2012 Hedge Fund Business Expense Survey:

Industry-Wide Benchmarks for Managing a Hedge Fund Organization

Citi Prime Finance

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Key Findings

- Hedge fund manager **expenditures on support personnel and third party expenses are estimated at $14.1 billion USD** or the equivalent of 65 basis points of total industry AUM. These charges cover compensation costs for marketing and investor relations, risk and compliance, operations, technology and business management personnel. These costs also cover all third party expenses for the areas listed above as well as for the trading and research team.

- Because these costs are higher on a relative basis for smaller hedge funds and lower for larger hedge funds, our analysis shows that without incentive fee payouts or additional capital injections, **managers should have somewhere between $250 million and $375 million AUM** if they expect to **cover the expenses listed above** and pay nominal base salaries for front office personnel from management fee collections alone. These calculations do not account for the smallest firms and start-ups that may be able to run leaner firms with lower staff levels and operating overhead.

- Part of this high cost base for the industry is that **there is a one-to-one relationship between the ratio of investment personnel** (portfolio managers, research analysts and traders) **to portfolio-focused support personnel** (marketing & investor relations, risk and compliance, operations and technology) across hedge funds of all sizes – even franchise firms, in which a large AUM might have been expected to allow for some economies of scale. This brings into question whether these firms are making sufficient use of strategic outsourcing options.

- As hedge fund AUM increases, there is a **clear strategic shift** that occurs for the majority of managers. This pattern shows that as managers add headcount and **build out more specialized teams**, their reliance on third parties diminishes and **more of their capabilities are internalized**.

- **Small hedge funds** with less than $250 million AUM have a **very low headcount** and proportionately spend more of their compensation for support personnel on **business management** than any other size band because these individuals fulfil multi-functional roles. To ensure their overall business viability, these firms look to **third parties to fulfill the majority of their key functions.**

- **Medium-sized hedge funds** with between $250 million and $1.0 billion AUM significantly **increase their expenditure on operations and technology personnel** and correspondingly **reduce their third party spend** in this category. This is the first step toward the internalization of key functions.

- **Large hedge funds** with between $1.0 billion and $5.0 billion AUM invest in building out their internal investment support roles, **hiring predominantly into the marketing and investor relations function and expanding their risk and compliance teams.** Third party expenses in these categories and in key business management areas fall to **negligible levels** and most of the firm's value-add activities have been internalized by this point.

- **Franchise-sized respondents did not demonstrate the same pattern of internalization.** These managers showed a significantly different profile from large hedge funds. The majority (57%) of these participants have expanded their set of investment management products to incorporate more long only and private equity funds and, as a group, these managers focus on less liquid trading strategies (event driven, fixed income, relative value and multi-strategy).

- As a subset of the total $14.1 billion spend industry-wide, **year-over-year technology spend** on internal resources, hardware, software, data and third party IT services **is expected to increase 14% to $2.3 billion** versus the $2.1 billion listed in last year's IT Trends and Benchmark Survey. Of particular note was that nearly 3/4 of franchise-sized managers (>$5.0 billion AUM) and half of large managers ($1.0-$5.0 billion AUM) indicated that they expected to spend more on technology. None of the survey respondents in these categories indicated any decline in year-over-year IT spend.

Introduction

Welcome to the first annual Citi Prime Finance Hedge Fund Business Expense Survey, a follow-up and expansion of our 2011 report entitled Managing Your Hedge Fund IT Spend to Achieve Differentiation. The intent of this paper is threefold:

- provide an independent set of metrics that offer insight into the true costs of establishing and managing a hedge fund
- identify trends and patterns within those expenses that will assist our clients in understanding the development and maturity of the industry and in making decisions about their own investment and growth
- provide survey respondents and Citi clients insight into their specific group of peers so that they can understand their own positioning and better adjust their marketing to address investors that assess such cost metrics across every function within a fund as part of their due diligence evaluation

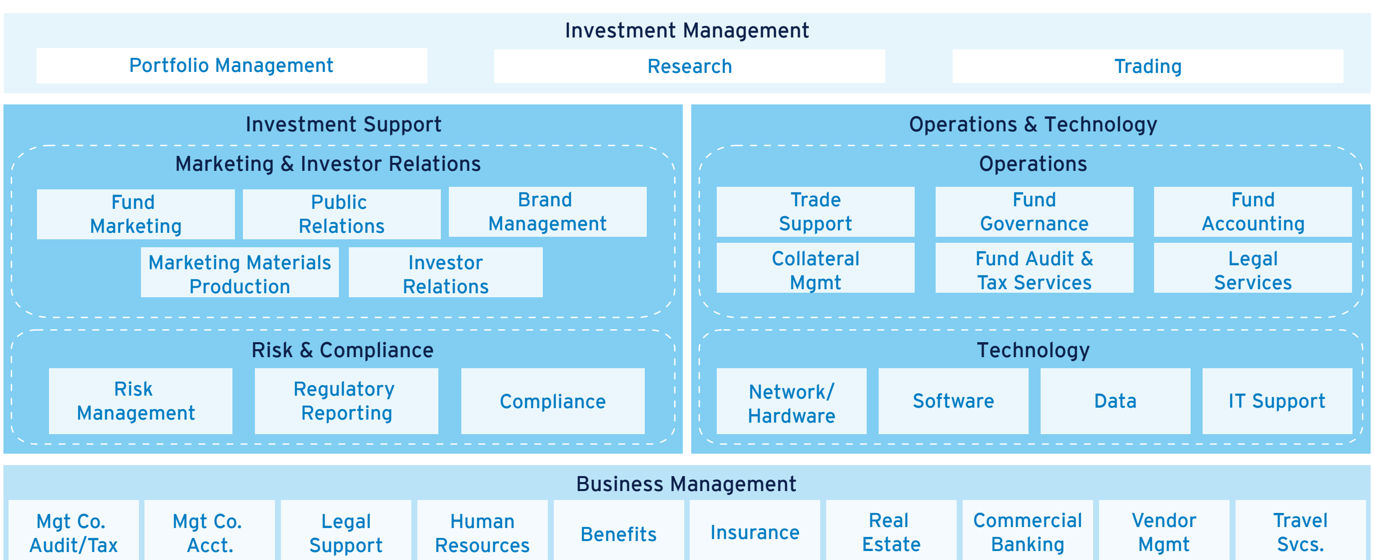
Following the positive feedback and success of last year's Technology Trends & Benchmark Survey, we decided this year to broaden our focus to include the full breadth of a hedge fund's business activities and costs associated with investment management and support functions. Using a common functional framework (Chart 1 below), we laid out an operating model for the industry that can be applied to hedge funds of different sizes, strategies, locations and "vintages" (the period in which the business was launched). This allows us to compare expenses at a granular yet consistent level across common peer groups.

This functional architecture used as the basis for the survey is an evolution of our Hedge Fund Maturity Model published in 2010 and incorporates the analytic principles laid out in our Hedge Fund 3.0 framework developed in 2011. Analysis in this paper groups the various functional categories of a hedge fund's operations as follows:

- **investment management**, trading and research-related functions (portfolio management, research and trading)
- **investment support** functions (marketing and investor relations, risk and compliance)
- **operations and technology** (middle office, finance, accounting and IT)
- **business management** (real estate, human resources, benefits, audit/tax and legal)

The only area of expense we deliberately excluded from the survey is compensation for investment management personnel (portfolio managers, research analysts and traders) and we did this for two reasons. Firstly, this compensation is often closely linked to performance and we did not want this report to be an analysis of industry performance. Secondly, we feel that these compensation details and trends are well covered by specialist recruitment firms. You will see various text reminders and footnotes on key tables that underscore this deliberate exclusion so that we do not confuse our readers.

Chart 1: Functional Architecture



Our expectation is that we will repeat this survey on an annual basis to begin building a "time series" view of how industry costs are evolving in each of these categories and are affecting the management and profitability of hedge fund managers. We hope that this will become a valuable planning tool for COOs, CFOs and CTOs.

This paper is laid out in two parts. In **Section I**, we examine the macro implications of the entire data set and drill into important cuts of the findings to show how the benchmarks vary as a result of a hedge fund's size, strategy or geographic presence. We highlight important data trends or considerations and discuss what the implications could be for hedge funds aligned to that profile. Findings in this section reflect the Citi Prime Finance Global Business Advisory team's view on what we found interesting when we looked across the full set of results.

In **Section II** of the report, we present a less filtered set of benchmark information for relevant cuts of the hedge fund universe. These benchmarks are split into 3 sections – by Size, by Strategy and by Geography. Each section features a series of charts that examines the compensation and third party expense profile of relevant hedge fund segments broken out to show the categories in the functional model. For the benchmarks by size, we have also presented a series of more detailed technology charts that provide an interesting point of comparison to last year's benchmark findings.

Methodology & Respondent Profile

The focus of this year's report is global, with respondents from the Americas, EMEA and APAC. Data was collected via an online survey tool with the format of the questionnaire built around the functional architecture in Chart 1. This year we chose not to supplement the data with primary interviews and the results in the report reflect a purely quantitative summary of findings. We have provided our own opinions and perspectives on some of the trends and outliers identified in the data but this is solely the proprietary view of the Citi Prime Finance Global Business Advisory team.

In total, Citi Prime Finance collected information from more than 80 hedge funds. Several cuts of profile information were compiled to create interesting and meaningful views of the data. Findings from several of these views will be highlighted in this report's findings and in the benchmark charts presented in the second half of the paper. We are also prepared to deliver a deeper exploration of the data on a select basis to survey participants and Citi clients.

The foremost grouping of hedge funds used in the public report is based on size and we plan on discussing the strategy, region and vintage analysis in the individual playbacks. An overview of the respondents' demographic is shown in Chart 2.

Our decision to use size thresholds to define small, medium, large and franchise hedge fund segments was based on research presented in prior white papers and surveys. These categories relate to important institutional investor perceptions about the hedge fund market and align to how these increasingly dominant providers of capital determine many of their allocation decisions. The size and AUM bands we use for the various segments are:

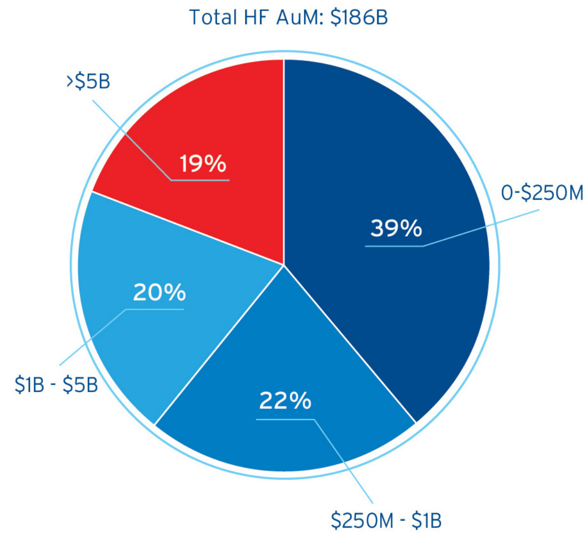
Small	<$250 million AUM
Medium	>$250 million AUM and <$1 billion AUM
Large	>$1 billion and <$5 billion
Franchise	>$5 billion

These bands were derived using commonly accepted maturity points in the growth of a hedge fund manager. To ensure meaningful results for the full array of our audience, we sought a representative spread of survey respondents across these bands. As shown, 39% of the survey respondents are classified as part of the small category, 22% are considered medium, 20% large and 19% franchise. In total, respondents' hedge fund AUM equaled $186 billion or 8.5% of the total industry assets.

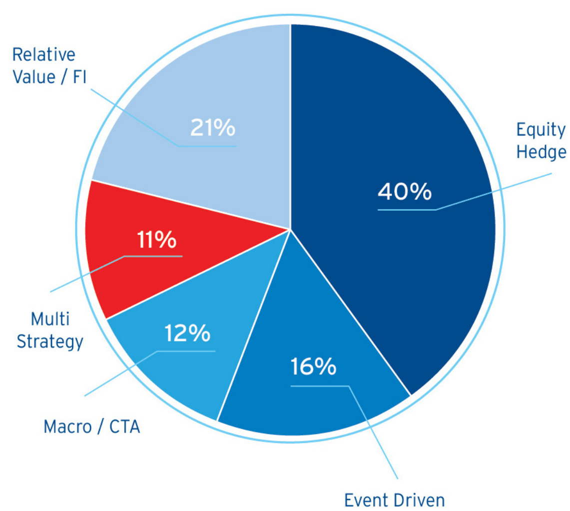
We also opted to use the Hedge Fund Research (HFR) strategy classifications to evaluate the investment approach of survey respondents. As such, we have further separated hedge funds as pursuing equity hedge strategies, event driven, CTA/macro and fixed income/relative value. The predominant share (40%) of those answering the survey would be considered part of the equity hedge group and the remaining respondents are spread fairly evenly across the remaining strategies.

While 62% of the survey respondents were headquartered in North America and the remaining 38% were evenly spread across EMEA and APAC, the investment focus of these firms was more diverse. Just over half of the survey respondents (52%) cited either **North America** or **Global** as their main investment focus with 30% split across developed **Europe** and **Asia** and the remaining 18% focused on **emerging markets** or **other**.

Profile of Survey Respondents

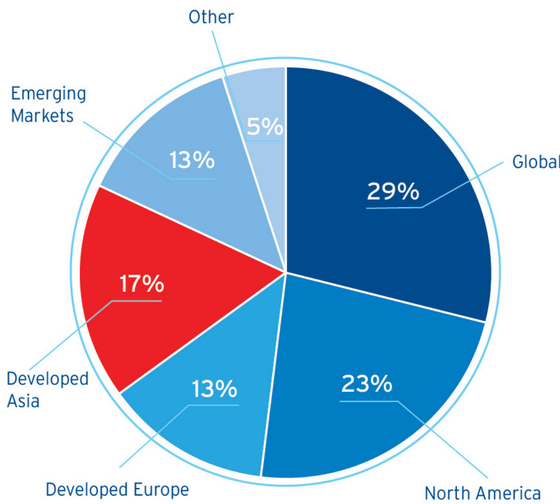


Respondents by HF Strategy

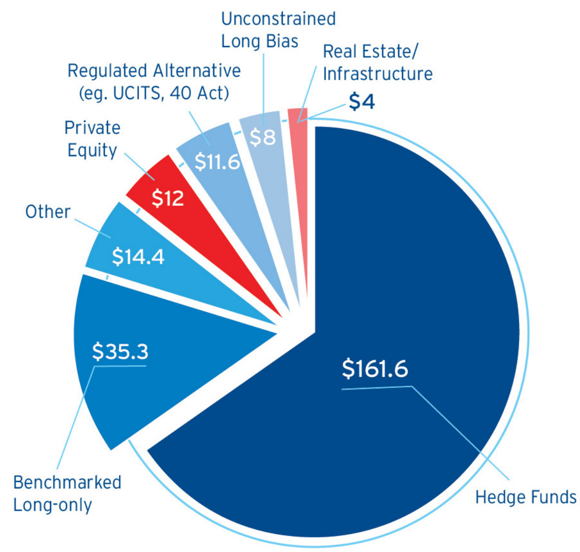


Profile of Survey Respondents (continued)

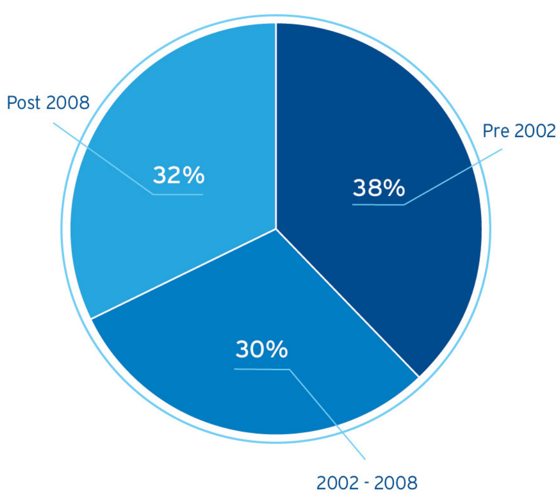
Respondents by Investment Focus



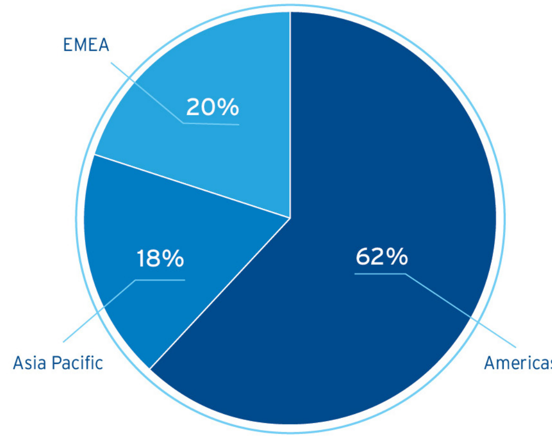
Respondents AuM Across Product Class (B)



Respondents by Vintage



Respondents by HQ Location



In line with our survey presented in June 2012, which discussed how there was an increasing level of convergence between traditional asset managers, hedge funds and private equity firms, we were able to attract many respondents who managed asset classes other than hedge funds. Total AUM of survey respondents was $247 billion, of which $61 billion is benchmarked long only, unconstrained long bias, regulated alternatives, private equity, real estate/ infrastructure funds and other capital.

Finally, our survey respondents were evenly split as to the vintage of their firms. Hedge funds that launched before 2002 represented 40% of the results, whereas those launching from 2002–2008 represented 30% and those launching post-2008 represented 32%. These time frames track roughly to important inflection points in the hedge fund industry. Pre-2002 reflects the early days of the industry, 2002–2008 reflects the era in which massive inflows from the institutional investment community spurred asset growth, and the post-2008 period reflects the current state of the industry as it evolves in the aftermath of the Liquidity Crisis of 2008.

As we discussed in last year's Technology Trends & Benchmarks Survey report, the vintage of when a fund launches has a significant impact on how it approaches operations and technology strategy. More details will be presented on this phenomenon later in the report, but as we would have expected, the move toward strategic outsourcing of key functions we noted last year and dubbed Hedge Fund 3.0 continued to influence the industry in 2012, being especially notable among the smallest/newest and largest/oldest firms in the industry.

The majority of data presented in this report has been equal-weighted. Actual AUM, headcount and expense data was evaluated and spend was then calculated in basis points for each individual respondent. These results were then averaged across firms of similar size. To create benchmarks, these indicative results were then applied against the average AUM for the entire size band.

