

Cost Structures of Investment Offerings in Singapore's Central Provident Fund

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Abstract

As policymakers seek to enhance the returns paid on participants' investments in their retirement systems, much attention has focused on the Singaporean Central Provident Fund (CPF) and how professionally-managed unit trusts permitted under the CPFIS scheme fit into the system. This paper begins by indicating the investment choices made available to participants; we also summarize the various transaction costs associated with unit trust investments. Next, we examine the determinants of these costs and investigate which factors have a bearing on the cost structure of unit trusts. Our empirical results show that foreign ownership, active style of management, and equity/balanced funds are associated with higher expenses. The paper concludes with a discussion of policy options to reduce cost associated with CPFIS included unit trusts.

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Rapid population aging is focusing policymakers' attention on ways to maximize the effectiveness of workers' retirement saving. This is particularly true in Singapore, where the country's fast-aging citizenry and high cost of living makes it crucial for workers to build up a sizeable nest egg by the time they retire. This paper focuses on how one of the world's oldest and most prominent retirement schemes, namely Singapore's national Central Provident Fund (CPF), is evolving in response to the perceived need for modernization against the backdrop of an aging workforce and region. As Singapore has one of the world's lowest fertility rates (at around 1.2 per 1,000) and longest life expectancies (over age 80 at birth), the country will soon have a higher fraction of elderly of all developed nations other than Japan.

For this reason, it is useful to examine how participants' investments in the defined contribution system 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. Specifically, this paper focuses on the costs associated with professionally-managed unit trusts offered under the CPF Investment Scheme (CPFIS). First, we briefly describe how the CPFIS fits into household portfolios and indicate the investment choices made available to people in the system. Second, we examine the sale charges and transaction fees paid by investors when investing into a CPFIS unit trust. Third, we consider the ongoing operating expenses paid by unit trusts to cover portfolio management, fund administration, and other miscellaneous costs of operating the unit trust. Fourth, we examine the determinants of these costs and assess whether

factors such as size of fund, types of fund, and type of ownership, have a bearing on the cost structure of unit trusts. Last, we summarize and offer some thoughts regarding policy options.

Investment Choices under the Singaporean Central Provident Fund

Singapore's CPF is a mature social insurance scheme covering more than 3 million members (Koh et al. 2007). Established in 1955 as a mandatory saving program,¹ CPF assets today represent a sizeable portion of Singaporean household assets. As shown in Table 1, a significant portion of household wealth is held in balances in CPF accounts; for instance, in 2000, CPF balances (net of withdrawals) represented 13% of Singaporeans' total wealth; by 2005, this had grown to almost 15%. Yet not all CPF savings are held in liquid assets, inasmuch as account holders have also been permitted to use their CPF savings to purchase properties, insurance products, and other investments. Table 1 also shows that 46% of household assets are held in residential property; a substantial portion of these holdings were also financed with CPF saving (McCarthy et al. 2002). This amounts to \$375,936million (end 2005), of which about \$116,681 million (or 31%) was funded with CPF savings withdrawn through the CPF Housing Scheme (Table 2). Adding this to the CPF savings held in liquid assets, CPF savings as a whole clearly represents a sizeable portion of households' total wealth. Therefore, it is important that CPF account holders be proactive in maximizing investment returns on CPF savings.

Tables 1 and 2 here

The CPF scheme has evolved over the years. Initially, Singaporeans tended to leave their retirement savings by default in the government-managed ordinary account (OA) and special account (SA) earning a government-set rate of interest of 2.5% and 4% per year respectively. As of 1986, to help participants enhance returns on their saving, the government introduced the

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

Approved Investment Scheme (AIS) (CPF 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 their OA and SA money, and in 2001 the entire SA account was permitted to be thus invested. The menu of permitted CPFIS funds includes unit trusts and investment-linked insurance products (ILP) into which CPF participants may invest their mandatory saving (CPF 2007a). Despite this liberalization, the bulk of CPF saving today is still held in the government-managed default fund. As of Dec 2006, only 28% of available funds had been tapped for investment outside the government's CPF fund. Another \$79 billion is held in the investment saving scheme but has not been actively invested (Table 3). A higher percentage (31%) of OA assets available was invested in the non-governmental funds, as compared to SA assets (20%).

Table 3 here

One finding that can be drawn from the data is that most Singaporeans have not actively selected from the menu of CPF investment options in their quest to grow their saving. One explanation might be that CPF members seek less risky assets for their SA assets as these are earmarked for old-age savings, versus OA assets which can be used for a variety of purposes such as housing, education, and insurance. Also, the "default" rate of return paid to those who keep their money in the CPF may be deemed safe, compared to being exposed to the vagaries of financial markets. Alternatively, the inertia demonstrated by CPF members may be attributed to the fact that participants may simply not know what to invest in and how to invest. Being perplexed, members may choose the path of least resistance (Chen et al. 1997; Mitchell 1988) which in the Singaporean case is to simply leave their funds with the CPF and earn the guaranteed return.

For members who do invest under the CPFIS, the bulk of their saving is invested in stocks, insurance policies, and unit trusts (Koh *et al.* 2007). Stocks include equity and loan stocks listed on the Singapore exchange, traded in Singapore Dollars, and offered by companies that are incorporated in Singapore. Insurance policies refer to annuities, endowment policies, and investment-linked insurance products offered by insurance companies included under the CPFIS. Unit trusts (also known as collective investment schemes) refer to professionally-managed funds offered by fund management companies included under the CPFIS. In Singapore, all unit trusts must be established by a trust deed. The trust deed is a legal document that sets out the trust objective and the working arrangement between investors, the fund manager and the trustee. Different unit trusts may have different investment objectives, different styles of management and different levels of equity risk depending on their portfolio allocation.²

Table 4 shows how the CPFIS monies were held, as of end Dec 2006. Interestingly, two-thirds (67%) of amounts invested were in insurance policies. By comparison, only 16% was invested in stocks, while 14% was invested in unit trusts. In other words, the \$4.2 billion invested into unit trusts is small compared to the \$20.9 billion invested in insurance policies. The low penetration rate of unit trusts under CPFIS is relatively low compared to the success of the booming mutual fund industries in Europe and the US. Further, unit trusts offer investors several advantages: they allow investors to diversify their holdings and they are highly liquid investments which can be bought and sold easily. And CPF members who cannot access regional bourses directly under the CPFIS can invest in them via professionally managed vehicles such as unit trusts.

² In the United States, a unit investment trust generally refers to a fixed, unmanaged portfolio of income-producing securities. Shares in the trust are sold to investors who received capital gains, dividend payments and interest at regular periods. A unit investment trust is typically considered a low-risk, low-return investment. Unit trusts in Singapore are more comparable to mutual funds in the US.

Table 4 here

Nevertheless, participants may be slow to move their investments away from the CPF because CPFIS funds present a daunting array of fees and charges, minimum initial investments, and other fund features, making it difficult for the unsophisticated investors to know what to elect. Swamped by the different types and layers of costs of the 231 existing unit trusts, CPF members may therefore hesitate to hand over their retirement savings to professional fund managers (CPF 2007e). In such cases, as has been demonstrated in other research, investors tend to choose the path of least resistance (Choi et al. 2004). In the Singaporean context, this path would be to leave their saving in the default government-managed and interest-rate guaranteed CPF-OA and -SA accounts. Of course, for many, this may be a sensible choice. For their retirement savings to grow consistently over time, investors should not look only for high-yielding instruments but must also be attentive to holding down costs. Next, we turn to an examination of these .

Sales Charges and Transaction Fees Paid By CPF Investors

This section looks at two important cost drivers affecting savers' net return on saving: sales charges and transactions fees.

Sales Charges. Singaporeans investing in unit trusts are familiar with the sales charge; this is generally reflected in the bid-offer spread of the unit trust. For unit trusts offered under the CPFIS, the sales charges range from 0% to 5% of the initial amount invested (CPF 2007c). Accordingly, sales charges constitute a hefty portion of the overall costs of investment and have a significant impact on the net return from retirement savings invested. Delving deeper, however,

we note that the sales charge (or more correctly the initial sales charge) is just one of the many types of fees payable directly by investors.

Table 5 shows various types of fees that a CPFIS-included unit trust may levy on investors, including an initial sales charge, a transaction charge on purchase, a realization charge, a redemption fee, and a switching fee. Comparing this to the fee structure for US mutual funds, the initial sales charge plus the transaction charge on purchase would be equivalent to a front-end sales load; the realization charge would be the equivalent of a back-end sales load. It should be noted that the majority of CPFIS-included unit trusts charge only the initial sales charge; only a handful of unit trusts levy a low 1% realization charge (even though most funds specify a maximum realization charge provision in their prospectuses). For those unit trusts which invest in underlying sub-funds, the underlying sales charges, if applicable, are borne by the unit trust and not charged directly to investors. This means that CPFIS investors generally do not have to worry about an additional layer of sales charges from underlying sub-funds. If there are other transaction costs of investing into the underlying sub-funds not borne by the unit trust, however, this may be levied on investors as a ‘transaction charge on purchase.’ While such cases are rare, the transaction charge on purchase nonetheless represents another layer of costs over and above the initial sales charge.

Table 5 here

Most fund distributors in Singapore currently report only having an initial sales charge; this is consistent with the website developed by the Investment Management Association of Singapore (IMAS 2007) which reports only the initial charge³ for each permissible unit trust.

