, as manifested by a negative Sharpe coefficient. In plain language, this typically means higher volatility. Thus, investors with shorter time horizons might want to exercise caution when investing in these portfolios, as timing may matter more than in portfolios at firms with a lower percentage of employee ownership.

Also in this paper, I give a clear working definition and description of an SMA. In simple terms, I compare and contrast SMAs with both mutual funds and hedge funds, describe their possible benefits to investors, and situate them in the investing world. I then test a general rule: people with ownership positions outperform those without them. I

carefully follow the rules of science required to make a statement about any financial subject, including getting robust and reliable data, formulating hypotheses, running regressions, finding significance, and arriving at critically examined conclusions. As a result, I can say to practitioners that SMA managers with some level of corporate employee ownership have historically had higher returns than those without that ownership. Further, I can say that they have achieved these returns by taking more risks and have been less correlated to the market overall.

My final contribution to practitioners is to give them another tool to help them differentiate among SMAs when choosing to invest. In their conclusion, Coggan, Fabozzi, and Rahman (1993) challenged researchers to do more to discover some of the characteristics that make successful money managers. As the Informa database notes, as an investment professional, I have the ability to invest in more than 14,000 SMAs. After deciding the amount to allocate to equities and fixed income, then the amount to allocate to Small Cap versus Large Cap, or Value versus Growth, or International versus Domestic, I'm still left with hundreds of investable portfolios in each category. I hope that adding this indicator will be useful to my fellow investment professionals when making allocation decisions.

Finally, for both academics and practitioners, I hope that my explanation of what an SMA is will help them understand this important and growing segment of the investment universe.

VIII.TABLES

Table 1: Summary table

This table reports the summary statistics of the key variables. The dependent variable is *% of Employee Ownership*. *Return* is an annualized return. *Alphas* are intercepts of linear regressions of the monthly returns on corresponding factors of the CAPM, Fama and French, Carhart, and Fung and Hsieh models. *Sharpe* is the Sharpe ratio. *SD of Return* is the annualized standard deviation of returns. *Idiosyncratic risk* is the annualized SD of residuals in the corresponding factor models. *R-sqr* is the R-square of the corresponding factor regressions. *Age* (measured in years) is an approximation of the product's age, assuming the product was launched in the first month of being reported to the database. *Size* is a natural logarithm of the AUM. *Return*, *Alphas*, and *Sharpe* are winsorized at 1% and 99%.

Statistic	N	Mean	St. Dev.	Min	Max
% of Employee Ownership	141,392	51.150	44.700	0.000	100.000
Performance measures					
Return	154,725	9.021	14.550	–18.260	34.040
Sharpe	154,705	0.880	1.426	–2.001	3.825
CAPM Alpha	154,725	0.617	1.232	–1.737	2.759
Fama and French Alpha	154,725	0.895	1.380	–1.880	3.311
Carhart Alpha	154,725	1.109	1.525	–2.192	3.748
Fung and Hsieh Alpha	154,725	0.745	1.876	–2.805	3.888
Risk measures					
SD of Return	154,725	12.190	8.324	0.000	133.600
CAPM Idiosyncratic Risk	154,725	11.680	8.141	0.000	132.700
Fama and French Idiosyncratic Risk	154,725	10.520	7.455	0.000	132.500
Carhart Idiosyncratic Risk	154,725	9.878	7.117	0.000	132.200
Fung and Hsieh Idiosyncratic Risk	154,725	6.830	5.266	0.000	94.290
R-sqr measures					
CAPM R-sqr	154,724	0.091	0.127	0.000	0.901
Fama and French R-sqr	154,724	0.264	0.173	0.000	0.998
Carhart R-sqr	154,724	0.354	0.188	0.001	1.000
Fung and Hsieh R-sqr	154,724	0.659	0.188	0.039	1.000
Control variables					
Age	154,725	8.49	6.026	0.417	30.92
Size	120,874	5.431	2.372	–4.605	13.21

Table 2: Influence of the employee ownership % on performance

This table reports the regression coefficients and standard errors of linear regressions. *Return* is an annualized return. *Alphas* are intercepts of linear regressions of monthly returns on corresponding factors of the CAPM, Fama and French, Carhart, and Fung and Hsieh models. *Sharpe* is the Sharpe ratio. *Age* (measured in years) is an approximation of the product's age, assuming the product was launched in the first month of being reported to the database. *Size* is a natural logarithm of the AUM. *Return*, *Alphas*, and *Sharpe* are winsorized at 1% and 99%.