By contrast, data presented in breakdowns of strategy and geography reflect asset-weighted analysis where the AUM, headcount and expense data for the entire subset of participants was added together and then the results of the total pool were calculated to determine basis points. This approach was required because the size of firms in each of these groupings was highly diverse. As such, individual consideration of each respondent's answers would have skewed our results without the normalizing filter of size.

If you are a recipient of this report and have questions regarding our approach and methodology or would like to be considered for a more customized review of the data, please feel free to reach out to your Citi sales contact or to us directly at prime.advisory@citi.com

Section I: Analysis of Key Findings

Much has been written in recent years on hedge fund managers' increasing cost of doing business. Several factors have required hedge fund managers to significantly rethink their approach and investment in their own operations:

- the industry-wide focus on operational due diligence in the wake of the 2008 Global Financial Crisis
- increased regulatory oversight
- changing investor demographics that now favor large institutional investors and put significant influence into the hands of industry consultants that support these investors

As this year's data underscores, hedge fund managers face significant challenges in meeting such demands, particularly managers with less than $1.0 billion AUM.

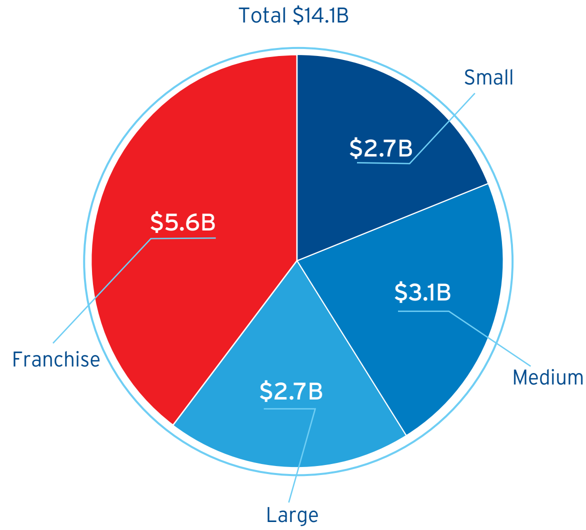
Average Hedge Fund Costs Absorb 1/3 of Management Fee Collections

Taken at their highest level, our findings show that the hedge fund industry will spend $14.1 billion USD, or the equivalent of 65 basis points of total industry AUM, on compensation for support personnel and on third party expenses related to operations across both the management company and fund level. This means that, on average across the industry, managers would have to divert approximately 1/3 of the industry's traditional 2% management fee collections to cover such costs without any offsets via charge-back of expenses to investors. In actuality, the figure is even higher. Our estimates exclude compensation for portfolio managers, trading and research staff as the pay these individuals receive is typically tied to investment performance and can be highly variable.

The breakdown of this $14.1 billion is highlighted in Chart 3. As shown, firms holding more than $1.0 billion AUM will account for 59% or $8.3 billion of total industry spend ($2.7 billion for large firms and $5.6 billion for franchise-sized firms). Smaller firms with less than $1.0 billion AUM will account for 41% or $5.8 billion AUM ($3.1 billion for medium-sized firms and $2.7 billion for small hedge fund managers).

Year-over-year spend on technology as a sub-set of this $14.1 billion is expected to be $2.4 billion, up 14% from last year's estimate of $2.1 billion. Firms with AUM in excess of $1.0 billion will account for 66% of that spend and firms with AUM under the $1.0 billion threshold will account for 34%.

Chart 3: Total Industry Spend

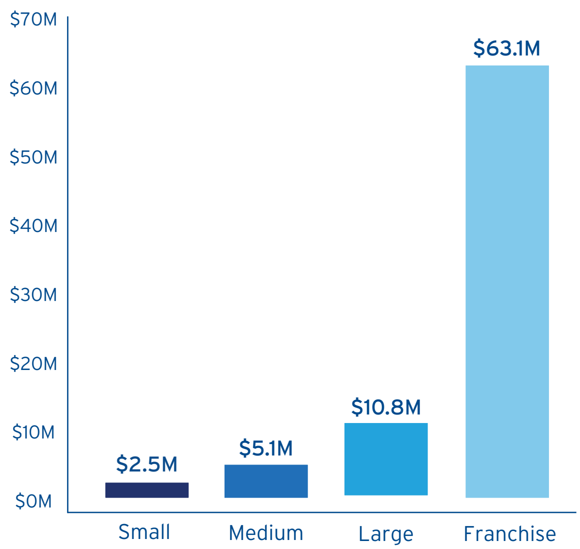


To come up with these calculations, we applied information about each segment's average spend and how that related to the respondent's AUM to come up with an average basis point spend per segment. We then applied that average spend to the relevant pool of industry AUM. To create those pools, we allocated the industry's total AUM as listed by HFR across our various sized buckets using demographic information from that source and from Absolute Return magazine's analysis of global hedge funds managing assets in excess of $1.0 billion.

This analysis showed that small hedge funds control 6.3% of the industry's assets or $138 billion; medium-sized managers account for 14.9% of the assets or $327 billion; large hedge funds represent 24.3% of assets or $533 billion and franchise-sized firms with greater than $5.0 billion AUM control 54.5% or $1.2 trillion in assets. Applying the average basis point spend our survey indicated for each of these segments resulted in the figures shown in Chart 3.

These calculations were derived by determining each size segment's average spend on compensation for support personnel (excluding the investment management personnel) and for third party expenses (including trading and research-related expenses). The findings of this detailed analysis are presented in Chart 4.

Chart 4: Total Industry Spend by Size



*Excludes Portfolio Manager, Trader and Research Analyst compensation. Results are equal-weighted in terms of survey respondents in each size category. Source: Citi Prime Finance

As shown, small hedge fund costs are expected to average $2.5 million in 2012, of which compensation (ex-portfolio management personnel) will account for 37% and third party expenses will account for 63%. Small hedge funds, particularly those launching post-2008, have high third party costs because of their need to establish the full set of business operations at a time when their AUM is limited. These managers have been active in their uptake of strategic outsourcing options to speed their time to market and to limit their need for fixed headcount costs. The technology portion of their total spend is anticipated to be just under $300,000 or 12% of total spend.

Medium hedge funds spend twice as much on average at $5.1 million and their ratio of expenses shifts as compensation accounts for 57% of expenses while third party expenses represent 43%.

These hedge funds have begun to make strategic investments in people to build their internal capabilities. Such personnel additions help position these firms to meet more rigorous investor and regulatory demands. Technology spend for these firms rises as well, moving up to an average of $780,000 per year or 15% of spend.

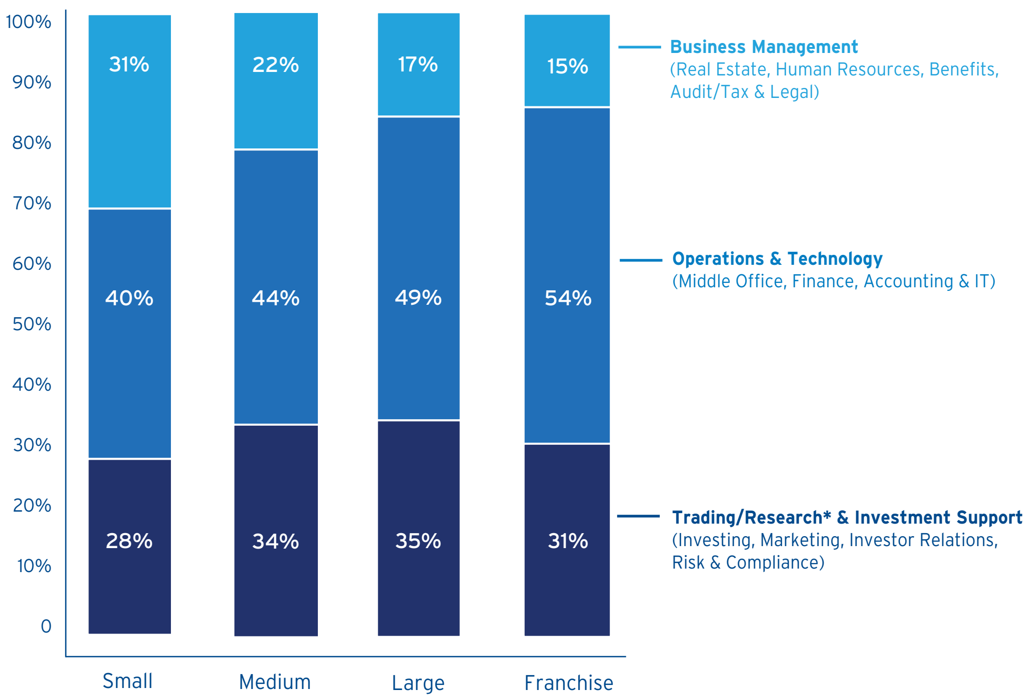
Large hedge funds again double their average spend to $10.1 million and the ratio of expenses balances back to nearly even with compensation at 51% and third party expenses at 49%. As hedge funds pass the $1.0 billion threshold, they become viable contenders for large institutional investments and come under increased regulatory scrutiny. Both of these factors require them to get a better handle on their internal data and metrics, particularly with regard to their investment process. Technology spend from this segment rises to $1.9 million on average or 18% of total spend.

Franchise-sized firms show exponential growth, jumping nearly 6x to $63.1 million. As will be explored in a coming section, these franchise firms show a very different profile from their smaller hedge fund peers. The majority have begun to manage different types of products, with hedge funds being just one component of their offerings. Moreover, the majority of these firms also have a global investment focus and presence. The increased complexity of their business operations and increasing size of their organizations both combine to drive costs sharply higher. More of these expenses are being realized through the use of third parties. For franchise-sized firms, compensation accounts for 33% of expenses and third party charges 67%. Technology costs jump to $12.5 million per year on average or 20% of their total spend.

When looking across these bands, distinct patterns are evident in terms of how the costs associated with the three main types of support functions (investment support, operations and technology, and business management) change as AUM increases. These patterns are highlighted in Chart 5.

As shown, business management costs are proportionately highest for small hedge funds at 31% of total spend. The share that these functions represent of total expenses declines as AUM grows. Medium-sized firms only expend 22% of their total expenses on functions within the business management category. This continues to drop to 17% for large firms and to only 15% of total expenses for franchise-sized managers.

Chart 5: Total Industry Spend by Function (%)



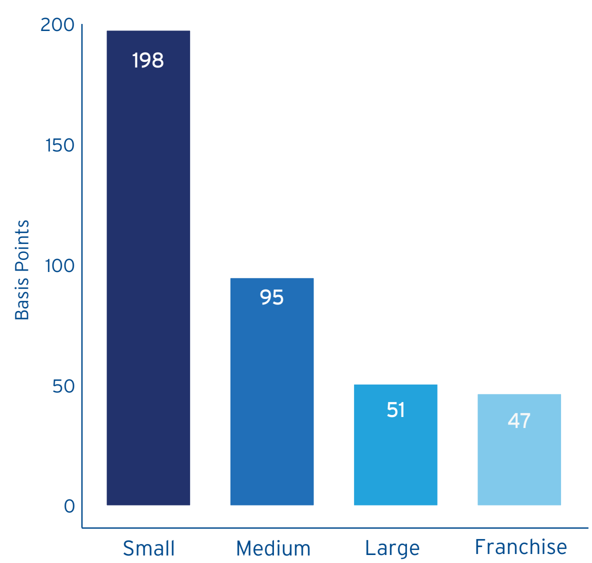
*Excludes Portfolio Manager, Trader and Research Analyst compensation.
Results are equal-weighted in terms of survey respondents in each size category.
Source: Citi Prime Finance

Operations and technology expenditures absorb the highest share of a hedge fund's costs regardless of size. Indeed, these expenditures show an inverse pattern from business management, rising as a percent of overall spend as AUM grows. Small hedge funds on average allocate 40% of their expenses to operations and technology. This grows to 44% for medium-sized firms, 49% for large managers and 54% for franchise organizations.

Remaining costs related to the investment process and investment support hold toward 1/3 of expenses throughout the lifetime of a fund. It is important to note, however, that these figures exclude pay for the portfolio managers, analysts and traders guiding the investment process. Thus the expenditures covered in this chart reflect only the third party expenses incurred by trading, research and the investment support functions as well as the compensation paid to the marketing team, risk and compliance teams.

Having determined the average dollar spend associated with each size segment, the final input required to come up with our total spend figure for the industry was the average AUM of survey respondents in each size band. Small hedge funds responding to this year's survey on average had $124 million AUM. Medium-sized funds reported $544 million, large funds $2.1 billion and franchise-sized firms $13.5 billion. Average costs were considered as a percent of these AUM figures for each size category to arrive at the basis point spend per segment. The results of this analysis are highlighted in Chart 6.

Chart 6: Industry Spend by Size in Basis Points



* Excludes Portfolio Manager, Trader and Research Analyst compensation.
Results are equal-weighted in terms of survey respondents in each size category.
Source: Citi Prime Finance

One of the most concerning findings in this year's survey is that the average small manager respondent with $124 million AUM spent **198 basis points** to cover their expenses, excluding compensation for investment professionals. Many organizations have anecdotally described the rising barrier to entry that increased institutionalization and regulation of the industry has wrought, and these figures demonstrate the burden that small hedge fund managers face.

Costs associated with running the hedge fund basically equal the 2% management fee collected by small hedge fund managers. While some portion of that figure can be charged back to their investors, the bulk of the charges cannot. These figures do not even include the salary or the payouts to the portfolio manager/CIO, analysts and traders on the investment team.

If a small hedge fund charges back 15% of its total support personnel and third party expenses to its investors, the average manager with $124 million AUM would only have $390,636 left of the management fee collections available to pay the salary and incentives of their entire investment team or $79,250 per person.

These findings underscore how difficult it is for small hedge funds to establish themselves in the industry without superior performance. Indeed, it appears clear that small hedge funds cannot break even over an extended period of time without additional capital injections or incentive fee payouts.

Even as hedge fund managers move above the $250 million AUM level, their cost of running the firm remains high. As shown, total costs (excluding the investment team's compensation) are estimated at 95 basis points for hedge funds managing $544 million on average — nearly half the organization's management fee collections.

If we take a linear progression from the average small-sized managers' results to these medium-sized managers' results and maintain our assumption that a hedge fund manager will be able to charge back 15% of their expenses to their investors, we find that a sustainable AUM for the industry has moved to somewhere between $250 million and $375 million. Our analysis shows that at these sizes there will be sufficient net operating revenue to provide an average payout per investment team member of between $240,329 (across 6 people at $250 million AUM) and $440,543 (across 8 people at $375 million AUM).

Indeed, our analysis shows that the average investment team member payout rises to $1.0 million when AUM approaches $875 million to $1.0 billion. It is at this band and above that support compensation and third party expenses drop to a low enough level relative to AUM to allow for payment of the investment team in low performance periods and for the set-aside of capital reserves. As shown in Chart 6, the average basis point spend for large manager respondents with an average $2.1 billion AUM falls to 51 basis points. Total costs seem to stabilize near that point as the average cost for our franchise-sized respondents (average $13.5 billion AUM) remained steady at 47 basis points.

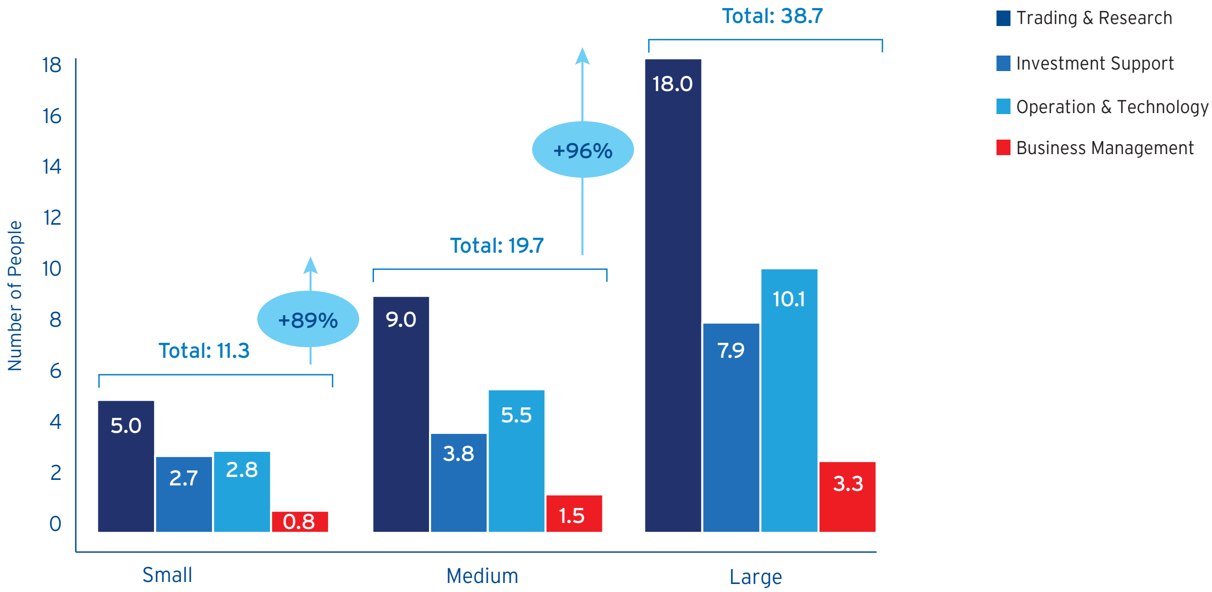
Focus of Compensation Spend Shifts as Hedge Funds Mature

One of the first pieces of thought leadership Citi Prime Finance's Business Advisory team published back in 2010 was the hedge fund maturity model. This model laid out a framework illustrating how a hedge fund's organization, operations and technology change as a manager accumulates assets. The model attempted to qualify inflection points in a hedge fund's growth and show how the delivery and focus of the non-investment functions change over the course of a hedge fund's development.

One of the central tenets of the hedge fund maturity model was that, as managers accumulated increasing amounts of AUM, roles would become more distinct and individuals hired into those roles would become increasingly specialized. This shift would mark a substantial change from a hedge fund's early days when a small number of individuals would tend to cover multiple roles within the organization.

Data from this year's benchmark survey confirm the hypothesis we laid out in our original model. Chart 7 shows the average allocation of headcount for managers at each size segment from small to large.

