

Is your manager a Chimp, Chump or Champ ?

By: Peter Urbani



On the use of Portfolio Opportunity Distributions (POD)'s to identify skill

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It has been suggested that “A blindfolded monkey throwing darts at a newspaper’s financial pages could select a portfolio that would do just as well as one carefully selected by the experts.” (Burton G. Malkiel, - A Random Walk Down Wall Street)



Numerous such ‘monkey’ portfolio experiments have been conducted both locally and abroad using children, computers and actual monkeys with various degrees of success.

The fact that such random portfolios often do outperform portfolios run by professional managers, whilst entertaining, generally tends to ignore the real-world constraints of liquidity, size and mandate restrictions typically imposed on real managers.

Few if any clients would be happy with an actual manager who placed all of their money into a handful of high flying micro-cap shares even if they did very well. More scientific simulations which impose realistic constraints tend to produce similar results to those achieved by actual fund managers.

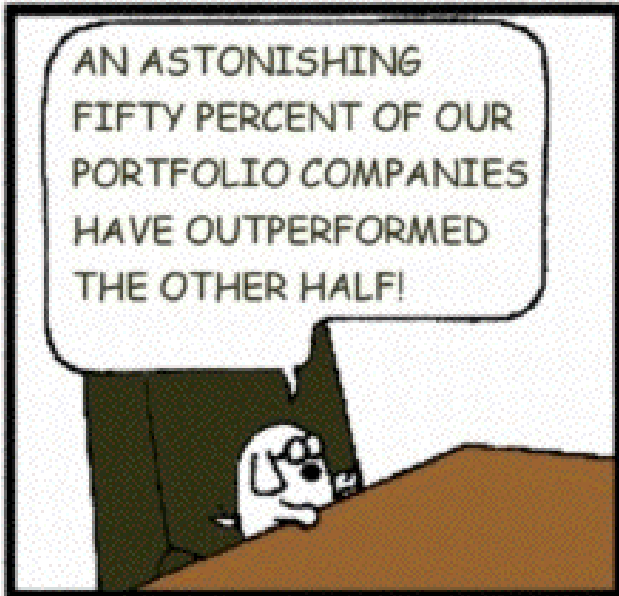
All of this simply serves to highlight the fact that in any venture where the outcome is uncertain, it is often exceedingly difficult to determine whether the results achieved were arrived at through luck or skill even after the fact. Yet this is exactly what we would like to do.

The problem is that probability theory tells us a certain number of managers in any group will do significantly better than the average for no particular reason other than luck. This is borne out if we examine the performance of the 42 General Equity Unit Trusts which were in operation for the 12 months from 30 Sep 2003 to 30 Sep 2004.

GE Unit Trusts 30 Sep 2003 - 30 Sep 2004	NAV-NAV
Source: Hugo Lambrechts Survey	%
*FTSE/JSE All Share Index	35.88
Arithmetic Average	37.59
Median Rate of Return	37.44
Standard Deviation	4.90
Old Mutual High Yield Opportu	1 49.06
Prudential Optimiser	2 48.76
Investec Equity-A/R	3 48.61
Old Mutual Top Companies	4 44.02
Nedbank Rainmaker-A	5 43.60
Old Mutual Growth	6 42.96
RMB Equity-A/R	7 42.88
Coronation Equity-R	8 42.75
FNB Growth	9 41.22
Fraters Earth Equity	10 40.87
Old Mutual Investors	11 39.55
PSG Equity Select FoFs-A	12 39.49
Oasis General Equity	13 38.76
Sage Fund	14 38.48
Investec Managed Equity-A	15 38.35
Futuregrowth Core Equity	16 38.30
Sanlam General Equity-A/R	17 38.27
Coris Capital General Equity	18 38.10
Nedbank Quants Core Equity-F	19 37.71
ABSA Growth FoFs	20 37.64
Inv Solutions MM Equity	21 37.63
STANLIB MM Equity-A	22 37.24
mCubed Equity FoFs	23 36.75
Tri-Linear Equity	24 36.71
ABSA General-A/R	25 36.65
Woolworths Unit Trust	26 36.35
Foord Equity	27 36.18
Nedbank Equity FoFs-A	28 35.98
Gryphon All Share Tracker	29 35.87
STANLIB Prosperity-A/R	30 35.62
Nedbank Equity-A/R	31 35.06
Community Growth	32 35.05
Sage MultiFocus FoFs	33 34.21
Investec Index-R	34 34.20
STANLIB Index-R	35 32.17
Metropolitan General Equity	36 31.64
RMB Performance FoFs	37 31.39
Allan Gray Equity-A	38 31.10
STANLIB Wealthbuilder-A/R	39 30.98
Futuregrowth Albaraka Equity	40 30.06
Galaxy Equity	41 30.05
Oasis Crescent Equity	42 28.57
ABSA Select Equity	
Kagiso Active Quants	
Blue Horizon High Dividend	
Interneuron Equity	
Sanlam MM Equity FoFs	

Given 42 managers with an average return over the period of 37.59% and a standard deviation of 4.90%, normal probability theory tells us that 95% of all of the returns should lie within the range of about 29% - 46% which in fact they do.

