中国平安
PINGAN

Investment Risk Management

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◆ Three main questions we ask ourselves: Key challenges? How to manage? What to expect?

- 2013-16, non-standard investments grew by 55% CAGR;
- YTD Jun, 7 corporate bonds in the market defaulted for the first time
- YTD Aug, A-shares fell by 17.28%

Key challenges?

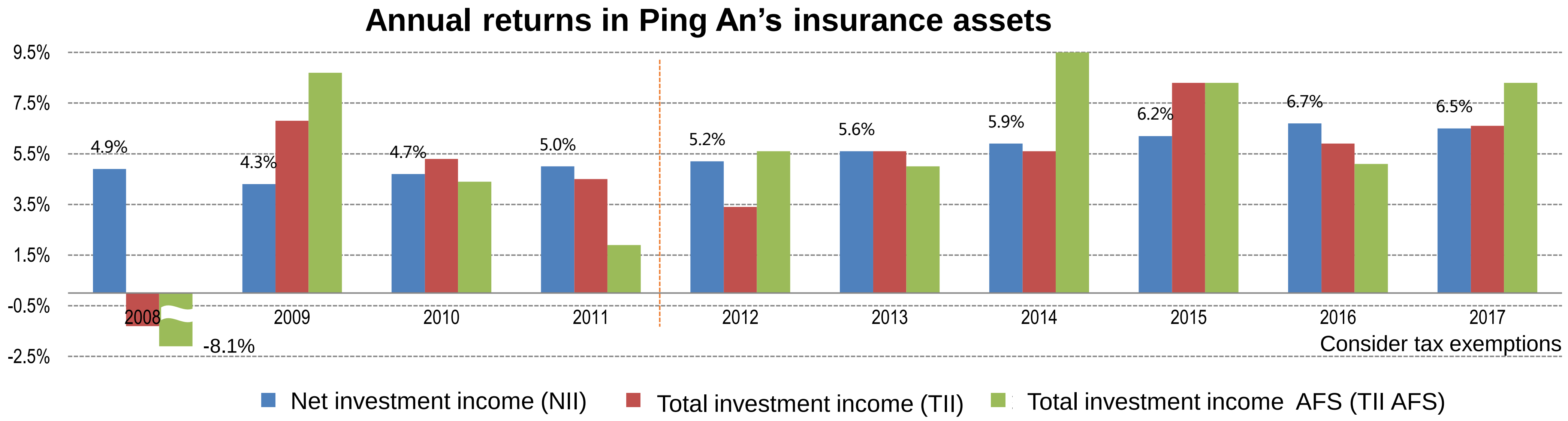
- Mismatch between assets and liabilities – lack of long term assets
- Derivatives market under-developed, lack of hedging tools

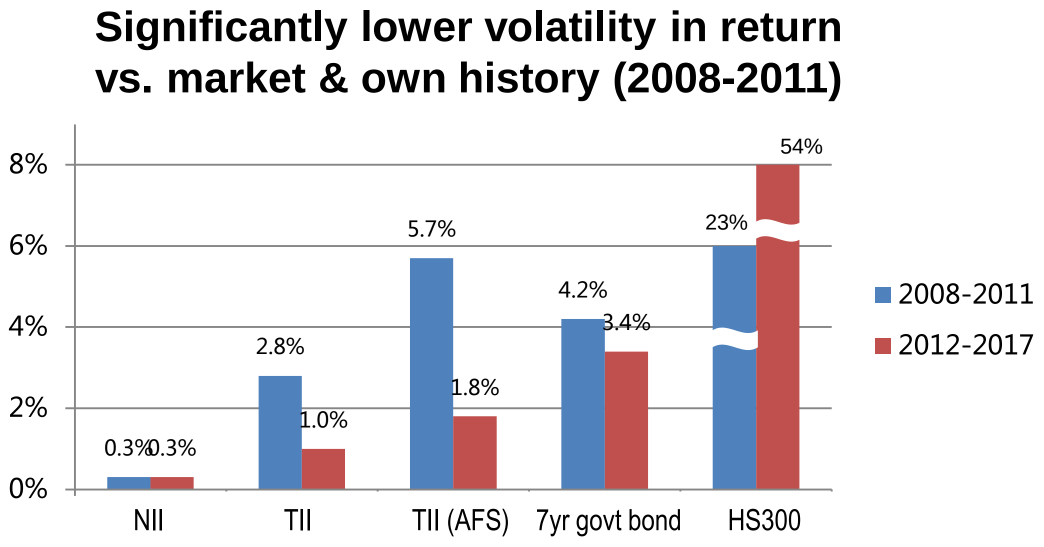
How to manage 2.58 trillion insurance assets?

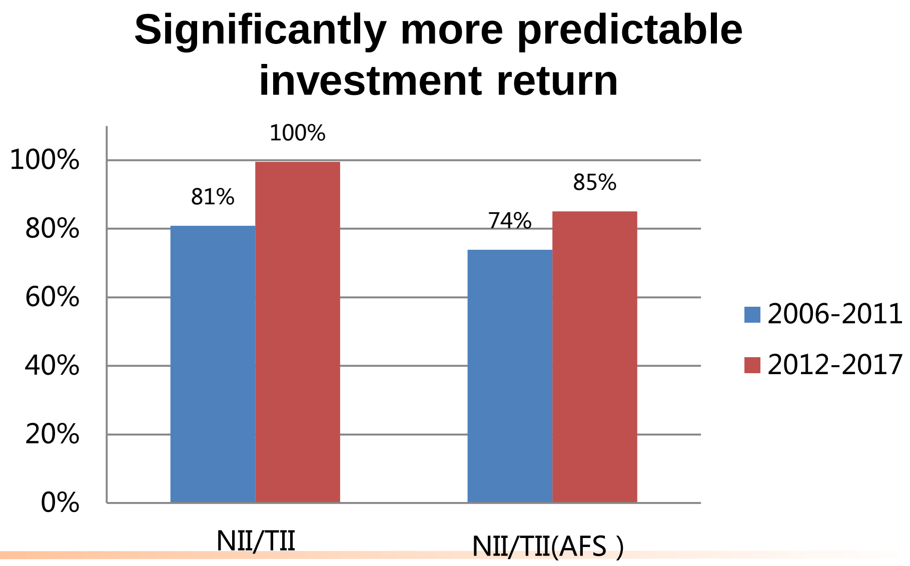
- Impact of IFRS9 on insurance assets?
- Future investment strategies for insurance assets?

What is our expected future return?

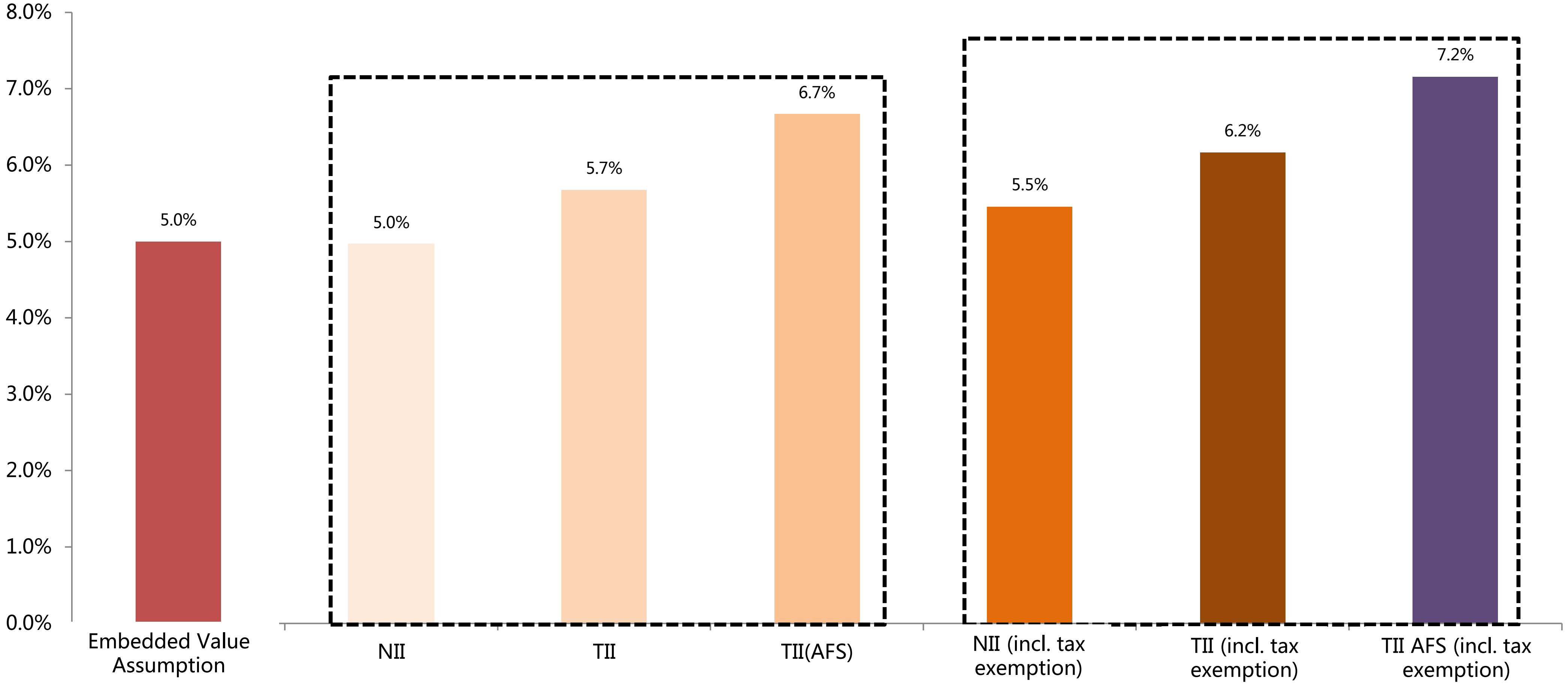
◆ Our performance – steady growth in NII since 2012, largely reduced fluctuations (1/3)







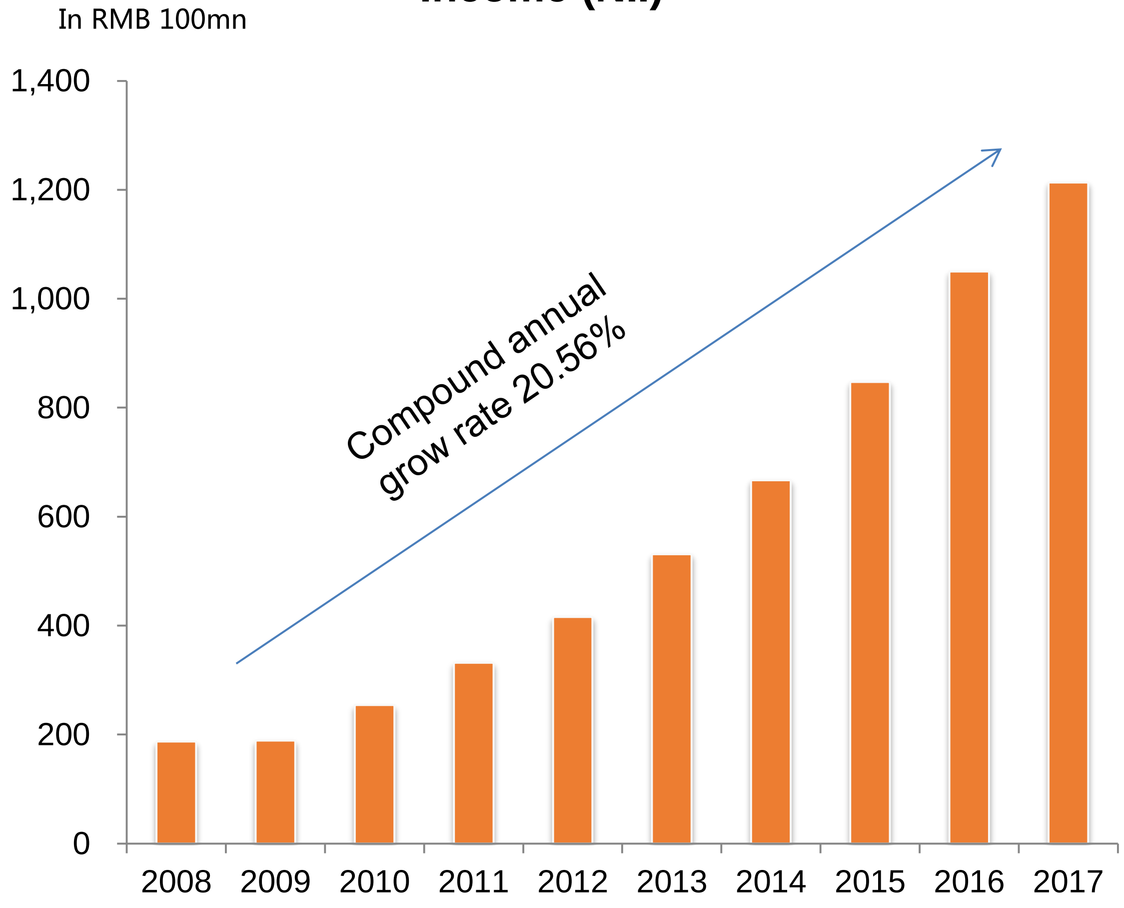
◆ Our performance – long-term investment return significantly exceeds the actuarial assumption (2/3)



