CHAPTER 1

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The social changes in the diminishing role of the extended family and the ageing of the population in both developed and emerging market economies have prompted an increased focus on the provision of adequate retirement incomes for the elderly, either by public or private means (World Bank 1994). Pay-as-you-go pension schemes are where the wages are taxed to pay pensions directly. Although they have proven workable in the past, the dramatic aging of the developed world's population is making this system less feasible than previous. The past benefit promises cannot be maintained without unacceptable increases in contribution rates or vast and growing government debt (Dang et al 2001).

The poor performance of most pension funds largely arises from capital market volatility or poor returns due to economic performance in the long term, and many other related aspects including system design (Mitchell 1997, Davis 1998, Mitchell and Bodie 2000). This has emphasized that the benefits of alternative investment are necessary to minimize the exposure of retirement income in domestic markets.

Countries are increasingly undertaking reforms of their pension systems and continue to work hard to gain better investment results for pension funds. By expanding the horizons there are various choices available that include new investment techniques and investment fields that transcend the current typical investment framework such as bonds and stocks, both local and abroad.

Furthermore, tensions may arise with domestic regulations that limit alternative investment.

In this context, this study seeks to clarify the role of alternative investment in pension fund investment strategies and performance. It draws on the experience of European and Commonwealth countries with established pension fund systems. The study is structured as follows. Section 1, introduces broad issues and restrictions in pension funds, as a background for the discussion of the Malaysian Employees Provident Fund (EPF). Section 2, looks at aspects of alternative investment by empirically exploring the current experience of alternative investment in pension fund portfolios and the returns that pension funds do and could obtain via investment in alternative assets as well as the specific role of each of the alternative assets in the pension fund. The following section looks at two separate issues, namely, the actual return of the EPF and the implications for alternative investment in the pension fund portfolio in the coming decades. The final section draws conclusions and makes links to the situation in Malaysia.

1.2 Malaysian Employees Provident Fund

A Pension Fund is a pool of assets that form an independent legal entity that generates stable growth over the long term, and provides pension benefits for employees when they reach the end of their working years and commence retirement. Pension funds control relatively large amounts of capital and represent the largest institutional investors in many nations. In relative terms, pension funds are one of the largest asset management companies in the world.

The primary pension savings vehicle in Malaysia is the Employees Provident Fund, or EPF. The Malaysian Employees Provident Fund is a national social security organization through a provident fund scheme in Malaysia to provide retirement benefits. The EPF is the oldest provident fund scheme in the world dating back to 1951. In relative terms, the EPF is one of the largest asset management companies (AMCs) in the world. The ratio of its assets to GDP is more than 50%. Although it is a fully funded scheme, and can be considered as a very successful scheme, it is subject to the constraints imposed by the nature of the provident fund scheme, as well as by regulations and financial markets that are under-developed. It is governed by the EPF Act 1991. The principal members are the private and non-pensionable public sector employees. Both employer and employees are required to contribute to the fund on a monthly basis, which then accumulates to become a workers' retirement fund.

It is generally considered that retirement funds accumulated through EPF alone, will be insufficient to safeguard the financial needs of retirement for most people. There are a number of reasons why the EPF is not fulfilling, and will not fulfil these needs. One of them concerns the poor performance of the EPF funds, which have averaged 4 percent return for the past 30 years. This low figure is largely due to the restrictions that require at least 70 percent to be invested in government securities, and no offshore assets. In addition, another important reason is the nature of access to the funds. The segregation of contributions into dedicated accounts e.g. housing, health, retirement, etc allows those of relatively young age easy access to these funds. Furthermore, the EPF has obscure management and investment strategies, limited autonomy, hidden risks and liabilities.

1.3 Investments and Assets

The Employees Provident Fund is the single largest institutional investor in Malaysia. The Ministry of Finance (MOF) is the regulator and supervisor of the EPF. The EPF board is a statutory body under the Ministry of Finance. The Board may, subject to subsection 18(2) and Section 26(1) of the EPF Act 1991, invest moneys belonging to the Fund in various ways. The fund must be deposited in the Central Bank of Malaysia or a bank licensed under the Banking and Financial Institutions Act 1989 (Act 372), or any other financial institutions duly licensed under the Banking and Financial Institutions Act 1989 and approved by the minister. The fund must be invested in shares of any public company listed on the stock exchange established in Malaysia and debentures of any public company. The current EPF is invested in Malaysian Government Securities (MGS), bonds, mortgage papers, commercial notes, banker's acceptances, money market papers, private debt securities, and promissory notes. Lastly, the EPF is to provide loans to Federal or State Government. According to Section 26(2), the Board, with the approval of the Minister, may invest the fund's money in any bank or financial institution established by or underwritten by law, joint venture, privatization programme, or loans to a company incorporated under the Companies Act 1965 and investment outside Malaysia.

