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# ASHK MPF Market Size Projection 2020 - 2040

**Actuarial Society of Hong Kong**  
**Pension and Employee Benefits Committee**  
**Published on 2 December 2020**

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# 1. Purpose and Scope of this Study

- 1.1 The Pension and Employee Benefits Committee (“the Committee”) of the Actuarial Society of Hong Kong (“ASHK”) consists of pension actuaries of major MPF providers in Hong Kong. The Committee initiated a study of the MPF market size projection over the next 20 years, from 2020 to 2040. The MPF market size is defined as the net asset values of all MPF schemes. As of December 31, 2019, the MPF market size was HK\$969 billion based on the Mandatory Provident Fund Schemes Statistical Digest as published by the MPFA.
- 1.2 The Committee is aware that the pension actuaries in Hong Kong, from time to time, perform projection of MPF market sizes for business planning or other purposes, based on their own judgment of assumptions. The Committee believes this is beneficial to the MPF community as a whole to publish a study on the MPF market size projection with an independent view of assumptions for the projections.
- 1.3 A taskforce has been formed within the Committee to work on this study. This study was approved to be released by the Committee on 3 November 2020 and the Council of the ASHK on 16 November 2020. The taskforce consists of the following ASHK members:
- Billy Wong
  - Eddie Mak
  - Isabella Chan
  - Terry Yung
  - William Chow
- 1.4 The Committee understands that the future MPF market size depends on a number of uncertain factors including but not limited to the following:
- investment returns of the underlying funds
  - members’ choices of funds
  - fees of the funds
  - mandatory contribution rates
  - voluntary contribution rates and special voluntary contribution rates
  - salary inflation
  - increase in minimum wage and subsequent adjustment to minimum and maximum relevant income

- working population growth
- MPF scheme participation rate
- employers' choices of the offer of MPF-exempted ORSO schemes to their employees, and the employees' choices of joining the MPF-exempted ORSO schemes
- numbers of members eligible to early/normal retirement
- retirement age for MPF benefit withdrawal
- legislation allowing phased withdrawal and the members' choices to utilize phased withdrawal mechanism
- permanent departure rate
- death, disability, small balance withdrawal rates

Hence, the projection will not be able to provide a definite prediction of the MPF market sizes over the next 20 years and the Committee expects the actual MPF market sizes in the future will deviate from the projection, depending on the outcome of the above and other relevant factors.

- 1.5 The purpose of this study is to provide an independent view towards the MPF market size projection over the next 20 years based on the discussion and debates among the pension actuaries in Hong Kong.

## 2. Executive Summary

- 2.1 Hong Kong pension actuaries perform projections of MPF market sizes from time to time. ASHK believes this is beneficial to the MPF community to publish an independent study with a set of central estimate assumptions.
- 2.2 ASHK published the report of ASHK MPF Market Size Projection 2015 – 2035 (“2015 Report”) on 15 September 2015 to project the MPF market size from 2015 to 2035. The 2015 Report projected that the asset size of MPF market to be HK\$980 billion as of 31 December 2019 while the actual asset size was HK\$969 billion. The difference of actual against estimate was only 1.1% and we are happy that the 2015 Report has provided a very close estimation.
- 2.3 In view of the establishment of MPF for 20 years, the ASHK has decided to publish this report to update projection from 2020 to 2040.
- 2.4 The projection will not be able to provide a definite prediction of the MPF market sizes over the next 20 years since the actual outcomes depend on a number of uncertain factors, which are relating to economics, demographics, regulatory changes, members and employers’ behaviors. Although the actual future MPF market sizes may deviate from the projection, this study provides an independent view towards the projection based on the discussions and debates among the pension actuaries in Hong Kong.
- 2.5 The key observations of this study are summarized as follows:
- Projected 2040 MPF market size is HK\$3.6 to 4.1 trillion, which is close to 4 times of that of 2019. The MPF market size was around HK\$1.0 trillion in 2019 and is expected to reach HK\$2 trillion around 2027 to 2030 and HK\$3 trillion around 2034 to 2037.

| All in HK\$ Trillion |                      |                     |                               |                  |
|----------------------|----------------------|---------------------|-------------------------------|------------------|
| 2019 Market Size     | Contribution inflows | Withdrawal outflows | Net of fee investment returns | 2040 Market Size |
| 1.0                  | +2.8                 | (1.8)               | +1.6 to +2.1                  | 3.6 to 4.1       |

- In 2040, we expect every MPF member will have an average account balance close to HK\$1.4 million. This is just the average of the overall population, and current MPF members started

making MPF contributions at various stage of their life. Individual member's projected balance at retirement may varies significantly.

- We also project a saving of HK\$1,700 per month with 4% net of fee return per annum for 45 years, and this becomes close to HK\$2.5 million or HK\$14,500 per month if a man purchases HKMCA annuity product with HK\$2.5 million at age 65. Members should assess their needs at retirement, and plan on the contributions level based on their targeted retirement balance and contribution period they will make for.
- We expect that the future investment return is the most sensitive factor to the projected market sizes. For 0.5% difference in investment return per annum, the MPF market size differs by around HK\$200 billion in 2040. Future investment returns depend on the economy, the capital market and members' choices of funds and we expect all of these are contributing to the high uncertainty of the outcome.