Chart 7: Average Headcount by Function (Small, Medium & Large)



Results are equal-weighted in terms of survey respondents in each size category. Sums may not add due to rounding. Source: Citi Prime Finance

Small hedge fund managers, with average AUM of approximately $124 million, tended to have 11.3 people on staff across their entire organization. The investment team that includes the CIO/portfolio managers, research analysts and traders accounted for 5 headcount. The investment support team comprised of marketing, risk and compliance accounted for 2.7 headcount. The operations and technology team accounted for 2.8 individuals and there was typically one person devoting most of their time (80%) to overseeing the business management functions. The ratio of investment personnel to portfolio-focused support teams (investment support plus operations and technology) was nearly one to one.

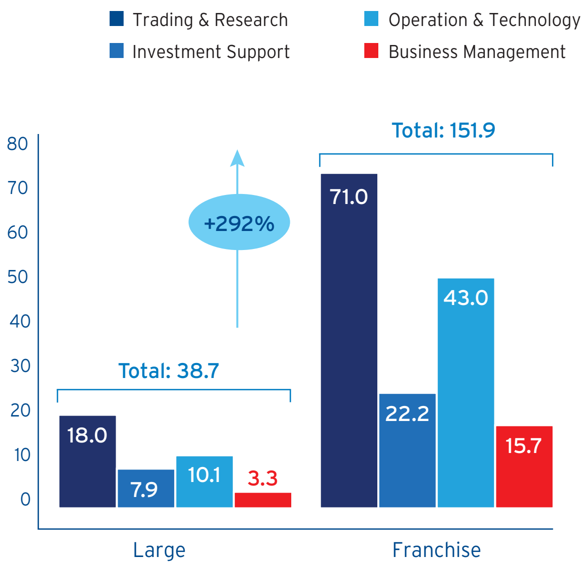
As the hedge fund's average AUM grew, so too did the number of employees at the firm with additional resources being added across all areas of the organization. Medium-sized hedge funds with average AUM of $544 million had a headcount of 19.7 individuals, an 89% gain over small-sized firms. A significant part of this growth occurred in the trading and research function as the average size of that team grew from 5 to 9 personnel, indicating an increasingly complex trading strategy and product mix. Investment support increased only modestly from 2.7 to 3.8 individuals, but operations and technology increased from 2.8 to 5.5 personnel, indicating an increasingly complex trading strategy and product mix. Business management also increased, from 0.8 to 1.5 headcount. From a ratio perspective, however, the balance of investment to portfolio-focused support personnel remained steady at one to one.

The rate of headcount growth accelerated even more quickly as firms passed the $1.0 billion threshold. Large hedge funds with an average AUM of $2.1 billion had teams of 38.7 individuals. The size of the trading and research team, investment support team, and operations and technology team each doubled from the average medium-sized firm, leaving an exact one-to-one ratio of investment to portfolio-focused support personnel. Business management also increased from 1.5 to 3.3 individuals.

Each of the step changes from small to medium to large featured more individuals focused on performing the same functions that small hedge funds covered with far fewer heads. Having more AUM and management fee income has allowed hedge fund managers to hire additional personnel and allow those individuals to focus more exclusively on a defined set of tasks rather than having broad mandates and only a few individuals fulfilling multiple roles.

This move toward having specialized roles and distinct responsibilities became even more apparent as hedge funds grew from large to franchise. This is illustrated in Chart 8.

Chart 8: Average Headcount by Function (Large vs. Franchise)



Results are equal-weighted in terms of survey respondents in each size category. Sums may not add due to rounding. Source: Citi Prime Finance

Franchise hedge funds with an average AUM of $13.5 billion had a staff of 151.9 individuals, nearly tripled the size of the large hedge fund headcount. Interestingly, even with such a significant increase, the ratio of investment to portfolio-focused support personnel remained close to the same one-to-one ratio noted for managers in every other band.

This is somewhat surprising given that there should be some evidence of operational scale beginning to emerge as managers reach these elevated AUM bands. As will be discussed, the need for a large number of investment support, operations and technology personnel at these firms relates to the profile of these firms. As will be discussed, operational leverage is not being realized because the product mix and business complexity of these funds is significantly different from small, medium and large hedge fund respondents. This suggests that hedge fund managers above $5.0 billion AUM are beginning to look like a different type of investment manager.

One sign of this increased complexity and changing profile is the dramatic increase in the number of business management personnel registered by franchise-sized firms – nearly 5x the number noted in large hedge funds. As a result, business management personnel accounted for 10.4% of the average franchise firm's total headcount as compared to only 7.1% for large managers. As will be discussed, this increase in business oversight is required to address the increased complexity of these firms as their mandates expand beyond just their core hedge fund product. Expansion into registered products (UCITS, 40 ACT), support for Separately Managed Accounts (SMAs) as mandates with large institutions grow, and the development of more customized solutions (e.g., Unconstrained Long Bond Funds) all require additional people, process and technology.

As would be expected, when headcount rose, survey respondents also showed a corresponding increase in their overall compensation expense. This is illustrated in Chart 9.

Chart 9: Total Compensation by Size and Function (Dollars & %)

	SMALL	MEDIUM	LARGE	FRANCHISE
Investment Support	$261,343	$850,073	$2,854,689	$9,047,110
Operations & Technology	$342,652	$1,408,228	$2,058,717	$9,498,828
Business Managment	$292,177	$670,472	$663,929	$2,122,215
TOTAL	$896,173	$2,928,773	$5,577,335	$20,668,153
Investment Support	29%	29%	51%	44%
Operations & Technology	38%	48%	37%	46%
Business Management	33%	23%	12%	10%

Excludes Portfolio Manager, Trader and Research Analyst compensation.
Results are equal-weighted in terms of survey respondents in each size category. Source: Citi Prime Finance"

Total compensation expenses for support personnel (which excludes portfolio managers, research analysts and traders) was just under $900,000 for small hedge funds rising to $2.9 million for medium-sized firms, $5.6 million for large and $20.7 million for franchise managers. Based on total average headcount, this equates to a per-head support personnel expense of $142,080 for small firms, $273,477 for medium-sized firms, $269,191 for large firms and $255,450 for franchise firms.

When looking across AUM bands, a distinct story unfolds in terms of which roles receive the most investment from the business team as the firm's overall AUM grows. The numbers also reinforce the anecdotal evolution phases we highlight in our hedge fund maturity model.

For small firms, business management compensation accounts for 1/3 of total support personnel compensation expenses. This is significantly higher than in any other size band. As noted above, for these small firms, the business management role accounts for 0.8 of a full-time equivalent resource. There are also fractions below 1 listed individually for risk at a small hedge fund (0.7 resources) and for compliance (0.9 resources).

This underscores the multi-functional nature of individuals in these small firms. Typically, the CIO tends to bring on a well-paid senior resource to help build their business and this individual divides their time across multiple functions. This individual is usually someone with whom the CIO has worked or associated with previously and they are very much seen as being the "owner" of the business build-out just as the CIO is the owner of the portfolio creation and investment process. As such, the business management resource at a small firm tends to be compensated at a much higher rate than other business management resources that will be added over time as AUM grows.

As a firm moves from small to medium, its main compensation focus shifts to the operations and technology spend. Although the cost for all resources rises on an absolute basis, proportionately business management resources drop from 33% to only 23% of total support personnel compensation while operations and technology personnel costs rise from 38% to 48% of total.

This reflects the need to build a professional team able to create and run an institutional-quality platform that inspires confidence in institutional investors, as well as the consulting community that advises them. After the 2008 Global Financial Crisis, operational due diligence has become a more focused part of investors' review of their potential hedge fund managers. As such, growing hedge funds hoping to qualify for institutional capital realize that upgrading their internal oversight and control of these functions is a key qualifier for many institutions.

As a firm surpasses $1.0 billion AUM and moves into the large category, its compensation focus again shifts. Business management as a share of overall support personnel compensation drops from 23% to only 12% of total; operations and technology drops from 48% to only 37% of total; and investment support rises from 29% to 51% of total support compensation.

Several milestones that we highlight in our maturity model, which kick in as a hedge fund surpasses the $1.0 billion threshold, help to explain this shift. Having built out a professional operation and technology team, the hedge fund is positioned to attract institutional money. This is when many firms in-source professional marketers.

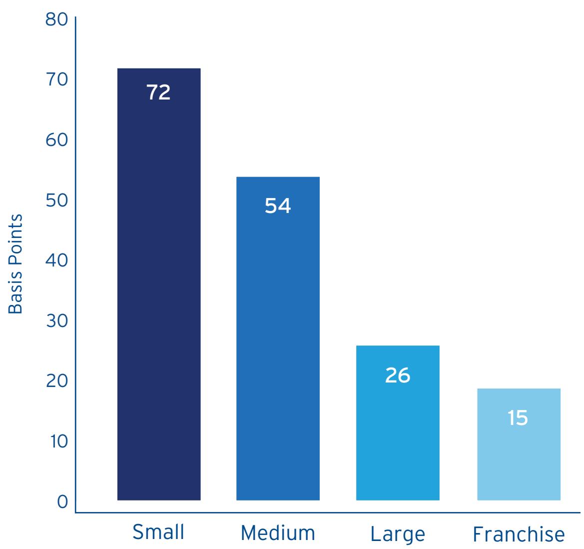
Marketing and investor relations personnel resources jump from 1.5 individuals at medium-sized firms to 4.5 individuals on average at large firms. As will be shown, many small and medium-sized firms that had previously been reliant on third party marketers reduce their expenditures on these outside resources and instead opt to increase their internal capabilities. This reflects an effort to not only attract, but also to retain existing investors and create more reporting and dialogue with these participants.

There is also a major investment made in having an increased amount of internal compliance resources. For both small and medium-sized firms, there were only 0.9 full-time resources assigned to compliance as most of these managers contracted with third parties to deliver these services. When a hedge fund moves up above the $1.0 billion threshold, headcount focused on compliance jumps from 0.9 to 2.0 full-time resources. This reflects the hedge fund having moved into a new regulatory profile likely to be seen as more systemically important and thus subject to greater scrutiny by regulatory bodies, such as the Financial Stability Oversight Council (FSOC) in the United States. Just as was the case with the marketing team, compliance resources too will need to supply more reporting and support more dialogue with regulators, thus warranting the increase in internal headcount to oversee these responsibilities.

One final change in focus occurs when firms exceed the $5.0 billion threshold and move into the franchise category. Emphasis goes back to operations and technology personnel, which rises from 37% of support personnel compensation spend to 46% while investment support costs decline from 51% to 44%. As will be shown, these firms tend to invest in less-liquid strategies with more complex processing needs. Often they will add other types of long only or private equity funds to their mix, requiring different types of operational, accounting and technology support that may operate in distinct silos within the investment management company.

Chart 10 summarizes how support personnel compensation compares to a hedge fund's overall AUM.

Chart 10: Total Compensation Cost in BPS/Size



*Excludes Portfolio Manager, Trader and Research Analyst compensation. Results are equal-weighted in terms of survey respondents in each size category. Source: Citi Prime Finance

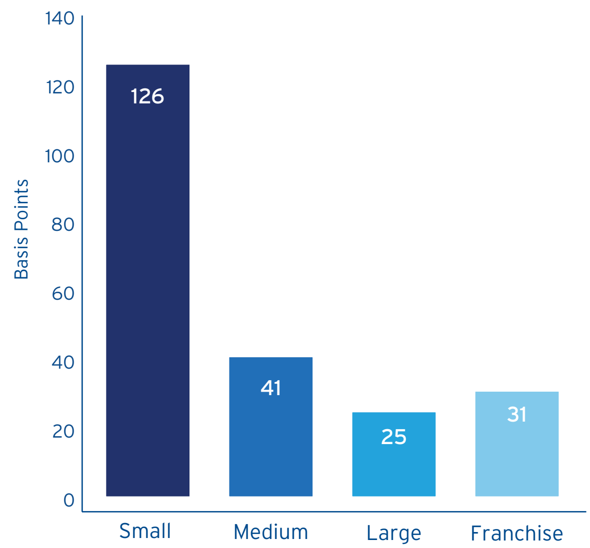
As shown, overall compensation for support personnel becomes an increasingly small part of total cost as AUM grows, even when the number of people at the hedge fund and the overall spend on compensation for support functions increases.

Small hedge funds apply 72 basis points of their average AUM ($124 million) to support personnel compensation. This declines steadily as the average size of the fund increases. Medium-sized managers spend 54 basis points of their average AUM ($544 million); large hedge funds register costs of 26 basis points on their average $2.1 billion AUM; and even with 100+ headcount, franchise firms spend only 15 basis points of their average $13.5 billion AUM covering their support personnel.

Key Third Party Expenditures Fall as Firms Internali Capabilities with AUM Growth

When we look at third party expenses across the functional areas we note a different pattern to that of compensation as the size of a hedge fund grows. Unlike the gradual decline we see with compensation, we observe exceptionally high third party costs for small funds and then a dramatic drop into a fairly steady range. This is displayed in Chart 11 below.

Chart 11: Total Third Party Expenses by Size of Manager (%)



*Includes Portfolio Manager, Trader and Research Analyst 3rd Party costs. Results are equal-weighted in terms of survey respondents in each size category. Source: Citi Prime Finance

Our explanation for this trend again relates to our hedge fund maturity model. To gain scale, and minimize headcount requirements and fixed costs, we note that new launches and early stage hedge funds engage a broad range of professional service and infrastructure partners in the early years of their development. As their AUM grows, there is a distinct trend toward firms shifting the responsibility for key functions from an external service provider to an internal resource.

Thus, the increased level of internalization and reduced reliance on third party services as funds grow can be seen as a corollary to the increase in headcount and growing specialization across small, medium and large firms. As illustrated in Chart 12, 61% of total investment support, operations and technology expenses for a small fund relate to charges paid out to third party providers and only 39% of its expense derives from compensation. This ratio flips for medium and large firms.

Chart 12: Comparison of Select Support Costs: Investment Support, Operations & Technology

	SMALL	MEDIUM	LARGE	FRANCHISE
COMPENSATION EXPENSES				
Investment Support	$261,343	$850,073	$2, 854,689	$9,047,110
Operations & Technology	$342,652	$1,408,228	$2,058,717	$9,498,828
Sub-Total Compensation Expenses	$603,996	$2,258,301	$4,913,406	$18,545,938
THIRD PARTY EXPENSES				
Investment Support	$284,581	$583,876	$92,974	$3,374,587
Operations & Technology	$644,434	$853,924	$3,210,375	$24,784,019
Sub-Total Third Party Expenses	$929,016	$1,392,800	$3,303,349	$28,158,606
Total Investment Support, Operations & Technology Expenses	$1,533,011	$3,651,102	$8,216,755	$46,704,543
Compensation as Percent	39%	62%	60%	40%
Investment Support as Percent	61%	38%	40%	60%

Results are equal-weighted in terms of survey respondents in each size category. Source: Citi Prime Finance

Small firms pay more to third parties for risk and compliance than medium-sized firms (5% versus 3% of total expenditures), often engaging with third party compliance consultants to establish robust compliance policies and procedures required if a fund manager is to register with local regulators and appease early stage investors.

Small firms are also more apt to engage third parties to accelerate their provision of institutional quality operational and technology services. Small managers have benefited in recent years from the emergence of middle office outsourcing options and from the emergence of cloud-based managed service providers specializing in hedge fund technologies. These services help small hedge funds cover activities such as trade reconciliations and collateral management, and allow them to invest less in network and data infrastructure, trading and risk management software while they are still struggling to build their asset base. These "out of the box" solutions can help position small managers more professionally.

Small firms also source a far greater amount of their business management services from third parties. Business management third party expenses account for 19% of small hedge funds' total expenditures, whereas that figure drops to only 9% for medium-sized firms.

Within business management, small hedge funds spend a much higher proportion of their third party expenditures on legal services than medium-sized firms (17% vs. 9%). This reflects the burden of establishing their operating and fund-level documents. The same pattern holds true for insurance, which absorbs 5% of business management expenses for a small firm versus only 2% for a medium-sized firm, likely due to the initial early stage premiums for directors and employee liability coverage.

For those hedge funds that do progress from small to medium and grow past the $250 million AUM threshold, a dramatic drop-off in the proportion of third party expenses occurs. This marks an inflection point in maturity of the organization and a gradual move toward bringing core functions "in-house."

Professional service partners that were critical in the early years are now replaced by the growing number of internal operations and technology resources for medium-sized firms. Total third party expenses for operations and technology drop from 26% to only 17% of total fund expenses (excluding investment team compensation) while operations and technology compensation figures rise from 14% to 27%. In particular, medium-sized hedge funds stop relying on middle office outsourcing providers for their collateral management functions and reduce their reliance on trade support functions relative to small managers.

In exploring how these outsourced operations functions get funded, small and medium firms on average charge 80% to 100% of their administration expense back to the fund, but they charge back less than 10% of outsourced middle office services. This is likely due to the notion that charging back such an expense would have a drag on performance, given the smaller asset base upon which these expenses are assessed.

As a percentage of AUM, small firms spend considerably more on administration than medium firms, likely reflecting the fact that many firms in this AUM range are still incurring monthly minimum charges from their administrators. As such, firms in this range indicated spending almost 17 basis points of AUM on administration, versus roughly 6 basis points of AUM that medium-sized firms indicated spending on administration.

Business management expenditures also shift as a hedge fund moves from the small to the medium category. Legal services account for a lesser share (16% versus 9%) as most of that expense related to the establishment of the original entity and fund. The relative cost of insurance also comes down (2% of third party business management expenses for medium-sized firms versus 5% for small). As a result, the proportionate share of human resources support and benefits goes up.

In the evolution from medium to large — the golden $1 billion threshold recognized across the industry — there is an even more noticeable trend toward internalization, with the large firms focused on bringing in more value-add activities.

Specifically, third party expenses related to marketing and investor relations drop from 7% of total expenditures (excluding investment team compensation) for small firms and 8% for medium-sized firms to less than 1% for large firms. This is inverse to the rise in compensation expense related to marketing and investor relations personnel. As noted earlier, increased engagement with institutional investors on a global basis requires a more sophisticated team structure and experience level.

It is also notable that large firms spend less than 1% on third party risk or compliance services versus 3% for medium-sized firms and 5% for small managers. This again reflects the inverse of their compensation spend as they bring more of these capabilities inside the fund in line with the headcount build around investment support functions.

2012 may be the last year, however, that large hedge funds are able to forgo third party engagement on risk and compliance functions. One point to watch is that the advent of new hedge fund reporting requirements in the U.S. (i.e., Form PF and FATCA), and additional reporting likely in EMEA (i.e., AIFMD) and Asia over coming years, may cause this expense line to increase as the "new filers" of these reports engage with software providers and risk consultants to build out robust solutions.

