2nd Conference on Global Insurance Supervision Trends and Developments

Tao of risk management and regulatory developments in Asia



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Japan experienced a low interest rate environment

Interest rates remain low for a long time

Governement / Treasury Bonds (10 year) Interest Rate



Stock market has been also disappointing

Low interest rate coincided with poorly-performing stock prices



Negative spread problems in 1990s

After the collapse of the bubble economy, Japan experienced a long-lasting, severe investment environment with low interest rates and poor performing stock prices. This, combined with a market dominated by longterm insurance products with high guaranteed returns, led to negative spread problems in the mid 1990s, although most Japanese life insurers endured the severe business environment.

10-year Interest Rate in Japan

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Measures to reduce negative spreads

The following are some examples of the measures taken by our company to reduce negative spreads during the difficult time.

Reduce guaranteed interest rate

Secure mortality profit by enhancing protection-oriented products

Reduce operating expenses and personnel expenses

Change investment strategies to match the characteristics of insurance liabilities, and sophisticate risk management

Accumulate additional policy reserves and enhance capital



Measure I: Lowering guaranteed interest rate

Reduced the guaranteed interest rate gradually for new policies

Lowered guaranteed interest rate



Regulatory incentives to reduce assumed interest rate

Standard Reserve Valuation System (Since 1996)

- This system requires to calculate the minimum policy reserve by using an interest rate prescribed by the supervisory authority. (based on 10 year Japanese government bonds)
- Where pricing is detached from the statutory interest rate, they may be significant additional reserving costs



Continuity test – a mechanism to reflect the effect of rate change

- This amended Insurance Business Law also requires life insurance companies to conduct future cash flow tests to ascertain whether there would be any difficulty with the firm continuing its operations
- Japan's Actuarial Standards of Practice allows covering negative spread by surplus from future new business when conducting the "continuity test".

Measure II: Securing mortality profit

Secured stable mortality profit

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Continued to develop protection-oriented products

Stable mortality profit			Protection-oriented products		
		(Billions of Yen)	Customers can select insurance products		
	2005	2010			
Mortality profit	540	437.4	Whole lifeDread DiseaseTerm lifeNursing care		
			Death coverage Serious diseases and nursing care coverage		
Undistributed	236.8	231.2	Medical coverage Saving and retirement coverage		
Carnings			MedicalEndowmentCancerAnnuity		

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Measure III: Reducing expenses

Reduced operating expenses and personnel expenses



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Measure IV: Changing investment strategies

Changed investment strategies with more focus on ALM

- increase in yen-denominated fixed income asset
- extend asset duration

Breakdown of asset portfolio

	2000	2005	2010
Public and corporate domestic bonds	27%	36%	46%
Loans receivable	29%	20%	18%
Domestic stocks	17%	22%	13%
Foreign securities	11%	10%	12%

%hedged foreign bonds is included in the bond category.

(Market Conditions)

ΝΙSSAY

Long-term interest rates	1.28%	1.77%	1.25%
Nikkei Stock Average	\13,000	\17,060	\9,755

Shift to long-term assets

	2000	2005	2010
Average asset duration	6.1years	8.0years	10.9years

%for public and corporate domestic bonds



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Measure V: Enhancing risk management

For the purpose of internal management, developed and used both an RBC model (early warnings) and an economic model (long-term vision)



Measure VI: Accumulating policy reserves

Accumulated additional policy reserves, corresponding to the estimated future effect of "negative spreads"



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Measure VII: Enhancing capital

Enhanced capital by accumulating internal reserves and pursuing external foundation funds

Enhancement of capital

(Trillions of Yen)



2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 NISSAY

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2014

Recovery from negative spread problems

After more than a decade struggle, negative spread problems have been almost overcome: Investment return > Average guaranteed interest rate

Measures to reduce Negative Spread

Reduce guaranteed interest rate Secure mortality profit, and reduce expenses Change investment strategies, and sophisticate risk management

Accumulate additional policy reserves and enhance capital

Trends of investment gains

(Billions of Yen)

	2000	2005	2006	2007	2008	2009	2010
Difference between investment return and average guaranteed interest rate	(1.01%)	(0.44%)	(0.09%)	+0.08%	(0.10%)	(0.14%)	+0.07%
Impact of Negative Spread	(340)	(150)	(30)	+30	(▲40)	(▲60)	+30
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Undistributed earnings	249	237	293	281	185	255	231



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Risk Management Framework

- Risk Management Committee, a consultative body to Managing Directors' Meeting, is responsible for Risk management of each risk category.
- Reporting system is structured between Management and underlying committees, related departments and offices.





