2016

Fees and Expenses of MPF Funds: An Overview of the Fund Expense Ratio and Its Trends

MPFA

MANDATORY PROVIDENT FUND
SCHEMES AUTHORITY

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Executive Summary

Background

- This report reviews the developments of the Fund Expense Ratio (FER) of the constituent funds (CFs) of Mandatory Provident Fund (MPF) schemes up to June 2016. It also analyzes the correlation between the FER and the investment performance, size, age and management style of CFs and investigates the relationship between the level of fee reductions and inflows of contributions and benefits of schemes.

- The FER is a synthetic indicator that shows, based on the most recent financial statements, the yearly level of fund fees and expenses that were deducted from a CF plus any underlying funds. It measures the fees and expenses of a CF and the underlying investment funds as a percentage of its net asset value. The FER figures have become available since 2007 and have been published in the Fee Comparative Platform on the website of the Mandatory Provident Fund Schemes Authority (MPFA) since that year.

Snapshot of FER as of June 2016

- As of June 2016,[1] the overall average FER of the CFs of MPF schemes was 1.57%, the lowest level since FER data has become available. The range of the FER varied from 0.13% to 3.75%. The FERs of different fund types were as follows:

	No of Funds^	FER		
		Average (%)	Lowest (%)	Highest (%)
Equity Fund	180	1.58	0.63	2.29
Mixed Assets Fund	183	1.72	0.70	2.11
Bond Fund	49	1.38	0.78	1.90
Guaranteed Fund	27	2.08	1.29	3.75
MPF Conservative Fund	42	0.69	0.13	1.21
Money Market Fund & Others*	13	1.17	0.60	1.39
Overall	494	1.57	0.13	3.75

^ A CF may comprise different fund classes. Each fund class of a CF is treated as a separate CF in the table.
* Covers money market funds that are not MPF conservative funds and uncategorized funds as per the Performance Presentation Standards for MPF Investment Funds.

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[1] This refers to the publication date of the FER on the Fee Comparative Platform of MPFA's website.

Historical Trend of FER

- Regarding the historical trend of the FER during the period of July 2007 – June 2016, the average FER of all CFs as a whole generally showed a downward trend. The average FER of CFs as a whole decreased by 24% (from 2.06% to 1.57%).

- During the period of September 2008 – June 2016[2], the distribution of the FER of CFs generally displayed a shift from higher FER ranges to lower FER ranges. In terms of the number of CFs, more CFs with a lower FER have become available. As of September 2008, only 12 CFs had an FER of 1.25% or lower. As of June 2016, a total of 154 CFs had an FER of 1.25% or below. As such, members' choice of lower fee funds increased substantially during this period.

- By fund type, the average FER of MPF conservative funds recorded the largest reduction during the period of July 2007 to June 2016. It dropped from 1.48% as of July 2007 to 0.69% as of June 2016, a reduction of 0.79 percentage points or 53.4%. Next in line was bond funds (0.74 percentage points or 34.9%). Equity funds (0.49 percentage points or 23.7%) and guaranteed funds (0.47 percentage points or 18.4%) recorded a similar level of reduction in the FER. Mixed assets funds recorded the lowest reduction in the FER (0.39 percentage points or 18.5%).

- Fourteen of the 15 trustees recorded reductions in the average FER over the period of September 2008 to June 2016. The average FER of the remaining trustee recorded an increase of 0.01 percentage point. The biggest level of reduction among trustees was 0.95 percentage points.

Correlation Analysis

- The report also studies whether or not there is any correlation between the FER and the investment performance, size, age and management style of CFs.

- Generally speaking, there is no evidence indicating that funds of higher FER are associated with better investment performance. Should there be any correlation between FER and fund performance, funds of higher FER tend to be associated with poorer investment performance and vice versa.

- The statistical tests show a positive relationship between FER and asset size for all CFs as a whole and the sub-sample of mixed assets funds. This finding suggests that larger funds are associated with higher FER and vice versa.

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[2] The FER data of each CF before September 2008 was not available.

- The statistical test also finds a positive relationship between FER and fund age for all CFs as a whole and for the sub-samples of equity funds and mixed assets funds. The test result suggests that the FER of older funds generally tends to be higher than that of younger funds. This outcome may be due to the fact that more lower fee funds (e.g. index tracking funds) have been launched in recent years.

- The report compares the FER of actively-managed equity funds with that of passively-managed equity funds (i.e. index tracking funds). The FER of passively-managed equity funds is substantially lower than that of actively-managed equity funds. In other words, the finding suggests that the investment style of equity funds does have an impact on their FER.

Relationship between Fee Reductions and Inflows of Contributions and Benefits of Schemes

- The report analyzes the relationship between the level of fee reductions and the growth of contribution and benefit inflows into schemes. Scheme inflows include regular contributions and transfers of accrued benefits into a scheme. With reference to the accumulated net transfer of accrued benefits attributed to the Employee Choice Arrangement (Net ECA Transfer), this report also investigates whether the level of fee reductions of a scheme has a bearing on members' scheme choice.

- The findings of these analyses indicate that larger fee reductions of a scheme do not necessarily lead to higher growth of contribution and benefit inflows or greater amount of Net ECA Transfer and vice versa.

I.   Introduction

1.   This report reviews the developments of the Fund Expense Ratio (FER) of the constituent funds (CFs) of mandatory provident fund (MPF) schemes up to June 2016.   It is important to keep in mind that the FER was not developed as a measure of the absolute level of fees or expenses but as a consistent and reliable way of comparing total fund level expense impact on investing members.   As such, the focus should not be on the absolute level of the FER percentage figure but on the relativities between funds and trends of the figure over time.   After outlining the scope and data source, the report provides a snapshot of the latest FER of CFs.   The historical trend of the FER is then examined to identify general directions, if any.   In addition to the analysis of the correlation between the FER and the investment performance, size, age and investment style of CFs, this report also investigates the relationship between the level of fee reductions and inflows of contributions and benefits of schemes.

II. Fund Expense Ratio

i.   Brief History of FER

2.   Since the introduction of the MPF System, fees and expenses of CFs have been disclosed in the offering documents of MPF schemes.   Under the fee arrangements of schemes, a great variety of fees and structures are in use.   Each scheme uses a slightly different structure and has different type of fees.   The types and names of fees and expenses also vary from scheme to scheme.   All of this makes it very hard for scheme members to make like for like cost comparisons across schemes and funds.

3.   In 2002/2003, the Mandatory Provident Fund Schemes Authority (MPFA) undertook a review of the type of disclosure practices in the industry and developed a number of initiatives to simplify and standardize disclosure of fees and charges.   One of the main initiatives was to develop a single measure, that is, the FER, to help scheme members compare the totality of the impact of fees and expenses of CFs consistently across schemes.   For this purpose, the MPFA issued the Code of Disclosure for MPF Investment Funds (Disclosure Code) in 2004, requiring trustees to calculate and disclose the FER of all of their CFs.

4.   With the Disclosure Code coming into effect, trustees needed time to enhance systems and then collect and calculate relevant fees and expenses information of CFs for one full year before publishing figures.   The FER figures have become available since 2007 and have been published in the Fee Comparative Platform on the website of the MPFA since that year.

ii.   Essence of FER

5.   The FER is a synthetic indicator that shows, based on the most recent financial statements, the yearly level of fees and expenses that were deducted from a CF plus any underlying investment funds.   It measures the fees and expenses of a CF and the underlying investment funds as a percentage of the net asset value of the CF.   If fees are waived, the effect is reflected in the FER.   However, the FER figures do not reflect any amount of unit rebates offered to selected scheme members by trustees.

6.   The types and names of fees and expenses included in the FER vary from scheme to scheme, but generally include (a) fees of the trustee, custodian, administrator, investment manager and sponsor; (b) guarantee charge (for guaranteed funds); (c) compensation fund levy (currently not levied); (d) audit fees and legal costs; and (e) miscellaneous items such as establishment costs, indemnity insurance, and other out-of-pocket disbursements like postage.   It is important to note that the source information about the fees and expenses chargeable to a fund or a scheme member is the offering document and fee table of each scheme.   The FER is an after-the-event tool for showing, in a consistent manner across schemes, how much was charged for each CF including its underlying investment funds.

Box 1: FER vs. Fees of Retail Funds and Pension Funds in Overseas Jurisdictions

- There are often comments by the media and commentators about the FER of the MPF System compared to the fees of retail funds and pension funds in overseas jurisdictions. Whilst it is naturally tempting to look for simple comparison, comparing the FER of the MPF system to fees of other funds may not be a valid basis on which any conclusions should be drawn.

Fees of Retail Funds

- Fees of retail funds are not a valid benchmark against the FER of CFs as they have different fee structures.   It should be noted that the FER is a unique measure that pulls together the fees and expenses across all such functions and services, both within the MPF schemes and even from underlying investment pools.   Therefore, it is a uniquely inclusive figure.

- An MPF scheme is not an investment product.   It is a bundle of services that goes far beyond simple investment management.   It includes collecting and allocating employers' contributions, assisting in chasing employers for outstanding contributions, providing statutory reporting to regulators, and administering how and when withdrawals can be made, etc.   Therefore, in addition to the costs relating to investment management, costs relating to scheme administration would also be incurred.   Fees need to be charged to

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recoup these costs. MPF funds necessarily incur elements of scheme administration that are not applicable to retail funds in the market.

Fees of Pension Funds in Overseas Jurisdictions

- It is a daunting task to compare the FER of CFs with the fees of overseas pension funds. The first challenge is the availability of reliable data as fee figures of pension funds in different pension systems are frequently only available from secondary, non-official sources. Where such data is available it is often difficult to ascertain exactly what types of fees and expenses are included in such figures. A further difficulty is that many overseas pension systems adopt different charging structures in a way very different from the elements of the FER used for the MPF System. Data can be adjusted to take account of these differences, but this necessarily requires the use of assumptions which can materially affect the outcome.