### 3. Data, Methodology and Assumptions

3.1 The projection is based on the data as of December 31, 2019 as extracted from MPF Schemes Statistical Digest<sup>1</sup>. The key data are summarized as follows:

|   |                  |
|---|------------------|
| MPF Market Size as of Dec 31, 2019                                  | HK\$ 969 billion |
| Contributions received for 2019                                     | HK\$ 76 billion  |
| Benefits paid for 2019  | HK\$ 26 billion  |
| Annualized Internal Rate of Return from Dec 1, 2000 to Dec 31, 2019 | 4.1%             |

3.2 The MPF market size is projected by the addition of contributions and net investment returns, as well as deduction of benefit payments. The future contributions are projected with reference to 2019 actual contributions received and then increased by the assumed contribution increase rate. The benefit payments are projected as the assumed benefit payment rates multiplied by the beginning market size of each year. The net investment returns are projected with reference to the assumed investment returns multiplied by the beginning market size of each year, adjusted by the contribution and the benefit payment of each year.

3.3 Key assumptions and the rationale of each assumption are as follows:

|                                   |   |
|-----------------------------------|---|
| <b>Contribution Increase Rate</b> | 8% in first year of projection and decrease linearly to 4% over 5 years by Year 2025  |
| <b>Benefit Payment Rate</b>       | 3% in first year of projection and increase linearly to 4% over 10 years by Year 2030 |
| <b>Investment Return</b>          | 4.0% per annum  |

#### Contribution Increase Rate

Contribution growth in this industry depends on a number of factors including but not limited to the following:

- mandatory contribution rates
- voluntary contribution rates and special voluntary contribution rates

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<sup>1</sup> [http://www.mpfa.org.hk/eng/information\\_centre/statistics/mpf\\_schemes\\_statistical\\_digest/index.jsp](http://www.mpfa.org.hk/eng/information_centre/statistics/mpf_schemes_statistical_digest/index.jsp)

- salary inflation
- increase in minimum wage and subsequent adjustment to minimum and maximum relevant income
- working population growth
- MPF scheme participation rate
- employers' choices of the offer of MPF-exempted ORSO schemes to their employees, and the employees' choices of joining the MPF-exempted ORSO schemes

According to statistics published from MPFA, the growth in total contributions over the past 10 years is as follows:

| <b>Year</b> | <b>Total Contributions<br/>(HK\$m)</b> | <b>YoY growth</b> |
|-------------|--|-------------------|
| <b>2010</b> | 37,792                                 |                   |
| <b>2011</b> | 41,746                                 | +10%              |
| <b>2012</b> | 47,694                                 | +14%              |
| <b>2013</b> | 53,640                                 | +12%              |
| <b>2014</b> | 59,676                                 | +11%              |
| <b>2015</b> | 66,929                                 | +12%              |
| <b>2016</b> | 69,923                                 | +4%               |
| <b>2017</b> | 68,988                                 | -1%               |
| <b>2018</b> | 71,831                                 | +4%               |
| <b>2019</b> | 76,460                                 | +6%               |
| <b>CAGR</b> |  | +8%               |

*Source: MPFA Statistical Digest*

The annual contribution growth rate measured from 2010 to 2019 was 8%, where a trend of softer growth rate at around 5% p.a. was observed in the recent 4 years which may indicate a sign of maturing industry and also the fact that the maximum MPF Relevant Income limit had not been increased by the Government since 1 June 2014.

With the introduction of tax-deductible voluntary contribution arrangement since 1 April 2019 and the Government's plan to increase the MPF Relevant Income limits in the near future, we consider an assumed contribution growth rate at 8% p.a. over the short run to be reasonable.

In the long run, we believe the contribution growth should be mainly driven by salary inflation, as other effects such as the size of working population and MPF members may be stabilized.



Based on these considerations, the wage index obtained from the census and statistics department of Hong Kong was used as a reference for long term contribution increase rate and the following table shows the year on year growth of the wage index:

| Year | Wage Index | YoY growth |
|------|------------|------------|
| 2010 | 163.1      |            |
| 2011 | 178.3      | 9.3%       |
| 2012 | 187.5      | 5.2%       |
| 2013 | 195.2      | 4.1%       |
| 2014 | 203.3      | 4.1%       |
| 2015 | 211.9      | 4.2%       |
| 2016 | 219.6      | 3.6%       |
| 2017 | 227.9      | 3.8%       |
| 2018 | 237.3      | 4.1%       |
| 2019 | 243.9      | 2.8%       |
| CAGR |            | 4.6%       |

*Source: Hong Kong census and statistics department*

The compound annual growth rate (“CAGR”) in the Wage Index from 2010 to 2019 was 4.6%. It is noted that a higher Wage Index growth rate in 2011 was due to the introduction of Minimum Wage Ordinance effective 1 May 2011, when a ripple effect of higher wage increase was generally observed in the year. Measuring the CAGR over the recent 5 years, the growth rate was 3.7%. Considering the long-term average and a more recent trend, we set the long-term contribution increase rate to be 4% p.a.

