Identifying Tomorrow's High Performer Today
An Analysis of the Factors which can Help Forecast the Relative Performance of Investment Managers

Roger Urwin

R. Watson & Sons, Watson House, London Road, Reigate RH2 9PQ, United Kingdom

Summary

This Paper aims to indentify the factors, both quantitative and qualitative, which can help to forecast the relative performance of individual investment firms and managers. The results of this research can be applied to improving the process of selecting investment managers.

The influences on performance over time of chance and changes in a manager's relative skill are discussed. It is concluded that past performance over both short and long-term periods provides unreliable estimates of future performance;

- over short periods (like one year say), the influence of chance makes the extrapolation of past performance not realistic;

- over longer periods (like five years say), the influence of change makes the extrapolation of past performance not relevant.

This intuitive conclusion is confirmed both by modelling and empirical tests. It is suggested that a five year performance record is better than a one year record for selecting managers but is still an unreliable basis.

The links between performance and various other quantitative measures are analysed. These provide some extra information useful to the forecasting of future relative performance. The most accurate means of forecasting future performance involves direct research into the manager's relative skill. The Paper describes the quality of the investment team; the quality of the investment process; the strength of management of the business.

Résumé

Identifier Aujourd'Hui Celui Qui Rapportera les Excellentes Performances de Demain
Une Analyse des Facteurs Qui Peuvent Contribuer à Prévoir la Performance Relative des Gestionnaires d'Investissement

Cet article a pour but d'identifier les facteurs à la fois quantitatifs et qualitatifs qui peuvent contribuer à prévoir la performance relative de sociétés et de gestionnaires d'investissement individuels. Les résultats de cette recherche peuvent être appliqués à l'amélioration du processus de sélection des gestionnaires d'investissement.

Les influences sur la performance dans le temps de la chance et des changements dans les compétences relatives d'un gestionnaire sont étudiées. Il est conclu que la performance passée sur des périodes de courte et longue durées ne donne que des estimations peu faibles sur la performance future:

- sur de courtes périodes (par exemple un an) l'influence de la chance rend l'extrapolation sur la performance passée irréaliste;

- sur des périodes plus longues (comme par exemple cinq ans et plus), l'influence du changement rend l'extrapolation sur la performance passée non pertinente.

Cette conclusion intuitive est confirmée à la fois par la modélisation et les tests empiriques. Il est suggéré que des antécédents de performance sur cinq ans sont meilleurs que sur un an pour la sélection de gestionnaires mais demeurent cependant une base non fiable.

Les liens entre la performance et les autres mesures quantitatives sont analysés. Ceux-ci fournissent d'information additionelle qu'on peut utiliser de prévoir la performance future relative. Le moyen le plus exact de prévoir la performance future implique une recherche directe des compétences relatives du gestionnaire. Cet article décrit les principaux attributs qui gouvernent la compétence, principalement; la qualité de l'équipe d'investissement; la qualité du processus d'investissement; la solidité de la gestion commerciale.

(1) INTRODUCTION

(1.1)   This Paper is addressed to those involved with the investment management of institutional funds be they pension funds, insurance funds, unit trusts, investment trusts, or other types. It aims to identify the factors, both quantitative and qualitative, which can help forecast the relative performance of individual investment firms and managers. The main application of this research would be in the process of selecting managers.

(1.2)   Three lines of research have been carried out. First of all, the predictive capacity of past performance has been considered in detail. Secondly, I have also used my Firm's database on pension fund investment managers and applied various statistical techniques to identify other relevant data. Finally, the qualitative analysis of investment managers' skill is described and how this can lead to better forecasts of future performance.

(1.3)   Analysis of performance statistics should be treated with caution. This is because the results come from a very non standard population. The problems are that:

> -   managers operate against different objectives (ie, in statistical terms, the cross-section is heterogeneous);
>
> -   the manager's relative skill varies in time as the individuals, investment style and market conditions change (ie, the time series of performance expectations is heterogeneous);
>
> -   the expected variation in performance varies in time with changes in the strategy (ie, the time series is heteroscedastic);
>
> -   there is some cyclicality of performance (ie, there is linear dependence);
>
> -   there are occasional predictable patterns in relative performance (ie, there is non linear dependence).