- Even where comparable and reliable data is available, differences in pension system design and maturity can have a bearing on what would be considered as a reasonable level of fees and charges in the system. For instance, in some pension systems (e.g. Australia and UK), non-profit organizations (e.g. labour unions and industry associations) may act as scheme administrators. In others (e.g. employer sponsored 401(k) plans in the USA), employers may be taking up or incurring some of the administrative expenses. Since the profit element may not feature in the fees of these schemes, the fee level of pension funds managed by them may be different from those managed by commercial administrators. In other jurisdictions (e.g. Sweden), pension contributions are collected by the tax authority through employers. Such operational arrangements may suggest lower explicit costs however the hidden costs are in fact paid from the government's revenue.

- A pension system with longer history and bigger asset size is more likely to have had the opportunity to capitalize on economies of scale. The asset sizes of the major pension systems in Australia (Superannuation System) and the US (401(k) plans) are 20 times and 61 times the asset size of the MPF System as at end December 2015. The pension programmes in Chile and the US (401(k)) started their operation almost two decades before the implementation of the MPF System.

- Investment management costs generally increase with the number of funds as more resources have to be allocated to marketing, research and management of a larger number of investment portfolios. More, necessarily smaller, funds will also have scale disadvantages. In Chile, each pension scheme administrator is restricted by law to offer five funds only. As a comparison, as of June 2016, a total of 462 CFs were available in the MPF System. On average, each MPF scheme offers 12 CFs.

III. Scope of Study and Data Constraint

i.   Time Coverage

7.   The FER data covered in this report is as of <u>30 June 2016</u> (Publication Date), i.e. the FER of CFs on the Fee Comparative Platform of the MPFA's website as at the Publication Date of 30 June 2016.   Since the FER figures are calculated and reported by trustees after financial period end, in effect, these FER figures cover a range of different 12-month financial periods of the relevant schemes with end dates ranging from 9 months to 21 months before the Publication Date.   The average FER is therefore the average of the FERs of CFs with financial year-end dates falling within the period from <u>1 October 2014 to 30 September 2015</u>.

8.   All available FER data is used in the analysis.   It should be noted that the FER of CFs in which the periods between the reporting dates of the fund fact sheet and the inception dates of the CFs are less than two years may not be available as, under such circumstances, trustees are not required to provide the FER information in the fund fact sheet.   Therefore, these CFs are not included in the report for analysis.   As of 30 June 2016, among the 507 CFs[3], 13 of them are excluded from the report for this reason.   A total of 494 CFs are thus included for analysis.

9.   Since there is a time lag between calculation and reporting of the FER figures, more recent fee cuts by trustees have not been reflected or fully reflected in the FER figures in the report.

ii.   Data Coverage

10.   A total of 494 CFs are included in the report for analysis. (Table 1)   All of the data of the report comes from the database of the Fee Comparative Platform maintained by the MPFA, and all FER data on the Fee Comparative Platform is obtained from the Fund Fact Sheet of schemes.

Table 1   Number of CFs by Fund Type (as of June 2016)

Fund Type	No. of Funds^	%
Equity Fund	180	36%
Mixed Assets Fund	183	37%
Bond Fund	49	10%
Guaranteed Fund	27	5%
MPF Conservative Fund	42	9%
Money Market Fund & Others*	13	3%
Overall	494	100%

^ A CF may comprise different fund classes.   Each fund class of a CF is treated as a separate CF in the table.
 * Covers money market funds that are not MPF conservative funds and uncategorized funds as per the Performance Presentation Standards for MPF Investment Funds.

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3   A CF may comprise different fund classes.   In this report, each fund class of a CF is treated as a separate CF.

IV. Snapshot of FER as of June 2016

11. This section of the report provides a snapshot of the FER of CFs as of June 2016.

i. Highest, Average and Lowest FER of CFs by Fund Type

12. As of June 2016, the overall average FER of CFs amounted to 1.57%. The range of the FER varied from 0.13%[4] (an MPF conservative fund) to 3.75% (a guaranteed fund). (Table 2)

Table 2 Average, Highest and Lowest FER of CFs by Fund Type
(as of June 2016)

Fund Type	No. of Funds	Average FER (%)	Lowest FER (%)	Highest FER (%)
Equity Fund	180	1.58	0.63	2.29
Mixed Assets Fund	183	1.72	0.70	2.11
Bond Fund	49	1.38	0.78	1.90
Guaranteed Fund	27	2.08	1.29	3.75
MPF Conservative Fund	42	0.69	0.13	1.21
Money Market Fund & Others	13	1.17	0.60	1.39
Overall	**494**	**1.57**	**0.13**	**3.75**

ii. Distribution of FER by Fund Type

13. Regarding the distribution of the FERs by fund type, guaranteed funds and MPF conservative funds represented two extremes. Among the 27 guaranteed funds, 11 or 41% of them had an FER higher than 2.50% as of June 2016, the highest proportion among all fund types. At the opposite end of the spectrum is MPF conservative funds. Thirty out of the 42 MPF conservative funds had FER of 1.00% or lower. (Table 3)

14. The FER of equity funds tended to be widely distributed. About one-third of equity funds had their FER at 1.25% or below. For guaranteed funds and mixed assets funds, fewer lower FER funds were offered to members. To illustrate this, as of June 2016, none of the guaranteed funds had FER of 1.25% or below. For mixed assets funds, only 22 or 12% out of 183 mixed assets funds had FER of 1.25% or below. (Table 3)

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[4] During the year, the MPF conservative fund recorded the lowest FER only achieved a net monthly return in excess of the Prescribed Savings Rate (PSR) for one month. Under the existing requirement, no fees or charges can be deducted from a MPF conservative fund in any month unless it achieves a net return for that month of over and above the return calculated based on the PSRs prescribed by the MPFA.

Table 3   Distribution of FER of CFs by Fund Type (as of June 2016)

Fund Type	FER Range								Total no. of CFs	FER (%)		
	1% or below	1.01% to 1.25%	1.26% to 1.50%	1.51% to 1.75%	1.76% to 2.00%	2.01% to 2.25%	2.26% to 2.50%	Above 2.5%		Highest	Average	Lowest
Equity Fund	27	34	29	37	36	16	1	0	**180**	2.29	1.58	0.63
Mixed Assets Fund	5	17	36	67	41	17	0	0	**183**	2.11	1.72	0.70
Bond Fund	11	9	9	14	6	0	0	0	**49**	1.90	1.38	0.78
Guaranteed Fund	0	0	2	1	5	3	5	11	**27**	3.75	2.08	1.29
MPF Conservative Fund	30	12	0	0	0	0	0	0	**42**	1.21	0.69	0.13
Money Market Fund & Others	4	5	4	0	0	0	0	0	**13**	1.39	1.17	0.60
Overall	77	77	80	119	88	36	6	11	**494**	3.75	1.57	0.13

# V. Historical Trend of FER

15. This section of the report examines the trend of the FER from July 2007 to June 2016.

i.   All CFs

a.   *Overall Trend*

16. After rising from 2.06% as of July 2007 to 2.10% as of December 2007, the average FER of CFs as a whole has generally shown a downward trend since then.   The average FER has stayed below 2% since June 2009 and dipped to 1.70% as of December 2013.   It further lowered to 1.57% as of June 2016.   For the period of July 2007 – June 2016, the average FER of CFs as a whole decreased by 23.8% (Chart 1).

Chart 1   Highest, Average and Lowest FER of All CFs
(July 2007 – June 2016)
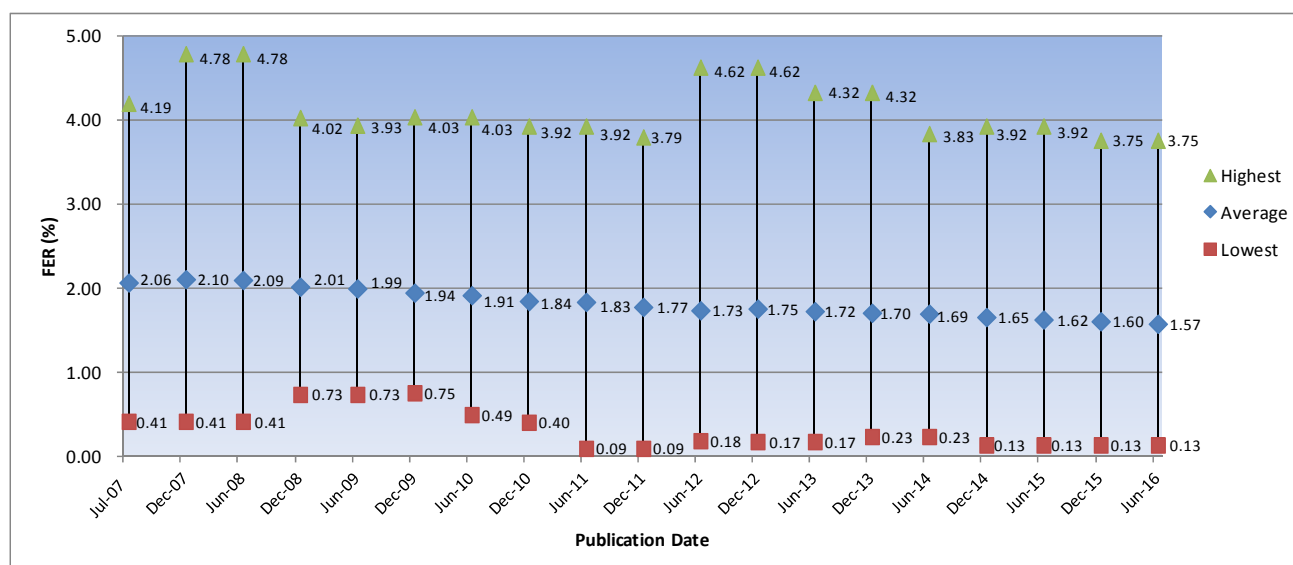
17. By fund type, MPF conservative funds recorded the largest reduction of the average FER (0.79 percentage points or 53.4%), followed by bond funds (0.74 percentage points or 34.9%), equity funds (0.49 percentage points or 23.7%) and guaranteed funds (0.47 percentage points or 18.4%).   Mixed assets funds (0.39 percentage points or 18.5%) recorded a relatively lower level of reduction in the average FER.

