Bachelor of Economics
THAMMASAT UNIVERSITY

FN 211 Financial Markets

Pension Funds

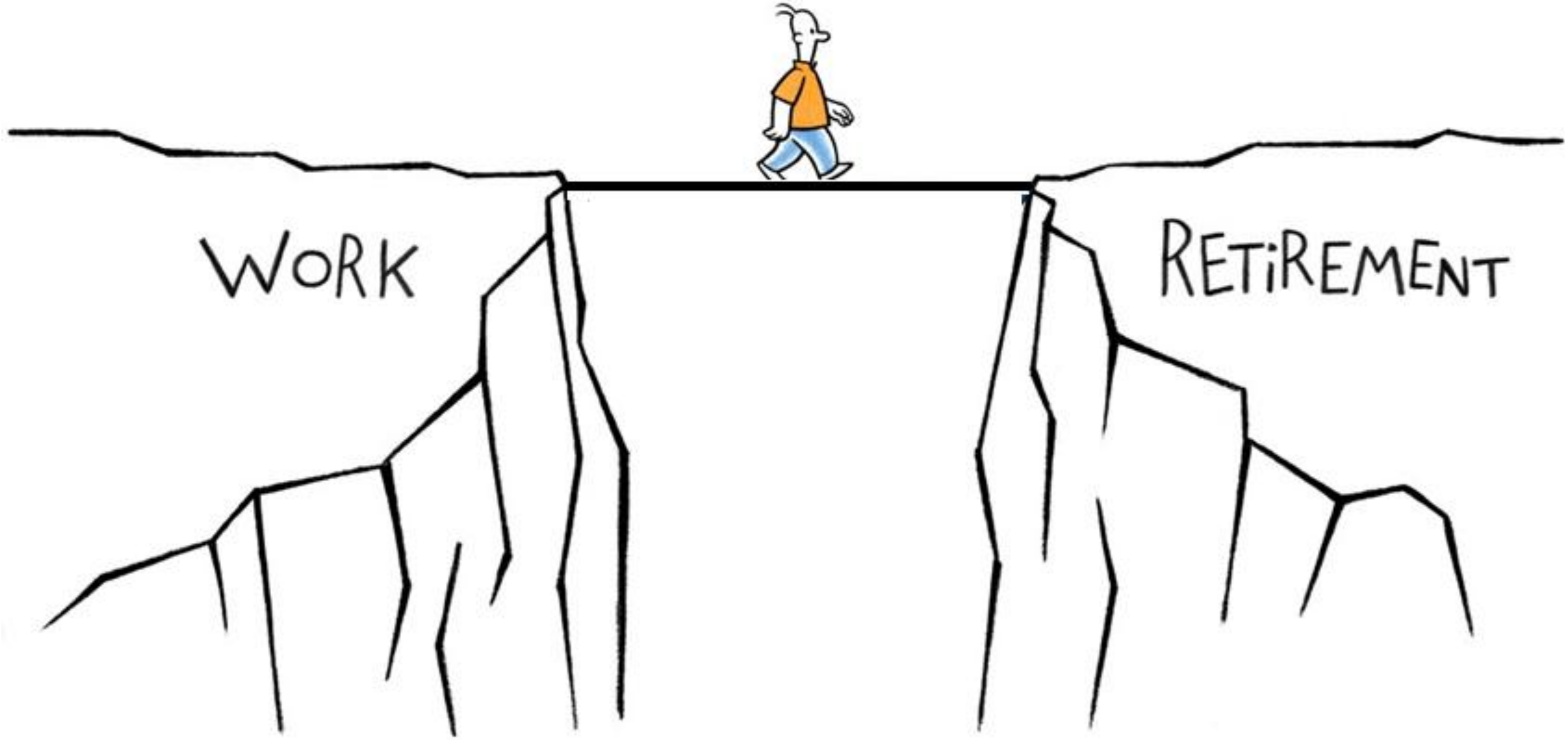
Agenda

- Pension Fund – An Introduction
- Defined Benefit vs Defined Contribution
- Pension Reform
- Investment for Your Retirement

Question ….

- What is pension fund?
- What do you know about pension fund?

Pension



Income funded by salary

Income funded by savings

Pension Fund – An Introduction

- Pension funds contain assets that are set aside to support a promise of retirement income. Generally, that promise is made by a private organization or a government. This organization is referred to as a plan sponsor.
- First established in the U.S. in 1759 to benefit the widows and children of church ministers
- The first corporate pension was established by American Express Co. in 1875

The World Bank Three Pillars Retirement Model

Public Pension
(Social Security)

-Mandatory contribution system
-Standardized, State Run
-Coverage focused on reducing poverty

SSO

Private Pension

- *Defined contribution plan*
- *Defined benefit plan*

Provident Fund

Personal Savings

-Voluntary
-Personalized Saving Plan

RMF
Annuity
Insurance

Private vs Public Pension Fund

- There are two distinct Pension Fund sectors
  - **private Pension Fund** are funds administered by private corporations (e.g., insurance companies or mutual funds)
  - **public Pension Fund** are funds administered by federal, state, or local governments (e.g., Social Security)

The Asset Management Industry
as of 31 Dec 2011

Asset Management

For Investment

Mutual Funds

Size: 2,082,000 MB

For: retail investors

Managed by: Asset Management Companies ONLY

Private Funds

Size: 316,000 MB

For: high net worth and institutional investors

Managed by

Asset Management Companies

Commercial Banks

Securities Firms

For Contractual Savings

Mandatory

Government Pension Fund

Size: 400,000 MB

For: 1.2 million government officers

Managed by: Government Pension Fund (GPF)

Pillar 1
Pillar 2

Social Security Fund (pension)

Size: 755,000 MB

For: 10 million private employees

Managed by: Social Security Office (SSO)

Pillar 1

Voluntary

Provident Funds

Size: 615,000 MB

For: 3.4 million private employees

Managed by

Asset Management Companies

Commercial Banks

Securities Firms

Insurance Companies

Pillar 2

RMF, LTF

Size: 241,000 MB

For: everybody

Managed by: Asset Management Companies ONLY

Annuities (Insurance)