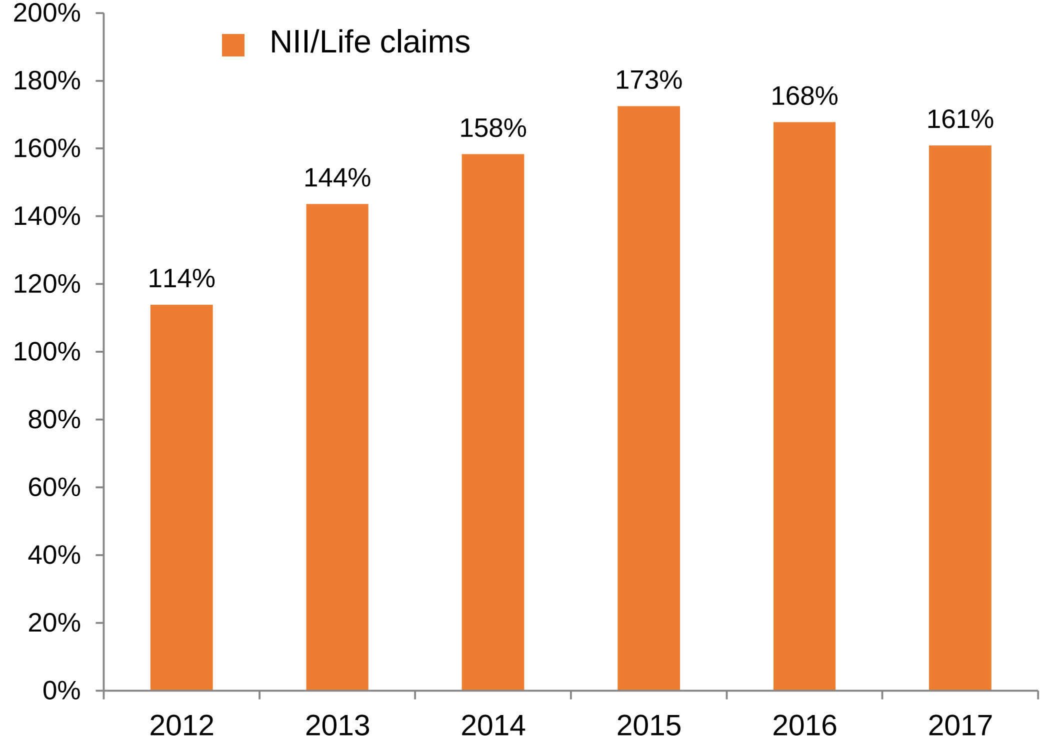
Note: The interest income earned on assets such as Chinese government bonds is tax-exempted. The exempted amount is an indirect investment income for insurance companies. The tax exempted figures above are unaudited estimations.

◆ Our performance – net investment income grows at 21% CAGR, exceeding life claim payments (3/3)

Steady increase in Net Investment Income (NII)



NII exceeds life insurance claims



Note：NII-Net Investment Income

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◆ Investment procedure – insurance asset investment must adhere to core ALM principles (1/5)

Liability Management	ALM	Asset Management
"To manage liabilities better than expectation"	**"Balancing assets and liabilities at the same time achieving sound financial returns"**	"To go beyond benchmarking peers"
▪ To accumulate insurance liabilities at a lower cost ▪ To achieve or exceed expectation in managing liabilities	▪ **Reduce asset-liability mismatch to a reasonable level** (duration, cash flow, cost/return) ▪ **Form key decisions on both asset and liability sides** (product structure, asset allocation, investment guidelines, etc.)	▪ To manage operating costs efficiently ▪ To generate excess return within confines of a pre-set risk budget

Actuarial (CAO)

Finance (CFO)

Investment (CIO)

Risk (CRO)

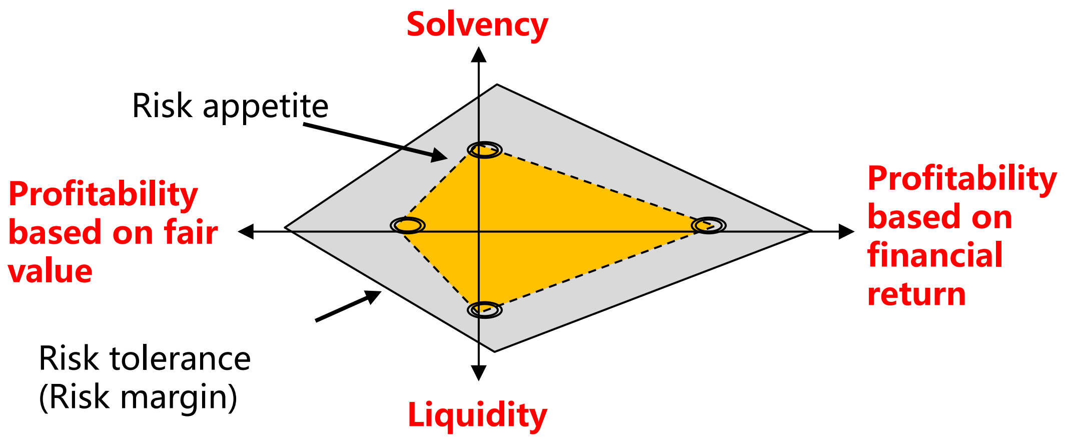
Note: Group Risk Management Executive Committee participates in the regular review of Strategic Asset Allocation.

◆ Investment procedure – multi-dimensional risk appetite: finance, actuarial, risk & investment (2/5)

Actuarial pricing constraint: investment return on fair-value basis uses the **actuarial assumed interest rate** as minimum return requirement, to ensure its portfolio generates sufficient return even under most adverse economic conditions; the investment objective is set via the minimum return requirement;

Finance cost constraint: in addition, investment return on accounting basis refers to liability cost as the minimum return requirement.

Risk appetite framework



3 dimensional constraints

- Solvency risk constraint

Under stressed scenario, solvency ratio ≧ 120%

- Actuarial pricing consideration: fair-value return constraints

E.g. Life	Minimum return guarantee (%)	Product assumed interest rate (%)	Maximum probability of breaking through min. return guarantee (%)
Traditional	***	***	20
Participating	***	***	15
Universal Life	***	***	10

- Finance cost consideration: financial return constraints

E.g. Life	Average cost of liabilities (%)	Maximum probability of breaking through average cost (%)
Traditional	***	15
Participating	***	10
Universal Life	***	10

◆ Investment procedure – Strategic Asset Allocation via Monte-Carlo simulations and expert judgment (3/5)

Input

Investment constraints and asset data

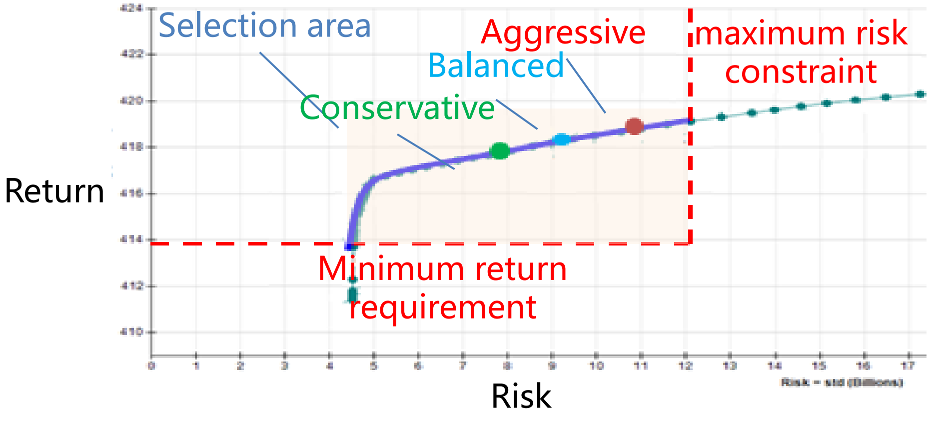
Quantitative simulations

Generating the Efficient frontier using Monte Carlo simulations

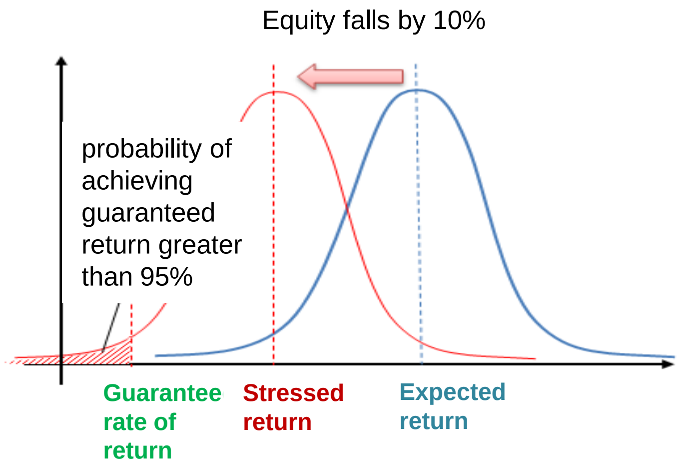
Evaluation & Selection

Apply stress tests to shortlisted portfolios and form the distribution of returns. Finally select three different portfolios which fulfills all constraints at different risk levels.