³ A quick comparison with figures in fund prospectuses in end Dec 2006 shows that the “initial charges” reported by IMAS may refer to the initial sales charge or the sum of sales charges. For instance, IMAS included the realization charge in the “initial charges” reported for five funds but omitted it for one fund. In another case, the “initial charges” reported included a transaction charge on purchase.

Regarding movements out of the fund, investors must often pay redemption fees if they redeem their shares in the unit trust shortly after purchase. Usually, a redemption period (e.g. 90 days) is specified in the fund prospectus. A switching fee is generally imposed on investors only when they switch between share classes or funds; in some instances, this fee may be waived by fund administrators.

Searching through individual fund prospectuses to ferret out all these expenses beyond the initial sales charge is tedious work. Consequently, many CPFIS investors may not be readily able to assess and compare total costs of buying, owning, and selling different unit trusts. A more natural way to help CPFIS investors better assess the total loads might be to capture and combine the initial sales charge, transaction charge on purchase, and realization charges, in a single measure called the sales load. This measure would allow investors to see the sale charges in their entirety should they decide to buy into a unit trust now and exit at a later point in time. In addition, this summary measure would prevent unsophisticated investors from relying purely on the initial sales charge data reported by fund distributors, which could be an understatement of total loads. Further, even funds that do not currently levy a realization charge or back-end load now may do so in future, and informing the investor of this in a centralized manner could also enhance consistency in reporting.

Transaction Fees and Agent Bank Fees. Besides having to pay the sales loads, those investing in CPFIS-included unit trusts may also have to pay a myriad of transaction fees to agent banks and fund distributors, which can vary depending on the source of the money being invested. For instance, those who invest their OA monies generally pay higher transaction fees than those who use their SA saving. This is due to the role of agent banks as financial intermediaries⁴ under the

⁴ The agent banks are appointed to maintain members' CPF Investment Accounts under the CPFIS-OA as they have an extensive network of branches and facilities to support the investment and settlement of

CPFIS-OA, thus contributing to another layer of fees for potential investors. CPF members who wish to invest their OA monies are required to open a CPF Investment Account with one of the three agent banks. These agent banks then liaise with the CPF Board and various product providers to settle investor trades and help track investment holdings. (Conversely, those retaining their monies in the CPFIS-SA account do not pay these extra fees directly as the CPF Board liaises with the various product providers directly.) Table 6 shows the agent bank fees applicable under the CPFIS-OA. These include a transaction fee for buy, sell, and switching⁵ transactions, as well as a quarterly service charge of minimum \$2-5 collected by the agent bank for servicing each active CPF Investment Account. Interestingly, the actual quantum of agent bank fees paid may vary quite significantly, depending on whom the investor transacts with.

Table 6 here

Assuming the investor purchases five lots of shares through a traditional distributor,⁶ he will incur the \$2 - \$2.50 transaction fee per lot of shares purchased. This is regardless whether the five lots of shares are from a single fund house or from five different fund houses. Money is individually drawn from the CPF agent bank account for the purchase of each lot even if the five lots are bought at the same time. He will also have to pay the \$2 service charge per unit trust fund per quarter, which adds up to \$10 per quarter for five funds. In comparison, if the investor consolidates his purchases and transacts through an Investment Administrator (IA⁷), he will only

shares and bonds listed on the Singapore Exchange. The agent banks' electronic banking services such as ATMs are easily accessible and allow members to conveniently apply for shares or bonds during an IPO. The banks are also able to handle the complex processing of corporate actions such as bonus and rights issues, dividend payments and schemes of arrangement under the CPFIS-OA (CPF, 2007b).

⁵ A switching transaction will involve a buy transaction plus a sell transaction.

⁶ Traditional distributors may include a distributing bank or an online distributor. Generally, online fund distributors charge lower front-end fees than brick-and-mortar distributors like banks and brokerages (CPF, 2007c).

⁷ The first IA platform was launch by Navigator Investment Services Ltd as early as three years ago in March 2004. As at end Dec 2006, there were three CPF-registered IAs.

pay a single \$2 - \$2.50 transaction fee for the five funds purchased in a single transaction; in other words, the transaction fee will not depend on the number of funds (and units of shares in the funds) purchased.

The source of this differential is that an IA uses a wrap account structure, which as the name implies, “wraps” the investor’s investments under one account. As such, the IA will draw the consolidated amount invested directly from the CPF agent bank rather than have each of the individual fund houses do so. In addition, because multiple investments are now wrapped under one account, the investor only needs to pay \$2 in service charge per quarter regardless of the number of funds held. Thus, CPFIS investors who transact through an IA under the wrap account structure may save on agent bank charges and also enjoy discounts on other charges such as sales load and switching fees (Table 6). Nonetheless, under the wrap account structure, investors typically must pay an annual advisory fee (or ‘wrap fee’) to the IA for investment advice accompanying product recommendations. The CPF website states that this wrap fee may amount to as much as 1.5% of the value of the investor’s holding. In addition, an IA may allow investors a choice between paying an upfront sales charge or a deferred sales charge. Under the second option, investors will have to pay an annual establishment fee over say, the first five years of the investment period. Effectively, the sales charge is now spread across the investment horizon. As a safeguard, the IA may also charge exit fees should the investor make any withdrawals within the first five years.⁸ The practice of charging a ‘wrap fee’ is becoming more widespread among financial advisory firms and insurance companies in Singapore (Tan 2006). As the wrap fee is neither considered part of the sales load nor operating expenses of the unit trust, unwary or uneducated investors may not be fully apprised of these additional charges. Accordingly, it is

⁸ Navigator Investment Services Ltd, for example, provides investors with this deferred sales charge option and the annual establishment fee is charged on a quarterly basis, or part thereof, on the applicable investment amount.

worth exploring further how transaction fees such as agent bank fees and wrap fees might be better communicated and perhaps regulated, as the CPF investment scheme evolves.

Operating Expenses Paid by Unit Trusts

In addition to sales charges and fees paid by investors, unit trusts themselves also incur various operating expenses such as management fees, trustee fees, administration fees, custodian fees, registrar fees, audit fees, accounting and valuation fees, and other fees.⁹ These operating expenses are paid by unit trusts directly, but of course they are passed on to investors inasmuch as such expenses reduce the net return paid on CPF investments.

To inform consumers about high operating expenses charged to the unit trust which might deplete gross returns, IMAS has developed an aggregate measure called the *total expense ratio* to capture a fund's operating expenses expressed as a percentage of that fund's average NAV¹⁰ over a given time period. This aims to create a level playing field, so investors may be properly informed of the costs of having their funds managed and also to enable meaningful comparison across funds with different cost structures (IMAS 2005). Table 7 summarizes these various fund expenses for the computation of expense ratios, according to IMAS (2005) guidelines.

Table 7 here

It is interesting to note that IMAS guidelines are comparable in the main to those employed for mutual fund reporting in the US. There, as in Singapore, brokerage commissions and bid-ask market impact costs for securities purchased by the fund manager are excluded from expense ratios. Singaporean fund managers are required to make quarterly disclosures of fund

⁹ Other fees include service fee, asset allocation fee, legal fee, printing fee and distribution fee.

¹⁰ The NAV of a unit trust is the value of the unit trust fund's assets less its liabilities.

expense ratios to investors and the CPF Board; investors may also access these ratios on IMAS' website. In the US, similarly, expense ratios are reported on the fund prospectuses. Contrarywise, brokerage commissions for the sale of the investment (e.g. from a broker to an individual) are considered as separate and not included in expense ratios. (In the US case, 12-b-1 fees are generally included.)

The total expense ratios (or annual fund operation charges) of CPFIS-included unit trusts currently range from 0% to 7.1% of NAV (CPF 2007c). This range is rather wide, perhaps because fund administration fees differ significantly from fund to fund. For example, the annual management fee component alone varies between 0% and 3% of NAV (CPF 2007c). Another possible reason for the variation might be that there is no mechanism for investors to verify the accuracy of these publicly reported expense ratios.¹¹ Along these lines, it is interesting that Mercer Investment Consulting (2002) acknowledged in its 2002 Performance and Risk Monitoring Report for CPFIS-included funds that it had attempted to check the expense ratios submitted by the fund management companies for reasonableness, but it did not take responsibility for the accuracy of the calculations. To support CPFIS investors in their decision-making, it may be useful for the CPF Board and its consultants to look into further standardization of the way in which expense ratios are computed across fund companies, thereby increasing the transparency of the reporting process.

¹¹ Expense ratios are furnished by fund management companies and insurers. These ratios are made available to the public through the quarterly Performance and Risk Monitoring Reports for CPFIS-included funds published by Standard & Poor / Morningstar and are also be found on IMAS website. These expense ratios are supposed to be calculated according to IMAS latest guidelines.

Characteristics and Determinants of Unit-Trust Costs

To examine the links between costs and fund characteristics, we have compiled the fees and charges of CPFIS-included unit trusts from individual fund prospectuses, covering virtually all aspects of costs. This results in a sample of 235 unit trusts representing 97% of the CPFIS-included unit trusts (as of 30 June 2006). This dataset includes a wide range of unit trusts characteristics such as size, age, type, and ownership. For analysis purposes, we determined that the following aspects of each fund would be of most interest:

- Fund size, or value of assets under management;
- Age of fund, or years since launch date;
- Fund ownership indicating (a) whether the unit trust is managed by a foreign or domestic (Singaporean) fund management company and, (b) whether the fund management company is bank-related or not;
- Style of fund management, or whether the unit trust is actively-managed or a passive, indexed fund;
- Type of fund, namely whether it was an equity, balanced, income, or cash fund.

