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Developments in Mandatory Defined Contribution Plans: Investment Patterns in Singapore's Central Provident Fund System

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Disciplines

Economics

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Rising elderly life expectancies imply the need for more saving throughout the Asia-Pacific region. This paper investigates the role of recent changes in the investment offerings of the Singaporean Central Provident Fund (CPF) in this process. Our research explores investment patterns of CPF participants and comments on alternative paths for retirement system redesign.

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Developments in Mandatory Defined Contribution Plans: Investment Patterns in Singapore's CPF System

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In the four short decades between 1990 and 2030, the global tally of persons age 60 and older will burgeon from 500 million to almost 1.5 billion individuals. Since much of this demographic aging will take place in Asia, the global aging phenomenon has particular relevance for retirement schemes throughout the Asia-Pacific region. This paper focuses on how one of the world's oldest and most prominent retirement schemes, namely Singapore's national defined contribution program known as the Central Provident Fund (CPF), is evolving in response to an aging workforce and region.

Singapore's CPF was first established in 1955 as a forced savings program.¹ Half a century later, it has evolved into a wide-ranging social security system covering 3.1 million total members, of whom 1.3 million are active workers; see Figure 1.² Since Singapore has one of the world's lowest fertility rates (at around 1.2 per 1,000),³ and longest life expectancies (over age 80 at birth),⁴ the nation is aging quickly. Indeed, in the next two decades it will overtake all but Japan in its fraction of population elderly. For this reason, it is useful to examine how participants' investments in the CPF are managed, where they are invested, and how they are growing over time, to help determine how successfully the program will be in supporting the retired population.

Figure 1 here

¹ Low and Aw (1997) trace the historical roots of the Singaporean CPF.

² Active CPF members are persons with at least one contribution in the current or preceding three months.

³ The Singapore fertility rate in 2000 was reported as 1.2 by the US Census Bureau. Singaporean sources (Singapore Department of Statistics, 2000) place it a little higher, at around 1.5, but declining.

⁴ See for instance, Clark (1999).

The outline of the remainder of the paper is as follows. First we outline the structure of Singapore's retirement system, focusing on the links between the national mandatory provident fund structure and other types of asset accumulation in the nation. Next, we show how government policy has influenced asset accumulation and investment patterns.⁵ Subsequently we explore several questions about asset allocation patterns by demographic attributes. In particular, we address the following points:

- What fund offerings are currently offered under Central Provident Fund auspices, and how do people allocate their fund balances?
- How do these patterns vary according to participant characteristics?
- What considerations arise regarding the current investment structure?

I. Aggregate Investment Patterns in Singapore's Central Provident Fund

Since its inception, the Singaporean Central Provident Fund system has been a defined contribution plan financed by mandatory levies on employees' regular monthly earnings up to an earnings cap. The contribution rates and caps have changed over time, with the rates currently amounting to between 8.5% and 33% of worker salary, depend on the employee's age, and the ceiling set at \$4,500 per month⁶ (in 2006); see Table 1.⁷ Initially all contributions were held in a single account, but over time additional accounts were created. For instance the Ordinary Account (OA) and Special Account (SA) concepts were introduced in the late 1970s, with the former intended for financing of home purchases, insurance premiums, education expenses, and other saving. The Special Account (SA), created in 1977, was focused on old-age saving. The

⁵ This paper does not focus on decumulation patterns; these have been studied by Chen et al. (1997; 1998); Doyle et al. (2004), and Fong (2002).

⁶ The exchange rate as of March 2006 was S\$1=US\$0.61.

⁷ See http://www.cpf.gov.sg/cpf_info/goto.asp?page=News/PressRel/N_15Dec2005.asp

Medisave account is designed to be spent on medical care expenses and catastrophic illness insurance.

Table 1 here

Total CPF contributions vary with age, and so too does the breakdown of the allocations across funds. Currently young workers (≤ 35 yrs old) have 6% of their total contributions dedicated to the Medisave account, 22% of their totals to the Ordinary Account, and 5% to the Special Account. By contrast, older workers (age 55-60) contribute 18.5% of covered pay split 8%, 10.5%, and 0%, respectively, across the three funds. Figure 2 and Table 2 depict the time pattern of OA and SA contribution rates for a “prime-age worker” in the 35-45 age range. Such an individual would have had to contribute 10 percent of covered earnings in the 1950s to the single pooled account, with the rate rising steadily to 30 percent by the late 1970’s when the Special Account was created. Thereafter, the non-medical savings portion of the CPF for this prime-age group of workers – that is, just the OA and SA combined elements – rose to 46% of covered pay by 1983, and then fell to the mid-to-low 30’s over the 1990s. At the end of the 1990s, in response to the Asian financial crisis, the CPF savings contribution for OA and SA combined was slashed to 23%, and it now stands at 26% of covered pay.

Table 2 and Figure 2 here

The flow of funds into the CPF over time has resulted in substantial asset accumulation by scheme participants. Contributions to the OA, SA, and Medisave accounts now total over S\$15B per year, and CPF balances stand at approximately S\$120B, or more than two and a quarter times GDP.⁸ As shown in Table 3 and Figure 3, the growth rate of the CPF asset pool has averaged over 7% since 2003.

Table 3 and Figure 3 here

⁸ Singapore’s GDP in 2006 dollars was S\$52.715B (<http://www.singstat.gov.sg/keystats/mqstats/indicators.html>)

When the CPF was first established, the Provident Fund Board directed all investable funds centrally, and a government-set rate of return was paid on the assets. The annual percentage return was set in 1955 at 2.5% per annum, a figure that then rose to 5% in 1963 and reached a peak of 6.5% in the mid-1980s (see Table 4). Thereafter the return was gradually reduced to around 2.5-3% through the mid-1990s, when the SA rate was set at 1.25 percentage points above the OA/Medisave rate, raised to 1.5 percentage points in July 1998. There has been no change in the OA and SA rates since 1999; the minimum OA rate is now set at 2.5% per year and the SA return at 4% per year. (The Medisave account return was also raised in 2001 to the SA rate to help members build up the Medisave balance faster.) As explained by the CPF Board,⁹ the actual return paid is the higher of this floor, or the “market-related interest rate (based on the 12-month fixed deposit and month-end savings rates of the major local banks)” in the OA accounts; for the Special and Retirement Accounts, members “earn additional interest of 1.5 percentage points above the normal CPF interest rate.”¹⁰ In other words, the Board guarantees a relatively safe minimum nominal return, and it also offers participants the possibility of upside potential should the bank rate rise.

Table 4 here

Since the system’s inception 50 years ago, the “default” investment under the Provident Scheme has always been the CPF fund, so that workers would earn whatever rate of return was set by the CPF Board as explained above. Nevertheless participants have been allowed to use some of their OA and SA assets for other purposes, over time. In 1968, Prime Minister Lee Kuan Yew introduced the Home Ownership Scheme (HOS) which permitted workers to borrow

⁹ See http://www.cpf.gov.sg/cpf_info/goto.asp?page=interest.asp

¹⁰ Asher (1999) notes that this rate is set as a weighted average of the 12-month deposit rate (80%) and last-month savings deposit rate (20%) subject to a minimum 2.5% nominal return, revised quarterly. He also argues that actual CPF returns probably returned 5% on average, on an internationally invested asset pool of about S\$60B over the last decade, though no firm data are provided on the investment mix and returns of the CPF portfolio.

against CPF accumulations for the purchase of public housing built under the auspices of the Housing Development Board (the government authority controlling most of the island's housing stock).¹¹ In 1978, CPF savers were permitted to purchase shares in the Singapore Bus Service Scheme, and in 1981, private home purchase was permitted with CPF funds. As of 1986, members were allowed to purchase commercial properties with their CPF savings and also to move into the Approved Investment Scheme arrangement (CPF Board 2005). Subsequently, in 1993, the Board instituted an Investment Schemes (IS) approach which further widened the range of permissible assets in which CPF savers could invest. Initially, members were permitted to invest a portion of their OA and SA savings in approved assets. This portion was raised to 100% for the SA as of 2001.¹²

The range of products in which CPF members can invest is quite diverse. In 2006, for instance, OA funds could be invested in products allowed under CPF Investment Scheme that included corporate bonds and equities traded on the Singapore stock exchange, government bonds, property funds, annuities and endowments, unit trusts, exchange traded funds, and gold. Particular portfolio limits apply to specific asset families; for instance, as noted in Table 5, a participant can invest only up to 10% of his investable saving in gold, and only up to 35% of his investable saving in shares, property funds/REITs, and corporate bonds. A slightly narrower set of investment products has been allowed for the Special Account; the list most notably excludes fund management accounts, shares, gold and corporate bonds. The list of financial intermediaries currently allowed under the CPF Investment Scheme appears in Table 6.