	Return	**CAPM Alpha**	**Fama and French Alpha**	**Carhart Alpha**	**Fung and Hsieh Alpha**	**Sharpe Ratio**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
% of Employee Ownership	0.001	0.0001**	0.0003***	0.001***	0.0003***	–0.001***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age	0.012**	0.000	(0.001)	(0.001)	–0.003***	0.006***
	(0.006)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Size (lagged)	–0.284***	–0.024***	–0.034***	–0.040***	–0.024***	–0.004**
	(0.015)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	17.910***	1.090***	0.756***	0.671***	2.165***	1.060***
	(0.233)	(0.020)	(0.023)	(0.027)	(0.030)	(0.025)
Observations	101,022	101,022	101,022	101,022	101,022	101,008
R-sqr	0.530	0.543	0.485	0.445	0.520	0.436
Adjusted R-sqr	0.530	0.543	0.485	0.445	0.520	0.436

$^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$

Table 3: Influence of the employee ownership % on risk

This table reports the regression coefficients and standard errors of linear regressions. *SD of Return* is the annualized standard deviation of returns. *Idiosyncratic risk* is the annualized SD of residuals in the corresponding factor models. *Age* (measured in years) is an approximation of the product's age, assuming the product was launched in the first month of being reported to the database. *Size* is a natural logarithm of the AUM.

	SD of Return	**CAPM Idiosyncratic Risk**	**Fama and French Idiosyncratic Risk**	**Carhart Idiosyncratic Risk**	**Fung and Hsieh Idiosyncratic Risk**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
% of Employee Ownership	0.008***	0.008***	0.007***	0.007***	0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Age	–0.074***	–0.073***	–0.064***	–0.061***	–0.046***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)
Size (lagged)	–0.165***	–0.152***	–0.144***	–0.134***	–0.059***
	(0.011)	(0.011)	(0.010)	(0.009)	(0.007)
Time FE	Yes	Yes	Yes	Yes	Yes
Constant	10.090***	9.855***	8.708***	7.871***	5.092***
	(0.174)	(0.169)	(0.157)	(0.149)	(0.109)
Observations	101,022	101,022	101,022	101,022	101,022
R-sqr	0.224	0.233	0.220	0.228	0.230
Adjusted R-sqr	0.224	0.233	0.220	0.228	0.230

$^{*}p$ <0.1; $^{**}p$ <0.05; $^{***}p$ <0.01

Table 4: Influence of the employee ownership % on R-sqr

This table reports the regression coefficients and standard errors of linear regressions. *R-sqr* is the R-square of the corresponding factor regressions. *Age* (measured in years) is an approximation of the product's age, assuming the product was launched in the first month of being reported to the database. *Size* is a natural logarithm of the AUM.

	CAPM R-sqr	**Fama and French R-sqr**	**Carhart R-sqr**	***Fung and Hsieh R-sqr***
	(1)	**(2)**	**(3)**	***(4)***
% of Employee Ownership	–0.00002***	–0.0001***	–0.0001***	*(0.000)*
	(0.000)	(0.000)	(0.000)	*(0.000)*
Age	0.0002***	0.0002***	0.001***	*0.001***
	(0.000)	(0.000)	(0.000)	*(0.000)*
Size (lagged)	–0.001***	0.000	0.000	*–0.002***
	(0.000)	(0.000)	(0.000)	*(0.000)*
Time FE	Yes	Yes	Yes	*Yes*
Constant	0.032***	0.213***	0.399***	*0.750****
	(0.002)	(0.003)	(0.004)	*(0.003)*
Observations	101,022	101,022	101,022	*101,022*
R-sqr	0.433	0.378	0.327	*0.385*
Adjusted R-sqr	0.433	0.378	0.327	*0.385*

$^{*}p$ <0.1; $^{**}p$ <0.05; $^{***}p$ <0.01

Table 5: Influence of employee ownership (dummy variable) on performance

This table reports the regression coefficients and standard errors of linear regressions. *Return* is an annualized return. *Alphas* are intercepts of linear regressions of the monthly returns on corresponding factors of the CAPM, Fama and French, Carhart, and Fung and Hsieh models. *Sharpe* is the Sharpe ratio. *Age* (measured in years) is an approximation of the product's age, assuming the product was launched in the first month of being reported to the database. *Size* is a natural logarithm of the AUM. *Return*, *Alphas*, and *Sharpe* are winsorized at 1% and 99%.

	Return	**CAPM Alpha**	**Fama and French Alpha**	**Carhart Alpha**	**Fung and Hsieh Alpha**	**Sharpe Ratio**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Employee ownership dummy (1/0)	0.338***	0.038***	0.081***	0.120***	0.044***	–0.071***
	(0.072)	(0.006)	(0.007)	(0.008)	(0.009)	(0.008)
Age	0.011*	0.000	(0.001)	(0.001)	–0.003***	0.006***
	(0.006)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Size (lagged)	–0.277***	–0.023***	–0.033***	–0.040***	–0.025***	–0.003**
	(0.014)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	17.670***	1.066***	0.711***	0.610***	2.146***	1.082***
	(0.235)	(0.020)	(0.023)	(0.027)	(0.031)	(0.025)
Observations	101,022	101,022	101,022	101,022	101,022	101,008
R-sqr	0.531	0.544	0.486	0.446	0.520	0.436
Adjusted R-sqr	0.530	0.543	0.486	0.446	0.520	0.436

$^{*}p$ <0.1; $^{**}p$ <0.05; $^{***}p$ <0.01

Table 6: Influence of employee ownership (dummy variable) on risk

This table reports regression coefficients and standard errors of linear regressions. *SD of Return* is the annualized standard deviation of returns. *Idiosyncratic risk* is the annualized SD of residuals in the corresponding factor models. *Age* (measured in years) is an approximation of the product's age, assuming the product was launched in the first month of being reported to the database. *Size* is a natural logarithm of the AUM.