Combining the above analysis results, we assume the contribution increase rate to start at 8% at the first year of projection which decreases linearly to 4% p.a. over 5 years.

### **Benefit Payment Rate**

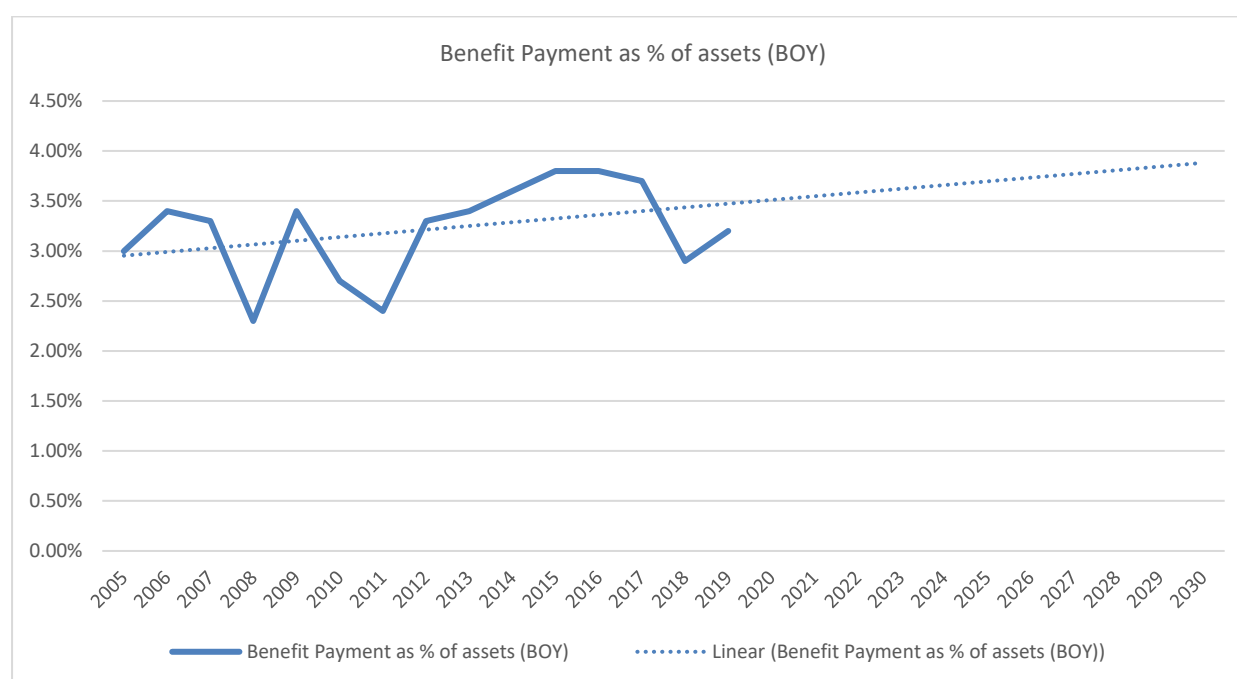
Benefit payment depends on a number of factors including but not limited to the following:

- numbers of members eligible to early/normal retirement
- retirement age for MPF benefit withdrawal
- legislation allowing phased withdrawal and the members’ choices to utilize phased withdrawal mechanism
- permanent departure rate
- death, disability, small balance withdrawal rates

According to statistics published from the MPFA, the benefit payment over the past 10 years was as follows:

| Year    | Benefit Payment (HK\$m) | Benefit Payment (% of BOY AUM) |
|---------|-------------------------|--------------------------------|
| 2010    | 8,191                   | 2.7%                           |
| 2011    | 8,871                   | 2.4%                           |
| 2012    | 11,590                  | 3.3%                           |
| 2013    | 14,937                  | 3.4%                           |
| 2014    | 18,528                  | 3.6%                           |
| 2015    | 21,448                  | 3.8%                           |
| 2016    | 22,485                  | 3.8%                           |
| 2017    | 23,942                  | 3.7%                           |
| 2018    | 24,623                  | 2.9%                           |
| 2019    | 26,146                  | 3.2%                           |
| Average |                         | 3.3%                           |

Source: MPFA Statistical Digest



The historical average benefit payment rate was around 3.3% of AUM at the beginning of year. Such rate is anticipated to increase gradually as the working population ages.<sup>2</sup> Given there are a

<sup>2</sup> According to the HK Population Projections (<http://www.censtatd.gov.hk/hkstat/sub/sp190.jsp?productCode=B1120015>), the number of population aged 65+ would increase from 1.4M at year 2019 to 2.7M by year 2049, represents a change from 18% (year 2019) to 35% of projected population at year 2049

number of factors which affect the future benefit payment rates, such as but not limited to member's behavior to use of phased withdrawal, legislation to reasons of (partial) withdrawal and the withdrawal rates such as permanent departure, the long term benefit payment rate was difficult to determine based on limited experiences. It was therefore suggested that the assumption to be set at 3% and increase linearly to 4% over a 10-year period.

