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Unit Trust Performance Measurement: the Snail Trail Approach

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ABSTRAK

Unit amanah saham merupakan skim pelaburan yang diuruskan oleh pengurus atau organisasi dana dengan menawarkan pelbagai portfolio kepada pelabur. Jangka masa pelaburan biasanya bergantung kepada matlamat amanah saham itu sendiri. Memandangkan ia melibatkan jangka masa pemegangan yang panjang dan mendatangkan kesan berlipat-ganda, perbezaan kadar pulangan tahunan yang meskipun kecil juga amat merugikan pelabur. Oleh yang demikian, pernilaian terperinci diperlukan terhadap pencapaian amanah saham di samping pengurus dana sebelum perjanjian dibuat. Seperti yang diketahui bahawa kadar pulangan yang tinggi pada satu tempoh tunggal boleh mengelirukan jika kajian terhadap kemudahubahan pulangan pada masa lampau tidak diambil kira. Walaupun kaedah risiko pulangan terlaras digunakan untuk menyelesaikan masalah ini, namun hanya merupakan analisis ukuran pencapaian yang "snapshot" sahaja. Analisis Snail Trail telah diperkenalkan untuk menyelesaikan kelemahan ini dan memberikan gambaran yang lebih menyeluruh terhadap pencapaian para pengurus dana.

Kajian ini mengambil kira 17 buah ekuiti pertumbuhan dana. Analisis Snail Trail menunjukkan kedua-dua amanah saham Asia Progress dan KLMF Growth telah memperlihatkan kemajuan dari pencapaian pulangan tinggi berisiko tinggi dan pulangan rendah berisiko rendah kepada pencapaian tinggi berisiko rendah. Sementara, tiga buah dana didapati berada di bawah paras purata seperti yang ditunjukkan oleh gambar rajah Snail Trail. Ketiga-tiga dana ini terdiri daripada BHLB High Growth, KLMF Industry dan KLMF Aggressive Growth. Pencapaian dana-dana telah merosot prestasi sepanjang masa kini dari pulangan tinggi berisiko rendah kepada pulangan rendah berisiko tinggi. Empat buah amanah saham yang terdiri daripada SBB Premium Capital, HLB Growth, OSK Equity and RHB Capital pula menunjukkan pencapaian risiko-pulangan dana yang tekal.

ABSTRACT

Unit trust is an investment scheme that offers investors a well diversified portfolio managed by a professional fund manager or organisation. The investment horizon is medium to long term depending on the stipulated objective of the unit trust. Due to the long holding period and compounding effect, a slight difference in the annual rate of returns can be very detrimental to the investor. Therefore the performance of a unit trust as well as the fund manager must be carefully evaluated before committing to the fund. As we know, a high rate of returns in a single period can be very misleading if we do not study the volatility of the historical returns. Risk adjusted returns offer a solution to this problem, but this is only a "snapshot" performance measurement analysis. Snail-Trail analysis was introduced to overcome these drawbacks and better portray the dynamic history of fund manager's performance.

17 equity growth funds were selected for the purpose of this study. From the snail-Ttrail analysis, two promising unit trusts were found to be Asia Progress and KLMF Growth. Both funds have shown improvement in relative performance from the "high return high risk" and "low return low risk" quadrant moving up to "high return low risk", the most favourable, quadrant. Meanwhile, three funds have been classified as below average as the snail trail diagrams shown deteriorating performance. These three funds are BHLB High Growth, KLMF Industry, and KLMF Aggressive Growth, the performance of which has been falling rapidly over recent years,

from the "high return low risk" quadrant to "low return high risk" quadrant. Four unit trusts showing the most consistency in fund risk-return performance are SBB Premium Capital, HLB Growth, OSK Equity and RHB Capital.

INTRODUCTION

Unit trust is an investment vehicle that pools money from investors and the pooled fund will then be invested in a diversified portfolio. The fund will be managed by professional fund managers or asset management organisations on behalf of unit trusts investors. Investors can select the unit trust based on their investment objectives, investment strategy and risk tolerance level.

In the selection process, besides the above mentioned investor characteristics, the relative performance of the unit trust also plays an important role. Here comes the question: what do you refer to when you want to know the performance of a particular fund? We used to refer to the "league table" showing various unit trusts ranked according to their returns, or the advertisements which highlight the impressive high rates of return over the last "x" months or years.