- Minimum solvency under stressed scenario
- Max. probability of hitting min. return guarantee
- Expected return and volatility
- Investment strategies

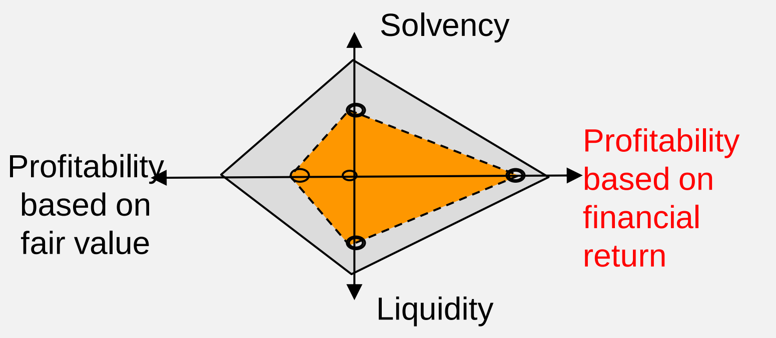


Selection on Efficient Frontier with stress tests



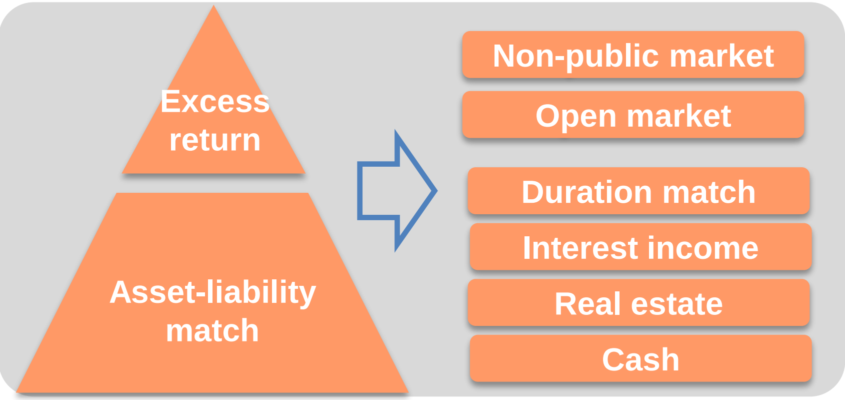
◆ Investment procedure – Strategic Asset Allocation (SAA) through adequate quantitative assessment (4/5)

Appetite, strategy, and IFRS9 asset class



Four dimensions of SAA risk appetites

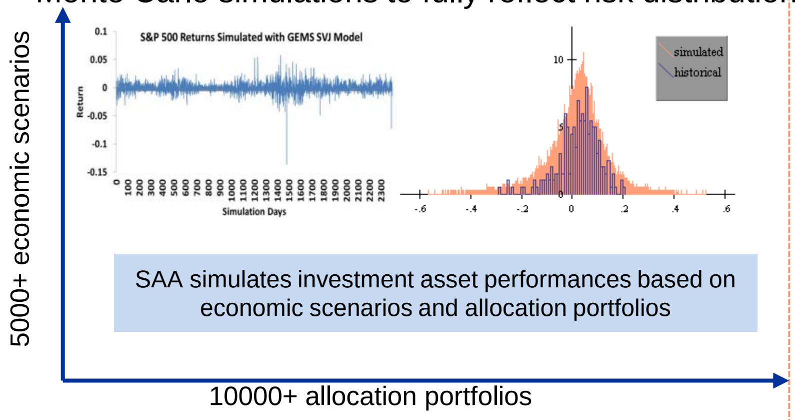
Six strategies of SAA (based on IFRS9)



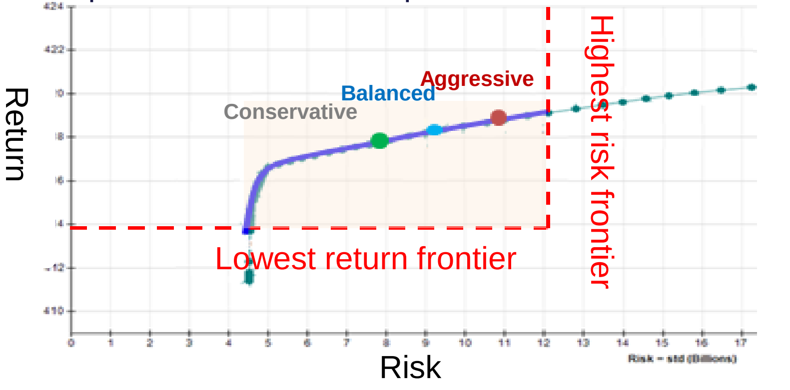
System implementation

Ping An-Conning System

- ✓ Monte Carlo simulations to fully reflect risk distribution

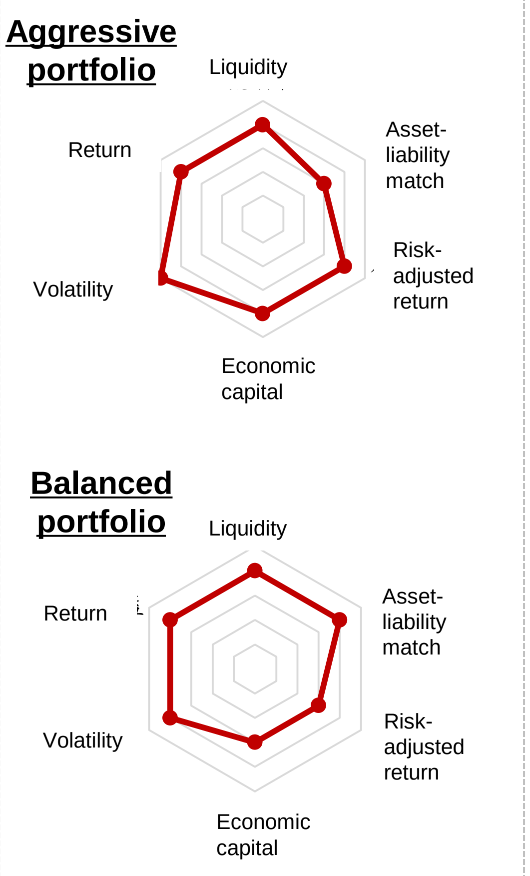


- ✓ Portfolio optimizer produces effective frontiers to optimize the risk-return portfolio



Multi-dimensional evaluation

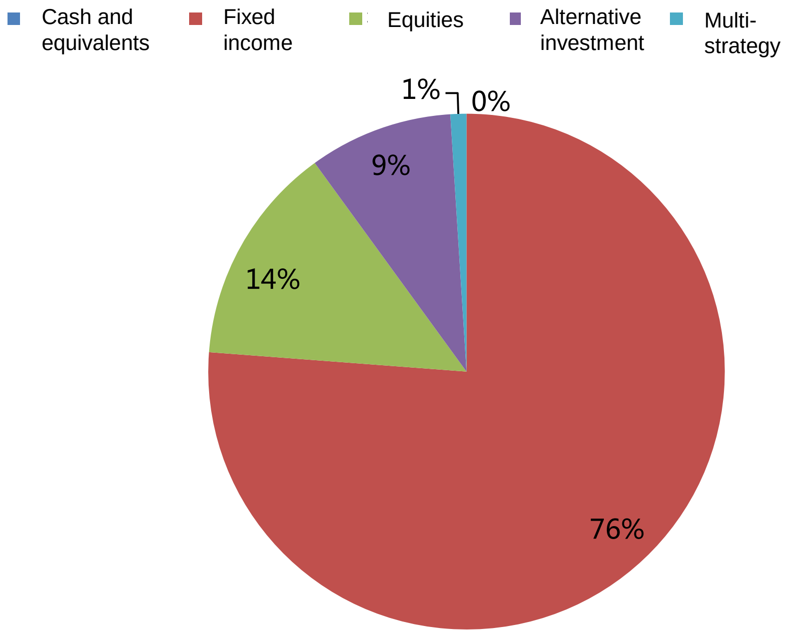
Multi-dimensional evaluation



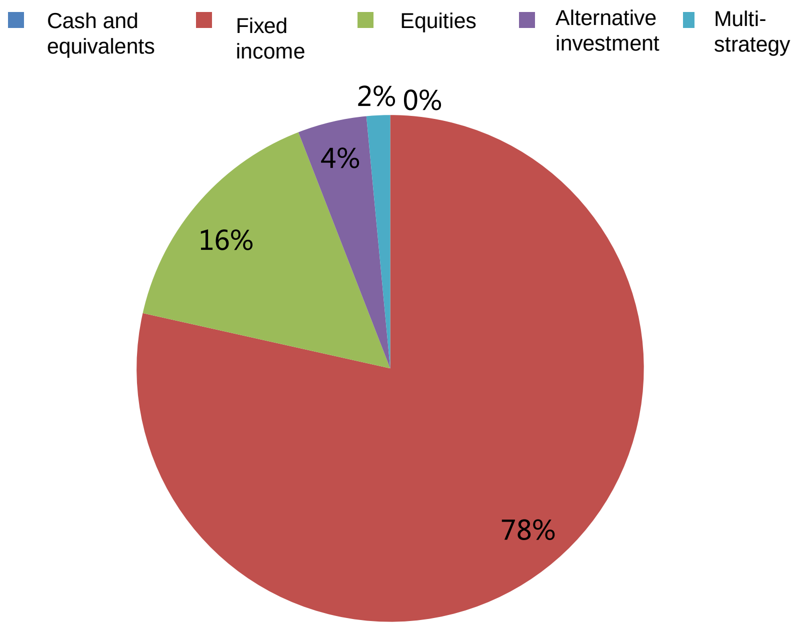
◆ Investment procedure – differentiated strategic asset allocation for different insurance accounts (5/5)

Example

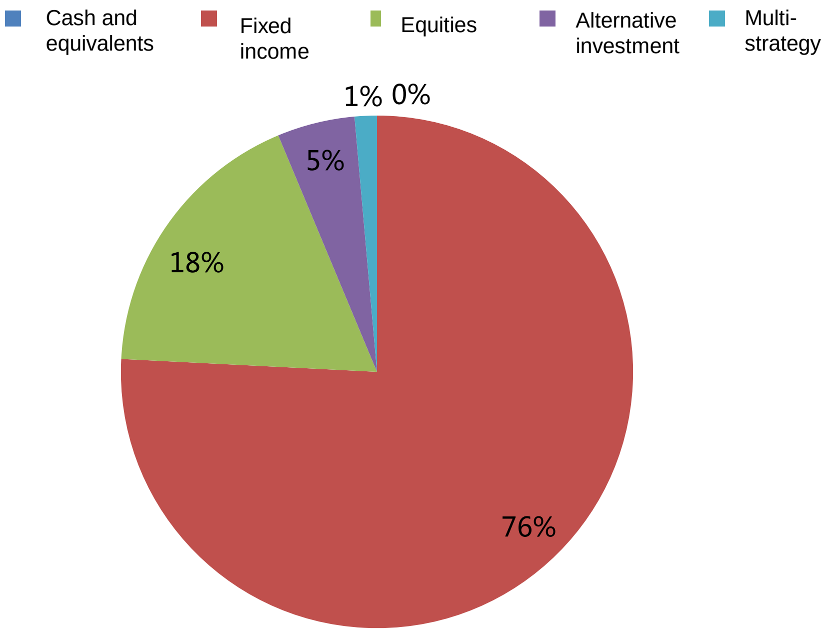
Traditional Life



Participating



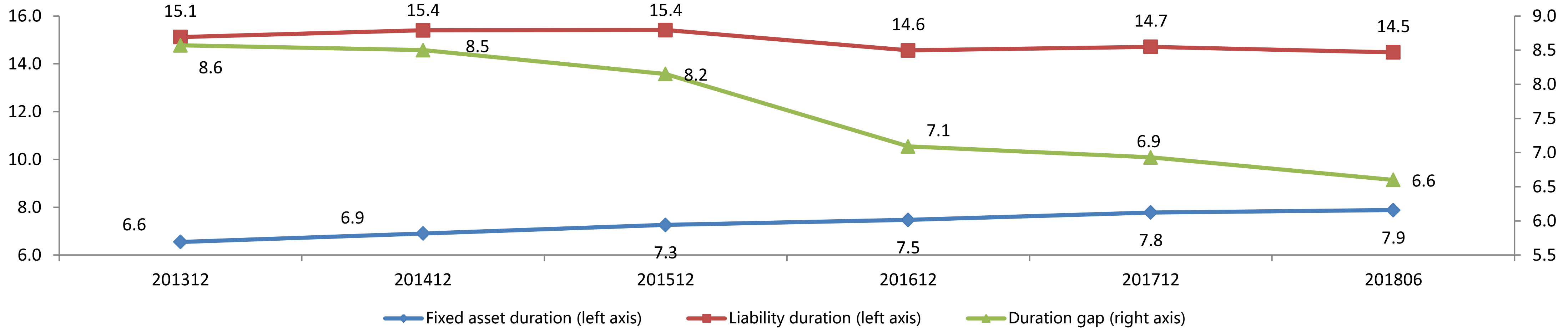
Universal



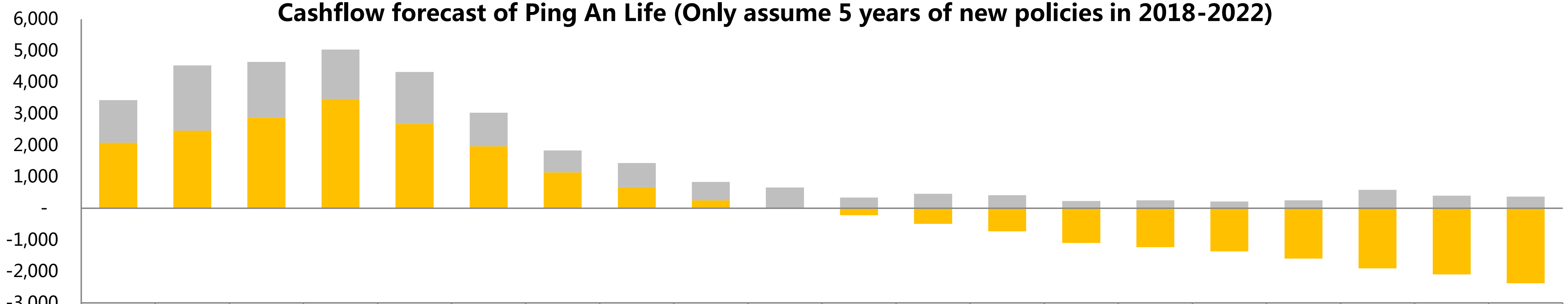
Note： Equity investments include preferred stock; Alternative investments include PE and real estate；