### **Investment return**

Future investment return depends on a number of factors including but not limited to the following:

- investment returns of the underlying funds
- members' choices of funds
- fees of the funds

The historical net-of-fee investment returns for the MPF system were summarized as follows:

|                       | Net Asset Value<br>Beginning<br>(HK\$m) | Net Asset Value<br>Ending<br>(HK\$m) | Net Investment<br>Return<br>(HK\$m) | Annualized<br>Internal Rate of<br>Return |
|-----------------------|---|--------------------------------------|-------------------------------------|--|
| 1.12.2000 - 31.3.2002 | -                                       | 42,125                               | (1,753)                             | -4.9%                                    |
| 1.4.2002 - 31.3.2003  | 42,125                                  | 59,305                               | (5,837)                             | -10.7%                                   |
| 1.4.2003 - 31.3.2004  | 59,305                                  | 97,041                               | 15,604                              | 22.0%                                    |
| 1.4.2004 - 31.3.2005  | 97,041                                  | 124,316                              | 5,070                               | 4.7%                                     |
| 1.4.2005 - 31.3.2006  | 124,316                                 | 164,613                              | 16,862                              | 12.3%                                    |
| 1.4.2006 - 31.3.2007  | 164,613                                 | 211,199                              | 21,901                              | 12.4%                                    |
| 1.4.2007 - 31.3.2008  | 211,199                                 | 248,247                              | 10,205                              | 4.5%                                     |
| 1.4.2008 - 31.3.2009  | 248,247                                 | 217,741                              | (69,010)                            | -25.9%                                   |
| 1.4.2009 - 31.3.2010  | 217,741                                 | 317,310                              | 70,086                              | 30.1%                                    |
| 1.4.2010 - 31.3.2011  | 317,310                                 | 378,280                              | 29,106                              | 8.7%                                     |
| 1.4.2011 - 31.3.2012  | 378,280                                 | 390,744                              | (22,224)                            | -5.6%                                    |
| 1.4.2012 - 31.3.2013  | 390,744                                 | 455,331                              | 26,267                              | 6.4%                                     |
| 1.4.2013 - 31.3.2014  | 455,331                                 | 516,192                              | 19,963                              | 4.2%                                     |
| 1.4.2014 - 31.3.2015  | 516,192                                 | 594,847                              | 34,529                              | 6.4%                                     |
| 1.4.2015 - 31.3.2016  | 594,847                                 | 592,578                              | -50,990                             | -8.2%                                    |
| 1.4.2016 - 31.3.2017  | 592,578                                 | 701,166                              | 60,121                              | 9.7%                                     |
| 1.4.2017 - 31.3.2018  | 701,166                                 | 856,692                              | 108,153                             | 14.9%                                    |
| 1.4.2018 - 31.3.2019  | 856,692                                 | 893,302                              | -15,517                             | -1.8%                                    |
| 1.4.2019 - 31.12.2019 | 893,302                                 | 969,455                              | 36,319                              | 4.0%                                     |

|                       |   |         |         |      |
|-----------------------|---|---------|---------|------|
| 1.12.2000 -31.12.2019 | - | 969,455 | 288,854 | 4.1% |
|-----------------------|---|---------|---------|------|

*Source: MPFA Statistical Digest*

The average annualized internal rate of return for MPF up to end of 2019 was 4.1%. Since investment return is unpredictable, it was assumed this historical figure will be the central estimate assumption going forward.

