Does Active Management Pay? New International Evidence

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For sophisticated institutional investors, active management outperforms passive management by more than 180 bps per year in emerging markets and by about 50 bps in EAFE markets over the 1993 to 2008 period. In U.S. markets, active management underperforms. Consistent with these patterns in returns, institutions use active management more frequently in non-U.S. markets, particularly emerging markets. Finally, we provide some evidence that one contributor to the active outperformance is institutional constraints on flows to non-U.S. markets. Overall, our results suggest that the value of active management depends on the efficiency of the underlying market and the sophistication of the investor. (*JEL* G11, G14, G15, G23)

One of the most important decisions for an equity investor is whether to manage investments actively or passively. The dominant view is that active management does not pay, even for sophisticated investors, and is costly on net (e.g., Wermers 2000; Busse, Goyal, and Wahal 2010). Thus, the advice given by academics to investors has been to avoid active equity management.

How robust is this conclusion? It relies largely on evidence from U.S. equities. As shown by Grossman and Stiglitz (1980), inefficient markets are a necessary condition for active management to deliver returns. Ang, Goetzmann, and Schaefer (2009, p. 10) survey the theoretical literature on market efficiency, noting that institutional constraints and limits to arbitrage

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allow "a role for arbitrageurs . . . who may profit from their competitive advantages . . . [which] may include specialized knowledge, lower trading costs, low management fees or agency costs. . . ." Hence, while active management is theoretically valid, its use in the U.S. is least likely to be successful because U.S. equity markets are arguably the most efficient in the world, producing few opportunities for active managers to exploit.

In this paper we re-examine the returns to active management by picking a setting with higher ex ante possibilities for returns to active management. Specifically, we study the use of active and passive management in non-U.S. markets by institutional investors. The focus on non-U.S. markets is crucial as these markets likely offer the best chance to profit from market inefficiencies. Potential mispricing may be longer lived here, as institutional investors facing political pressures or explicit restrictions imposed by their boards may stay away from these markets. The focus on institutional investors is also important because they are the most likely to benefit from active investing, to the extent that they do invest. As repeat contractors with external managers, they have more potential to provide oversight (e.g., Del Guercio and Tkac 2002) and to capture a greater share of any rents in the relationship (Dyck and Pomorski 2012).

Such an international study needs to overcome several data obstacles. The first relates to sample size. Relative to U.S. equity data, the available data on actively managed positions in non-U.S. equities are sparse and investor-sponsored studies of active management rely on relatively few funds.[1] Another obstacle is active management cost data. Most studies using institutional investor databases do not have access to actual cost data (e.g., Ferson and Khang 2002; Blake et al. 2010; Busse, Goyal, and Wahal 2010). When costs are small and uniform across investor type, the lack of such data likely has little effect. But in non-U.S. markets, costs are likely to be large and variable across investors. Third, one cannot assume that in all markets plans will have access to low cost passive instruments that provide exposure to well-known factors. Thus, it is appropriate to directly compare active versus passive returns in a given market, because doing so captures the costs of assembling passive positions and the actual limits to creating factor exposures through such instruments.

One straightforward way to overcome these obstacles is to ask a broad sample of institutional managers about the realized cost and performance of their actual active and passive positions across a range of markets with different ex ante levels of efficiency. In this paper, we use exactly such survey data collected by CEM Benchmarking, Inc., a leading benchmarking firm whose database covers a large fraction of the defined benefit (DB) pension

[1] For example, the Norwegian government has solicited three studies of active management, providing results for the global fund (Ang, Goetzmann, and Schaefer 2009), the Norway/Scandinavian fund (Sorensen and Nagy 2010) and a survey of returns to active funds for 14 other plans of which 9 provided some performance data (Mercer 2009).

plan industry. We focus on pension plans largely because of the detailed CEM data, but also because of their sophistication and total equity assets under management.[2]

Critically, the comprehensive nature of this database makes it particularly well suited for our study because it has information on returns, as well as costs for both active and passive positions across the U.S. equity, EAFE equity (developed markets of Europe, Australasia, and Far East), and emerging market equity categories from 1993 to 2008. In fact, a large number of the pension plans in our sample have both active and passive holdings in a particular market, which allows us to hold constant plan characteristics when exploring differences in the returns to active and passive investments.

We first test for differences in performance of active and passive investing in non-U.S. equity markets. This at least partly controls for risk exposure differences to the extent that plan managers seek equal exposure to the same factors through their active and passive positions. We find net positive payoffs to active management and that this payoff varies across markets based on their expected informational efficiency. In the EAFE equity markets, we find a net-of-cost active outperformance of 49 bps per year, while in the (presumably) less efficient emerging markets the active outperformance is a substantial 246 bps per year.[3] Next, we use CEM's plan-specific geographic benchmark data to construct benchmark-adjusted returns to active investing defined as gross returns minus costs minus benchmarks. This captures some dimensions of risk to the extent that cross-sectional differences in plans' desired exposure to risk factors will likely be reflected in the benchmarks chosen by plan overseers. When we re-estimate our baseline models using benchmark-adjusted net returns, we obtain similar estimates of the outperformance of active investing for these non-U.S. markets.

These baseline results suggest that the benefit to active management is indeed related to the ex ante efficiency of an equity market. We repeat our analysis for U.S. equity markets and find, consistent with prior research, negative net returns to active management in U.S. equities. After costs, active management underperforms by 28 bps per year, an amount roughly equal to the difference in active and passive fees of 35 bps per year that the database reports.

We conduct further tests to investigate whether our non-U.S. baseline results stem from greater risk in active strategies. First, we construct a spread portfolio of the difference between active and passive returns in a geographic

[2] In 2008, the top 1,000 U.S. pension plans managed $6.4 trillion in assets, whereas U,S, mutual funds managed $9.6 trillion (Investment Company Institute 2009; Williamson 2009).

[3] A long line of literature argues that there may be profitable trading opportunities in emerging markets (e.g., Harvey 1995; Morck, Yeung, and Yu 2000; Bekaert and Harvey 2002; van der Hart, Slagter, and van Dijk 2003). More recently, Griffin, Kelly, and Nardari (2010, p. 3228) argue that emerging markets are more efficient than commonly believed, but still conclude that "the inferences from transaction and information costs provide support for the widely held notion that emerging markets are indeed less efficient than developed markets."

market, and estimate alphas with respect to a variety of international asset pricing models. The results provide point estimates very similar to our baseline models. For equally, weighted (value-weighted) portfolios, we find alphas for an active relative to passive approach of 48-115 bps (53-143 bps) in EAFE depending on the model and alphas of 270-390 bps (181-224 bps) in emerging markets. The limited number of annual observations reduces the power of these tests: Alphas are insignificant for EAFE equity, but are generally significant for emerging market equity.

Second, we assess the idea that if active outperformance stems from holding stocks with greater market risk, liquidity risk, or other risks tied to prevailing economic conditions, then the payoffs to active management should be lower during economic downturns. Defining downturns as years with an NBER recession or years in which global equity markets had negative returns, active management significantly outperforms for non-U.S. equities both during and outside of downturns. Performing the same test with U.S. equities we find that, consistent with Kosowski (2006) and Glode (2011), active performance pays off during, but not outside of, recessions.

Given these potential benefits, we next ask whether plan managers increasingly make use of active strategies where they are likely to work well. We find that they do. Plans are the least active in U.S. equities, more active in EAFE equities, and the most active in emerging markets. Further, consistent with learning about the performance of active strategies across markets, in non-U.S. markets plans have increased their allocations to active management over our sample period. In contrast, in U.S. equities, the asset class where active management has long been shown to underperform, plans have become more passive over time.

Why do we see these patterns in returns? Theory suggests that superior returns to active management should attract capital flows that eventually eliminate outperformance. However, such capital flows may be hampered by institutional constraints. We find some evidence of this by exploring cross-sectional differences in pension plans. Public-entity plans and smaller plans invest less overall, and less actively, in emerging market equities, even though their returns to such investing are similar to those of private and larger pension plans. If public plans face statutory or governance limits on active emerging market investing, or smaller plans lack the scale or international board expertise necessary to make these investments, then limited capital flows may be one reason why active management outperforms in these markets.