In what follows, we first offer some descriptive statistics on the funds, and then turn to a multivariate analysis of fund costs.

Descriptive Characteristics of CPFIS-included Unit Trusts. Under Mercer's risk classification system,¹² CPFIS funds may be classified into four risk categories based on their level of equity risk; in practice, the majority of funds are classified as either in the medium-to-high or higher risk categories. As Figure 1 indicates, the bulk of the unit trusts in our sample (82%) are equity or balanced funds. It is also interesting to note (see Table 8) that these equity and balanced funds are quite expensive. That is, the average sales load of the equity and balanced funds hovers around 5%, higher than the 2.1% for income funds, and 0.1% for money

¹² Mercer Investment Consulting, CPF Board's consultant, developed a risk classification system for the CPFIS that assigns various risk levels to permitted investments. The unit trust or ILP with a greater proportion of its assets invested in the more volatile stock market will have a higher equity risk. Based on its level of equity risk, the unit trust or ILP will be assigned one of the 4 risk categories.

market funds. Likewise, the average expense ratios of the permissible equity and balanced funds are highest among fund types. This is not surprising, given the higher monitoring and fund administration costs associated with equity and balanced funds, although part of the up-front costs may perhaps indirectly¹³ be compensating these 193 funds for having to compete and vie for individual CPFIS investors' attention.

Figure 1 and Table 8 here

Turning to fund management style, it can be hypothesized that passive funds (regardless of fund type) would be less expensive to manage than actively-managed funds, due to lower turnover of securities and less required monitoring. Table 9 supports this view with passive equity funds having average sales loads that are more than 50% below the sample mean. Similarly, the average management fee is 46% lower and the average expense ratio is 45% lower than the respective sample means. These large cost differences are important from an investment perspective. In the balanced funds category, passive funds enjoy lower costs than the actively-managed ones; sample differences are smaller, since among these, the balanced ones prove to be only partially passive, whereas the equity funds are wholly passive.

Table 9 here

Turning now to ownership, Table 10 shows the classification of 22 fund management companies offering unit trusts under CPFIS. On the one hand, unit trusts offered by foreign entities may be more expensive due to higher administrative costs associated with the need to advertise and compete in the Singapore marketplace, compared to those offered by domestic entities, especially the three local banks which have a home advantage as their brands are firmly established in the minds of most Singaporeans. On the other hand, foreign unit trusts may be less

¹³ The Code on Collective Investment Schemes issued by MAS prescribed that all marketing, promotional and advertising expenses incurred in relation to the Fund are to be borne by the Fund Manager.

expensive as they are almost 10 times larger in terms of asset size (as of June 2006; see Table 11); accordingly they may be able to translate their economies of scale into lower fees for investors. Table 11 also indicates that three of the four domestic fund companies are affiliated with local banks, while only four of 18 foreign fund companies have such affiliation.

Tables 10 and 11 here

Table 12 suggests that the first effect dominates since the unit trusts offered by foreign entities appear somewhat more expensive. For example, the average sales load and average expense ratio of foreign funds in our data exceeded those of domestic funds by about 80bp and 42bp respectively. This implies that the first-year total cost¹⁴ of a foreign fund is, on average, 122bp (or 1.22%) higher than a domestic fund. There are several reasons why domestic funds are less costly. One reason may be that all the eight passive unit trusts under CPFIS are offered by domestic companies. These passive funds are generally low-cost and thus reduce the overall average costs of domestic funds. Also, examining the characteristics of the foreign versus domestic funds in Table 11, one will notice that 18% of domestic funds charge performance-related fees as compared to only 12% for foreign funds. This implies that domestic funds may be able to offer lower charges because they can cost-recover in other ways. This gives rise to the question of whether fund companies that are bank-related are able to exploit opportunities for cross-selling in order to grow asset size, and thus lower fees and charges through scale economies. The lesson, therefore, is that investors must therefore pay careful attention to the entire spectrum of investment costs and not simply focus on any single cost component.

¹⁴ The 'first-year total costs' figure computed in this study is derived by adding average sales load to the average expense ratio. Two points are worthy of further note. (i) Although the average load is expressed as a percent of the amount invested and expense ratio is expressed as a percent of the average NAV, these bases should more or less be equal as long as the fund is not growing rapidly. (ii) A more precise way to compute 'first-year total costs' might be to convert the sales load into an *annualized load* to align it with annual expense ratio component.

Table 12 here

Another possible determinant of costs may be size of fund; studies in other countries suggest that as the assets under management rise, there would be an expectation of economies of scale (Bateman and Mitchell. 2004; Mitchell 1998). To verify whether fund size has an impact on cost of unit trusts in the CPFIS context, we split the sample into 10 asset deciles. Table 13 shows that the bulk of CPFIS-permitted unit trusts (219 of 235) are quite small, and fall into the first decile; the aggregate value of assets managed by each of these 219 unit trusts is less than S\$500 million, of which half of these actually manage assets less than S\$50 million (see Figure 2). The remaining 16 larger funds are spread across the various deciles. Interestingly, and somewhat unexpectedly, sales loads and management fee appear not to decline with fund size; it may be that unit trusts simply do not compete along this cost dimension (Our empirical analysis in the next section shows that size of fund has some bearing on the first-year total cost of unit trusts but not the sales load and management fee). It is worth noting that, though there are many unit trusts, they are offered by a small set of fund management companies. The concentrated nature of the unit trust industry may explain, to some extent, why there is such a stable charge structure by size. It may be sensible public policy to encourage scale economics via the consolidation of smaller unit trusts, as well as to publicize more effectively the erosive effect of these fees on net returns.

Table 13 and Figure 2 here

Multivariate Regression Results. Next, we turn to a multivariate investigation of the factors affecting the cost of investing in unit trusts. Descriptive statistics are shown in Table 14, where we see that sales loads of unit trusts in our sample range from 0% to 6.25%, management fees from 0% to 2.04%, and total first-year costs from 0.44% to 10.57%. The value of assets managed

by the unit trusts varies widely from S\$0.35 million to S\$45,108 million with a mean value of S\$425 million. Some of these funds are relatively new, established only months ago, and the oldest fund has been in the market for 47 years. Some two-thirds (62%) of the unit trusts are foreign-owned, 97% are actively managed, 47% are affiliated with banks, 71% are equity funds, 11% are balanced funds, and 17% are income funds with the remaining 1% money market funds.

Table 14 here

To identify the key determinants of one-off sales loads and annual operating expenses of unit trusts, we have run regressions of unit trust costs on the key characteristics of unit trusts as follows:

$$C_i = \alpha_0 + \alpha_1 \ln(\text{size}_i) + \beta_1 D_1 + \beta_2 D_2 + \beta_3 D_3 + \beta_4 D_4 + \beta_5 D_5 + \beta_6 D_6 + \varepsilon_i,$$

where C_i is the % cost of the unit trust in basis points, $\ln(\text{size}_i)$ refers to the natural log of fund assets, and D_1 to D_6 refer to fund characteristics such as foreign ownership, active fund style, bank-related fund and types of fund. We run the regression with three different definitions of costs: sales loads (Column 1), annual management fees (Column 2) and first-year total costs (Column 3). The regression results are reported in Table 15, where significant F-statistics and the relatively high R^2 statistic indicates that the independent variables selected are important in accounting for differences in unit trust costs.

Table 15 here

It is of interest that – of all the unit trust characteristics considered – ownership, style of fund management, and type of fund are the most significantly associated with the cross-sectional variation in all three dependent variables. Foreign-owned funds charge 42 basis points more sales load than locally-owned funds, 16 basis points more management fees, and 53 basis points more first-year total cost. Actively managed unit trusts also charge higher sales loads than passive

funds by 136 basis points, management fees of 41 basis points, and first-year total cost of 202 basis points. The cost structures for various types of unit trusts are also significantly different. Equity and balanced funds charged more in terms of sales load and management fees than do income funds, while money market fund charge much less. Table 15 also shows that size of fund is significant in explaining the differences in first-year total cost of unit trusts but not the sales load and management fee. Larger funds charge 8 basis points lower total cost than smaller funds. The other variables, such as age of fund, and bank affiliation, do not account for differences in the sales loads and management fee of unit trusts included in the CPFIS.

Factors Influencing Unit Trust Investment Costs

Despite the increased attention devoted by the CPF Board to standardization of reporting of investment costs, this analysis has shown that it is still a difficult matter to factor in the variety of back- and front-end loads, annual asset-based and fixed charges, and wrap fees. As Prime Minister Lee Hsien Long (2005) recently noted (*emphasis added*):

“[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.

In this light, it is interesting to note that the composition of CPFIS-included unit trusts have not changed much over time. Table 16 shows that there were 440 CPFIS-included funds as

at September 2006, compared to 240 funds in September 2001. Although this represents a substantial time series increase in the number of funds, the composition of funds by risk category remained essentially the same. In particular, about 80% of the CPFIS funds offered remained in the “medium-high” and “higher” risk categories. Given our results that the type of fund is a key determinant of unit trusts’ cost structure, this may explain why the high sales load and management fees have persisted since the start of the CPFIS.

Table 16 here

Passive Funds. Our results also show that passively managed funds charge relatively lower sales charge and management fees. Yet currently there are only 8 passive unit trusts offered by two local banks included in the CPFIS (see Table 17), representing a mere 3% of the overall number of CPFIS-included unit trusts. It is also surprising that there are no passive funds offered by foreign fund management companies. Accordingly, one way to encourage more investment outside the default CPF accounts might be to increase the offering of passive or indexed funds in the Singaporean context. Passive funds are often deemed suitable for novice investors who are not sufficiently confident to select their own stocks or unit trusts; they may also be suitable for long-term investors seeking growth but who lack the time to actively manage their investments.