Size: 1,181,000 MB

For: 14 million policies

Managed by: Insurance Companies ONLY

Pillar 3

Defined Benefit vs Defined Contribution

- **Defined Benefit Scheme - DB Scheme**
  - Employer promises a specified monthly benefit on retirement that is predetermined by a formula based on the employee's earnings history, tenure of service and age
  - Payout not depend on investment returns.
  - Example : promise to pay 60% of average salary during last 5 years until death

- **Defined Contribution Scheme - DC scheme**
  - Employer's annual contribution is specified.
  - Individual accounts are set up for participants
  - Benefits are based on the amounts credited to these accounts plus any investment earnings on the money in the account.
  - Only employer contributions to the account are guaranteed.
  - Future benefits fluctuate on the basis of investment earnings.
  - Example : Employer and employee each contributes 5% of salary. This amount is invested and can be withdrawn upon retirement

Defined Benefit vs Defined Contribution

- For a defined-contribution plan, because the benefit is not promised, the participants bear the risk of poor investment results or the benefit is not enough to cover living expenses.
  Example: Government Pension Fund (covers 1.2 million government officers)

- For a defined-benefit plan, because the sponsor has a financial obligation to pay specified future benefits, the sponsor bears a risk of not being able to make the promise.
  Example: Social Security Fund (covers 10 million employees of private companies)

Pension Funds:
The Government Pension Fund

Government Pension Fund

Contributions: 3% from employer (the government) + 3% from employee

Pension Benefits: Lump sum equals to total contributions plus investment income

Pension Funds:
The Government Pension Fund

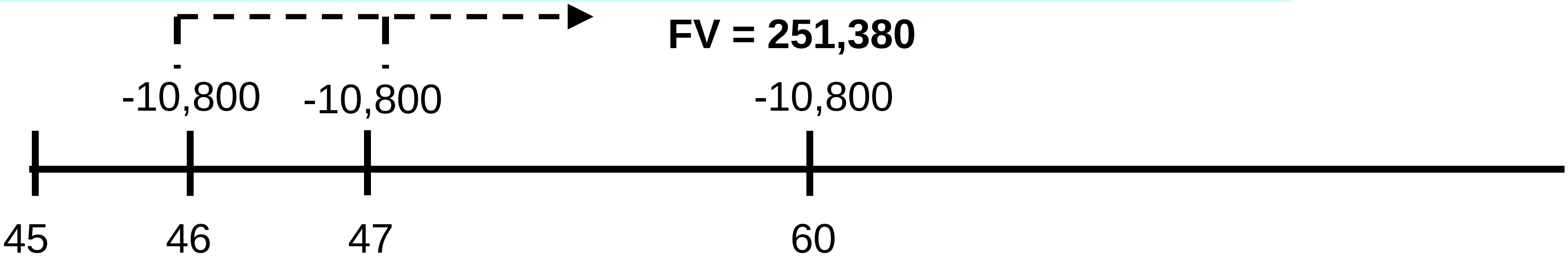
Mrs. Somsri, age 45, is a government officer and has just become a member of the GPF.

- She has monthly income of B15,000
- Her contribution = 3% x 15,000 = B450 per month
- Employer Contribution = 3% x 15,000 = B450 per month
- Total monthly contribution is then 900 Baht per month or 10,800 Baht per year.

When Mrs. Somsri retires at age 60

- Her retirement benefit is a lump sum equal to total contribution plus investment income earned during the contribution period.

Pension Funds:
The Government Pension Fund



Lump sum = 251,380

- Assuming annual investment return of 6% (annual compounding), her contribution of 10,800 per year for 15 years will grow to 251,380 Baht by the time she retires at age 60. (PV = 0, PMT = 10800, N = 15, I = 6, FV = 251,380)
- Her lump sum pension will then be 251,380 Baht.
- As a plan participant, Mrs. Somsri bears the risk that
  - Investment return may be < 6% or…
  - this lump sum amount may not be enough to cover her living expenses for the rest of her life.

Pension Funds:
The Social Security Fund

Social Security Fund

Contributions: 3% from employer + 3% from employee

Pension Benefits:

- <u>Contribute < 15 years</u>
  Lump sum equals to contributions plus investment income
- <u>Contribute = 15 years</u>
  monthly pension equals to 20% of the average of the last 5 years of salary
- <u>Contribute > 15 years</u>
  monthly pension equals to 20% of the average of the last 5 years of salary + bonus equals to 1.5% of the average of the last 5 years of salary for each additional year of contribution

Pension Funds:
The Social Security Fund

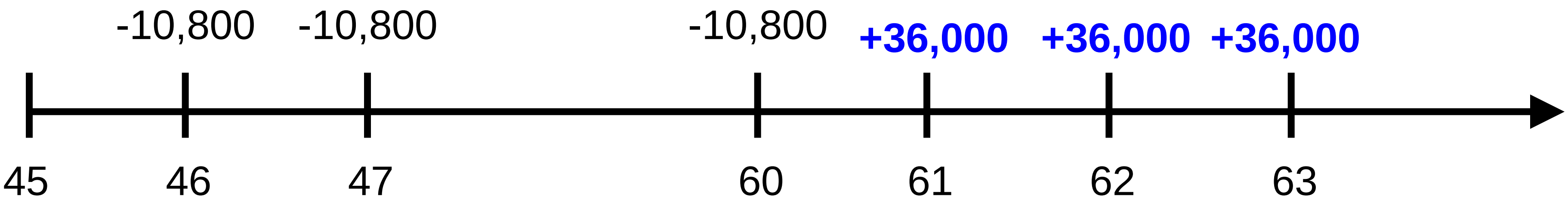
Mr. Somkid, age 45, is an employee of a private company and has just become a member of the SSF.

- He has monthly income of B15,000.
- His contribution = 3% x 15,000 = B450 per month
- Employer Contribution = 3% x 15,000 = B450 per month
- Total monthly contribution is then 900 Baht per month or 10,800 Baht per year.