18. During the period of September 2008 – June 2016,[5] the distribution of the FER of CFs generally displayed a shift from higher FER ranges to lower FER ranges.   As of September 2008, only 3.4% of total CFs had an FER of 1.25% or below.   As of June 2016, the proportion rose to 31.2% of total CFs.   At the other end of the spectrum, the proportion of CFs with an FER of 2.26% or above decreased from 26.1% of total CFs as of September 2008 to 3.4% of total CFs as of June 2016.

19. In terms of the number of CFs, many more CFs with lower FER have become available.   As of September 2008, only 12 CFs had an FER of 1.25% or lower.   As of June 2016, a total of 154 CFs had an FER of 1.25% or below.   As such, members' choice of cheaper CFs increased substantially during this period.

[5]   The FER data of each CF was not available until September 2008.

ii. Trend of FER of CFs by Fund Type

a. General Trend

Equity Fund

20. The average FER of equity funds has recorded a steady downward trend since December 2008. As of June 2016, the average FER of equity funds was 1.58%, a reduction of 0.49 percentage points or 23.7% from July 2007.   (Chart 2)

Chart 2   Highest, Average and Lowest FER of Equity Funds
(July 2007 – June 2016)
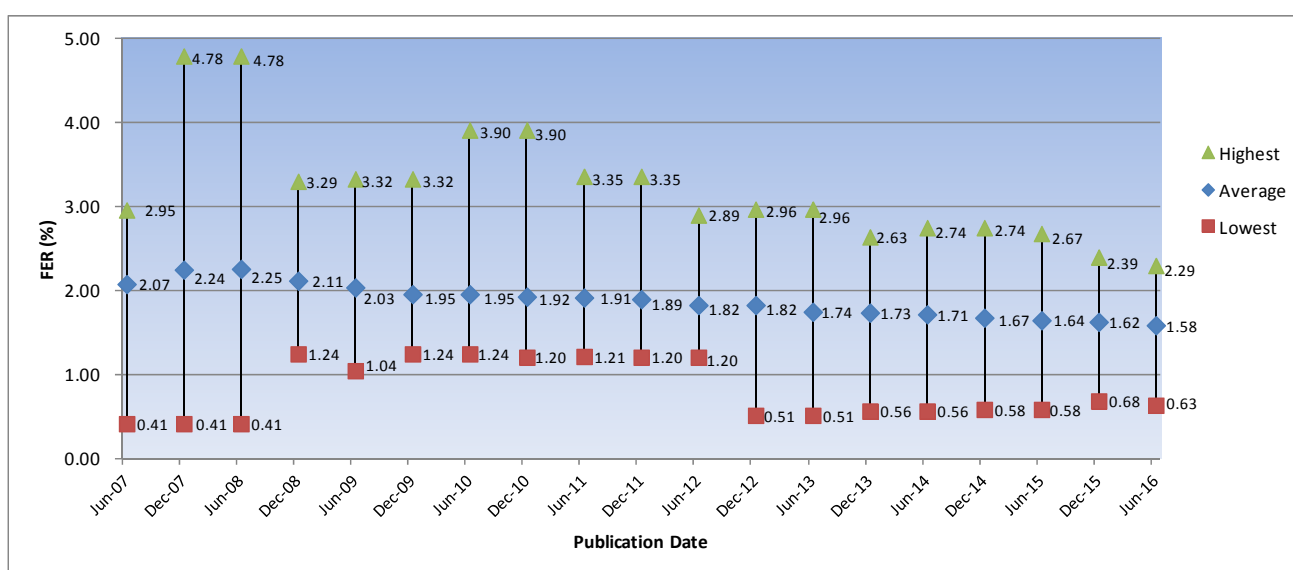
Mixed Assets Fund

21. The average FER of mixed assets funds moved downward gradually from 2.11% as of July 2007 to 2.03% as of December 2008 and stood at 2.03% until June 2010.   It edged down to 2.00% as of December 2010, to 1.90% as of December 2012 and to 1.80% as of December 2014. As of June 2016, it further lowered to 1.72%.   (Chart 3)

Chart 3   Highest, Average and Lowest FER of Mixed Assets Funds
(July 2007 – June 2016)
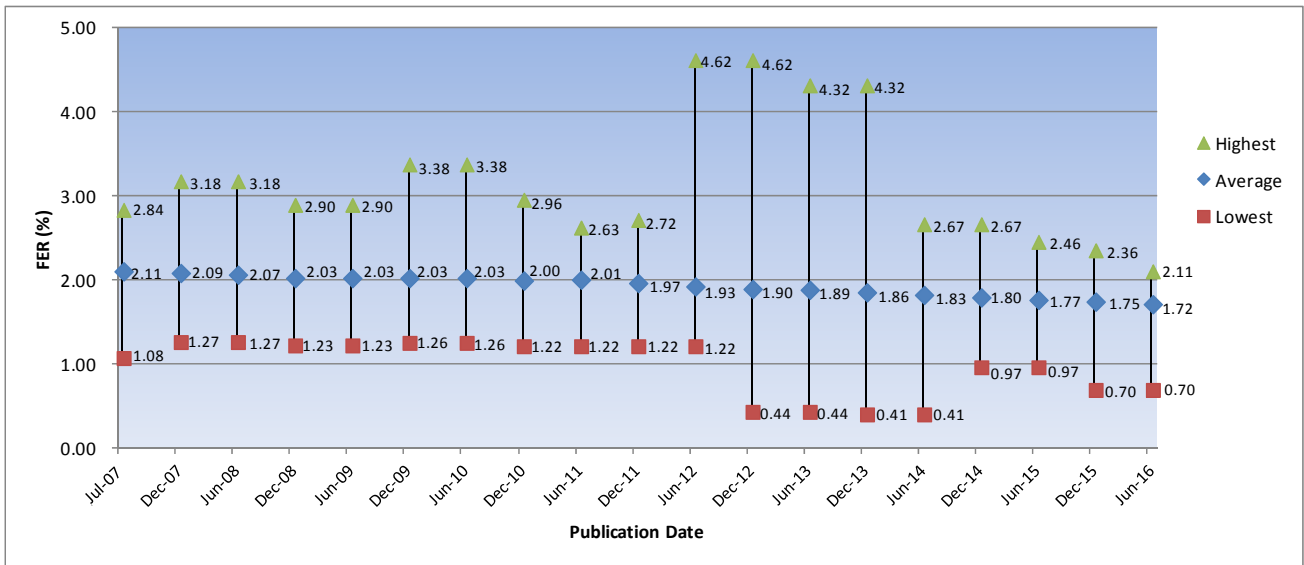
Bond Fund

22.   The average FER of bond funds displayed a noticeable downward trend from 2.12% as of July 2007 to 1.38% as of June 2016.   (Chart 4)

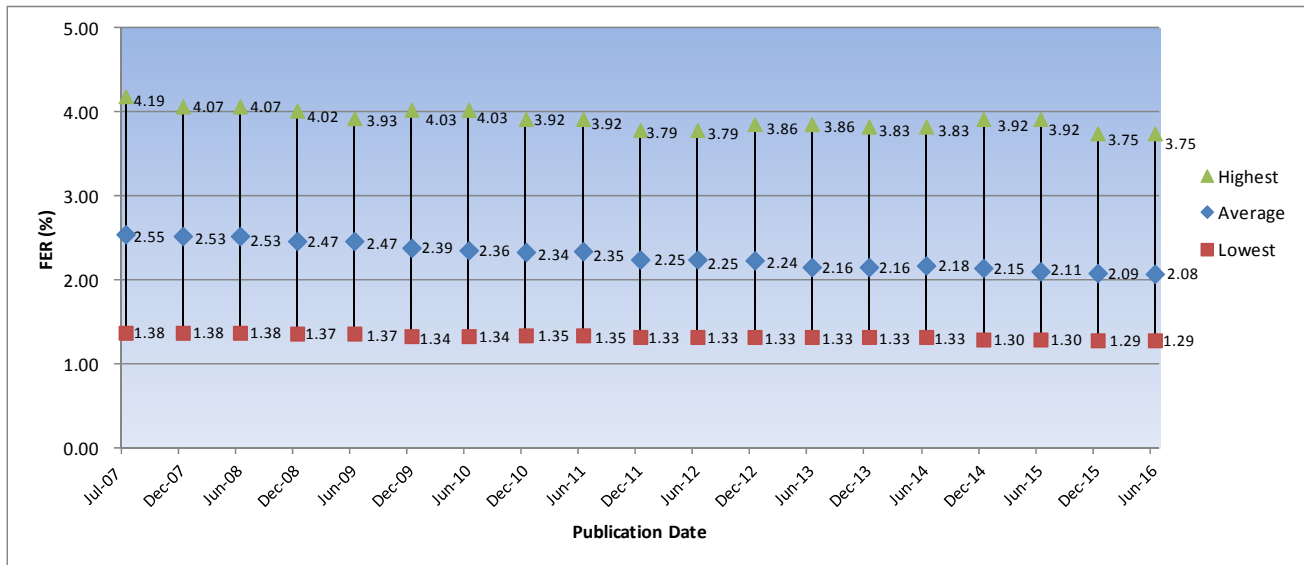**Chart 4   Highest, Average and Lowest FER of Bond Funds**
(July 2007 – June 2016)
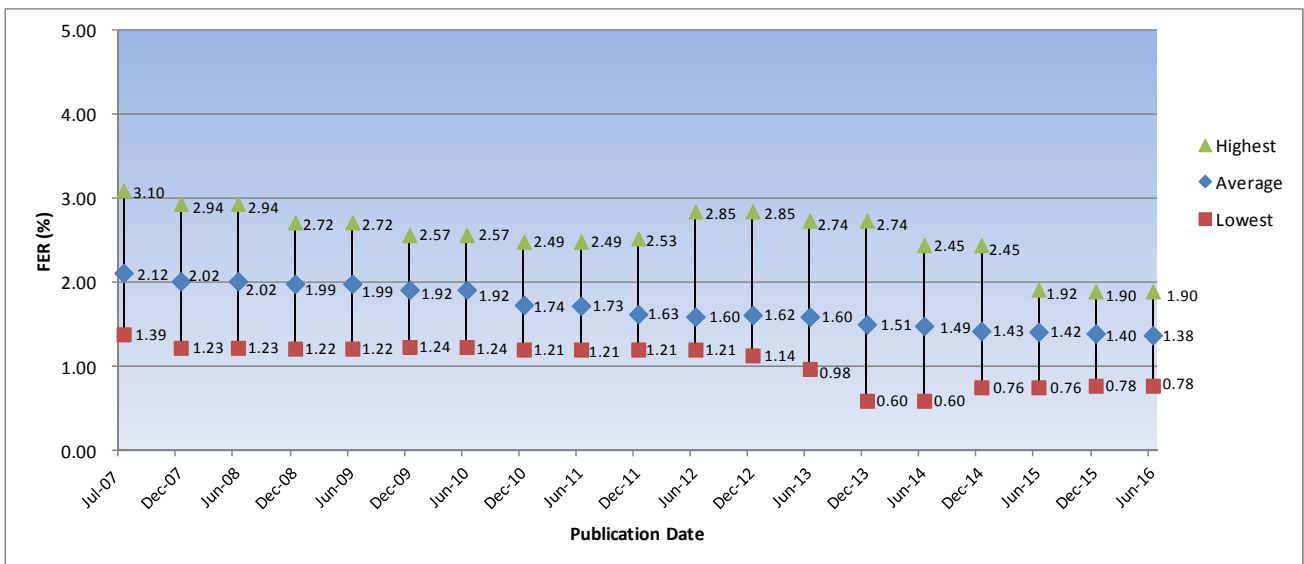
Guaranteed Fund