	SD of Return	**CAPM Idiosyncratic Risk**	**Fama and French Idiosyncratic Risk**	**Carhart Idiosyncratic Risk**	**Fung and Hsieh Idiosyncratic Risk**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Employee ownership dummy (1/0)	1.365***	1.313***	1.199***	1.136***	0.794***
	(0.054)	(0.052)	(0.048)	(0.046)	(0.034)
Age	–0.075***	–0.073***	–0.064***	–0.062***	–0.047***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)
Size (lagged)	–0.165***	–0.153***	–0.145***	–0.135***	–0.059***
	(0.011)	(0.010)	(0.010)	(0.009)	(0.007)
Time FE	Yes	Yes	Yes	Yes	Yes
Constant	9.472***	9.272***	8.186***	7.376***	4.734***
	(0.175)	(0.170)	(0.158)	(0.150)	(0.110)
Observations	101,022	101,022	101,022	101,022	101,022
R-sqr	0.227	0.236	0.223	0.231	0.233
Adjusted R-sqr	0.227	0.236	0.223	0.231	0.233

$^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$

Table 7: Influence of employee ownership (dummy variable) on R-sqr

This table reports regression coefficients and standard errors of linear regressions. *R-sqr* is the R-square of the corresponding factor regressions. *Age* (measured in years) is an approximation of the product's age, assuming the product was launched in the first month of being reported to the database. *Size* is a natural logarithm of the AUM.

	CAPM R-sqr	**Fama and French R-sqr**	**Carhart R-sqr**	**Fung and Hsieh R-sqr**
	(1)	**(2)**	**(3)**	**(4)**
Employee ownership dummy (1/0)	–0.001**	–0.007***	–0.010***	–0.005***
	(0.001)	(0.001)	(0.001)	(0.001)
Age	0.0002***	0.0002***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Size (lagged)	–0.001***	0.000	0.000	–0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
Time FE	Yes	Yes	Yes	Yes
Constant	0.031***	0.215***	0.402***	0.753***
	(0.002)	(0.003)	(0.004)	(0.003)
Observations	101,022	101,022	101,022	101,022
R-sqr	0.433	0.378	0.328	0.385
Adjusted R-sqr	0.433	0.378	0.328	0.385

$^{*}p$ <0.1; $^{**}p$ <0.05; $^{***}p$ <0.01

Table 8: Influence of employee ownership (ranges) on performance

This table reports regression coefficients and standard errors of linear regressions. *Return* is an annualized return. *Alphas* are intercepts of linear regressions of the monthly returns on corresponding factors of the CAPM, Fama and French, Carhart, and Fung and Hsieh models. *Sharpe* is the Sharpe ratio. *Age* (measured in years) is an approximation of the product's age, assuming the product was launched in the first month of being reported to the database. *Size* is a natural logarithm of the AUM. *Return*, *Alphas*, and *Sharpe* are winsorized at 1% and 99%.

	Return	**CAPM Alpha**	**Fama and French Alpha**	**Carhart Alpha**	**Fung and Hsieh Alpha**	**Sharpe Ratio**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Employee ownership (>25% & =<50%)	0.806***	0.076***	0.135***	0.190***	0.095***	–0.081***
	(0.146)	(0.012)	(0.014)	(0.017)	(0.019)	(0.015)
Employee ownership (>50% & =<75%)	0.319**	0.036***	0.081***	0.107***	0.051***	–0.076***
	(0.135)	(0.011)	(0.013)	(0.015)	(0.017)	(0.014)
Employee ownership (>75% & =<100%)	0.076	0.012**	0.032***	0.054***	0.027***	–0.049***
	(0.069)	(0.006)	(0.007)	(0.008)	(0.009)	(0.007)
Age	0.013**	0.001	(0.001)	(0.001)	–0.003***	0.006***
	(0.006)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Size (lagged)	–0.282***	–0.023***	–0.033***	–0.040***	–0.024***	–0.004**
	(0.015)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	17.850***	1.085***	0.748***	0.661***	2.158***	1.063***
	(0.233)	(0.020)	(0.023)	(0.026)	(0.030)	(0.025)
Observations	101,022	101,022	101,022	101,022	101,022	101,008
R-sqr.	0.531	0.544	0.486	0.446	0.520	0.436
Adjusted R-sqr	0.530	0.543	0.486	0.446	0.520	0.436

$^{*}p$ <0.1; $^{**}p$ <0.05; $^{***}p$ <0.01

Table 9: Influence of employee ownership (ranges) on risk

This table reports regression coefficients and standard errors of linear regressions. *SD of Return* is the annualized standard deviation of returns. *Idiosyncratic risk* is annualized SD of residuals in corresponding factor models. *Age* (measured in years) is an approximation of the product's age, assuming the product was launched in the first month of being reported to the database. *Size* is a natural logarithm of the AUM.