In short this is a statistician's nightmare.

(1.4)   On the other hand, there is now a considerable
amount of past performance data available. This has
made it worthwhile to carry out statistical analysis
using relatively straightforward tests. The statistical
modelling has been particularly helpful.

(2) PERFORMANCE, CHANCE OR SKILL?

"Variability is the law of life" - William Osler.

(2.1)   Before considering the search for successful investment management amongst performance statistics, it is necessary to address the major parts that chance and change play in the process.

Chance

(2.2)   Every measurement of performance comprises two components:

- a skill factor;
- a chance factor.

The skill factor is the most important part. That is what will directly influence the performance in future. The chance factor is purely attributable to random variations and while it has historic significance, it has little practical significance for the future.

(2.3)   The importance of chance is apparent to anyone who has studied performance statistics. If we consider performance over one year periods, the chances of an excellent manager outperforming the market will be good but far from overwhelming. This is because performance is subject to variation well beyond anyone's control or anticipation. Investment managers are not super-humans so superior performance cannot be manufactured to order.

(2.4)   Consequently, there are many managers with above average skills who achieve below average results and vice versa. This is very common over one year periods but progressively less common over longer periods. The longer the period, the less influence chance will have.

Change

(2.5)   Chance   is   one   of   two   major   influences   that
complicate   the   interpretation   of   performance.   The
other   factor   is   change;   this   is   simply   that   the
relative   skill   of   an   organisation   or   fund   manager   will
change over time.

(2.6)   It   is   natural   to   expect   the   skill   factor   of   an
investment manager to regress towards an average level
over   time.   From   experience,   it   appears   that   the
average   rate   of   change   among   UK   managers   is   quite   small
over   short   periods   like   one   year   but   is   sufficient   to
make   significant   difference   to   skill   over   longer
periods upwards of five years.

(2.7)   Taken   together,   the   influences   of   chance   and
change   create   very   unfavourable   conditions   for   past
performance   to   be   extrapolated   to   be   representative   of
the future.   Essentially there is a 'Catch 22':-

> *   over short periods (like one year), the
> influence of chance means that extrapolation of
> past performance is not realistic;
>
> *   over longer periods (like five years and
> above) the influence of change means that
> extrapolation of past performance is not
> relevant.

(2.8)   To analyse the extent of this problem we have
carried   out   modelling   to   simulate   the   expected
performance   experience   of   a   group   of   managers
responsible for UK pension fund balanced accounts.

The Balanced Fund Model

(2.9)   The model was established as follows:

> *   Define S = 'Skill Factor' for each manager
> as the annual expected outperformance relative
> to the average result.   Necessarily $E(s) = O$;

*   Assume that the dispersion of skill across the group of managers follows a Normal Distribution with standard deviation of 1% per annum;

*   Assume that the Skill Factor for each manager regresses to the mean such that
$S_{t+1} = (0.9)S_t + 0.1\ Y$

where Y is a random variable distributed normally $N(0,1)$;

*   Assume that the standard deviation of each manager's result about the mean is 3% per annum, so that the return in any year will be $S + N(0,3)$.

All the above assumptions were developed from observed data.

(2.10)   This model can then be used to consider:

(1)   the link between past and future performance;

(2)   the link between skill and future performance.

The Results

(2.11)   The results from the model were calculated deterministically using Normal probability tables. Extracts of the results are given in the Appendix, in which we have grouped results arbitrarily into quintiles.

(2.12)   The model was specifically used to test three decision rules for selecting managers:

(1)   Selecting the top 20% of managers according to one years past performance;

(2)   Selecting the top 20% of managers according to five years past performance;

(3) Selecting the top 20% of managers according to their Skill Factors.

