Session 2 – Pension Investing – Theory and Practice

Stuart H. Leckie, O.B.E., J.P., FIA, FSA
Pensions Investing – Theory and Practice

Chairman, Stirling Finance, Hong Kong

CONTENTS

- Demographics – Backdrop of Pension Challenges
- Pension Framework and Theory
- Pension Investments in Practice
- Pension Case Studies:
  - Hong Kong
  - Mainland China
DEMOGRAPHICS – BACKDROP OF PENSION CHALLENGES

Life Expectancy

<table>
<thead>
<tr>
<th>Year</th>
<th>World</th>
<th>Asia</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>64.7</td>
<td>65.6</td>
<td>71.5</td>
</tr>
<tr>
<td>2005</td>
<td>72.7</td>
<td>75.5</td>
<td>77.1</td>
</tr>
<tr>
<td>2040</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: UN Population Division

Total Fertility Rate

<table>
<thead>
<tr>
<th>Year</th>
<th>World</th>
<th>Asia</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>5.9</td>
<td>3.6</td>
<td>1.7</td>
</tr>
<tr>
<td>2005</td>
<td>4.9</td>
<td>2.7</td>
<td>1.7</td>
</tr>
<tr>
<td>2040</td>
<td>5.7</td>
<td>2.5</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Source: UN Population Division
DEMOGRAPHICS – BACKDROP OF PENSION CHALLENGES (CONT’D)

Old-age Dependency Ratio

Source: UN Population Division

PENSION FRAMEWORK AND THEORY
### PENSION FRAMEWORK

<table>
<thead>
<tr>
<th>State</th>
<th>v.</th>
<th>Private Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compulsory</td>
<td>v.</td>
<td>Voluntary</td>
</tr>
<tr>
<td>Defined Benefit (DB)</td>
<td>v.</td>
<td>Defined Contribution (DC)</td>
</tr>
<tr>
<td>Funded</td>
<td>v.</td>
<td>PAYG</td>
</tr>
<tr>
<td>Contributory (by individual)</td>
<td>v.</td>
<td>Non-contributory</td>
</tr>
<tr>
<td>Accumulation phase</td>
<td>v.</td>
<td>Distribution phase</td>
</tr>
<tr>
<td>Monthly pension</td>
<td>v.</td>
<td>Lump sum</td>
</tr>
</tbody>
</table>

### PENSION FRAMEWORK (CONT’D)

**Comparison:**
- State – PAYG or funded or partially funded
- Private Sector – must be funded
- DB – no member choice allowed
- DC – may or may not be member choice
- Hybrid – no member choice
THE ORIGINAL WORLD BANK 3-PILLAR PENSION MODEL

- The original World Bank pension model in 1994 comprised 3 pillars

<table>
<thead>
<tr>
<th>World Bank Pillar</th>
<th>World Bank Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>mandated, unfunded, public sector, defined benefit pension</td>
</tr>
<tr>
<td>II</td>
<td>mandated, funded, private sector, defined contribution pension</td>
</tr>
<tr>
<td>III</td>
<td>voluntary occupational or personal pension benefits</td>
</tr>
</tbody>
</table>

THE EXTENDED 5-PILLAR PENSION MODEL

- Based on pension reform experience in the 1990s, World Bank now advocates a 5-Pillar pension model, adding Pillar Zero and Pillar IV.

<table>
<thead>
<tr>
<th>WB Pillar</th>
<th>WB Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero</td>
<td>&quot;basic&quot; or &quot;social payment&quot; to alleviate poverty</td>
</tr>
<tr>
<td>I</td>
<td>mandated, unfunded, public sector, defined benefit pension</td>
</tr>
<tr>
<td>II</td>
<td>mandated, funded, private sector, defined contribution pension</td>
</tr>
<tr>
<td>III</td>
<td>voluntary occupational or personal pension benefits</td>
</tr>
<tr>
<td>IV</td>
<td>non-financial benefits such as family support, provision of healthcare and housing</td>
</tr>
</tbody>
</table>
WB CRITERIA FOR AN EFFECTIVE PENSION SYSTEM

- While recognising that each country’s unique conditions will require it to adapt the model, the World Bank does suggest 4 criteria to measure the effectiveness of a country’s pension system

<table>
<thead>
<tr>
<th>WB Criteria</th>
<th>WB Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adequacy</td>
<td>provide benefits to the full breadth of the population sufficient to prevent old-age poverty</td>
</tr>
<tr>
<td>Affordability</td>
<td>within the financial capacity of individuals and society</td>
</tr>
<tr>
<td>Sustainability</td>
<td>financially sound and can be maintained over the foreseeable future</td>
</tr>
<tr>
<td>Robustness</td>
<td>can withstand major economic, demographic and political shocks</td>
</tr>
</tbody>
</table>

PENSION GOVERNANCE

- World Bank (WB): “public pension plan should be free from inappropriate interference from the government...”

- WB suggests independent regulatory guidelines regarding investment process, fiduciary duties, professional board, governance structure (governance committee/ audit committee/investment committee/ nominating committee), periodic public disclosure, etc.