A high rate of returns in a single period can be very misleading if we do not study the volatility of the historical returns. Therefore the risk-return tradeoffs must be studied. A diagram with standard deviation of the returns on the horizontal axis as a proxy for risk and the rate of return on the vertical axis can be plotted. This diagram is a step forward and allows explicit risk-return tradeoffs to be made. This traditional risk-return diagram presents a single or static snapshot in time over a set period. As discussed in Balzer (1991), to further improve the diagram, multiple points, each representing a set of risk-return for a specific period can be plotted on the same diagram. This diagram portrays a dynamic history of a single fund manager's performance. However, this presentation is useful only to show how a fund manager's performance has varied over time. It fails to reveal how much of that performance is due to the manager's unique skill and how much is due to fortuitous market movements enjoyed by most managers.

A very good indication of the skill component can be obtained by constructing a relative risk-return history, where the median risk and median return (for an appropriate universe of fund managers) are subtracted from the results. This process highlights a manager's value-adding and risk-reduction skills relative to its peer group.

Unlike the traditional risk-return diagram, the snail trail approach not only shows results relative to the median or average fund manager, but is a robust tool for comparing fund managers' performance.

METHODOLOGY

The relationship between risk and returns can be graphically illustrated. Relative return is plotted on the vertical axis and relative risk is plotted on the horizontal axis.

The first point on the risk-return graph is plotted as usual. The beginning and end points of the period are then rolled forward by one quarter and the return and risk for the new period are calculated and plotted on the same graph. By repeating this process, a trajectory is traced out dynamically in risk-return space.

After the compound average annual returns over the period (4 quarters) are calculated, the median returns for the same period for the universe of pooled funds are subtracted to give the relative returns.

To measure risk, there are a number of alternative computations. As in Grinblatt *et al.* (1994) and Woodward (1983), the most commonly accepted measure of risk, standard deviation of returns, has been chosen for these analysis. The standard deviation of quarterly returns over the period is calculated and annualised using the standard $\sqrt{4}$ factor (which implicitly assumes a random walk stochastic model for the return series). The relative risk is then calculated by subtracting the median standard deviation for the group of fund managers and is plotted on the horizontal axis.

It is important to note that the horizontal axis is not the standard deviation of the relative returns, but the relative standard deviation of the total returns. Use of the former would show how well a particular fund manager tracked the median. This might or might not be a useful measure depending on one's purpose. A low figure would simply indicate that the manager has nicely tracked the median, which itself might be undesirably volatile. On the other hand, a

low figure for relative standard deviation, as defined in this paper, implies low volatility of returns in the absolute sense, which is clearly desirable.

After the first point is plotted, the period is rolled forward one quarter and the calculation is repeated. One of the major advantages of the above rolling approach is that, all results are revealed — good or bad. The performance figures used in this paper are "after fee".

Fairly obvious, desirable above median returns appear above the horizontal median return line and less-desirable below-median results appear below it. Similarly, below-median volatility appears on the left of the diagram and above median volatility on the right. The most desirable region is on the top left "high return low risk" (HL) quadrant, while the least desirable is the bottom right "low return high risk" (LH) quadrant.

Irrespective of the absolute position of a set of points on the graph, the tightness of their grouping is a direct indication of the consistency of a manager's risk-return performance.

Seventeen unit trust funds were selected for the purpose of this study. These funds are categorised as growth and equity fund in Chong (1999). These funds are from EPF approved unit trust companies. Only funds with more than 100 million units in circulation will be included. By definition, a growth fund concentrates on investing in securities with growth potential. Growth may come in the form of the invested company's growth or expansion, and capital appreciation. *Growth fund*, also known as *equity fund*, invests mainly in shares traded on the stock exchange. Equity funds can be made up of local shares, shares of unlisted companies, or shares listed on foreign stock exchanges.

FINDINGS AND DISCUSSIONS

One way of visualising the relative risk-return relationship is to think of fixing the median "crosshairs" on a conventional risk-return diagram in the centre of the page and then watching how a manager moves in relation to them as the period of analysis is rolled forward in time.

Three funds with distinctive relative risk-return performance history have been selected for discussion.

BHLB Pacific High Growth Fund

With the objective of achieving high capital gains through investments in companies with high growth prospects as stated in Chong (1999), BHLB HGrowth allocated more than 70% (73% as of 14 April 99) of the total investment in equity assets.

Fig. 1: The dynamic snail trail diagram demonstrates the relative 4-quarter return/risk performance history of BHLB HGrowth. Prior to 96Q3, BHLB HGrowth was in the "low return low risk" quadrant. However, the relative performance of BHLB HGrowth improved gradually and moved up to the upper left quadrant, which is the "high return low risk" quadrant. The snail trail diagram indicated BHLB HGrowth fund manager has read the Asian financial crisis right. This outstanding relative performance exhibits the superior risk-reduction and value-added skills of BHLB HGrowth fund manager compared to the peer group; however the good performance was not upheld. The performance history exhibits poor performance in the post-crash period, when the snail trail descended from the "high return low risk" quadrant to "low return low risk" quadrant, and further fell into "low return high risk" quadrant in 1999.