It is instructive to reconcile our findings with those of a contemporaneous paper that studies investor equity returns outside the U.S. Busse, Goyal, and Wahal (2011) examine active returns before costs for retail and institutional products in global markets using multi-factor international pricing models and conclude that the average investor would be better off using passive strategies. Their conclusion has an important and standard

qualification: they assume low cost passive instruments are available. Our findings suggest that this is a critical assumption. Relative to actual and implementable passive strategies, we find positive returns to active strategies for institutional investors outside the U.S. That said, retail investors using active strategies face much higher costs than institutional investors (e.g., Khorana, Servaes, and Tufano 2009), and these costs are likely to dwarf the net alpha we find for institutional investors.[4]

More generally, we conclude that the value of active management depends on the efficiency of the underlying market and the sophistication of the investor. Our results suggest the choice of active management by institutional investors in non-U.S. markets is consistent with rational portfolio optimization, rather than agency conflicts or possible naïveté. We show that they achieve greater returns using an active rather than a passive approach in emerging markets, and point estimates suggest positive returns in EAFE markets, although this result is not always statistically significant. In no case do we find negative after cost returns to active management relative to passive management in these markets. As a caveat, some of these tests have low-power, so we cannot conclusively rule out a risk-based explanation for our results.

The remainder of the paper proceeds as follows. We provide an overview of the data in Section 1. Section 2 presents the results on the value of active management across markets. Section 3 explores whether risk is driving these results. In Section 4, we analyze the allocations to active and passive management across markets and across time. Section 5 we discuss potential drivers of the active outperformance in non-U.S. markets. We conclude in Section 6.

1. Data

1.1 Database

We take advantage of proprietary data on defined benefit pension plan holdings, costs, and returns obtained from CEM Benchmarking, Inc., a Toronto-based global benchmarking firm. The CEM data we use span the years 1993 to 2008 and include responses from 492 U.S. and 226 Canadian corporate and public plans.[5] Plans report to CEM so that their board and management may be able to compare their cost and return performance with that of peer institutions; the data are not made public and are not used to advertise the performance of the plans in the database. In 2007, the U.S. plans in the database have $2.8 trillion in assets, which represents 40% of total DB pension assets in

[4] Cremers et al. (2011) study active investing for retail investors in mutual funds using an international sample. They find that funds with a high 'active share' deliver positive performance using international factor pricing models.

[5] We do not include data from the (relatively fewer) European, Australian, and New Zealand plans that also report to the CEM database as EAFE is their home market. Reported results are robust to including these plans.

the U.S. Canadian plans account for $0.6 trillion, which corresponds to 65% of total assets in Canada. The database has particularly comprehensive coverage of large plans. While the cost of the benchmarking service is moderate, it is more easily covered by larger plans whose sponsors and overseers are more likely to demand the benchmarking as part of their governance of the plan. The average plan (time-series average based on equal-weighted average each year) has $8 billion in assets, the median has $2 billion, and the largest plans in our sample exceed $100 billion in assets. The average plan invests 58% of its assets (approximately $4.6 billion) in overall public equity, and 32% of assets in U.S. public equity.

The database has several attractive features for our research question. First, for each plan, CEM reports holdings and performance separately for passive and active equity portfolios. The data on passive performance constitute an actual benchmark to measure active performance against, which may be preferable to having to rely on a potentially impossible-to-achieve theoretical benchmark. Plans in our sample are sophisticated users of passive management, capable of creating or selecting passive positions that include exposure to factors.

Second, plans always report their performance for three equity classes: U.S. equity, EAFE equity (developed markets of Europe, Australasia, and Far East), and emerging market equity (available from 1993 onwards). These markets differ in their expected efficiency, allowing for a test of whether efficiency influences the active versus passive returns for these sophisticated investors.

Third, the database reports separately gross returns, costs, and benchmarks. Thus, we can construct net returns based on actual cost data, whereas many studies of active management need to impute costs. Costs of passive investing also are important. Even in developed markets simple index strategies can be costly, as is shown both by academics (e.g., Petajisto 2011) and practitioners (e.g., Norges Bank Investment Management Global 2009 annual report). More complex passive strategies such as momentum carry even greater costs (Korajczyk and Sadka 2004). Outside the U.S., active and passive costs are likely to be even more substantial and variable, and our cost data are thus particularly beneficial. The data provider goes to great lengths to specify a clear definition of which costs should be included and checks the data quality to ensure comparability across plans and over time. For example, external active management costs include "All fees paid to third-party managers including investment management fees, manager-of-managers fees, performance-based fees, commitment fees, and hidden fees netted from the returns" and "other internal and external costs that can be directly attributed to specific externally managed holdings."[6] Finally, our plan-level data allow

[6] Instruction and Footnotes, 2009 U.S. Defined Benefit Pension Fund Survey, http://www.cembenchmarking.com/Surveys/SurveyDownload.aspx.

us to address concerns that results may be driven by unobserved differences across plans because we can use plan fixed effects in our models.

Alongside these advantages are also a number of data limitations. First, the dataset includes data from plans of varying sizes but is skewed towards larger plans. To the extent that larger plans, with lower costs, are able to achieve greater returns, average performance will overstate expected returns for smaller plans. We will investigate this possibility in later tests by including controls for size. However, because the CEM data comprise mainly large pension plans, we cannot extrapolate our results to the universe of small-size pension plans that are not present in our database.

Second, while the dataset provides performance information for active and passively managed portfolios in each geographic market, it does not provide external holdings-level information. Thus, we do not construct measures such as 'active share' developed by Cremers and Petajisto (2009). The fact that plans may pay full fees to funds that are in fact 'closet indexers' will make it less likely we will find outperformance of actively managed plans. We can infer from the names of benchmarks used by plans that passive and active portfolios feature both broad market index positions and more tailored index positions, and that the weight on factors varies by market.[7]

Finally, the data are only available at the annual frequency and the dataset is an unbalanced panel. The time series for a typical plan is fairly short because of the increasing number of participants in the benchmarking service over time,[8] the fact that CEM assigns new identifiers to plans following a substantial change in the structure of plan membership (e.g., a merger), and other idiosyncratic reasons that lead plans to cease to participate in the benchmarking service.

We make the following changes to the CEM benchmarking data. Canadian data are expressed in Canadian dollars, so we translate holdings and returns into U.S. dollars using interbank exchange rates as of December 31 of each sample year.[9] We winsorize costs and returns at the 1st and the 99th percentile to eliminate outliers that remain in the data even after the CEM vetting process. We have a plan ID and several variables that capture plan characteristics [such as country (e.g., U.S.) of the plan and ownership type (corporate, public, other[10])]. The terms of use of the dataset require us to preserve plan anonymity.

[7] For instance, one U.S. benchmark is listed as S&P 500, S&P 400, and Russell 2000 growth. EAFE benchmarks include "Custom (MSCI EAFE; EAFE Sm Cap; EAFE Value)," "FTSE Dev World EAFE Small cap," "HSBC European small companies," "MSCI Latin America Free," or "50% IFC Emerging + 50% Malaysia."

[8] For example, 119 of the 723 plans appear in the data only in 2005 or later, so these plans can have at most four observations. The average plan appears in 56% of years following its addition year.

[9] Results are similar if we use Canadian currency data, or if we only use U.S. plans, which have all data in U.S. dollars.

[10] The 'other' category accounts for 600 plan-year observations and includes union pension plans, insurance plans, and a few endowments and sovereign wealth funds. Results are robust to excluding this category.

1.2 Coverage, representativeness, and potential biases

While the database is among the most comprehensive available, it does not cover the universe of plans, raising questions as to whether the omitted plans might have different patterns in their active and passive returns than the included ones. To assess this possibility, we first make comparisons for U.S.-based plans, the region for which we have some population data. Specifically, we compare asset allocation of the U.S. plans in the CEM database with asset allocation in the Pensions and Investments 2007 Top 200 Funds list and find statistically indistinguishable and economically small differences across the two samples.[11]

We next look at performance of pension plans of publicly-traded U.S. firms that are required to report net plan returns in their annual statements and for which Compustat reports data since 1996. The time series average of the equally-weighted cross-sectional average (median) returns of the plans in the CEM database is 7.3% (7.0%) (CEM has on average 87 U.S. corporate plans per year with a maximum of 123 per year). There are substantially more plans reported by Compustat firms (2,137 on average) and these plans are substantially smaller. The average return of these plans is 6.6% for the whole sample, 6.9% if we restrict plans to have at a minimum the size of the smallest CEM plan ($25m), and 7.4% if we restrict ourselves to the largest 200 corporate plans. Our interpretation of these comparisons is that our U.S. sample is comparable with the population of plans in Compustat, but skewed towards larger plans. We do not have population data and cannot carry out similar analyses for the Canadian plans. However, the Canadian data are particularly comprehensive (e.g., in 2008 we capture 65% of all Canadian DB plans), so there are fewer ex ante concerns of bias here.