- Funding shortfalls should be identified and disclosed, while financials, benchmarks, performance are required to be periodically reported to all members.
PENSION INVESTMENTS IN PRACTICE

- Fundamental Objective:
  - To maximise long term return
  - In particular to beat salary escalation
  - Without undue risks

- Further thoughts:
  - Definition of LONG TERM? E.g. fresh 20 year employee may be receiving benefits in 70 years time
  - Salary escalation v. CPI increase
  - Risk appetite for a fund or an individual
AT FUND LEVEL

- Direct investing or give out mandates?
- How to hire and fire managers
- Asset allocation and investment style to consider:
  - Strategic asset allocation v. Tactical asset allocation
  - Equities v. Bonds
  - Active v. Index Funds or ETFs
  - Alternatives: hedge funds, infrastructure, commodities, property, derivatives, index-linked bonds
- “Home Bias” still a concern for most pension funds
- Social Responsible Investing (SRI), and Infrastructure gained attention recently

AT FUND LEVEL (CONT’D)

- Performance measurement - absolute return, benchmark, peer comparison
- Evaluation period - 1 month, 1 quarter, 1 year, 5 years, 10 years or longer?
- Attribution analysis - asset classes, stock selection, currencies
- In the short run:
  - Liquidity - no problem
  - Volatility - small problem
  - Current low interest rates very bad for pensions
- In the long run - ALM:
- Project liability cash flows into future (75 years?)
  - Try to find investments which in aggregate produce same cash flows
HOME BIAS

- Defined as preference for asset owners to hold own-country assets
- Avoids currency risk; local equities (property) may be hedge against inflation
- But world much bigger than one country
- Why not invest broadly in line with global market cap?
- Hong Kong: 2% of global market cap
  - 30% minimum HKD weighting for MPF
  - ORSO DB schemes perhaps 20% to 30% HK equities
  - But should HK include Chinese securities in considering home bias?

AT INDIVIDUAL LEVEL

- Accumulation v. Distribution
- At Accumulation phase:
  - No liquidity/ volatility concern
  - Balanced portfolio with optimal proportion in equities
  - Consider life style funds
  - Suggest 0% in equities only at age 100 (not at retirement age)
- At Distribution phase:
  - Income much better than lump sum
  - Objective to maximise pot of money at retirement – may need to reduce volatility right before retirement
BETWEEN FUND AND INDIVIDUAL

- Effective communication & Transparency

- For DB Schemes:
  - Actuarial projection frequency - to test solvency and adequacy of the Fund
  - Portfolio review frequency - to adjust asset allocation and hire/ fire managers
  - Individual member reports frequency - enough disclosure and be easy to read

- For DC Schemes:
  - Investor education – shared by regulators, plan sponsors and service providers
  - Disclosure on fund performance, fee level, different services from providers, etc.
  - Optimal frequency for portfolio review and switch of funds

PENSION CASE STUDIES
COMPARISON

<table>
<thead>
<tr>
<th>WB Pillar</th>
<th>Hong Kong</th>
<th>v</th>
<th>PRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero</td>
<td>Old Age Allowance (OAA)</td>
<td>v</td>
<td>Di Bao</td>
</tr>
<tr>
<td>I</td>
<td>Comprehensive Social Security Assistance (CSSA) (means tested)</td>
<td>v</td>
<td>State Pension Pillar 1a</td>
</tr>
<tr>
<td>II</td>
<td>Mandatory Provident Fund (MPF)</td>
<td>v</td>
<td>State Pension Pillar 1b</td>
</tr>
<tr>
<td>III</td>
<td>Occupational Retirement Schemes (ORSO)</td>
<td>v</td>
<td>Enterprise Annuities (EA)</td>
</tr>
<tr>
<td>IV</td>
<td>(Private savings)</td>
<td>v</td>
<td>(National Social Security Fund)</td>
</tr>
</tbody>
</table>

HONG KONG – MPF

- DC Scheme
- HKD514 billion as at 31 December 2013
- Accumulation Phase:
  - 5% + 5% as minimum contribution
  - Employer chooses provider, and employee chooses funds
  - >=30% in HKD
  - 6 types of funds: conservative funds, guaranteed funds, bond funds, mixed asset funds, equity funds and money market funds
  - Alternatives not allowed
  - Employees have to choose out of 477 funds!
  - ECA: very poor acceptance with <4% switches
HONG KONG – MPF (CONT’D)

- Distribution Phase:
  - Huge weakness is lump sum at retirement
  - Average citizen not able to cope with challenges of investment/longevity/inflation risks after retirement
  - Strong case for a “Government Pension Corporation”

- Other weaknesses:
  - Lack of member engagement - poor communication and education, but improving
  - Difficulty in choosing between 477 funds
  - Fee level still regarded as too high

HONG KONG – ORSO

- DB or DC Scheme
- HKD285 billion as at 31 December 2013

- Accumulation Phase:
  - More flexibility in choosing managers and asset classes, especially for large ORSO schemes
  - Better expertise in investments, especially re alternatives
  - Regular portfolio reviews and reports to members