## 4. Key Results

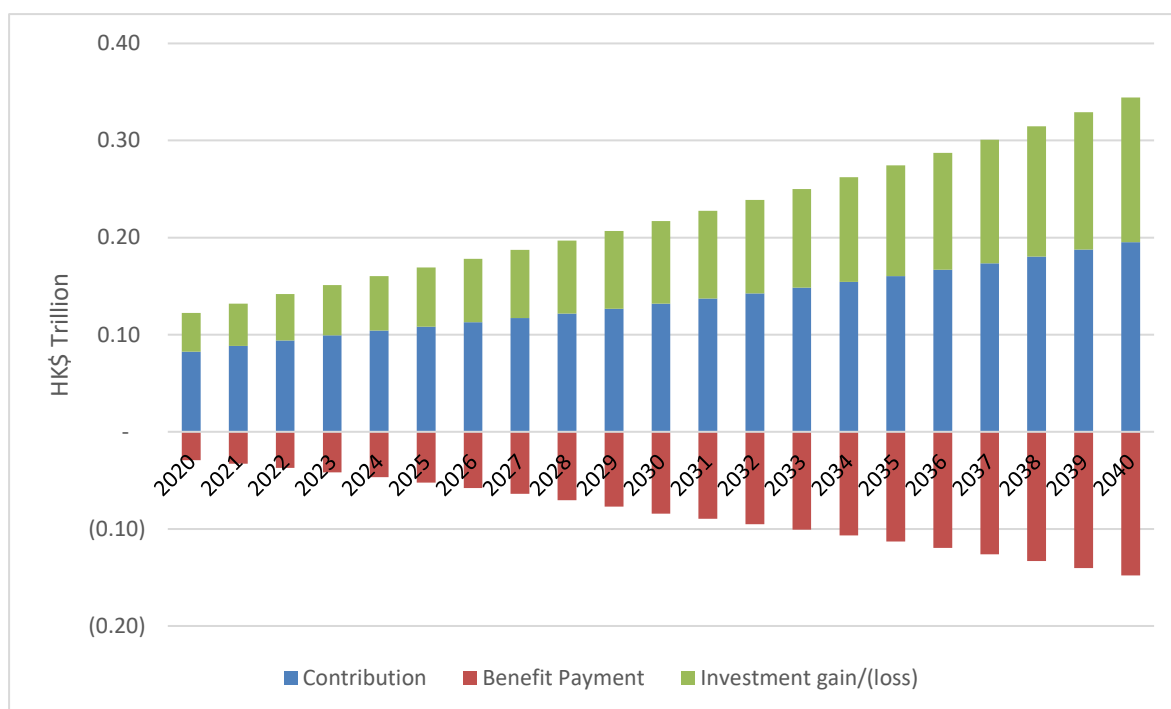
4.1 Based on the assumptions in Section 3, the key results are summarized as follows:

| All in HK\$ Trillion |           |                              |                      |                          |                               |                        |
|----------------------|-----------|------------------------------|----------------------|--------------------------|-------------------------------|------------------------|
|                      | Period    | Market size at the beginning | Contribution inflows | Benefit Payment outflows | Net of fee investment returns | Market size at the end |
| Actual               | 2005      | 0.12                         | 0.03                 | 0.00                     | 0.01                          | 0.15                   |
|                      | 2010      | 0.31                         | 0.04                 | -0.01                    | 0.03                          | 0.37                   |
|                      | 2015      | 0.57                         | 0.07                 | -0.02                    | -0.02                         | 0.59                   |
|                      | 2019      | 0.81                         | 0.08                 | -0.03                    | 0.11                          | 0.97                   |
| Projection           | 2020      | 0.97                         | 0.08                 | -0.03                    | 0.04                          | 1.06                   |
|                      | 2021      | 1.06                         | 0.09                 | -0.03                    | 0.04                          | 1.16                   |
|                      | 2022      | 1.16                         | 0.09                 | -0.04                    | 0.05                          | 1.27                   |
|                      | 2023      | 1.27                         | 0.10                 | -0.04                    | 0.05                          | 1.38                   |
|                      | 2024      | 1.38                         | 0.10                 | -0.05                    | 0.06                          | 1.49                   |
|                      | 2025      | 1.49                         | 0.11                 | -0.05                    | 0.06                          | 1.61                   |
|                      | ...       | ...                          | ...                  | ...                      | ...                           | ...                    |
|                      | 2030      | 2.11                         | 0.13                 | -0.08                    | 0.09                          | 2.24                   |
|                      | ...       | ...                          | ...                  | ...                      | ...                           | ...                    |
|                      | 2035      | 2.83                         | 0.16                 | -0.11                    | 0.11                          | 2.99                   |
|                      | ...       | ...                          | ...                  | ...                      | ...                           | ...                    |
|                      | 2040      | 3.70                         | 0.20                 | -0.15                    | 0.15                          | 3.90                   |
| CAGR                 | 2009-2019 |                              |                      |                          |                               | 12%                    |
|                      | 2020-2040 |                              |                      |                          |                               | 7%                     |