Table 17 here

Life Cycle Funds. Another alternative investment approach for underconfident or naïve investors would be to spur the growth of life cycle funds in the Singaporean marketplace. These are funds that automatically rebalance participants monies as they age, moving from more to less aggressive, without the investors needing to constantly monitor and balance their investment portfolios. Table 18 shows the 6 CPFIS-included Life Cycle funds offered by Fidelity and a domestic bank, UOB, and as yet, these are still relatively small. Life cycle funds are becoming

quite popular in the US, particularly for pension and retirement planning, due to their simplicity and effectiveness (AllianceBernstein 2007; Vanguard 2007). For instance, assets under management with five major providers of life cycle plans in the "defined contribution plan" market segment was nearly USD\$100 billion as at end-2005 (Mercer Investment Consulting 2006). In 2006, the US Department of Labor issued regulations permitting Life Cycle funds to be the default investment for participants who do not opt for any other portfolio allocation. It is possible that spurring institutional class Life Cycle funds in the Singaporean environment might be another cost-effective way to help investors diversify and rebalance according to the investor's life stage.

Table 18 here

No-load Unit Trusts. The US experience also indicates that the growth of the no-load funds segment can be a key contributor to an overall decline in the fees and expenses of investing in mutual funds. In fact, no-load funds are quite popular with US investors and the net new cash flow to this segment has grown in recent years (ICI 2006). Originally, no-load share classes were offered by US mutual fund sponsors that sold directly to investors; nowadays, investors can purchase no-load funds through employer-sponsored retirement plans, mutual fund supermarkets, discount brokerage firms, and bank trust departments. This has resulted in tremendous growth of the no-load funds segment.

US mutual funds are often classified according to the class of shares that fund sponsors offer to investors: primarily load or no-load classes.¹⁵ Load classes generally serve investors who hold funds through financial advisers; no-load fund classes usually serve investors who purchase funds without the assistance of a financial adviser or who choose to compensate the financial adviser separately. Some financial advisers who charge investors separately for their

¹⁵ No-load share classes have no front-end load or CDSL and have a 12b-1 fee of 0.25% or less.

services rather than through a load or 12b-1 fee also use no-load share classes. It appears that the Singapore could also explore this concept of using no-load share classes to simplify cost structures, since the practice of financial advisers charging CPFIS investors a wrap fee for their services (while offering them waivers on sales loads in certain cases) is becoming more widespread.

Table 19 shows the 14 CPFIS-included unit trusts, comprising two money market funds and 12 income funds that do not charge sales loads. The evidence in Table 19 also suggests that these no-load unit trusts have relatively easily-understood cost structures, in that they do not report substantial operating costs other than the annual management fee. The fact that these do not burden the investor with a myriad of fees and charges may suggest that this type of fund may be worth investigating further.

Table 19 here

Wrap Fees. Until about 25 years ago, US fund shareholders could only compensate financial advisers for their assistance through a front-end sales load. When the U.S. Securities and Exchange Commission (SEC) adopted Rule 12b-1 extending the Investment Company Act of 1940, shareholders were then permitted greater flexibility in compensating financial advisers. The amount of 12b-1 fees that shareholders pay through mutual funds has risen from a few million dollars in the early 1980s to almost \$11 billion in 2005 (SEC 2007). The increase in total 12b-1 fees also reflects a shift by mutual funds and their investors from front end sales loads, to 12b-1 fees as a mechanism to compensate financial advisers. As funds have added 12b-1 fees, the typical front-end sales load has declined from 8% in 1980 to 5% in 2005 (ICI 2006). Most load funds now also offer classes of shares that have 12b-1 fees but no front-end loads.

In the Singaporean case, as noted above, the wrap fee is not considered part of the sales load or expense ratio, and thus it currently is not subject to the newly-implemented CPF caps. As the wrap fee may not be easily understood by naïve investors, it may be useful for the CPF to help CPFIS members estimate the annual net returns after such charges are subtracted.

In sum, the data are available on this myriad of fees, charges, expenses, loads, and so forth, but they are dispersed across numerous websites and expressed in different terms depending on the specific product in question. Accordingly, it might be beneficial if the CPF were to develop a single easy-to-use web calculator making these comparisons simpler. For instance, a drop list could illustrate for each fund the component costs over a range of holding periods. It would be useful to show itemized costs well as an all-in annualized cost, for the various products projected over various periods (e.g. 1, 5, 10, 20 years).

Conclusions and Discussion

This paper has explored the costs associated with the professionally-managed unit trusts permitted under the CPFIS scheme. The data show that most Singaporeans have not actively opted from the menu of investment options in their quest to build retirement or saving accounts. Some suggest that this is because the “default” rate of return paid to those who keep their money in the CPF is deemed to be a rather high riskless rate (Koh et al. 2007). Some CPF member inertia may also be attributable to participants not knowing what to invest in and how to invest. A related explanation may be that CPFIS funds levy a rather bewildering range of sales charges, transactions fees, portfolio management costs, fund administration expenses, and other miscellaneous costs. Financial advisory firms and insurers also charge a ‘wrap fee’ which is not included in either the sales load or the operating expenses of the unit trust. Searching through

individual fund prospectuses to ferret out all these expenses is difficult, and some CPFIS investors may not be readily able to assess and compare total costs of buying, owning, and selling different unit trusts. Being perplexed and risk averse, members may choose the path of least resistance.

As the CPF investment scheme evolves, it may be worth exploring further how transaction fees such as agent bank fees and wrap fees might be better communicated to protect unwary or uneducated investors. The CPF Board may wish to consolidate expense computations across fund companies, so as to enhance the transparency of the reporting process. It might also be useful to formalize a means of combining the initial sales charge, transaction charge on purchase, and realization charges in a single measure called the sales load. This measure would allow investors to see the sale charges in their entirety should they decide to buy into a unit trust now and exit at a later point in time. In addition, this summary measure would prevent unsophisticated investors from relying purely on the initial sales charge data reported by fund distributors, which could be an understatement of total loads. Further, even funds that do not currently levy a realization charge or back-end load now may do so in future, and informing the investor of this in a centralized manner could also enhance consistency in reporting. This information could readily be displayed in a web-based calculator showing, for each fund, the component costs as well as all-in costs over varying holding periods.

Our paper also explores the determinants of these financial sector costs and assesses which factors have a bearing on the cost structure of unit trusts. The empirical results show that above-average expenses are incurred by investors holding actively managed funds, foreign-owned funds, and equity as well as balanced funds; less costly investment choices include no-load and passively managed index funds, and money market funds. Fund size does help account

for differences in total cost of unit trusts, but it does not account for observed differences in their sales loads and management fee. Other descriptors such as age of fund, and bank affiliation, are not statistically significant determinants of the differences. Lower-cost funds would include passively managed portfolios, Life Cycle or target maturity date funds, and no-load unit trusts.

The CPF Board and IMAS are working on several fronts to moderate these retail costs for CPFIS investors. While the CPF views decision-making as best left to individual CPF account holders, in recent years it has taken several measures including the following:

- The CPF Board has set more stringent criteria for the admission of new unit trusts into the CPFIS from February 2006. Further, it has capped sales charges from July 2007, and expense ratios will be capped from January 2008. Specifically, in December 2006, CPF announced a cap of 3% on sales charges with effect from 1 July 2007 and a tiered cap on expense ratios by risk categories from 1 Jan 2008 (see Table 20). Funds that are unable to meet either of the above criteria will not be allowed to take in new CPF savings;
- The CPF Board continually reviews existing CPFIS unit trusts to establish their continuing eligibility for inclusion (assets under management, total expense ratios and performance);
- To help members grow their nest eggs, the CPF Board has developed investor education programs to empower members to make informed decisions in their investments;
- The CPF Board advises members to exercise prudence when they invest their CPF savings under the CPF Investment Scheme. In addition, members are made to appreciate that they are responsible for their own investments and that they must decide for themselves how to invest their savings and what level of risk they wish to accept. On its website, the CPF Board has reminded members not confident of investing on their own can always keep their money with the CPF Board and earn the guaranteed risk-free interest rates of 2.5% and 4%.
- IMAS and the Life Insurance Association of Singapore (LIA) have discussed what both associations can do in response to the CPF's call for specific steps to lower the cost of retail investing (IMAS and LIA 2004).

Table 20 here

The traditional approach to investor sovereignty in most nations tends to result in much inertia on the part of investment account holders. That this is also true in Singapore is evident from the fact that some \$79 billion sits in CPF Ordinary and Special accounts, available to be invested but collecting only low rates of return. Existing investor education programs have

evidently not prompted many CPF members to make active choices.¹⁶ Also, as we have showed, the retail fund approach is associated with high costs. Accordingly, it may be fruitful to take a more activist “institutional” approach which takes into account the by-now well known aspects of behavioral finance (Mitchell and Utkus, 2004). One model that might be considered is that of the US Thrift Saving Plan (TSP) made available to US civil servants. Under TSP, the Board conducts a national solicitation every few years, whereby fund management companies bid for the money management business. A very limited set of index funds is offered to plan participants initially including only an equity fund, a bond fund, and a government securities fund (a few more options have been offered in recent years).