The investment management is centralized and the portfolio is mandated. During the 1980s, as requested by law, around 90 percent of the accumulated funds of the Employees Provident Fund were invested in “safe” Malaysian Government Securities. This ratio has now come down dramatically because the Government was running a surplus budget during the mid 1990s. This allowed the EPF to diversify its assets and increase its exposure to the money markets and equity markets. However, this together with the less favourable interest rate and market environment affected performance and has led to a decline in the EPF dividend rate since1995.

A Goldman Sachs study (1995), for the period 1985 to 1994, showed that if the proportion invested in MGS was reduced to 75% and equities and properties were raised to 10% and 5%, respectively, the average return on the portfolio would be 15% higher with a corresponding reduction in risk of 12%. A more balanced portfolio with 50% in MGS, 25% in equities, 10% in cash and 15% in properties would have increased returns by about 35% and lowered the risk by 10%, as compared to the EPF’s historic portfolio with 90% invested in MGS and 10% in cash. However, the return from investment in equities is primarily in the form of capital gains. As the equity market is highly volatile, any sizeable increase in the EPF’s investment in equities could greatly destabilize the overall investment returns.

The EPF is currently facing a constraint that at least 70% is to be invested in Malaysian Government Securities (MGS) and investment in domestic equities cannot exceed 25%. Furthermore, investment in global or emerging market equities and bonds is not permitted. However, the Ministry of Finance has waived the investment required in MGS because of the shortage of MGS arising from less new issuance by the Government. The EPF is thus over-invested in short-dated instruments. It suffers from a massive duration mismatch, given the bias for the payment of higher fixed dividend. This relatively low duration is an inescapable result given the lack of supply in long maturity Ringgit Malaysia papers, and that the EPF is confined to invest in local market papers.

Table 1.1:

Statistics for Investment and Assets

Year	Cumulative Investments (RM Million)	Annual Gross Income (RM Million)	Cumulative Assets (RM Million)
1952	17.00	0	28.00
1960	629.00	31.00	633.0
1970	2,193.00	119.00	2,240.00
1980	9,261.00	37.00	9,481.00
1990	45,642.00	3,259.00	46,680.00
2000	179,046.78	10,542.00	181,518.00
2003	217,050.97	11,046.00	220,161.00
2004	237,105.94	11,758.00	240,362.00
2005	259,885.14	12,773.00	263,865.00
2006	285,919.05	13,229.00	290,255.00
2007	313,013.00	17,283.00	318,298.00
2008	342,014.00	19,998.00	346,115.00

Source: Annual Report KWSP

Table 1.1 shows the statistics for investment and assets for the EPF from 1952 to 2008. Malaysian Government Securities (MGS) is the main investment instrument of the Employees Provident Fund. MGS are long-term bonds issued by the Government of Malaysia for financing developmental expenditure. There are 3-years, 5-years, 10-years, 15-years and 20 years MGS. It is a fixed-rate coupon bearing bonds with bullet repayment of principal upon maturity while coupon payments are made semi-annually.

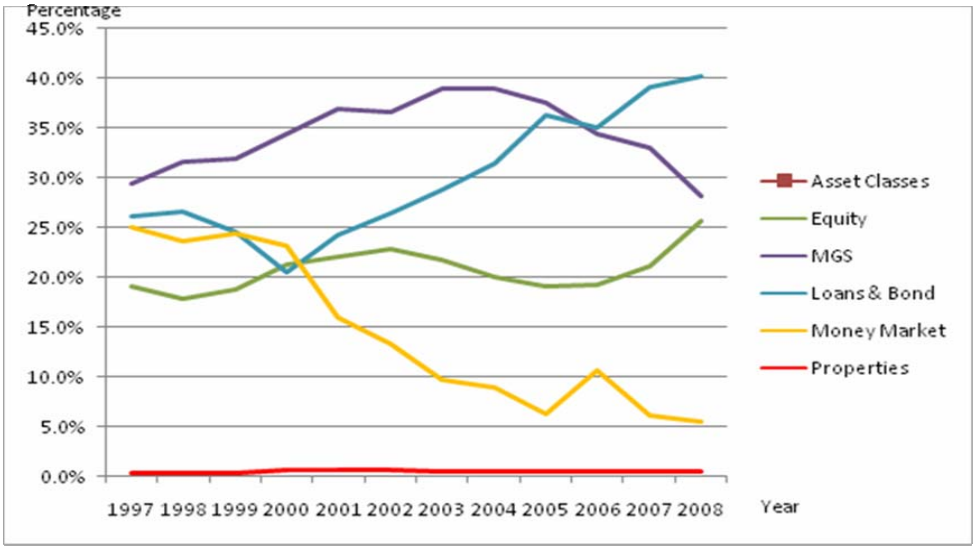
Apart from MGS, the EPF also invested in bonds or equivalent that included Cagamas, Islamic and Conventional Bonds as well as portfolio loans, such as Guaranteed Loans and Debentures. Property investments are mainly in business complex buildings as well as purchasing of tenancies by acquiring buildings that offer favourable yields. Besides investing in domestic assets, the EPF continues to enhance and diversify its portfolio into international assets, particularly in equities. Money market instruments are also one of the asset classes in the EPF.

