Emerging Risks or Black Swans?

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Session Number: TBR12

Looking back on 2011, where are we?

While we think we have finally adapted to the 'new normal' and sustained low interest rate levels…

- US Government 's Rating Downgrade on 5 August 2011 – interests dropped
- All 3 major U.S. stock indices declined 5-7% in one day
- Cost to insure U.S. debts against default up from 25bps to 75bps
- European debt crisis, Euro zone leaders agreed on package of measures designed to prevent the collapse, October 2011
- US credit spread surged by almost 50% right at Q3 2011
- Extreme stock market volatility and global instability
- Consumer confidence remains at historical lows
- "Inflation as a continuing concern…." *(Asian Development Bank)*
- Greece weaving through the debt crisis…

Emerging Risks or Black Swans?

Worries and achievements…abiding memory

- ✓ Successfully seek yield enhancements and improve ALM metrics?
- ✓ Increased total balance sheet volatility?
- ✓ Running frequent solvency ratios for regulators' need?
- ✓ Worrying about product guarantees and devising strategies?
- ✓ RMB market: who still does not have a RMB product by now?
- ✓ Expand scope to better operational risk management?
- ✓ More complicated actuarial models?
- ✓ Meeting Group requirements and up-to-date with regulations?
- ✓ Feeling confident for Solvency II readiness?
- ✓ Submission, filing and disclosure?

According to the Actuaries

Downside Tail Risk occurs every 100 years

- One such event occurred in 2008 Q4
  - Equity Market dropped by 20.1%
  - US 10-year Interest Rates at 2.25%
  - HK 10-year Interest Rates at 1.19%

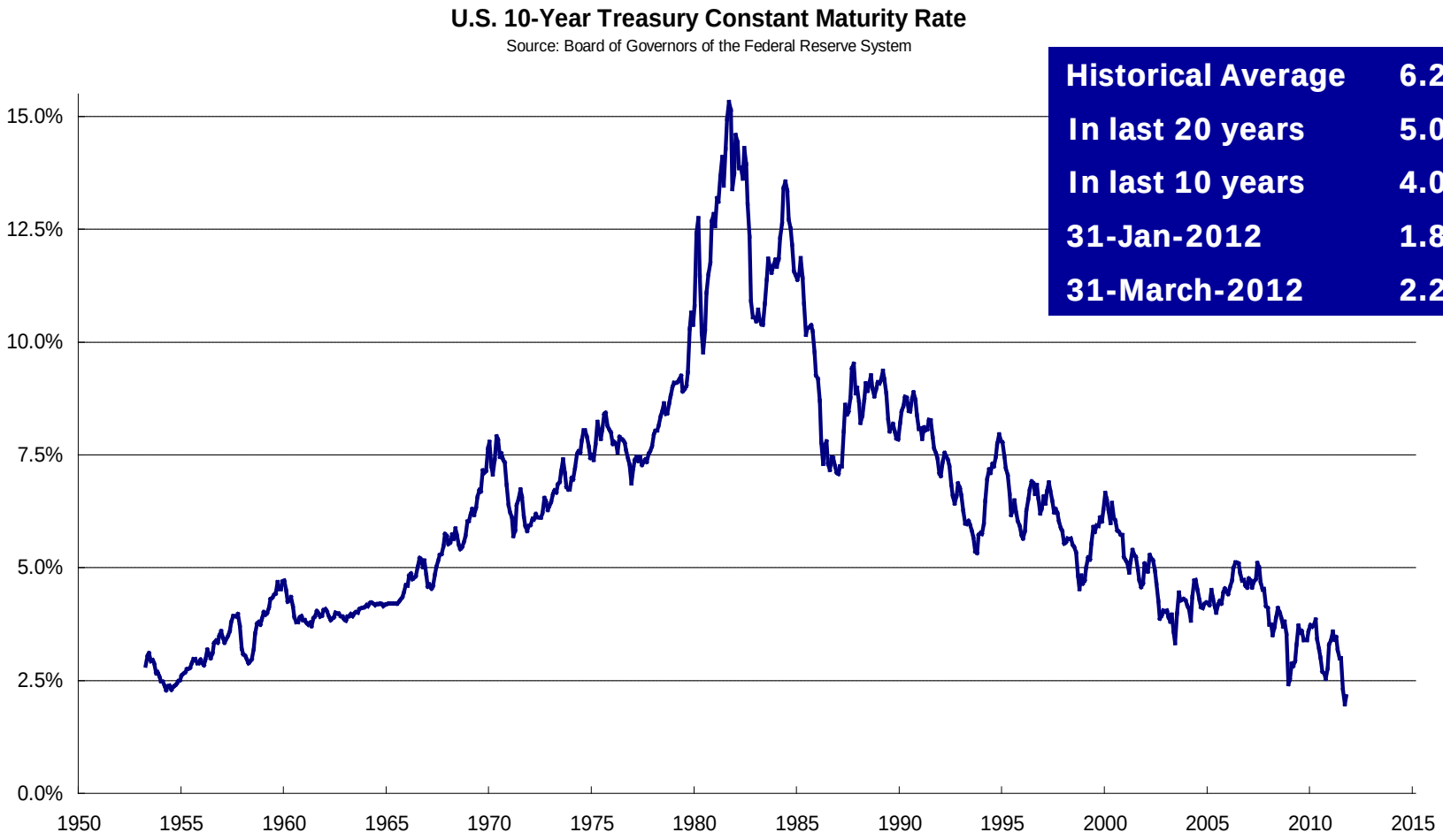
Well it Happened Again within 3 years !