In contrast to a reduced spend on risk, compliance and marketing, large firms invest more of their capital in third party technology services (11% for large vs. 6% for medium and 7% for small) as internal resources are focused on building out the "value-add" tools and large firms are able to leverage robust managed service providers for basic services. We will explore the details of this software spend later in the paper.

While their overall third party spend on operations goes up, in our dataset it appears that none of this money is spent on middle office outsourcing services related to collateral management and trade support as we believe this shows that these functions have been brought wholly in-house. This results in the entirety of a large firm's third party operational spend being focused on fund administration and audit/tax services. This "internalization" of operations is consistent with our Hedge Fund Maturiy Model and the inflection point for a hedge fund as it grows over the $1 billion AUM threshold.

Finally, although overall business management expenses jump in dollar terms, large hedge funds look to far fewer third parties for these services than small and medium-sized firms. Large firms stop paying third parties for human resources support and instead internalize that function. Real estate expenses are also unchanged from the level noted by medium-sized firms as most organizations can stay in the same facility they had as a medium-sized manager despite having significantly increased their AUM. This causes that expense category to fall from 20% of overall business management expense to only 11%. The result of these changes is that benefits and insurance expenses rise to account for the lion's share of large firm's business management expense.

Large hedge fund managers represent the culmination of the evolutionary path a pure hedge fund follows. Franchise firms break this pattern of internalization and instead begin to once again outsource some functions to third parties. There is a step change in the size of their spend if you compare small firms spending $1.6 million, medium firms spending $2.2 million and large firms spending $5.3 million on third-party expenditures, in dramatic comparison to franchise firms spending an average of $42.4 million on third-party technology and infrastructure needs. This occurs because franchise firms show a dramatically different profile from the large managers.

Franchise Firms Present Materially Different Profile from Large Hedge Funds

There exist some noteworthy differences between our franchise firm survey respondents and large firms, most of which contribute to the significant increase in size and cost to managing a franchise firm.

As discussed in last year's IT survey, franchise firms tend to have an older-dated vintage than many smaller hedge funds and, as such, are unable to off-load as many of these expenses because many had to invest heavily and build their own technology platforms and data centers. This took place for these franchise firms during their growth when there were not equally as robust options available in the marketplace from third party providers. The sunk cost in these platforms was such that the economics of outsourcing were not as compelling. By keeping these costs in-house to maintain these legacy solutions, franchise firms can have a higher expense base.

The characterization of how they spend their third party service provider budget is different from large firms as well.

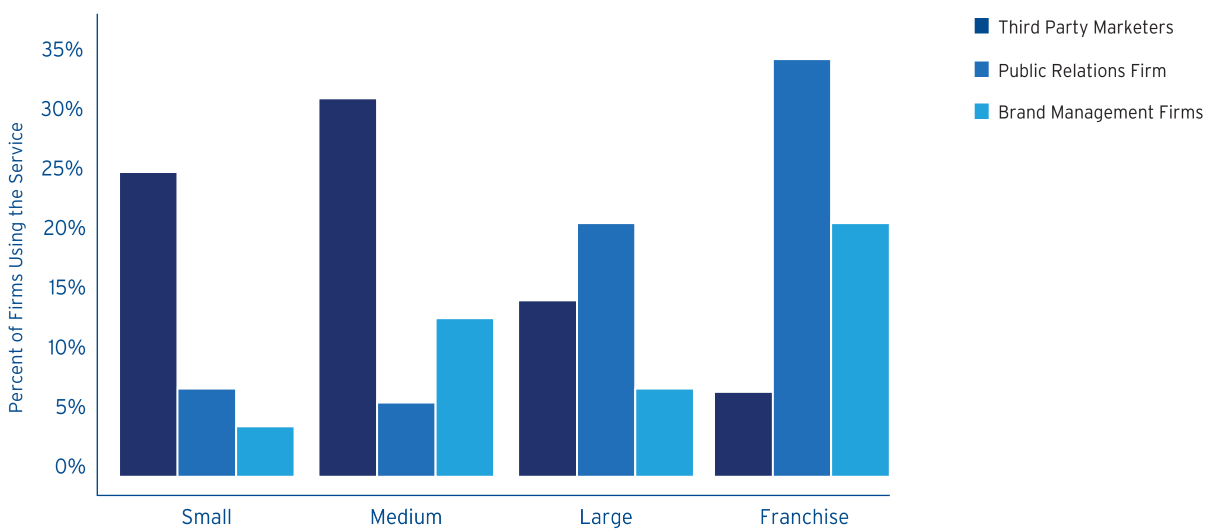
Marketing: Having reduced their expenditure on third party marketing relative to the smallest firms, franchise and large firms alike are able to allocate their marketing budget to other areas, such as public relations and brand management, whereas small and medium- sized hedge funds tend to divert most of their third party expense in this category to third party marketers, as shown in Chart 13.

Roughly a fifth of large firms who responded to the survey indicated that they are engaging the services of public relations firms, while more than a third of franchise firms are utilizing such services. Similar trends are evident for brand management; franchise firms are around four times as likely as large firms to engage such resources. The recent passing of the JOBS Act in the U.S. should encourage growth in spending on these services, as funds now have a broader ability to market and therefore are incentivized to better articulate their brand and their message to the general public via various media.

Operations and Accounting: Operational and fund accounting spend is one of the largest areas of third party expenditures for hedge funds of every size. Within this category, hedge fund administration in particular has evolved beyond net asset value calculations and investor shareholder services. Increasingly, administrators and related firms are offering a greater degree of operational support services to hedge funds.

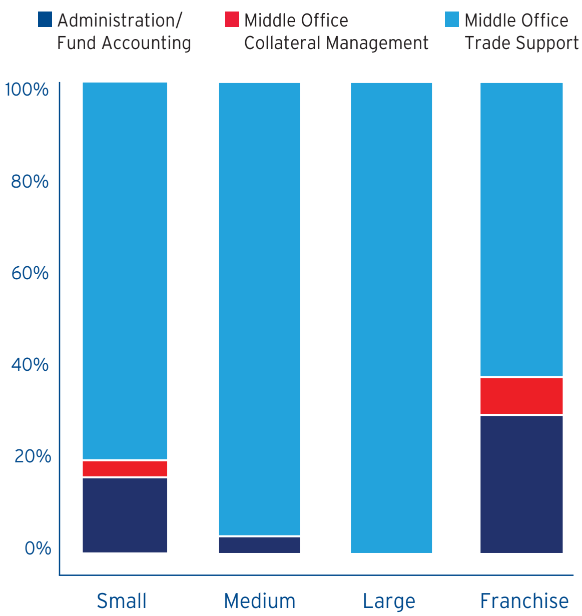
As explored in the Citi Prime Finance publication "Hedge Fund 3.0: A Flexible Operating Model for Building, Managing or Launching a State-of-the-Art Firm,", the outsourcing of non-alpha -generating functions has many benefits for the largest managers, such as allowing them to quickly enter new strategies and asset classes while shifting costs from a fixed to variable model. This dynamic is evident in the results from our survey, as explored in Chart 14, which shows outsourced trade support, collateral management, and administration as a percentage of a firm's total outsourced operations budget.

Chart 13: Use of Third Party Marketing & Investor Relations Firms



Results are equal-weighted in terms of survey respondents in each size category. Source: Citi Prime Finance

Chart 14: Breakdown of Spend on Middle Office & Administration Services



Results are equal-weighted in terms of survey respondents in each size category.
Source: Citi Prime Finance

Large funds that responded to our survey indicated that they do not leverage outsourced middle office providers, reflecting the findings in our previous section that showeding that as a fund matures toward and beyond the $1 billion in assets under management mark, they internalize their operational trade support and their value- add functions, including those around collateral management.

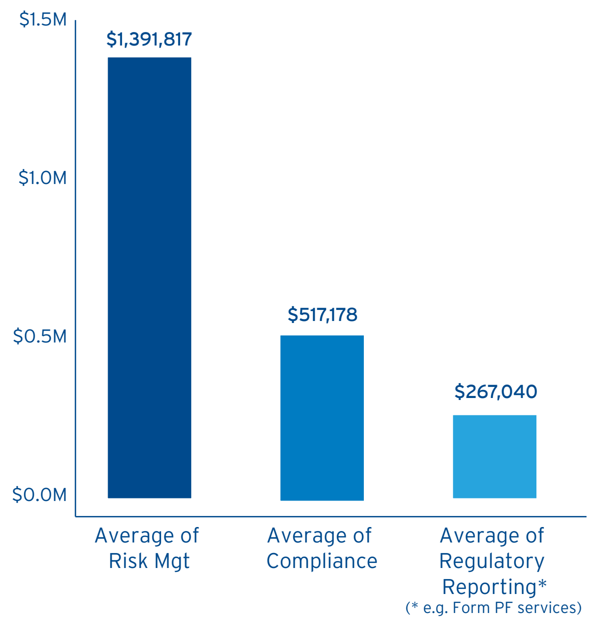
Franchise firms in contrast rationalize their ever-increasing costs by choosing to supplement their internal capabilities with third party service providers once again. As reflected in our data, franchise firms allocate roughly two fifths of their third party operations budget toward middle office functions, while the remaining three fifths of this budget is allocated toward classic hedge fund administration.

Interestingly, the result of this pattern is that the usage of middle office collateral management and trading support among franchise firms is most similar to the levels reported by the smallest firms, which spend more than a fifth of their outsourced operations budget on third party middle office functions.

Risk & Compliance: Franchise firms in the U.S. have begun to report detailed information via filings, such as Form PF, on a quarterly basis to the Financial Stability Oversight Council (FSOC). To build out this function, those firms managing more than $5 billion of Regulatory Assets Under Management (RAUM) have had leveraged third party services from firms providing risk, compliance, and regulatory reporting.

As shown in Chart 15, franchise firms' average spend on third party services related to risk and compliance was seen at nearly $2.2 million compared to only negligible spend by large hedge fund managers. As large firms prepare for the quarterly reporting of Form PF, the cost incurred by franchise firms in 2012 is a decent indicator that a greater number of large firms should budget for a much higher expense in 2013 around for these areas.

Chart 15: Franchise Firms Average Third Party Spend on Risk, Compliance & Regulatory Reporting

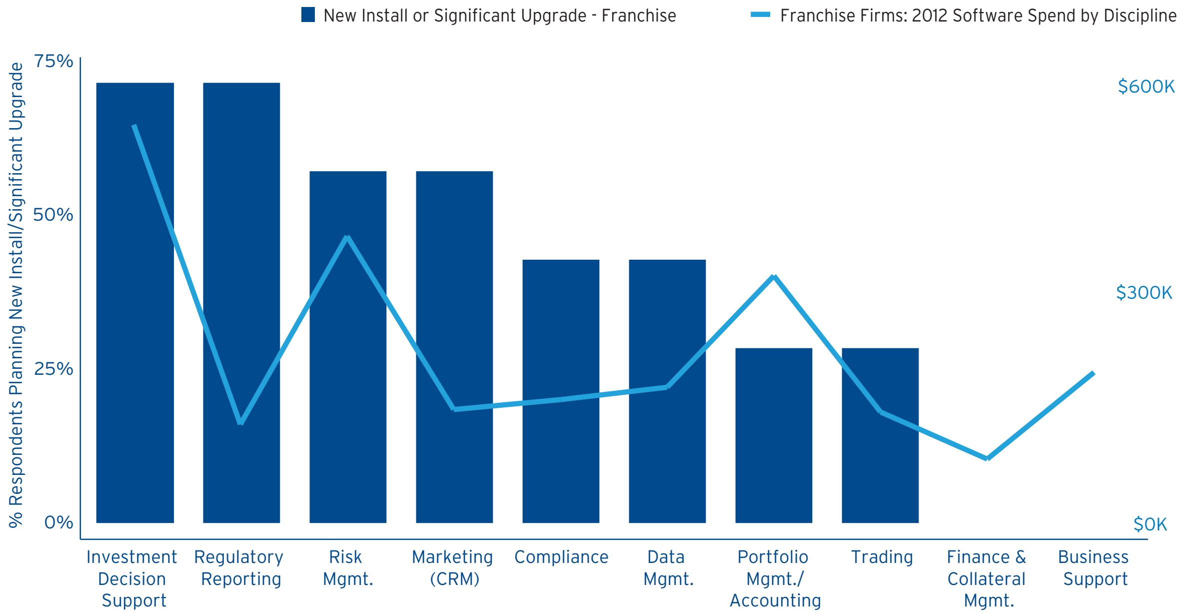


Equal-weighted results across all Franchise firms.

Technology: Technology spend from franchise firms that responded to our survey were much more likely than other sized managers to indicate that they are planning new software installs or significant upgrades to existing platforms (see Chart 16). In contrast, large firms indicated that they were in "maintenance mode" for every software function. As noted in last year's Citi Prime Finance publication "Managing your IT Spend to Achieve Differentiation," data management infrastructure was a priority for the largest firms, who that were looking to consolidate and normalize data across disciplines. This area continues to garner focus from franchise firms, with 40% of respondents indicating that they are planning either a new install or significant upgrade to their data management infrastructure.

In concert with a strong data management backbone, firms are also allocating software budget toward investment decision support and regulatory reporting, with 70% of franchise respondents indicating that big

Chart 16: Franchise Firms – Significant Software Upgrades and Spend



Equal-weighted results across all Franchise firms. Source: Citi Prime Finance

software projects were planned for these disciplines. In an effort to support reporting back to prospective and current investors, more than half of the franchise firms are also planning upgrades to their marketing systems.

Similarly, as franchise firms are being pushed to relay better and more risk information to investors and regulators, more than half of the franchise firms are planning new installs or significant upgrades to their risk infrastructure.

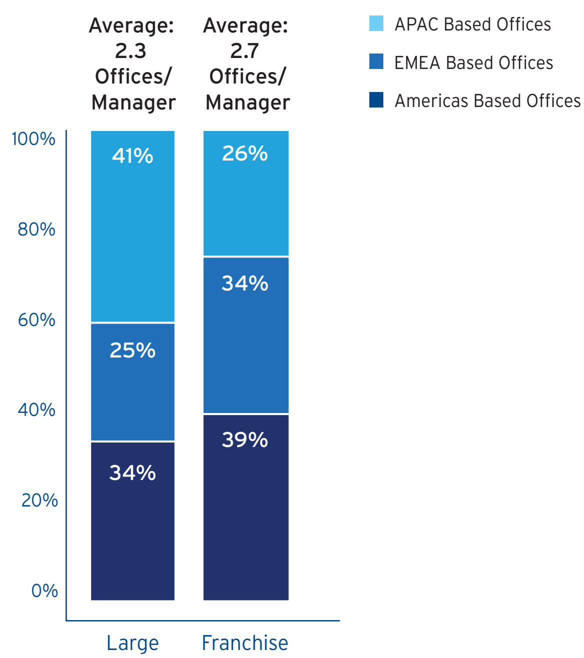
The core infrastructure of trading and portfolio management platforms is being upgraded with less frequency than these other systems, though a quarter of franchise respondents are planning projects in these areas. Across the disciplines of finance, & collateral management and business management, franchise firms are in maintenance mode, making do with their existing infrastructure.

While these franchise firms will be busy in the coming year with technology projects, large firms may be grossly understating the need to engage in new technology projects to support the regulatory reporting burden that they will encounter in 2013.

In addition to regulatory changes affecting these firms' 2013 budgets, other factors come into play. Increased spend for franchise firms may have more to do with their complex business profile.

The location of their offices may also offer a clue as to why franchise expenses are larger. Chart 17 illustrates that both large and franchise respondents have local office presence across the globe, but more of our large respondents had primarily APAC-based offices (41%) compared to only 26% of franchise firms. Franchise firms' were more concentrated in high cost centers in EMEA and the Americas and had more satellite offices in APAC.

Chart 17: Large vs. Franchise Firms – Geographic Presence

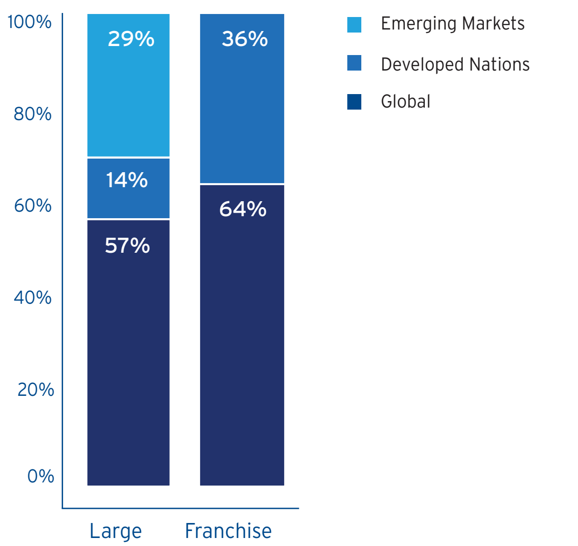


Source: Citi Prime Finance

The majority of franchise firms and large firms reported having multiple offices to support their growth, investment scope and operations. Both segments have begun to build out their geographic presence with large firms having on average 2.3 offices per manager and franchise firms reporting 2.7 offices per manager, as shown in Chart 17.

This similarity in number of offices is interesting because as the number of offices increases so does a firm's need for efficient communication and collaboration among offices. This has increasing cost implications for technology and business management resources. Operational complexity and investment risk also increases as a firm's footprint expands, so firms need to proactively manage their growth with additional local support resources, which adds to the firm's expense base. A smaller portion of the bigger spend from franchise firms can thus be attributed to the absolute number of offices they maintain.

Chart 18: Large vs. Franchise Firms – Investment Focus



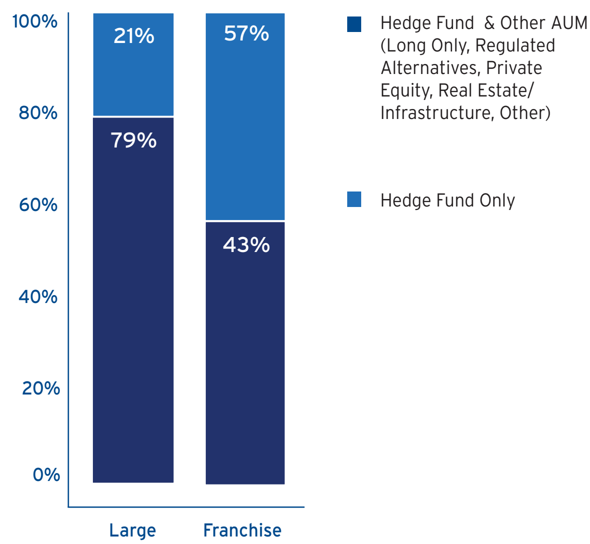
Source: Citi Prime Finance

The focus of their investments may help explain higher costs for franchise firm respondents. There is a noticeable difference between franchise and large firms' investment focus. Chart 18 shows that 29% of large firm respondents had an emerging markets investment focus whereas none of the franchise firms cited emerging markets as their main strategy. Franchise firms primarily had a global or developed-nations investment focus. As a result, these firms had fewer satellite offices in APAC and it is likely that those were strictly research offices as opposed to full-service offices staffed with trading and operational personnel.