CPF might also consider taking a more proactive approach to enhance net returns on participant saving. In the Singapore Budget Debate of 2007, several politicians pointed out how important it would be to enhance returns to CPF saving. This was not so much an appeal for higher guaranteed returns but rather a call for better utilization of centralized purchasing power to lower costs and obtain more attractive investment opportunities for CPF members. The Government response has been positive; Minister for Manpower Dr Ng Eng Hen replied that the CPF Board will be studying ways to do so (Ng 2007). One possibility cited was for the CPF Board to play a strong facilitator role to purchase 3-month or 1-year Singapore Government Securities (SGS) at slightly higher rate of return than the OA funds, at around 3%. Another option might be for the CPF Board to play an aggregator role, devising default funds with acceptable risks and returns which members could readily understand and participate in. It would also be feasible to establish low turnover life cycle funds, such as in Chile (Arenas et al. 2007) which could be the default portfolios for investors reluctant to take a more activist stance. A related idea would be for employers to play a more pivotal role as bulk purchaser of retirement

¹⁶ On the importance of financial literacy and retirement saving, see Lusardi and Mitchell (2007).

funds. In the US case, the long-term fall in sales loads was largely achieved by the growth of mutual fund sales through employer-sponsored retirement plans, since mutual funds tend not to charge loads for such purchases. ICI (2006) recently reported that the front-end load for US equity retail mutual funds was 1.25% in 2005 (Table 21), down significantly from the 5.6% in 1980 and the 7% in 1960.

Table 21 here

The newly-implemented CPF Board cap on sales charges represents a start to keep sales loads in check. Further fine-tuning could follow the Mexican example, for instance, where new participants are defaulted into the lowest cost funds. It may also be useful to set different caps for different types of unit trust (similar to that imposed for expense ratios) instead of a flat 3% across the board.

In the longer term, it may be useful to move away from a top-down approach, instead harnessing market forces to drive down costs and enhance net returns. In the US, for example, the US Securities and Exchange Commission (SEC 2007) does not generally impose caps on mutual fund charges, except for a limit of 2% on redemption fees in most situations. The National Association of Securities Dealers, Inc. (NASD 2007) does not permit mutual fund sales loads to exceed 8.5%, but in practice actual loads are below this level.

Future work will seek to make progress in several directions. Besides costs, CPF participants are concerned about the returns on their saving. For our future research, we would like to examine whether existing CPF investment instruments are efficient from a return-risk perspective. And in view of participants' inertia, it would be invaluable to learn more about how to educate CPF investors regarding capital market risk and return, as well as the expenses associated with different investment options. In turn, as more is learned on these points,

policymakers are better able to structure the environment in which retirement assets are accumulated, invested, and managed to and through old age.

References

- AllianceBernstein (2007). Target-Date Retirement Funds: A Blueprint for Effective Portfolio Construction. Global Investment Research.
www.alliancebernstein.com/investments/us/DesktopContainer.aspx?cid=28689&nid=5384&ActiveModuleId=7789&ActiveViewKey=SendEmail
- Arenas de Mesa, Alberto, David Bravo, Jere R. Behrman, Olivia S. Mitchell, and Petra E. Todd. (2007 forthcoming). "The Chilean Pension Reform Turns 25: Lessons from the Social Protection Survey." In *Lessons from Pension Reform in the Americas*, Eds. Stephen Kay and Tapen Sinha. Oxford University Press.
- Bateman, Hazel and Olivia S. Mitchell. (2004) "New Evidence on Pension Plan Design and Administrative Expenses." *Journal of Pension Finance and Economics*. Vol 3(1): 63-76.
- Chen, Renbao, Wong Kie Ann, and Chiang Mei Yee. (1997). "Singaporean's Knowledge and Attitudes toward the Central Provident Fund". *Singapore Management Review*. 19 (2): 1-16.
- Choi, James J., David Laibson, Brigitte Madrian, and Andrew Metrick. (2004). Saving For Retirement on the Path of Least Resistance." Harvard University Working paper
<http://post.economics.harvard.edu/faculty/laibson/papers/savingretirement.pdf>
- Central Provident Fund (CPF; 2007). Committee of Supply Speech by Minister for Manpower Dr Ng Eng Hen, "Helping More Members Improve Their CPF Balances," 8 March.
http://www.mom.gov.sg/publish/momportal/en/press_room/mom_speeches/2007/20070308-committee.html
- CPF (2007a). *Asset Enhancement: CPF Investment Scheme - How it Works*. Central Provident Fund Board. <http://mycpf.cpf.gov.sg/Members/Gen-Info/FAQ/investment/CPF-Invscheme.htm>, viewed March 2007
- CPF (2007b). *CPF Investment Scheme – Investing For the First Time*. Central Provident Fund Board. <http://mycpf.cpf.gov.sg/Members/Gen-Info/FAQ/Investment/INV.htm>, viewed March 2007.
- CPF (2007c). *CPF Investment Scheme – Annex D: Charges Typically Incurred for Various Investments*." Central Provident Fund Board. <http://mycpf.cpf.gov.sg/Members/Gen-Info/FAQ/Investment/INV.htm>, viewed March 2007.
- CPF (2007d). *List of Fund Management Companies (FMCs) included under CPFIS*. Central Provident Fund Board. <http://mycpf.cpf.gov.sg/Members/Gen-Info/FAQ/Investment/INV-Asset-Enhance.htm>, viewed March 2007.
- CPF (2007e). *Performance and Risk Monitoring Report for Unit Trusts Q4 2006*. Standard & Poor's Fund Services, Asia. February.
http://www.imas.org.sg/downloads/imas/CPFIS_Performance_Q4_2006_2202.pdf

- CPF (2006). *Quarterly Statistics as at 31 December 2006*. Central Provident Fund Board.
http://mycpf.cpf.gov.sg/CPF/About-Us/CPF-Stats/CPF_Stats2006q4.htm, viewed March 07.
- CPF (2006a). *Performance and Risk Monitoring Report for Unit Trusts Q3 2006*. Standard & Poor's Fund Services Asia. November.
http://www.imas.org.sg/downloads/imas/CPFIS_Performance_Q32006%20Final.pdf
- CPF (2006b). *Performance and Risk Monitoring Report for Unit Trusts Q2 2006*. Standard & Poor's Fund Services, Asia. August.
http://www.imas.org.sg/downloads/imas/CPFIS_Performance_Q1%202006.pdf
- CPF (2006c). *Quantitative Performance Analysis UT Q2 2006*. Standard & Poor's Fund Services, Asia. August.
http://www.imas.org.sg/downloads/imas/Quantitative_Performance_Analysis_UT_Q2_06.pdf
- CPF (2006d). *News Releases: Lower charges on new CPF investments in funds under CPF Investment Scheme (CPFIS) to benefit members*. Central Provident Fund Board, 28 December. http://mycpf.cpf.gov.sg/CPF/News/News-Release/N_28December2006.htm
- CPF (2005). *Saving for Our Retirement: 50 Years of CPF*. Central Provident Fund Board.
http://www.cpf.gov.sg/cpf_info/CPF50Ann/50_Years_of_CPF.pdf
- CPF (2005a). *Quarterly Statistics as at 31 December 2005*. Central Provident Fund Board.
http://mycpf.cpf.gov.sg/CPF/About-Us/CPF-Stats/CPF_Stats2005q4.htm, viewed March 07.
- CPF (2002). *Performance and Risk Monitoring Report for Unit Trusts Q1 2002*. Mercer Investment Consulting, April.
<http://www.mercerfundwatch.com/MFW/Pages/CPF/CPFReports.aspx>
- CPF (2001). *Performance and Risk Monitoring Report for Unit Trusts Q3 2001*. Mercer Investment Consulting, October.
<http://www.mercerfundwatch.com/MFW/Pages/CPF/CPFReports.aspx>
- Investment Company Institute (ICI; 2006). *2006 ICI Fact Book: A Review of Trends and Activity in the Investment Company Industry*, Investment Company Institute, 46th edition, p. 19, 38 – 45. <http://www.icifactbook.org/>
- Investment Management Authority of Singapore. (IMAS; 2007). *Fund Information Service for CPFIS-Included Unit Trusts & Investment-Linked Insurance Products*. IMAS and Life Insurance Association of Singapore. <http://www.fundsingapore.com>, viewed November 06 - March 07.