◆ Our achievement – a narrowing asset-liability mismatch, net-outflow may only occur in 2029 (1/2)

Asset-liability duration gap continues to reduce since 2013



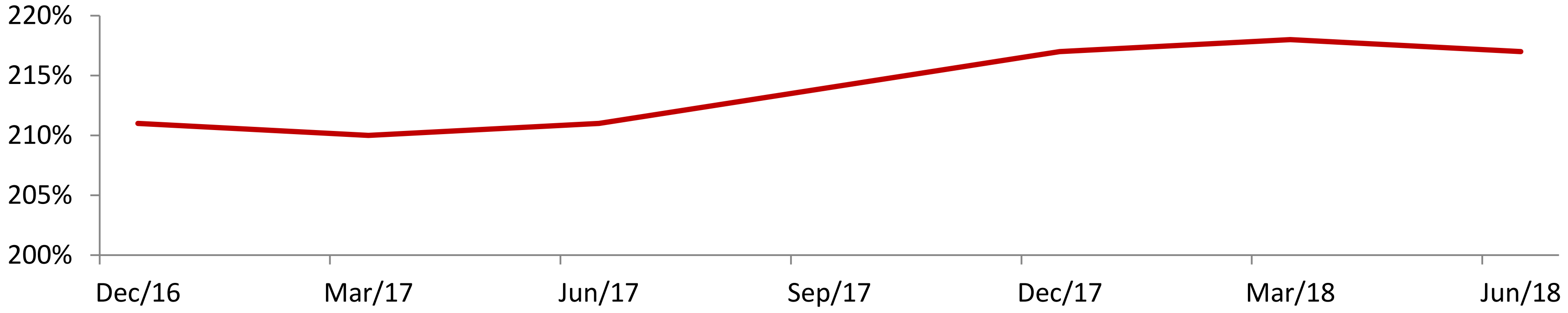
Cashflow forecast of Ping An Life (Only assume 5 years of new policies in 2018-2022)



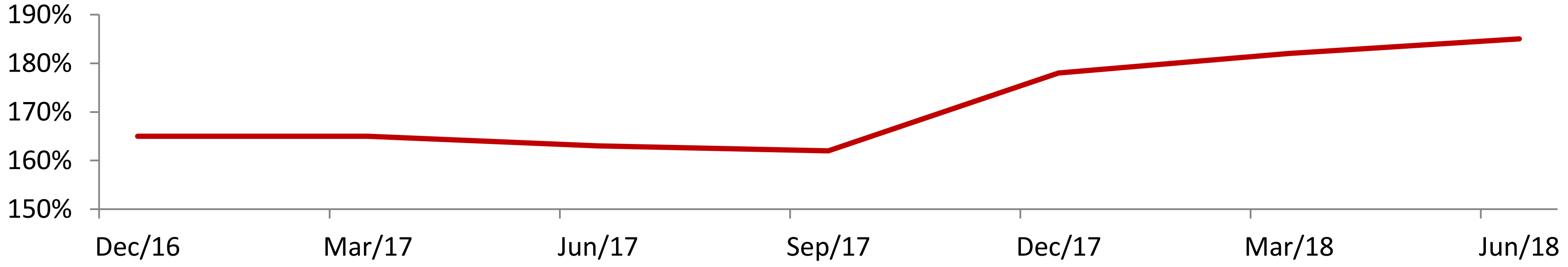
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Assets	1,356	2,069	1,754	1,572	1,651	1,064	694	761	583	658	344	461	418	228	251	217	255	583	401	368
Liabilities	2,077	2,462	2,887	3,465	2,676	1,967	1,142	673	252	-16	-219	-490	-729	-1,098	-1,230	-1,368	-1,591	-1,904	-2,100	-2,380

◆ Our achievement – highly solvent, even under severe economic conditions (2/2)

C-ROSS Solvency Ratio maintained at above 200%

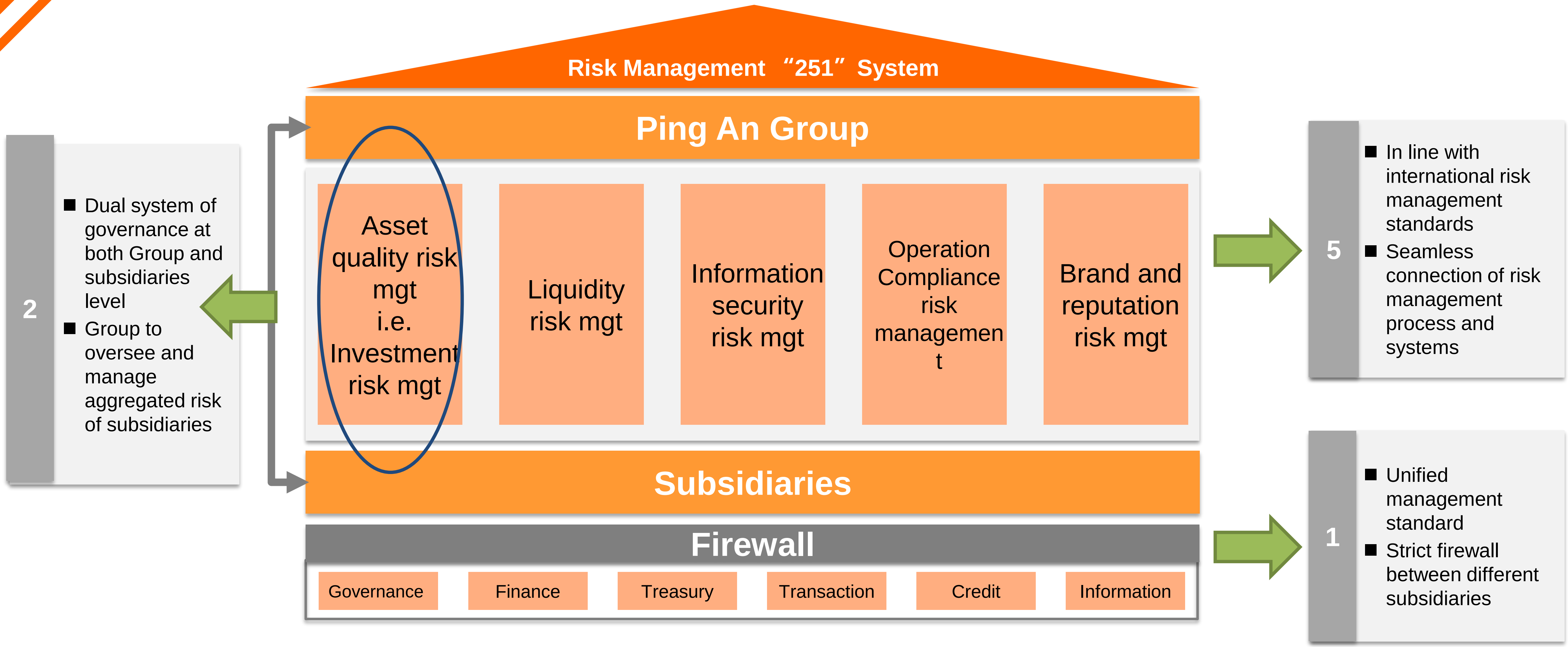


Under extreme scenario:
C-ROSS Solvency Ratio still maintained at above 150%



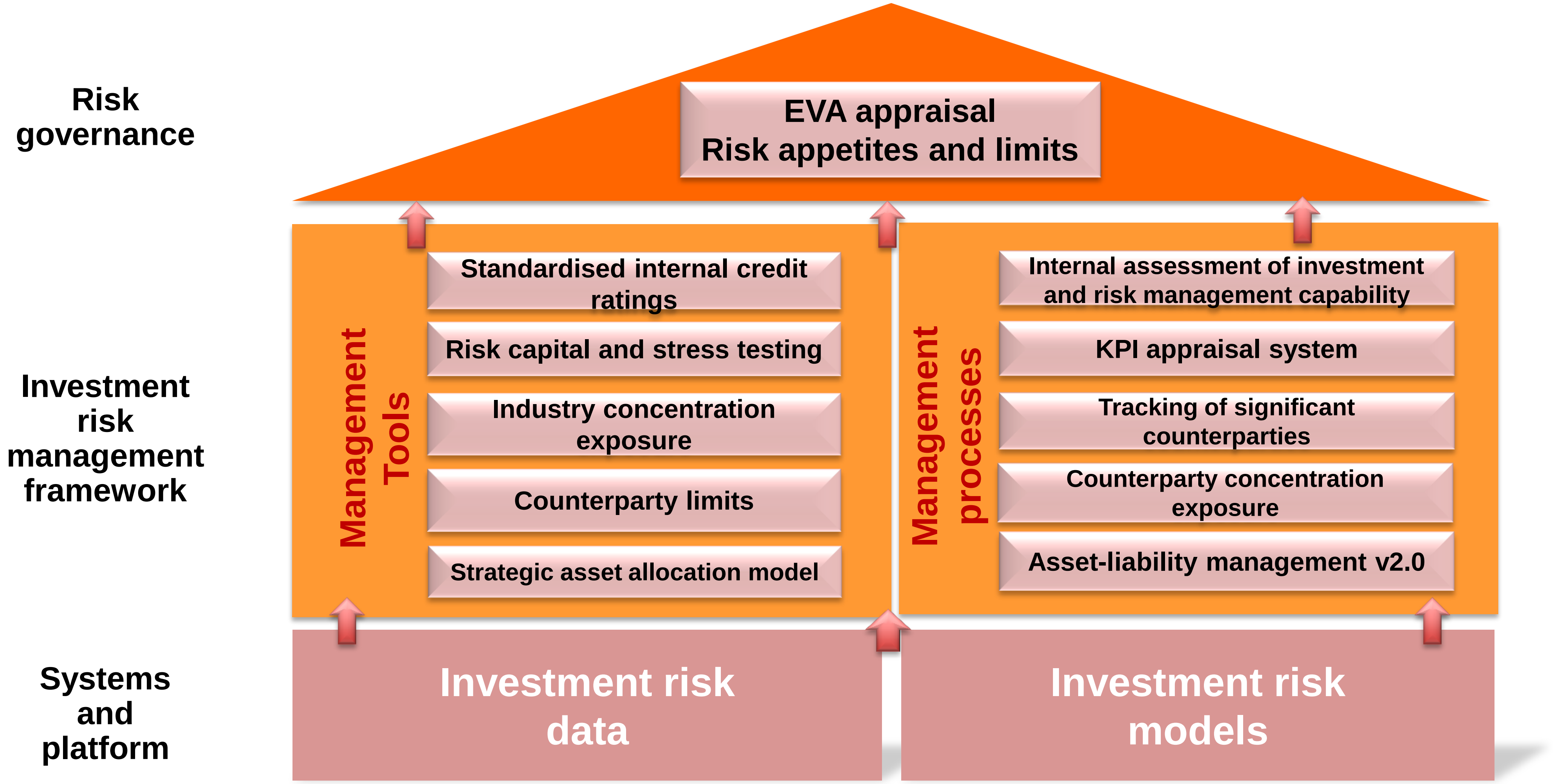
Ping An's 2018 Stress Test (extreme scenario)	
HS300 index (CSI 300)	-42%
1-yr govt bond yield	-112bp
10-yr govt bond yield	-98bp
Credit default rate	1.91%
Real estate price	-27%
USD/RMB spot rate	-9%
……	……

◆ Investment risk mgt framework – the only Chinese institution in G-SIIs, aligned with international stds(1/2)



Note: Professional committees at the Group level participate in the review and assessment of major risks. This includes the Group Risk Management Executive Committee and the Group Investment Management Committee.