Another potential bias could arise if plans came in and out of the database based on their performance rather than for simply random reasons. One concern we can easily address and rule out is survivorship bias, as the plans that no longer report do remain in the database. We also compare the net benchmark-adjusted returns of new plans (plans that enter the database in year t) and the performance of plans that have reported in the immediately preceding year (have reports in both year t and year $t-1$). The difference is essentially zero (-0.002%). Similarly, the difference in the performance of plans that skip a year (enter the database before year t and report in year t, but not in year $t-1$) and plans that continue reporting (report in both years t and $t-1$) is extremely small (-0.05%).[12] These results suggest it is unlikely that plans strategically report only in years when their performance is superior.

[11] For example, in 2007, the mean allocation to equities in our CEM sample is 58.3%, while it is 60.1% for the top 200 funds and 58.9% for the top 100 funds.

[12] Bauer et al. (2010) were allowed to match CEM's U.S. corporate plans to Compustat. They find no significant difference in returns of plans that enter or leave the CEM database and plans that remain in the database.

2. The Value of Active Management

2.1 Summary statistics for costs

Table 1 provides Fama-MacBeth summary statistics for cost and performance across markets and Figure 1 plots these costs over time. For these computations, we use only years in which we have at least five plans with active and five plans with passive holdings in a given asset class. Table 1 shows that average pension plan annual costs of passive investing are 5.1 bps in the U.S., almost double this at 9.5 bps in EAFE, and close to four times the U.S. cost at 21.2 bps in emerging markets. Panel A in Figure 1 shows this rank ordering of costs across markets is persistent over time.[13] The inter-quartile range in costs is also substantial and varies by markets. The range broadens as markets are less efficient: it is 4.8 bps in the U.S., 8.6 bps in EAFE, and 13.7 bps in emerging markets. Being able to use passive costs, and to control for differences in costs across plans and markets, is an advantage relative to prior research that has implicitly assumed that passive investing in such benchmarks has zero cost and/or is the same across markets and investors.

Annual costs for active investing (reported in Table 1 and Panel B of Figure 1) also vary persistently across markets, with averages that range from 40 bps in the U.S. to 50 bps in EAFE to 77 bps in emerging markets. These estimates are quite comparable to studies of institutional costs of active investments.[14] As would be expected, these institutional investor costs are substantially lower than the average cost for retail investors in mutual funds of 150 to 300 bps (Khorana et al. 2009).

2.2 Summary statistics for returns

In the bottom part of Table 1 we report net return differences between active and passive holdings by geographic market. By looking at this active-passive difference, we reduce the impact of returns arising from risk exposure to the extent that plan managers seek equal exposure to factors through their active and passive positions. These data provide preliminary indications that the returns to active management vary with the underlying perceived efficiency of the market. The time series average of the annual average difference in returns between active and passive holdings is −29 bps in the U.S., 37 bps in EAFE, and 342 bps in emerging markets. The Sharpe ratio similarly goes from −0.05 in U.S. to 0.14 in EAFE and 1.27 in emerging markets. These results are based, on average, on more than 200 active plans per year in each of EAFE

[13] These results are close to those reported by Norges Bank Investment Management Global (2009) annual report (pp. 66-71). They have total passive costs of 10-15 bps/year, from transition and rebalancing costs of ~10 bps, ongoing index costs of ~4 bps, management costs of ~0-5 bps, partly offset by revenues from securities lending (~5 bps/year).

[14] Lakonishok, Shleifer, and Vishny (1992) report U.S. active costs of 50 bps/year. Busse et al. (2010) use pro forma fee schedules that give an upper bound of fees of 64 bps. Our sample's lower costs may reflect larger plan size in our sample and use of internal active management (the average plan manages 10% of its U.S. equity assets internally).

Table 1
Summary statistics

	U.S.	Non-U.S.	EAFE	Emerging markets
Passive holdings:				
Number of years	16	16	16	10
Average number of plans	168.2	69.7	67.8	9.2
Maximum number of plans	276	82	81	15
Costs (bps)	5.1	10.0	9.5	21.2
Costs inter-quartile range (bps)	4.8	8.9	8.6	13.7
Gross returns (%)	9.01	8.13	8.05	10.86
Returns inter-quartile range (%)	2.08	3.99	3.44	7.61
Net returns (%)	8.96	8.03	7.96	10.65
Net returns standard deviation	20.45	21.10	21.56	33.98
Sharpe ratio	0.26	0.20	0.20	0.21
Active holdings:				
Number of years	16	16	16	10
Average number of plans	230.8	225.4	217.0	76.7
Maximum number of plans	276	254	252	113
Costs (bps)	40.0	52.3	50.3	77.4
Costs inter-quartile range (bps)	24.7	26.9	26.6	38.9
Gross returns (%)	9.07	9.25	8.83	14.84
Returns inter-quartile range (%)	5.15	7.12	6.60	6.14
Net returns (%)	8.67	8.73	8.33	14.07
Net returns standard deviation	19.35	21.84	21.30	37.83
Sharpe ratio	0.26	0.23	0.22	0.28
Active minus passive holdings:				
Gross returns (%)	0.06	1.12	0.78	3.98
Net returns (%)	−0.29	0.70	0.37	3.42
Sharpe ratio	−0.05	0.22	0.14	1.27

This table presents summary statistics of the cost and performance of U.S. and Canadian defined benefit pension plans' equity holdings over the 1993-2008 period from the CEM Benchmarking, Inc. database. The table presents results based on a Fama-MacBeth approach: In each year, we compute cross-sectional statistics for the plans/asset classes with data in that year, and the table reports the time series averages. For each geographic market, we require at least five plans with active positions and at least five plans with passive positions to include that year in the summary statistics. Returns are in percentages and costs are in basis points, and both variables are at the annual frequency. Non-U.S. equity is based on the weighted average of EAFE and emerging markets. Net returns are gross returns minus costs.

and U.S. equity, as well as 68 and 168 plans with passive holdings of EAFE and U.S. equity, respectively. We also have a reasonably sized sample of plans with active emerging market equity positions (78 in the average year). However, there are only a few plans with passive holdings of emerging market equity: 9 per year is the average and 15 per year is the maximum for our sample.[15]

2.3 Baseline regression evidence on active versus passive performance across markets

Our first test of whether active management is costly or beneficial uses a regression framework. In these baseline regressions, the dependent variable

[15] The discrepancy between the number of plans with active and passive holdings is likely not an artifact of our sample. For example, Leuz, Lins, and Warnock (2009) find that investors substantially underweight stocks with poor transparency and governance characteristics and that this effect is the most pronounced in emerging markets. Thus, investors may be less willing to invest passively if holding the index involves holdings poor transparency or governance stocks.