- IMAS (2005). *Revision to Guidelines on Calculation of Expense Ratio and IMAS Guidelines for the disclosure of expense ratios*. Investment Management Association of Singapore, 25 May.
[www.imas.org.sg/downloads/imas/IMAS Revised Guidelines on Expense Ratio.pdf](http://www.imas.org.sg/downloads/imas/IMAS_Revised_Guidelines_on_Expense_Ratio.pdf)
- IMAS (2005a). *IMAS Quarterly Update*. Investment Management Association of Singapore, September. http://www.imas.org.sg/downloads/imas/website_posting.pdf.
- Koh, Benedict S. K., Olivia S. Mitchell, Toto Tanuwidjaja, and Joelle Fong. (2007). "Investment Patterns in Singapore's Central Provident Fund System." Pension Research Council Working paper. The Wharton School. February.
- Lee, Hsien Loong, Minister (2005). *Speech Looking at the CPF Board*. September .
http://mycpf.cpf.gov.sg/CPF/News/News-Release/NR_25Sept2005.htm.
- Low, Linda and T.C. Aw. (1997). *Housing a Healthy, Educated, and Wealthy Nation through the CPF*. The Institute of Policy Studies. Singapore: Times Academic Press.
- Lusardi, Annamaria and Olivia S. Mitchell. (2006). "Financial Literacy and Retirement Planning: Implications for Retirement Wellbeing." Pension Research Council Working Paper. The Wharton School. www.pensionresearchcouncil.org/publications/document.php?file=296
- McCarthy, David, Olivia S. Mitchell, and John Piggott. (2002). "Asset Rich and Cash Poor in Singapore? Retirement Provision in a National Defined Contribution Pension Fund." *Journal of Pension Finance and Economics*. 1(3) November: 197-222.
- Mercer Investment Consulting. (2002). *Unit Trusts and Investment-Linked Insurance Products Included Under CPFIS: Performance and Risk Monitoring Reports as of 31 March 2002*. www.mercerfundwatch.com/MFW/Pages/cpf/cpfreports2002Q1/es2002Q1.pdf
- Mercer Investment Consulting (2006). *Asset Allocation Issues in Lifecycle Fund Selection and Design*. Dennis Morentsov, Mercer Investment Consulting, Inc.
- Mitchell, Olivia S. (1998). "Administrative Costs of Public and Private Pension Plans". In *Privatizing Social Security*, Ed. M. Feldstein. NBER. Chicago: University of Chicago Press: 403-456.
- Mitchell, Olivia S. (1988). "Worker Knowledge of Pension Provisions." *Journal of Labor Economics* 6, 21-39.
- Mitchell, Olivia S., Gary Mottola, Steve Utkus, and Takeshi Yamaguchi. (2005). "The Inattentive Participant: Trading Behavior in 401(k) Plans." PRC Working Paper. The Wharton School. <http://rider.wharton.upenn.edu/~prc/wp2006.html>.
- Mitchell, Olivia S. and Stephen Utkus, eds. (2004). *Pension Design and Structure: New Lessons from Behavioral Finance*. Oxford, UK: Oxford University Press.

Monetary Authority of Singapore (MAS; 2006), *Code on Collective Investment Schemes*. First Edition, 23 May 2002 (last updated 22 December 2006).
www.mas.gov.sg/masmcm/bin/pt1Codes_and_Practice_Notes.htm

MSCI World and Straits Times Index 1987 - 2007, Datastream, viewed March 07.

National Association of Securities Dealers, Inc. (NASD; 2007). *Mutual Fund Fees and Expenses*.
<http://www.sec.gov/answers/mffees.htm>

Ng, Eng Hen, Minister for Manpower. (2007). *Committee of Supply Speech (Part 2)* 8 March
www.mom.gov.sg/publish/momportal/en/press_room/mom_speeches/2007/20070308-committee.html

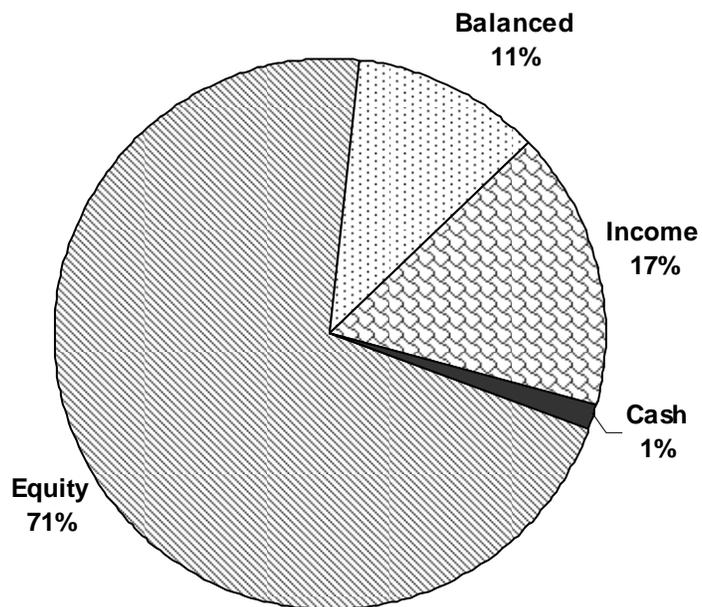
Securities and Exchange Commission. (SEC; 2007). *Mutual Fund Fees and Expenses: Fast Answers – Key Topics*. U.S. Securities and Exchange Commission,
<http://www.sec.gov/answers/mffees.htm#salesloads> viewed March 2007.

Singapore Department of Statistics (2006). *Singapore Household Balance Sheet: 2005 Update and recent trends*. Occasional paper on economic statistics, June.
<http://www.singstat.gov.sg/papers/op/op-e27.pdf>

Tan, C. (2006). “New Channels for CPF Money: T-bills, Gold ETFs”, *The Business Times*, Singapore, 30 Dec. http://business.asiaone.com.sg/news/mymoney/20061230_001.html

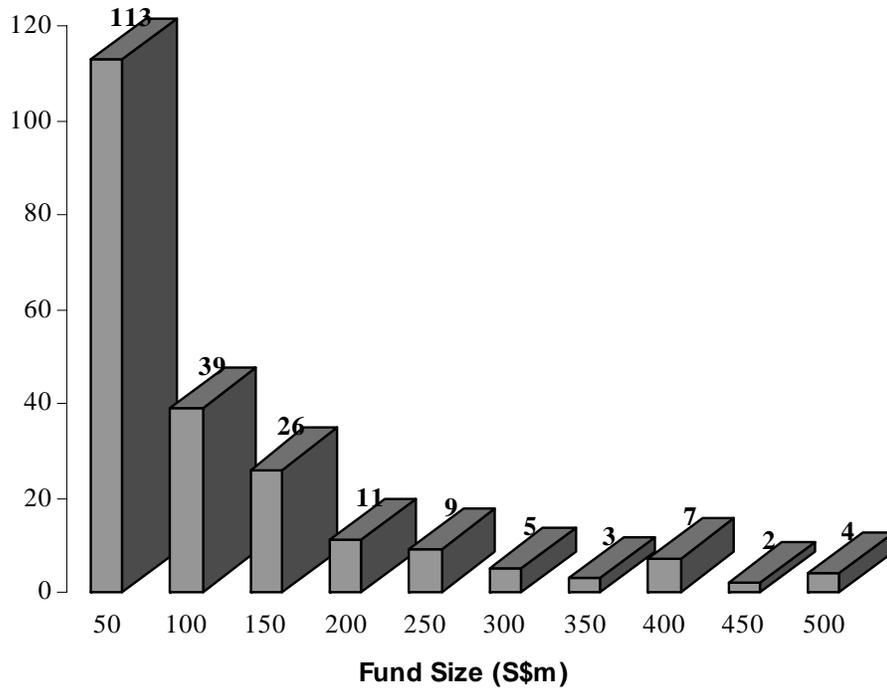
Vanguard Investment Counseling and Research. (2007). *Funds for Retirement: The “Life Cycle” Approach*. https://institutional.vanguard.com/iip/pdf/life_cycle_funds.pdf

Figure 1: Unit Trusts by Type of Fund



Source: Authors' computations using fund prospectuses as at end Dec 2006.

Figure 2: Histogram of funds with asset size below S\$500m



Source: Authors' computations using fund size data from S&P Q2 2006 Performance and Risk Monitoring Report for CPFIS-included unit trusts and ILPs.

Table 1: Singapore's Household Sector Balance Sheet 2000 – 2005 (Year-End)

	2000	2001	2002	2003	2004	2005**
I Total Assets (S\$m)	686,887	691,544	698,753	750,622	778,449	820,168
Financial Assets (%)	47.3%	49.7%	50.6%	51.9%	52.4%	54.2%
(a) Currency & Deposits	19	20.2	19.7	18.8	17.2	17.8
(b) Shares & Securities	10.5	9.7	9.9	11.6	12.5	12.7
(c) Equity in Life Insurance	4.6	6.4	7.2	7.7	8.3	8.9
(d) Equity in Pension Funds/CPF*	13.2	13.3	13.8	13.8	14.4	14.7
Residential Property Assets(%)	52.7	50.3	49.4	48.1	47.6	45.8
(a) Public Housing	28.0	26.9	27.0	26.8	26.1	24.3
(b) Private Housing	24.7	23.5	22.3	21.3	21.6	21.3
II Liabilities (S\$m)	138,801	146,133	149,952	156,159	159,076	160,144
Mortgage Loans(%)	72.4%	72.4%	73.7%	72.9%	73.7%	73.9%
(a) Bank Loans	29.7	29.8	30.8	33.9	37.6	39.6
(b) HDB Loans	42.7	42.7	43.0	39.0	36.1	34.3
Personal Loans & Other Loans(%)	27.6	27.6	26.3	27.1	26.3	26.1
III Household Net Wealth (I-II) (S\$m)	548,086	545,11	548,801	594,463	619,372	660,024

Note: Figures may not add up due to rounding.

** Figures for 2005 are preliminary.

* Total amount due to members (net of withdrawals).

Source: Singapore Household Balance Sheet: 2005 update and recent trends, June 2006, Singapore Department of Statistics, Ministry of Trade & Industry, <http://www.singstat.gov.sg/papers/op/op-e27.pdf>.

Table 2: Participation under the CPF Housing Scheme (As at 31 Dec 2005)

	Public Housing Scheme	Residential Properties Scheme	Total
No. of Members (Withdrew from CPF savings and still own property)	1,262,350	217,737	1,480,087
Net Amount Withdrawn (S\$m)	74,408.50	42,272.80	116,681.30

Source: CPF website, http://mycpf.cpf.gov.sg/CPF/About-Us/CPF-Stats/CPF_Stats2005q4.htm.