As a whole, from the snail trail diagram, we can conclude that the performance of BHLB HGrowth in pre- and post-crisis period was not very outstanding (i.e. in the "low risk low return" quadrant and "low return high risk" quadrant). But performance history has shown the ability of the fund manager in lowering the risk as well as improving returns during the economic crisis indicating the superior capability of the fund manager in countering the financial turmoil.

KLMF Regular Saving

Fig. 2: From the snail trail diagram, we can see that the relative performance history of KLMF R Saving is not very consistent over time. This is a very good example of dramatic changes in performance. In 1996, KLMF R Saving was in the "low return high risk" quadrant, and later advanced into the "high return high risk" quadrant. During the early stage of the financial crisis, KLMF R Saving was in the "high return low risk" quadrant. However, the favourable performance was not maintained very long. After (98Q1-98Q4), KLMF R Saving performance has

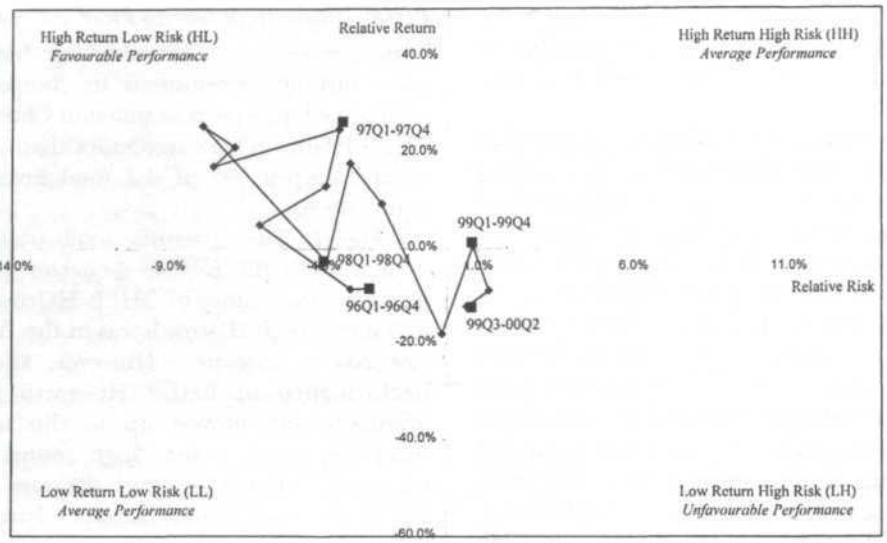

Fig. 1: Relative risk/return history (BHLB High Growth Fund)

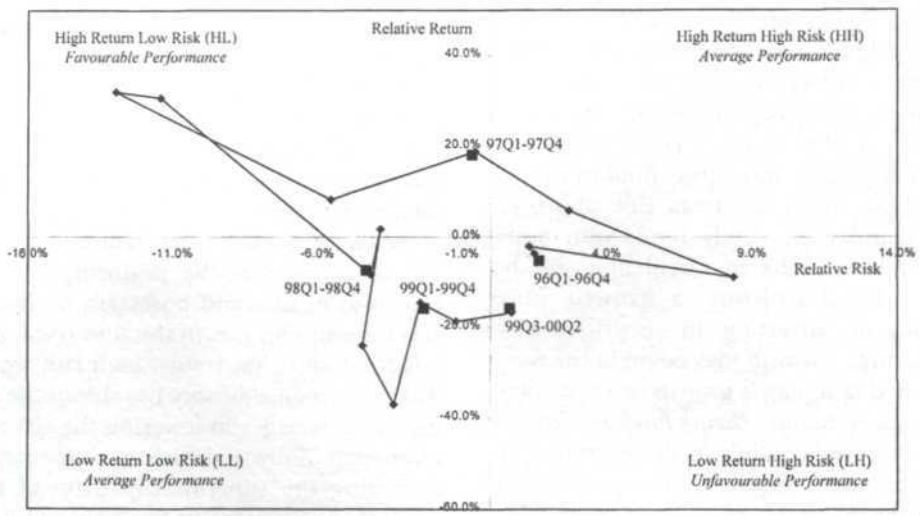

Fig. 2: Relative risk/return history (KLMF Regular Saving)

been falling, from the "low return low risk" quadrant to "low return high risk" or the unfavourable quadrant. This example shows that the single snapshot approach can be very misleading especially when the single period superior performance during the financial crisis is highlighted and promoted to the public.