23.   The average FER of guaranteed funds was on a mild downward course, from 2.55% as of July 2007 to 2.08% as of June 2016.   (Chart 5)

Chart 5   Highest, Average and Lowest FER of Guaranteed Funds
(July 2007 – June 2016)

MPF Conservative Fund

24. From July 2007 to September 2011, the average FER of MPF conservative funds demonstrated a notable downward trend despite some rebounds during the period.   As of December 2011, the average FER was 0.39%, down from 1.48% as of July 2007.   It rebounded to 0.71% as of June 2014 and edged down to 0.69% as of June 2016.   (Chart 6)

Chart 6   Highest, Average and Lowest FER of MPF Conservative Funds
(July 2007 – June 2016)
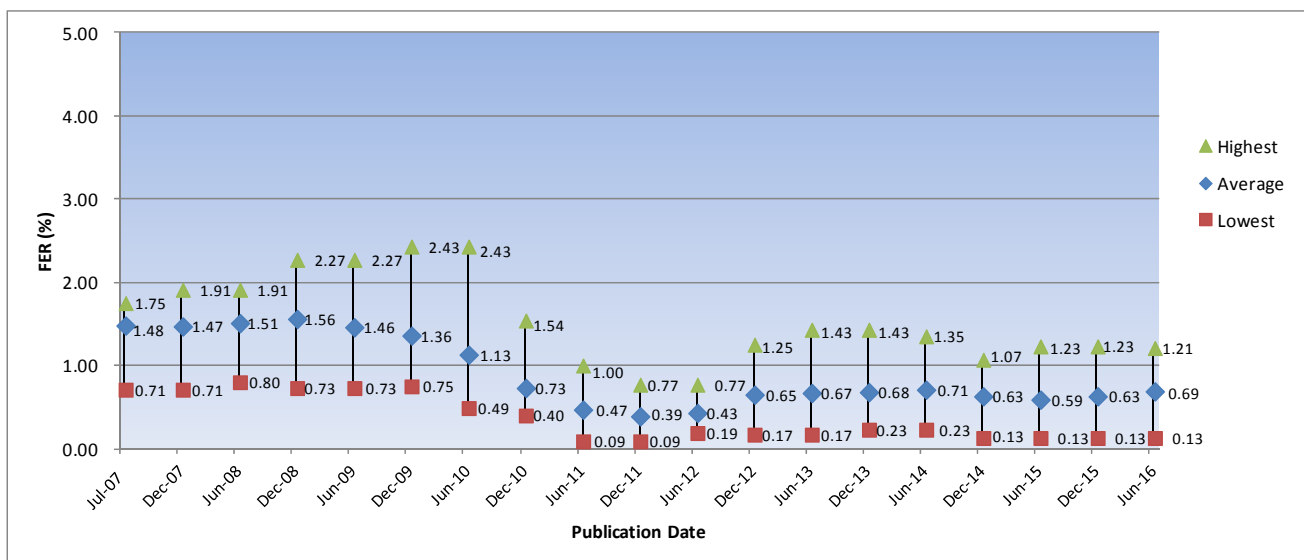
25. It is noteworthy that the charging mechanism of MPF conservative funds is different from that of other fund types.   For a particular month, if the return of an MPF conservative fund does not exceed the amount of interest that would be earned if the fund assets had been placed on deposit in a Hong Kong dollar savings account at the Prescribed Savings Rate prescribed by the MPFA

for that month (PSR Interest), no scheme administrative expenses may be deducted by the trustee.   If the return exceeds the PSR Interest, an amount not exceeding the excess may be deducted as scheme administration expenses for that month.   For any scheme administration expenses that have not been deducted due to the above restrictions, the trustee may make a deduction in any of the following 12 months from any excess return that may remain after deducting the administrative expenses for that following month.   Therefore, compared with previous months, the FER of an MPF conservative fund may move up when its return, after a period with return lower than the PSR Interest, increases to a level higher than the PSR Interest.

b.   *Distribution of FER by Fund Type*

26. Among all fund types, MPF conservative funds displayed the most significant trend towards lower FER.   During the period of September 2008 – June 2016, the number of CFs of this fund type that had FER of 1.25% or below increased by 35.

27. A substantial number of bond funds also moved from higher FER ranges to lower FER ranges. The number of bond funds with an FER higher than 2.0% dropped from 12 as of September 2008 to zero as of June 2016.   During the same period, the number of bond funds with an FER of 1.25% or below increased from one to 20.

28. More equity funds and mixed assets funds with lower FERs have also become available.   As of September 2008, only three equity funds and no mixed assets funds had an FER of 1.25% or below.   As of June 2016, a total of 61 equity funds and 22 mixed assets funds had an FER of 1.25% or below.

29. Generally speaking, there were little changes in the distribution of the FER of guaranteed funds during the period of September 2008 – June 2016.   Over 88% of guaranteed funds had an FER higher than 1.75%.

Table 4   Distribution of FER of CFs by Fund Type (September 2008 – June 2016)

| Fund Type		<=1.00	1.01 to 1.25	1.26 to 1.50	1.51 to 1.75	1.76 to 2.00	2.01 to 2.25	2.26 to 2.50	> 2.50	Total	Highest	Average	Lowest
Equity Fund	Jun 2016	27	34	29	37	36	16	1	0	**180**	2.29	1.58	0.63
	Sep 2008	2	1	1	4	16	11	14	1	**50**	4.78	2.25	0.60
	Change	*25*	*33*	*28*	*33*	*20*	*5*	*-13*	*-1*	***130***	*-2.49*	*-0.67*	*0.03*
Mixed Assets Fund	Jun 2016	5	17	36	67	41	17	0	0	**183**	2.11	1.72	0.70
	Sep 2008	0	0	14	23	31	47	35	8	**158**	2.90	2.06	1.27
	Change	*5*	*17*	*22*	*44*	*10*	*-30*	*-35*	*-8*	***25***	*-0.79*	*-0.34*	*-0.57*
Bond Fund	Jun 2016	11	9	9	14	6	0	0	0	**49**	1.90	1.38	0.78
	Sep 2008	0	1	2	2	4	6	4	2	**21**	2.94	2.00	1.23
	Change	*11*	*8*	*7*	*12*	*2*	*-6*	*-4*	*-2*	***28***	*-1.04*	*-0.62*	*-0.45*
Guaranteed Fund	Jun 2016	0	0	2	1	5	3	5	11	**27**	3.75	2.08	1.29
	Sep 2008	0	0	1	0	3	4	1	10	**19**	4.02	2.52	1.37
	Change	*0*	*0*	*1*	*1*	*2*	*-1*	*4*	*1*	***8***	*-0.27*	*-0.44*	*-0.08*
MPF Conservative Fund	Jun 2016	30	12	0	0	0	0	0	0	**42**	1.21	0.69	0.13
	Sep 2008	5	2	13	10	10	5	0	0	**45**	2.25	1.54	0.80
	Change	*25*	*10*	*-13*	*-10*	*-10*	*-5*	*0*	*0*	***-3***	*-1.04*	*-0.85*	*-0.67*
Money Market Fund & Others	Jun 2016	4	5	4	0	0	0	0	0	**13**	1.39	1.17	0.60
	Sep 2008	0	1	3	1	2	0	0	0	**7**	1.83	1.57	1.10
	Change	*4*	*4*	*1*	*-1*	*-2*	*0*	*0*	*0*	***6***	*-0.44*	*-0.40*	*-0.50*
Overall	Jun 2016	77	77	80	119	88	36	6	11	**494**	3.75	1.57	0.13
	Sep 2008	7	5	39	44	75	93	62	31	**356**	4.78	2.08	0.60
	Change	*70*	*72*	*41*	*75*	*13*	*-57*	*-56*	*-20*	***138***	*-1.03*	*-0.51*	*-0.47*

iii.   Trend of FER of Equity Funds by Geographical Region and Investment Style

a.   *Geographic Region*

30.   Equity funds could be further classified into five sub-types according to the equity markets that they invest: Asia, Europe, Global, Hong Kong and North America equity funds.

31.   From September 2008 to June 2016[6], the average FER of equity funds recorded a reduction from 2.25% to 1.62% (0.63 percentage points or 28%).   Among all sub-types, Asia equity funds recorded the largest reduction (1.15 percentage points), followed by Hong Kong equity funds (0.64 percentage points).   Europe equity funds, North America equity funds and Global equity funds recorded relatively moderate reductions of 0.47, 0.39 and 0.16 percentage points respectively.   (Chart 7)

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[6]   The data on the average FER of equity funds by geographic region was not available until September 2008.