Table 3: Descriptive Statistics on the CPF Investment Scheme (As at 31 Dec 2006)

	Total Amount Invested (S\$m)	Total Funds Still Available for Investment under CPFIS (S\$m)	% invested
CPFIS-OA	25,841.4	56,699.1	31%
CPFIS-SA	5,538.6	22,482.1	20%
Total CPFIS	31,380.0	79,181.2	28%

Source: Authors' computations based on statistics from CPF's website [http://mycpf.cpf.gov.sg/CPF/About-Us/CPF-Stats/CPF_Stats2006q4.htm].

Table 4: Allocation of Amounts Invested under CPFIS (As at 31 Dec 2006)

	CPFIS-OA		CPFIS-SA		Total	
	Amt (S\$m)	%	Amt (S\$m)	%	Amt (S\$m)	%
Total Amount Invested	25,841.4	100	5,538.6	100	31,380.0	100
Stocks & Loan	4,976.8	19.3	-	-	4,976.8	15.9
Stocks						
Insurance Policies	16,124.6	62.4	4,747.7	85.7	20,872.3	66.5
Unit Trusts	3,444.8	13.3	790.8	14.3	4,235.6	13.5
Others *	1,295.2	5.0	0.1	0	1,295.3	4.1

Note: * Others include exchange traded funds, fixed deposits, Singapore Government treasury bills, bonds (Singapore Government bonds, statutory board bonds and bonds guaranteed by Singapore Government), gold, fund management accounts, and property funds. The last three instruments are available under CPFIS-OA only.

Source: CPF website [http://mycpf.cpf.gov.sg/CPF/About-Us/CPF-Stats/CPF_Stats2006q4.htm].

Table 5: Sales Charges and Direct Fees Payable by Investors to the Funds

Fees payable	Description
Initial sales charge (equivalent of “front-end load”)	<p>Also called the preliminary charge. This is payable by investors upon purchase of units in the fund and is retained by the fund managers.</p> <p>The majority of CPFIS-included unit trusts have an initial sales charge ranging from 0 - 6%.</p>
Transaction charge on purchase	<p>This refers to any transaction cost charged by the underlying funds of the unit trust but not paid or absorbed by the unit trust. This is payable by investors.</p> <p>Very few unit trusts currently charge this cost component.</p>
Realization charge (equivalent of “back-end load”)	<p>This is payable by investors upon either full or partial realization of the units in the fund and is retained by the fund managers.</p> <p>The majority of CPFIS-included unit trusts currently waive the realization charge except for a handful of funds which charge 1%. Regardless, it is noted that all unit trusts specify a maximum charge provision in their prospectuses.</p>
Redemption fee	<p>This fee is payable by investors on shares redeemed within a specified time period (e.g. 90 days). This is usually imposed by the unit trust to discourage short-term trading.</p>
Switching fee	<p>Also called the conversion charge. This fee is imposed on investors when they switch between share classes or funds. However, this fee may sometimes be waived by the fund administrator.</p>

Source: Authors' summary based on fund prospectuses.

Table 6: Cost Structures of Traditional Fund Distributors and IAs for CPFIS-included Unit Trusts

	If purchased through a distributing bank or online distributor (not wrap account structure)	If purchased through an Investment Administrator (IA) (under the wrap account structure)
<i>Agent Bank's Fees</i> <i>(Under CPFIS-OA)</i>		
Transaction Fee	Between \$2.00 and \$2.50 <u>per</u> lot, subject to a maximum between of \$20 and \$25 per transaction.	Between \$2.00 and \$2.50 <u>per</u> transaction.
Service Charge	\$2.00 <u>per</u> unit trust fund <u>per</u> quarter, subject to a minimum of between \$2 and \$5.	\$2.00 <u>per</u> wrap account <u>per</u> quarter, subject to a minimum of between \$2 and \$5.
<i>Other Charges</i> <i>(Under CPFIS-OA & CPFIS-SA)</i>		
Sales Charge	Between 0 and 5% (reflected in the bid offer spread) of initial amount invested.	Between 0% and 6%
Annual wrap fee	-	Up to 1.5% of the value of the investor's holdings
Switching fee	Between 0% and 5% (reflected in the bid offer spread)	Nil or as agreed by the member and his financial advisor
Other fees	-	Annual establishment fee of up to 1.56% with a chargeable exit fee (for first 5 years) under the "deferred sales charge" option.

Source: <http://mycpf.cpf.gov.sg/Members/Gen-Info/Faq/Investment/INV.htm#app4>

Table 7: Treatment of Various Fund Expenses in Computing the Total Expense Ratio

Expenses to be included	Expenses to be excluded
<ul style="list-style-type: none"> • management fee • trustee fee • administration fee • accounting & valuation fees • custodian, sub-custodian and depository fees • registrar fees • legal and professional fees • printing & distribution • audit fees • amortized expenses • GST on expenses • operating costs incurred at Parent-level (for feeder structure) • operating costs incurred by underlying target fund(s) which unit trusts invest into • any other relevant costs charged to fund • Performance-related fee (if included, must be disclosed. A separate expense ratio excluding this remuneration should also be disclosed.) 	<ul style="list-style-type: none"> • interest expense • brokerage and other transaction costs • foreign exchange gains and losses (both realized & unrealized) • tax (deducted at source, on income received, withholding tax) • Front-end, back-end loads and other costs arising on the purchase or sale of a foreign unit trust or mutual fund or of other funds. • dividends and other distributions paid to unit-holders • insurance charges (for ILP funds only) • all marketing, promotional and advertising expenses incurred in relation to the Fund

Source: IMAS Guidelines for the disclosure of expense ratios, revised 25 May 2005, [www.imas.org.sg/downloads/imas/IMAS Revised Guidelines on Expense Ratio.pdf](http://www.imas.org.sg/downloads/imas/IMAS_Revised_Guidelines_on_Expense_Ratio.pdf).

Table 8: Sales Loads and Expense Ratios by Type of Fund

Risk Category	Type of Fund	# Funds	Average Sales Load	Average Expense Ratios
Higher risk	Equity	167	4.9%	2.07%
Medium – High risk	Balanced	26	4.8%	1.93%
Low – Medium risk	Income	39	2.1%	1.12%
Lower risk	Cash	3	0.1%	0.71%
Total		235		

Source: Authors' computations using fund prospectuses and IMAS-reported expense ratios as at 30 Jun 2006.

Table 9: Costs of Active vs. Passive CPFIS-included Unit Trusts

	Number of funds sampled	Average sales loads	Average management fee	Average expense ratio
Equity Funds	167	4.9%	1.4%	2.1%
- active	164	5.0%	1.4%	2.1%
- passive	3	2.1%	0.7%	1.0%
Balanced Funds	26	4.8%	1.3%	1.9%
- active	22	5.0%	1.3%	2.1%
- passive	4	3.5%	1.0%	1.3%
Income Funds	39 [#]	2.1%	0.9%	1.1%
Cash Funds	3	0.1%	0.5%	0.7%
Sample mean		4.4%	1.3%	1.9%

Note: [#] There is one partially passive fund under the income funds category. However, its costs are not presented separately since one single fund is not a representative sample for analysis.

Source: Authors' computations using fund prospectuses and IMAS-reported expense ratios as at 30 Jun 2006.

Table 10: Classification of Fund Management Companies Offering Unit Trusts under CPFIS

Fund Management Company (FMC)	Domestic / foreign	Bank-related or not
Aberdeen Asset Mgmt Asia Ltd.	Foreign	No
ABN AMRO Investmt Mgmt	Foreign	Yes
AIG Global Invt Corp (SG) Ltd	Foreign	No
AllianceBernstein (Singapore) Ltd	Foreign	No
Allianz Global Investors Singapore Ltd	Foreign	No
APS Asset Mgmt Pte Ltd.	Domestic	No
Aviva Fund Services S.A	Foreign	No
DBS Asset Mgmt	Domestic	Yes
Deutsche Asset Mgmt (Asia)	Foreign	Yes
Fidelity Investments Sing Ltd.	Foreign	No
First State Investments (Sing)	Foreign	No
Henderson Glb Investors (Sing) ltd.	Foreign	No
HSBC Investments (Singapore)	Foreign	Yes
Legg Mason Investments	Foreign	No
Lion Capital Management Ltd	Domestic	Yes
Prudential Asset Mgt Sing	Foreign	No
Schroder Investment Mgt	Foreign	No
SG Asset Management (Singapore) Ltd	Foreign	No
Templeton Asset Mgmt Ltd.	Foreign	No
UBS Global Asset Mgt (Sing)	Foreign	Yes
UOB Asset Mgt	Domestic	Yes
Western Asset Mgt (Asia)	Foreign	No

Source: Authors' summary based on list of FMCs in CPF's website at <http://mycpf.cpf.gov.sg>

Table 11: Characteristics of Foreign vs. Domestic CPFIS-included unit trusts

	Domestic	Foreign
Number of FMC	4	18
- <i>bank-related</i>	3	4
- <i>non-bank related</i>	1	14
Number of funds sampled	89	146
Average number of funds per FMC*	29	9
Average Fund size (S\$m)	65.92	644.38
% of funds with performance-related fees	18%	12%

Note: * adjusted for fund management companies that offer only one single fund.

Source: Authors' computations using fund prospectuses as at end Dec 2006.