Table 5 and 6 here

¹¹ See McCarthy et al. (2002), CPF (2005), and Low and Au (1997) for further discussion of the housing loan arrangements.

¹² For details see http://www.cpf.gov.sg/cpf_info/goto.asp?page=overviewb.asp

At year-end 2005, CPF members held some S\$120B (or about US\$74B) allocated roughly half to the Ordinary Account, 17% in the Special Account, 29% in a medical care savings account, and the rest in “Retirement and Other”. Total cumulative contributions to the CPF scheme since inception stood at S\$256.5B (as of 30 September 2005); see Table 7. Mandatory savings are made to three accounts, namely the Ordinary, Special, and Medisave funds. Figure 4 shows the cumulative contributions to each of the three CPF accounts over time. Not surprisingly, the largest account in cumulative terms is the OA, as workers are required by law to make the largest proportional contribution to this account.

Table 7 and Figure 4 here

Figure 5 summarizes what CPF account holders have done with their funds since inception. On a cumulative basis, some 70% of OA savings have been utilized for housing, investment, education, and insurance. This implies that about 30% of cumulative contributions have remained in the OA fund where they currently earn 2.5% annual (nominal) interest. The reverse is true for the funds in the SA, where account holders have left the bulk of their saving (80%) deposited with the CPF. A possible explanation for the strong tendency of investors to remain with the CPF is that the SA has traditionally paid a higher return compared to the OA. In addition, account holders may be less willing to assume higher risk for their retirement accounts.

Figure 5 here

Further detail on how CPF members deployed their funds over the years is provided in Figure 6. Panel A shows that the bulk of the OA savings (44%) went into the purchase of residential and investment properties. A sizeable portion (31% of cumulative CPF funds) remained in the ordinary and special accounts earning guaranteed interest. The remaining 13% went into healthcare, 8% into insurance products while 4% went into investment for retirement.

Though there has been active encouragement for CPF account holders to grow their retirement savings, it is of interest that only 12% of total accumulated pension saving overall has thus far been devoted to either insurance or investment instruments. Panel B in Figure 7 shows that in the CPFIS-SA investment scheme, most participants held insurance products, to the tune of 87% of their saving. Remaining funds (14%) were invested in unit trusts. In other words, the asset allocation patterns of OA and SA monies have been starkly different to date: people seem prepared to take more risk with their OA funds compared to the SA assets. It would appear that the SA funds are put in a separate “mental account” targeted to retirement, and are not generally actively managed.¹³

Figures 6 and 7 here

II. New Evidence on Asset Allocation Patterns in Singapore’s CPF Scheme

In this section we turn to more detailed data on patterns of asset allocation in the CPF-IS, focusing on age, sex, and income differences as of 2004.¹⁴ Figure 8 shows that investors committed most of their funds to three investment instruments, namely, insurance products, shares, and unit trusts.¹⁵ Both sexes devoted similar proportion of funds to unit trusts, and both were less willing to invest in instruments such as IAs, ETFs, gold, bonds, fixed deposits and property funds. Yet men tended to be slightly more proactive in their investments: they invested 28% of their funds in shares, compared to 21% for women. Conversely, women were more likely to commit funds to insurance products (68%), compared to men (60%). This is similar to US

¹³ The reader is alerted to the fact that the data given in Figures 7-10 refer to a year-end as of September. This differs from the December year-end given in CPF Annual Reports.

¹⁴ These data were kindly provided under confidentiality agreements by the CPF Board staff.

¹⁵ To date no data have been made available on the broader investment portfolios of individual investors; accordingly we can report asset allocation of investors in the CPF-IS scheme but we cannot link the IS accounts to CPF holdings to ascertain workers’ overall portfolios. Future research will attempt to match individual records to evaluate the larger picture of IS versus non-IS holdings.

research on retirement account holders which find that higher income men tend to seek riskier investments and trade more in their accounts (Mitchell et al, 2005).

Figure 8 here

Another question of interest is whether investment behavior becomes less risky as workers age. To date, we have only information on the monies held in investment accounts by CPF members, not the complete portfolios of workers including the CPF investment funds. Focusing on those assets alone (Figure 9), we conclude that contrary to popular advice, CPF investors committed more to risky investments as they age. Thus the mature age group (56+) commits more funds to stock investments and less to insurance products than the middle-aged or younger age-groups. We also conclude that the youngest workers are more likely to delegate portions of their saving accounts to investments managed by professionals. This can be seen from their higher holdings of unit trusts (14%), whereas the mature group tends to invest more heavily in shares. In data not shown, older women prove slightly more conservative, investing more in insurance linked products than men.

Figure 9 here

Another perspective is offered in Figure 10, which focuses on investment scheme asset allocation patterns by risk category and participant earnings level. We group the IS products into three, namely insurance products, relatively nonrisky holdings (bond and fixed deposits), and relatively more risky products (which include shares, unit trusts, investment administrators, exchange traded funds, gold and property funds).¹⁶ The income categories we tabulate focus on low earners (reporting positive pay but below S\$1,500/month), low-middle (S\$1500-3,500),

¹⁶ In future work we hope to disaggregate the insurance products into investment-linked products, which are likely more risky than endowment funds; nevertheless, currently the data are not available.

high-middle (S\$3,500-6,000), and high (S\$6,000).¹⁷ It is not surprising that lower and lower-middle earners prove less likely to hold risky investments, with at least 70% of the IS portfolios in investment products. As income levels rise, the fraction in insurance products falls, first to 63% and then to below 50% for the highest earners. Conversely, higher-earners hold between one-third and half of their investment accounts in risky forms, consistent with international research (Mitchell et al. 2005). A more complete analysis, which we hope to undertake in the future, would evaluate how participants' entire portfolios vary with sociodemographics (including the non-IA components of CPF accounts).

Figure 10 here

III. Investment Performance of CPF Participants

Over time, as noted above, more investment choices have been added to the menu of funds into which CPF participants may invest their mandatory savings. As of 2006, there were some 400 investment portfolios on offer to the CPF participant. Naturally, this additional diversity of fund choices imposes on participants the responsibility to devote more attention to the risks and benefits of diversifying outside the traditional CPF fund managed by the government. Diversification into other assets outside the traditional CPF portfolio also brings with it the potential for high management fees and commissions associated with having many small funds.

Indeed, fees and charges have become a topic of policymaker concern in Singapore. Table 8 reviews typical charges under the CPF investment schemes (from the CPF website). It is interesting to note the wide range of fees for different investments and the diversity of front end commissions, back end loads, and annual service charges. Compared to the US institutional

¹⁷ Retirees and others with no monthly earnings are excluded.

market, there would appear to be far more diversity and complexity in the Singapore case (Mitchell, 1998).