(2.13) The measure of success used to test the decision was whether the managers chosen were in the top 20% of managers by their performance over the subsequent five years. Naturally, a random selection process would be expected to produce a 20% success rate. The actual success rates for each of these decision rules were as follows:

Decision Rule - Measure Used	Success Rate %
(1) Past Performance - One Year	25
(2) Past Performance - Five Years	29
(3) Skill Factor	41

The correlations between each of these measures and the future performance were as follows:

Measure	Correlation with Future Performance
(1) Past Performance - One Year	0.12
(2) Past Performance - Five Years	0.20
(3) Skill Factor	0.43

Conclusion

(2.14) We can conclude from these results that:

(1) Chance is so dominant in short term performance statistics that such data have virtually no usefulness in predicting future performance;

(2) Given that skill levels change over time, even the use of longer term past performance is very unreliable in predicting future performance;

(3) If one were able to measure Skill Factor directly, this would provide easily the best prediction of future performance.

(2.15) The success rate for using Skill Factor presupposes that this quality can be accurately measured. Clearly, no precision is possible in measuring skill, although in section 5 we give guidelines for its estimation.

(2.16) It is clear that none of the rules is reliable. However, the clear superiority of methods making use of estimates of skill implies that research into this quantity is of significant value. This is considered further in section 5.

(3)   THE LINK BETWEEN PAST AND FUTURE PERFORMANCE

"Give me lucky generals" - Napoleon.

(3.1)   A tenuous link has been established between past and future performance in the modelling described in the previous section. In this section we consider various historic data to test this link empirically.

(3.2)   There have been various suggestions in the past that there is no direct relationship between past and future performance. If there is indeed no such relationship, this must suggest that all managers returns are uncorrelated from one period to the next. The only other interpretation would be for some managers returns to be positively correlated, others to be negatively correlated. There is no evidence, statistical or intuitive to support this possibility.

(3.3)   For there to be a total absence of correlation, one has to expect either for all managers to have the same level of skill or the manager's skill factor to change very rapidly in short intervals of time. This model strongly contradicts the judgements and intuition of most investment managers. Indeed, there are several obvious examples of investment groups who have been able to sustain their advantage in skills relative to the competition over a long period of time and whose performance has been quite consistently above average. Intuitively, I believe there should be a link between past and future performance, albeit a tenuous one.

Testing the Link

(3.4)   To analyse the link between past and future performance, two samples of data were taken:

- the performance of pooled pension funds from 1980-1989 (a sample of 24 managers supplied by CAPS, a leading UK investment performance service;

- the performance of segregated pension fund managers from 1981/1989 (a sample of 20 managers aggregate figures taken from my Firm's database).

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The period was broke down into two parts. The 'past'
was the period ending 31 December 1984. The 'future'
was the period of five years from 1 January 1985 to
31 December 1989.

(3.5)   The proportion of above average managers in
the past period who achieved above average results in
the future period was analysed. The results of this
analysis are given below in Table 3A. Clearly the link
between past and future is quite limited and there seem
to be very significant random effects at work. This is
entirely as expected after the result in Section (2).

Table 3A

	Segregated Funds 'Past' - 1981-1984		Pooled Funds 'Past' - 1980-1984	
	Above Average	Below Average	Above Average	Below Average
'Future' 1985/89				
Above Average	4	6	8	4
Below Average	6	4	4	8

(3.6)   This is a very crude statistical test and a
more thorough approach is to consider the correlations
between the past and the future performance. These are
tabulated in Table 3B. It can be seen that for pooled
funds there is significant correlation between the past
and future (significant at the 95% probability level).

Table 3B

	Segregated Funds	Pooled Funds
Correlation between 'Past' and 'Future' Performance	0.17	0.33

(3.7) These results are consistent with those from the model adopted in Section 2. The positive correlation for pooled funds contrasts with the absence of significant correlation for segregated funds. There is no doubt that the characteristics of the segregated managers have changed more over this period than the pooled fund sample and therefore skill may have changed more quickly in time.