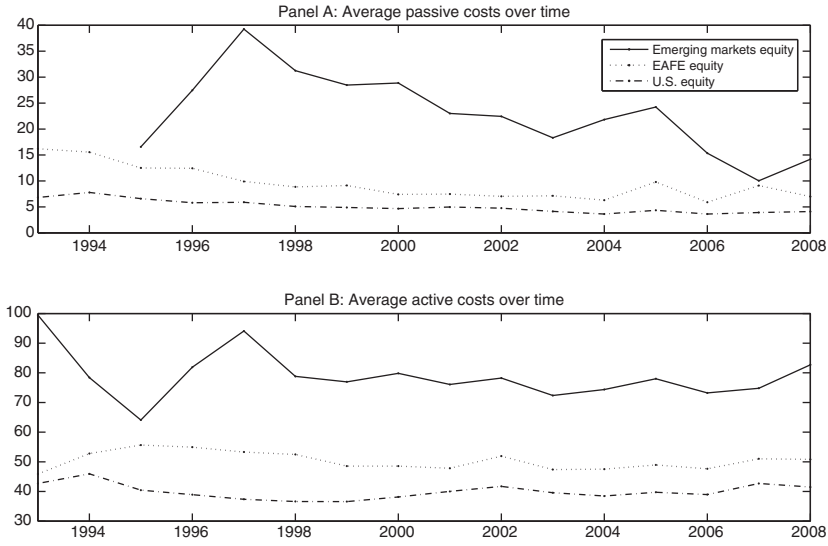

Figure 1
Costs of passive and active investments across markets and over time
This graph plots average costs for pension plans' passive (Panel A) and active (Panel B) positions in emerging markets equity (top line), EAFE equity (middle line), and U.S. equity (bottom line) from 1993 to 2008. For all plotted years, there are at least five plans reporting costs.

is annual performance with separate observations for active and passive management. We start with performance using gross returns, then turn to net returns (defined as gross returns minus costs), and finally net benchmark-adjusted returns (defined as gross returns minus costs minus plan- and market-specific benchmarks chosen by plan sponsors). Presumably, there are cross-sectional differences in plans' desired exposure to risk factors, and as noted earlier plan overseers likely reflect this in their choices of benchmarks in the geographic markets. The database provides these benchmarks that differ by plan and by geography. We account for risk factor exposure more formally in Section 3.

We test the value of active management by including an indicator variable that takes the value of one for active holdings and the value of zero for passive holdings. Thus, the central coefficient in our analysis is the estimate and significance of this "*active*" indicator variable. Note that in a given geography and year a plan could have two observations, one for its active and one for its passive holdings. We cluster the standard errors at the plan level.

All regressions include year fixed effects to capture the level of overall market return in each year, which is common to both active and passive positions (roughly equivalent to correcting all returns for the market return in a given year). These fixed effects also help to control for the fact that our sample is unbalanced, with more observations in recent years. In

addition, we estimate models using plan fixed effects, which lessens the concern that plan characteristics may be driving the results. For example, one alternative explanation for our findings could be that relatively sophisticated plans have active holdings, while less sophisticated plans or plans with very high costs tend to have passive holdings. Our plan fixed effects model estimates the relative attractiveness of the active approach solely from the within-plan differences in active and passive performance. This does come at a cost in that it limits the analysis to those plans that have both active and passive positions. For this reason, we do not emphasize these results, but rather treat them as a robustness check. The potential impact of plan characteristics such as size and sponsor identity on returns is deferred to Section 5 and Table 7.

We report our baseline regressions in Table 2. The results suggest that active management has net benefits for institutional investors in non-U.S. markets that depend on the efficiency of the market. In the presumably least efficient emerging markets, the positive and significant coefficient on the active dummy shows that active holdings outperform passive regardless of the performance measure. The outperformance of active relative to passive is 340 bps for gross returns in column (1), 246 bps for net returns in column (3), and 181 bps when we use plan-chosen benchmarks in column (5). For the more efficient EAFE developed markets, we arrive at similar positive and significant results, with lower point estimates. Gross returns to active are 90 bps (column 7), net returns are 49 bps (column 9), and benchmark-adjusted returns are 67 bps (column 11). Introducing plan fixed effects, as we do in every second specification, shows the robustness of these results, with slightly higher point estimates and similar levels of statistical significance. We next aggregate the results across the non-U.S. equities in columns (13) through (18). We find similar results, with gross returns to active position of 154 bps, net returns of 107 bps, and net returns after benchmarks of 74 bps, with similar findings with plan fixed effects.

In columns (19) – (24) in Table 2, we estimate our models for pension plans' investments in U.S. equities. We conduct these tests for two primary reasons. First, they help frame our non-U.S. results. That is, given the greater informational efficiency of U.S. markets we expect to find that the returns to active investing will be lower than those we just documented for non-U.S. markets. Second, these tests shed light on the comparability of our pension plan database with databases used in other U.S. equity studies. Our database is relatively new and, while its coverage of pension plans appears sizable, it nonetheless may not capture the breadth of equity positions taken by the pension plan industry. If our data are comparable to the data used by others, we would expect not only to observe lower returns to active investing vis-à-vis non-U.S. markets, but also that U.S. market active returns will be negative, or at best zero, after accounting for costs, consistent with prior findings.

Table 2

Performance of active relative to passive management of equities, by geographic market

	Gross return		Net return		Net return - benchmark		Gross return		Net return		Net return - benchmark	
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Plan FE	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Emerging market equity						EAFE equity					
Active dummy	3.40***	3.60***	2.46**	2.63**	1.81**	2.68**	0.90***	1.06***	0.49***	0.70***	0.67***	0.70***
	(3.27)	(2.82)	(2.45)	(2.00)	(2.00)	(2.05)	(4.76)	(4.57)	(2.59)	(3.01)	(3.93)	(3.18)
Observations	1,005	1,005	1,001	1,001	1,000	1,000	4,546	4,546	4,546	4,546	4,539	4,539
R-squared	0.962	0.972	0.963	0.973	0.087	0.362	0.917	0.933	0.917	0.934	0.170	0.321
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
	Non-U.S. equity						U.S. equity					
Active dummy	1.54***	2.04***	1.07***	1.61***	0.74***	0.82***	0.07	0.05	−0.28**	−0.30**	−0.30**	−0.29**
	(6.57)	(6.71)	(4.60)	(5.34)	(4.08)	(3.42)	(0.60)	(0.35)	(−2.24)	(−2.18)	(−2.44)	(−2.09)
Observations	5,551	5,551	5,547	5,547	5,539	5,539	6,372	6,372	6,372	6,372	6,371	6,371
R-squared	0.851	0.867	0.852	0.867	0.133	0.259	0.934	0.942	0.934	0.942	0.089	0.194

The dependent variable is a measure of performance for plan holdings managed actively or passively in the indicated geographic market. The active dummy can be interpreted as the differential performance of actively managed positions. Performance measures include a plan's gross returns, net returns (equal to gross return minus costs), and net returns minus benchmark. Benchmarks are plan-specific and tailored to the specific geographic market. Returns are per annum, are expressed in percentages, and are based on the plans' portfolio of positions in that market (they may include internally managed, as well as externally managed holdings). Results for emerging market equities are in columns 1-6, for EAFE equities in columns 7-12, for non-U.S. equities in columns 13-18, and for U.S. equities in columns 19-24. A plan with both active and passive positions in a market-year will provide two observations. Regressions include year and plan fixed effects, as indicated. T-statistics based on robust standard errors and clustered at the plan level are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Before costs, there is no statistical difference in active and passive performance in U.S. equities. After costs, active holdings significantly underperform by 28 to 30 bps/year, which is similar to the difference in costs of 35 bps/year reported in Table 1.[16] These results mirror previous findings that, net of costs, active holdings of U.S. equities underperform academic benchmarks and thus provide some reassurance that our data are broadly representative of pension plans' positions and returns. Also, our tests show this underperformance in the U.S. obtains even when using actual passive holdings and their actual costs. To the best of our knowledge, this conclusion has not yet been documented in the literature.

Taken together, the relative size of the active premium across markets is in line with economic intuition. Net of costs, active destroys value in the relatively efficient U.S. equity markets, even for the sophisticated investors. Outside of the U.S., however, the baseline regressions suggest that the active approach is not costly, even after fees, and can outperform. Its value is economically meaningful for the developed markets of EAFE, and is especially large for emerging equity markets.

3. Does the Value of Active Management Come from Taking on Greater Risk?

As discussed, one may be concerned that our findings are driven by plans taking on more risk in their actively managed portfolios. While our earlier models using plan fixed effects and benchmark-adjusted returns can partially address the risk issue, in this section we introduce two specific tests of the risk explanation that can be implemented with our data. First, we estimate alphas for spread portfolios that go long on active positions and short on passive positions, including a variety of international risk factors identified in prior research. We do this both for portfolios of plans and for individual plans. Second, we complement this analysis with an investigation of whether the gain to active management is different between economic downturns and other periods.

Our pricing models consist of a "World CAPM" model containing the *global market return*, a "World 3-factor" model that includes the *global market return*, a *value factor*, and a *size factor*, and a World 4-factor model (similar to Carhart 1997) that also includes a *momentum factor*. Further, Griffin (2002) argues for the importance of using local rather than international factors, so we also estimate "Local 3-factor" and "Local 4-factor"models.