Table 8 here

One useful development is that CPF members are now able to assess expense ratios by fund using the website developed by the Investment Management Association of Singapore (IMAS).¹⁸ This is invaluable as it standardizes the cost formulas used across funds, which had not been done previously. Nevertheless CPF participants still have a difficult time factoring in all the additional investment costs which can include back- and front-end loads, annual asset-based and fixed charges, and wrap fees; these have yet to be collated into an easy-to-understand format. Indeed, Prime Minister Lee Hsien Long recently expressed concerns regarding the CPF-IS system's investment fees and expenses (*emphasis added*):¹⁹

“[W]e must help CPF members to earn better long term returns on their savings. Over the years, we have opened up the CPF Investment Scheme (CPFIS) and given members considerable latitude to invest their CPF savings as they judge best. However, this has not always worked out as well as we hoped, because the options available to the members are not well tailored to their needs, and it is difficult to educate members adequately on how to plan for their long term needs. *Almost three-quarters of the members who invested under CPFIS from 1993 to 2004 would have been better off leaving their savings with the Board. In particular, those who invested in unit trusts and investment-linked products (ILPs) have generally received mediocre returns.* One important reason why CPFIS returns have been mediocre is the high cost of investing. For example, the annual cost to investors in a retail unit trust in Singapore is typically double that of the US. This is because the market is fragmented, many of the unit trusts and ILPs are small, and the overheads and fees are high.

To begin the reform, the CPF Board in late 2005 announced a new set of requirements for any new fund seeking to be included in the CPF Investment Scheme menu. One change was that any fund manager seeking to join the CPF-IS list would be required to meet a higher relative

¹⁸ <http://www.imas.org.sg/imas/index.do>

¹⁹ http://mycpf.cpf.gov.sg/CPF/News/News-Release/NR_25Sept2005.htm

performance standard than had been required in the past,²⁰ such that the fund had to have a minimum of a 3-year performance record that could not fall below the top 25 percentile of funds in a global peer group.²¹ This is a more demanding standard than the previously required benchmark of top 50 percentile, so it is likely to represent an improvement over past practice. Nevertheless, some degree of subjectivity remains as the evaluators are enjoined to take into account the fund managers' capabilities and reputations, the fund's investment philosophy, the quality of the fund's research and analysis; and the way the fund constructs and implements its portfolio. Furthermore, funds already on the CPF-IS permitted list are not held to these new standards.

A second key change adopted by the Board in late 2005 was the explicit introduction of expense ratio targets for the first time. The expectation is that:²² “[t]he CPF Board will therefore ... (induce) lower cost ratios, enhance transparency to help members make informed choices, and encourage consolidation among the funds to achieve greater economies of scale.” Specifically, any new fund must have “an expense ratio below the median of existing CPFIS funds in its risk category.” What this means, in practice, is that so-called ‘higher risk’ funds investing mainly in equities will be held to a cap of 1.95 percent of assets per year; ‘medium to high’ risk funds holding both equities and bonds must charge less than 1.75 percent of assets; ‘low to medium’ risk funds investing in bonds or fixed income must charge less than 1.15 percent pa; and ‘lower risk’ funds (money market funds) cannot exceed an annual expense ratio of 0.65 percent.²³ While a full-scale comparison of these expense ratios with international charges is beyond the purview of this paper, it is clear that the CPF costs are not on the low side. For instance, a recent

²⁰ http://mycpf.cpf.gov.sg/CPF/News/News-Release/N_29Dec2005.htm .

²¹ Determining which specific funds constitute each global peer group by asset class/strategy is not easy to ascertain.

²² http://mycpf.cpf.gov.sg/CPF/News/News-Release/NR_25Sept2005.htm

²³ http://mycpf.cpf.gov.sg/CPF/News/News-Release/N_29Dec2005.htm

review of US fund expenses found that the asset-weighted average expense ratio for stock funds was 1.13 percent, and for bond funds at 0.9 percent in 2005 (ICI, 2006) – and these figures include a pro-rata share of front-end loads. Furthermore, most US investors held their money in lower-cost funds. Consequently adopting an expense target as in Singapore is a very positive step, though focusing on the median fund charge in Singapore, exclusive of front end loads, may result in costs that are high by developed-country standards.

IV. Discussion and Conclusions

Our review of the general structure of Singapore's retirement system has highlighted how government policy has influenced asset accumulation and investment patterns over the years in this national mandated saving scheme. We find that investment patterns vary according to participant demographic characteristics and type of fund. Early evidence suggests that asset allocation patterns by income and sex are as predicted, with the majority of non-housing saving remaining in the relatively high-return, low-risk, CPF Special Accounts. Asset allocation patterns across age-groups do not conform to advice often given, namely to decrease the proportion of risky assets with advancing age. Also, overall, people appear to be more proactive in investing their OA accounts and are willing to take greater risk, but they hold their SA funds in safer investments.

Several considerations arise regarding administrative and investment policy. First, it will be essential to collect information on a microeconomic basis to focus on participant-level behavior. For instance, individual-level data must be collected regarding workers' entire portfolio holdings, to judge what influences CPF members' asset allocation patterns. At present, the lack of individual-level data makes it impossible to assess which participants may respond to

new investment choices when they are introduced and what might be the impact of changes in investment costs. Second, more attention must be devoted to fund expenses and commissions. Some countries have moved to establish low-cost life-cycle funds as the “default” investment mix and the US is on the verge of adopting life-cycle or target maturity date funds as the default. In such instances, employees are automatically defaulted into a balanced fund based on their age unless they actively select some other investment portfolio. In Chile, as another example, pension managers offer up to five funds, ranging from “Fund A” which holds 80% of the portfolio in equities, to “Fund E” which holds 100% fixed income; “Funds B-D” hold intermediate percentages in equities. Active workers may elect up to two funds at a time offered by a single money manager, and they will be automatically transitioned to more conservative portfolios as they age, unless they elect otherwise (Arenas de Mesa et al. 2006). A similar life-cycle approach might be useful in the Singaporean case, in view of many affiliates’ natural inertia regarding investment choices.

Thus far, available data also make it impossible to differentiate insurance holdings into endowment policies, annuities, and investment-linked policies, despite their very different risk characteristics. The first two are generally agreed to be lower-risk investments, but the latter can be more volatile. We hope to break these into their subcomponents in future research. Another task we hope to take on to future work is to examine data on savings in the education, health insurance, and other accounts, across the broad range of CPF monies.

Several larger questions are also of key policy interest. First, we would like to evaluate whether existing CPF investment instruments are efficient from a return-risk perspective. Relatedly, we seek to determine whether CPF participants might benefit from alternative investment structures. For example, in Europe and the US, several nations have begun to offer

inflation-indexed bonds which make good sense for the retirement decumulation phase (Brown et al. 2002). Offering life cycle and target maturity date funds might also be of great value, given participant inattentiveness. Also it would be useful to learn more about efforts to educate CPF investors regarding capital market risk and return, as the government seeks to streamline the range of investment choices and bring down expenses. The US experience with investment education suggests that even relatively well-educated subjects can have a hard time understanding and acting on information regarding mutual fund charges (Choi et al 2005; Lusardi and Mitchell 2006). Accordingly, the evidence indicates that individual investors are poorly equipped to make investment choices in their retirement accounts. This, in turn, puts more responsibility on policymakers' shoulders, to better fashion the environment in which retirement assets are saved and invested.