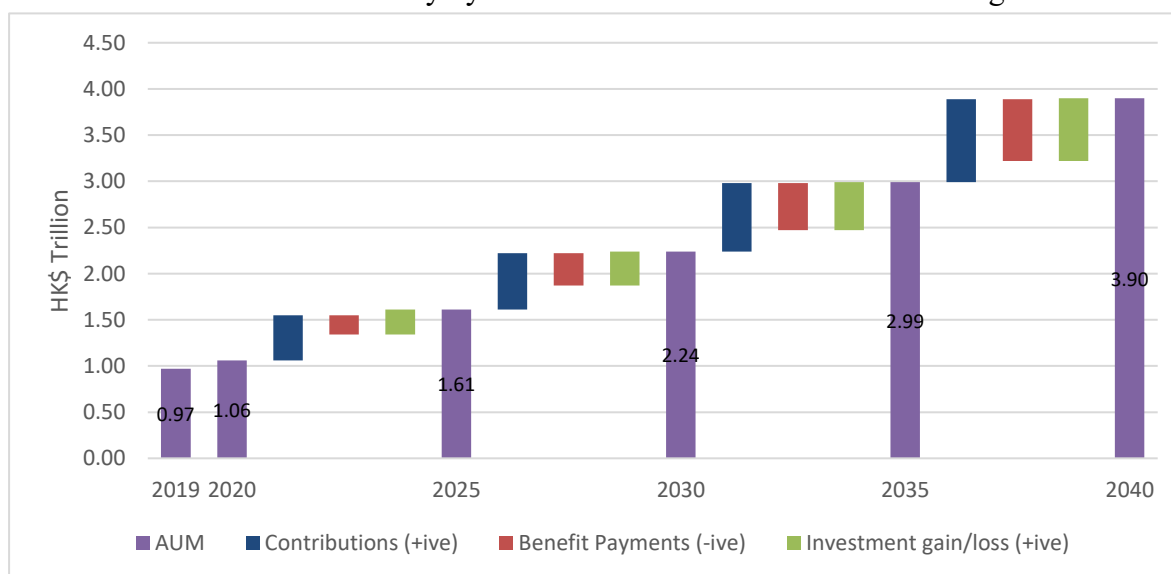
### Key observations

- The MPF market size grew by around 6 times from 2005 to 2019. The CAGR was around 12% during the last 10 years. The growth rate was high as MPF is still a young pension system with less than 20 years of history.
- **Projected 2040 MPF market size is about HK\$3.9 trillion, which is close to 4 times of that of 2019.** The CAGR is projected to slow down to around 7% in the next 20 years, due to the lower contribution rate increase rate and increasing benefit payment rate when the system becomes more mature.

- The projected contribution, benefit payment and investment returns are illustrated in the chart below.



- The movement of AUM for every 5year interval is illustrated in the following chart.

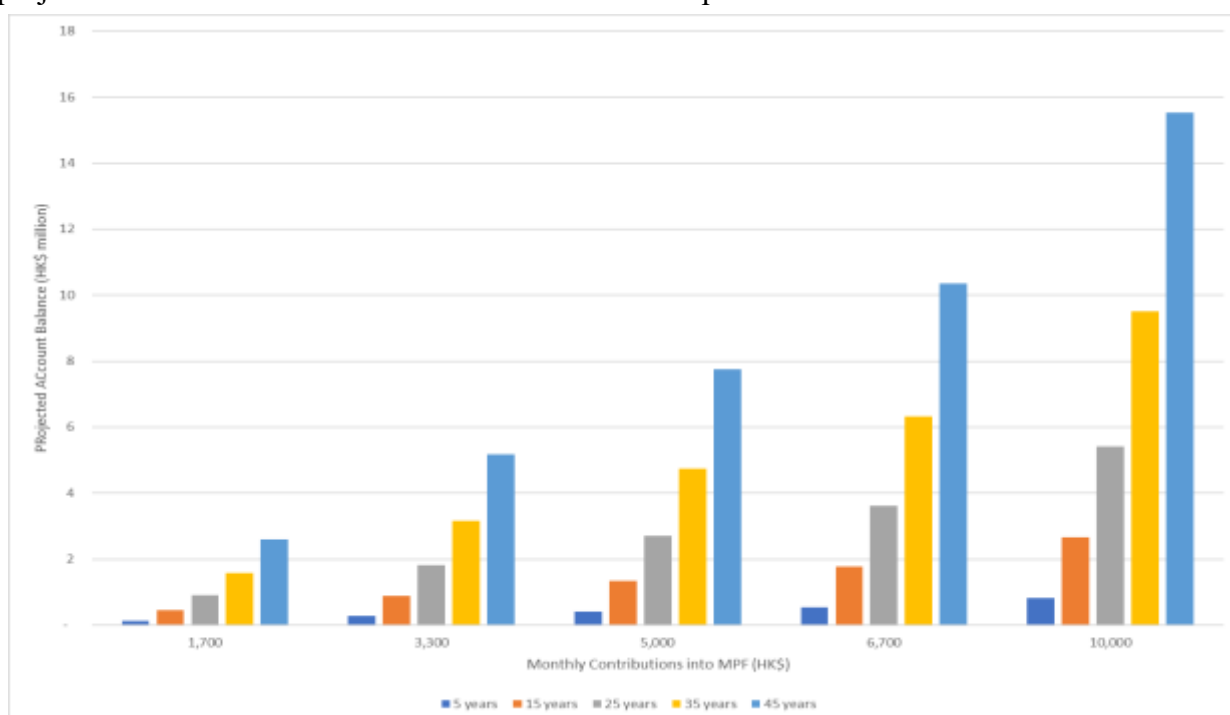


- As of December 2019, there are 2.8 million members (relevant employees and SEPs) enrolled in the MPF system. Assuming the number of relevant employees and SEPs remains the same in the next 20 years, we expect the average account balance per MPF member will be close to HK\$1.4 million. Yet, this is an average for members who have made contributions for different number of years. The next section covers more the view from individual members and the projected account balance at retirement.