[16] Our data provider informed us that a few plans also report their large- and small-cap U.S. positions separately. We found that active underperformance is particularly acute for large-cap stocks. Interestingly, for small-cap equity the active dummy has a positive (but small and insignificant) coefficient even after costs, which may again suggest that active performance is relatively more attractive in less efficient markets.

We use market return and value factors in the World 3-factor, World 4-factor, and U.S. equity models from Ken French's website.[17] We construct the *local value factor* by subtracting MSCI value from MSCI growth for the respective geographic indices. We construct the *local market factor* from investable MSCI indices. We construct the *world size factor* and *local size factors* as a difference in returns on MSCI Small Cap and Large Cap indexes, for the respective geographies. We base our *momentum factors* on Hou, Karolyi, and Ko (2011).[18]

In Table 3, the dependent variable is the net (after cost) return on a portfolio that is long in active positions and short in passive positions. If active strategies are more likely to generate returns from exposure to the factors included in our models, there will be a heavier loading on the long active leg than the short passive leg of the portfolio, translating to a positive coefficient in the spread portfolio and a lower alpha. By using portfolios, we maximize the number of time series observations. Nonetheless, our short time series dramatically reduces the number of observations to 16 observations for EAFE and 14 for emerging markets equity, which limits the precision of our estimates and thus the power of these tests.

Using equally-weighted spread portfolios in Panel A of Table 3, we find an emerging markets alpha of active relative to passive management of 270 bps using the World CAPM, 337 bps with the World 3-factor model, 390 bps with the World 4-factor model, 368 bps with the Local 3-factor model, and 379 bps with the Local 4-factor model. In comparison, our analogous baseline specification from Table 2 is 246 bps (column 3). In EAFE, the spread portfolio alphas are 48 bps, 115 bps, 112 bps, 101 bps, and 68 bps, respectively, for these models. Our analogous baseline specification from Table 2 is 49 bps (column 9). The difference between non-U.S. and U.S. results is easiest to see by comparing columns (11) and (12) with columns (13) and (14). In non-U.S. markets, alphas on the spread portfolios are positive and range from 159 to 168 bps, while for U.S. equities the alphas on the spread portfolios are negative and range from −74 to −156 bps.

To see whether there are substantial differences across plans in their ability to realize these returns, we weight returns by plan size in Panel B of Table 3. Value-weighting produces similar patterns. We get slightly lower emerging market alphas (ranging from 181 to 224 bps), consistent with some diseconomies in these markets for the larger plans, and slightly higher alphas for

[17] The website, found at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html, provides Fama and French (1993) factor returns through 2007. Mean returns for the market and value factors are 6.7% and 6.3%, respectively.

[18] Emerging and EAFE market returns average 9.1% and 6.1%, respectively. Value factors for emerging and EAFE average 2.8% and 3.4%, respectively. Size factors for emerging and EAFE average 2.1% and 1.5%, respectively. Kewei Hou kindly provided data for global, EAFE, and emerging market momentum factors for our sample period that extends the sample period from their published paper. Over our sample period momentum averages 14.7% for global, 15.5% for emerging and 5.9% for EAFE.

Table 3

Alphas on portfolios long in active positions and short in passive positions

Model	(1) World CAPM	(2) World 3-factor	(3) World 4-factor	(4) Local 3-factor	(5) Local 4-factor	(6) World CAPM	(7) World 3-factor	(8) World 4-factor	(9) Local 3-factor	(10) Local 4-factor	(11) World 3-factor	(12) World 4-factor	(13) Local 3-factor	(14) Local 4-factor
Asset class	Emerging equity					EAFE equity					Non-U.S. equity		U.S. equity	
Panel A: Equally-weighted portfolios														
Alpha	2.70*	3.37**	3.90*	3.68*	3.79**	0.48	1.15	1.12	1.01	0.68	1.59*	1.68	−0.74	−1.56**
	(1.84)	(2.57)	(2.18)	(2.22)	(2.36)	(0.69)	(1.51)	(1.06)	(1.35)	(0.61)	(2.06)	(1.57)	(−1.72)	(−2.39)
Market	0.09	0.01	0.02	0.04	0.00	−0.02	−0.06	−0.06	−0.05	−0.06	−0.05	−0.05	−0.04*	−0.02
	(1.41)	(0.09)	(0.27)	(0.88)	(0.01)	(−0.77)	(−1.57)	(−1.37)	(−1.50)	(−1.49)	(−1.21)	(−0.99)	(−1.81)	(−1.17)
Value		−0.33**	−0.32*	−0.38	−0.61		−0.14	−0.14	−0.09	−0.07	−0.18*	−0.17*	0.12***	0.14***
		(−2.37)	(−2.10)	(−1.27)	(−1.80)		(−1.68)	(−1.56)	(−1.26)	(−0.94)	(−2.13)	(−1.93)	(3.55)	(4.08)
Size		0.04	−0.04	−0.14	0.13		0.07	0.07	0.03	0.06	0.06	0.05	0.08***	0.10***
		(0.27)	(−0.16)	(−0.40)	(0.32)		(0.76)	(0.52)	(0.42)	(0.57)	(0.69)	(0.36)	(3.15)	(3.71)
Momentum			−0.05		0.04			0.002		0.03		−0.001		0.05
			(−0.46)		(1.28)			(0.04)		(0.40)		(−0.12)		(1.60)
Observations	14	14	14	13	13	16	14	14	14	14	14	14	16	16
R^2	0.143	0.553	0.563	0.624	0.687	0.041	0.258	0.258	0.222	0.236	0.348	0.350	0.736	0.786

(continued)

Table 3
Continued

Model	(1) World CAPM	(2) World 3-factor	(3) World 4-factor	(4) Local 3-factor	(5) Local 4-factor	(6) World CAPM	(7) World 3-factor	(8) World 4-factor	(9) Local 3-factor	(10) Local 4-factor	(11) World 3-factor	(12) World 4-factor	(13) Local 3-factor	(14) Local 4-factor
Asset class	Emerging equity					EAFE equity					Non-U.S. equity		U.S. equity	
Panel B: Value-weighted portfolios														
Alpha	2.17*	1.81	2.24	1.87	2.03	0.78	1.43	1.20	1.29	0.53	1.50*	1.40	−0.46	−0.74
	(1.87)	(1.43)	(1.29)	(1.18)	(1.56)	(0.93)	(1.69)	(1.03)	(1.49)	(0.42)	(1.83)	(1.24)	(−1.40)	(−1.37)
Market	0.05	0.06	0.07	0.03	−0.04	0.01	−0.05	−0.05	−0.04	−0.05	−0.02	−0.03	−0.01	−0.00
	(0.96)	(0.96)	(1.00)	(0.56)	(−0.80)	(0.17)	(−1.05)	(−1.04)	(−0.85)	(−1.05)	(−0.57)	(−0.54)	(−0.58)	(−0.27)
Value		0.01	0.02	−0.03	−0.38		−0.19*	−0.20*	−0.14	−0.11	−0.15	−0.15	0.09***	0.10***
		(0.06)	(0.15)	(−0.09)	(−1.36)		(−2.09)	(−2.01)	(−1.78)	(−1.28)	(−1.70)	(−1.60)	(3.69)	(3.48)
Size		−0.20	−0.27	−0.29	0.11		0.05	0.08	0.02	0.09	−0.00	0.01	0.04*	0.05*
		(−1.36)	(−1.17)	(−0.87)	(0.34)		(0.46)	(0.53)	(0.22)	(0.73)	(−0.04)	(0.07)	(2.13)	(2.16)
Momentum			−0.04		0.07**			0.02		0.07		0.01		0.02
			(−0.38)		(2.34)			(0.31)		(0.84)		(0.13)		(0.66)
Observations	14	14	14	13	13	16	14	14	14	14	14	14	16	16
R^2	0.072	0.277	0.289	0.294	0.581	0.002	0.367	0.373	0.277	0.330	0.348	0.350	0.639	0.653

The dependent variable is the return of a spread portfolio long in active and short in passive positions in the indicated geographic market. Panel A presents equal-weighted results and Panel B presents value-weighted results. The coefficients capture the differential exposure of actively managed positions relative to passive positions to the indicated factors. The World CAPM, World 3-factor, and World 4-factor models use global factors. The Local 3-factor and Local 4-factor use factors from the indicated geographic market. The text indicates the specific data sources for factors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

EAFE that range from 53 to 143 bps, suggesting no diseconomies. Looking at non-U.S. markets as a whole, we find positive alphas of 140-150 bps (and negative alphas in U.S. markets).