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Table 1. Annual Earnings Ceiling for CPF contributions

Year	Salary Ceiling
2006	\$4,500
2005	\$5,000
2004	\$5,500
2003	\$6,000
2002	\$6,000
2001	\$6,000
2000	\$6,000
1999	\$6,000
1998	\$6,000
1997	\$6,000

Source: CPF Annual reports, various years 1997-2005

Table 2. Contribution Rates to CPF Ordinary and Special Accounts Over Time: % of Covered Earnings

(For workers age 35-44)

As of:	Ordinary Account	Special Account	OA+SA Together
Jul-55 °	10	0	10
Sep-68 °	13	0	13
Jan-70 °	16	0	16
Jan-71	20	0	20
Jul-72 °	24	0	24
Jul-73 °	26	0	26
Jul-74 °	30	0	30
Jul-75 ° *	30	0	30
Jul-77	30	1	31
Jul-78	30	3	33
Jul-79	30	7	37
Jul-80	32	6.5	38.5
Jul-81	38.5	4	42.5
Jul-82	40	5	45
Jul-83	40	6	46
Jul-84	40	4	44
Jul-85 **	40	4	44
Apr-86	29	0	29
Jul-88	30	0	30
Jul-89	30	2	32
Jul-90	30	3.5	33.5
Jul-91	30	4	34
Jul-92	29	4	33
Jul-93	29	4	33
Jul-94	29	4	33
Jan-99	23	0	23
Apr-00	23	2	25
Jan-01	23	6	29
Oct-03	20	6	26
Jan-05	20	6	26
Jan-06	20	6	26

* Maximum contribution increased from \$450 to \$600 per month

** Maximum contribution increased from \$2,500 to \$3,000 per month

Source: Derived from CPF Annual Report 2004

& http://www.cpf.gov.sg/cpf_info/goto.asp?page=Online/ContriRa.asp

Table 3. CPF Contributions and Balances Through Time

A. Member CPF Annual Contributions and Year-End Account Balances

(S\$ billions)

<i>Year</i>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005*</u>
Contributions	\$10.4	\$11.3	\$13.5	\$14.6	\$15.9	\$16.0	\$12.8	\$14.1	\$18.3	\$16.2	\$15.9	\$15.3	\$15.3
Account Balances	\$52.3	\$57.7	\$66.0	\$72.6	\$79.6	\$85.3	\$88.4	\$90.3	\$92.2	\$96.4	\$103.5	\$111.8	\$119.9

B. Member Balances by Account, 2005

	<u>\$B</u>	<u>%</u>
Ordinary Account	\$58.6	49%
Special Account	\$20.1	17%
Retirement Account&Other	\$6.4	5%
Medisave Account	\$34.8	29%
Total Balance	\$119.9	100%

Sources:

http://www.cpf.gov.sg/cpf_info/goto.asp?page=about_us.asp

and the CPF 2004 Annual Report; 2005 contributions est. by authors

Table 4. CPF Interest Rates Over Time
(per year)

<u>CPF</u>		<u>OA + Medisave</u>		<u>SA + Ret</u>	<u>OA</u>		<u>SA, Ret.+Medisave</u>	
Year	%	Year	%	%	Year	%	%	
1955	2.5	Jul-Dec 1995	3.82	5.07	Oct-Dec 2001	2.5	4	
1956	2.5	Jan-Jun 1996	3.52	4.77	Jan-Mar 2002	2.5	4	
1957	2.5	Jul-Dec 1996	3.48	4.73	Apr-Jun 2002	2.5	4	
1958	2.5	Jan-Jun 1997	3.48	4.73	Jul-Sep 2002	2.5	4	
1959	2.5	Jul-Dec 1997	3.48	4.73	Oct-Dec 2002	2.5	4	
1960	2.5	Jan-Jun 1998	3.48	4.73	Jan-Mar 2003	2.5	4	
1961	2.5	Jul-Dec 1998	4.29	5.79	Apr-Jun 2003	2.5	4	
1962	2.5	Jan-Jun 1999	4.41	5.91	Jul-Sep 2003	2.5	4	
1963	5	Jul-Sep 1999	2.5	4	Oct-Dec 2003	2.5	4	
1964	5.25	Oct-Dec 1999	2.5	4	Jan-Mar 2004	2.5	4	
1965	5.25	Jan-Mar 2000	2.5	4	Apr-Jun 2004	2.5	4	
1966	5.25	Apr-Jun 2000	2.5	4	Jul-Sep 2004	2.5	4	
1967	5.5	Jul-Sep 2000	2.5	4	Oct-Dec 2004	2.5	4	
1968	5.5	Oct-Dec 2000	2.5	4	Jan-Mar 2005	2.5	4	
1969	5.5	Jan-Mar 2001	2.5	4	Apr-Jun 2005	2.5	4	
1970	5.75	Apr-Jun 2001	2.5	4	Jul-Sep 2005	2.5	4	
1971	5.75	Jul-Sep 2001	2.5	4	Oct-Dec 2005	2.5	4	
1972	5.75				Jan-Mar 2006	2.5	4	
1973	5.75							
1974	6.5							
1975	6.5							
1976	6.5							
1977	6.5							
1978	6.5							
1979	6.5							
1980	6.5							
1981	6.5							
1982	6.5							
1983	6.5							
1984	6.5							
1985	6.5							
Jan-Feb 1986	6.5							
Mar-Jun 1986	5.78							
Jul-Dec 1986	5.38							
Jan-Jun 1987	4.34							
Jul-Aug 1987	3.31							
Sep-Dec 1987	3.31							
Jan-Jun 1988	3.19							
Jul-Dec 1988	2.96							
Jan-Jun 1989	3.1							
Jul-Dec 1989	3.39							
Jan-Jun 1990	3.77							
Jul-Dec 1990	3.88							
Jan-Jun 1991	4.85							
Jul-Dec 1991	4.54							
Jan-Jun 1992	4.59							
Jul-Dec 1992	3.31							
Jan-Jun 1993	2.62							
Jul-Dec 1993	2.5							
Jan-Jun 1994	2.5							
Jul-Dec 1994	2.5							
Jan-Jun 1995	3.1							

Source:

Derived from http://www.cpf.gov.sg/cpf_info/goto.asp?page=interest.asp

Notes:

- 1/ Special Account introduced July 1977
- 2/ Medisave Account introduced April 1984.
- 3/ Retirement Account introduced in January 1987
- 4/ Special and Retirement Accounts earn 1.25 percentage points > CPF interest rate from July 1995
- 5/ Special and Retirement Accounts earn 1.50% points higher interest from 1 July 1998
- 6/ CPF interest credited, compounded annually 1955-76
- 7/ CPF interests credited quarterly, compounded annually 1977-85
- 8/ CPF interest computed monthly, compounded/credited annually 1986-pres.
- 9/ CPF interest reviewed quarterly from 1 July 1999.
- 10/ Medisave Account earns 1.5 percentage points > CPF from 1 October 2001.

**Table 5. Financial Instruments Available for Investment
In the CPF Ordinary Account and Special Account**

Ordinary Account*	Special Account
Fixed Deposits	Fixed Deposits
Singapore Government Bonds	Singapore Government Bonds
Statutory Board Bonds	Statutory Board Bonds
Bonds Guaranteed by Singapore Government	Bonds Guaranteed by Singapore Government
Annuities**	Annuities**
Endowment Insurance Policies***	Endowment Insurance Policies***
Investment-linked Insurance Products**	Selected Investment-Linked Insurance Products**
Unit Trusts ^o	Selected Unit Trusts ^o
Exchange Traded Funds ^{oo}	Selected Exchange Traded Funds ^{oo}
Fund Management Accounts ^{ooo}	
Shares [^]	

Notes:

*Up to 35% of investible savings can be invested in shares; property funds/REITS; and corporate bonds

*Up to 10% of investible savings can be invested in gold

**Must be offered by "included" insurers

***Must be offered by "included" insurers and maturity date cannot exceed member's 62nd birthday

^o Must be managed by "included" Fund Mgmt firms who meet CFP guidelines

^{oo} Must be listed on SGX and meet CPF guidelines

^{ooo} Must invest per CFP guidelines

[^] Must be offered by Singapore companies listed on SGX

Source: Derived from

http://www.cpf.gov.sg/cpf_info/Benefits/Asset/cpfishdbk.asp#Q3

^o Must be managed by "included" Fund Management firms who invest according to the Investment Guidelines set by CPF Board.