As KLMF R Saving's objective is to achieve long-term capital growth while maintaining a steady growth in income, it invested heavily in fixed income securities (56%) and the money market (20%) compared to other growth funds in this study. With more than 70% of the total funds invested in non-equity instruments during the financial crisis, KLMF R Saving was able to minimise risk while securing desirable returns on investment. This might explain the KLMF R Saving performance history plots being in the above-median return quadrant with below average risk during the economic slow down. The decision of the KLMF R Saving fund manager to reallocate the assets (from equity to bond and cash) during the crisis added value to the fund as well as minimised risk.

However, during the pre-crisis period, the performance of KLMF R Saving was below average. Looking at the trend where the last point of the snail trail diagram shows a fall from "low return low risk" quadrant to "low return high risk" quadrant, might signal unfavourable future performance. From the dramatic movement of the KLMF R Saving snail trail, one should be aware of how dangerous it can be to neglect the risk dimension or the performance history of a fund.

MBF Growth Fund

Fig. 3: From the diagram, the performance history of MBF Growth indicated that MBF Growth is relatively more risky as the snail trail plots were moving on the right-region most of the time. Nevertheless, the relative risk increased dramatically during the financial crisis. The relative performance of MBF Growth was unfavourable (i.e. located in "low return high risk" quadrant) compared to many other growth funds studied. However, the relative return has shown some improvement along with the regional economy recovery but the relative risk is still higher than average. The last few plots of snail trail indicated a recent movement from the "high return high risk" quadrant to "low return low risk" quadrant exhibiting a reduction in return volatility.

As a whole, we can comment that the performance of MBF Growth is moving in tandem with aggregate market performance. The objective of the fund i.e. to achieve growth through capital appreciation by investing in high growth companies in Malaysia and Asia Pacific region, might give us an insight on the high return volatility and explain the performance of MBF Growth which is closely affected by the regional equity market movement.

Overall Performance of 17 Funds

From the appendices, using snail trail analysis, the most promising unit trusts are Asia Progress (Appendix 2) and KLMF Growth (Appendix 8). Both funds have shown improved relative performance from the "high return high risk" and "low return low risk" quadrant to "high return low risk" or the favourable quadrant.

Four unit trusts namely SBB PCapital (Appendix 18), HLB Growth (Appendix 7), OSK Equity (Appendix 15) and RHB Capital (Appendix 17) exhibit concentrated plots around the median return and risk. The tightness of their snail trail plots is a direct indication of the consistency of a fund's risk-return performance. BBMB Prime (Appendix 3) has been showing a risk reduction trend

Three funds are classified as below average as the snail trail diagrams show deteriorating performance. These funds are BHLB HGrowth (Appendix 5), KLMF Industry (Appendix 9), and KLMF AGrowth (10), where the relative performance has been falling rapidly over recent

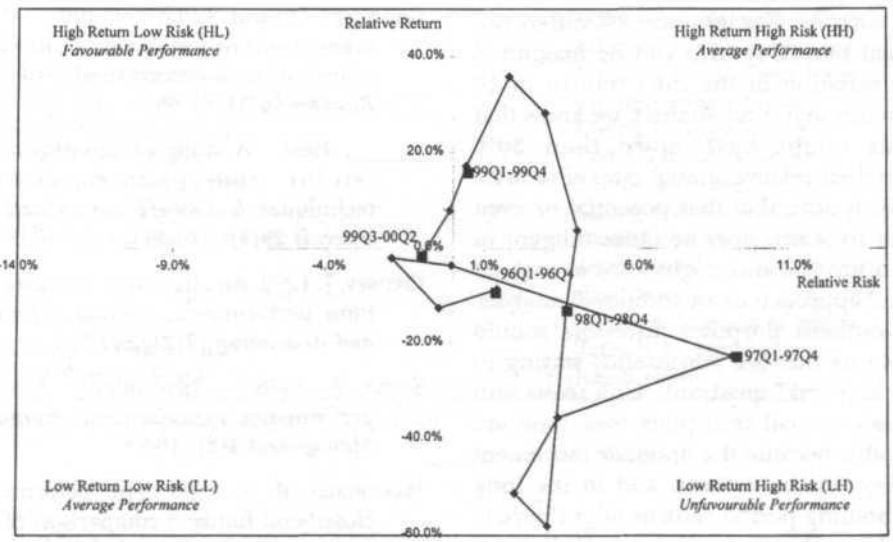

Fig. 3: Relative risk/return history (MBF Growth Fund)

years, from "high return low risk" quadrant to "low return high risk" quadrant.