- Second such event occurred in 2011 Q3
  - Equity Market dropped by 21.5%
  - US 10-year Interest Rates at 1.92%
  - HK 10-year Interest Rates at 1.27%

Will it happen again soon? … lets look at trends

Emerging Risks or Black Swans?

Lowest ever US interest rates



Historical Average	6.25%
In last 20 years	5.09%
In last 10 years	4.01%
31-Jan-2012	1.83%
31-March-2012	2.23%

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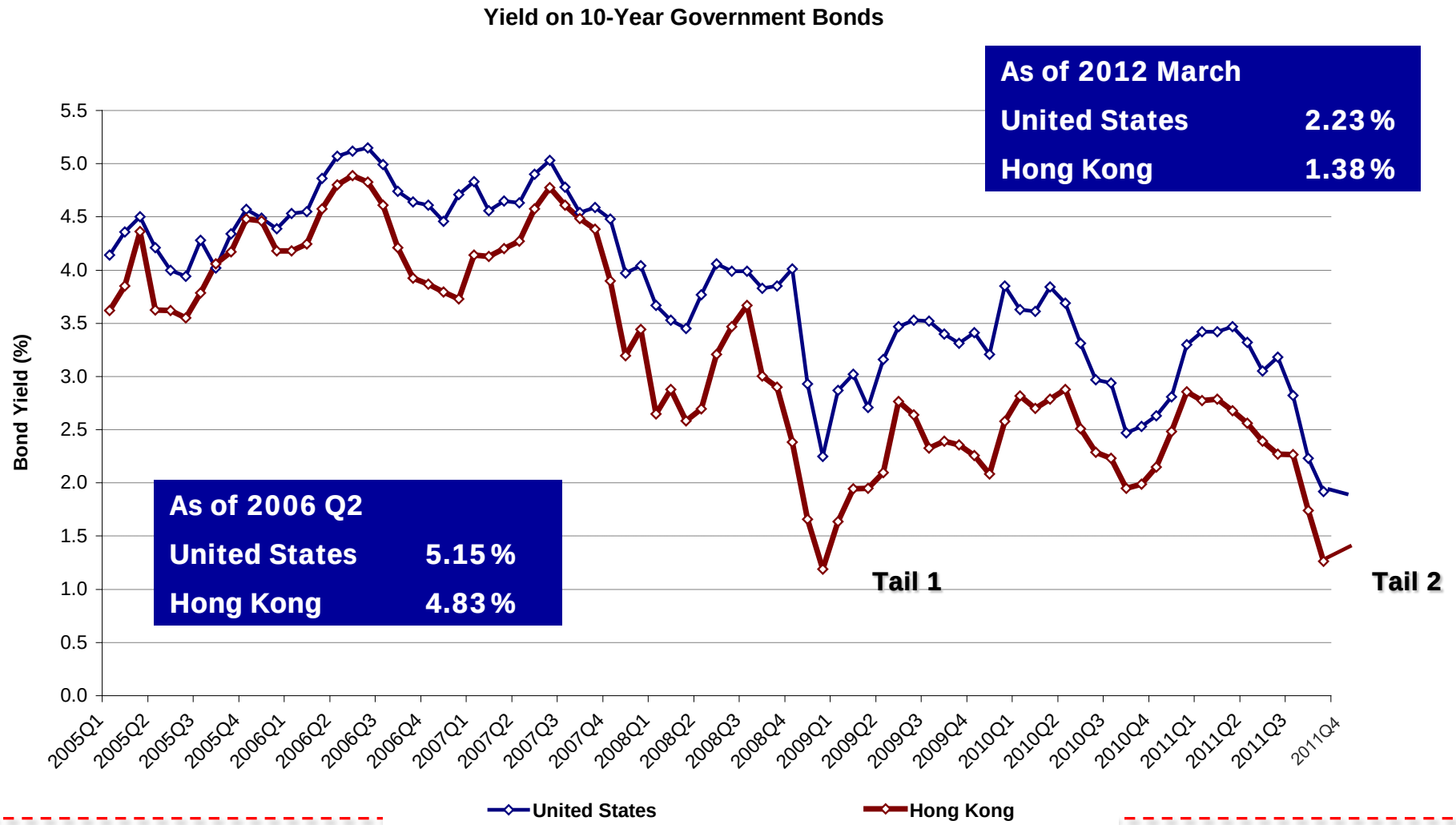
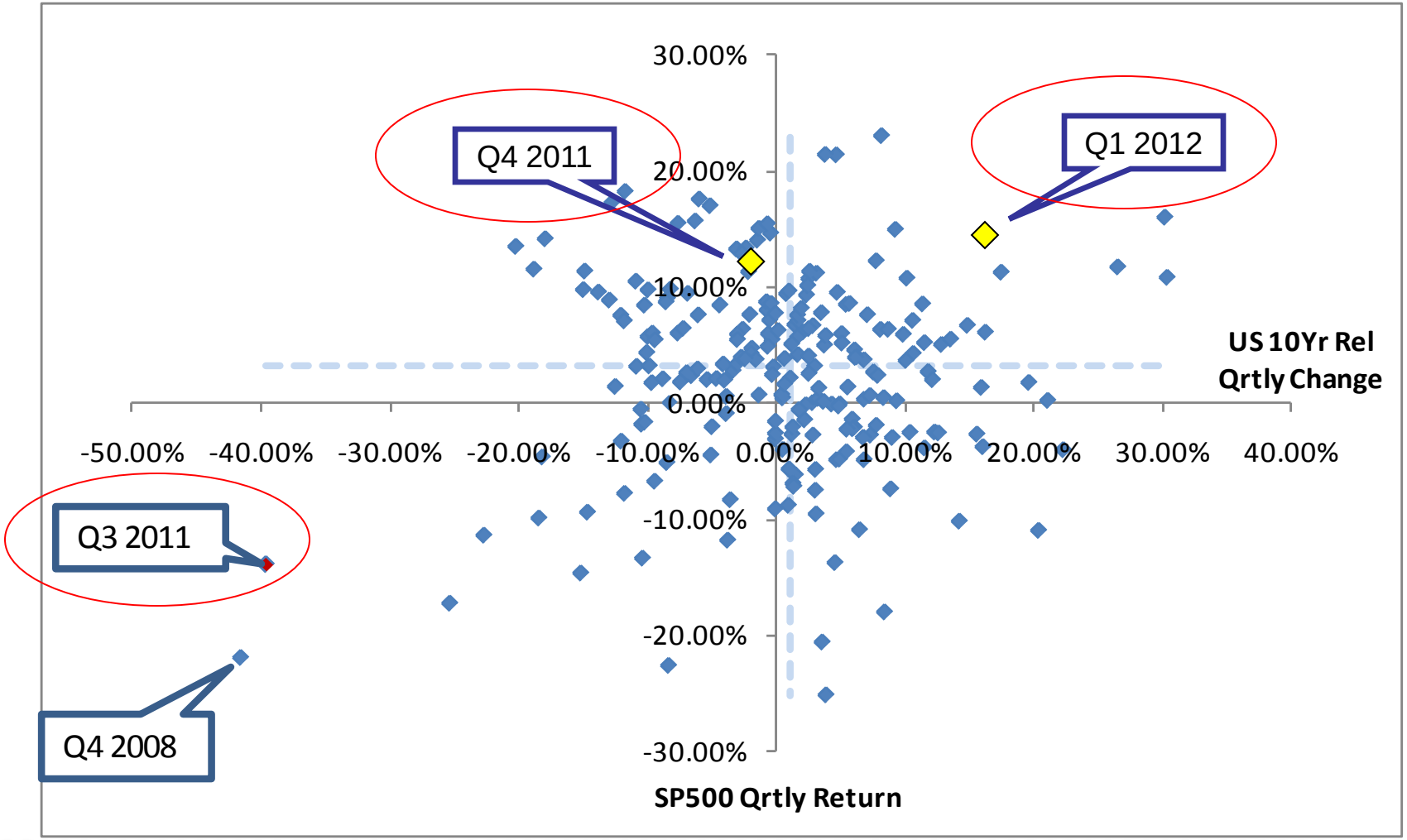
Hong Kong interest rates are even lower