When Mr. Somkid retires at age 60. (Note that he has contributed for 15 years)

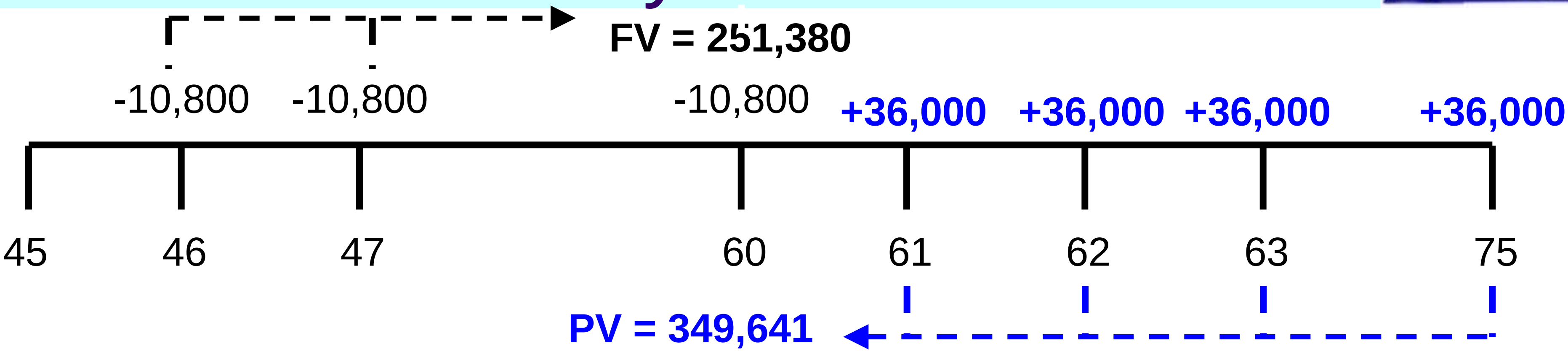
- His retirement benefit = 20% x 15,000 = 3,000 Baht per month or 36,000 Baht per year for the rest of his life.

Pension Funds:
The Social Security Fund



- Mr. Somkid has been contributing 900 Baht per month or 10,800 Baht per year for 15 years.
- He is entitled to monthly pension of 3,000 Baht per month or 36,000 Baht per year for the rest of his life.
- Although 3,000 Baht per month does not seem much, Mr. Somkid is guaranteed to receive this monthly pension benefit even if he lives long until the age of 80, 90 or 100+

Pension Funds:
The Social Security Fund



- Assuming annual investment return of 6% (annual compounding), his contribution of 10,800 per year for 15 years will grow to 251,380 Baht by the time he retires at age 60. *(PV = 0, PMT = 10800, N = 15, I = 6, FV = 251,380)*
- Assuming Mr. Somkid passes away at age 75 and a discount rate of 6%, his retirement benefits of 36,000 Baht per year for 15 years have a PV of 349,641 Baht. *(FV = 0, PMT = 36000, N = 15, I = 6, PV = 349,641)*

Pension Funds:
Summary

	GPF	SSF
Type	Defined Contribution	Defined Benefit
Contribution Rate	3% employee + 3% employer	3% employee + 3% employer
FV of Total Contribution	251,380	251,380
Benefit	Lump-sum at retirement = 251,380	Monthly pension until death = 3,000 (PV = 349,641 if live for 15 years)
Risk Taker	Participants (Mrs. Somsri)	Plan Sponsor (SSF)

Pension Funds:
The Social Security Fund

Additional Notes for the Social Security Fund

To qualify for monthly pension benefits, member must…

- Be at least 55 years old - - > Minimum Retirement Age
- Has contributed $\geq$ 15 years
- Has already retired from work

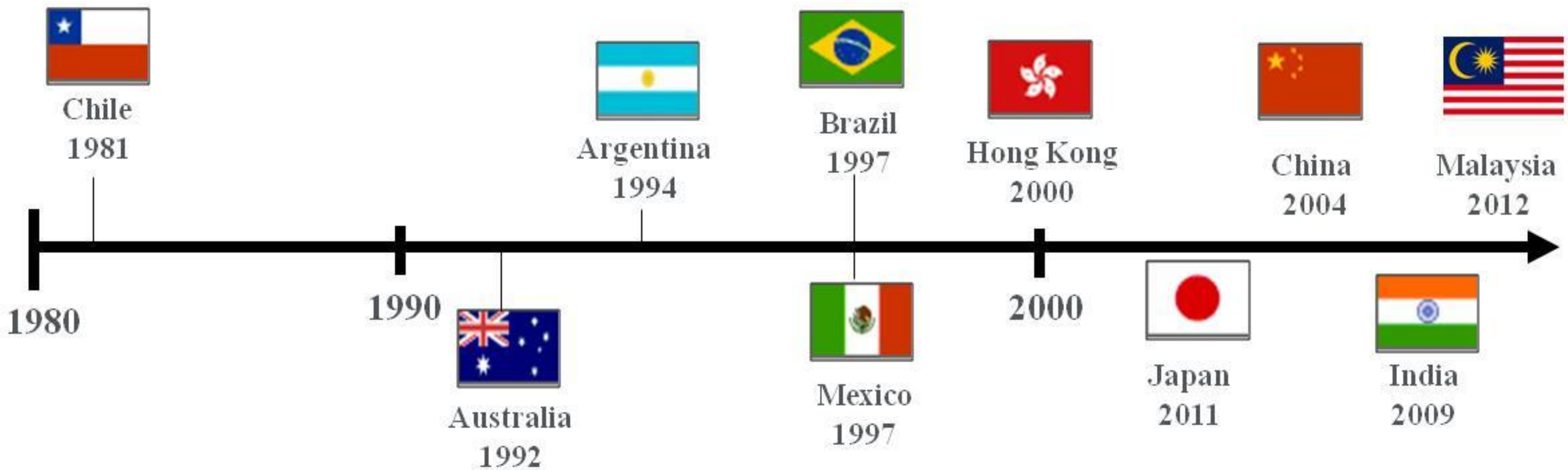
SSF was set up in 1999.

- Given that members must contribute $\geq$ 15 years to be qualified for pension, SSF will start to pay pension in 2014.
- Member who retires before 2014, and thus has contributed <15 years, will be entitled to lump sum pension.

Pension Funds:
The Social Security Fund

- Notice that, as a defined-benefit pension plan, SSF is required by law to provide pension benefit to Mr. Somkid, even though the PV of benefits (349,641 Baht) is greater than FV of contributions (251,380 Baht). - - > Too generous
- Assuming investment return of 6% and life expectancy of 75 for Thai male, SSF will always make a loss.
- As the plan sponsor, SSF bears the risk of not being able to provide enough pension benefits.