Seven other unit trusts did not exhibit any significant changes in the relative performance history. Most of these 7 funds remained in the same quadrant throughout the study period or moved from/to "high return high risk"(HH) quadrant to/from "low return low risk"(LL) quadrant. Moving between these two quadrants basically is indifferent in terms of risk/return tradeoffs. These 7 funds are: KLMF Regular (remained in LL) (Appendix 11); MBf Growth (maintaied in HH) (Appendix 14); ASM (P) and ASM FPF (from HH to LL) (Appendix 12 - 13); BHLB Emerging (from HL to HH and LL) (Appendix 4); BIMB First (from LL to HH) (Appendix 6); and Pacific Pearl (from LH to LL) (Appendix 16).

CONCLUSION

From the findings, we discovered that some unit trusts have undergone quite significant, even dramatic, changes over the study period. The traditional risk-return "snapshot" fails to highlight changing performance and it fails to reveal how much of that performance is due to the manager's unique skill and how much is due to fortuitous market movements enjoyed by most managers.

Unit trust is a medium to long term investment instrument. Therefore the initial selection process of the fund is very important. Any slight difference in annual returns can turn into a very big variance at the end of the investment horizon. For instance, 2% difference in the annual rate of returns can be magnified into 21.9% variation in the total returns in 10 years. From the snail trail analysis, we know that some funds might have more than 30% difference in their relative annual rates of returns. Therefore, it is advisable that potential or even existing unit trust investors be more diligent in the selection process and might want to include this snail trail approach as an additional analysis.

For investment purposes, investors should avoid unit trusts that are consistently staying in "low return high risk" quadrant. Unit trusts with very inconsistent snail trail plots over time are also undesirable because the dramatic movement indicates very volatile returns, and in the long term, total holding period returns might deviate very much from the targeted rate. Unit trusts located in the "high return low risk" quadrant are preferred and followed by those located in "low return low risk" or "high return high risk" quadrants. Investors with different investment objectives and risk tolerance level might be interested in investing in funds located in these two regions.

Again, the dynamic performance history will save us from the pit-fall, which we might be deceived into believing by the exaggerated "x" period rate of returns as advertised. As a long-term investor, we should select our investment vehicle with great caution and not be misled by the high return figure of any single period. Instead, consistent long term above average returns with low risk is most desirable.

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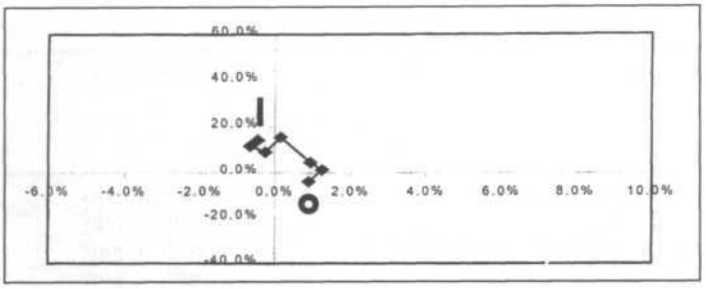
APPENDIX 1

No.	Unit Trust	Type of Fund	Units in Circulation (million) 1998/99
1	Asia UT Malaysia Progress Fund	Growth, Equity	151
2	BBMB Prime Fund	Growth, Equity	166
3	BHLB Pacific Emerging Co. Growth Fund	Growth, Equity	384
4	BHLB Pacific High Growth Fund	Growth, Equity	245
5	BIMB UT First Fund	Syariah, Growth, Equity	235
6	HLB Growth Fund	Growth, Equity	253
7	KLMF Growth Fund	Growth, Equity	658
8	KLMF Industry Fund	Growth, Equity	275
9	KLMF Aggressive Growth Fund	Growth, Equity	310
10	KLMF Regular Saving	Growth, Equity	600
11	MBf Growth Fund	Growth, Equity	118
12	OSK-UOB Equity Trust	Growth, Equity	248
13	Pacific Pearl Fund	Growth, Equity	278
14	RHB Capital Fund	Growth, Equity	239
15	SBB Premium Capital Fund	Growth, Equity	304
16	ASM First Public Fund	Growth, Equity	236
17	ASM Premier Fund	Growth, Equity	215

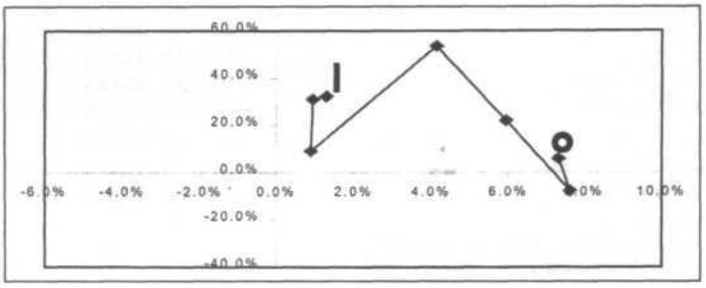
Source : *Investors' Guide To Malaysian Unit Trusts, 1999.*