	SD of Return	**CAPM Idiosyncratic Risk**	**Fama and French Idiosyncratic Risk**	**Carhart Idiosyncratic Risk**	**Fung and Hsieh Idiosyncratic Risk**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Employee ownership (>25% & =<50%)	1.853***	1.788***	1.642***	1.571***	1.013***
	(0.109)	(0.106)	(0.098)	(0.093)	(0.068)
Employee ownership (>50% & =<75%)	1.299***	1.255***	1.137***	1.090***	0.756***
	(0.100)	(0.097)	(0.090)	(0.086)	(0.063)
Employee ownership (>75% & =<100%)	0.707***	0.696***	0.649***	0.615***	0.409***
	(0.051)	(0.050)	(0.046)	(0.044)	(0.032)
Age	–0.071***	–0.069***	–0.061***	–0.058***	–0.044***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)
Size (lagged)	–0.163***	–0.150***	–0.141***	–0.132***	–0.058***
	(0.011)	(0.011)	(0.010)	(0.009)	(0.007)
Time FE	Yes	Yes	Yes	Yes	Yes
Constant	9.997***	9.766***	8.627***	7.793***	5.045***
	(0.173)	(0.169)	(0.156)	(0.148)	(0.109)
Observations	101,022	101,022	101,022	101,022	101,022
R-sqr	0.226	0.235	0.222	0.230	0.232
Adjusted R-sqr	0.226	0.235	0.222	0.230	0.232

$^{*}p$ <0.1; $^{**}p$ <0.05; $^{***}p$ <0.01

Table 10: Influence of employee ownership (ranges) on R-sqr

This table reports regression coefficients and standard errors of linear regressions. *R-sqr* is the R-square of corresponding factor regressions. *Age* (measured in years) is an approximation of the product's age, assuming the product was launched in the first month of being reported to the database. *Size* is a natural logarithm of the AUM.

	CAPM R-sqr	**Fama and French R-sqr**	**Carhart R-sqr**	**Fung and Hsieh R-sqr**
	(1)	**(2)**	**(3)**	**(4)**
Employee ownership (>25% & =<50%)	–0.004***	–0.010***	–0.013***	0.001
	(0.001)	(0.002)	(0.002)	(0.002)
Employee ownership (>50% & =<75%)	–0.002	–0.003*	–0.008***	–0.004*
	(0.001)	(0.002)	(0.002)	(0.002)
Employee ownership (>75% & =<100%)	–0.002***	–0.006***	–0.007***	(0.001)
	(0.001)	(0.001)	(0.001)	(0.001)
Age	0.0002***	0.0002***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Size (lagged)	–0.001***	0.000	0.000	–0.002***
	–0.0001	–0.0002	–0.0002	–0.0002
Time FE	Yes	Yes	Yes	Yes
Constant	0.032***	0.213***	0.399***	0.750***
	(0.002)	(0.003)	(0.004)	(0.003)
Observations	101,022	101,022	101,022	101,022
R-sqr	0.433	0.378	0.328	0.385
Adjusted R-sqr	0.433	0.378	0.328	0.385

$^{*}p$ <0.1; $^{**}p$ <0.05; $^{***}p$ <0.01

Table 11: Pairwise mean difference analysis

This table reports p-values of pairwise mean difference analysis of mean returns and standard deviation of returns of corresponding groups of SMAs based on employee ownership. ANOVA analysis showed statistically significant difference of means for both measures.

2. a Mean difference analysis of performance (Returns)

	[0,25]	**(25,50]**	**(50,75]**
(25,50]	0.000		
(50,75]	0.005	0.231	
(75,100]	0.000	0.061	0.711

2. b Mean difference analysis of risk (SD of Returns)

	[0,25]	**(25,50]**	**(50,75]**
(25,50]	0.000		
(50,75]	0.000	0.000	
(75,100]	0.000	0.000	0.000