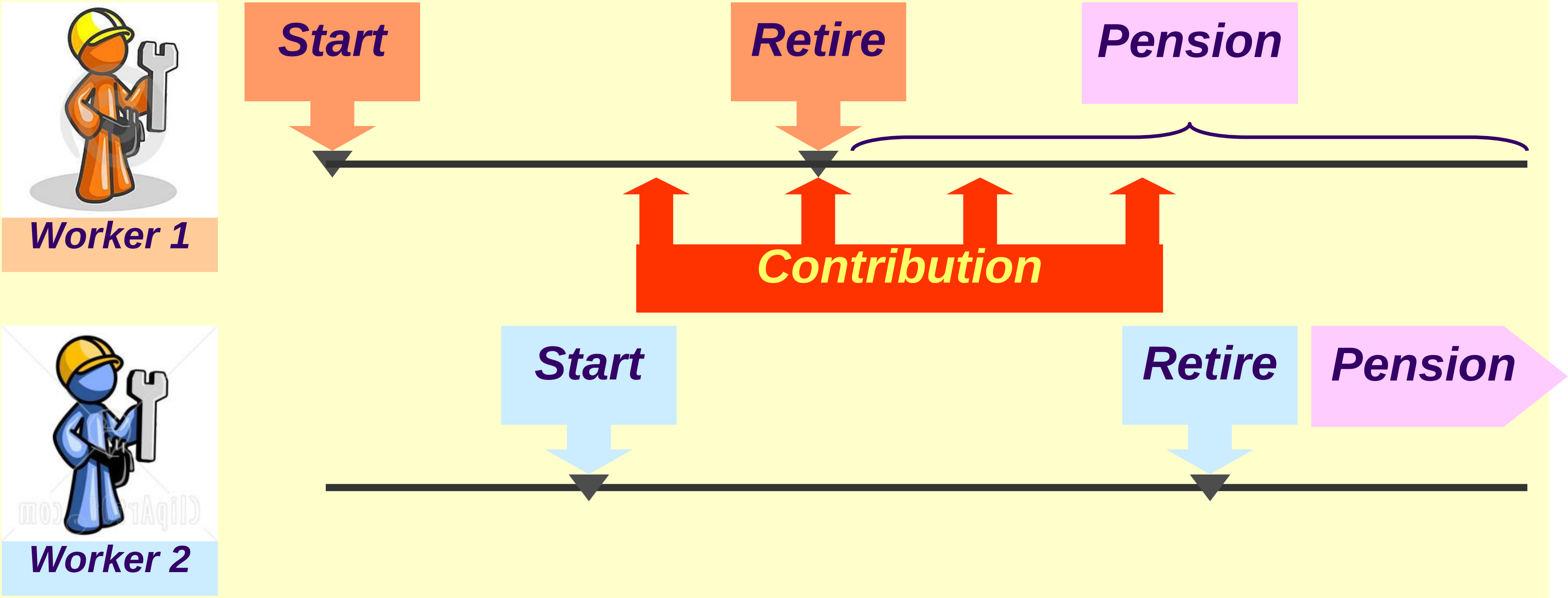
Pension Reform



Pay-As-You-Go

- **Pay -As -You –Go Scheme-PAYG Scheme**

  Contributions paid by currently employed workers to pay the expenses for current retirees, while not having accumulated reserve.



Assessment of Pension Reform in Latin America

The Former Pension System

The defined-benefit pay-as-you-go plan

- ***Chile***
- ***Mexico***
- ***Colombia***
- ***Peru***

The pension systems were organized and administered by public social security institutions, and the state undertook to provide a broad range of guarantees and benefit.

Problems with Pay-As-You-Go

Former Pension System
(Pay-as-you-go scheme)

Problems with Pay-as-you-go

Lack of Incentive to contribute

- *Benefit receivers and contributors are different entities.*
  - *No incentive to contribute*
  - ***Has incentive to avoid contribution***

Demographic transition

- *Ageing population*
  - *The number of retirees grows while the number of workers drops*
  - ***More benefit receivers than contributors***

Economic risks

- *In the time of crisis, government's liability is growing.*
  - *A high inflation*

Financial management inefficiencies

- *Fund is managed by government*
  - *Poor government administration and lack of transparency in running welfare systems*
  - *Negative real return*

Pensions Reform in Latin America

The ***former*** pension system

pay-as-you-go defined-benefit system

- Current workers paying contributions
- Retired workers receiving benefit
- Benefit receivers and contributors are not the same group
- no incentive to contribute --> can lead to low contribution rate
- Benefit is promised → create liabilities

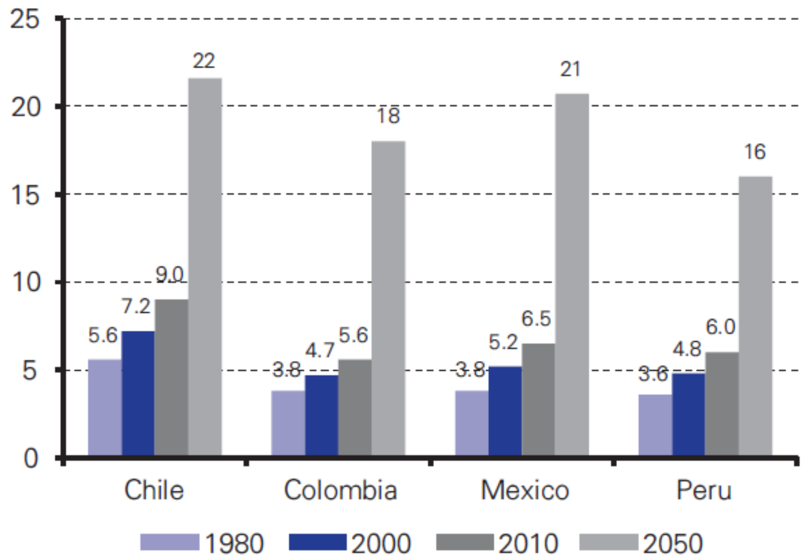
The ***reform*** pension system

defined-contribution and individual capitalization system

- Each plan member contributes to his/her own individual account
- The contribution is invested
- Member might be able to choose from among default investment strategies
- Contribution plus investment benefits are received at retirement

Demographic Changes

Population aged 65 years and over (%)