We also assess coefficients on factors. Following Griffin (2002), we pay particularly close attention to the local factor models, focusing on the Local 4-factor model. We find no significant difference in the exposure to factors between active and passive positions, with the coefficients largely consistent with U.S. market findings, with the exception of the value factor. The positive coefficient on *size* in the spread regressions suggests that active positions are more likely to invest in small cap stocks. The positive coefficient on *momentum* indicates that active strategies are more likely to use momentum. The negative coefficient on *value* suggests that actively managed holdings are less likely than passive holdings to include value stocks. Importantly, inclusion of all these factors does not reduce our point estimates of positive alpha in non-U.S. markets.

We now discuss statistical significance. In Panel A of Table 3, we find significant alphas for all of the emerging market regressions, *t*-statistics of up to 1.5 (*p*-value of 0.16) for our EAFE tests, significance for one of the two regressions where we pool all non-US equities, and for one of the U.S. equities regressions. In Panel B, we find statistical significance in one of the emerging market regressions, *t*-stats up to 1.7 in the EAFE regressions, and significance in one of the regressions where we pool the non-U.S. equities together. The lack of overall significance could arise because of the limited power of these tests or because there truly is no significant incremental return to active management once these asset pricing factors are taken into account. Thus, we conclude from these Table 3 tests only that outside the U.S. there are no net costs to active management and that there is modest evidence of benefits to being active.

In Table 4, we again apply tests with traditional asset pricing factors, but we treat each plan as a portfolio rather than construct portfolios of all plans in a given year. Compared to our Table 3 approach, this method increases the number of observations because it does not collapse same-year plan-level observations into a single number. To estimate individual plan alphas we require plans to have at least ten annual observations in non-U.S. equities (148 active and 35 passive plans meet this criterion).[19] The table presents the summary of the cross-sectional distributions of alphas and betas from the individual plan regressions. Given the limited time series for each plan, we estimate more parsimonious international asset pricing models that include either the *global market factor* or the *global market factor* and a *value factor* [as in Fama and French (1998)].

[19] We note that restricting this test to plans with at least 10 years of data biases the sub-sample slightly towards larger plans. We also estimate alphas on plans with at least five years of data, which increases the number of active plans to 289 and the number of passive plans to 90. The results are a little stronger in magnitude and significance.

Table 4
Cross-section of plan-level alphas for non-U.S. equities

		World CAPM		World Fama-French (1998)	
		Active	Passive	Active	Passive
	# plans	148	35	148	35
	avg #obs/plan	13.1	13.0	13.1	13.0
Alpha	Average	0.87	−0.03	1.12	−0.09
	t(alpha)	(5.28)	(−0.12)	(6.26)	(−0.33)
	25th%	−0.34	−0.62	−0.29	−0.96
	Median	0.73	−0.02	0.94	0.00
	75th%	2.02	0.81	2.10	0.74
Time series *t*-stat on alpha	Average *t*-statistic	0.37	−0.13	0.43	−0.19
	Median *t*-statistic	0.36	−0.04	0.40	0.00
	% sig. positive (10% level)	15%	6%	14%	3%
	% sig. negative(10% level)	4%	11%	2%	11%
Market beta	Average	0.97	0.98	0.98	0.99
	25th%	0.91	0.95	0.91	0.95
	Median	0.98	0.99	0.98	0.98
	75th%	1.04	1.00	1.04	1.00
Value beta	Average			0.19	0.12
	25th%			−0.16	−0.03
	Median			−0.03	0.02
	75th%			0.09	0.06

We estimate World CAPM and Fama and French (1998) regression models for individual pension plans' non-U.S. positions (value-weighting EAFE and emerging markets) for all plans that have at least 10 annual returns. This table presents cross-sectional summary statistics on the estimated alphas and betas from the plan-level regressions. The text describes the specific data sources.

The Table 4 regressions show that in non-U.S. equities actively managed portfolios have positive alphas (68% of the estimated active alphas are greater than zero) that average 87 bps for the one-factor model and 112 bps for the two-factor model, while the alphas for passive portfolios are close to zero. The summary of the estimated betas shows that the overall plan positions we have in our sample are well diversified, with betas very close to one and relatively small exposures to value for the typical plan. In Figure 2, we display plan-level alphas for non-U.S. positions using rolling five-year windows (the first year is 1997 because our data begin in 1993). These graphical results show that the cross-sectional medians for active alpha from the one factor model are consistently positive, thus supporting our Table 4 findings.

We do not want to overemphasize these Table 4 results. Plan alphas are correlated, overstating *t*-statistics and significance (assuming the alphas are uncorrelated produces a *t*-statistic for the average alpha of 5.28). Given the limitations of the short time series and correlation issues, these tests may not persuasively rule out a risk explanation.[20]

[20] To partly correct for cross-firm correlations, we regress estimated alphas on fund characteristics (e.g., sponsorship or domicile), which may account for some correlations and obtain very similar *t*-statistics. The literature often uses a simulations-based correction factor for *t*-statistics. For example, in a similar context Fama and French (2002) divide their *t*-statistics by 2.5. We note that our results would remain significant after such a correction.

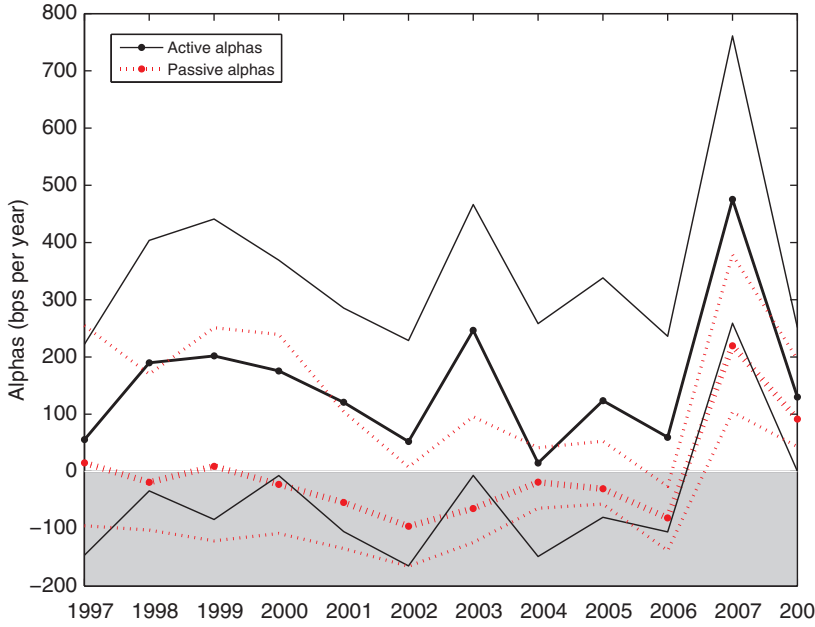

Figure 2
Individual plan non-U.S. alphas over time
The graph plots summary statistics for plans' active and passive World CAPM alphas in basis points per year for their non-U.S. equity holdings (value weighting EAFE and emerging markets) from 1997 to 2008. The plan alphas are calculated over a rolling five year estimation period. The black lines represent global CAPM alphas for active positions (25th percentile, median, and 75th percentile) and the red lines World CAPM alphas on passive positions (25th percentile, median, and 75th percentile). The region of negative alphas is shaded.

A second method we use to assess whether the greater return to active management comes from taking on greater risk stems from the idea that if active management loads up on more risk, then its performance relative to passive management should be particularly poor (negative) during downturns when marginal utility of wealth is high. This relationship has been explored in the U.S. by Lakonishok, Shleifer, and Vishny (1994), Kosowski (2006), and Glode (2011). While our dataset contains only annual returns, it does span both recessions and expansions and includes years with international economic turmoil (e.g., 1997 or 2008).