Another factor is likely to have even more influence on why franchise firms spend significantly more than large hedge funds. As firms continue to grow, many tend to expand into managing additional types of money, contributing to higher costs and size requirements for franchise firms.

As seen in Chart 19, large respondents managed primarily hedge fund assets (79%) whereas a majority of franchise respondents (57%) were also managing other types of assets for clients, including long -only funds, regulated alternative vehicles, private equity funds, and real estate/infrastructure assets. Indeed, franchise respondents as a group were managing $54 billion of AUM in non-hedge fund assets compared to only $7 billion for large firms

Chart 19: Large vs. Franchise Firms – AUM by Type (HF Only vs. HF/PE/LO)



Source: Citi Prime Finance

Franchise firms that manage both hedge fund and non-hedge fund assets need to be able to support the trading and settlement of additional instruments. This would require these firms to have a more diverse set of operational resources and more comprehensive technology solutions. Additionally, these products may subject franchise firms to additional regulatory and reporting requirements, which would cause them to expand their risk and compliance functions.

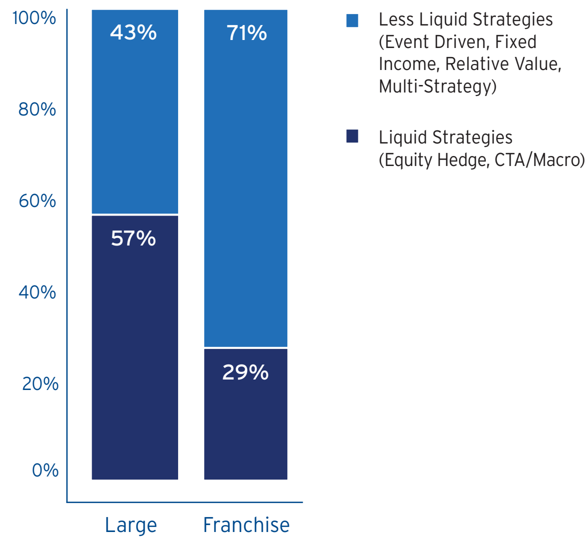
Hedge funds have vastly different distribution channels compared to these long -only and other alternative products. Firms also managing non-hedge fund assets need to have specialized marketing and investor relations resources to attract and service the varying client bases.

Survey respondents reported that the nature of the core hedge fund investment strategies were also significantly different between these two segments, as shown in Chart 20. Large hedge funds were more heavily weighted toward strategies that trade primarily in liquid underlying instruments that typically trade on recognized exchanges (57% of respondents). This compares to only 29% of franchise firms that cited these more liquid strategies as their predominant investment focus.

In contrast, an overwhelming majority (71%) of franchise-sized firms stated they employ strategies that invest in less-liquid underlying assets that often do not trade through an exchange, such as over-the-counter products. Also, these instruments may have limited price transparency and trade based on limited supply.

To effectively and efficiently manage their business for these less-liquid strategies, franchise firms need additional and specialized trading and operational resources. As a result, there is a greater operational load and pricing risk associated with these less-liquid strategies, causing franchise firms to register increased support function costs compared to firms trading more liquid strategies.

Chart 20: Large vs. Franchise Firms – Nature of Hedge Fund Investment Strategy



Source: Citi Prime Finance

Conclusion

The main finding of this inaugural operations and technology benchmark survey is that the cost of running a hedge fund is substantial and even the largest funds in the industry require nearly 1/4 of their management fee to cover such expenses before considering charge-backs to their investors and pay for their investment team. Smaller managers are hard pressed to survive without additional capital injections from their partners or from incentive fees, and a sustainable AUM in the industry is now somewhere between $250 and $375 million AUM, according to our calculations.

It is also clear that hedge funds' approach to how they run the business side of their organization shifts as assets grow. Small firms have lean teams where individuals fulfill multiple roles and rely heavily on third parties to provide the majority of their core services. As AUM grows, more individuals are added to the internal team, allowing for increased specialization, and less money is spent on third parties. This pattern holds true across both medium and large-sized firms.

Our results also confirm that rather than there being a progression from large to franchise-sized firms, there is instead a step change. Indeed, the profile of franchise managers is significantly different from the other managers responding to the survey in terms of the breadth of their product mix and the complexity of their investments. These considerations make it difficult for such managers to achieve any economies of scale in their operations and work to keep their overall expense base exceptionally high. Over time, it may become more accurate to compare these franchise-sized firms to a different class of competitors drawn from the traditional asset manager and potentially even the private equity domain.

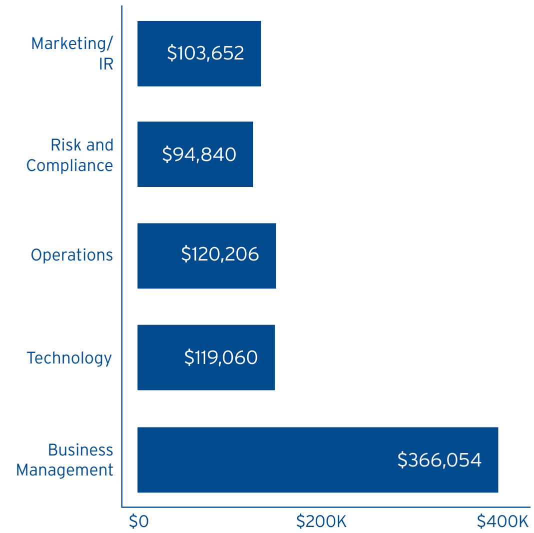
Section II. Benchmarks by Size

Small-Sized Firm Benchmarks: Headcount & Compensation

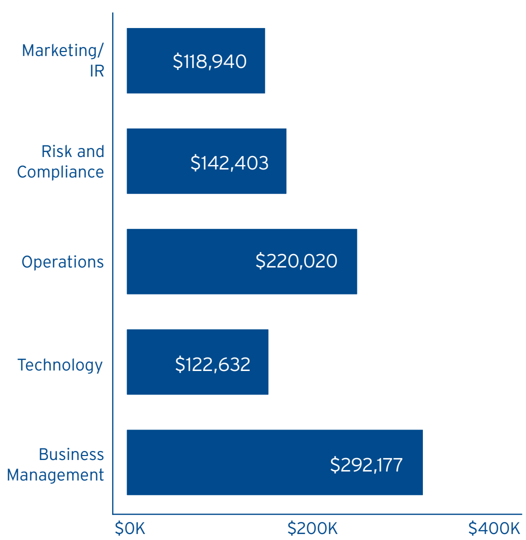
- Headcount resources are concentrated with Trading and Research in small funds, with approximately 5 people out of an 11-person firm and all other functions spread across multiple roles. This 1:1 ratio of investment professionals to the support team remains consistent throughout the life of a hedge fund.
- Sales & Marketing is often done by the CIO and COO of the fund, and we see minimal headcount in this function in the early years.
- The COO role is critical in the early years; therefore, we see the largest average salary for this role and function.

Small Firms: Headcount by Functional Area

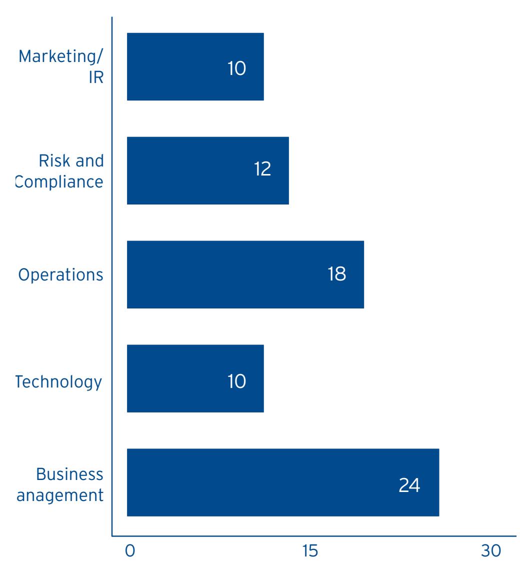
Small Firms: Average Compensation by Functional Area



Small Firms: Total Compensation by Functional Area



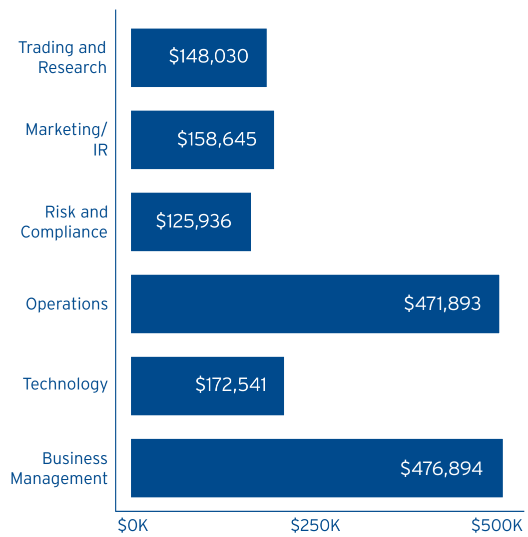
Small Firms: Compensation Expense by Functional Area in Basis Points



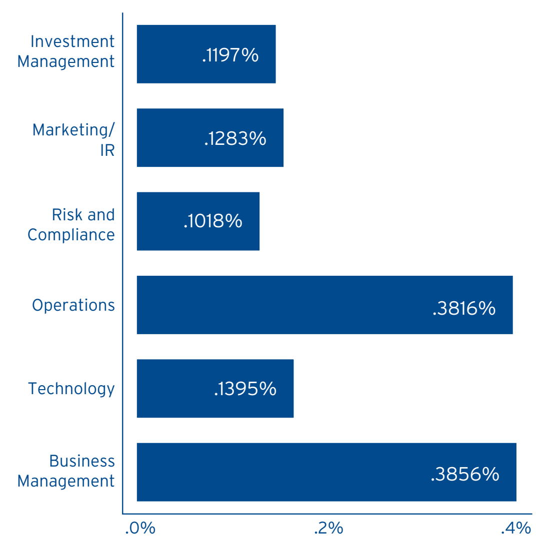
Small-Sized Firm Benchmarks: third party & Total Expense

- Third party expenses for business management partners and outsourced operations are the major areas of expense, which indicates a need to engage with professional expertise in the early days of the funds growth. This group of professional includes outsourced management company accounting, HR support, audit and tax support specific to the hedge fund products, and legal counsel.
- Third party expenses for operations (fund administration & middle office outsourcing) and business management account for 60% of expense across all functions of a small firm.
- Average basis points for fund administration, investor services, and middle office outsourcing is 38 basis points for small firms. This is higher than medium, large, and franchise due to the tiered pricing schedule used by third party hedge fund administrators.

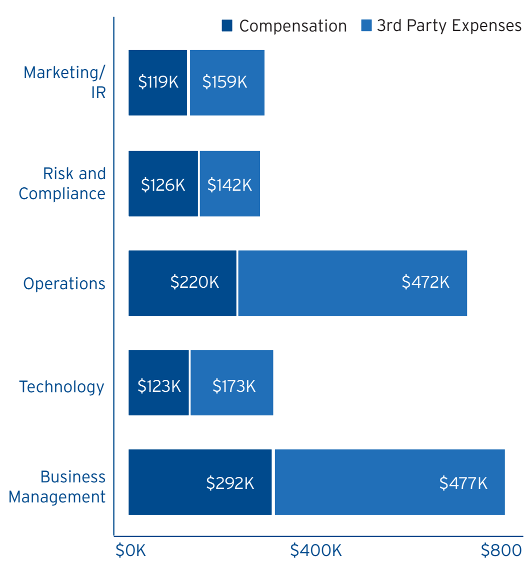
Small Firms: Average third party Expense by Functional Area



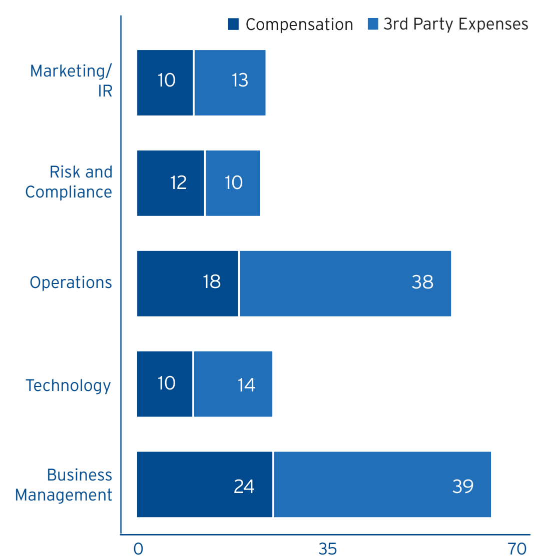
Small Firms: Average third party Expense as % of AUM



Small Firms: Total Expense by Functional Area



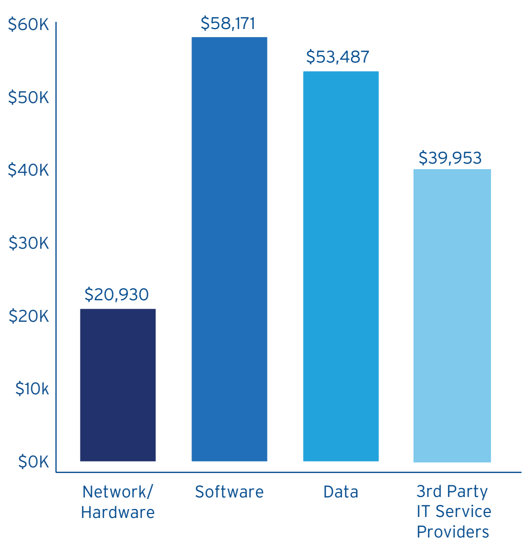
Small Firms: Total Expense in Basis Points



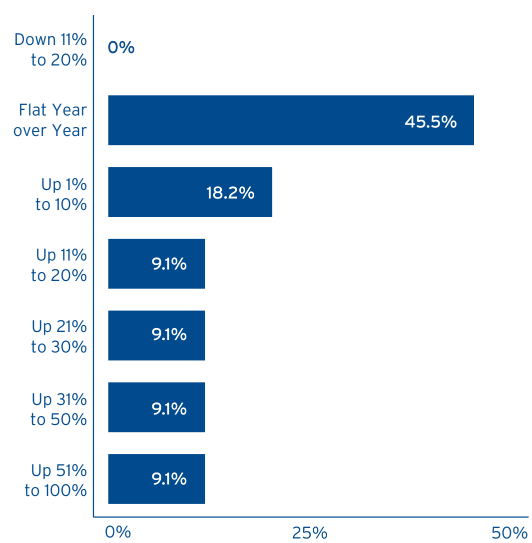
Small-Sized Firm Benchmarks: Technology

- Hedge fund firms managing less than $250 million spend minimally on software relative to larger firms, as they leverage the increasingly robust capabilities of service providers such as administrators and other third party.
- Small firms generally indicated that they leverage hosted applications from service providers and software vendors, which in turn lowers the burden on their internal network infrastructure. This results in a very low network infrastructure expense.
- Small firms are the only size category whose data expense is not the largest third party technology expense; this likely results from the predominance of Long/Short Equity funds in this band, who comprise 41% of respondents in the small firm category.
- Almost half of small firms plan on a flat technology budget year-over-year in 2013 and slightly more than half of small firms plan on a budget increase for 2013.
- Twenty percent of firms in this category are planning a modest technology budget increase (up to 10%) for 2013.
- Small firms allocated their software budgets in 2012 similarly to how they allocated in 2011, with the largest allocation of budget getting directed toward the core functions of portfolio management and trading.
- Regulatory reporting and compliance systems receive the lowest allocation of software budget for small firms; this reflects the outsourcing of the compliance function within smaller firms.
- Small firms are the least likely to rely solely on home-grown systems, instead leveraging vendors and service providers for core functionality.
- When small firms do build capabilities, it is mainly for nonstandard functions such as Investment Decision Support, Regulatory Reporting, and Compliance.