No.	Unit Trust Fund	Fund Manager 1998/99
1	Asia UT Malaysia Progress Fund	Mushthaq Ahmad Ibrahim
2	BBMB Prime Fund	Koh Huat Soon
3	BHLB Emerging Co. Growth Fund	Lee Chiah Cheang (external investment advisor)
4	BHLB Pacific High Growth Fund	Lee Chiah Cheang (external investment advisor)
5	BIMB UT First Fund	Abdul Rahim Abu Bakar
6	HLB Growth Fund	Arnold Lim (external investment advisor)
7	KLMF Growth Fund	Edmond Cheah Swee Leng
8	KLMF Industry Fund	Edmond Cheah Swee Leng
9	KLMF Aggressive Growth Fund	Chong Chang Choong
10	KLMF Regular Saving	Chong Chang Choong
11	MBF Growth Fund	Philip Tan Chek Boon
12	OSK-UOB Equity Trust	Lee Seng Young
13	Pacific Pearl Fund	Chong Sui San
14	RHB Capital Fund	David Lee Chuen Chieh (external investment advisor)
15	SBB Premium Capital Fund	Pearl Wong (external investment advisor)
16	ASM First Public Fund	Zalinah A Hamid
17	ASM Premier Fund	Razali Haron

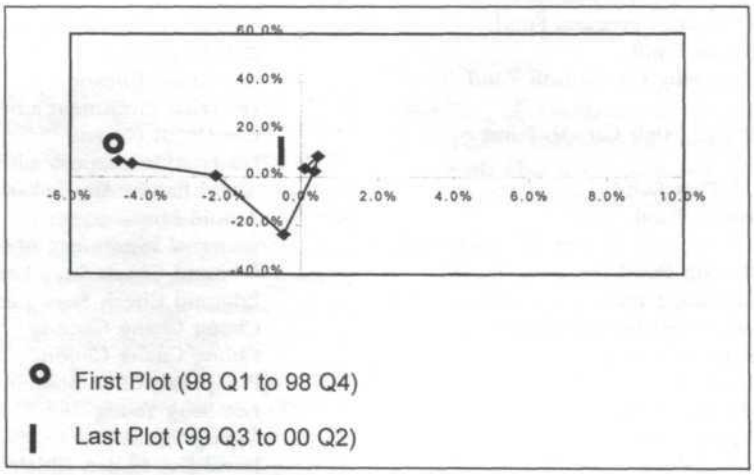
Source: *Investors' Guide To Malaysian Unit Trusts, 1999.*



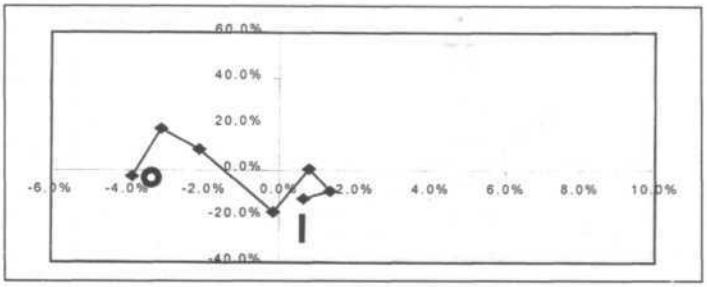
APPENDIX 2
Asia Ut Malaysia Progress Fund (Asia Progress)



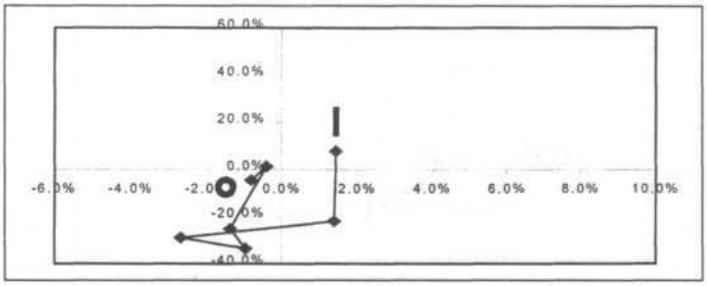
APPENDIX 3
BBMB PRIME FUND (BBMB PRIME)



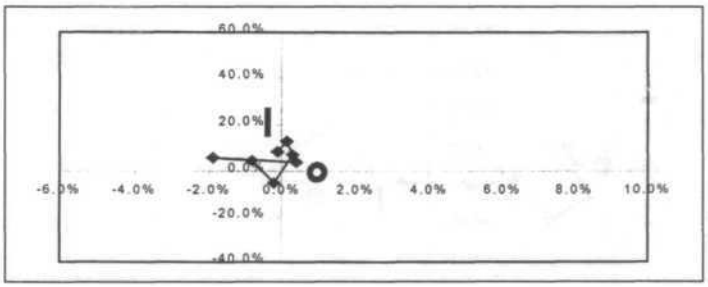
APPENDIX 4
BHLB Pacific Emerging Co. Growth Fund (BHLB Emerging)