Emerging Risks or Black Swans?

The newer normal redefined?

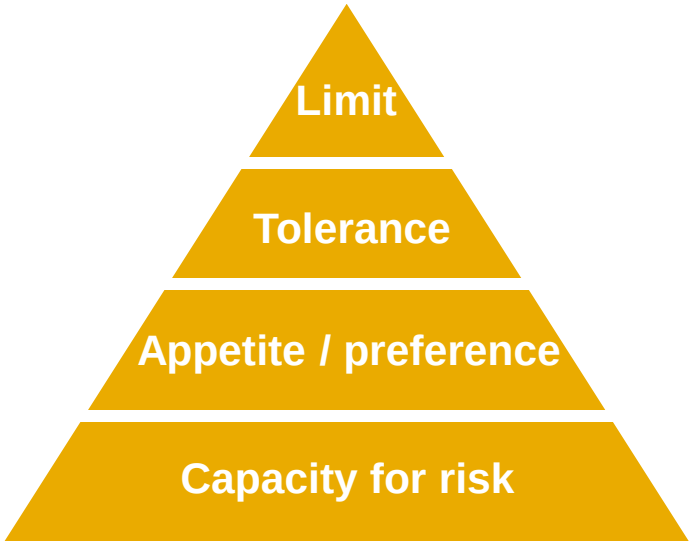


Reflecting the top life insurance risk responses…

- Capital: **the critical source**
  - Capital efficiency, allocation and return
  - In some countries, dealing with asymmetric sensitivities (csv floor, prem def)
  - In others, liability reflects MV => TBS volatility completely driven by economy
  - Some with net premium under regulated valuation rate
  - Impact of balancing credit risk via de-risking
  - Capital management with regular stress testing
- Product: **the right strategy**
  - New product management: design and pricing
  - VUL hanging to equity optimism, troubled of too much a focus
  - In-force business management
  - Disciplined discretionary benefits determination process
- Inappropriate to assume Tail 3 will hit only in 2112

Shifting risk appetite?

- Changed distribution with tail events gaining higher probability
  - Maintain target economic capital adequacy following a 1-in-X year event?
  - Earnings has low probability (e.g. 20%) of being >15% below plan?
  - Enterprise value has low probability (e.g. 15%) of falling by 10%+?