IX.EXHIBITS

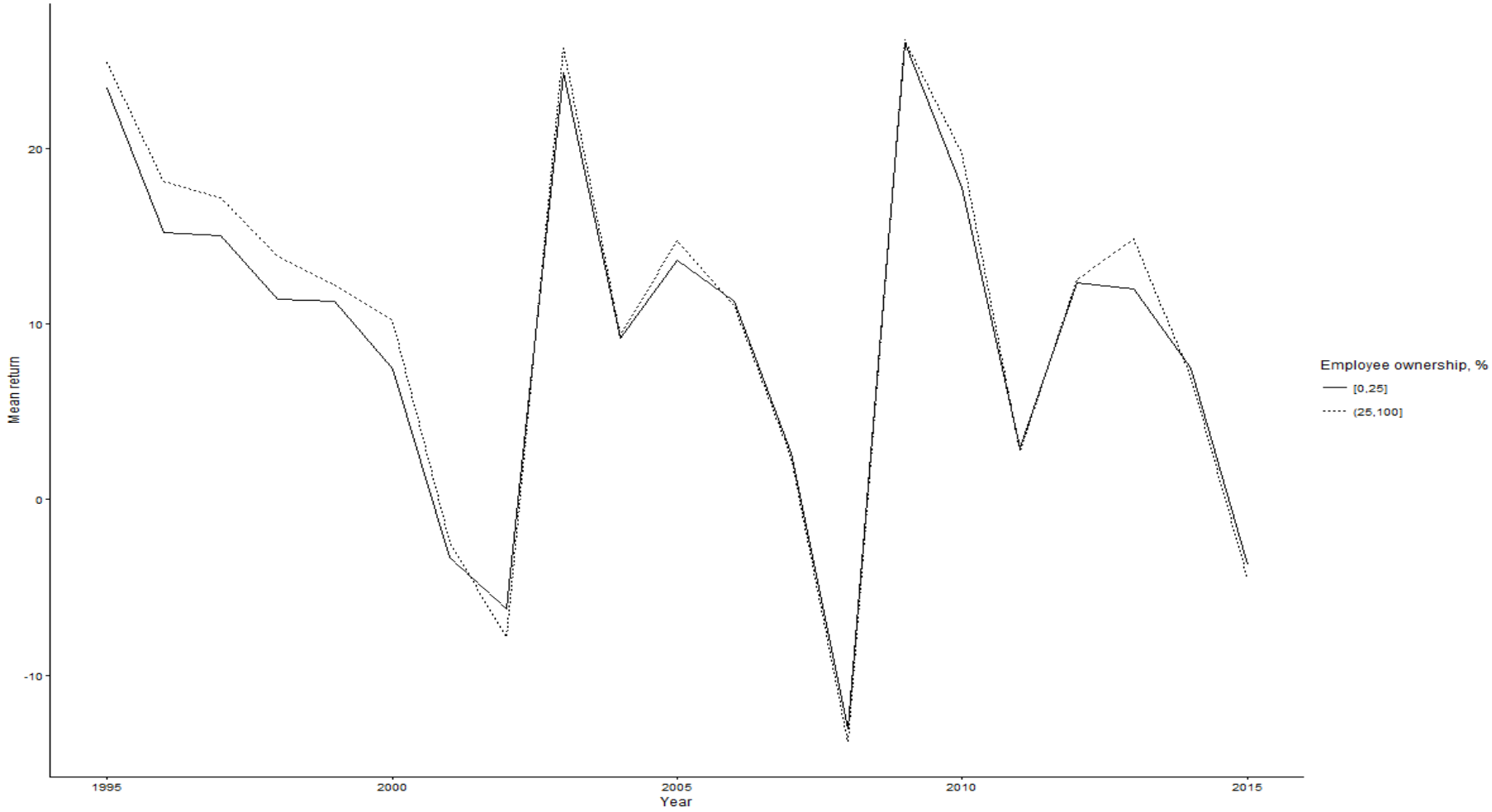


Exhibit 1: Mean returns

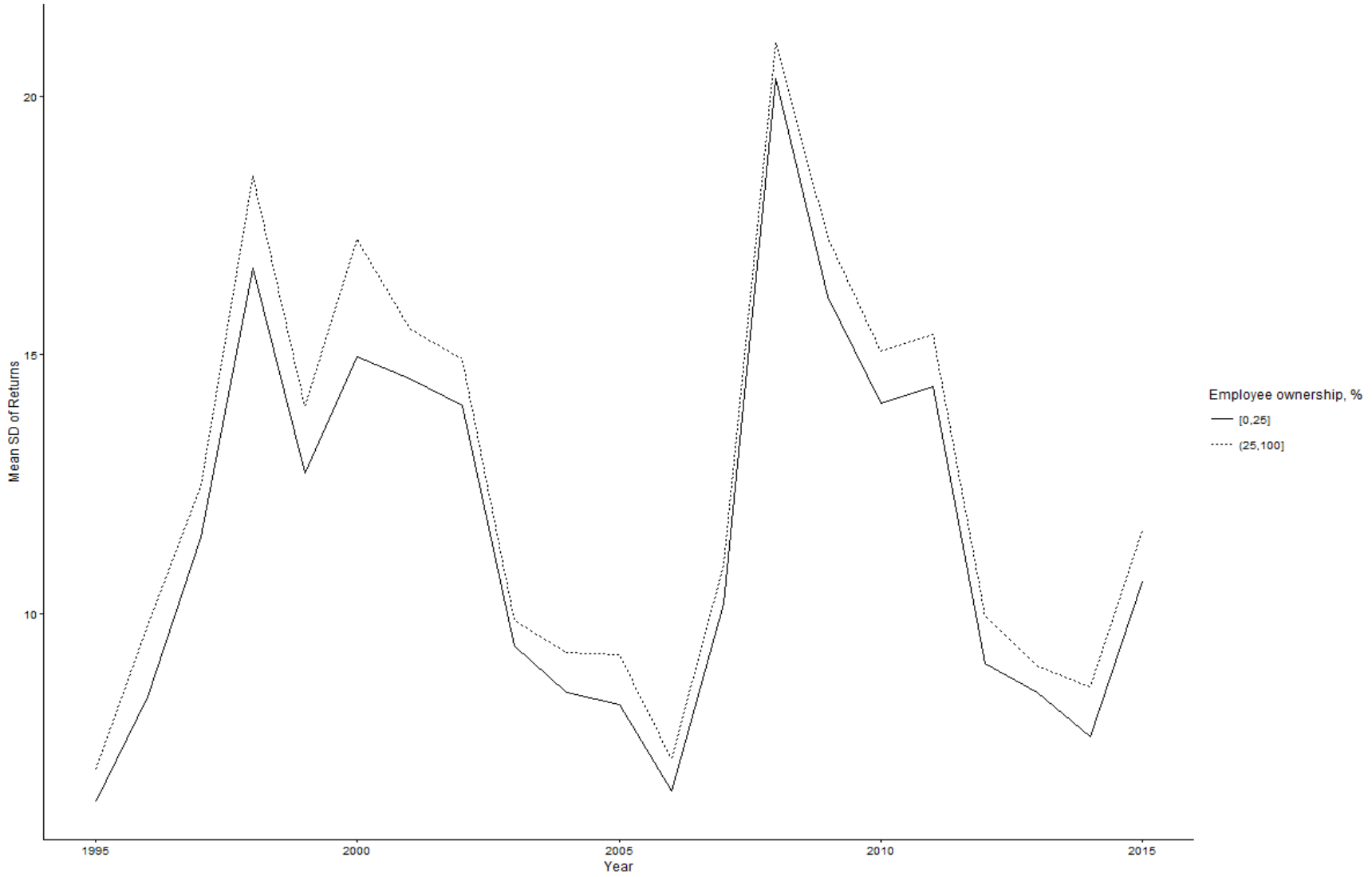


Exhibit 2: Mean SD of Returns

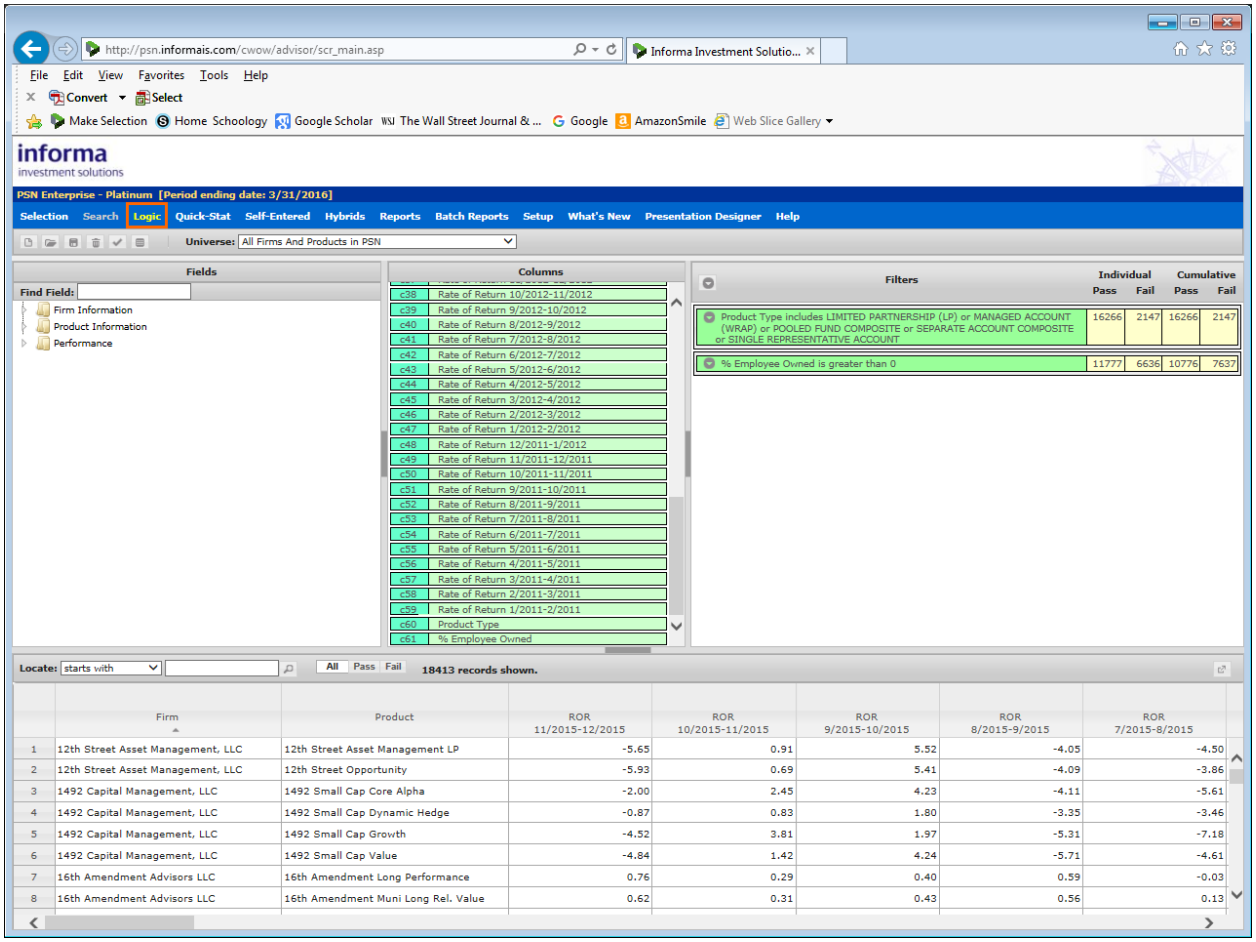
APPENDICES

Appendix A: Definition of Variables

Variable	Description
% Employee Ownership	Variable that describes whether or not the reporting portfolio has any employee ownership at the company level, and if so, what percentage
Performance Variables	
Return	Average annual return of the portfolios from 1995 to 2015
Sharpe Ratio	Annualized average of the portfolios excess returns (e.g., the return minus the risk-free rate) divided by the standard deviation of its returns over the same period
CAPM Alpha	Alpha for the Capital Asset Pricing Model (Sharpe,1966) is calculated using equation (1)
Fama and French Alpha	Alpha for the Fama and French three-factor model (Fama and French 1993) is calculated using equation (2)
Carhart Alpha	Alpha of the Carhart four-factor model (Carhart, 1997) is calculated using equation (3)