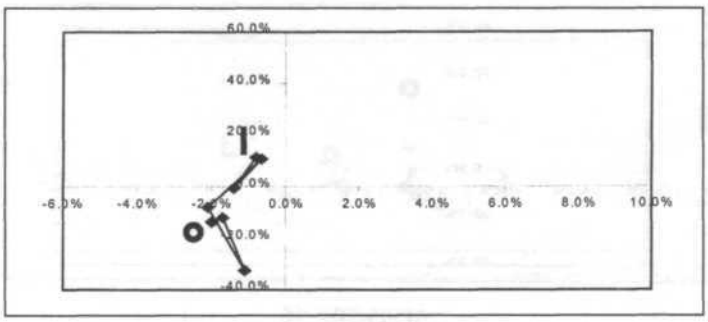
APPENDIX 5
NHLB Pacific High Growth (BHLB HGrowth)



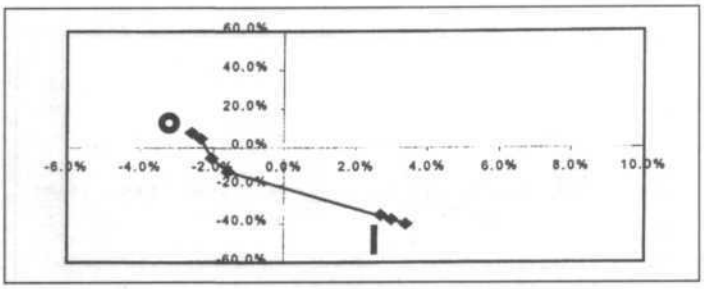
APPENDIX 6
BIMB UT First (BIMB First)



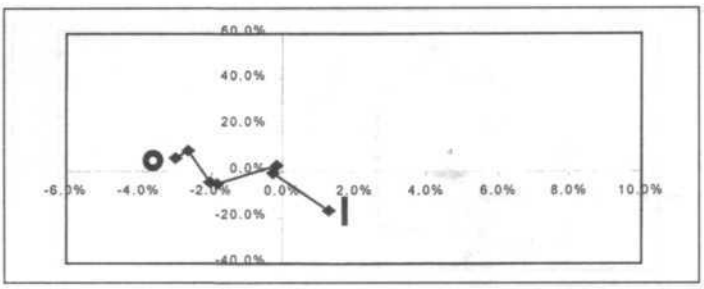
APPENDIX 7
HLB Growth Fund (HLB Growth)



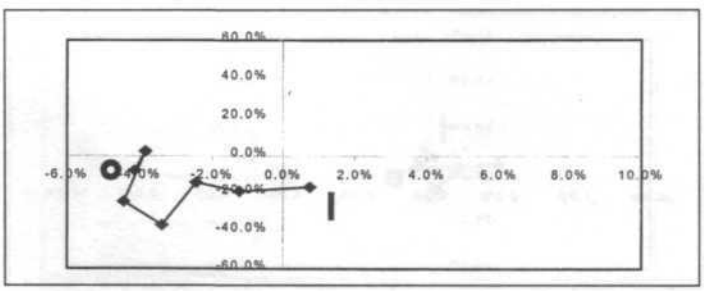
APPENDIX 8
KLMF Industry Fund (KLMF Growth)



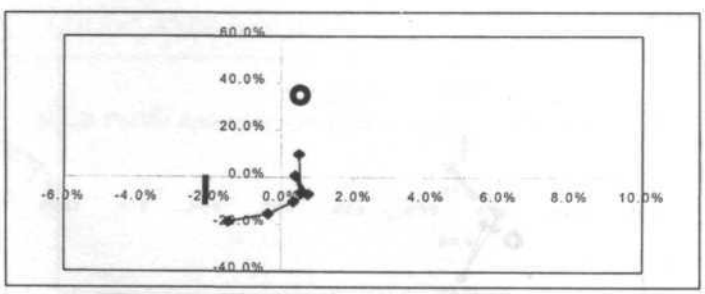
APPENDIX 9
KLMF Industry Fund (KLMF Industry)