Risk Classification

- Risks are identified and classified.
- Each risk management section measure, monitor and manage each risk exposure classified below.
- We take an integrated risk management approach to the risks enterprise-wide.

Risk classification		ification	Definitions
Enterprise Risk Management	Insurance risk		The probability of losses when factors such as economic conditions, frequency of occurrence of insured events, asset management results, and operational expenses, do not match the predictions made when premiums were set.
	١n	Market risk	The risk of losses incurred when the market value of assets in investment declines due to such factors as fluctuations in interest rates, stock prices, or exchange rates.
	estment	Credit risk	The risk of incurring losses when the value of assets, primarily loans and bonds, declines or disappears due to deterioration of the financial condition of the party to whom credit has been extended.
	t risk	Real estate Investment Risk	The risk of reduced returns caused by such factors as rent fluctuation as well as losses when real estate values decline due to market deterioration.
	Liquidity risk		The risk that an unexpected funds outflow due to decreased premium reserve, large amount or number of cancellations, large-scale disaster, or market disturbance, could cause cash flow to deteriorate to the extent that we would be forced to dispose of assets at extremely low prices.
Admin		stration risk	The risk of incurring losses from administrative and processing errors.
	Computer system risk		The risk of losses from computer system failure, incorrect or defective operation, and illicit use.

Enterprise Risk Management Structure

We review, monitor and assess our business plan's adequacy by checking its result vs. projection, Solvency Margin (SM) ratios with stress tests and the extra-ordinary scenarios.



Stress Test – Risk Scenarios

Although they are unlikely events occur within a year, below are the events which impact our portfolio with interest rates/currency fluctuation. Stock market slumps in all scenarios.



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Insurance risk management consists of two factors – measuring the risk of the policies in force, and controlling the risk arising from new product development, etc.

Risk measurement

- ✓ P&L analysis of each fund (segment)
- ✓ Forecast of future income and expenditure
 - Measure the present value of future income and expenditure for the individual policies in force
 - Forecast the present value of future income and expenditure in each source of profit (mortality profit, expense profit, investment income) for individual insurance, group insurance, and group pensions
- ✓ Mortality profit analysis
 - Analyze the mortality profits of products, mainly medical products, on the basis of premium rate or region etc.
- \checkmark Operating expenses analysis
 - Analyze factors for increase/decrease in the operating expenses

Risk control

- ✓ Adequacy check on actuarial assumptions of new products or premium rate change
 - Inspect adequacy of actuarial assumptions by simulating future income and expenditure including stress-scenario
- ✓ Adequacy check on changes of terms of sales
 - Change terms of sales about risk selection based on the mortality profit analysis
- ✓ Verification of dividend payout ratio
 - Check adequacy of dividend payout plan based on the forecast for the present value of future income and expenditure
- $\checkmark\,$ Identification of the status of reinsurance
 - Decide if we should continue to cede policies to the ceding company by checking the credit status of the ceding company
 - Check P&L status of ceded/accepted policies
 - Check adequacy of new cession

Investment Risk Management (Market risk)

Set the investment rules for individual transactions and for each asset class, and measure and monitor risk exposure periodically.

Investment rules

Limitation for derivative transactions
 Use derivative transactions only for hedging purpose, in principle, and set upper limits to prevent excessive positions.

Limitation on alternative assets (transactions)

Set upper limits of investment for alternative assets risk characteristics which are different from ordinary assets.

Limitation for trading transactions

Set upper limits and loss cutting rules under which we stop trading when loss exceeds the limited amount for trading.

Measure of market risk

- ✓ Measures VaR
- Quarterly reporting to the Risk Management Committee



Investment Risk Management (Credit risk)

The Credit Department sets internal ratings on individual companies and countries as well as assessing each investment case. We set the credit limits according to the internal ratings and monitor the credit situation. We also measure and monitor the total credit risk periodically.

Management of credit limits

 \checkmark Set credit limits by corporate groups and countries according to internal rating.



Measure of credit risk

- ✓ Measures VaR
- ✓ Quarterly reporting to the Risk Management Committee



Monitor liquidity and take appropriate measures, such as setting limits for holding low liquidity assets and assuring alternative backup funding methods, when concern for liquidity arises.