In Table 5, we test whether active underperforms during downturns by regressing net returns on two versions of the active management indicator: one that is interacted with a dummy variable that takes the value of one in "bad times," the other interacted with one minus that dummy variable. This allows us to estimate the effect of active management separately during and outside of downturns. Given our international focus, we proxy for "bad times" (periods with high marginal utility of wealth) using years in which there is a negative world market portfolio return in columns (1) and (2). Our

Table 5
Does active management perform differently in downturns?

Asset class	(1)	(2)	(3)	(4)	(5)	(6)
	Non-U.S. equity				U.S. equity	
Recession dummy	World market return < 0		NBER recession		NBER recession	
Active dummy * non-downturn dummy	1.12***	1.75***	0.71***	1.27***	−0.52***	−0.54***
	(3.82)	(4.87)	(2.77)	(3.83)	(−3.60)	(−3.29)
Active dummy * downturn dummy	0.92**	1.20***	2.58***	3.06***	0.62***	0.52**
	(2.54)	(2.83)	(5.94)	(6.60)	(2.63)	(2.00)
Observations	5547	5547	5547	5547	6372	6372
R^2	0.852	0.867	0.852	0.867	0.934	0.942
Year FE	YES	YES	YES	YES	YES	YES
Plan FE	NO	YES	NO	YES	NO	YES

As in Table 2 columns 15-16 and 21-22, the dependent variable is net returns for plan holdings managed actively or passively in the indicated geographic market. The active dummy takes the value one for actively managed positions. The downturn dummy takes the value one during downturn periods. In columns 1-2, we define a downturn as a year where the world market portfolio has a negative return. In columns 3-6, we use as an alternative downturn definition years in which there is a recession as defined by the NBER. Regressions include year and plan fixed effects, as indicated. Plans that have active and passively managed positions in the indicated market-year contribute two observations. T-statistics based on robust standard errors (clustered at the plan level) are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

goal is to capture not just the beta risk of active positions, but also other risks, such as liquidity or political risk, which are likely more pronounced in economic downturns. Since many papers use indicators of NBER recessions in similar contexts, we also estimate regressions (3) and (4) using that variable. We note that the "bad times" dummy itself is subsumed in year fixed effects.

We find positive and significant returns to active management both during and outside of bad times. Using world market returns to define downturns, active management performs slightly but not significantly better outside of downturns. Using NBER-defined recessions, active performance is significantly better during downturns. Importantly, for each measure active performance remains significantly positive in bad times. All in all, these findings would have been unlikely if active holdings were exposed to considerably more risk than passive holdings.

In the last two regressions of Table 5, we analyze NBER recession effects for U.S. equities. Outside of recessions, we again find that the average active performance is significantly lower than that of passive (results are very similar if world market portfolio returns are used instead). However, this effect reverses in economic downturns, consistent with the work by Kosowski (2006) and Glode (2011) documenting that active management in U.S. equities outperforms during, but not outside of, recessions.

4. Determinants of the Allocation to Active Management

Sections 2 and 3 established the relative attractiveness of active and passive strategies across equity markets. These results lead to a testable prediction: If plans are aware of these patterns, this should be reflected in their allocations to active management across markets. Moreover, to the extent that pension plan managers and overseers learn from their experience, over time they will further adjust their allocations in the direction predicted to have the greatest benefit. A competing hypothesis is that plans will allocate more to passive investing and will become more passive over time in *all* asset classes, in line with both the mounting academic evidence in U.S. markets that active investing does not pay and with the increased availability and decreasing cost (documented in Figure 1) of passive instruments.

Figure 3 plots the average percentage of assets managed actively, across equity markets and years. It shows active management to be much more prevalent in the markets where active delivers the greatest returns. Active allocations are higher in EAFE equity than they are in the U.S., and higher still in emerging markets where our prior tests uncover the largest outperformance for active investing. Surprisingly, the defined benefit pension plans in our sample manage a majority of their U.S. holdings actively, even though this is where active management underperforms. We defer to papers such as Berk and Green (2004), Pastor and Stambaugh (2010), and Glode (2011) to explain why investors rely on active management in U.S. equities despite its poor track record in this market.

We confirm these results in Table 6 using regression analysis of the fraction of holdings in a geographic market that are managed actively. The main variables of interest are the EAFE equity and emerging equity dummies, which capture differences in the allocation to active management between these asset classes and U.S. equities (the omitted category). The regressions again show that plans are substantially more active in their non-U.S. holdings. The differences are not only statistically significant, but economically large. Model (1) shows that the average fraction of active management for EAFE is 19% higher than the fraction for U.S. equities and that the fraction of emerging market active positions is 28% higher than the fraction for U.S. equities. The F-test shows the difference between EAFE and emerging markets is itself similarly significant. Model (2), with plan fixed effects, also shows large and significant coefficients on the EAFE and emerging equity dummy variables. In models (3) and (4), we test more directly whether plans allocate more to active in emerging markets relative to EAFE markets by estimating models that include only non-U.S. equity investments. We find that the coefficient on the emerging market dummy is positive and significant, confirming the results from the first two models.

We next test whether there is a time trend of increasing non-U.S. active investing and decreasing U.S. active investing. In models (5) and (6), we use

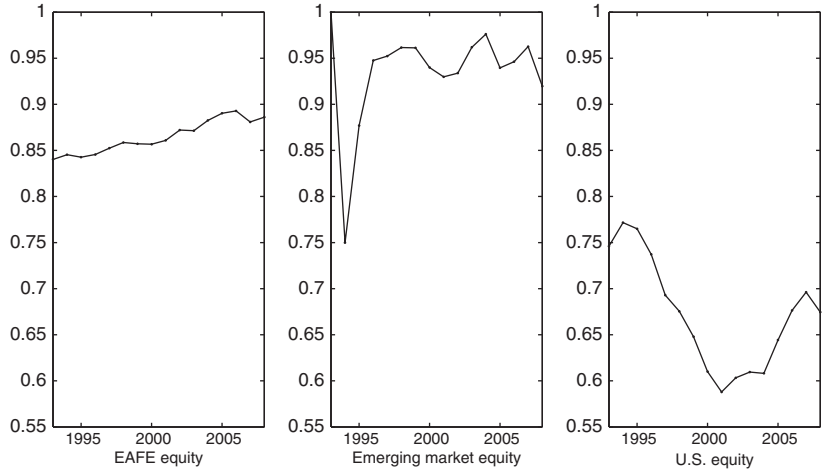

Figure 3
Fraction of actively managed equity holdings, by market
This graph plots, for each sample year, the equally-weighted average fraction of equity holdings that are actively managed in EAFE equities, emerging market equities, and U.S. equities.

Table 6
Is active management used more in non-U.S. equity markets?

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	All		Non-U.S. equity		All	
Emerging equity dummy	0.28***	0.29***	0.08***	0.10***	0.22***	0.24***
	(17.14)	(16.02)	(5.33)	(5.70)	(6.22)	(6.50)
EAFE equity dummy	0.19***	0.19***			0.10***	0.11***
	(14.24)	(13.39)			(4.89)	(4.81)
Linear time trend * U.S. equity dummy					−0.01***	−0.01***
					(−3.98)	(−3.15)
Time trend * EAFE dummy					0.004**	0.004**
					(2.22)	(2.40)
Time trend * emerging market dummy					−0.0002	0.0002
					(−0.08)	(0.08)
Observations	8,689	8,689	4,659	4,659	8,689	8,689
R^2	0.130	0.582	0.022	0.669	0.130	0.582
Year FE	YES	YES	YES	YES	NO	NO
Plan FE	NO	YES	NO	YES	NO	YES
F-test for equality of EAFE and emerging market dummies						
F-test	38.68	34.72			13.2	14.5
p-value	<0.0001	<0.0001			0.0003	0.0002

For each plan year, we construct a measure of the percentage of holdings in a geographic market managed actively. In columns 1-2 and 5-6, each plan contributes three observations: the actively managed equity percentage in emerging markets, in EAFE markets, and in U.S. markets. The omitted dummy variable in these regressions is U.S. equities. For these models, we present the results of the F-test for the equality of EAFE and emerging market dummies at the bottom of the table. In columns 3-4, each plan contributes two observations: the actively managed percentage in emerging markets and in EAFE markets. The omitted variable in these regressions is the EAFE dummy. Regressions have year and plan fixed effects, as indicated. T-statistics based on robust standard errors (clustered at the plan level) are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

regressions that feature an interaction between a linear time trend and the dummy variables for each geography (the interactions sum to one within each year so these regressions cannot accommodate year fixed effects). Both models confirm the Figure 3 time-trend inferences. The U.S.-equity interaction shows that over time pension plans have become less active in U.S. equities, indicating that, in this asset class, they seem to learn from their return experience (or perhaps heed the advice of academics). The EAFE-equity interaction indicates that plans learn that active management pays and rebalance towards this approach. The emerging-equity interaction is not significant, which is not surprising given the very high initial level documented in Figure 3.