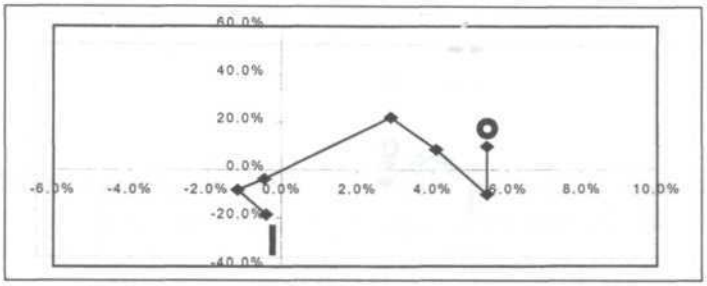
APPENDIX 10
KLMF Aggressive Growth Fund (KLMF AGrowth)



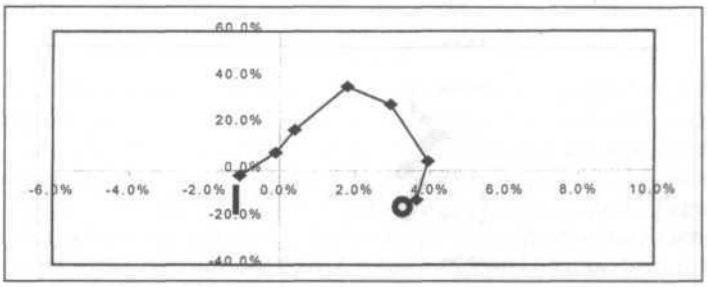
APPENDIX 11
KLMF Regular Saving (KLMF RSaving)



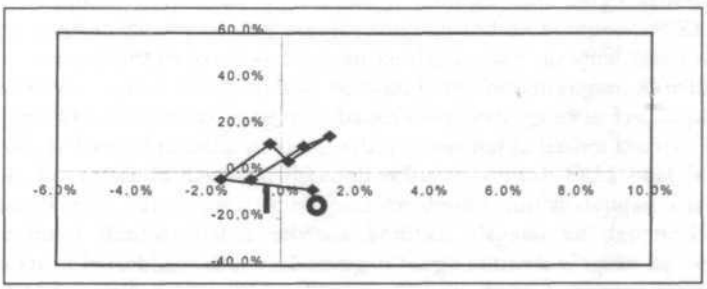
APPENDIX 12
ASM Premier Fund



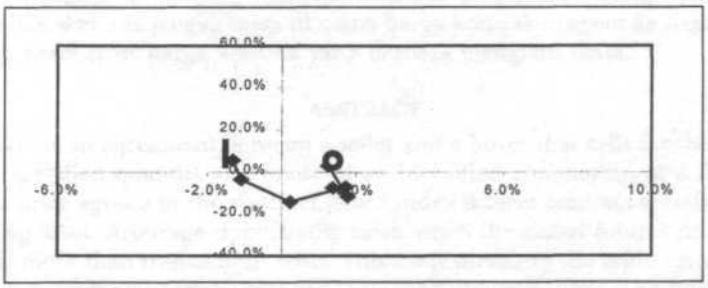
APPENDIX 13
ASM First Public Fund (ASM FPF)



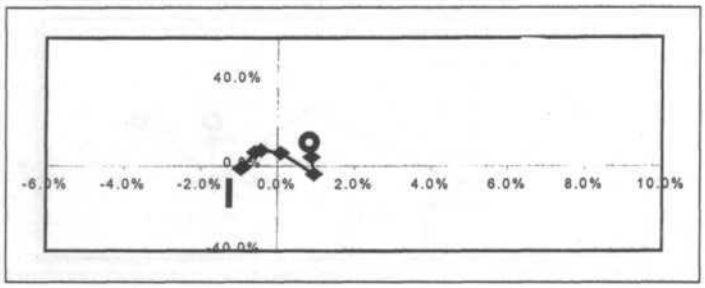
APPENDIX 14
MBF Growth Fund (MBF Growth)



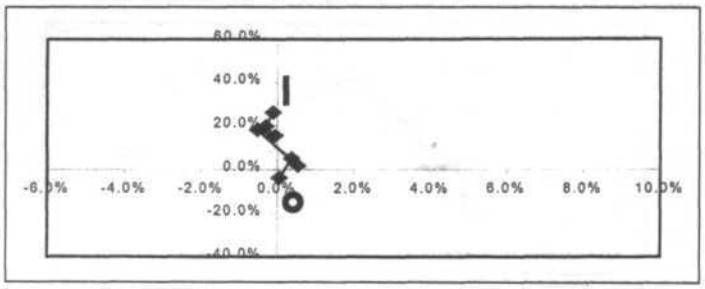
APPENDIX 15
OSK–UOB Equity Trust (OSK Equity)



APPENDIX 16
Pacific Pearl Fund (Pacific Pearl)



APPENDIX 17
RHB Capital Fund (RHB Capital)



APPENDIX 18
SBB Premium Capital Fund (SBB PCapital)