In line with the EPF's prudent investment policy and to ensure members' savings are well protected in the long term, MGS remained as the major investment instrument for the 12 years with the majority invested in Private Debt Securities (PDS). These were supported by a low interest rates environment as well as higher private investment. The Malaysian stock market has shown strong performance in recent years through strong corporate earnings and economic fundamentals. Among the factors that drove the stock market higher were rising palm oil and crude oil prices. The composite index closed at 1,445 points at the end of 2007 with the Employees Provident Fund taking this opportunity to invest in equities by increasing its investment from 18.99% in 1997 to 25.71% in 2008. The decline from 25.06% (1997) to 5.56% (2008) in Money Market Instruments was because of the high liquidity in the banking system and low interest rates regime. Property investments increased slightly in 2008 compared to 1997.

Over the years, the EPF has expanded its investments from traditional assets to risky assets. Figure 1.1 shows the asset allocation for the EPF for 1997 to 2008.

Figure 1.1:

Asset Allocation for Employees Provident Fund, 1997 to 2008



Source: Annual Report KWSP

1.4 Returns and Dividend Declared

The Employees Provident Fund invests the accumulated funds and pays out a yearly dividend that is credited to the contributors' account. This dividend payment policy is in accordance with Section 27 of the EPF Act 1991. The Employees Provident Fund with the approval of the Minister of Finance shall declare a minimum rate of 2.5 percent dividend on member's savings upon the end of every financial year. The annual dividend is calculated on the opening balance as at 1 January of that year. Dividend on withdrawals is calculated from the beginning of the year in which the withdrawals are made until the date the contribution account is debited. The income received during the current year is distributed to all members after taking into account the expenses of the current year in accordance with the EPF's accounting policy, as approved by the Board.

Table 1.1 shows the comparison EPF dividend rate, Fixed Deposit interest rate and inflation rate for 1997 until 2008. EPF has the highest interest rate, follow by Fixed Deposit. Except in 1997 where the Fixed Deposit has higher interest rate than EPF. Both EPF and Fixed Deposit outpace the inflation.

Table 1.2:

Statistics for EPF's Dividend Rate, Fixed Deposit Interest Rate and Inflation Rate

Year	***Dividend Rate (EPF)***	***Interest Rate (Fixed Deposit)***	***Inflation Rate***
1997	6.70%	9.33%	2.66%
1998	6.70%	5.74%	5.30%
1999	6.84%	3.95%	2.73%
2000	6.00%	4.24%	2.55%
2001	5.00%	4.00%	1.43%
2002	4.25%	4.00%	1.79%
2003	4.50%	3.70%	1.07%
2004	4.75%	3.70%	1.42%
2005	5.00%	3.70%	3.05%
2006	5.15%	3.73%	3.61%
2007	5.80%	3.70%	2.03%
2008	4.50%	3.70%	5.40%
Average	**5.43%**	**4.46%**	**2.75%**

Source: Bank Negara, International Monetary Fund

The return generated by the EPF since its inception in 1951 is very respectable by the standards of other developing countries. However, its management practices with respect to accounting, performance measurement and dividends declared, depart significantly from the best practices that apply to the private sector. This will cause distorting behaviour and a misalignment in incentives of various stakeholders and leads to mal-governance. The failure to run the EPF on a portfolio basis restricts its exposure to portfolio risk.

R. Thillainatham (Immediate Past-President, Malaysian Economic Association) found that the real returns generated by the EPF are less reliable because of the weaknesses in the EPF's accounting policies. As shown in the Employees Provident Fund or Kumpulan Simpanan Wang Pekerja (KWSP) annual report, the equity investments are being carried at cost. The EPF's annual report is conspicuous by the lack of any mention of its extant accounting policy with respect to loan classification. The best practice requires the equity portfolio to be marked to market and the loan portfolio to be subject to an impairment test.