Equally it implies that only 5% of the funds or 2 of them should lie outside this range. In fact there are 3 managers who did better and one who did worse than this. But since at least one of the 3 managers who did better could have been there by chance alone how do we decide which was lucky and which was skillful?



A complicated t-test of the null hypothesis might work but would also almost certainly bore the audience to death. Obviously if we had more data one clue might be to see which of the 3 managers suspected of being skillful also did well in prior periods on the reasonable assumption that if he does well consistently then s/he must be good.

Unfortunately here again the evidence is inconclusive. Such 'persistence' of manager performance rankings has been both confirmed and refuted by various studies. (Notable work in this field has been done locally by Cadiz). However, most such studies suffer from survivorship bias and the need for vast amounts of data. In SA fewer than 10 General Equity funds have been in continuous operation for 10 years or more.

As a result most studies are for 5 year periods where I believe they may be biased by the effects of the underlying business cycle which typically also runs for 4 – 5 years. Any study of only this length may therefore be dominated by the value and growth cycle inherent in the business cycle itself. This has most recently been seen in the strong local preference for the value style of investing.

Whilst I believe that value may be the superior style of investing (at least from a long-term and risk perspective) I do not believe it is our natural preference from a behavioral point of view. Economic theory holds that investors are prepared to pay a premium for growth albeit at higher risk. Thus when risk aversion is low and economies pick up there is a natural preference for the growth style of investing. We are just entering such a phase now and I fully expect to see a spate of new listings within the next 18 months typifying such a growth cycle.

The exhaustive studies of Fama and French have convincingly demonstrated that excess performance can be explained by the following persistent effects present across markets. They are:

- 1) Sector preferences
- 2) Size and liquidity effects
- 3) Style bias
- 4) Momentum

Of these the Size and Style factors appear to be the most consistent. This has given rise to a large industry of consultants and style analysts encompassing such firms as BARRA and APT's style factor models as well as the consulting industry's benchmarking initiatives.

While all of these initiatives help in attributing performance correctly and in identifying risk factors, they once again do not entirely separate skill from luck although persistently good selection and timing can be taken as evidence of the presence of skill. Thus they do give us a better idea of where to look.

One method which may provide a possible answer is Ron Surz's, **Portfolio Opportunity Distribution (POD)** methodology.

Extending the monkey analogy to that of 1000's monkeys typing eventually producing the complete works of William Shakespeare, the POD method uses the brute force of Monte Carlo simulation to randomly generate thousands of possible portfolios from the opportunity set given and to determine the range of outcomes which were possible. By comparing the actual performance of the manager to this reference range we can see exactly how well the manager made use of the opportunity set available to him or her. Real world constraints such as position size limits can easily be included.

“To be or not to b;w;afuklyqkulWE bebee”



One of the main advantages of the POD methodology is that it is not necessary to wait the 3 - 4 weeks after quarter end for the peer group surveys to become available. Instead each manager can be assessed on the merits of the choices they made relative to their opportunity set immediately.

Using this method alongside traditional attribution analysis it is possible to see how well the manager used the opportunities available to him/her with respect to stock, sector or size selection and timing over any period.

It is also possible to test the appropriateness of existing benchmarks and to generate PIPOD's (Popular Index Portfolio Opportunity Distributions) for use as new benchmarks. Managers who consistently maximize the opportunity set available to them by performing in the top quartile of available performances can honestly be considered skillful.

The POD is free from any bias other than the limits imposed on the manager either through his/her mandate or internal and regulatory processes. It can be very useful in assessing whether or not all of these constraints are appropriate.

So how does it Work?

All that is required is a history of the holdings and opening and closing prices for the period under review. The individual holdings are then classified into 4 broad type categories which may have *N* sub-types, all of which are optional. Typically these might be:

CLASS – Equities, Bonds, Cash, Foreign, Property
SECTOR – Resources, Financials, Industrials
SIZE – Large, Mid or Small cap
STYLE – Value, Growth or Core

To keep the examples simple I have used a fund containing a single CLASS, Equities and have restricted myself to the categories given above. In practice the only limitation is the processing power of your PC.

Where do these come from?