^{ooo} Must invest per Investment Guidelines set by CPF Board.

Table 6. Service/Product Providers Currently Included Under the CPF Investment Scheme

Fixed Deposit Banks

1. DBS Bank Ltd
2. Oversea-Chinese Banking Corporation Ltd
3. United Overseas Bank Ltd

Insurance Companies

1. American International Assurance Co Ltd
2. Asia Life Assurance Society Ltd
3. Aviva Ltd
4. AXA Life Insurance Singapore Pte Ltd
5. Great Eastern Life Assurance Co Ltd
6. HSBC Insurance (Singapore) Pte Ltd
7. Manulife (Singapore) Pte Ltd
8. NTUC Income Insurance Co-operative Ltd
9. Overseas Assurance Corporation Ltd
10. Prudential Assurance Co Singapore Pte Ltd
11. UOB Life Assurance Ltd

Investment Administrators

1. dollarDEX Investments Pte Ltd
2. iFAST Financial Pte Ltd
3. Navigator Investment Services Ltd

Fund Management Companies

1. Aberdeen Asset Management Asia Ltd
2. ABN AMRO Asset Management (Singapore) Ltd
3. AIG Global Investment Corporation (Singapore) Ltd
4. Alliance Capital Management (Singapore) Ltd
5. Allianz Global Investors Singapore Limited
6. APS Asset Management Pte Ltd
7. AXA Rosenberg Investment Management Asia Pacific Ltd
8. Capital International Research & Management Inc
9. Commerzbank Asset Management Asia Ltd
10. Credit Agricole Asset Management Singapore Ltd
11. DBS Asset Management Ltd2
12. Deutsche Asset Management (Asia) Ltd
13. Fidelity Investments (Singapore) Limited
14. First State Investments (Singapore)2
15. Goldman Sachs (Singapore) Pte Ltd
16. Henderson Global Investors (Singapore) Ltd
17. HSBC Investments (Singapore) Ltd2
18. ING Investment Management Asia Pacific (Singapore) Pte Ltd
19. INVESCO Asset Management Singapore Ltd
20. Legg Mason Asset Management (Asia) Pte Ltd
21. Lion Capital Management Ltd
22. NTUC Income Insurance Co-operative Ltd1
23. Prudential Asset Management (Singapore) Ltd
24. Schroder Investment Management (Singapore) Ltd2
25. SG Asset Management (Singapore) Ltd
26. State Street Global Advisors Singapore Ltd
27. Templeton Asset Management Ltd
28. UBS Global Asset Management (Singapore) Ltd
29. UOB Asset Management Ltd2

1/Can only manage investment-linked insurance sub-funds under CPFIS
The remaining FMCs can manage unit trusts, ILP funds/ sub-funds, exchange
2/ FMCs which offer Fund Management Account services.

Source:

http://www.cpf.gov.sg/cpf_info/Benefits/Asset/cpfishdbk.asp#app1

1. Can only manage investment-linked insurance sub-funds under CPFIS. The remaining FMCs can manage unit trusts, ILP funds/ sub-funds, exchange traded funds and fund management accounts under CPFIS.

Table 7. Cumulative Contributions to the Central Provident Fund Since Inception (\$M)

Schemes Available under CPF	
Fund Balance	78,434.60
Property	115,089.00
Insurance products (un	19,459.41
Investment (not incl. ins	9,492.87
Healthcare	34,037.60
Education	
Insurance (Mortgage insurance, dps, etc)	
Total	256,513.48

Sources:

http://www.cpf.gov.sg/cpf_info/ie/IE_reportpl.pdf
http://www.cpf.gov.sg/cpf_info/goto.asp?page=about_us.asp
http://www.cpf.gov.sg/cpf_info/Cor_info/AR2004.pdf
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http://www.cpf.gov.sg/cpf_info/goto.asp?page=about_us.asp
http://www.cpf.gov.sg/cpf_info/goto.asp?page=about_us.asp

Table 8. Typical Charges for Investments Permitted Under the CPF Investment Schemes

Type of Investment	Agent Bank's Charges (Under CPFIS-OA)	Other Charges ¹ (Under CPFIS-OA & CPFIS-SA)
Fixed Deposit (FD)	<u>Transaction Fee</u> \$2/FD placement/refund of proceeds upon FD maturity or termination <u>Service Charge</u> \$2/FD/quarter, min. charge between \$2-\$5.	<u>Other Charges</u> NA
Shares, Bonds (incl. Statutory Board Bonds & Listed Property Trusts/Funds traded on SGX)	<u>Transaction Fee</u> \$2-\$2.50 per lot, st max. of \$20-\$25/transaction <u>Service Charge</u> \$2.00/counter/quarter, w. min. charge between \$2-\$5	<u>Broker's commission</u> ² 0.4-0.5% of trade contract value, st min \$40/trade <u>Central Depository (Pte) Ltd's fees</u> 1) Clearing fee of 0.05% on trade contract value, st max. of \$200 2) \$0.50/transaction
Singapore Government Bonds & Statutory Board Bonds traded through bond-dealers	<u>Transaction Fee</u> \$2-\$2.50/lot st max \$20-\$25/transaction <u>Service Charge</u> \$2.00/counter/quarter, w. min.charge of \$2-\$5	<u>Bond-Dealer's Charges</u> \$0-\$50 per transaction
Investment-linked Insurance Products	<u>Transaction Fee</u> Between \$2-\$2.50/transaction. <u>Service Charge</u> \$2.00/policy/quarter, w. min. charge \$2-\$5.	<u>Sales Charge</u> Between 0-5% (reflected in bid-offer spread) ³ and 1-5.75% of premium paid and/or \$0-\$150/single premium policy <u>Annual Fund Operations Charges or Expense Ratio</u> ⁴ 0.3-4.4% of Net Asset Value (NAV) ⁵ <u>Redemption Charge</u> ⁶ 0-7% of NAV and/or \$0-\$42.75. <u>Annual Performance Fees</u> 0-20% of excess returns over benchmark for underlying funds <u>Insurance Administration /Coverage Charges</u> \$0-\$5/month per policy. <u>Surrender Charges</u> 0-4% of surrender value.

(Table 8 continues)

Table 8 (cont)

Type of Investment	Agent Bank's Charges (Under CPFIS-OA)	Other Charges ¹ (Under CPFIS-OA & CPFIS-SA)
Endowment Policies and Annuities (Single Premium Type)	<u>Transaction Fee</u> \$2-\$2.50/transaction. <u>Service Charge</u> \$2/policy/quarter, w. min. charge of between \$2-\$5.	<u>Total Distribution Cost (TDC)</u> ⁶ 1-6.2% of Single Premium
Unit Trusts⁷	<u>Transaction Fee</u> \$2-\$2.50/lot, st max of \$20-\$25/transaction. <u>Service Charge</u> \$2.00/unit trust fund/quarter, w. min charge of between \$2-\$5.	<u>Sales Charge</u> 0- 5% (reflected in the bid offer spread) of initial amount invested. <u>Annual Fund Operations Charges or Expense Ratio</u> ⁸ 0-7.1% of NAV <u>Redemption Charge</u> 0-6% of NAV <u>Annual Performance Fees</u> 0-30% of excess returns over benchmark for unit trust

Notes

¹ These charges are estimates only and may not be exhaustive. CPF members are advised to check with the product providers on the full range of charges payable. Charges also exclude GST unless otherwise stated.

² Broking fees are fully liberalised now and the charges depend on the broking houses. The broker's commission mentioned is the range that majority of the broking houses are charging.