(3.8) The individual years' figures were studied in detail and it was apparent that in most years but not all there were positive correlations occurring between results. This pattern of 'trends' followed by 'reversals' is fairly typical of market returns generally. The likely explanation is that managers will have a run of good (or bad) results which will continue until a major internal or external event disturbs the pattern. At this stage, performance may revert to average or overshoot beyond and a new pattern starts to emerge. An example of this pattern relates to several investment groups which can certainly attribute a change in their fortunes (both positively and negatively) to the effect of the 1987 market crash.

(3.9) The implications for this on the interpretation of past performance are very significant. First of all, it is important to recognise that past results will usually say something about the future. Secondly, it must be recognised that past results give a very limited amount of the information and the remainder of the insight to predict a manager's future performance must be found from other detailed research. Thirdly, at certain points in time, past performance may become a negative indicator. This occurs when something significant, either internally or externally, changes the pattern. Evaluating when this event might occur is clearly of great importance. Subjective judgement and intuition may be able to help in this regard.

(3.10)   There is an analogue in stock market analysis to this framework.   Technical analysts (chartists) use highly intuitive processes that are built on the likelihood of past patterns of results being reproduced in future.   Such techniques have been supported by recent research which suggests that markets from time to time do follow (semi) predictable patterns.   The study of non-linear systems and chaos theory is likely to prove useful research in this regard.

Conclusions

(3.11)   Past performance is a weak indicator of the future performance of an investment organisation.   The greater value in considering past performance lies in the opportunity to analyse the investment process and form qualitative judgements as to the skill factors involved.

4 OTHER STATISTICAL MEASURES

"You don't have to eat the whole ox, to know it's tough" - Samuel Johnson.

(4.1)   There are various other statistical measures which may help to anticipate a manager's future performance. A large number of tests have been considered to check whether such measures have any significant predictive power.

(4.2)   The problems of limited data and the changing characteristics of the sample have limited the scope of this research. Indeed, given the weak relationship between past and future performance, it is unlikely that any other measurable quantity will produce a strong link.

People and Resources

(4.3)   There appears to be a slight positive correlation between the number of individuals in the team and the result produced which supports the idea that strength in depth is helpful. The link was slightly stronger in overseas markets than in UK equities.

(4.4)   There is a stronger link between changes in the team and performance. The negative impact of staff leaving an organisation is statistically significant. On the other hand, growth in staff is positively associated with performance.

Funds and Clients

(4.5)   Total fund size and growth of business appear not to have much relationship with future performance. In both cases this would seem to reflect two factors which tend to cancel each other out. Fund size helps resources but hinders flexibility. Growth in business helps keep a successful team together but causes new business strain.

(4.6)   While there was no obvious link between new
growth and future performance there was a clear inverse
link   between   _fast_   new   business   growth   and   future
performance.

(4.7)   There was no link evident at all between funds
per manager and either Total Assets performance or UK
Equity performance.   It is apparent that the statistic
of   funds   per   manager   means   very   little   without
knowledge   of   the   operating   structure   of   the
organisation.

Fees

(4.8)   There was no apparent link between the level of
fees   and   performance.   This   suggests   that   investment
management   continues   to be   priced   like   a   commodity
without   much   differentiation   according   to   quality.
Naturally, if fees were based on a performance related
scale, there would be a strong link.

Type of Organisation

(4.9)   The   major   categories   of   investment
organisations   are   banks   and   other   financial
conglomerates,   insurance   companies   and   independent
groups.   While there has been clear evidence of year by
year differences in performance between the respective
groups, there is no evidence of any longer term
differences.

Variability of Results

(4.10) The variability of past performance relative to
the   survey   median   results   were   considered.   A   priori
there   is   no   reason   to   expect   this   measure   to   be
directly linked with performance – high skill or low
skill   managers   would   seem   equally   likely   to   have
volatile   styles.   However,   this   is   not   the   case   in
practice.   Analysis   shows   that   the   higher   the
variability of performance, the greater the subsequent
performance.