Table 12: Analysis of Costs by Fund Ownership

	Domestic	Foreign	Difference
Average sales load (A)	3.86%	4.66%	0.80%
Average management fee	1.17%	1.39%	0.22%
Average expense ratios (B)	1.62%	2.04%	0.42%
Average first-year total cost (A + B)	5.48%	6.70%	1.22%

Source: Authors' computations using fund prospectuses and IMAS-reported expense ratios as at 30 Jun 2006.

Table 13: CPFIS-included unit trusts by fund size

Fund size (S\$m)	Number of funds	Breakdown by ownership		Average sales load	Average mgmt fee	Average expense ratio
		Domestic	Foreign			
< 500	219	89	130	4.31%	1.30%	1.89%
500 -1,000	8	-	8	5.19%	1.28%	1.86%
1,001 -1,500	-	-	-	-	-	-
1,501 - 2,000	-	-	-	-	-	-
2,001 - 2,500	1	-	1	6.00%	1.70%	1.25%
2,501 - 3,000	2	-	2	4.13%	1.13%	1.41%
3,001 - 3,500	-	-	-	-	-	-
3,501 - 4,000	1	-	1	5.25%	1.50%	1.90%
4,001 - 4,500	-	-	-	-	-	-
> 4,500	4	-	4	5.19%	1.46%	1.81%
	235	89	146			

Source: Authors' computations using fund prospectuses, fund size data from S&P Q2 2006 Performance and Risk Monitoring Report, and IMAS-reported expense ratios as at 30 Jun 2006.

Table 14: Descriptive Statistics of Regression Variables

	Minimum	Maximum	Range	Mean		Std. Deviation
				Statistic	Std. Error	
Y variables						
Sales loads	.00	6.25	6.25	4.36511	.093443	1.432
Management fee	.00	2.04	2.04	1.30657	.024585	.377
First-year total costs	.44	10.57	10.13	6.2444	.12113	1.85691
X variables						
Fund size (S\$m)	.35	45108.00	45107.65	425.305	197.3945	3026.00
Fund size (ln S\$m)	-1.05	10.72	11.77	3.9831	.11166	1.712
Age	.25	47.00	46.75	7.4624	.35695	5.472
Foreign (D ₁)	0	1	1	.62	.032	.486
Active (D ₂)	0	1	1	.97	.012	.182
Bank-related (D ₃)	0	1	1	.47	.033	.500
Equity (D ₄)	0	1	1	.71	.030	.454
Balanced (D ₅)	0	1	1	.11	.021	.314
Money Market (D ₆)	0	1	1	.01	.007	.113

Notes: Dependent variables expressed in percentage terms. There are 6 dummy classes in the regression.

Source: Authors' computations using fund prospectuses and IMAS-reported expense ratios as at 30 Jun 2006.

Table 15: Regression Estimates of Determinants of CPFIS Unit Trust Loads and Costs
(Standard errors in parentheses)

Explanatory variable	Dep. Variables		
	Sales Loads ^(a) (1)	Management Fee (2)	First-year Total Costs (3)
Fund size (Ln S\$m)	0.030 (0.033)	- 0.007 (0.012)	-.077** (0.039)
Age of fund	0.011 (0.010)	- 0.004 (0.004)	.002 (0.012)
Ownership of fund			
Foreign-owned (vs domestic)	0.417** (0.190)	0.161** (0.070)	.531** (0.224)
Fund style			
Active (vs passive)	1.357** (0.307)	0.411** (0.113)	2.015** (0.363)
Fund management company			
Bank-related (vs non-bank)	0.031 (0.183)	0.065 (0.067)	-2.203 (0.217)
Type of fund			
Equity (vs income)	2.653** (0.147)	0.522** (0.054)	3.576** (0.174)
Balanced (vs income)	2.784** (0.208)	0.427** (0.077)	3.631** (0.246)
Cash (vs income)	- 2.060** (0.482)	- 0.357** (0.178)	-2.443** (0.571)
F Statistic	64.723(0.000)	19.214 (0.000)	83.213(0.000)
R ²	0.696	0.405	0.747

Notes:

^(a) Sales loads include the front-end loads (initial service fee and transaction charge on purchase) and the back-end load (realization charge).

** Coefficient statistically significant at the 5% level.

Source: Authors' computations using fund prospectuses and IMAS-reported expense ratios as at 30 Jun 2006.

Table 16: Number of CPFIS-included Unit Trusts by Risk Category

Risk Category	Actual number of unit trusts		By %	
	30 Sep 2006	30 Sep 2001	30 Sep 2006	30 Sep 2001
Higher Risk	280	153	64%	64%
Medium to High Risk	81	34	18%	14%
Low to Medium Risk	67	45	15%	19%
Lower Risk	12	8	3%	3%
	440	240	100%	100%

Source: Mercer's Q3 2001 and S&P's Q3 2006 Performance and Risk Monitoring Report for CPFIS-included unit trusts and ILPs.

Table 17: Passive CPFIS-included Unit Trusts

CPFIS-included Unit Trust	Type of Fund	Nature
OCBC Infinity European Stock Index Fund	Equity	Wholly Passive
OCBC Infinity Global Stock Index Fund	Equity	
OCBC Infinity U.S. 500 Stock Index Fund	Equity	
UOB Growthpath Portfolio 2010 Fund	Balanced	Partially Passive
UOB Growthpath Portfolio 2020 Fund	Balanced	
UOB Growthpath Portfolio 2030 Fund	Balanced	
UOB Growthpath Portfolio 2040 Fund	Balanced	
UOB Growthpath Portfolio Today Fund	Income	

Source: S&P Q2 2006 Performance and Risk monitoring report for CPFIS-included unit trusts and ILPs (August 2006)

Table 18: Life Cycle Unit Trusts Currently on Offer Under CPFIS

CPFIS-included Unit Trust	Sector	Risk Category	Fund Type
Fidelity Funds- Fidelity Target 2010 TM Fund	Lifecycle/Target 2007-2015	Medium to High Risk	Balanced
UOB GROWTHPATH 2010		Medium to High Risk	Balanced
Fidelity Funds-Fidelity Target 2020 TM Fund	Lifecycle/Target 2016-2025	Higher Risk	Equity
UOB GROWTHPATH Portfolio 2020 Fund		Medium to High Risk	Balanced
UOB GROWTHPATH Portfolio 2030 Fund	Lifecycle/Target 2026-	Medium to High Risk	Balanced
UOB GROWTHPATH Portfolio 2040 Fund		Medium to High Risk	Balanced

Source: S&P Q2 2006 Performance and Risk monitoring report for CPFIS-included unit trusts and ILPs (August 2006)

Table 19: CPFIS-included Unit Trusts with Zero Sales Load

	FMC	Type of Fund	Fund size S\$m	Mgmt fee	Annual operating costs^(a)	Expense ratios
DBS Asset Management - Guaranteed Upswing 502- 90 Fund	DBS Asset Mgmt	Income	31.02	1.00%	1.00%	1.16%
DBS Asset Management - Guaranteed Upswing 502-100 Fund		Income	43.68	1.00%	1.00%	1.16%
DBS Star Track S\$		Income	183.28	1.00%	1.00%	1.06%
Henderson Asia Bonus Payout Fund	Henderson Global Investors (Sing) Ltd.	Income	44.2	1.15%	1.35%	1.30%
OCBC Annual Payout Fund	Lion Capital Mgmt Ltd	Income	124.7	1.15%	1.15%	1.35%
OCBC Capital Payout SGD Fund		Income	42.8	0.9%	0.95%	1.1%
OCBC Protected Investment Series - OCBC Payout Plus Fund I		Income	145.3	1.15%	1.15%	1.23%
Schroder SGD Dual Advantage 85 Fund	Schroder Investment Mgmt	Income	25.88	1.00%	1.05%	1.07%
Schroder SGD Enhanced Return Fund		Income	231.4	1.25%	1.37%	1.41%
Schroder SGD Enhanced Return Fund II		Income	186.91	1.15%	1.15%	1.25%
SGAM Harvest Guaranteed Best of Best	SG Asset Mgmt (Sing) Ltd.	Income	15.1	1.20%	1.23%	1.24%
UOB United Capital Protected Funds Series 1	UOB Asset Mgmt	Income	77.19	1.00%	1.00%	1.14%
CitiBond Singapore Fund (Class A) (Legg Mason Singapore Bond A)	Legg Mason Investments	Cash	20.7	1.00%	1.06%	1.23%
UOB Optimix SGD Fund	UOB Asset Mgmt	Cash	30	0.25%	0.30%	0.44%

^(a) The annual operating costs figures are derived by summing the various operating cost items (expressed as a % of NAV) reported in the individual fund prospectuses.

Source: Authors' computations using fund prospectuses and S&P Quantitative Performance Analysis UT Q2 2006.

Table 20: New Caps on Expense Ratios (from 1 Jan 2008)

Risk Categories	Funds that invest in	Expense Ratios (%) Based on median expense ratios of CPFIS funds as at 31 Dec 2004
Higher risk	Equities	1.95
Medium to High Risk	Mixture of equities and bonds	1.75
Low to Medium Risk	Bonds	1.15
Lower Risk	Money market products	0.65

Source: CPF (2006), http://mycpf.cpf.gov.sg/CPF/News/News-Release/N_28December2006.htm

Table 21: Actual and Maximum Front-end Sales Loads of U.S. Equity Mutual Funds

	Average Actual load	Average Maximum Load
1960	7.0	NA
1970	5.7	NA
1980	5.6	8.0
1982	4.9	7.0
1989	4.4	5.5
1991	3.6	4.9
1997	2.3	5.0
2005	1.3	5.0

Source: ICI (2006)