³ Bid-offer spread is the difference between the price at which the product is offered for sale ("offer") and the price at which the product provider will redeem the product ("bid")

⁴ Includes Annual Management Fees which range from 0.10% to 1.85% of NAV

⁵ Net Asset Value (NAV) is the total market value of the securities in a fund's portfolio divided by the number of units currently outstanding

⁶ Total Distribution Cost (TDC) refers to the total costs that an insurance company is expected to incur and includes commissions and cost of benefits and services paid to the distribution channel

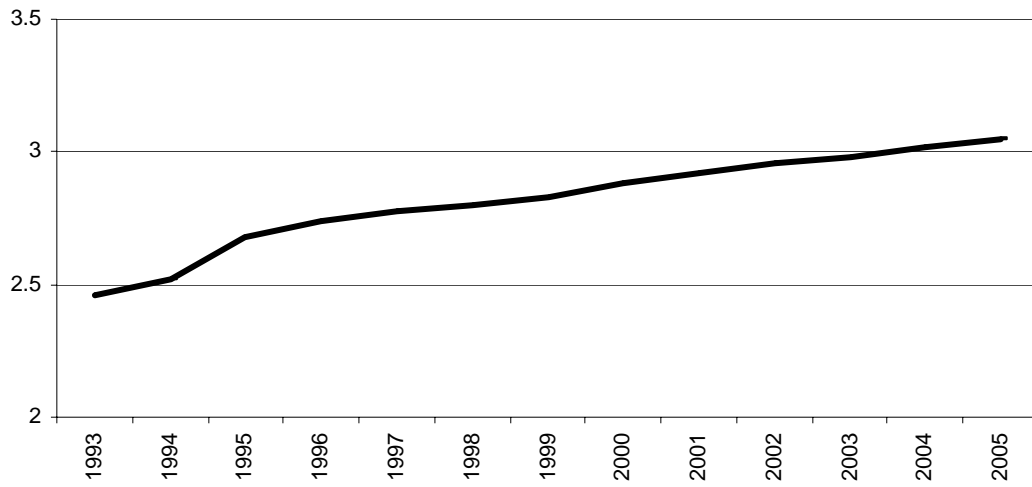
⁷ Generally, online fund distributors charge lower front-end fees than brick-and-mortar distributors like banks and brokerages.

⁸ Includes Annual Management Fees which may range from 0% to 3% of NAV

Source

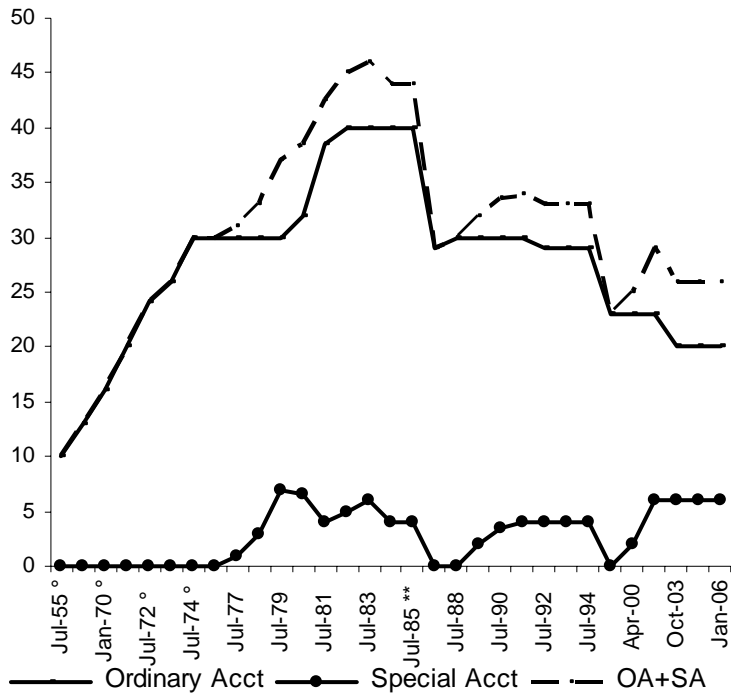
Derived from http://www.cpf.gov.sg/cpf_info/Benefits/Asset/cpfishdbk.asp#app1

Figure 1. CPF Membership Through Time (M)



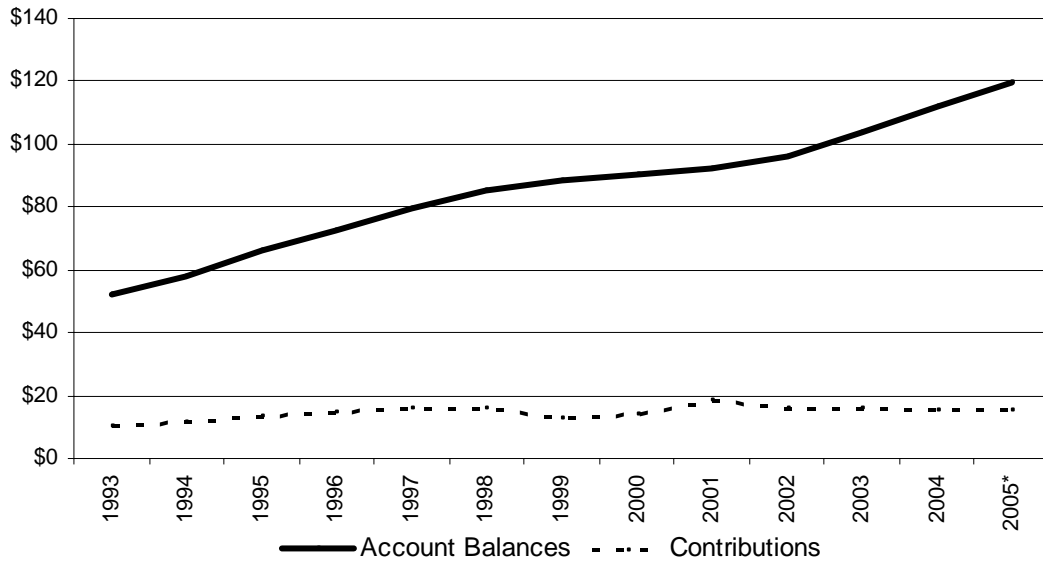
Source: http://www.cpf.gov.sg/cpf_info/goto.asp?page=about_us.asp and CPF 2004 Annual Report

Figure 2. Contribution Shares to CPF OA and SA Accounts Over Time
(workers age 35-44)



Source: http://www.cpf.gov.sg/cpf_info/goto.asp?page=about_us.asp
and CPF 2004 Annual Report

Figure 3. CPF Assets and Contributions Over Time (nominal S \$B)



Source: Table 3

Figure 4. Cumulative Contributions to Various CPF Accounts Since Inception
Source: Table 7.