Small Firms: Technology Spend (excluding compensation)

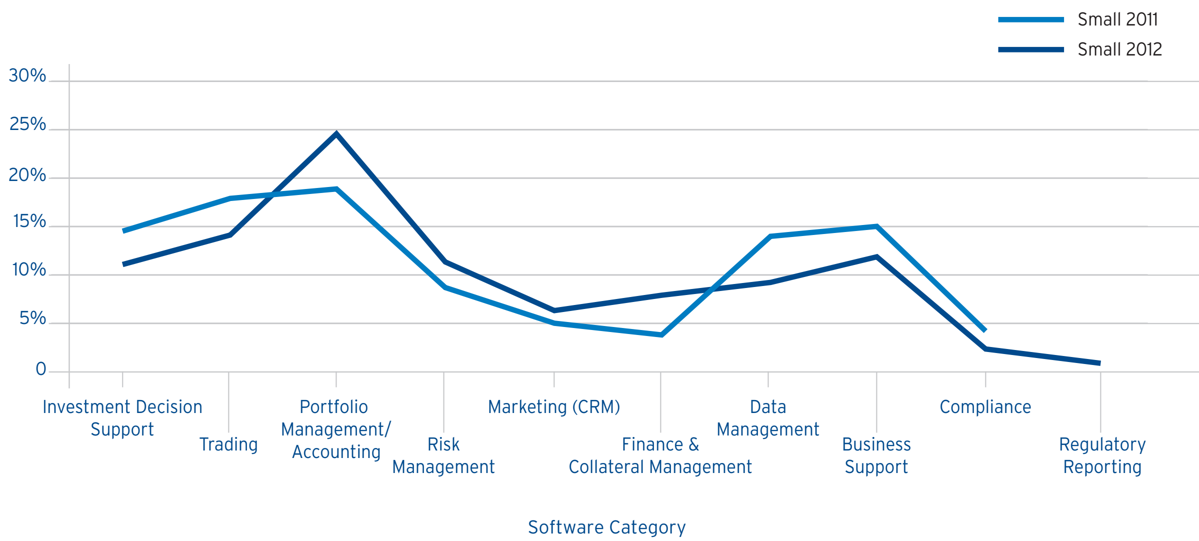


Small Firms: Technology Budget Projection

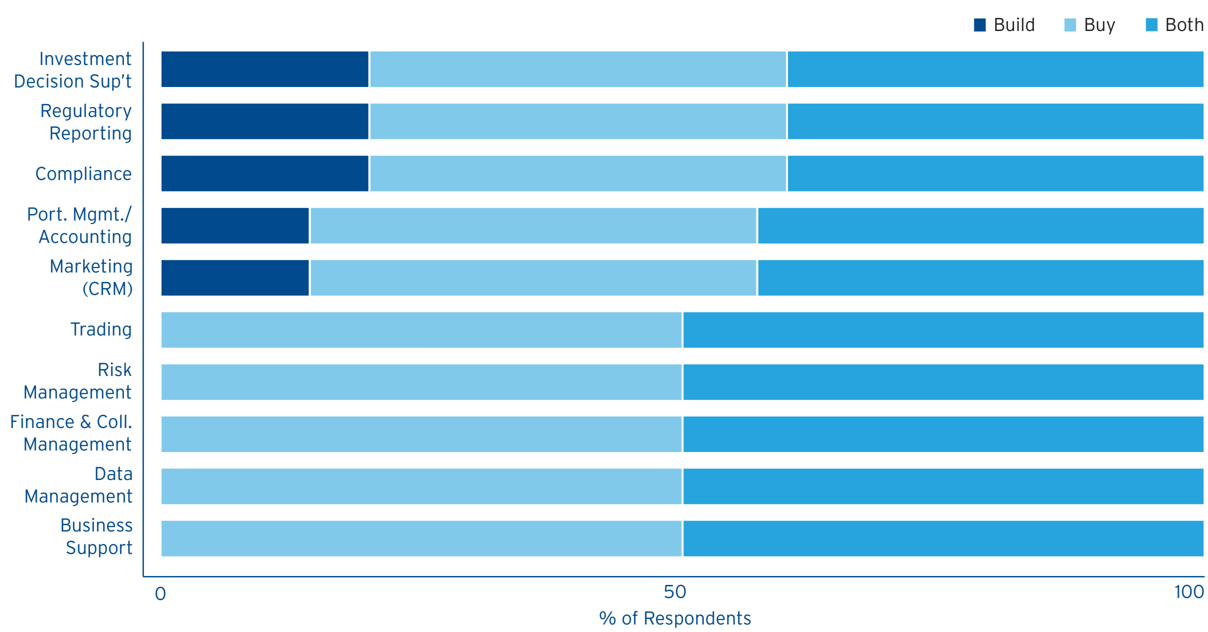


Small-Sized Firm Benchmarks: Technology (continued)

Small Firms: Software Budget Allocation Year-over-Year



Small Firms: Build vs. Buy Software

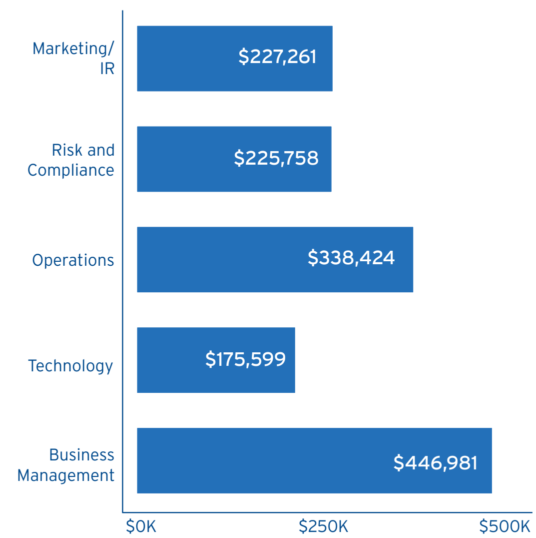


Medium-Sized Firm Benchmarks: Headcount & Compensation

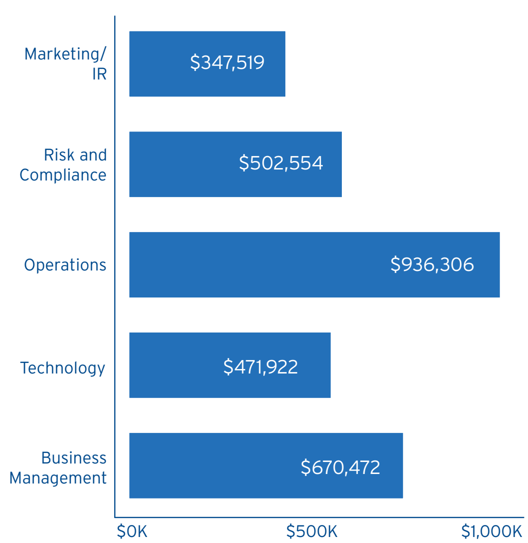
- The ratio of investment to non-investment professionals is around 1:1, with the average being 9.37 in portfolio management, trading, and research, and the total of the support functions being ~ 10.5.
- As fund managers begin to 'internalize' their process and take control of their own data. We see the number of full-time technology employees grow from 1 in small funds to 2.69 in medium.
- Internalization of processes as funds grow from $250 million to $1 billion leads to higher average salaries for in-house operational staff as the requirement for talent and specialist skills increases.
- The requirement to employ a senior COO who can assist with growing the business is evident with the largest average compensation number.
- Relative to small firms the basis points spent on compensation fall dramatically in business management (50% decrease), marketing (40% decrease), and risk & compliance (25%). This is because the foundational work in these areas has been done, and the focus turns to internalization of operations & technology.

Medium Firms: Headcount by Functional Area

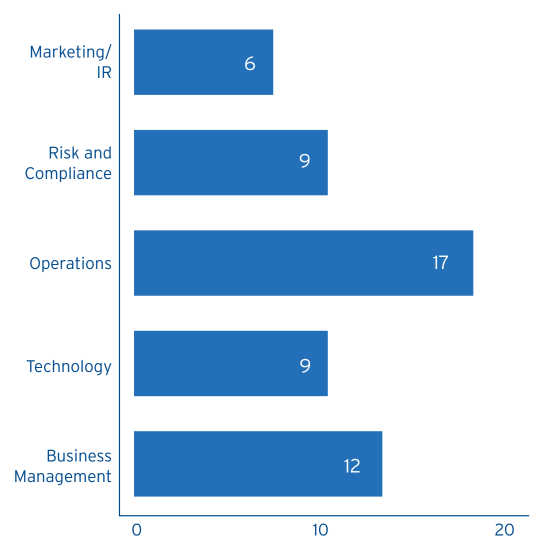
Medium Firms: Average Compensation by Functional Area



Medium Firms: Total Compensation by Functional Area



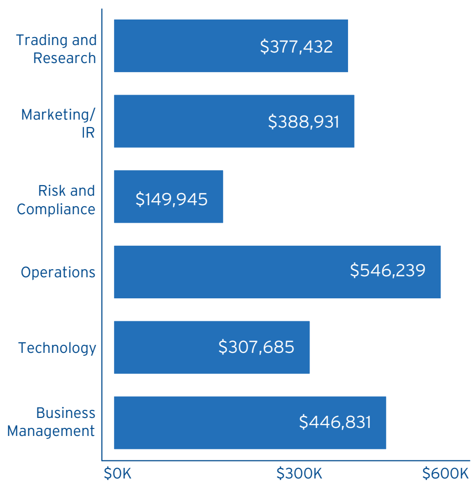
Medium Firms: Compensation Expense by Functional Area in Basis Points



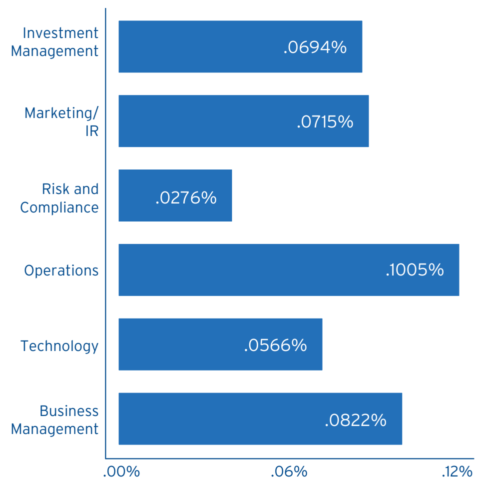
Medium-Sized Firm Benchmarks: Expense & Total Expense

- As funds grow from $250million to $1bn AUM we see external costs relating to trading & research and marketing & investor relations increase significantly in absolute terms.
- Risk & Compliance external spend however stays flat indicating the base case for complying with new regulatory reporting requirements at between $125k and $150k. However, this expense also accounts for engagement with outsourced CCO support and our underlying data shows that a larger percentage of that number goes to external compliance consultants as funds grow.
- The data show that medium firms experience a fourfold decrease in relative spend on outsourcing as these hedge funds begin to internalize operations. This indicates the maturing of internal middle office teams and operations management with the average basis points for fund administration, investor services, and middle office outsourcing, at around 10bps for medium firms indicating less outsourcing than small firms.
- Technology spend doubles as funds increase their focus on software related to investment decision making and portfolio management, in addition to buying more risk, compliance and business management solutions to support growth.
- Business management expense flattens off and on a relative basis decreases four-fold similar to operations. With a good COO in place early in the cycle and thoughtful selection of providers for audit, tax, and in some cases management company accounts, the operational leverage increases as the fund grows to $1bn AUM.

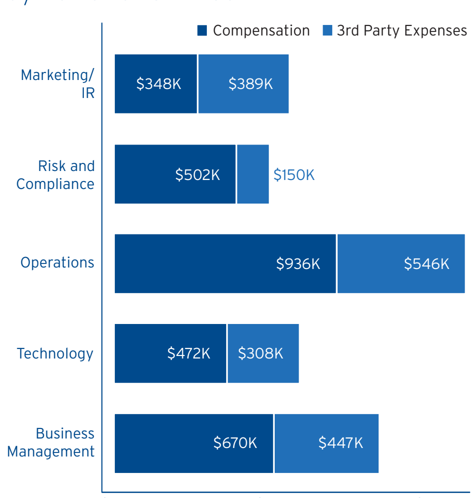
Medium Firms: Average third party Expense by Functional Area



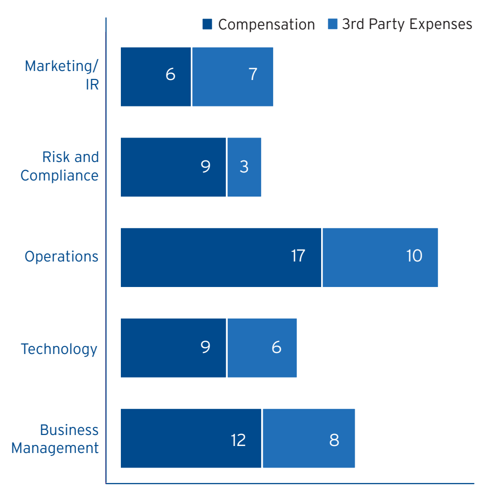
Medium Firms: third party Expenses as % of AUM



Medium Firms: Total Expense by Functional Area



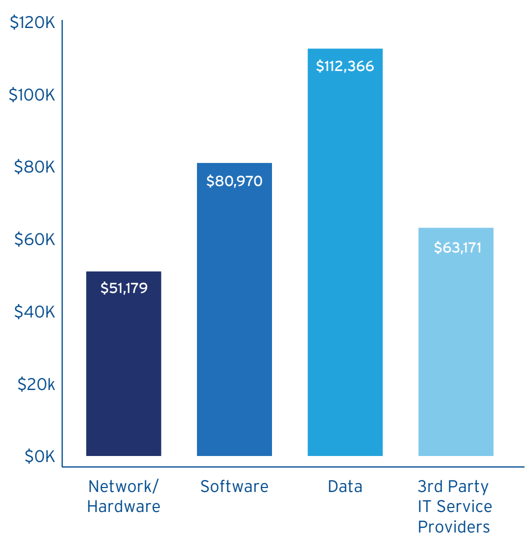
Medium Firms: Total Expense in Basis Points



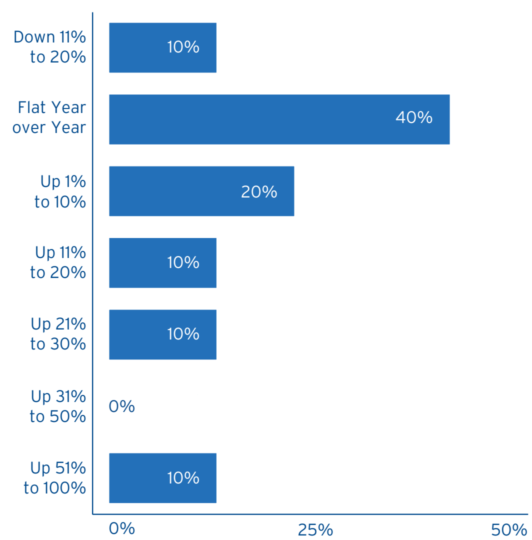
Medium-Sized Firm Benchmarks: Technology

- Network and data expense more than doubles as hedge funds grow from $250 million to $1 billion AUM, with data becoming the single largest expense.
- Although the majority of hedge funds in the survey do not charge back technology expenses to the fund level, 20% of respondents reported allocating ALL of their software and data expense back to investors.
- Twenty percent of firms in this category are planning a modest technology budget increase of up to 10% for 2013.
- Medium firms are the only size category where some respondents indicated that they will have a decreased technology budget for 2013.
- Similar to small firms, medium-sized funds spend more of their technology budget on portfolio management than any other category.
- Unlike small firms, medium-sized funds spend more on investment decision support systems than on trading systems. This relates to the broader needs of a larger portfolio in terms of analytics and research.
- The internalization theme continues when we look at the percentage of build vs. buy approaches between small and medium firms, with medium firms indicating some level of custom software in all categories except business support applications.
- The propensity to build software is most evident with investment decision support tools, which tend to be highly proprietary platforms that support portfolio managers and analysts

Medium Firms: Technology Spend (excluding compensation)

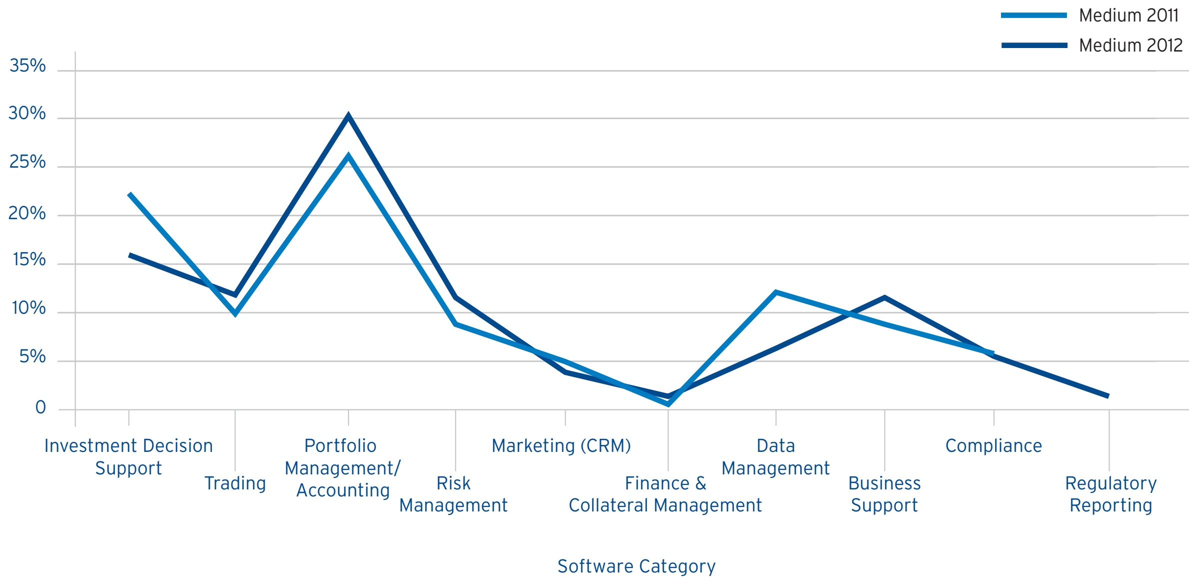


Medium Firms: Technology Budget Projection

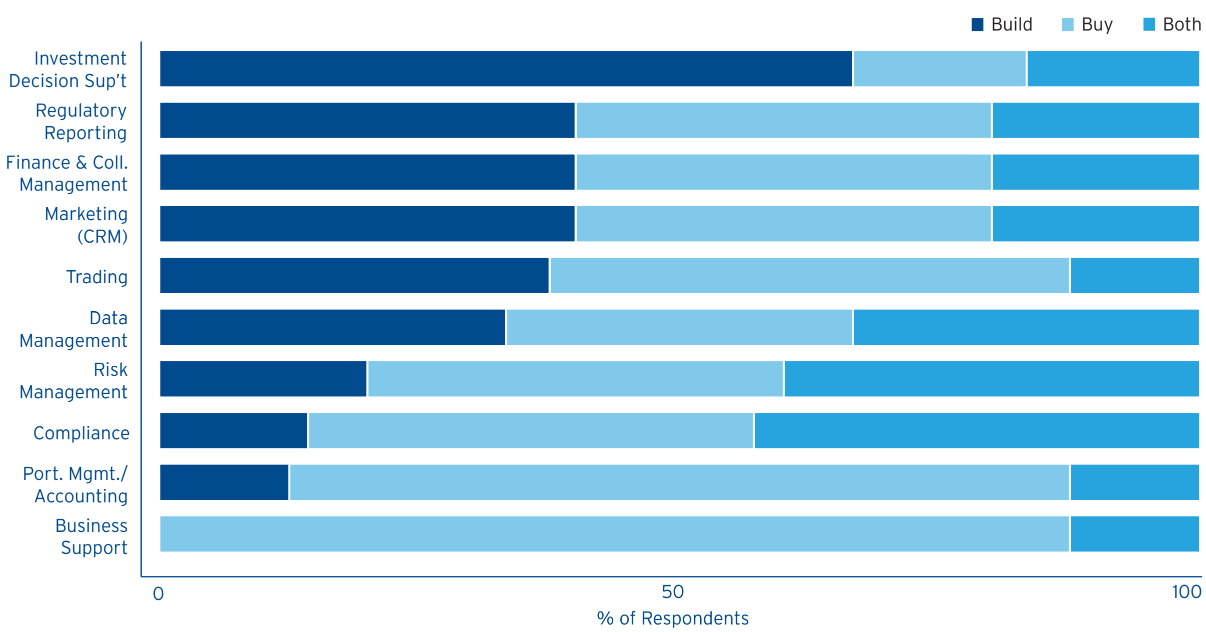


Medium-Sized Firm Benchmarks: Technology (continued)