◆ Investment risk mgt framework – a sound risk mgt system that promotes a balanced risk and return (2/2)



◆ Investment risk mgt process – annual risk budgeting and 4-category limits after adequate stress tests (2/8)

Group risk appetite

Capital	Under stressed scenario, the solvency ratio shall not be less than **120%** ;
Liquidity	Under stress scenario, the shortest survival time shall not be less than **30 days**;
Reputation	Reduce the probability of reputation risk events to the largest extend, avoid the risk from upgrading to a crisis;
Operational Compliance	Fulfill regulatory requirements and Group compliance and operational risk management requirements.

Subsidiary risk appetite and limits

Risk appetites → Risk tolerance and limits → EVA/ RAROC

Core limits at the company level	Risk limits targeted at the whole subsidiary level, including capital adequacy ratio and non-performing loan ratios
Core limits at the business level	Risk limits targeted at specific business lines of the subsidiary
Monitored limits	Limits not affecting the KPI, examples include rating mix of credit assets
Limits at the Group level	Group-wide industry limits and counterparty limits

◆ Investment risk mgt process – Example: risk limits set by insurance subsidiaries (3/8)

Example

Core risk limits at company level

Subsidiary	C-ROSS Solvency Ratio
PA Life	≥150% under stressed environment ("stressed")
PA P&C	≥150%, stressed
PA Pension	Insurance side: ≥150%, stressed Third party side: Credit risk capital ≤58m; Market risk capital ≤29m
PA Health	≥150%, stressed

Note: The regulatory solvency requirement is ≥100% under normal condition.

Core risk limits at business lines

Example: The ceiling limit of asset allocation of each category in each account

Subsidiary	Account	Equity %	Corporate bond %	Alternative %	Real Estate %	Private Equity %
PA Life	Traditional	18.5%		9.0%		
	Participating	22.3%		6.0%		
	Universal	21.3%		6.0%		
PA P&C	Traditional	15.0%	30%	45%	30%	10%
PA Pension	Traditional	23%			30.0%	
	Participating	20.6%			30.0%	
	Universal	20.4%			30.0%	
PA Health	Traditional	15.0%	30%	20.0%	0.0%	0.0%

◆Investment risk mgt process- Industry concentration exposure management covering 39 industries (4/8)

Management Process

Industry risk evaluation
- Industry research (qualitative)
- External data (quantitative)

→ Scorecard → **Industry risk ranking** → exposure model → **Industry concen-tration exposure** → control mechanism →
- **High-risk industry limits (strict control)**
- **Other industry exposure limits (soft control)**

E.g. Coal industry

Example

Qualitative： ... due to latest environment policies, over-capacity and cyclical factors, the score is relatively LOW …

Quantitative： … The total liabilities of industry in 2017 is around 4 trillion, asset-liability ratio is as high as 67.8%, profitability is poor, high default rates… …

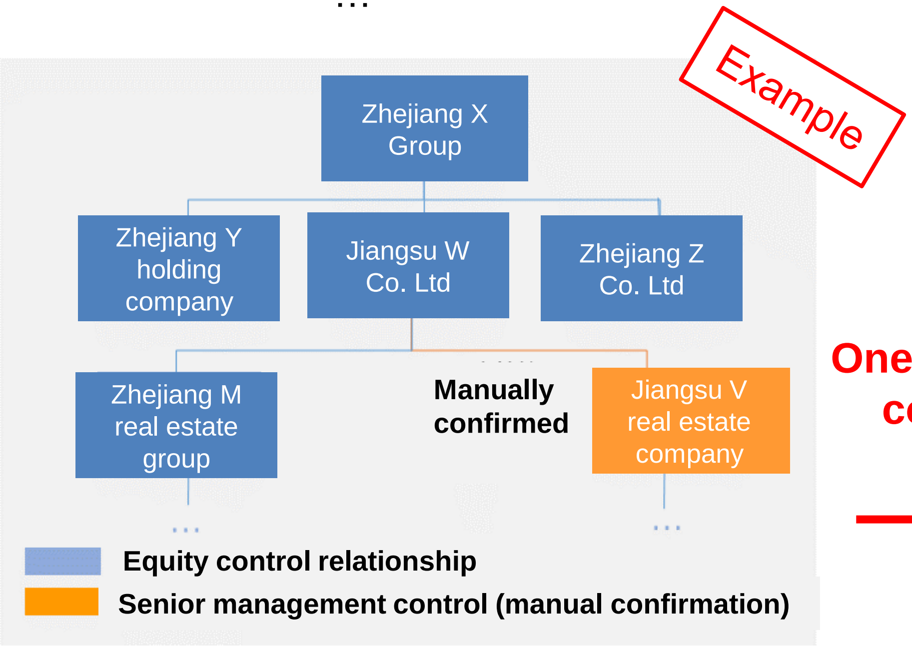
→ **Ranked bottom 10%** → **Limit set at certain bn RMB** → **Defined as a high-risk industry, apply strict control, with a limit of certain bn RMB -> Exposure reduced by 22.6% after control**

◆Investment risk mgt process – Counterparty limits to suppress high risk counterparty exposures (5/8)

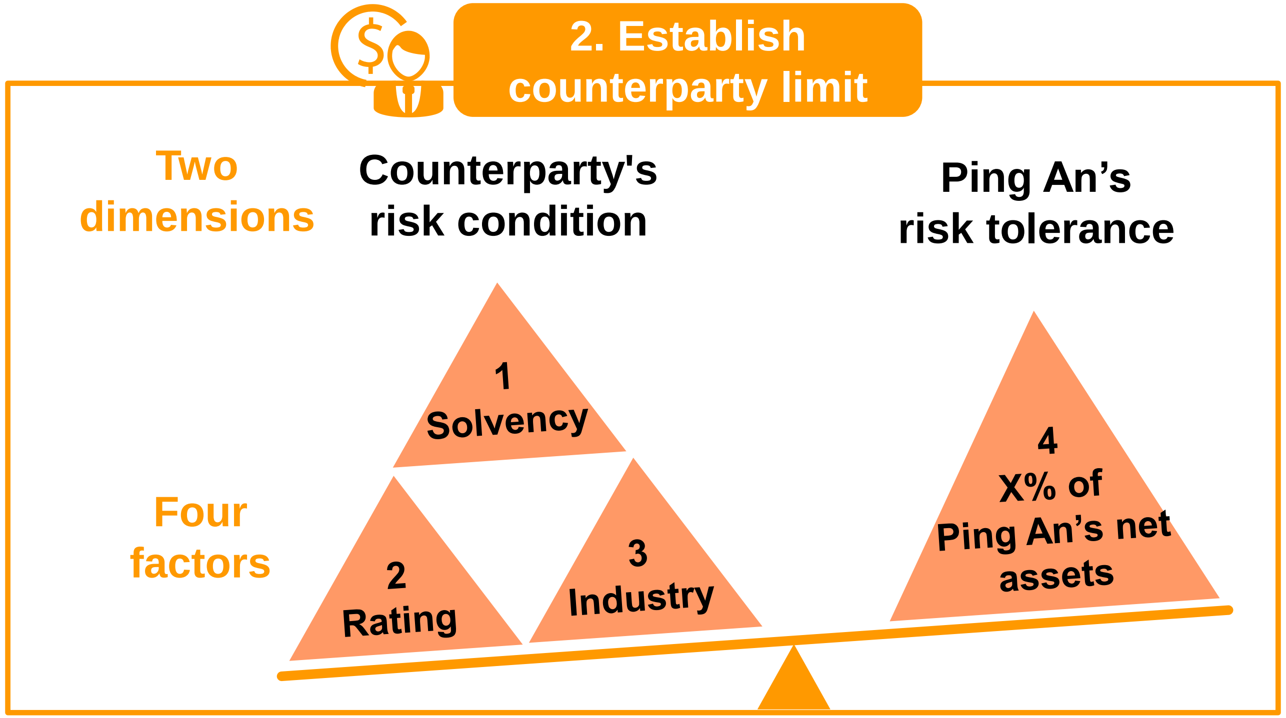
‘Counterparty’ = a group of related corporate clients

Equity control enterprise
Senior management control enterprise
Related-party guarantee enterprise
…

1. Identify counterparty and related parties



2. Establish counterparty limit



One limit for each counterparty

Change Counterparty limit for Zhejiang X Group = RMB 8.0 billions

◆ Investment risk mgt process – internal credit rating developed since 2003 (6/8)

Full coverage

- 13 industries
- circa 30,000 assets
- 100+ credit specialists

Unified standard

- Unified ratings
- Unified models
- Unified procedures

Standardised ratings across 10 subsidiaries

Pre-investment	Investment stage	Post-investment
Credit screen and selection	Decision making	Monitoring Capital mgt

Wide usage

Regular review

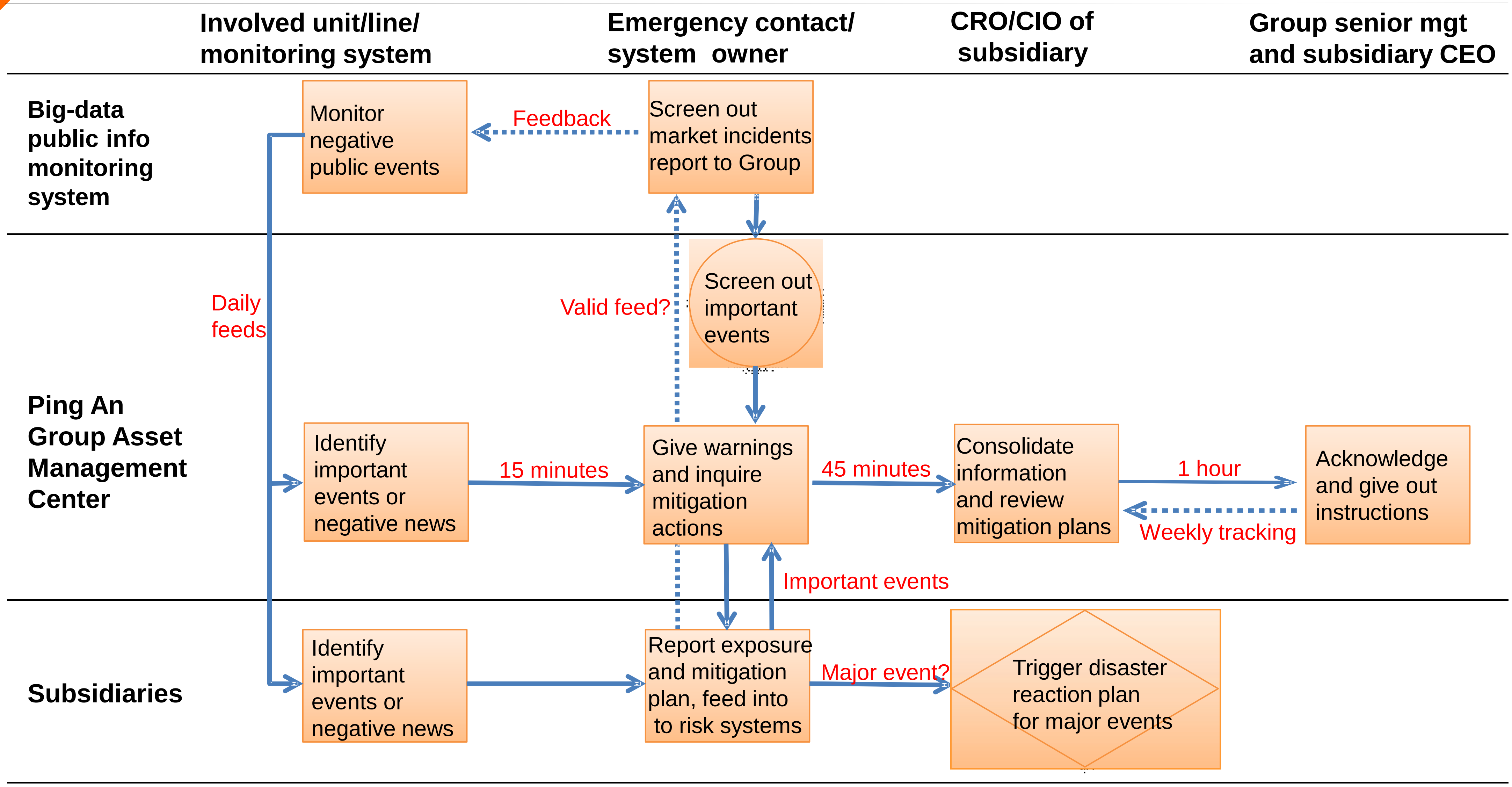
- Transition matrix
- Internal differences
- Rating assumptions