According to R. Thillainatham, the Employees Provident Fund's equity investments are not being marked-to-market; the EPF has not been required to invest on a portfolio basis. There has been no benchmarking or evaluation of the performance of the EPF's investment portfolio against the appropriate market benchmark. Instead, the EPF's performance has been evaluated in relation to an absolute target return that is not related to how the market has performed or trends in interest rates. It should marked-to-market its portfolio, it should benchmark and evaluate the performance of its portfolio in relation to the performance of the market.

Furthermore, unrealized gains or losses are not presently taken into account in the EPF's performance measurement and dividends declared. Dividend declared is based on the income earned and on realized gains. It may lead to a tendency to book the realized gains so that dividends can be declared.

The Employees Provident Fund faces serious constraints in investing in marketable securities and on a portfolio basis where domestic financial markets are under-developed. In addition, the restriction on international diversification and bias in domestic equities or bias for doing business with domestically controlled companies or banks can increase risk exposure and weaken risk control. To date, the EPF does not have the government's prior approval to allocate a proportion of its funds for investment in overseas equities and bonds. This restriction has been a serious constraint in the activities of the EPF to maximize its returns and minimize its risk, especially given that the size of its fund is huge relative to the size of Malaysia's domestic financial market. However, the much higher cost of transactions in the cash market and restrictions on arbitrage activities between the cash and futures markets (because short selling, for instance, is prohibited in the cash market) make it more costly and more risky for the EPF to take a position in a timely manner.

1.5 Contributions and Withdrawals

Today, contributors are allowed to withdraw up to 40% of their accumulated savings for housing, education and health. With the increase in the withdrawals and declining returns, there may be a shortage of savings for financing one's retirement living. Therefore, the EPF has to increase the contribution rate, restrict withdrawals or increase the retirement age.

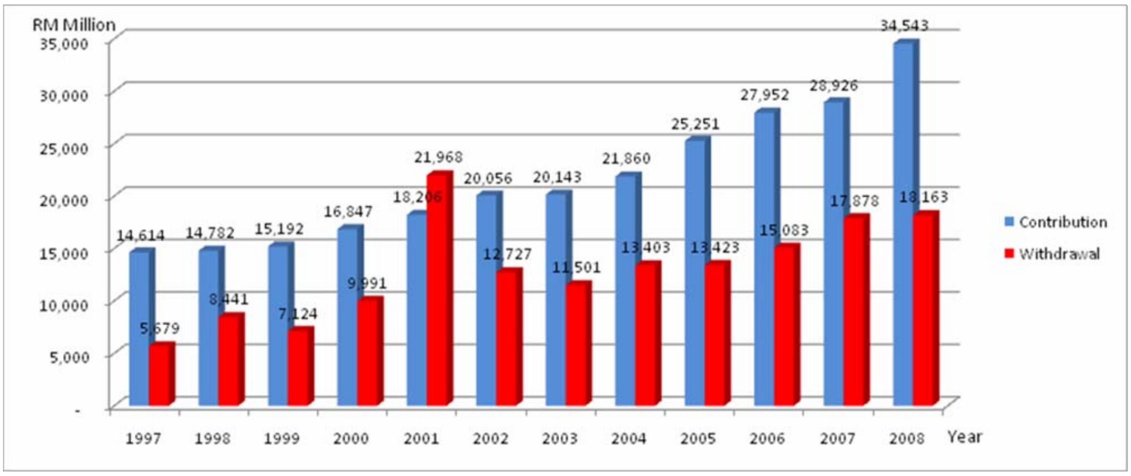
Employees and employers pay monthly contributions to the fund, which are credited into the individual member's account to which interest or dividend is added annually. From 1996, the joint contribution rate has stood at 23% of an employee's salary, of which the employer's share is 12%. The main function of the EPF is to receive and recover contributions, maintain members and employees' accounts and invest the funds through various options.

An EPF member maintains two accounts namely Account-1 and Account-2. A total of 70% of the total contribution is credited into Account-1 and 30% into Account-2. The savings in Account-1 are for retirement and can only be withdrawn when a member reaches 55 years of age. Before 55 years of age, a member can use part of their savings in Account-1 to invest in approved investments. Savings in Account-2 can be withdrawn for the purpose of housing, education, and health at the age of 50.