- Distribution Phase:
  - For a few large ORSO schemes, member can choose between annuities and lump sum payments
  - Better pension portability for international employees?
  - DB ORSO scheme much less expensive than DC MPF scheme
PRC – STATE PENSION (URBAN EMPLOYEES)

- Pillar Ia: PAYG (so will be greatly affected by deteriorating demographics.)
- Pillar Ib: meant to be funded, but in fact only partially funded
- Target replacement for average employee ratio: 58% average salary, but this only works if return on Pillar 1b equates over long term to salary escalation
- Total accumulated assets – RMB2.8 trillion for Pillar Ia & Ib as at 31 December 2013
- Only allowed to invest in bank deposits and government bonds, with only 2% p.a. investment return during the past decade
- Guangdong mandate of RMB100 billion being managed by the NSSF since March 2012 - wait and see results after 2-year experiment

PRC – EA

- DC scheme – funded, voluntary, supplementary plans set up by employers
- Accumulation Phase:
  - Employers choose EA provider, while employees have no member choice
  - Still low coverage, with only 5% of urban employees having EAs
  - Investment restrictions being progressively liberalised
  - Satisfactory performance, but does not beat salary escalation
- At 30 June 2013
  - total # of members: 19.6 mn
  - total AUM : RMB537 bn
PRC – EA INVESTMENT RESTRICTIONS

- “2010 revision” effective on 1 May 2011, with relaxation of investment restrictions as follows:

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>Old Rules</th>
<th>New Rules</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid assets</td>
<td>≥20%</td>
<td>≥ 5%</td>
</tr>
<tr>
<td>Fixed income</td>
<td>≥20%</td>
<td>≤95%</td>
</tr>
<tr>
<td>Equity products</td>
<td>≤30%</td>
<td>≤30%</td>
</tr>
<tr>
<td>- Equity stocks</td>
<td>≤20%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Ministry of Human Resources and Social Security

- Further liberalisation measures were issued in March 2013, allowing EA assets to invest in wealth management products, trust products, infrastructure bonds, stock index futures, etc., capped at 30% of total assets;
- Overseas investments still not allowed

PRC – EA INVESTMENT PERFORMANCE

- EAs achieved satisfactory investment returns in past years, an average of 8.35% p.a.

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return (%)</td>
<td>41.00</td>
<td>-1.83</td>
<td>7.78</td>
<td>3.41</td>
<td>-0.78</td>
<td>5.68</td>
</tr>
</tbody>
</table>

Source: China Pension Report 2012

- Reuters China Pension Index (RCPI) launched on 31 March 2006, is the only benchmark to gauge EA performance

Source: Thomson Reuters.
PRC – EA (CONT’D)

- Distribution Phase:
  - More lump sum payments than monthly pensions
  - New tax policy effective from 1 January 2014, following an EET tax mode similar to 401(k) in the US - will stimulate EA growth and may encourage pension income instead of lump sum
  - Low pension portability between different EA providers

- Other weaknesses:
  - Lack of transparency/ information disclosure
  - Lack of employee engagement

PRC - NSSF

- Established in 2000 – a strategic reserve fund and pension of last resort
- Acting like Sovereign Wealth Fund
- USD176bn total assets as of end 2012
- Awarded RMB100 bn mandate from Guangdong Province Pension Assets in March 2012

Source: NSSF; Stirling Finance research
PRC - NSSF INVESTMENT PORTFOLIO

- Diversified Portfolio
- 8.29% p.a. return since inception vs. price inflation rate of 2.45% p.a.
- No ALM – no information disclosure about liability side
- Not yet in distribution phase

<table>
<thead>
<tr>
<th>Geographical Allocation</th>
<th>Execution</th>
<th>Permitted investments</th>
<th>Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic</td>
<td>Direct</td>
<td>Bank deposits</td>
<td>&gt;= 50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Government bonds</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Appointment</td>
<td>Equities</td>
<td>&lt;= 40%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fixed income</td>
<td>&lt;= 10%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PE funds</td>
<td>&lt;= 10%</td>
</tr>
<tr>
<td>International</td>
<td>Appointment</td>
<td>Equities</td>
<td>&lt;= 20%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fixed income</td>
<td></td>
</tr>
</tbody>
</table>

Source: Stirling Finance research

CASE STUDY FOR INDIVIDUAL

- Consider an employee aged 20, works for 40 years, and lives after retirement for 20 years
  - Say current salary is 1,000 per month (no change; ignore investment return, expenses and tax)
  - Contribute 20% to pension system - net salary is 800 per month
  - Accumulated assets at retirement: 40*200*12=96,000
  - Pension income: 96,000/20/12=400 per month
  - Equates to 50% of net income at work
PERFECT PENSION SYSTEM

- Integrated long-term approach to ensure adequate retirement income
- Recognises changing employment structure, family patterns and personal interest
- Maximizes coverage and participation
- Leads to savings culture by individuals
- Increases national savings and economic growth
- Has widespread support from community and policy makers
- Has effective regulatory structure
- Is simple to understand

Thank You!

Questions?