Example

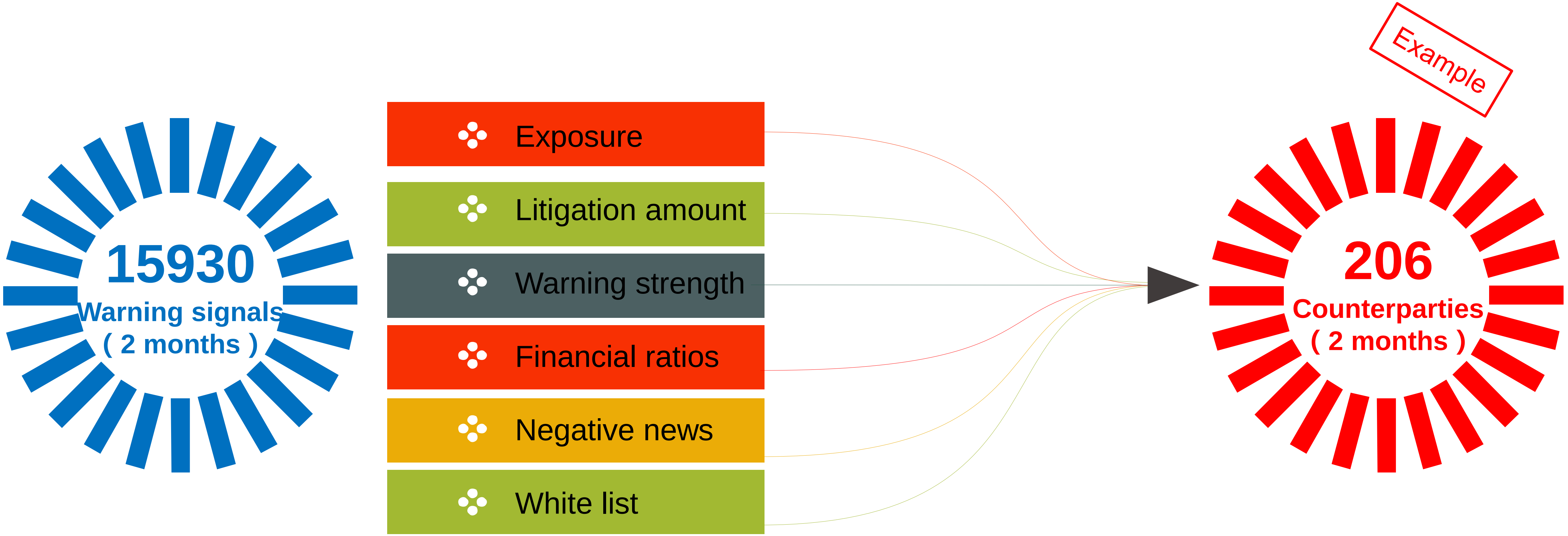
Internal VS. International standards

Ping An	S&P	Moody's
AAA	AAA	Aaa
AA	AA+~A	Aa1~A2
A	A-~BBB	A3~ Baa2
BBB	BBB-~BB	Baa3~ Ba2
……	……	……

◆ Investment risk mgt process – a 2-hour quick response through ‘grey-list’ & big-data early warning system (7/8)



◆Investment risk mgt process –16k warning signals in two months via big-data, traced 206 counterparties (8/8)



◆ Our achievement – 0 default in non-standard assets, 0 default in corporate bonds in H1 2018

0 default in non-std assets

The RMB 360 billion non-standard assets invested by the insurance funds account for 14.1% of the entire portfolio, so far there is no default.

0 default in corporate bonds

The proportion of corporate bond invested by the insurance funds is 6.7%, with the amount of over RMB 170 billion. No default during the first half of 2018.

◆ Investment management system – the world leading Ping An-Conning asset allocation system (1/2)

Economic Scenario Generator (ESG)

- 10,000+ Monte Carlo simulations of the economy, each generating a different set of asset returns and cashflow

Asset-liability simulator (Simulation)

- Full path simulation, work out the investment return, duration mismatch and cashflow at each time step under each economic scenario.

Investment risk database (Database)

- Collecting all internal investment and risk management related data, files and market data to support real-time monitoring and warnings

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- ✓ 30+ asset models
- ✓ 100+ financial parameters
- ✓ 3 000+ financial assets data
- ✓ 10 000+ economic scenarios
- ✓ 60 000+ simulation nodes
- ✓ 200 000+ statistical data
- ✓ 1 000 000+ results
- ✓ 60min to finish all calculations above
- ✓ 313 data fields；277 products

Database and Query Tool

- Storing all computations and results
- Large amount of statistics for each variable

Optimisation Tool

- Generating the efficient frontier
- Optimising according to multi-dimensional requirements

remote iPad application (Investment Analysis)

- Verifying group exposure in 10 minutes
- Asset allocation analysis, investment risk scenario tests and stress tests

◆ Investment management systems – from a traditional accounting system to a state-of-art smart platform (2/2)

Ping An's investment management platform

Users

- **Group + Subsidiaries**
- **Asset provider**
- **Capital provider**
- **Supervisor**

Analysis and management platform

- Standardised reports
- Customised reports
- **AI search engine**
- Investment project assessment
- Post-investment management
- **Big-data market monitor**
- **Early-warning system**

Full process governance

Pre-investment – Standardised applications	Investment stage M-shape decision procedure	After-investment AI risk warnings
Recording of project files	Pre-committee communication	24/7 media screening
Authority control	Decision tools	Limits/labels warning
Governance levels	Group/Subsidiary specific tools	Daily mgt monitoring

Base

- Internal project data
- External market data
- **AI technology support**

Covering **23** subsidiaries

4.23million pieces of data updated every month

12,000 data labels

36,535 data fields

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◆ Investment outlook: Global financial asset return in 5-10yrs could be lower than the average of past 10-20yrs

1

"NII+"Strategy —— Create a cushion for insurance investments
Over the past decade, the compounded growth rate of NII reached **20.56%**, hundreds of billions of cashflow provided solid support to Ping An's growth. The coverage ratio of NII to life compensations has also increased over the past five years.

2

Fixed Income investment strategy —— Extend asset durations + seek tax exemptions
Actively purchase long duration assets. We hold over RMB 575bn 20yrs+ bonds, average duration **14.75 years**. Over the past five years, asset-liability mismatch has reduced by **2 years**. Over the past ten years, tax-exempted assets contributed an extra by **50 bps** of investment returns per annum.

3

Real estate investment strategy —— "Cornerstone" of long-term return
Allocation to real estate investments to increase from 2% to **10%**, exploring new types of real estate investments.

4

Equity investment strategy —— Focus on key holdings, making use of good external managers
Concentrate on in key holdings. Based on our cost of buying, we predict the dividend ratio by HSBC for 2018 is up to **5.9%**, ICBC is **5.2%**, and Country Garden as much as **22.7%**; we plan to increase the mandate size to external managers.

5

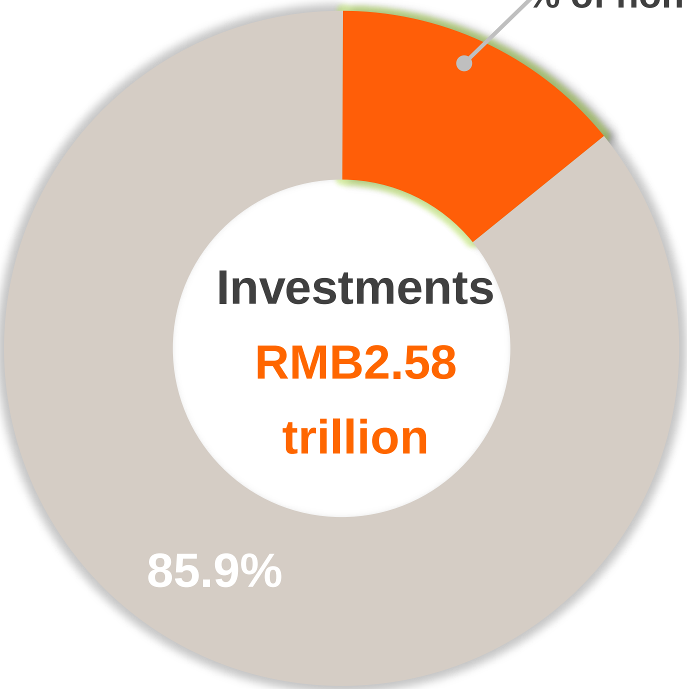
Overseas investment strategy —— Adequate diversification, with managed FX risks
Non-capital market investment will be mainly through entrusted investment.

◆ Non-standard debt credit risk mgt – multi-stage assessments, credit enhancement, govt credit (1/3)

0 default

% of non-standard debt assets

14.1%



- Quota management
- Concentration limits

- Business team's project management
- Subsidiary's investment decision committee
- Internal/external credit rating

- Secretariat assessment
- Investment Committee review
- Strict firewall between product side and funding side

71%with credit enhancement

Remaining 50% endorsed by government

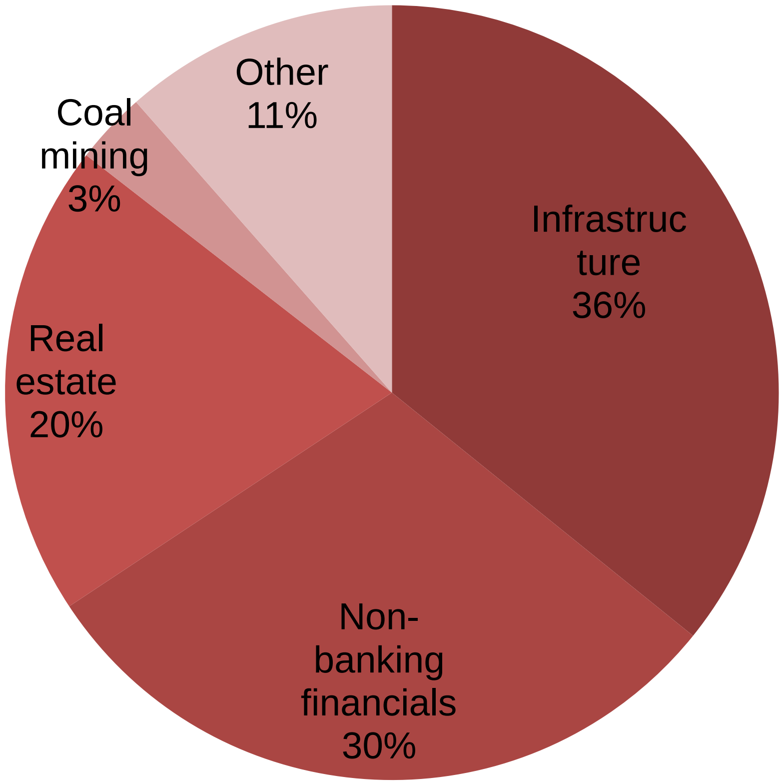
Cashflow coverage rate 88.5%

Strict
Group & Compliance requirements

Clear
Responsibilities & Entry requirements

◆ Non-standard debt credit risk mgt – infrastructures and non-banking financials have lower risks (2/3)