Chart 7   Trend of FER of Equity Funds by Geographical Region
**(September 2008 – June 2016)**
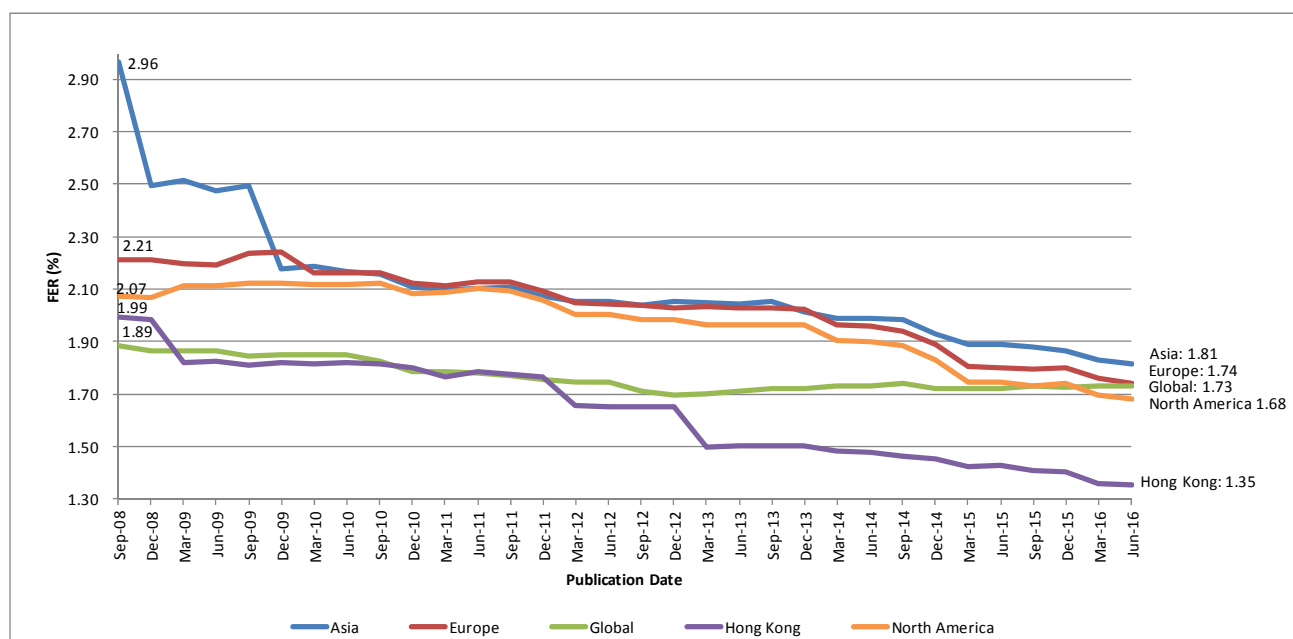
b.   *Investment Style*

32.   There are broadly two types of investment style of equity funds: actively managed equity funds and passively managed equity funds.   For actively managed equity funds, fund managers try to achieve better returns (as compared to the chosen market benchmarks) by using their skills in selecting individual securities and deciding the best time to buy and sell them.   Passively managed equity funds (i.e. index-tracking funds) seek to replicate the performance of their benchmark indexes instead of outperforming them.

33.   From September 2008 to June 2016[7], among equity funds, passively managed equity funds recorded a larger reduction in average FER (1.13 percentage points or 56.0%) than actively managed equity funds (0.60 percentage point or 25.6%).   (Chart 8)

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[7]   The data on the average FER of equity funds by investment style was not available until September 2008.

Chart 8   Trend of FER of Equity Funds by Investment Style
(September 2008 – June 2016)
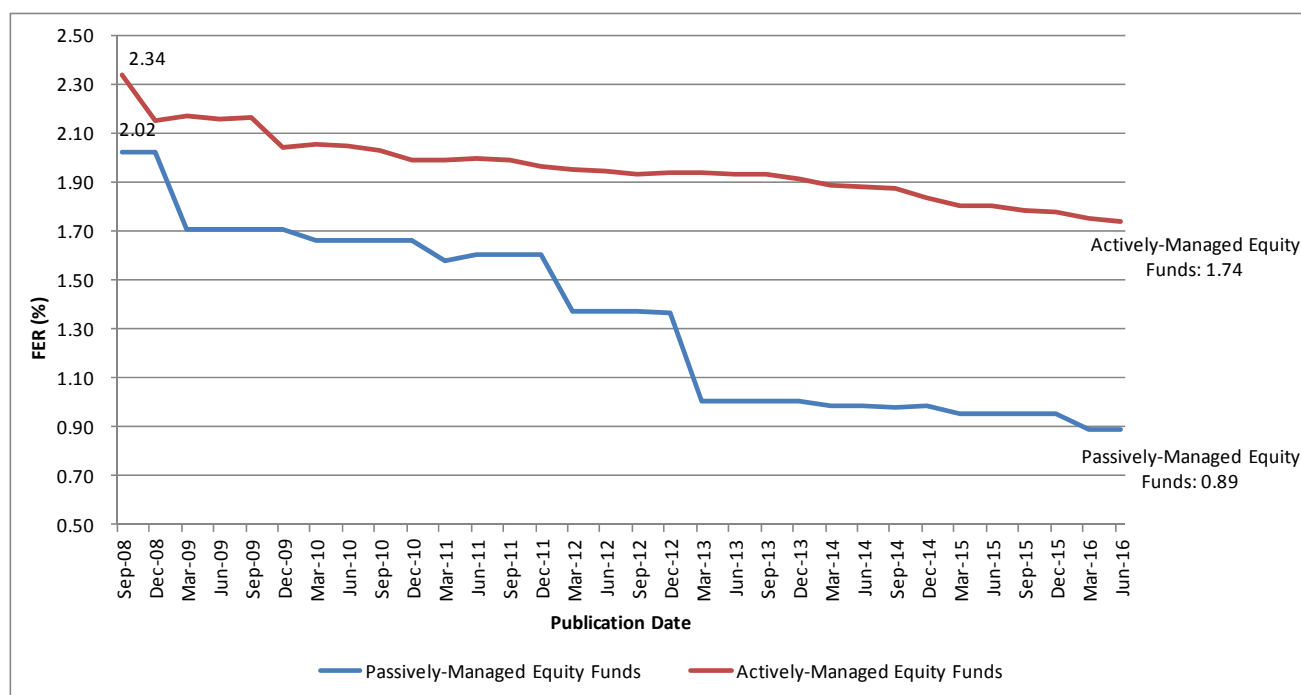

iv.   Trend of FER of Mixed Assets Funds by Equity Content[8]

34.   Mixed assets funds could be further classified into sub-types according to their exposure to equities.   This report uses the following four sub-types for analysis purpose: ≤40% equity, >40-60% equity, >60-80% equity and >80% equity.   From September 2008 to June 2016[9], the average FER of mixed assets funds recorded a reduction from 2.05% to 1.72% (0.33 percentage point, or 16.1%).   Among all sub-types, mixed assets funds with ≤40% equity recorded the largest reduction (0.55 percentage point or 25.9%).   Mixed assets funds with >40-60% equity, >60-80% equity, and >80% equity recorded reductions of 0.30, 0.23 and 0.33 percentage point respectively.   (Chart 9).

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[8]   Equity content refers to the maximum equity investment of the fund as stipulated in its offering document.
[9]   The data on the average FER of mixed assets funds by equity content was not available until September 2008.

**Chart 9   Trend of FER of Mixed Assets Funds by Equity Content
(September 2008 – June 2016)**
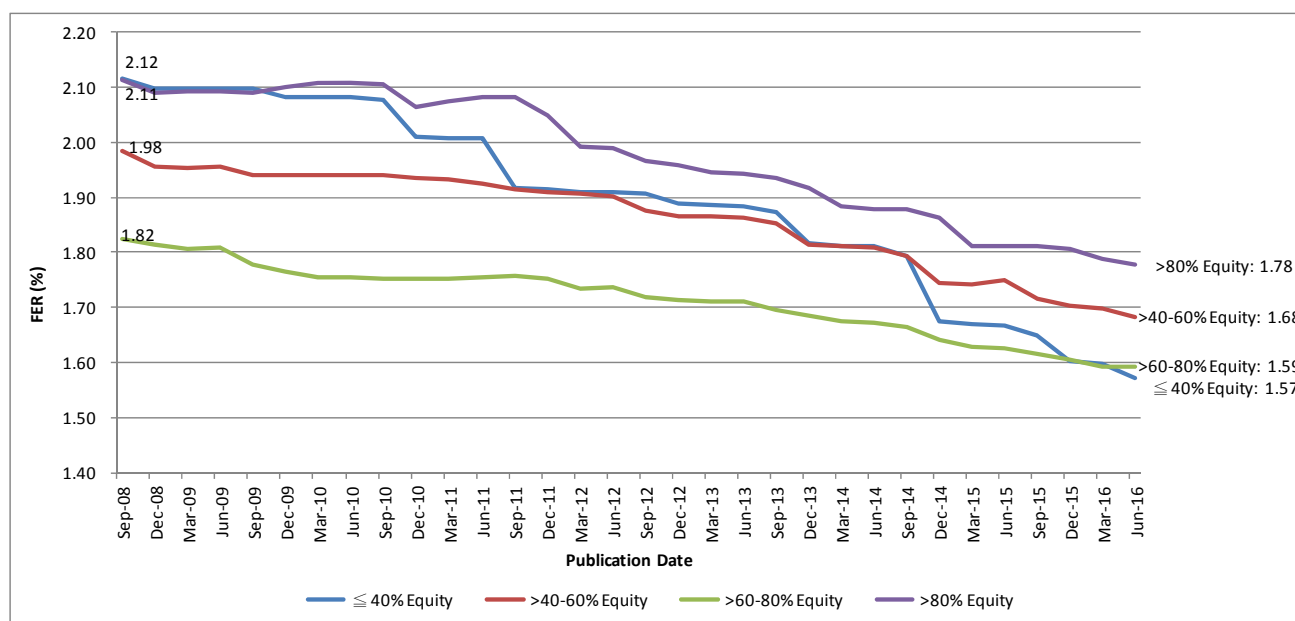
v.   Trend of FER of Bond Funds by Geographical Region

35.   Bond funds could be further classified into three sub-types: Global bond funds, Asia bond funds and Hong Kong bond funds.   From September 2008 to June 2016[10], the average FER of bond funds recorded a reduction from 2.00% to 1.38% (0.62 percentage point, or 31.2%).   Among all sub-types, Asia bond funds recorded an increase in average FER by 0.36 percentage point during the period from September 2013 to June 2016.   Global bond funds and Hong Kong bond funds recorded reductions of 0.62 and 0.60 percentage point respectively.   (Chart 10)

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[10]   The data on the average FER of bond funds by geographic region was not available until September 2008.