(4.11)   The explanation for this link is likely to be that managers with the greatest degree of skill take more positive action than those with less skill.   If a manager believes he has above average skills, then it makes sense for him to accentuate his competitive advantage by taking more positive stances in his decisions than his competitors.   Naturally this style will lead to above average variability.

(4.12)   The consequence of this is that it is difficult to find a highly skilful manager who will follow a very cautious path.   This provides justification for index tracking managers who offer average performance but with virtually no variability.   Relative to the low variability low performance managers that are quite common this is clearly good value.

5 QUALITATIVE FACTORS

"Life is the art of drawing sufficient conclusions from insufficient premises" - Samuel Butler.

(5.1)   It is clear that quantitative analysis on its own will provide limited success in forecasting future performance. Qualitative analysis is likely to produce better results but only if a skilled and time consuming research process is carried out. The purpose of this research should be to estimate the manager's Skill Factor.

(5.2)   In my research there appear to be ten key qualitative factors that contribute to skill and therefore influence future performance. Those organisations that score positively in these attributes stand the greatest probability of achieving above average performance.

Investment Management Process

(1) **Philosophy:**   Developing a framework for successfully exploiting market inefficiencies and meeting client objectives;

(2) **Research:** Making superior use of research either through access to higher quality research or through better use of generally available research;

(3) **Buy/Sell Disciplines:**   Using a well-defined process for buy or sell decisions on securities and market sectors;

(4) **Decision Structure:** Adopting short lines of communication and individual decision taking in preference to committees wherever appropriate.

People

(5) **Quality:** Using high quality and generally experienced investment professionals;

(6) **Resources:** Having in-depth resources in the aggregate research effort and the client to fund manager ratio;

(7) **Continuity:** Keeping key investment professionals;
Business Management

(8) **Culture:** Maintaining terms and conditions, working environments and code of accepted practice that get the best response from investment professionals;

(9) **General Support:** Ensuring the investment team is well supported in all respects (technology, communication, training, secretarial, etc);

(10) **Strategic Management:** Planning the investment resources to meet future needs, keeping the size and growth of funds under management consistent with operating efficiency and liquidity constraints.

(5.3)   This list has been discussed with all the major UK investment houses. In summary, this was the order in which they rated these attributes:

    1st: Investment Philosophy
    2nd: Quality of People
    3rd: Continuity of People
    4th: Investment Decision Structure
    5th: Research
    6th: Culture
    7th: Strategic Management
    8th: Resources
    9th: Buy/Sell Disciplines
    10th: General Support

(5.4)   These ratings appear realistic and mostly accurate. However, I believe that Strategic Management is vital as an organisation grows and may be underrated in the list. I also believe that Buy/Sell Disciplines are not important to top quality organisations but for the majority of organisations that are not top quality it is very important. Again, this may be underrated.

(5.5)   While   these   factors   appear   closely   linked   to
above   average   performance   it   is   also   important   to
identify   other   traits   which   lead   to   below   average
results.

(5.6)   **Not playing to strengths**

All   organisations   have   weaknesses   as   well   as   strengths.
Investment   management   is   staffed   by   an   army   of   highly
intelligent   well   motivated   individuals,   so   what   may
seem   like   a   strong   team   may   be   weak   relative   to   the
competition.   The   recognition   of   weaknesses   should   lead
to   a   more   passive   style   in   some   areas   or   more
centralised   control.   All   too   few   organisations   will
'own up'   externally,   or   more   importantly   internally,   to
such weaknesses.