	Investment proportion (%)	Nominal investment income (%)	Remaining maturity (Years)
Infrastructure	**35.8**	**5.82**	**4.82**
Highways	17.7	5.93	5.85
Utilities	6.1	5.53	2.90
Infrastructure and industrial parks	5.5	5.77	4.58
Other (Water, Environmental, railways	6.5	5.84	4.01
Non-banking financials	**29.9**	**5.70**	**4.25**
Real estate	**19.8**	**6.12**	**2.62**
Coal mining	**3.0**	**6.16**	**2.41**
Other	**11.5**	**5.78**	**5.26**
TOTAL	**100.0**	**5.85**	**4.22**

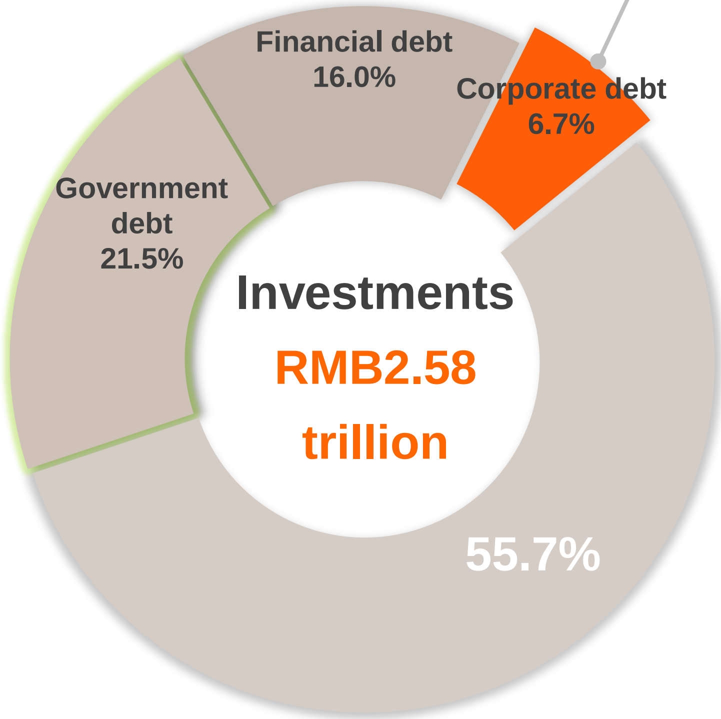


Note: (1) Non-standard debt assets: refer to debt assets other than standardised ones ;
(2) The data includes the asset-backed plans, amounting to RMB35bn compared with the total amount of debt plans and trust plans;

◆ Non-standard debt credit risk mgt – strict regulations strengthens product security (3/3)

- Targeting the risk in debt plans, the CBIRC has formulated very strict regulations on initiating and issuing debt plans, which greatly reduced the credit risk of debt plans. Typical requirements are listed as follows:
  - **Issuer**：Generally should be “insurance assessment management companies”.
  - **Paying party**：**0** bad records (e.g. no defaults)
  - **Fund provider**：Insurance funds are NOT allowed to invest in product issued by institutions punished by the regulator over the **past 3 years** (including debt pans and trust plans)
  - **Credit enhancement :** the transaction structure should have effective credit enhancement, such as:
    - Type A: jointed-liability guarantee provided by state-owned commercial banks or publically-listed banks;
    - Type B: the guarantor must fulfill multiple conditions such as **net assets no less than RMB 15bn**, **guaranteed amount cannot exceed 50%** of its net assets etc. if the guarantee is provided by the parent company or the effective controller of the paying party, the guarantor’s net assets should not be less than 1.5 times that of the paying party If the guarantor ；
    - Type C: guarantee provided by pledge or collateral of no less than **2x** the fair value of the debt;

◆ Corporate bond credit risk mgt – low allocation, high ratings, strict controls (1/2)



% of Corporate bonds
6.7%

within which
- **≈ 93%** rated AA or above (external)
- **≈ 80%** rated AAA (external)
- **= 0 defaults** in H1 2018

3 stage control to tackle corporate bond risks

Stage 1	**Asset allocation**
Stage 2	**Credit control**
Stage 3	**Post-investment management**

Note: Financial bonds refer to securities issued by banks and non-bank financial institutions in accordance with legal procedures and agreed to repay principal and interest within a certain period of time.

◆ Corporate bond credit risk mgt – Rating, monitoring, early warning and quarterly full reviews (2/2)

Pre-investment

External rating ≧ AA+

Ranking in industry

Credit enhancement and guarantees

Rating agency reports/ credit reports

Financial report for the last three years and the most recent issue

Post-investment

Portfolio management

Probability of Default (PD)

Loss Given Default (LGD)

Concentration

Project daily monitoring

- Entity warning
- Industry warning
- Region warning
- Early warning information collection

→

- KPI analysis
- Business and market analytics
- Investment & finance status
- Judgment based on key indicators

→

- Classify judgment
- Issue reminders
- Classify reminders

Internal rating system, China Ratings, Wind, AI Early Warning

- Risk model update
- Warning signal
- Major risk review

→

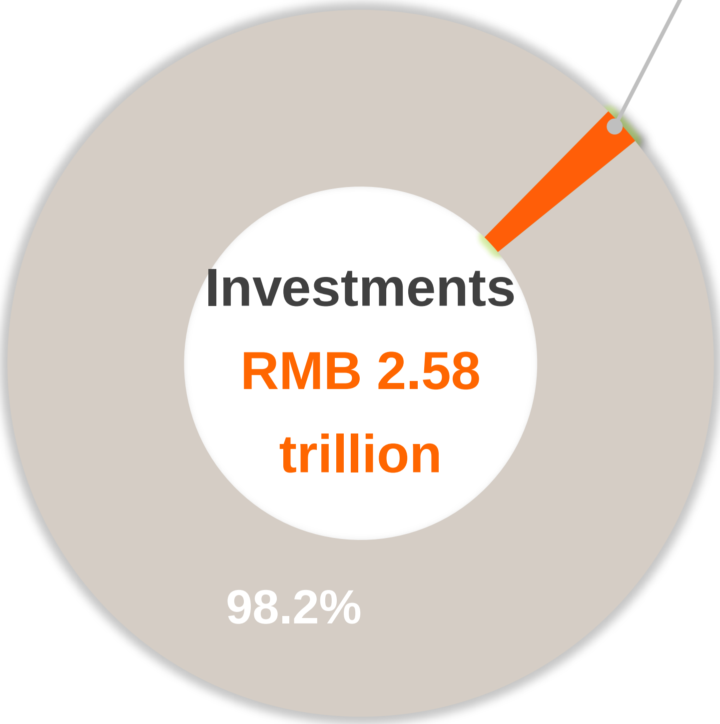
- Industry ranking
- Business advantage
- Financials
- Credit ratings

→

- Classify assessment
- Classify judgment
- Classify reminders

Project quarterly monitoring

◆ Real estate contraction risk mgt – relatively low % of insurance assets, with few key focuses (1/3)



% of real estate assets

1.8%

- Office building RMB 38.3bn, **92% located at tier 1-2 cities**
- Shopping malls RMB 5.1bn
- Logistics RMB 5.3bn

New real estate	Reference area	Investment horizon	Expected IRR
Retirement real estate	Around cities	>20 years	10~15%
Industrial park	Non-core areas in tier-1 and tier-2 cities	10 years	7%~9%
Long-term rental apartment	Most of them are within one hour of distance from core business districts in tier-1 cities and core tier-2 cities	5-10 years	7%~8%
City renovation	Urban central area, shanty town, old commercial area, industrial area, etc.	5-15 years	10~20%
High-speed rail way new city	Along railways	5-15 years	IRR 12-15% for parts of the sales, and some parts may see IRR>20% due to the high turnover rate

◆ Real estate concentration risk mgt – multiple strategies to produce stable returns (2/3)

Capital	Land reserves, direct purchase Infrastructure and utilities investment Equity investment
Resource	Integrate government and industry resources with Group resource: capital, brand, management, healthcare and pension etc.
Development	Infrastructure development Utilities development Office building development
Management	Industrial park operation, industry support Business innovations: leasing, securitisation, REITS, PE funds

Stable cash yield to enhance the NII strategy

Natural hedge against inflation in the long run

Partnership with experienced developers to preserve property values

◆ Real estate concentration risk mgt – initial selection, mitigation and post-investment warnings (3/3)

Pre-investment selection

Credit rating： basic criteria

Region, industry and financial ratios

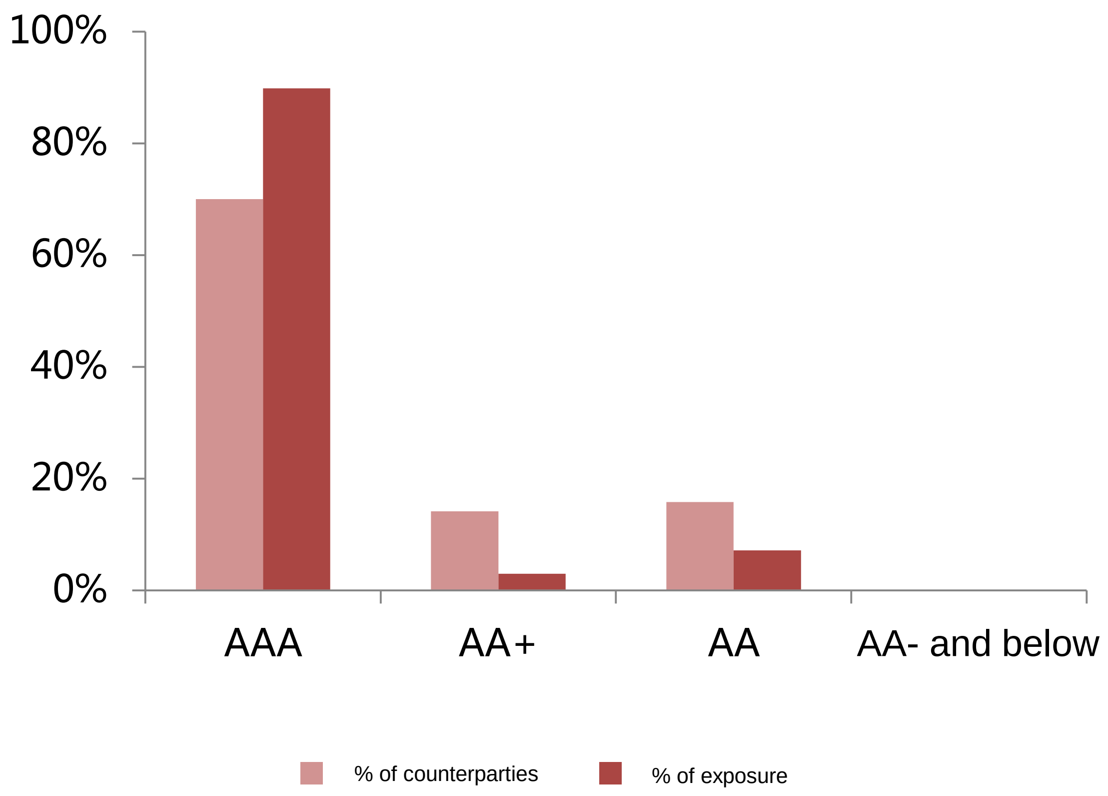
Risk mitigation techniques

Differentiated： pledge rate, financial period, credit enhancement facilities…

Real-time post-investment warnings

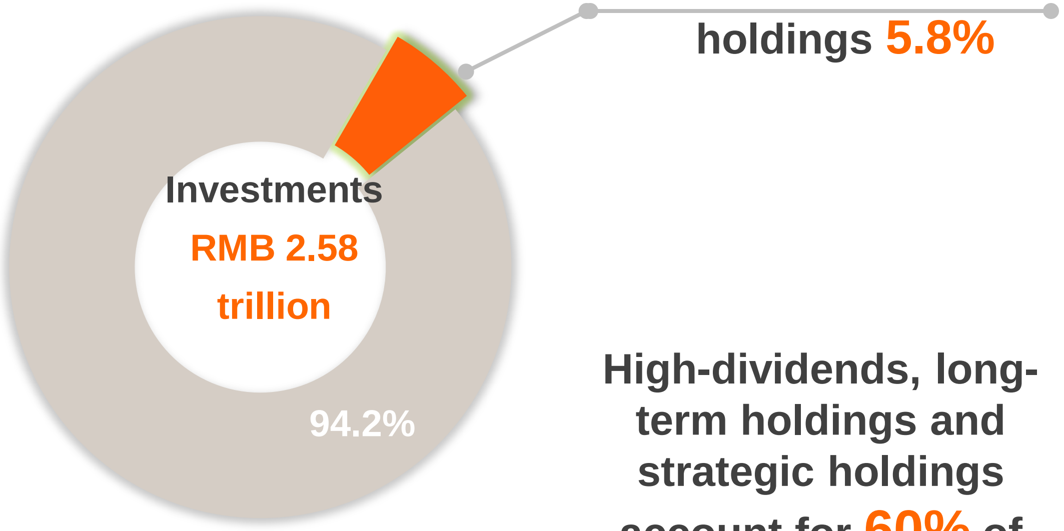
Quantitative: net debt ratio, cash multiples, pledge rates…

Qualitative: policy changes, etc.