The classes are self-evident. The sector classifications are given by the JSE with the market being broadly broken into 3 main sectors, Resources, Financials and Industrials and their sub-sectors. There is in fact a 4th main sector on the JSE namely listed property and real estate which is typically classed as being part of Financials but which may have contributed significantly over the period under review despite making up only about 2% of the overall index weight.

The Size factors for the JSE are by construction whereby the Large Cap index is the 41 shares which make up the ALSI40 index, the Mid Cap index being the next 60 shares and the Small Cap index the rest.

The Value and Growth factors are somewhat more arbitrary in the examples given. More scientifically one would take the PE multiples for each share in the investment universe and classify the top and bottom 10 – 20th percentile as being Growth and Value respectively. The middle 60 – 80% would then be considered as Core. This method has the advantage of allowing for the dynamic nature of the value – growth cycle where last years' growth share is often today's value share depending on the earnings outlook. More sophisticated classifications would include Price to Book or NAV's in determining the Value or Growth classification.

It is also important to include any shares which were held at the beginning of the period and not necessarily at the end. This allows one to test whether or not the manager added any value at all over the period or whether he would have been better off simply holding the original portfolio and not incurring any dealing costs.

Once all of the data has been collected a lower and upper bound in terms of weightings for each security is given. Typically this is between 0 – 20% although more restrictive conditions could be applied to say size or benchmark weights to more closely approximate real world conditions.

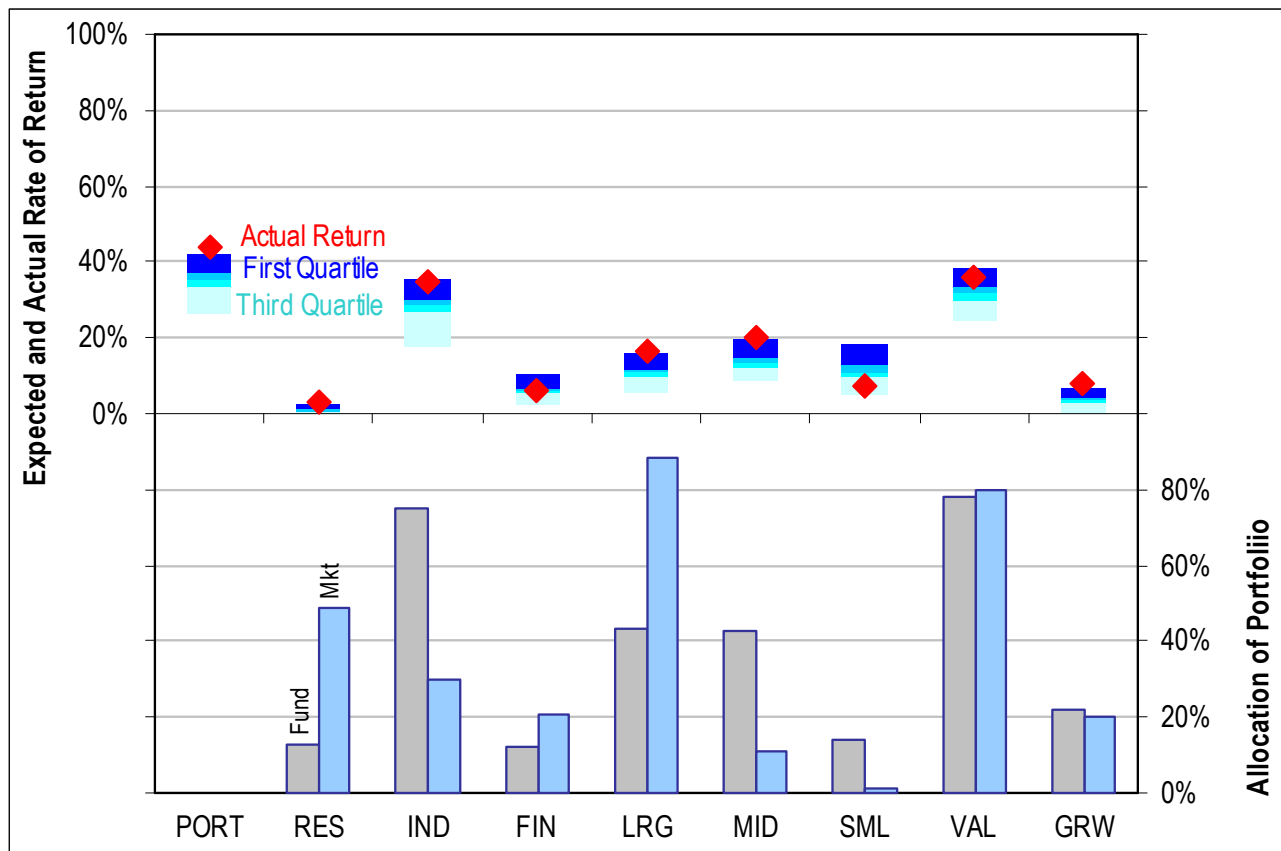
Finally the number of portfolios to simulate is specified. At least 1000 realisations are recommended although up to 10 000 may be used depending on processing power. The model then randomly generates new weights for the portfolio ensuring that the lower and upper bounds are maintained using a double pass algorithm. The return from each randomly generated portfolio is recorded and the range of possible outcomes output to an array.