Medium Firms: Software Budget Allocation Year-Over-Year



Medium Firms: Build vs. Buy Software

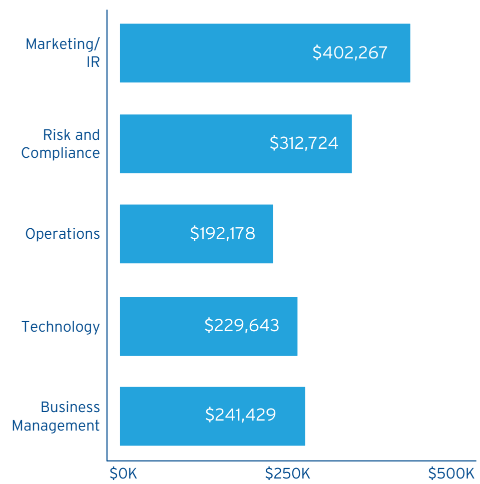


Large-Sized Firm Benchmarks: Headcount & Compensation

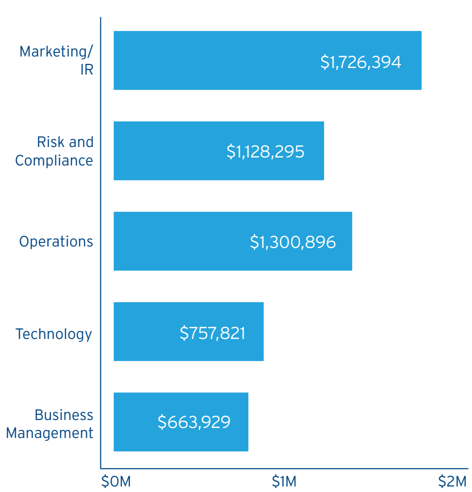
- We see a leap in the growth of investment management and support teams and the ratio of front office to support remains around 1:1 between the two categories.
- Risk & compliance teams increase in size 62%, which is caused by broader and more complex portfolios and increasing regulatory and investor scrutiny.
- Average compensation in investor-facing roles almost doubles as the requirement to source and retain capital becomes a significant functional role of the investment manager. The investor base is more diverse and more institutional, so the need to employ high-quality sales and marketing professionals increases.
- Average operations compensation decreases 43% looking across medium to large fund respondents. As team sizes grow and become more specialized the roles can be filled with more junior resource and this brings down the average compensation range for operations.
- In relative terms the operational leverage of the hedge fund business model is again highlighted as we compare medium to large firms, with basis points in operations, technology, and business management all significantly falling as size increases. Business management decreases from 12 bps of compensation expense to 3 bps, operations from 17bps to 6 bps, and technology from 9nbps to 4bps

Large Firms: Headcount by Functional Area

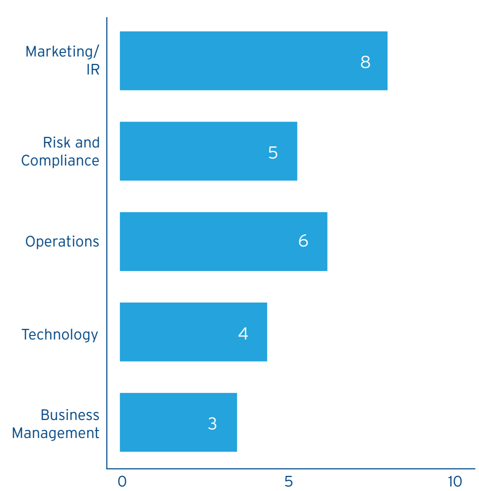
Large Firms: Average Compensation by Functional Area



Large Firms: Total Compensation by Functional Area



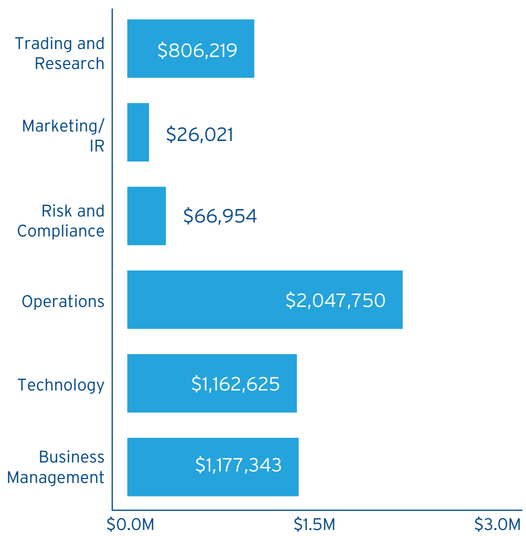
Large Firms: Total Compensation by Functional Area in Basis Points



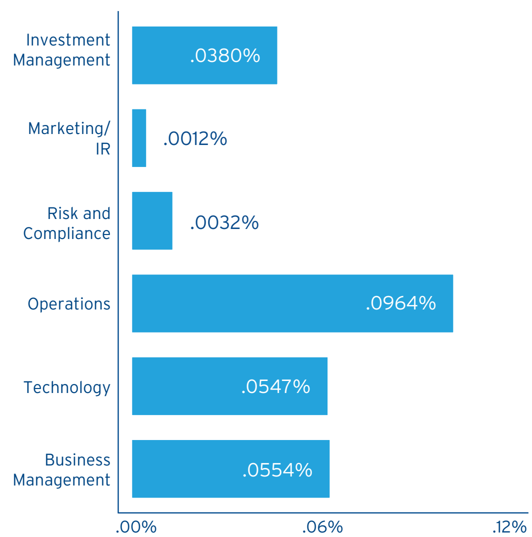
Large-Sized Firm Benchmarks: third party & Total Expense

- External spend on Marketing (principally third party marketers) is reduced to a minimum as this department matures and primarily internalizes.
- Risk & compliance solutions are further internalized as breadth and complexity of the portfolios expands.
- Average basis points spend on hedge fund administration and middle office outsourced operations is in the range of 9-10 bps between medium and large firms. This indicates that the large firms are doing a better job of 'bundling' middle office outsourcing with fund administration and achieving better economies of scale when engaging in process outsourcing arrangements

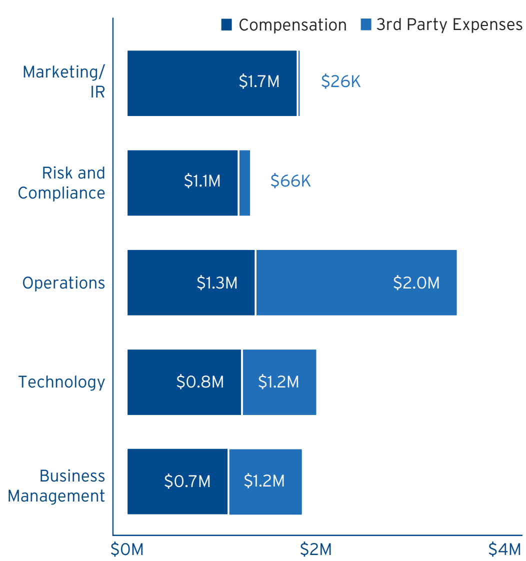
Large Firms: Average third party Expense by Functional Area



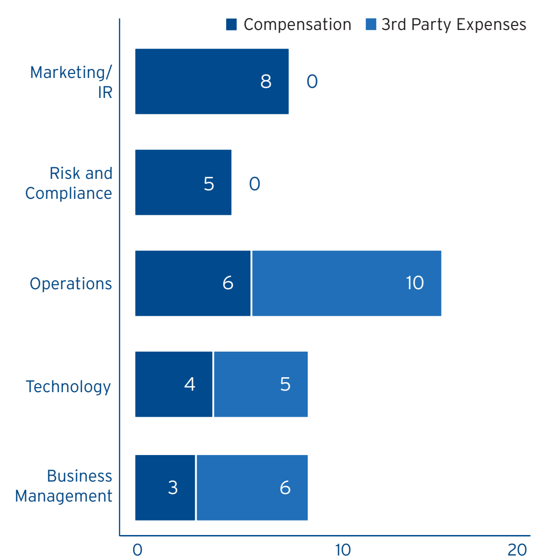
Large Firms: third party Expense as % of AUM



Large Firms: Total Expense by Functional Area



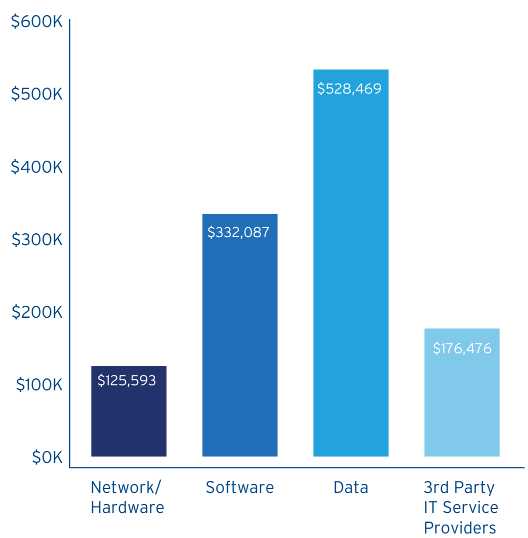
Large Firms: Total Expense in Basis Points



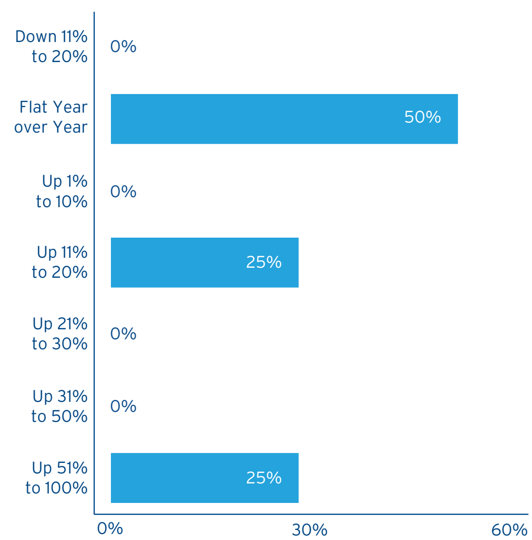
Large-Sized Firm Benchmarks: Technology

- Data expense becomes even more significant for firms managing between $1 billion and $5 billion, exceeding $500,000 per year.
- Large firms begin to spend significantly on software, acquiring or upgrading core infrastructure such as trading and portfolio management platforms.
- Large funds begin to spend more significantly on their network; all respondents in this pool report having the majority of their infrastructure on-premises.
- Though most respondents in this large AUM range didn't indicate charging any technology expense back to investors, one-third of respondents indicated charging all of their data expense and 75% of their software expense back to investors.
- A quarter of large firms are planning to increase their 2013 technology budget by more than 50%, which indicates an appetite to continue expanding capabilities and mature systems architectures. This may also relate to the increasing demands of investor transparency and regulatory reporting, and an overall requirement to centralize data management.
- Large firms showed a dramatic increase in 2012 software budget allocation to trading and portfolio management systems relative to 2011. This jump is the result of several factors including the increased trading complexity related to large firms acquiring additional portfolio teams onto their existing platforms, as well as pending changes in the execution and clearing of OTC derivative trades

Large Firms: Technology Spend (excluding compensation)

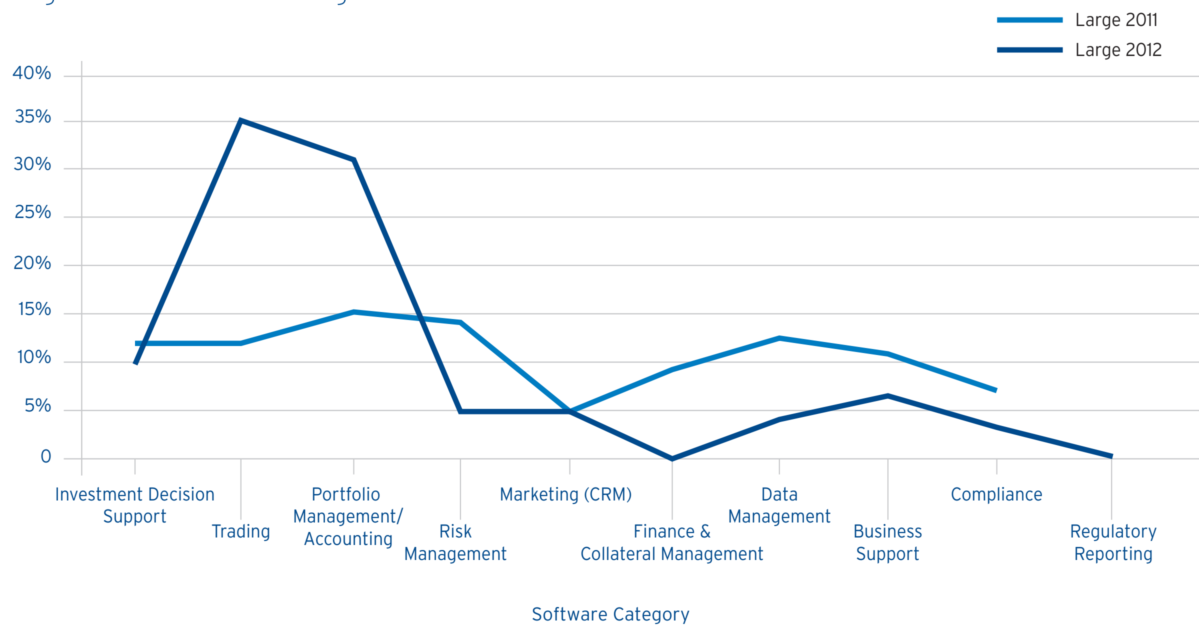


Large Firms: Technology Budget Projection

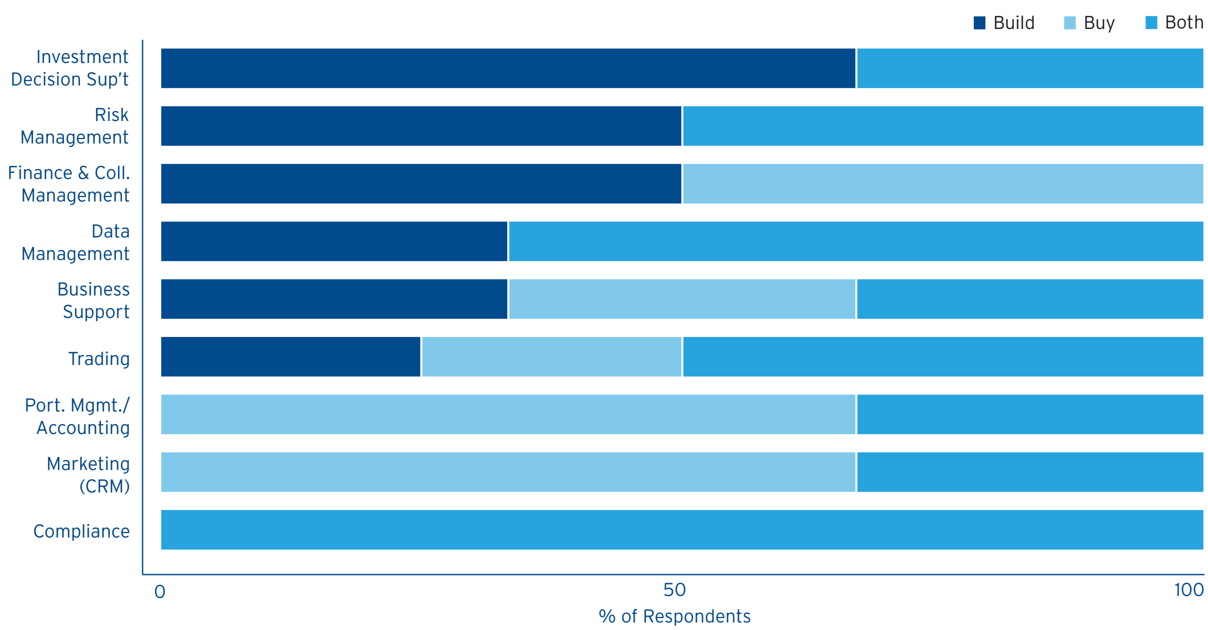


Large-Sized Firm Benchmarks: Technology (continued)

Large Firms: Software Budget Allocation Year-over-Year



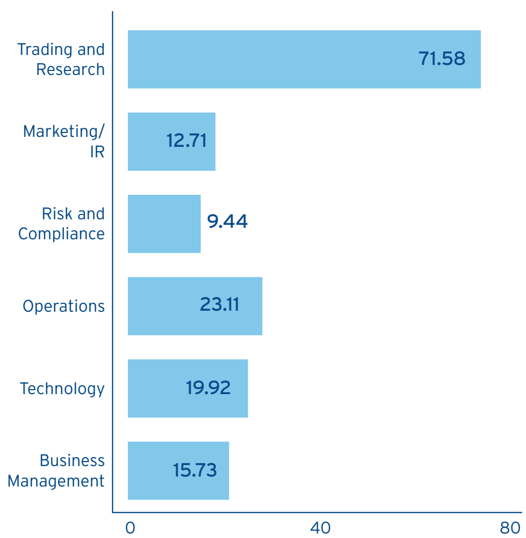
Large Firms: Build vs. Buy Software



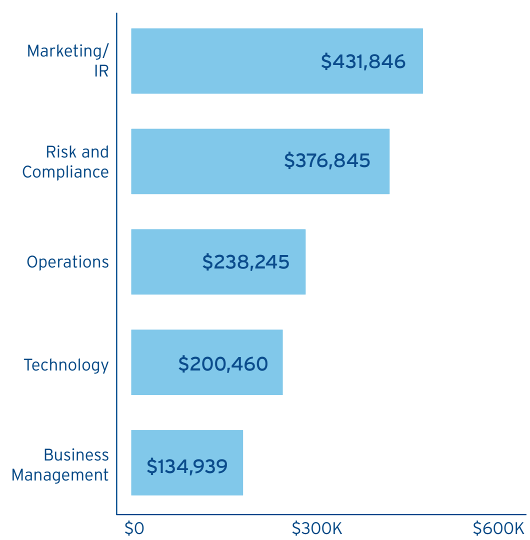
Franchise-Sized Firm Benchmarks: Headcount & Compensation

- Franchise firms have an entirely different profile from hedge funds in our first three bands, and are all operating across multiple products and regions. This presents a headcount picture which is significantly broader in the investment management departments, yet maintains an overall ratio of 1:1 between front office and support functions.
- Trading & research and business management groups grow over 600% if you compare large to franchise, implying completely different cultural and organizational challenges between these two profiles.
- Overseeing a mix of hedge funds, long only funds, and illiquid investments such as private equity and infrastructure requires specialist skills from front to back, and creates silos and departments within a firm. This in turn creates a management overhead that is more comparable to the traditional asset management community
- Average compensation increases slightly in client facing and risk management roles but decreases in other support functions. This indicates the introduction of more junior roles in the larger functionally segregated operations and business management functions required to support a multi product firm, and the additional emphasis on retaining and preserving capital.