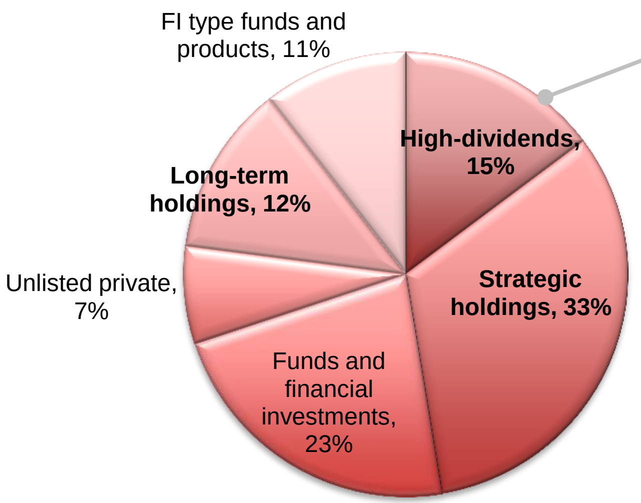


* Based on external ratings

◆ Equity risk management – focus on high-dividend stocks and long-term holdings (1/2)



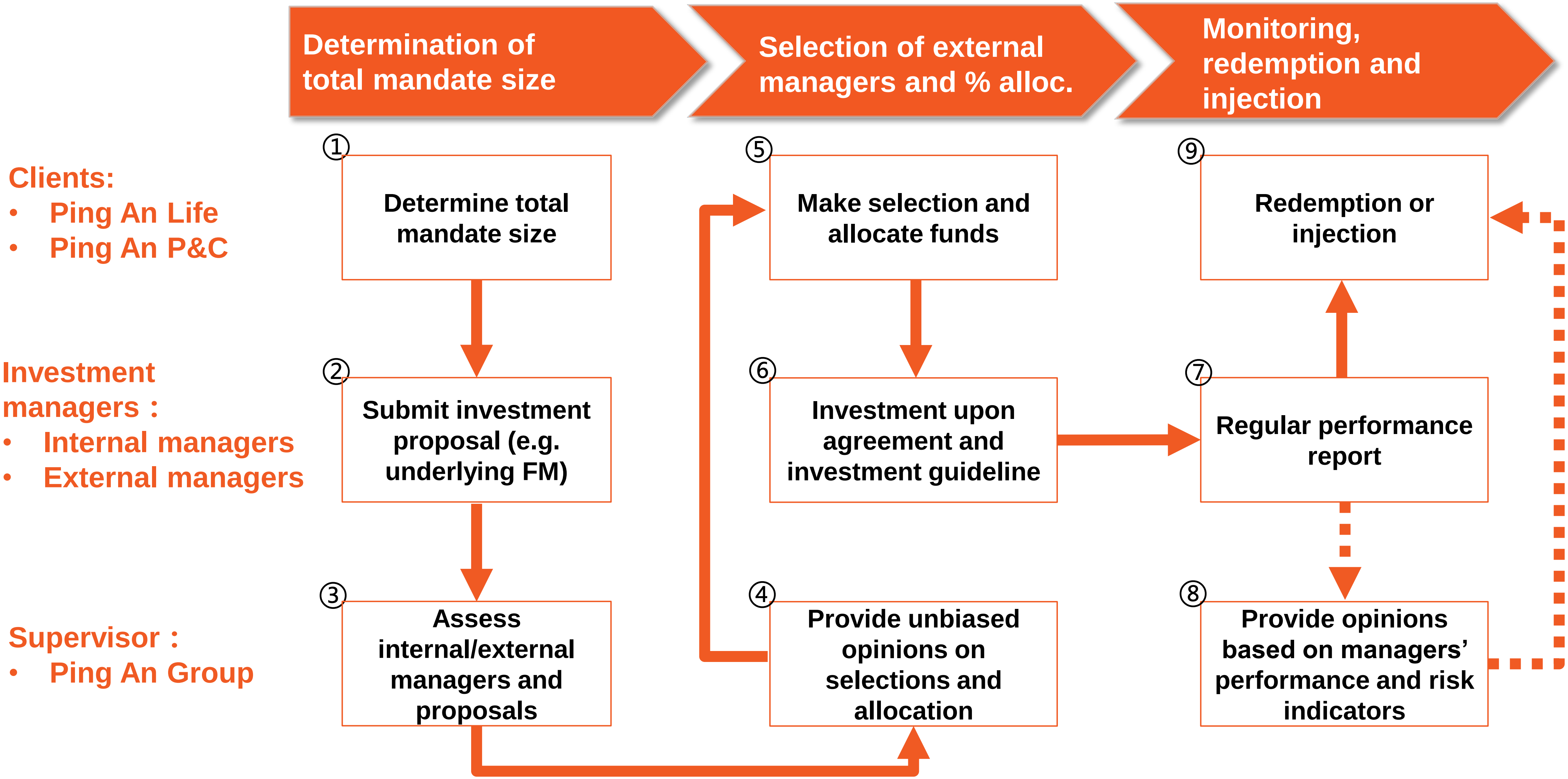
High-dividends, long-term holdings and strategic holdings account for **60%** of our equity holding.



- **Our value-investment philosophy created a balanced mix of Equity holdings**
  - Among our Equity holdings (23%), after deducting PE and joint venture holdings, the remaining part accounts for 16.5%, of which long-term holdings of common stock accounts for 7.1%, preferred stocks accounts for 3.0%, **short-mid term stock holdings only accounts for 5.8%**;
  - H1 2018, we received 6.0bn dividend income, circa **10.3%** of the NII (58.4bn), higher than 2017;
  - Dividend ratios of banking preference shares at **4.85%** , dividend ratio from HSBC at **5.93%**;

Major strategic holdings	Dividend per share (18E)	Dividend ratio (18E)
HSBC	3.98	5.90%
ICBC	0.29	5.40%
Country Garden	0.64	17.02%
China Yangze Power	0.67	5.55%

◆ Equity risk management – make full use of FOF/MOM strategies to boost return (2/2)



◆Incorporating IFRS9 – will lead to an increased volatility in accounting P&L (1/2)

- Assume a sample portfolio is switched through the following rules, the expected volatility in P&L will largely increase.

IAS39

Classification	%
HTM	70%
AFS	30%

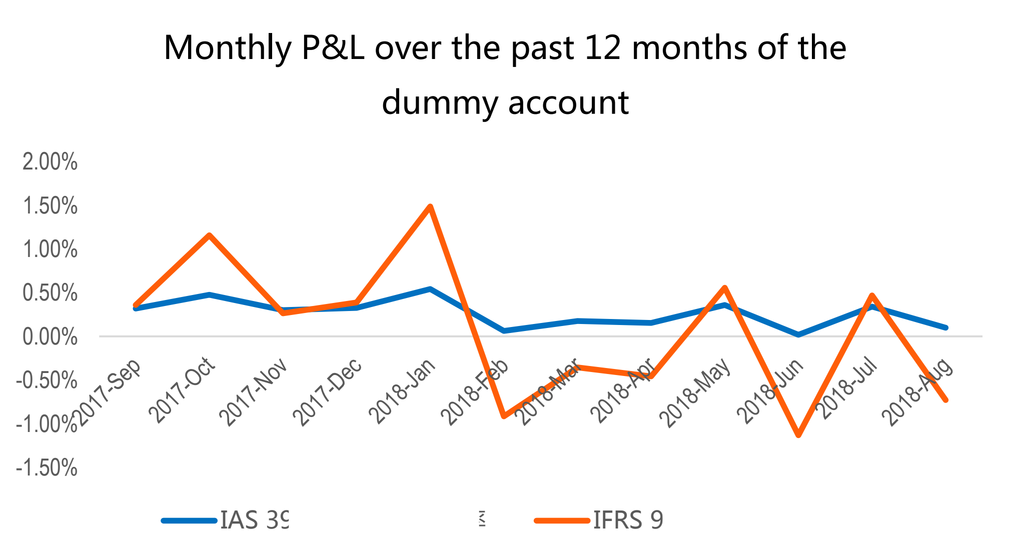
IFRS9

Classification	%
AC	66%
FVOCI	19%
FVPL	15%

	P&L volatility – IAS39	P&L volatility – IFRS9
Dummy account	0.20%	2.0%

* Based on one-year Monte Carlo simulations

- Using historic back-testing approach, IFRS9 would have resulted a much higher volatility in the accounting P&L.



* Dummy account consists of 60% bonds, 20% stocks and 20% non-standard assets. Non-standard assets and 80% of bonds are booked under HTM or LR, stocks and 20% of bonds are booked under AFS.

◆Incorporating IFRS9 – mitigating the impact of IFRS9 through optimisation and asset allocation (2/2)

Mitigating IFRS9 impact

Adjust accounting classification for certain Equity holdings

- Allocate high-dividend stocks under FVOCI, and adopt the Equity Method for long-term equity holdings, to reduce P&L volatilities

Restrict lower-grade corporate bond investment

- Reduce investment in low-rated corporate bonds to avoid a significant increase in impairment provision for such assets to cover credit risks

Optimise terms of non-standard assets

- Ensure non-standard assets can pass the SPPI test to the greatest extent, to avoid the classification of FVTPL which may increase the fluctuation of our P&L

Early control of FVPL% at the Strategic Asset Allocation stage

- Consider P&L volatility as part of the investment risk appetite, which is embedded in the Strategic Asset Allocation as an essential objective.

◆ Summary —— Ping An’s 6 key strengths in investment and investment risk management

Aligned with international standards – “251” framework, internal rating

Group & subsidiary dual control system to ensure risks are transparent and manageable at consolidated level;

Collaboration with global firms to promote international standards.

Quantitative investment decisions – investment budgeting, risk management

Developed a localised Strategic Asset Allocation model based on the liability features;

Comprehensive limits system covering 23 subsidiaries.

Advanced systems – system-based process management

Started in 2012, the investment and risk management system and investment database have evolved and transformed into a smart one.

Professional tools – supporting SAA and risk control

Localised the world leading **Conning** system; first to introduce **Risk Frontier & Risk Manager**, to create a modern risk management system

Local data – an in-depth analysis of the Chinese market

10,000 economic scenarios based on China data; Economic capital models, and stress test scenarios based on domestic market.

Process management – highly valued post-investment management

Utilisation of big data to support full investment process and promote realisation of investment objectives

Thank you !