Chart 10   Trend of FER of Bond Funds by Geographical Region (September 2008 – June 2016)
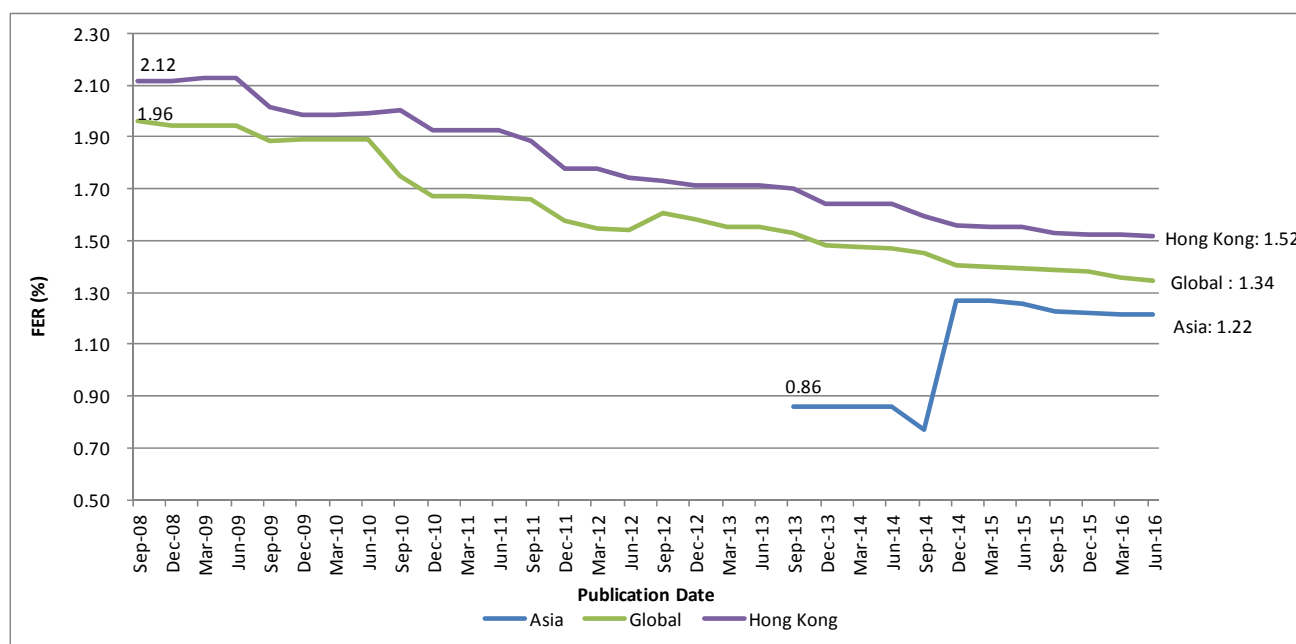
VI. Correlation Analysis

36. This section analyzes the correlation between the FER and three attributes of CFs, namely investment performance, size and age of CFs as well as the relationship between the investment style of equity funds and their FER levels.

i.   Relationship between FER and Investment Return

37. Some members may think that they would not mind paying higher fees if a CF could deliver better investment performance.   To explore if there is any relationship between the FER (the latest FER) and investment performance (1, 3 and 5-year) of MPF funds, the Pearson correlation test is applied to each type of CFs.

**Table 5   Correlation between FER and Investment Performance
of CFs by Fund Type**

H_0: There is no association between the FER and investment performance

	FER vs Fund Performance*	Sample Size	Correlation Coefficient	p-value	Decision
Equity Fund	1-Year Performance	180	0.0906	0.2263	*Do not reject H_0*
	3-Year Performance	175	0.0201	0.7919	*Do not reject H_0*
	5-Year Performance	149	0.0912	0.2685	*Do not reject H_0*
Mixed Assets Fund	1-Year Performance	177	-0.2204	0.0032	***Reject H_0***
	3-Year Performance	176	-0.2704	0.0003	***Reject H_0***
	5-Year Performance	170	-0.3108	0.0000	***Reject H_0***
Bond Fund	1-Year Performance	49	-0.3802	0.0071	***Reject H_0***
	3-Year Performance	45	-0.5268	0.0002	***Reject H_0***
	5-Year Performance	36	-0.6566	0.0000	***Reject H_0***
Guaranteed Fund	1-Year Performance	27	-0.0463	0.8185	*Do not reject H_0*
	3-Year Performance	27	-0.2148	0.2820	*Do not reject H_0*
	5-Year Performance	27	-0.0750	0.7100	*Do not reject H_0*
MPF Conservative Fund	1-Year Performance	42	-0.4524	0.0026	***Reject H_0***
	3-Year Performance	42	-0.4653	0.0019	***Reject H_0***
	5-Year Performance	41	-0.4667	0.0021	***Reject H_0***

Decision rule: reject H_0 if p-value<0.05 significance level
* FER refers to the FER of CFs as of 30 June 2016.   Fund performance refers to the annualized returns of CFs ending 31 May 2016.

38. For equity funds, the hypothesis that there is no association between the FER and investment performance is not rejected in the event of 1-year, 3-year and 5-year performance. This finding suggests that there is no association between the FER and 1-year, 3-year and 5-year performance.   (Table 5)

39. Further analysis is conducted on the sub-types of equity funds by geographical region.   For Hong Kong equity funds, the null hypothesis is rejected for 1-year, 3-year and 5-year performance with negative coefficient recorded.   This finding suggests that the FER of Hong Kong equity funds is negatively correlated with 1-year, 3-year and 5-year investment performance (i.e. the higher the FER, the lower the return).

40. No association between the FER and investment performance is found in respect of Asian equity funds, European equity funds, Global equity funds and North American equity funds. (Table 6)

Table 6   Correlation between FER and Investment Performance of MPF Equity Funds by Geographical Region

H_0: *There is no association between the FER and investment performance*

	FER vs Fund Performance*	Sample Size	Correlation Coefficient	p-value	Decision
Asian Equity Fund	1-Year Performance	62	0.1989	0.1211	*Do not reject H_0*
	3-Year Performance	62	0.1004	0.4377	*Do not reject H_0*
	5-Year Performance	51	0.2642	0.0611	*Do not reject H_0*
European Equity Fund	1-Year Performance	11	0.2327	0.4911	*Do not reject H_0*
	3-Year Performance	11	-0.0728	0.8316	*Do not reject H_0*
	5-Year Performance	10	0.0239	0.9477	*Do not reject H_0*
Global Equity Fund	1-Year Performance	38	-0.0078	0.9630	*Do not reject H_0*
	3-Year Performance	36	0.1749	0.3075	*Do not reject H_0*
	5-Year Performance	33	0.3039	0.0855	*Do not reject H_0*
Hong Kong Equity Fund	1-Year Performance	57	-0.3904	0.0027	***Reject H_0***
	3-Year Performance	54	-0.4301	0.0012	***Reject H_0***
	5-Year Performance	46	-0.3065	0.0383	***Reject H_0***
North American Equity Fund	1-Year Performance	12	-0.1942	0.5452	*Do not reject H_0*
	3-Year Performance	12	0.1531	0.6348	*Do not reject H_0*
	5-Year Performance	9	-0.1631	0.6750	*Do not reject H_0*

Decision rule: reject H_0 if p-value<0.05 significance level
* FER refers to the FER of CFs as of 30 June 2016.   Fund performance refers to the annualized returns of CFs ending 31 May 2016

41.   For mixed assets funds, the hypothesis that there is no association between the FER and investment performance is rejected with negative coefficients recorded in the event of 1-year, 3-year and 5-year performance.   The results suggest that 1-year, 3-year and 5-year performance are negatively correlated with FER (i.e. the higher the FER, the lower the return). (Table 5)

42.   Further analysis is conducted on the sub-types of mixed assets funds by equity contents.   The results indicate that, for all sub-types, the relationship between the FER and investment performance is either non-existent or negative.   (Table 7)

Table 7   Correlation between FER and Performance of MPF Mixed Assets Funds by Percentage of Equity Content

H_0: There is no association between the FER and investment performance

	FER vs Fund Performance*	Sample Size	Correlation Coefficient	p-value	Decision
Equity content (≤40%)	1-Year Performance	18	-0.2959	0.2331	*Do not reject H_0*
	3-Year Performance	17	-0.4325	0.0830	*Do not reject H_0*
	5-Year Performance	17	-0.3506	0.1676	*Do not reject H_0*
Equity content (>40-60%)	1-Year Performance	34	-0.2176	0.2163	*Do not reject H_0*
	3-Year Performance	34	-0.5248	0.0014	***Reject H_0***
	5-Year Performance	33	-0.4599	0.0071	***Reject H_0***
Equity content (>60-80%)	1-Year Performance	47	0.0404	0.7874	*Do not reject H_0*
	3-Year Performance	47	-0.3682	0.0109	***Reject H_0***
	5-Year Performance	46	-0.2738	0.0656	*Do not reject H_0*
Equity content (>80%)	1-Year Performance	78	-0.0983	0.3919	*Do not reject H_0*
	3-Year Performance	78	-0.2152	0.0584	*Do not reject H_0*
	5-Year Performance	74	-0.3036	0.0085	***Reject H_0***

*Decision rule: reject H_0 if p-value<0.05 significance level*
* FER refers to the FER of CFs as of 30 June 2016.   Fund performance refers to the annualized returns of CFs ending 31 May 2016.