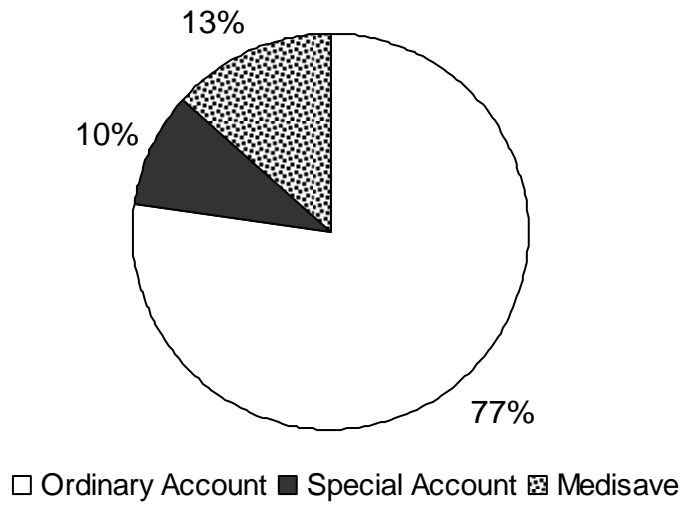
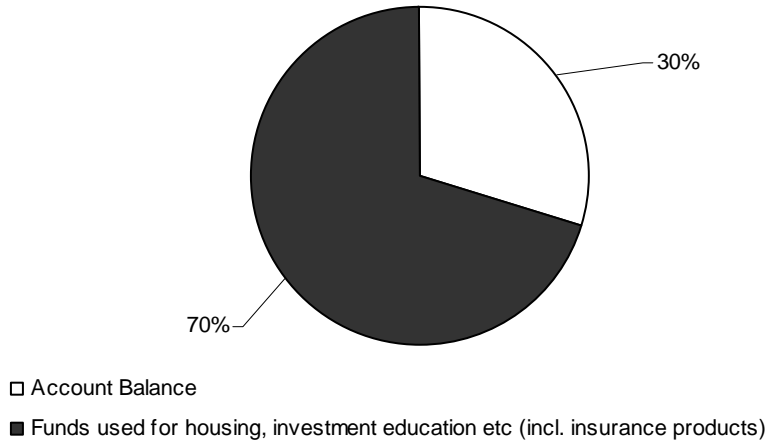


Figure 5. Portion Invested and Balance Remaining in OA and SA Accounts
Source: Table 7.

A. Portion of Balance Remaining in OA Account vs Used for Investment



B. Portion of Balance Remaining in SA Account vs Used for Investment

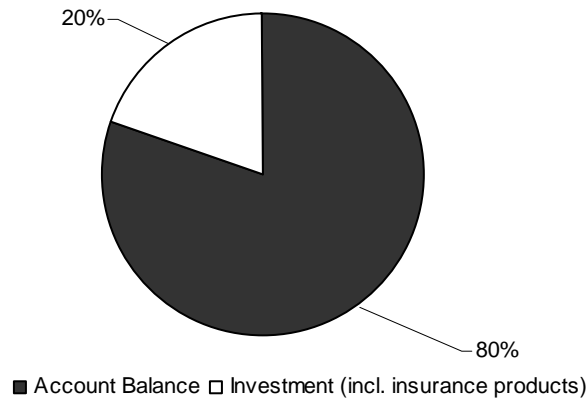


Figure 6. Cumulative Use of CPF Funds (OA and SA combined)

Source: Table 7

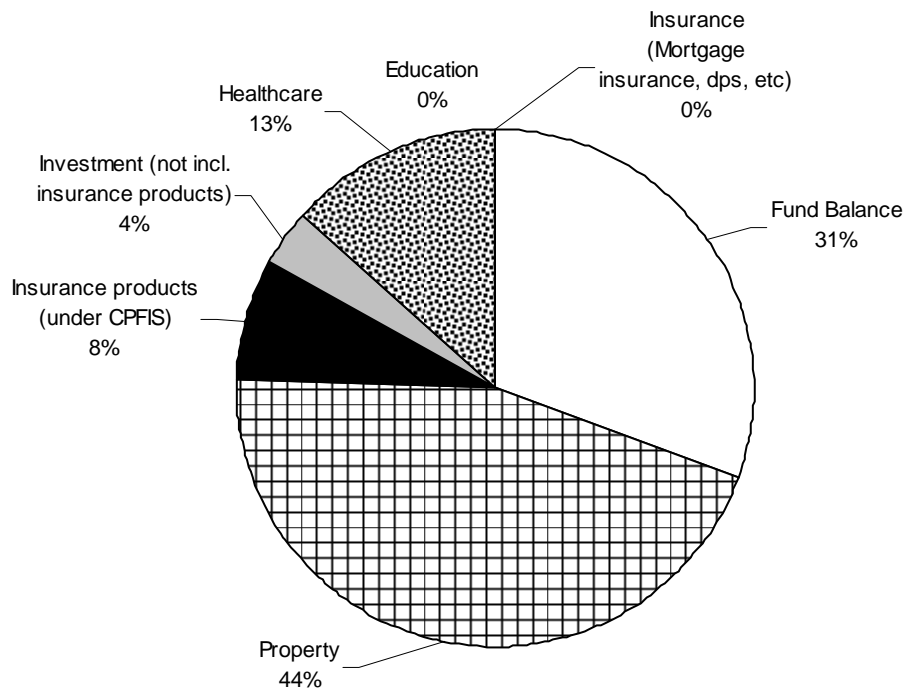
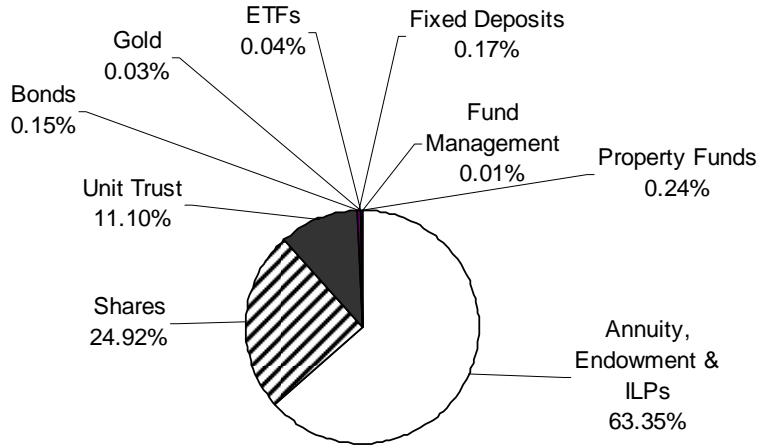


Figure 7. Proportionate Use of CPF Funds Since Inception

Source: Data kindly provided by CPF Board; values are as of Sept 30, 2005.

A. CPFIS-Ordinary Account



B. CPFIS-Special Account

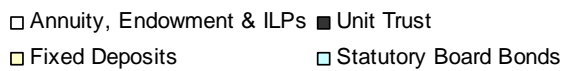
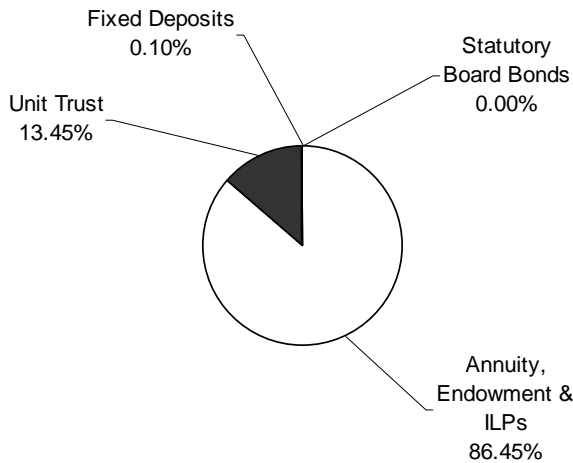
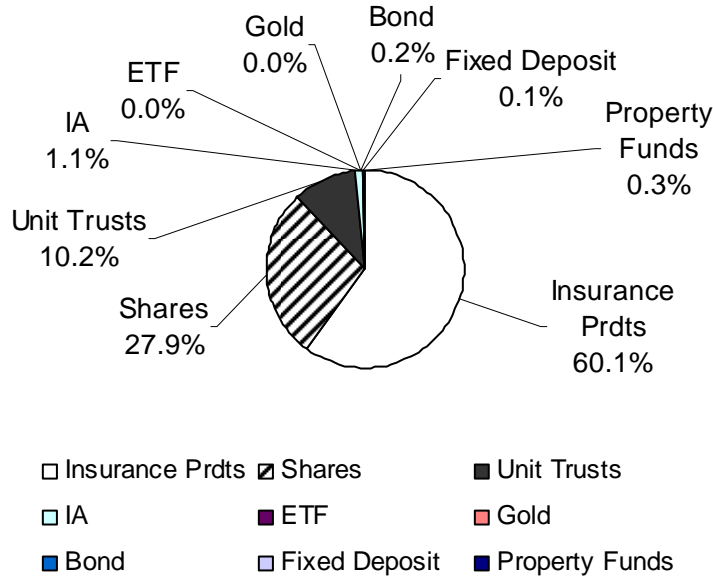


Figure 8. Investment Patterns for Men and Women in CPF Accounts

Source: Data kindly provided by CPF Board; values are as of Sept 30, 2005.