Monitoring of liquidity

Ordinary liquidity	 ✓ Formulate cash flow management and cash allocation plan on the basis of the investment plan and the forecasts for premium income, claims payment, and operating expenses. ✓ Monitor and check the difference between the plan and the actual result periodically.
Negative outlook in liquidity	✓ Set limits for holding low liquidity assets, such as loans, properties, movable assets, and unlisted shares when apprehensive about cash shortage (caused by large amount of surrender, etc).
Liquidity crisis	✓ When the amount of holding of low liquidity assets exceeds the limit while the liquidity level is in the above-mentioned "negative outlook" status, actions, such as selling the low liquidity assets, are required to secure liquidity.

Backup fund procurement

- ✓ Repurchase agreement
- ✓ Overdraft arrangement

Operational Risk Management

Mainly under supervision of the Operational Risk Management Subcommittee and Computer System Risk Management Subcommittee, consultative bodies of the Risk Management Committee, we gather and analyze operational risk events, improve the operational rules, promote educational activities, and manage and control computer system risk

Administration risk management

- Gathering and analyzing operational risk events
 - ✓ Report operational risk event occurrence to the Operational Risk Management Dept.
 - ✓ Report serious operational risk events to the Operational Risk Management Subcommittee
 - ✓ Periodically check preventative measures and their effects

Improvement of operational rules and promotion of educational activities

- ✓ Develop operational systems that prevent operational risk events through improving operational rules
- ✓ Develop human resources and improve operations through sharing information

Computer system risk management

- Management and general control of computer system risk
 - ✓ Evaluation of the system risk
 - ✓ Prevention of system failure, monitoring and reporting
 - ✓ Contingency plans

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Some regulatory developments in Asia

Singapore

Capital requirements

- ✓ RBC Framework with minimum CAR (capital adequacy ratio) of 120%
- ✓ Recently, MAS sent notices on company specific minimum CAR
- ✓ A consultation paper on RBC2 in 2012 (may be implemented in 2014)

Reserving

 Liabilities measured w/t GPV (best estimates plus a provision for adverse deviation, discounted at risk-free for non-participating and best-estimate investment return for participating)

Risk management

- ✓ New ERM guidelines/requirements introduced effective April 2013, MAS Notice 126
- ✓ Development of ORSA before the end of 2014 for larger insurers and the end of 2015 for smaller insurers

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Capital requirements

 $\checkmark RBC$ framework with minimum supervisory target capital level of 130%

✓ Also minimum internal level of capital ratio (ICAR) agreed with Bank Negara. ICAAP (Internal Capital Adequacy Assessment Process) requires insurers to set up internal process.

Reserving

✓ Liabilities measured w/t GPV (realistic assumptions plus provision of risk margin for adverse deviation, discounted at risk-free for non-participating and best-estimate rates for participating)

Risk management

✓ Under the Corporate Governance framework, insurers are required to establish a Risk Management Committee, chaired by an independent director

✓ Insurers should report to the board the major risks faced by insurers and the approach taken in dealing with these risks.

✓ Single risk acceptance limits should be established



Some regulatory developments in Asia

Indonesia

Capital requirements

- ✓ RBC framework since 1999, enhanced effective first quarter ending 31 March 2013
- ✓ Own target level of capital with minimum CAR of 120%

Reserving

- ✓ Previously NPV, but moved to GPV from 2013
- TP based on best-estimate assumption plus margin for adverse deviation for products with maturity longer than one year with non-yearly renewable feature

Thailand

Capital requirements

- ✓ RBC framework since Sep 2011
- ✓ Prescribed minimum capital adequacy ratio of 140% from 2013

Reserving

 \checkmark Statutory reserves based on NPV (GPV for RBC purpose), discounted at the rate similar to pricing stage

Risk Management

 \checkmark Requirement for a risk management committee to be put in place, reporting to the Board



✓ Solvency margin as a fixed percentage of reserves held

 ✓ Consultative study on introducing RBC framework
 (may not before 2016)

Hong Kong

Reserving

 ✓ Modified net premium method capped at gross premium.
 Appropriate provisions plus margins for adverse deviations on relevant factors







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Conclusion: yin and yang

- Tao of supervision and risk management with a holistic framework
- Some words from Taoism
 - Be aware that the world is cyclical
 - Don't go to the extreme, otherwise you will fall
 - Bring the balance of yin and yang to the universe
 - In order to manage the world, you should control yourself
 - In order to implement international standards, you should first know your own country





(Photo - Tao Garden, Chang Mai, Thailand)



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