As shown in Figure 1.2, the withdrawal during the period under review increased from RM5.6 billion in 1997 to RM18 billion in 2008. This was due to the increase in withdrawals for housing, education, health and age 50 withdrawals following the merging of members' accounts from three to two accounts. From the statistics below, we can see that withdrawals have been approximately 50 percent of total contributions since 1998 and that withdrawals were 20 percent higher than contributions in 2001. This is because from 2 January 2001, the EPF members can withdraw money to reduce or redeem housing loans for their spouse, and reduce loans or purchase a second house. Furthermore, the contribution rate for 2001 was reduced by 2% compared to previous years.

Figure 1.2 :

Contributions and Withdrawals from 1997 to 2008



Source: Annual Report KWSP

1.6 Purpose of the Study

The objectives of this study are as follows:

- To examine the impact of alternative assets in the EPF investment portfolio on the return and risk.
- To compare and analyze the actual return of the Malaysian Employees Provident Fund investment on the portfolio investment and the dividend payable to the contributors.
- To test whether the constraints of the EPF rules and regulations on the portfolio investment will affect the return and performance.
- To test whether an alternative investment portfolio for the EPF based on optimal portfolio model will create higher risk-adjusted return.

1.7 Scope of the Study

The study covers the analysis of the Malaysian Employees Provident Fund investment performance, together with its rules and regulations, investment returns and dividend declared. In this paper, the actual return of the Malaysian EPF based on the marked-to-market theory will be recalculated. To analyze the effect of the EPF's rules and regulations on the EPF's return, the risk and Sharpe Ratio between the existing EPF portfolio and a portfolio comprising traditional assets, namely, domestic equity, foreign equity and fixed income, and alternative assets that include private equity, real assets and hedge funds, in two scenarios – under the constraints of rules and regulations and without rules and regulations – are examined. Furthermore, a diversified EPF portfolio using optimal portfolio will be created.

As for the private equity and hedge fund indices, a foreign index is used as a proxy as there is insufficient domestic data. This paper covers the period from January 1997 to December 2008, which includes both bull and bear markets.

1.8 Research Questions

The study addresses the following questions:

1.) What is the actual return for the EPF Fund and is it marked-to-market.

2.) What are the rules and regulations for the Malaysian Employees Provident Fund pertaining to the portfolio investment?

3.) What is the asset allocation for alternative assets in the Employees Provident Fund portfolio under:

- Constraints of rules and regulations

- Without the constraints of rules and regulations

4.) What is the correlation between the asset classes?

5.) What is the effect on return and risk when investment using alternative assets for the Employees Provident Fund portfolio under:

    - Constraints of rules and regulations
    - Without constraints of rules and regulations

6.) What is the optimal portfolio for the alternative model to obtain maximum risk adjusted returns under different stock market trends?

7.) Does diversifying the portfolio into various asset classes (including traditional assets and alternative assets) bring benefits to the EPF's performance?

1.9 Assumptions

The assumptions listed below are necessary to establish a prudent starting point for this paper:

1.) The selected data/indices are representative of the asset classes under examination.

2.) The selected indices reflect a sufficiently long sample to provide a fair assessment of the diversification benefit for the Employees Provident Fund.

1.10 Limitations

There are various limitations for this study, which are:

1.) The Employees Provident Fund members' benefits are not eroded away if the Employees Provident Fund has less liquidity.

2.) Results will be based on regulations /regardless of the restriction on investing overseas.

1.11 Organization of the Study

This study is structured into five chapters. The study first provides a brief introduction to the Employees Provident Fund in Malaysia and summarizes the main studies that have already been undertaken. In the second stage, it builds and analyses alternative investment performance by percentage on a risk adjusted basis using relatively standard investment performance measures.

Chapter 1 presents the introduction, the purpose, scope, research questions, assumptions and limitations of this study. It also provides a description of the pension fund in Malaysia, including regulatory, contributions, withdrawal, shortfalls, investment asset allocation and investment return.

The literature review in Chapter 2 provides a brief summary of pension fund allocation in Europe and Asian countries. It compares pension funds performance according to total assets allocation. In addition, this chapter provides an introduction to the alternative asset classes.

Chapter 3 explains the research methodology applied in the study. It includes a description of the databank, the instrumentation used and observations regarding data reporting and standard analysis of investment performance –

using Sharpe Ratio, correlation analysis and p-value test. The theoretical framework of this study is also illustrated.

Chapter 4 contains the findings of this study. The detailed approach and analysis of research procedures as well as the results of comparing observed pension fund returns using various target allocations in alternative assets are discussed in this chapter. This section also constructed a benchmark investment return for the Malaysian Employees Provident Fund using a marked-to market approach with historical data.

The paper is organised into four sections and ends with a conclusion drawn from the research findings. The key findings have been highlighted. Finally, this section discusses some extensions to this work.