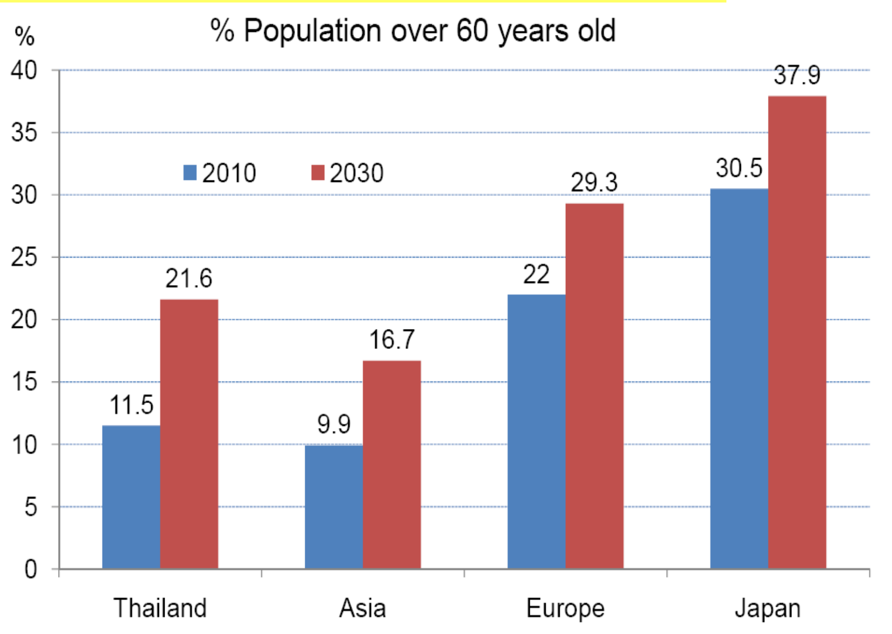
Demographic Factors

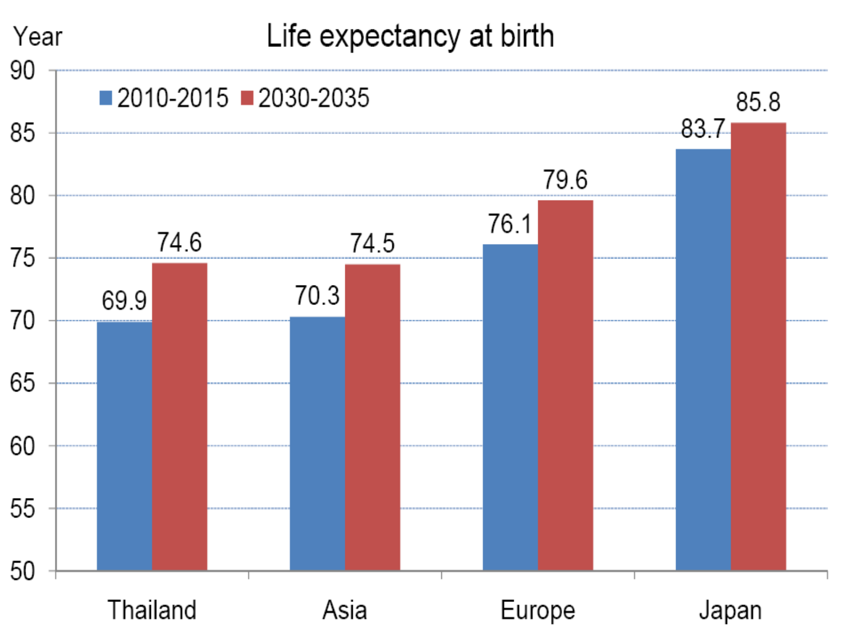
- Aging

- Life expectancy

Ageing Population

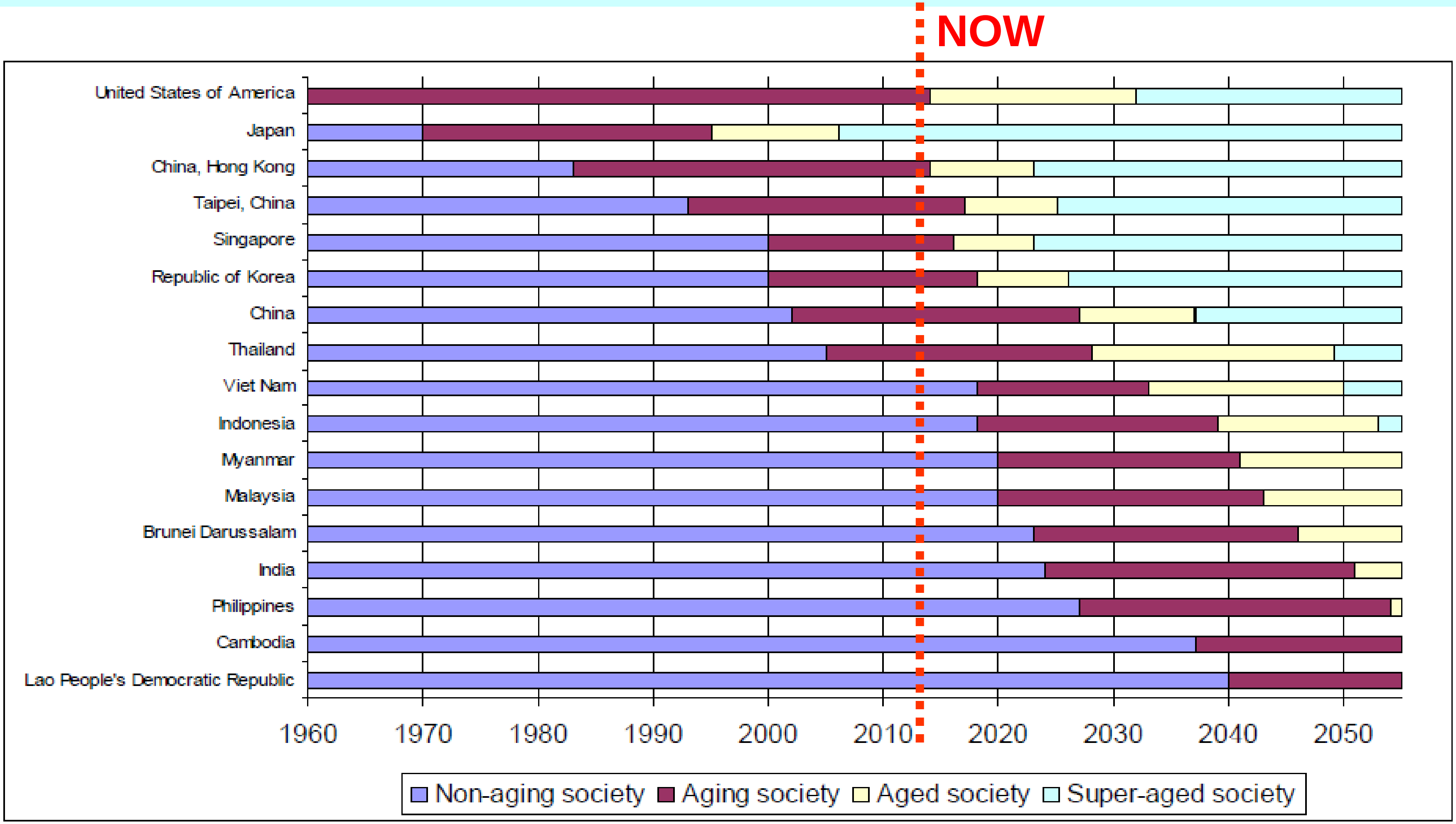
Severe problem in Thailand as well





Source : Population Division of the Department of Economic and Social Affairs of the United Nation Secretariat, World Population Prospects: 2008 Revisions

Aging Population