## 5. Implications to Individuals' Retirement Planning

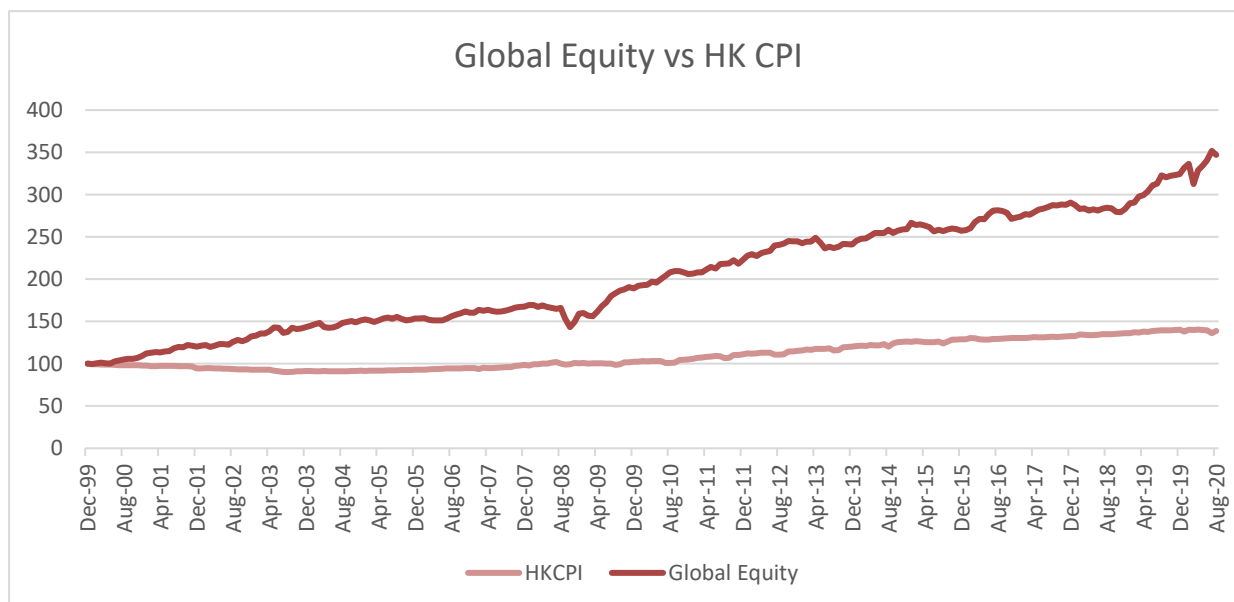
5.1 The projection results revealed an increasing trend for MPF accumulation, and its momentum of being an important source of providing retirement protection across the working population in Hong Kong since it started 20 years ago.

Viewing the MPF projection results from the lens of individual MPF members, we expect a retiree in 2040 would have accumulated an average amount of HK\$2.5 million in the MPF, same assumptions apply. This assumes individual members start making flat contribution of HK\$1,700 per month (average mandatory contribution per member in 2019<sup>3</sup>) from age 20, with the 4% assumed investment return, the member should have account balance close to HK\$2.5 million by age 65. Members who start making retirement savings at later age will have a shorter contribution period. Such projected amount is significantly lower for a member making same contributions and investment return for 20 years only (projected balance is around HK\$0.7 million). This shows the sensitivity to contribution period, and the graph below sets out the projected balance under various contribution level and period.



<sup>3</sup> According to Mandatory Provident Fund Schemes Statistical Digest, the actual amount of mandatory contributions made in 2019 is \$62,085 million

5.2 Over the long term, equity funds can achieve higher return than inflation rate. However, the volatility is also higher than bond funds and money market funds. For members with long contribution period, they can average out the entry price of Equity Funds by Dollar Cost Averaging Method.



If the investment return is increased by 1%, the projected accumulated amount will for a longer contribution period will be much higher due to compound effect. The table below shows the sensitivity of projected account balance to investment return and contribution period (for a member who contributes HK\$1,700 per month).

| Contribution Period<br>(years) | Assumed Investment Return (pa) |           |           |
|--------------------------------|--------------------------------|-----------|-----------|
|                                | 3%                             | 4%        | 5%        |
| 5                              | 131,294                        | 135,287   | 139,398   |
| 15                             | 409,140                        | 445,135   | 484,834   |
| 25                             | 782,541                        | 903,786   | 1,047,514 |
| 35                             | 1,284,361                      | 1,582,701 | 1,964,060 |
| 45                             | 1,958,766                      | 2,587,662 | 3,457,017 |

5.3 Retirees may obtain a steady stream of guaranteed retirement income via their participation at their own choice in a public annuity scheme called the HKMC Annuity Plan which was established in July 2018. The HKMC Annuity Plan is designed for any Hong Kong permanent residents aged 60 or above to convert a certain amount of assets into streams of guaranteed income throughout the uncertain period of post-retirement lifetime. Under the current terms of the HKMC Annuity



Plan, an average MPF benefit value of HK\$2.5 million may be converted into a guaranteed annuity of HK\$14,500 per month (for male) or HK\$13,250 per month (for female).