(5.7)   **Self delusion**

Investment   markets   can   often   be   wrongly   priced   and
those   who   capitalise   on   this   effectively   tend   to   be   the
most   successful   investment   organisations.   However,
those   who   spend   too   long   waiting   for   markets   to   become
'right'   will   have   the   story   but   not   the   results   to
prove   their   insights.   The   majority   of   managers,
through   ritual   and   inflexibility   of   thinking,   tend   to
accept evidence that confirms their view of the world
and   tend   to   dismiss   any   that   contradicts   it   ('cognitive
dissonance' to a psychologist).

(5.8)   **Following not leading**

Leadership   is   a   difficult   craft   in   investment   because
the   world   is   so   uncertain.   Probably   the   best   decisions
are   only   60   per   cent-40   per   cent   in   your   favour,   so   the
discomfort   of   following   strong   convictions   may   not   be
thought   worth   taking.   In   practice,   managers   hedge
their   bets   and   often   spend   too   much   time   following
rather   than   setting   fashion.   Followers   inevitably
underperform.

(5.9) **Misunderstanding human responses**

An understanding of psychology seems more and more important to operate effectively in investment markets. However, there are very few investment professionals with well-developed ability in this field. Most managers cannot judge dispassionately the perceptions of their colleagues and subordinates or the human response of the market.

(5.10) **Information overload**

No mind can process the amount of information now passing the Fund Manager's desk. Investment organisations have a choice to make; either they stick to a simple basis for taking decisions, in which they can easily throw away much of the information and research being received; or, they must marshal their thinking centrally and process this information in an orderly, and presumably quantitative, process. Most organisations appear to fall between the two approaches.

6 CONCLUSION

(6.1)   There are two principal conclusions:

(1) a relationship between past performance and future performance certainly does exist but it is both tenuous and subtle;

(2) qualitative analysis is clearly superior to quantitative data in forecasting the relative performance of investment managers.

(6.2) By way of a summary of the qualitative attributes discussed earlier, I list below those factors that I look for in an investment organisation to give the greatest confidence that it will perform above average in future:-

- having an excellent investment philosophy; adhering to it; but also being prepared to change it as the world catches up with it;

- building its strategy on independent thinking and taking decisions with conviction;

- having top quality highly focused individuals who view investment as a passion as well as a career;

- being quantitatively minded (or having sufficient flair not to need quantitative disciplines);

- having a strong sense of the direction of the business and making positive plans to achieve its goals;

Having an above average five year performance record is the final attribute on the 'wish list'.

(6.3)   There are further opportunities for research in analysing the relative importance of qualitative factors and in measuring these factors. I hope to see the process of selecting investment managers evolve into a more rigorous discipline in future years.

(6.4)   Acknowledgements should go to Jenny Harlow for
the modelling calculations.

(1)   One year Past Performance
      as forecast of Future Performance.

Past Performance Quintile	Proportion of Managers Future Performance Quintile				
	$\underline{1}$ %	$\underline{2}$ %	$\underline{3}$ %	$\underline{4}$ %	$\underline{5}$ %
1	25	22	20	18	15
2	22	21	20	19	18
3	20	20	20	20	20
4	18	19	20	21	22
5	15	18	20	22	25

      Correlation: 0.12

(2)   Five Year Past Performance
      as forecast of Future Performance.

Past Performance Quintile	Proportion of Managers Future Performance Quintile				
	$\underline{1}$ %	$\underline{2}$ %	$\underline{3}$ %	$\underline{4}$ %	$\underline{5}$ %
1	29	24	19	16	12
2	24	22	20	18	16
3	19	20	22	20	19
4	16	18	20	22	24
5	12	16	19	24	29

      Correlation: 0.20

(3)   Skill Factors
      as forecast of Future Performance.

Past Performance Quintile	Proportion of Managers Future Performance Quintile				
	$\underline{1}$ %	$\underline{2}$ %	$\underline{3}$ %	$\underline{4}$ %	$\underline{5}$ %
1	41	26	17	11	5
2	26	25	21	17	11
3	17	21	24	21	17
4	11	17	21	25	26
5	5	11	17	26	41

      Correlation: 0.43