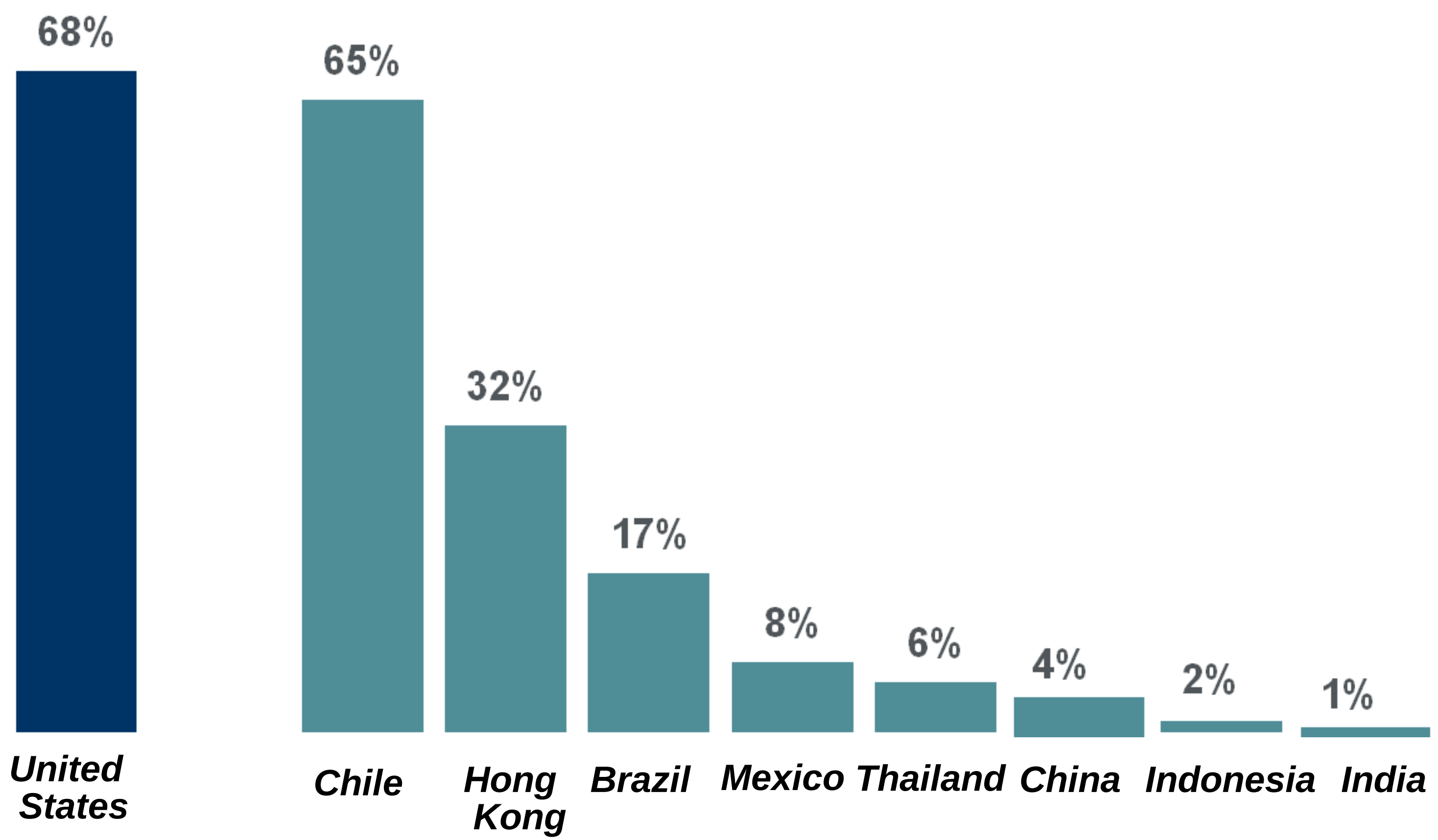
Sources: Calculated from UN (2009) and projections by the Department of Manpower Planning, Taipei.

Note: Aging society, aged society, and super-aged society refers a country at which the proportion of elderly 65 and older exceeds 7%, 14%, and 20%, respectively. The sources have information up to 2050. The numbers between 2050 - 2055 are projections by authors.