- 5.4 Members should consider their contribution period and their needs at retirement in their decision on monthly contribution amount. The table below indicates the contribution level required for certain targeted retirement balance and contribution period for reference:

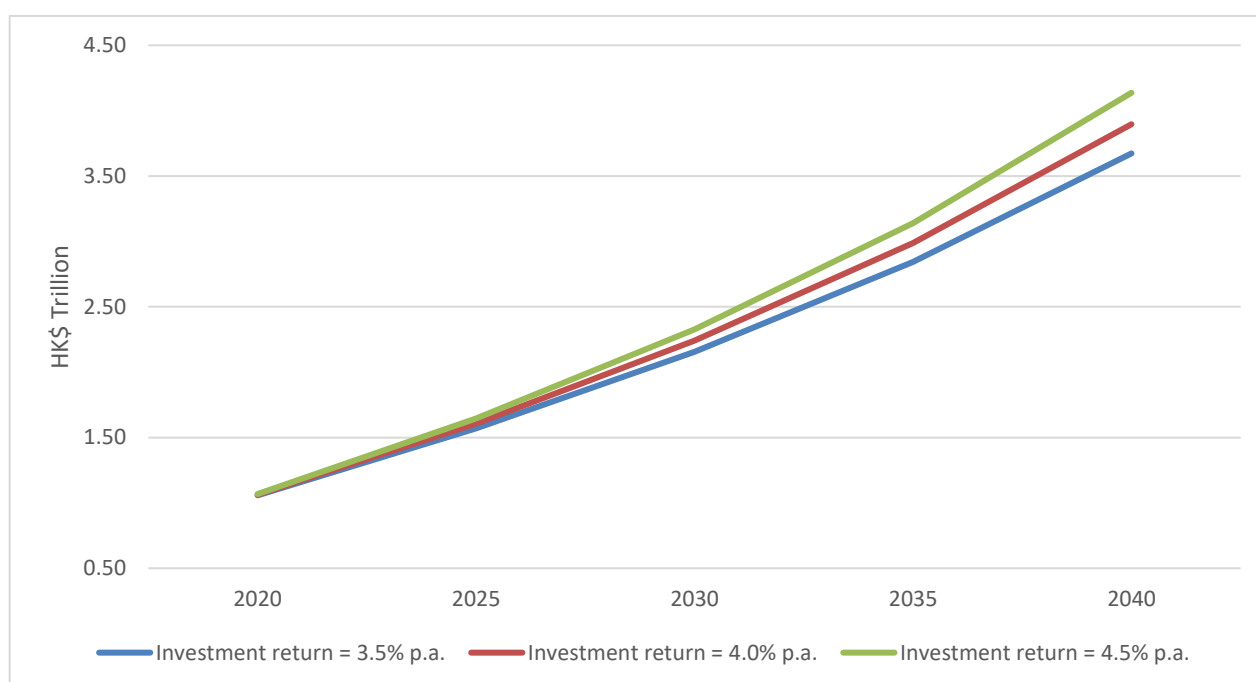
| <b>Contribution<br/>Period (years)</b> | <b>Projected balance at retirement</b> |                        |                      |
|--|--|------------------------|----------------------|
|  | <b>HK\$1 million</b>                   | <b>HK\$2.5 million</b> | <b>HK\$5 million</b> |
| 5                                      | HK\$15,386                             | HK\$38,464             | HK\$76,928           |
| 15                                     | HK\$4,162                              | HK\$10,404             | HK\$20,809           |
| 25                                     | HK\$2,001                              | HK\$5,002              | HK\$10,005           |
| 35                                     | HK\$1,131                              | HK\$2,829              | HK\$5,657            |
| 45                                     | HK\$689                                | HK\$1,721              | HK\$3,443            |

From 1 April 2019 and onwards, employees or self-employed persons may make tax-deductible contributions (TVC) up to HK\$60,000 per year. As an illustration, if an additional tax-deductible contribution of HK\$60,000 is made every year from 2020 to 2040, an additional HK\$2million may be accumulated under our projection assumptions. With the tax incentives, the TVC arrangement is going to provide meaningful flexibilities for the working population to do a fit-for-purpose retirement planning.

## 6. Sensitivity Testing

6.1 The sensitivity results to investment return assumptions are shown below:

| End of Year    | Market Size<br>(HK\$ Trillion) |                                |                                |
|----------------|--------------------------------|--------------------------------|--------------------------------|
|                | Investment return<br>3.5% p.a. | Investment return<br>4.0% p.a. | Investment return<br>4.5% p.a. |
| 2020           | 1.06                           | 1.06                           | 1.07                           |
| 2025           | 1.57                           | 1.61                           | 1.65                           |
| 2030           | 2.16                           | 2.24                           | 2.33                           |
| 2035           | 2.84                           | 2.99                           | 3.14                           |
| 2040           | 3.67                           | 3.90                           | 4.14                           |
| CAGR 2020-2040 | 6%                             | 7%                             | 7%                             |



- Due to the compounding impact, the future investment return is the most sensitive factor to the projected market size. For every 0.5% difference in investment return per annum, the MPF market size differs by around HK\$200 billion in 2040.
- Future investment returns depend on the economy, the capital market and members' choices of funds and we expect all of these are contributing to the high uncertainty.

**End of this Report**



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