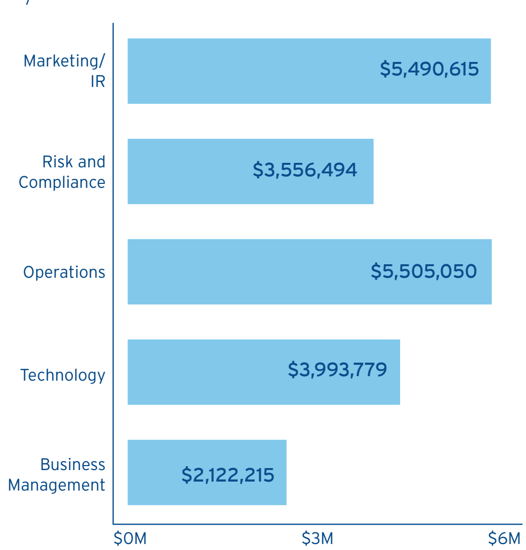
Franchise Firms: Headcount by Functional Area



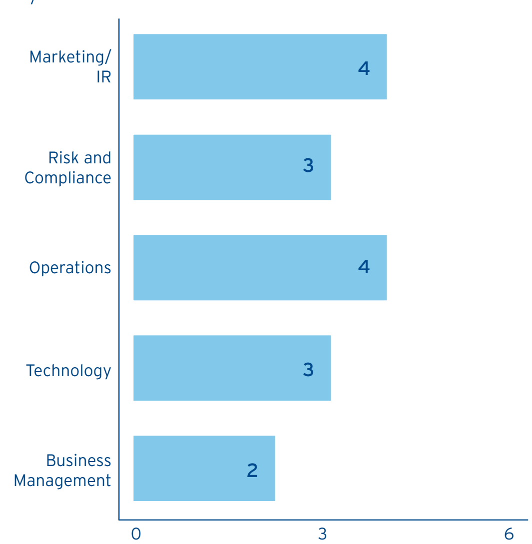
Franchise Firms: Average Compensation by Functional Area



Franchise Firms: Total Compensation by Functional Area



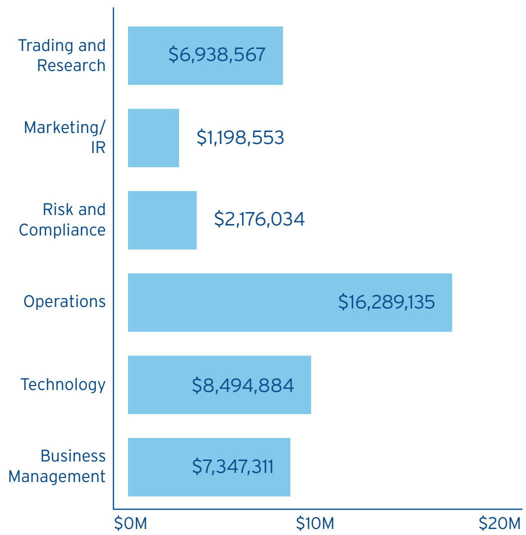
Franchise Firms: Total Compensation by Functional Area in Basis Points



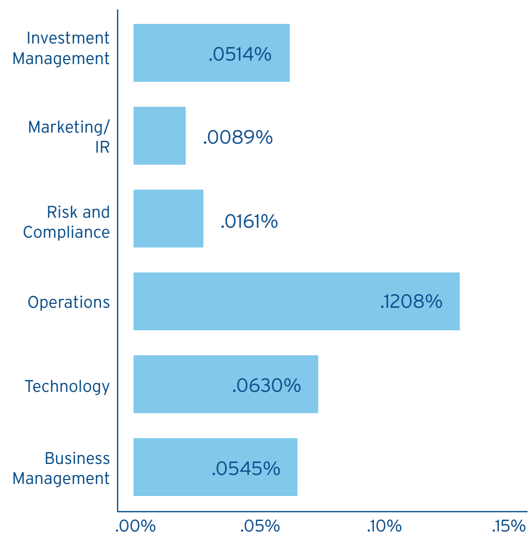
Franchise-Sized Firm Benchmarks: third party & Total Expense

- Although absolute spend on operations, technology, and business management all jump significantly with franchise firms, when we look at relative spend in basis points we see very little difference between the large and franchise size bands. This indicates that franchise firms do not achieve the same level of operational leverage as large firm and that their infrastructures are not yet as streamlined and efficient as they could be given strategic outsourcing options.
- We do see an increase in the relative spending on outsourced operations and fund administration with a rise from 9.6bps to 12bps. This supports the trend of franchise hedge funds outsourcing their middle office teams to large custodians (e.g. Bridgewater to BNYMellon, CSAM to Citi CTS) as these firms look to offload the costs of extensive global operations and achieve better economies of scale.

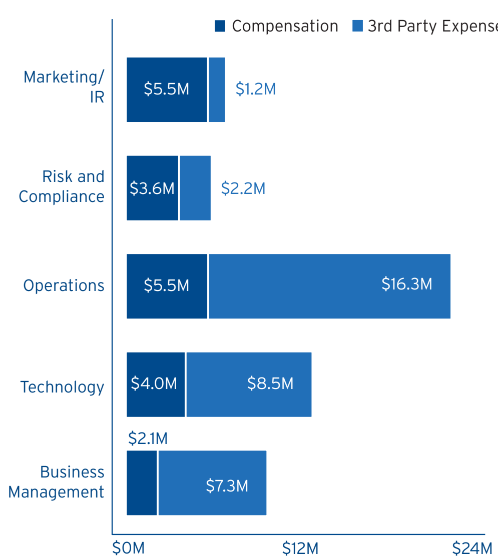
Franchise Firms: Average third party Expense by Functional Area



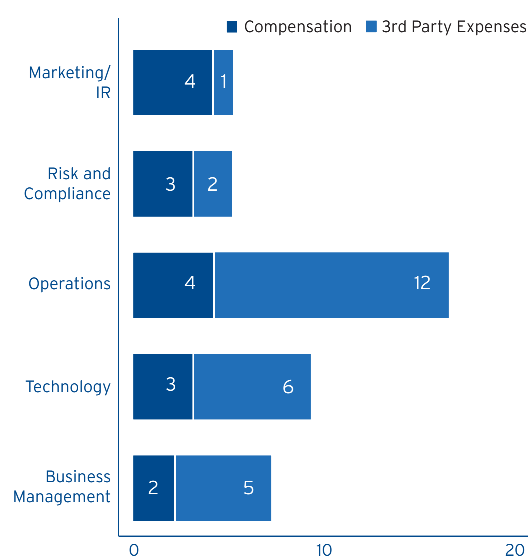
Franchise Firms: third party Expenses as % of AUM



Franchise Firms: Total Expense by Functional Area



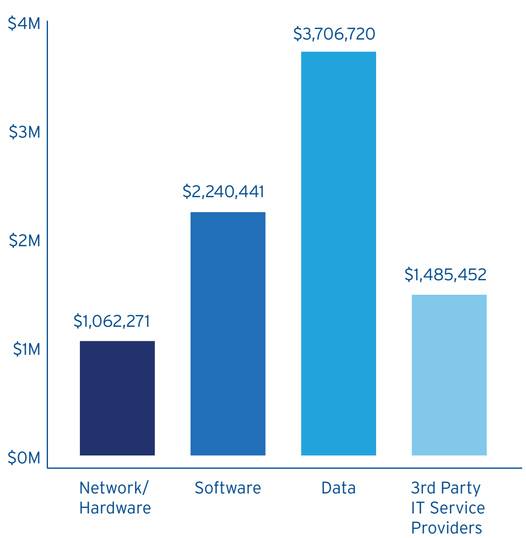
Franchise Firms: Total Expense by Functional Area in Basis Points



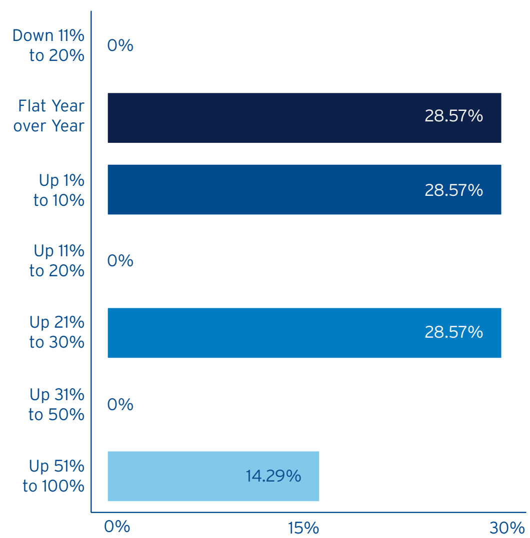
Franchise-Sized Firm Benchmarks: Technology

- As with medium and large firms, franchise firms spend most of their technology expense on data, followed by software, third party service providers, and networks.
- Almost half of franchise respondents indicated charging no data expense back to the fund, while slightly more than half charged an average of 54% of data expense back to the fund; however, responses to the amount being charged ranged from 21% to 100%.
- Reflecting their longer-standing infrastructures, most franchise firms host their own data centers on-premises, contributing to their million-dollar network expense. This also correlates to our previously collected data, with older firms less engaged with cloud-based infrastructure solutions.
- Franchise firms are allocating more of their 2012 software budgets to investment decision support systems relative to 2011.
- The increased software budget allocation for investment decision support systems is offset by a year-over-year decrease in spending on core systems such as portfolio management and trading.
- The majority of internal technology employees at franchise firms are focused on development rather than network engineering, reflecting these firms' predilection for building as opposed to buying.
- Franchise firms are the most likely of any asset size to rely solely on built capabilities, especially for customized functions such as investment decision support, data management, risk management, and finance & collateral management.

Franchise Firms: Technology Spend (excluding Compensation)

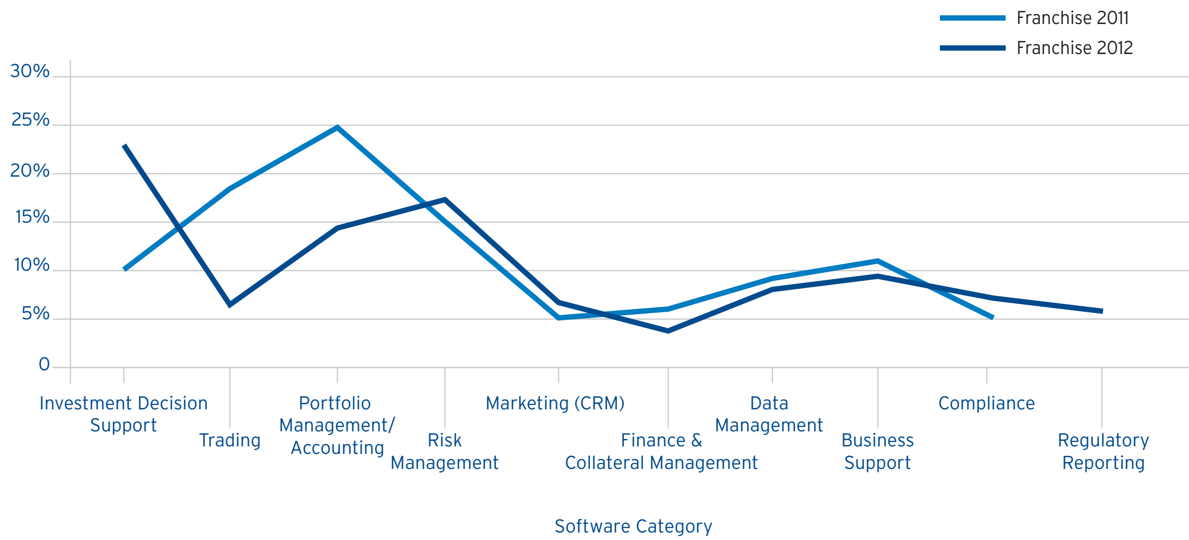


Franchise Firms: Technology Budget Projection

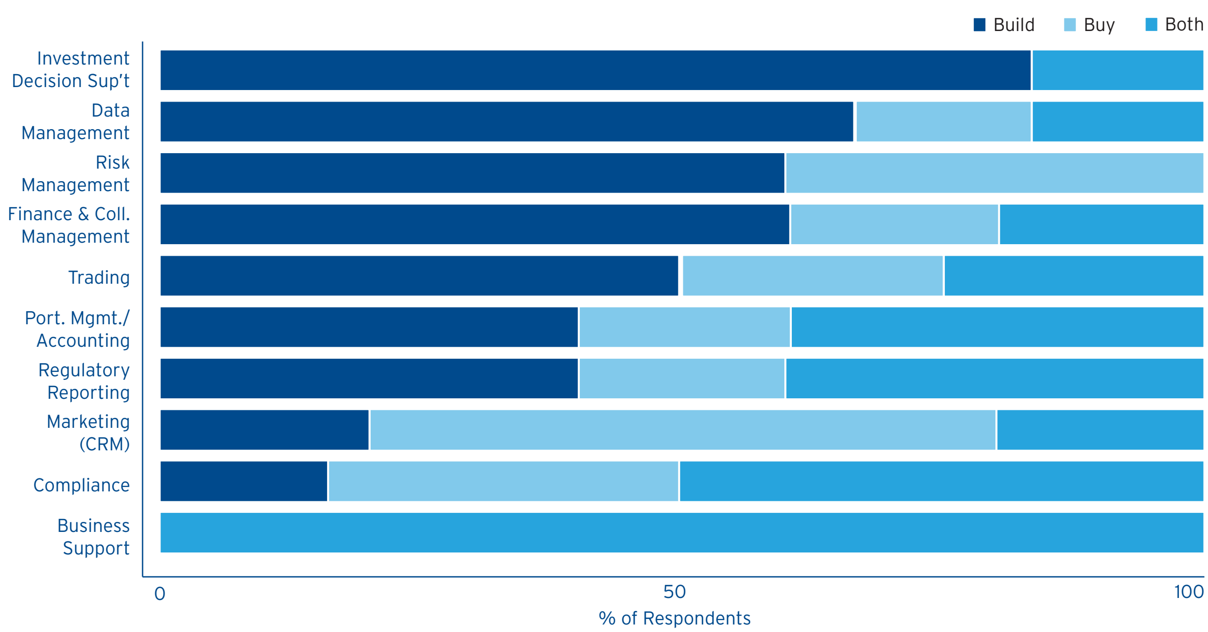


Franchise-Sized Firm Benchmarks: Technology (continued)

Franchise Firms: Software Budget Allocation Year-over-Year



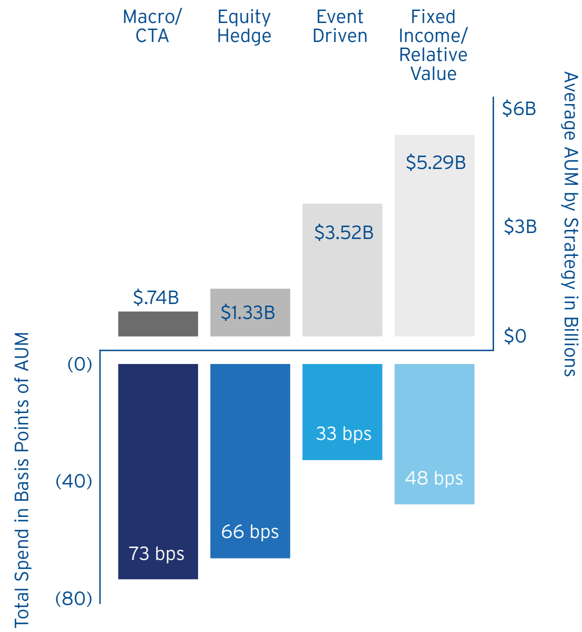
Franchise Firms: Build vs. Buy Software



Benchmarks by Strategy

- Macro/CTA and Equity Hedge firms trading liquid instruments that are readily traded on exchanges are typically leaner organizations with lower average expenses when we look across our dataset.
- These firms are also on average smaller in terms of AUM and, consistent with our data for small and medium firms, have a higher relative expense base than larger firms and firms with less liquid strategies.
- Even though they trade more complex instruments that require additional operational and infrastructure resources, event-driven and fixed income relative value firms have much large average AUMs, which results in them have lower support function expense ratios: 33 basis points for event-driven firms and 48 basis points for fixed income/relative value firms.

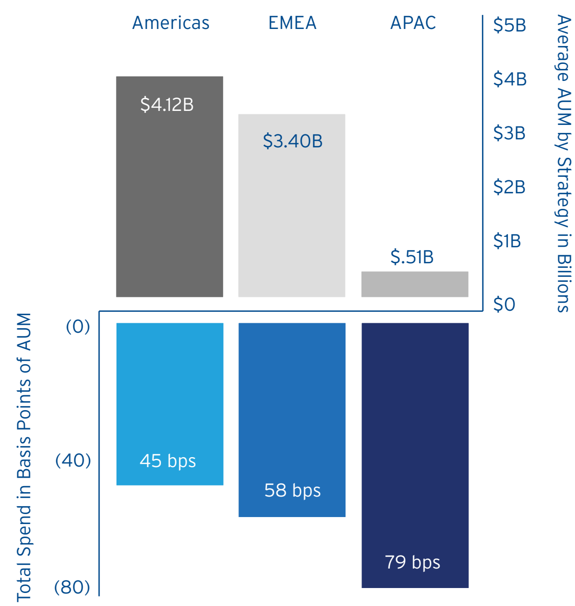
Total Hedge Fund Expense by Strategy in Basis Points



Benchmarks by Region

- Regional expense ratios correlate to the regional mix of hedge funds and average AUM in each market.
- Average AUM of Americas-based respondents is 8 times larger than APAC respondents, resulting in America-based firms' support expense ratio (45 basis points) being 57% lower than APAC firms (79 basis points).
- EMEA respondents have similar average AUMs compared to Americas-based respondents, yet EMEA firm's support expense ratio (58 basis points) is almost 30% higher (45 basis points for Americas-based firms).

Total Hedge Fund Expense by Region in Basis Points



Notes

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