43. For bond funds, in the test of the FER against 1-year, 3-year and 5-year performance, the null hypothesis is rejected and negative coefficients are recorded.   The findings suggest that the FER of bond funds is negatively correlated with 1-year, 3-year and 5-year investment performance (i.e. the higher the FER, the lower the return).   (Table 5)

44. For guaranteed funds, in the test of the FER against 1-year 3-year and 5-year performance, the null hypothesis is not rejected.   The finding suggests that no association between the FER and 1-year, 3-year and 5-year investment performance is found.   (Table 5)

45. For MPF conservative funds, the findings suggest that the FER and 1-year, 3-year and 5-year investment performance is negative correlated (i.e. the higher the FER, the lower the return). (Table 5)

ii.   Relationship between FER and Fund Size

46. The distribution of the FERs against NAVs of CFs is provided in Chart 11a.   The majority of FERs are scattered between 1.0% and 2.0%.   Despite benefitting from economies of scale, larger funds as a whole do not demonstrate lower FER than smaller funds.

Chart 11a

Fund Size vs. FER (Overall)
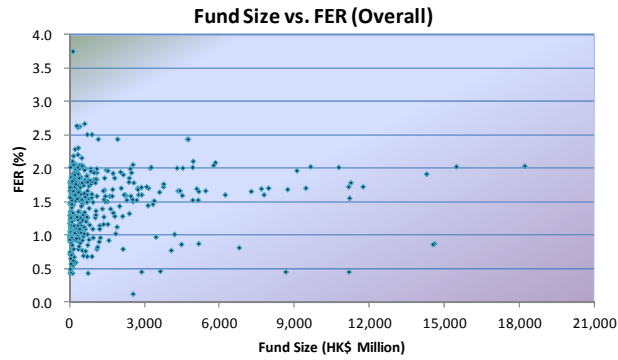
47. Since different fund types have varying level of costs, the distributions of the FERs against the asset size of CFs by fund type are provided in Chart 11b to Chart 11f. Based on graphical observations, the relationship between the FER of CFs and their asset sizes is not conclusive. Some larger funds exhibit higher FER than smaller funds, and vice versa.
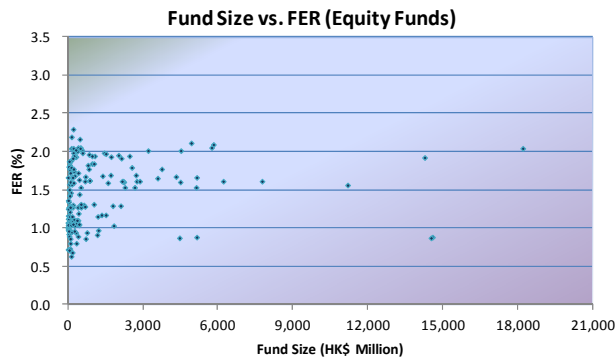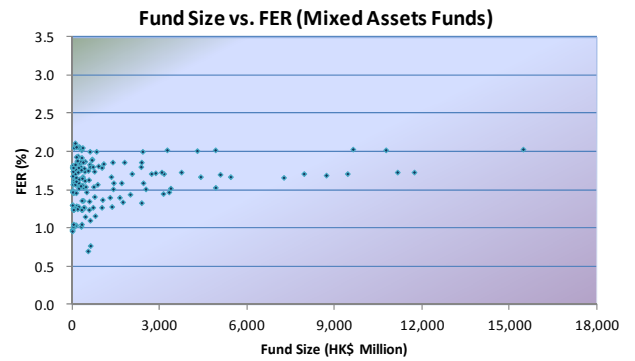
Chart 11b

Fund Size vs. FER (Equity Funds)

Chart 11c

Fund Size vs. FER (Mixed Assets Funds)

Chart 11d

Fund Size vs. FER (Bond Funds)

Chart 11e

Fund Size vs. FER (Guaranteed Funds)
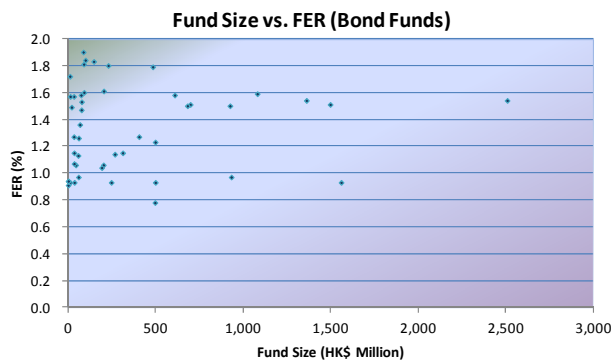

Chart 11f

Fund Size vs. FER (MPF Conservative Funds)

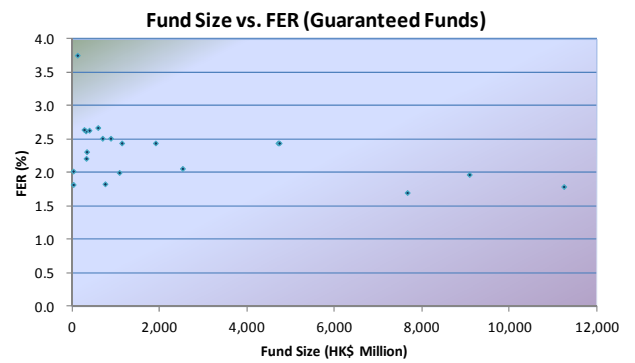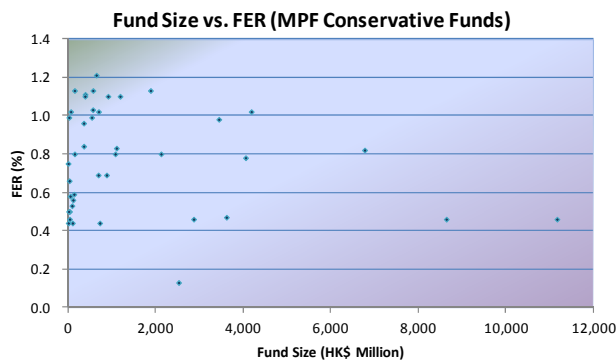*NAV of the MPF funds as at end of May 2016.*

48. With the aid of the Pearson correlation test, further analysis is conducted to examine if a linear relationship between the FER and asset size of CFs exists. Results are given in Table 8.

Table 8 Correlation between FER and Asset Size of CFs

H_0: There is no association between the FER and asset size of CFs

	Sample Size	Correlation Coefficient	p-value	Decision
Overall	456	0.1177	0.0119	*Reject H_0*
Equity Fund	170	0.1466	0.0565	*Do not reject H_0*
Mixed Assets Fund	167	0.2367	0.0021	*Reject H_0*
Bond Fund	47	0.0808	0.5891	*Do not reject H_0*
Guaranteed Fund	21	-0.4378	0.0471	*Reject H_0*
MPF Conservative Fund	42	-0.2018	0.1999	*Do not reject H_0*

Decision rule: reject H_0 if p-value<0.05 significance level

- *Fund size is represented by the NAVs of the funds as at end of May 2016*
- *32 MPF funds have share class of Class D and Class I. Since the information on the NAV of each share class of these funds is not available, they are excluded from the above analysis.*

49. For all CFs as a whole and the fund type of mixed assets funds, the test results rejected the hypothesis that there is no association between the FER and fund size. The positive coefficient of the test results suggests that larger funds are associated with higher FER and smaller funds are associated with lower FER. Negative coefficient is however found for guaranteed funds, suggesting that the FER of guaranteed funds tends to be higher for those with smaller fund size. For equity funds, bond funds and MPF conservative funds, the test results show an absence of relationship between the FER and fund size.

iii. Relationship between FER and Fund Age

50. The number of years of operation of MPF funds is sometimes considered as a factor which may contribute to a lower level of the FER as, for older funds, the fixed costs for setting up the funds are more likely to have been fully amortized. The distributions of the FER against the age of CFs by fund types are given in Chart 12a to Chart 12e.

51. Chart 12a to Chart 12e show that, for all fund types, the FER of older funds is not necessarily lower than that of younger funds. There are instances of older funds having higher or lower FER than younger funds.
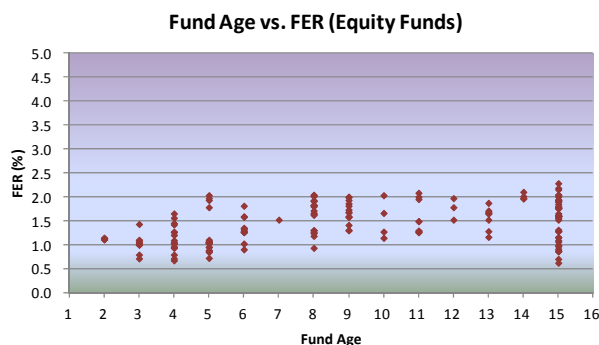
Chart 12a

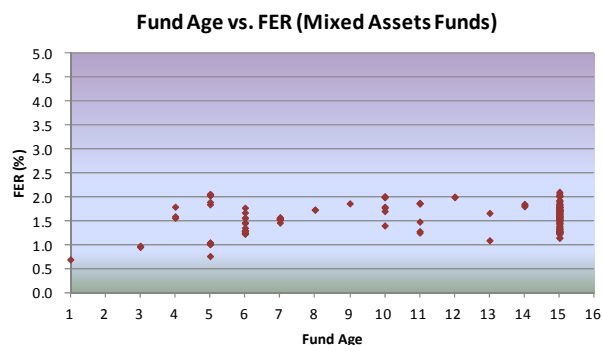**Fund Age vs. FER (Equity Funds)**

Chart 12b

Fund Age vs. FER (Mixed Assets Funds)

Chart 12c

Fund Age vs. FER (Bond Funds)

Chart 12d

Fund Age vs. FER (Guaranteed Funds)

Chart 12e

Fund Age vs. FER (MPF Conservative Funds)