Fung and Hsieh Alpha	Alpha for the Fung and Hsieh seven-factor model (Fung and Hsieh, 2004) is calculated using equation (4)
Control Variables	
Age	The number of months the firm was reporting
Size	Assets under management (AUM) in millions
Risk Measures	
Standard Deviation of Return	The average annual return volatility of the portfolios for 1995–2015
CAPM Idiosyncratic Risk	See CAPM Alpha for equation
Fama and French Idiosyncratic Risk	See Fama and French Alpha for equation
Carhart Idiosyncratic Risk	See Carhart Alpha for equation
Fung and Hsieh Idiosyncratic Risk	See Fung and Hsieh Alpha for equation
R-square Measures	
CAPM R-square	See CAPM Alpha for equation
Fama and French R-square	See Fama and French Alpha for equation
Carhart R-square	See Carhart Alpha for equation
Fung and Hsieh R-square	See Fung and Hsieh Alpha for equation

Appendix B: Data Gathering Process: Informa Investment Solutions Example

This screenshot shows an example of how the database is aggregated and then divided for access. The top left column lets users search by field and offers drop-down menus for specific information on the firm, products, and performance. Once users select a particular characteristic, such as "rate of return," the information moves to the middle column. They can then separate the information further by choosing particular characteristics or time frames in the box on the right. The portfolio database then calculates the requested data and displays it alongside each portfolio at the bottom of the page.



Appendix C: Characteristics of SMAs vs. Hedge Funds and Mutual Funds

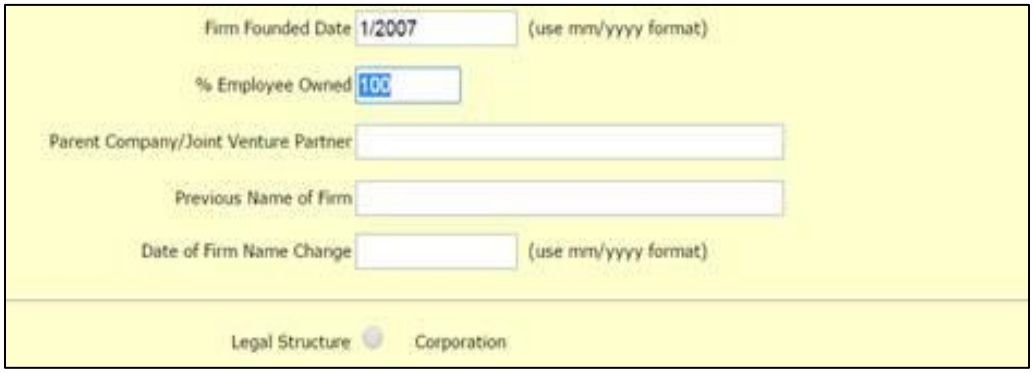
The following table compares the characteristics of separately managed accounts (SMAs), hedge funds, and mutual funds. The table summarizes work from Berzins, Liu, and Trzcinka (2013); Busse, Goyal, and Wahal (2010); Del Guercio and Tkac (2000); and Elton, Gruber, and Blake (2013), a well as my own 25 years of experience in the field.