By way of example I have used Tim Allsop's Rainmaker fund for illustrative purposes. Allsop was recently chosen as the manager most other managers would want to manage their money in a recent poll conducted by Equinox and is generally regarded as being one of the most skillful managers in SA.

Looking at the performance of his fund over the period one can say that he did indeed perform well relative to the opportunity set he chose.

His fund scored in the top quartile of all measures tested excepting for the performance of his Small Cap and Financial shares relative to their potential performance. This was more than compensated for by the excellent stock selection indicated by his Industrial and Mid Cap share picks. With hindsight it is easy to see that the strong Rand was going to pressurize predominantly large cap Resource Shares and that it was right to be both underweight Resource and Large Cap shares in favor of Mid cap shares. But here most other managers chose Financials over Industrials failing to recognize, or strongly enough exploit, the retail boom and the surprising strength of the economy as a whole.

Portfolio Opportunity Distribution (POD) for Nedbank Rainmaker Fund



	TOTAL	SECTOR				SIZE			STYLE	
PERF	PORT	RES	IND	FIN	LRG	MID	SML	VAL	GRW	
Actual	43.6%	3.2%	34.5%	5.9%	16.5%	20.0%	7.1%	36.0%	7.7%	
Mkt	39.9%	11.8%	15.3%	12.8%	33.7%	5.7%	0.5%	31.3%	8.6%	
POD	PORT	RES	IND	FIN	LARGE	MID	SMALL	VALUE	GROWTH	
Mean	35.5%	0.9%	28.4%	6.2%	10.8%	13.5%	11.2%	31.9%	3.6%	
Std Dev	2.6%	0.4%	2.6%	1.2%	1.5%	1.7%	2.2%	2.5%	1.2%	
Max	42.4%	2.2%	35.6%	10.1%	15.7%	19.2%	18.0%	38.7%	7.0%	
Q1	37.2%	1.2%	30.1%	7.0%	11.8%	14.7%	12.7%	33.6%	4.4%	
Median	35.5%	0.9%	28.4%	6.1%	10.8%	13.6%	11.2%	31.9%	3.6%	
Q3	33.8%	0.6%	26.7%	5.3%	9.7%	12.3%	9.7%	30.1%	2.8%	
Min	26.4%	-0.2%	17.4%	2.6%	5.7%	8.5%	5.1%	24.2%	0.3%	
WGHTS	PORT	RES	IND	FIN	LARGE	MID	SMALL	VALUE	GROWTH	
Actual	100.0%	12.8%	75.2%	12.1%	43.2%	42.8%	14.0%	78.1%	21.9%	
Mkt	100.0%	49.0%	30.2%	20.8%	88.1%	10.9%	1.0%	80.2%	19.8%	

Conclusion

Portfolio Opportunity Distributions (POD)'s represent a valuable tool for assessing the skill of a manager in exploiting the opportunity set available to him/her

By forcing us to review the prior period's portfolio as well we can see if any value was added at all.

Differences between the opportunity set of the portfolio and the benchmark can highlight deficiencies in the stock picking or timing abilities of the manager or of the choice of benchmark itself.

POD's can demonstrate the potential for gain in relaxing the increasingly onerous manager restrictions for skillful managers. This is particularly important given the high degree of closet indexation practiced by the industry.

POD's provide a valuable tool for investment advisors to gain greater insight into why and where the performance or lack thereof is coming from.

Use them don't use them, but ignore them at your peril. The only manager actively doing any work on POD's in South Africa at present is M-Cubed although I am grateful to Deutsche Bank's, Roland Russouw for bringing them to my attention.

Peter Urbani, 2004

References

A Virtual Reality without Peers, Ron Surz, (2003)

Getting the Drift, Ron Surz (2001)

Portfolio Opportunity Distributions: An Innovation in Performance Evaluation, Ron Surz,(1994)
Journal of Investing

The SIMIAN Model, Anthony Ashton, Pensions & Investing

Avaliação de desempenho de fundos por POD: uma análise combinatorial, Rudini Menezes Sampaio and Andre Cury Maiali

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Does your portfolio Manager treat you like this?



Hmm Anglos
or Barlows ?