Rationale for Pension Reform

- Ageing population
- Insufficient retirement asset

Insufficient Retirement Asset



Percent of retirement assets relative to GDP

SOURCE: Organisation for Economic Co-operation and Development; CIA Fact Book and 2009 EPF Annual Report; Melbourne Mercer Global Pension Index 2010

Case for Thailand : GPF

Old Pension System	DB

New Pension System	DB+DC

1997

Pension after retirement

Government : Lifelong monthly pension equal to last month salary + healthcare expense

Pension after retirement

Government : Lifelong monthly pension (max 70% of average 60 months salary)

PLUS

GPF : Lump Sum payment from monthly contribution

- 3% from members
- 3% from government
- 2% additional from government
- Lump Sum payment to compensate for the change in pension formula, covering period of time before 1997

Government officials who have been in service before 1997 can choose whether to join the new pension system

About one million choose to join

GPF Background

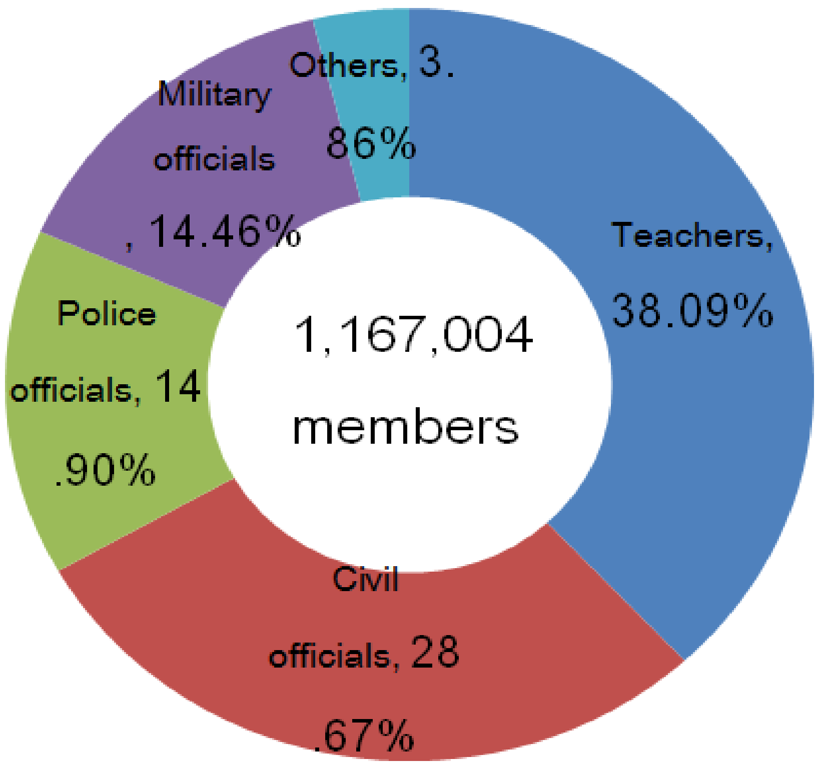
- Established in March 1997
- Defined contribution pension scheme for government officers
- Objectives

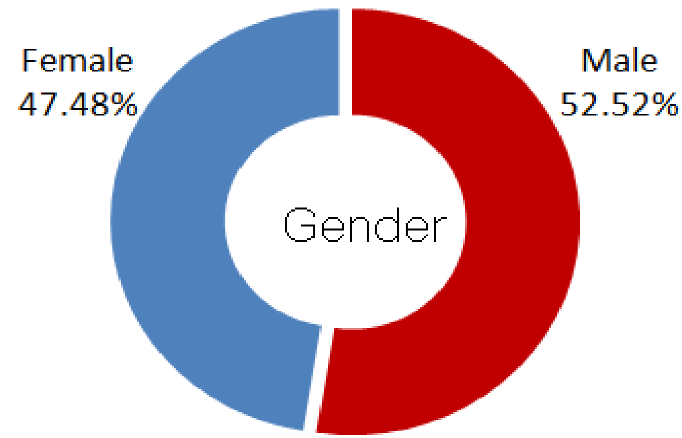
  - Provide savings for retirement

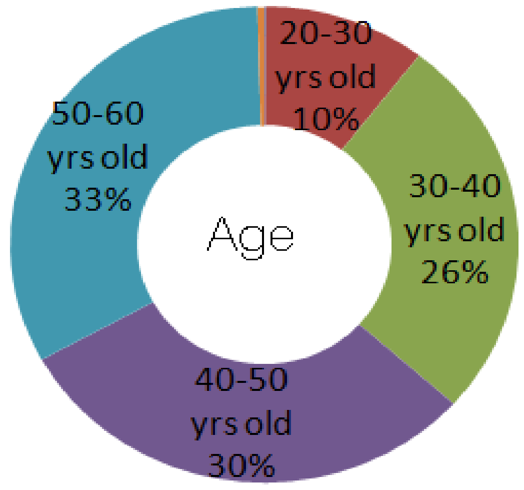
  - Provide welfare and benefits to members