Characteristics of SMAs, Hedge Funds, and Mutual Funds

	SMA	Mutual Fund	Hedge Fund
Registration	None	Yes, under Investment Act of 1940	Yes, if greater than $150mm AUM
Minimums	$100k to $25 mm	$250 to $10,000	$250k to $25mm
Fees	Negotiable	Fixed at share class	Fixed at share class
Incentives	Rare	Rare	Usual
High Water Marks	Rare	Rare	Usual
Board Oversight	No	Yes	Yes
Assets Held	Individual securities	Pooled	Pooled
Tax	Individual	Pooled	Pooled
Reporting	Not required to report returns to SEC	Required to report returns	Required to report returns if registered
Customizable	Yes	No	No
Compensated by Percentage of AUM	Yes	Yes	Yes
Incentive for Risk Shifting	Neutral	High	High
Flow in Relation to Performance	Linear	Highly convex	Highly convex
Investor Accreditation Required	No	No	Yes
Allocated by a Professional	Usually	Sometimes	Usually
Style Specific Mandate	Often	Often	Varies
Window Dressing Present	No	Yes	Yes

Appendix D: Informa Gathers Ownership Data

Informa gathers ownership data through the following question:



Appendix E: Sample Firms

Following are basic information about two sample firms — one employee-owned and the other non-employee-owned, as well as further information copied from the "About Us" section of each firm's website.

	Hahn Capital Management LLC	**BlackRock**
Employee ownership at manager level*	Yes	No
Total AUM	$1.6 Billion	$4.89 Trillion
Number of employees	10	12,000
Corporate structure	Private/ LLC	Public
Year founded	1988	1988

**as self-reported by Informa Investment Solutions*

Employee-owned firm: Hahn Capital

http://www.hahncap.com/index.html

About Hahn Capital Management

Hahn Capital Management, LLC, is a boutique, value-focused investment management firm based in San Francisco, California. We specialize in buying shares of mid-sized companies with a market capitalization between $1 Billion and $20 Billion.

The firm was founded on the investment philosophy that risk management is the key to superior and consistent equity returns over long periods of time. The protection of our clients' investment capital is at the core of our investment decision process, so when analyzing each business opportunity, the first question we ask is: "How much can we lose?" Once this question is addressed, we then examine the potential investment return.

The firm was founded in 1988 by Elaine F. Hahn. It is 100% employee-owned, as we believe that all professionals in the firm should have the opportunity to share in the growth and success of the business through equity ownership.

Our diverse group of clients includes public institutions, corporations, family offices, separately managed account (SMA) and unified managed account (UMA) programs, as well as high net worth individuals. We strive to provide the highest quality of service to our clients, irrespective of the size of each portfolio.

Our team of investment professionals has extensive experience in market and security analysis, portfolio management and client service. More important, we share the values and goals that have served our clients well over the years: honesty, trustworthiness, dedication to excellence, and a passion for the investment business.

Non-employee-owned firm: BlackRock

https://www.blackrock.com/corporate/en-us/about-us

BlackRock is trusted to manage more money than any other investment firm*. Our business is investing on behalf of our clients — from large institutions to parents and grandparents, teachers, nurses, doctors and people from all walks of life who entrust their savings to us.

We work only for our clients. Our promise is to give them insight into what to do with their money, providing products and services that can help them build a better financial future.

Global capabilities

BlackRock has world-class capabilities designed for our clients' greatest needs, with a comprehensive range of products and services across asset classes, geographies and investment strategies. We have expertise in every region around the world, with 135 investment teams in 30 countries sharing their best thinking in order to seek better returns.

Who we serve

Our clients come from every corner of the globe. They are governments, companies, foundations, and millions of individuals saving for retirement, their children's educations and a better life.

Our singular focus

We’re passionate about our work and intensely focused on performing at the highest levels. To get there, we strive to out-think and out-work competitors and find the best balance of risk and return across all investment styles on behalf of our clients.

Responsibility

As a fiduciary for our clients and as public company, our focus is long-term sustainability. We aim to be a responsible corporate citizen and to take into account environmental, social and governance issues that have real and quantifiable financial impacts over the long-term for our firm and the firms in which we invest. Long-term responsibility and sustainability are integrated into our business model and shareholder value creation framework and in the way we conduct our business, serve our clients and give back to the communities in which we and our clients live and work.

Appendix F: Database Definitions

The following are Informa's definitions of the accounts used to aggregate the database from which I gathered the reports.

Account Name	Definition
Managed Account (Wrap)	This code is used to identify any wrap product, managed account, or wrap fee arrangement.
Limited Partnership (LP)	A business organization with one or more general partners who manage the business and assume legal debts and obligations, and one or more limited partners who are liable only to the extent of their investments.
Separate Account Composite	Representative compilation of accounts managed on an account-by-account basis subscribing to the same product style.
Single Representative Account	One account (out of many existing accounts) managed in a way that is representative of the account management style.

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