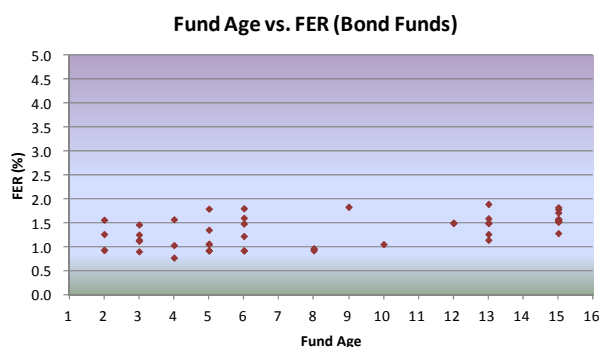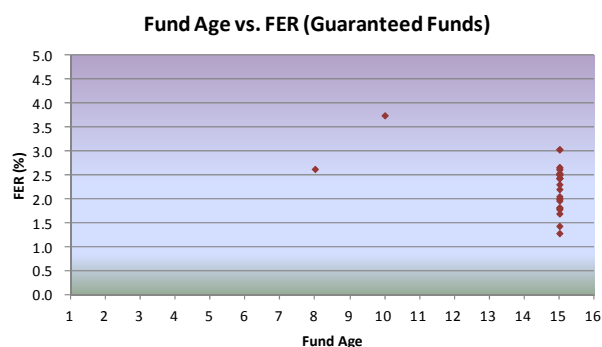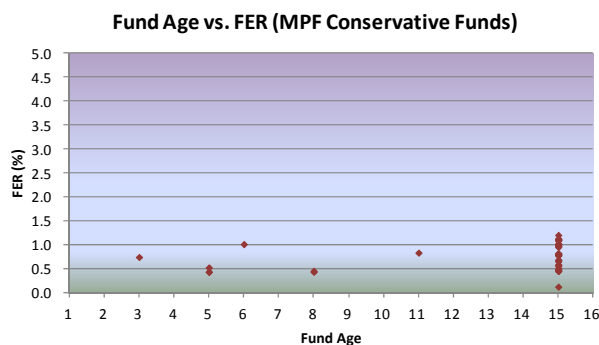*- Age corresponds to the number of complete years of operation of funds as of end June 2016.   Under existing requirements, it is not necessary to report the FER for funds with less than two years of history.*

52. To examine the statistical association between the FER and fund age, the Pearson correlation test is applied to the overall sample, equity funds and mixed assets funds as the age of funds under these three categories is more evenly distributed.   Results are given in Table 9.

Table 9   Correlation between FER and Age of CFs

H_0: There is no association between the FER and fund age

	Sample Size	Correlation Coefficient	p-value	Decision
Overall	488	0.2845	0.0000	*Reject H_0*
Equity Fund	180	0.4126	0.0000	*Reject H_0*
Mixed Assets Fund	177	0.2313	0.0019	*Reject H_0*

Decision rule: reject H_0 if p-value<0.05 significance level

53. The correlation test finds a linear association between the FER and fund age for the overall sample and the sub-samples of equity funds and mixed assets funds.   The test results suggest that the FER of older funds generally tends to be higher than that of younger funds.   This outcome may be due to the fact that more lower fee equity funds (e.g. index tracking funds) have been launched in recent years.

iv.   Relationship between FER and Investment Style

54. This sub-section compares the FER of passively-managed equity funds and actively-managed equity funds, and examines if there is any impact of investment style (i.e. passive management or active management) on the level of the FER.

55. As of June 2016, the weighted average FER of passively-managed equity funds was 0.89%, which is significantly lower than that of actively-managed equity funds (1.74%).

Table 10   Average FER of Actively-Managed Equity Funds vs.
Passively-Managed Equity Funds (as of June 2016)

	No. of Funds	*Weighted Average FER (%)*	*Simple Average FER (%)*
Overall Equity Fund	180	1.58	1.45
Actively Managed Equity Fund	154	1.74	1.54
Passively Managed Equity Fund	26	0.89	0.96

56. Since the sample size between actively-managed equity funds and passively-managed equity funds is different, a statistical test, T-test, is performed to analyse whether there is any relationship between the FER and investment style.   To this end, the T-test examines if the difference between (A) the simple average FER of passively managed funds and (B) the simple average FER of actively managed funds (i.e.: the difference derived by A – B) is statistically significant.

Table 11   Correlation between FER and Investment Style of Equity Funds

H_0: There is no association between the FER and Investment Style

	Actively-Managed Fund	*Passively-Managed Fund*	*Overall*
Average	1.538	0.962	
Variance	0.139	0.026	
No. of Observations	154	26	
T-statistic			-13.275
P-value			0.000
Critical Value			1.663
Decision:			**Reject H₀**

Decision rule: reject H_0 if p-value<0.05 significance level

57. The test results show that the null hypothesis is rejected, and the T-statistic indicates a negative value.   This finding suggests that the investment style of equity funds has an impact on the level of the FER in that equity funds employing a passive management style generally reported a lower level of the FER than those equity funds employing an active management style.

v.   Limitations of Statistical Tests

58. In the context of the statistical test theory, statistical error is an integral part of the Pearson test and other hypothesis tests employed in other sections of the report.   All statistical hypothesis tests have a probability of making type I and type II errors.

59. A type I error, or false positive, occurs when a true null hypothesis is rejected incorrectly.   A type II error, or false negative, occurs when a false null hypothesis is not rejected.   Reducing the likelihood of committing a type I error by relaxing the size of rejection region at which one is willing to accept a positive finding reduces the statistical power of the test, hence increasing the possibility of type II error, and vice versa.[11]

60. In some cases, the sample size of CFs covered for analysis is small, which may undermine the reliability of the findings obtained from the statistical test.

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[11] McKillup, S. (2011). *Statistics Explained: An Introductory Guide for Life Scientist*. New York: Cambridge University Press.

VII. Relationship between Fee Reductions and Inflows of Contributions and Benefits of Schemes

i. Introduction

61. This section analyzes the relationship between the level of fee reductions and the growth of contribution and benefit inflows into a scheme. Scheme inflows include regular contributions and transfers of accrued benefits into a scheme. The result may reflect the responses of both employers and members to fee reductions of schemes. With reference to the accumulated net transfer of accrued benefits attributed to the Employee Choice Arrangement (Net ECA Transfer), this section also investigates whether the level of fee reductions of a scheme has a bearing on members' scheme choice.

ii. Analysis

<u>Fee Reductions and Inflows of Contributions and Benefits</u>

62. For this study, we calculate the average growth of contribution and benefit inflows as well as the average fee reduction of each scheme per year. We then compare if there is any relationship between the average growth of contribution and benefit inflows and fee reductions of schemes.

63. The findings indicate that the relationship between the level of fee reductions and the growth of contribution and benefit inflows of schemes is not clear. Some schemes with larger fee reductions are associated with higher levels of inflows, while some other schemes with higher levels of inflows are associated with smaller fee reductions.

64. We also compare the growth of contribution and benefit inflows of schemes and the average FER of schemes. Their relationship is also not conclusive. Schemes with higher growth of contribution and benefit inflows are not necessarily the ones with FERs lower than the average FER of all schemes.

65. With the aid of the Pearson correlation test, further analysis is conducted to examine if a linear relationship exists between fee reductions and the growth of contribution and benefit inflows of schemes.

Table 12 Correlation between Fee Reductions and Inflow of Contributions and Benefits of Schemes

H_0: There is no association between fee reductions and the growth of contribution and benefit inflows of a scheme

Sample Size	Correlation Coefficient	p-value	Decision
38	-0.2123	0.2007	*Do not reject H_0*

Decision rule: reject H_0 if p-value<0.05 significance level

66. The hypothesis that there is no association between fee reductions and the growth of contribution and benefit inflows of a scheme is not rejected. This finding suggests that larger fee reductions do not necessarily lead to higher growth of contribution and benefit inflows of a scheme and vice versa.

Fee Reductions and Amount of Net ECA Transfer

67. With reference to the level of fee reductions and the amount of Net ECA Transfer of schemes, we study if any relationship exists between them. The findings are not clear. Some schemes with larger fee reductions are associated with larger amount of Net ECA Transfer, while some schemes with larger amount of Net ECA Transfer are associated with smaller fee reductions.

68. The relationship between the average FER and the Net ECA Transfer of schemes is not conclusive as well. Schemes receiving larger amount of Net ECA Transfer are not necessarily the ones with FERs lower than the average FER of all schemes.

69. With the aid of the Pearson correlation test, further analysis is conducted to examine if a linear relationship exists between the level of fee reductions and the amount of Net ECA Transfer of a scheme.

Table 13 Correlation between Fee Reductions and Amount of Net ECA Transfer

H_0: There is no association between the level of fee reductions and the amount of Net ECA Transfer of a scheme

Sample Size	Correlation Coefficient	p-value	Decision
38	-0.0855	0.6096	*Do not reject H_0*

Decision rule: reject H_0 if p-value<0.05 significance level

70. The hypothesis that there is no association between the level of fee reductions and the amount of Net ECA Transfer of a scheme is not rejected. This finding suggests that larger fee reductions of a scheme do not necessarily lead to a greater amount of Net ECA Transfer and vice versa.

iii. Methodology

71. All existing schemes as of 31 December 2015 are included in the analysis. The analysis of fee reductions covers the period from September 2008 (the earliest date with reported FER information of individual CF) to December 2015.

72. Contribution and benefit inflows of a scheme include all regular monthly mandatory and voluntary contributions, and transfer of accrued benefits from other schemes. The total inflows of a scheme in a year are compiled by adding up all of the 12 monthly inflows in the relevant year.

73. The growth of inflows of a particular year is derived by subtracting the figure in the previous year by the figure in the next following year.

74. The average annual growth of inflows of a scheme is derived by adding up all years with figures of annual growth and then dividing it by the number of years.

75. In respect of the Net ECA Transfer, the cumulative figures include all transfer of accrued benefits since the launch of ECA (i.e. 1 November 2012) up to 31 December 2015.

76. The figure on fee reductions of each scheme is asset-weighted. The average annual rate of fee reductions of a scheme is derived by the following equation:

$$Average\ Fee\ Reductions\ Per\ Year = \frac{(FER\ as\ at\ 31\ Dec\ 2015 - FER\ as\ at\ 31\ Dec\ 2008)}{Number\ of\ Years\ Involved}$$

77. Whenever the FER of a scheme in 2008 is not available, the earliest year with available FER data is adopted.

iv. Constraints and Limitations

78. The FER figure comprises fees and expenses. Any reduction in the FER of a scheme may be due to reductions in fees, expenses or both.

79. Since there is a time lag of FER figures, the data on the FER and contribution/benefit inflows used for comparison may not refer to the same financial periods.

80. Owing to an absence of data at the CF level, the analyses in this section are confined to the scheme level.