A. Men



B. Women

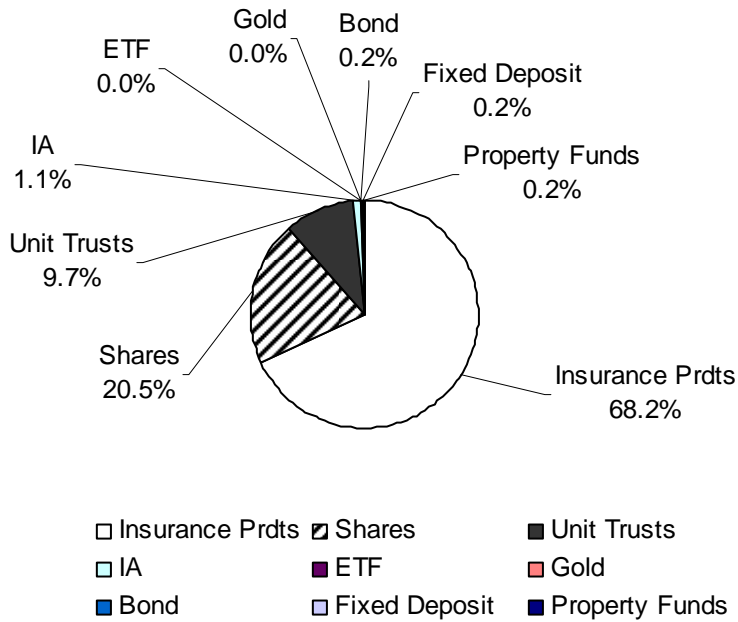
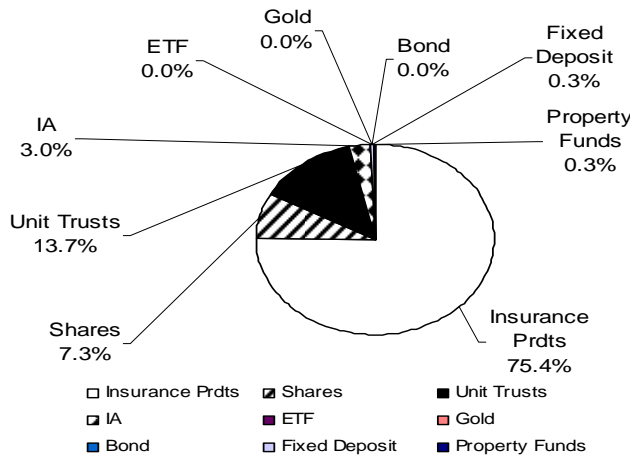


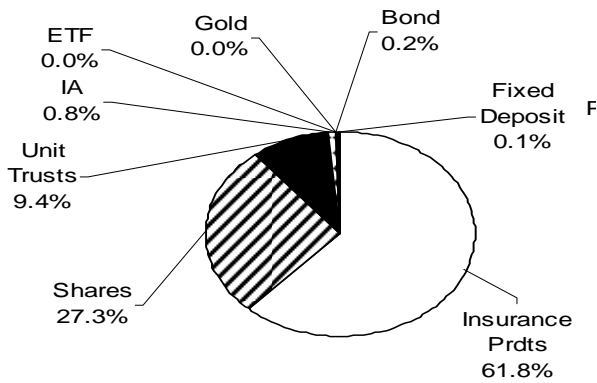
Figure 9. Asset Allocation in Investment Scheme, by Age

Source: Data kindly provided by CPF Board; values are as of Sept 30, 2005.

A. Young Adult (21-35)



B. Middle Age (36-55)



C. Mature (>=56)

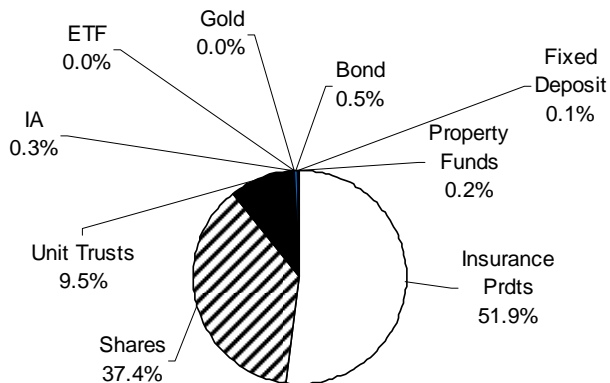
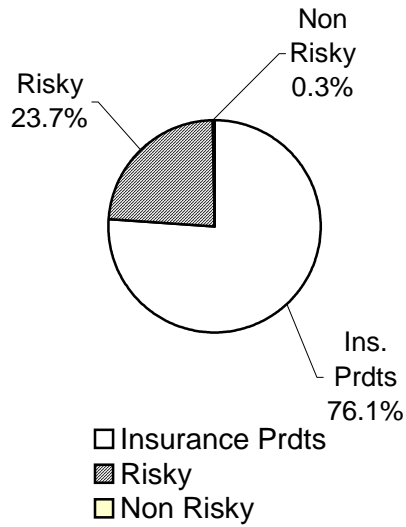


Figure 10. Asset Allocation According to Risk Type, by Income²⁴

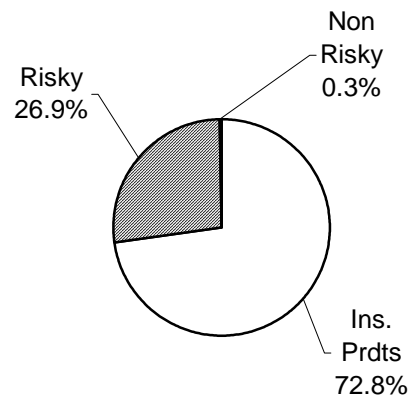
Note: Risk level of insurance products cannot be evaluated in this figure.

Source: Data kindly provided by CPF

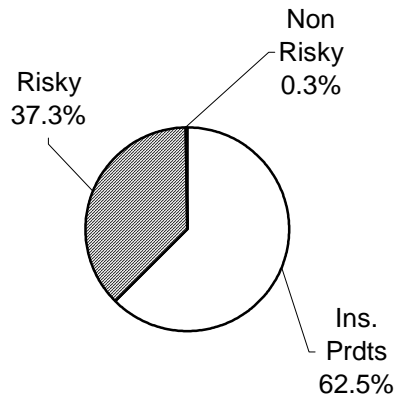
A. Low Income (<S\$1,500/mo)



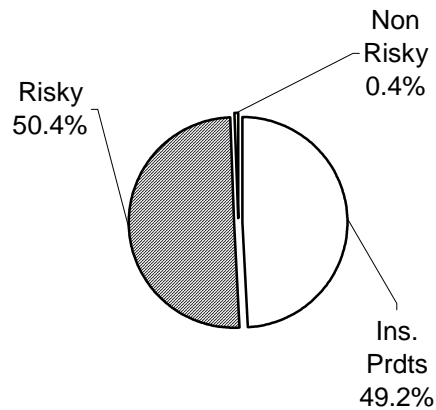
B. Low-Middle Income (S\$1501-S\$3,500/mc)



C. Middle-High Income (S\$3,500-\$6,000/mo)



D. High Income (>S\$6,000/mo)



²⁴ Participants with positive income only are included.