5. Why are There Superior Returns to Active Management in non-U.S. Markets?

Our paper's results naturally raise the question of why active management is attractive relative to passive management outside the U.S. Theory suggests this depends in part upon institutional constraints on the capital flows into these markets that would otherwise drive down returns to active management. In this section, we investigate whether there might be an unwillingness or inability to invest actively in non-U.S. equities for some of the plans in our dataset.

In our tests, we focus on two plan characteristics: whether a plan is from a corporate or public-sector entity and the plan's size. We hypothesize that public-sector plans (e.g., a government plan or a teachers' union plan) may face more constraints on their ability to invest in foreign markets, particularly emerging markets. The boards of these plans include political appointees who may be sensitive to foreign investments overall. In particular, they may prohibit or restrict investments in more exotic foreign assets. We also hypothesize that smaller plans will be less likely to invest in these markets. Relative to large plans, small plans may not have the scale or board experience needed to approve allocations to more exotic foreign asset classes, even if these asset classes potentially promise higher risk-adjusted returns.

In Panel A of Table 7, we first explore the importance of *size* and *corporate status* for performance by re-estimating the Table 2 net return regressions but now including *size* and *corporate status* interacted with the *active dummy*. The inclusion of *size* allows us to at least partly address a concern mentioned earlier, namely that average returns would not reflect expected returns for smaller plans if smaller plans have consistently worse performance in their use of active management. Model (1) shows that plan *size* and *corporate status* do not affect returns in emerging markets. More importantly, the insignificant interactions between *size* or *corporate status* and the *active dummy* show that these plans are not better at implementing active strategies in emerging markets. We repeat this analysis for EAFE in columns (3) and (4), again finding

Table 7
Do plan characteristics affect non-U.S. equity net returns, allocations, and use of active management?

Panel A: Performance

	(1)	(2)	(3)	(4)
Asset class	Emerging markets equity		EAFE equity	
Active dummy	2.64***	2.80	0.66***	0.56**
	(2.60)	(1.64)	(3.35)	(2.52)
Log overall plan holdings	0.15	0.02	0.20***	0.11
	(1.04)	(0.03)	(3.27)	(0.96)
Active dummy * log holdings		0.12		0.14
		(0.15)		(1.10)
Corporate plan dummy	−0.07	−2.33	0.21	0.60
	(−0.13)	(−0.80)	(1.10)	(1.60)
Active dummy * corporate dummy		2.42		−0.52
		(0.83)		(−1.26)
Observations	1,001	1,001	4,546	4,546
R^2	0.963	0.963	0.917	0.918

Panel B: Allocations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Asset class	Emerging markets equity				EAFE equity			
Dependent variable	% Allocation		% Active allocation		% Allocation		% Active allocation	
Log overall plan size	0.004***	0.004	0.01***	0.01*	0.003	0.01	0.01*	0.02
	(6.69)	(1.06)	(7.85)	(1.78)	(0.90)	(0.92)	(1.88)	(1.02)
Corporate dummy	0.01***		0.01***		0.02**		0.02	
	(2.87)		(2.91)		(2.29)		(1.45)	
Observations	4,309	4,309	4,276	4,276	4,309	4,309	4,276	4,276
R^2	0.128	0.651	0.113	0.580	0.016	0.693	0.022	0.680
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Plan FE	NO	YES	NO	YES	NO	YES	NO	YES

In Panel A, the dependent variable is annual net returns (gross return minus costs, in percentage per year) for plan holdings managed actively or passively in the indicated geographic market. The active dummy takes the value one for actively managed positions. All of the specifications include year fixed effects. In Panel B, the dependent variables are as follows: the fraction of overall equity holdings in emerging market equity (in columns 1-2); the fraction of overall equity holdings in EAFE equity (in columns 5-6); the fraction of holdings in emerging markets that are actively managed (in columns 3-4); and the fraction of EAFE holdings that are actively managed (in columns 7-8). These regressions include year and plan fixed effects, as indicated. T-statistics based on robust standard errors (clustered at the plan level) are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

that larger plans or corporate-sponsored plans do not have significantly different active returns. Thus, we conclude that for our relatively large pension plans contained in the CEM database, plan size does not impact the active outperformance.

We next test whether plan characteristics impact non-U.S. allocations in Panel B of Table 7. We find that corporate plans and larger plans invest more in emerging markets and have a higher fraction of active management in emerging markets. In model (1), the percentage of equity investments in

emerging markets is positively and significantly related to plan *size* and the *corporate dummy*. Model (3) shows that large plans and corporate plans manage significantly more of their emerging markets investments actively. Models (2) and (4) include plan fixed effects to exploit within-plan variation in size. In these more demanding tests, we obtain similar point estimates for size, but it is significant only for the active allocation model. Models (5) through (8) investigate EAFE allocations. We find similar patterns in point estimates but weaker statistical significance, with the *corporate dummy* significant in EAFE equity allocations, and *size* significant in the percentage of EAFE allocated to active.

Combined, these results suggest that the relatively lower non-U.S. allocations of small and public-entity plans are not explained by these plans being less able to generate active returns. Thus, a more likely reason is constraints, perhaps governance-related, that these plans operate under. If such constraints on the presence of sophisticated investors in non-U.S. markets are widespread, they could lead to limits to arbitrage that generate persistent returns to active management in these markets.

While an institutional-constraints explanation is consistent with our results, our evidence in its favor is only suggestive. There may be other factors that benefit active management in international markets. One example is the supply and the quality of passive instruments. The gamut of passive strategies available in the U.S. market is much broader than the offerings in other developed markets and it clearly dominates what is available in emerging markets (e.g., Cremers et al. 2011). This insight does not change our conclusion that active management dominates in non-U.S. markets, but it identifies another potential mechanism for why this may be happening.

6. Conclusions

We analyze institutional investors' net-of-cost returns to active relative to passive management across equity markets that vary in their levels of efficiency. In line with economic theory, our baseline regressions suggest the benefits from active management are the highest in the markets where potential deviations from fundamental values are likely to be the largest, and where potential competition from other sophisticated investors is likely to be the lowest. We find that active management in emerging market equity outperforms passive strategies by more than 180 bps per year, and that this outperformance generally remains significant when controlling for risk through a variety of mechanisms. In EAFE equities (developed markets of Europe, Australasia, and the Far East), active management also outperforms, but only by about 50 bps per year, consistent with these markets being relatively more competitive and efficient, with the outperformance becoming insignificant with some risk corrections. These non-U.S. results are new to the literature and indicate that active management can indeed be valuable in the right

setting. In line with these findings, we investigate allocations to active management and show that pension plans are more active in areas where being active pays: primarily in emerging equity markets, followed by EAFE equities.

We also provide suggestive evidence that one driver of the active outperformance in non-U.S. markets is institutional constraints. We show that small plans and public-entity plans, which we argue are more likely to have constraints on allocations, invest less in non-U.S. markets even though the returns they earn are similar to those of large and corporate plans.

Taken together, our results suggest that the dominant view that active management does not pay should be reconsidered as a conditional statement, dependent on the efficiency of the underlying market and the sophistication of the investor. Also, the fact that these institutional investors achieve neutral to positive returns from their use of active management outside the U.S. opens up the possibility that they can play a role, suggested by models such as Grossman and Stiglitz (1980), in improving efficiency in these markets.

Our results do not, however, suggest that retail investors using actively managed funds can perform a similar role. In EAFE equities, the *before cost* difference between active and passive returns (based on summary statistics) averages 78 bps per year. We conjecture that retail investors, and perhaps some institutional investors, may not be able to find quality active management at such a price.

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