- Investment objectives = CPI + 2.5%

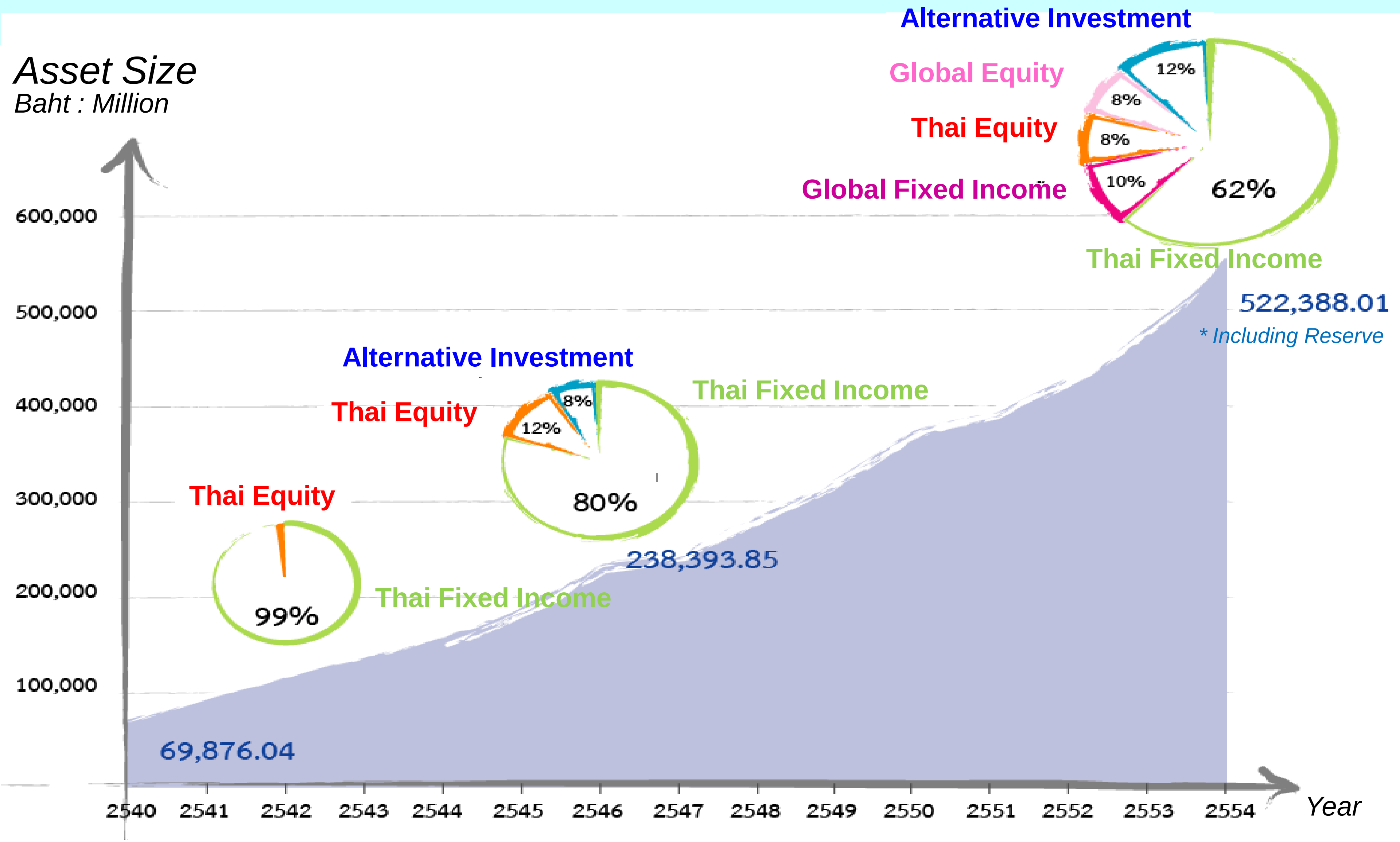
GPF Members Profile







Asset Allocation



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Investment Restrictions

- Safety asset at least 60%
- Total Equity <35%
- Total Foreign Investment < 25%
- Property < 8%

Investment for your retirement

- How much you plan to spend each month during your retirement?
- Factors to consider…

  - Life expectancy

  - Savings/Retirement Asset base

  - Number of working years remaining

  - Monthly Contribution Rate

  - Expected Return

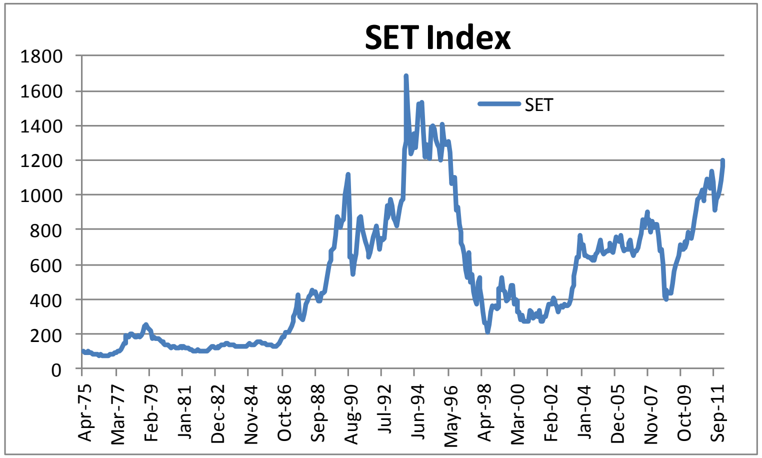
Steps

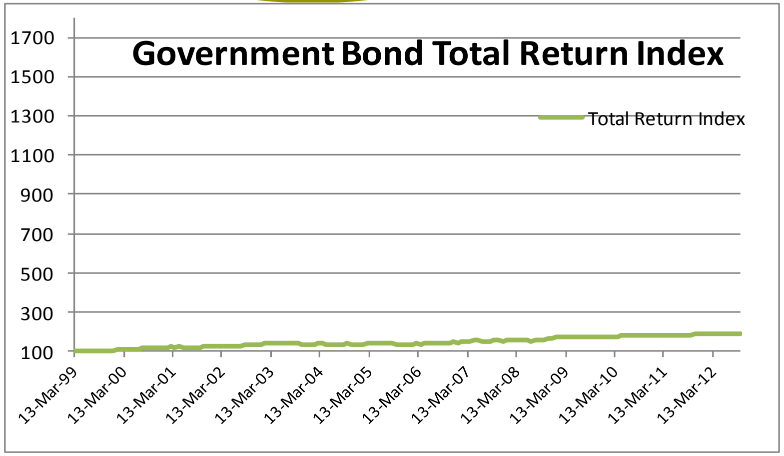
- Determine how much you plan to spend each month during your retirement
- Determine total amount you need before you retire
- Formulate the appropriate asset/investment choice mix

Key Risks For Retirement Investment

Market Risk

ShortFall Risk





Type of Risk		Safer Assets	Riskier Assets
Market Risk	Fluctuation in short term market value	Cash	Equity
Shortfall Risk	Not contributing enough / invest too conservative	Equity	Cash

Time Horizon and Risk for Retirement Investment

	Early Career	Prime Career	Near Retirement	Enjoying Retirement
Investment Horizon	Very Long	Long	Moderate	Limited
Potential Risks	Market Risk Shortfall Risk	Market Risk Shortfall Risk	Market Risk Inflation Risk Longevity Risk	Market Risk Inflation Risk Longevity Risk
Investment Goal	Dominant emphasis on accumulation	Balanced emphasis on accumulation and preservation	Increasing emphasis on preservation and inflation protection	Dominant emphasis on capital preservation and current income

Factors to Consider on Fund Choice – Years to Retirement

	Investment horizon (e.g. years to retirement)				
Fund type	30+ Years	20-30 Years	10-20 Years	5-10 Years	<5 Years
Equity Funds	✓✓✓	✓✓	✗	✗	✗
Balanced Fund with Higher Equity Content	✓✓	✓✓✓	✓✓	✗	✗
Mixed Asset Fund with Lower Equity Content	✓	✓✓	✓✓✓	✓✓	✓
Principal Protected Funds	✓	✓	✓✓	✓✓	✓✓
Money Market Funds	✗	✗	✓	✓✓✓	✓✓✓

Note: Please note that the above table is designed for an average member. The final choice for any member may be based on a variety of factors.

✓✓✓ – *Most appropriate*
✓✓ – *Appropriate*
✓ – *Acceptable*
✗ – *Not appropriate*