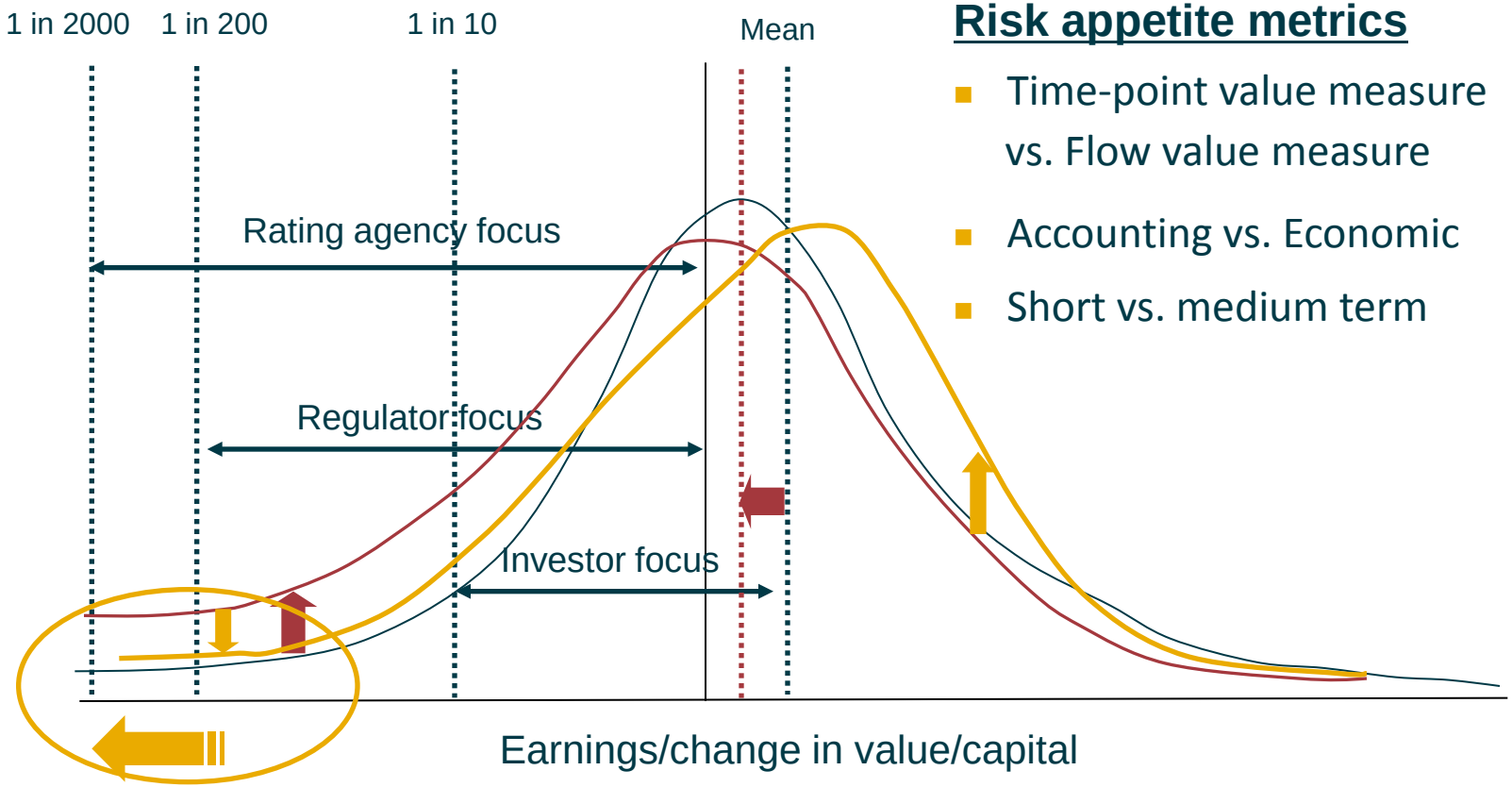
How management reacts and feeds back to the components:

Fear of tails?

Feedback from executives / board on response to real event and recalibrate

Normal expected volatility excluding events and prepare to explain tails when they happen

Addressing views of different stakeholders



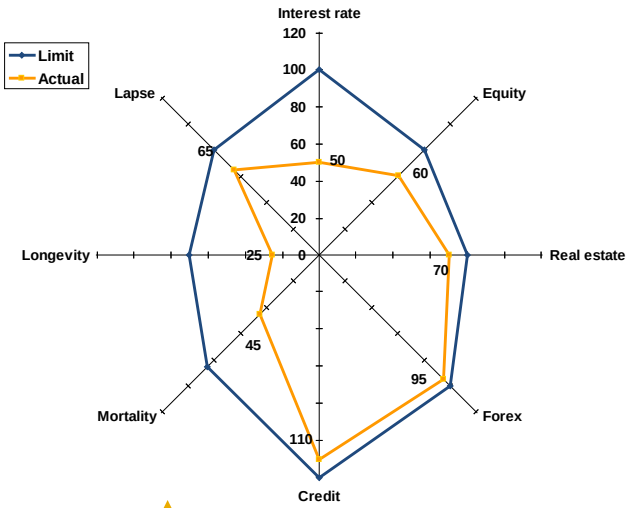
Risk appetite metrics

- Time-point value measure vs. Flow value measure
- Accounting vs. Economic
- Short vs. medium term

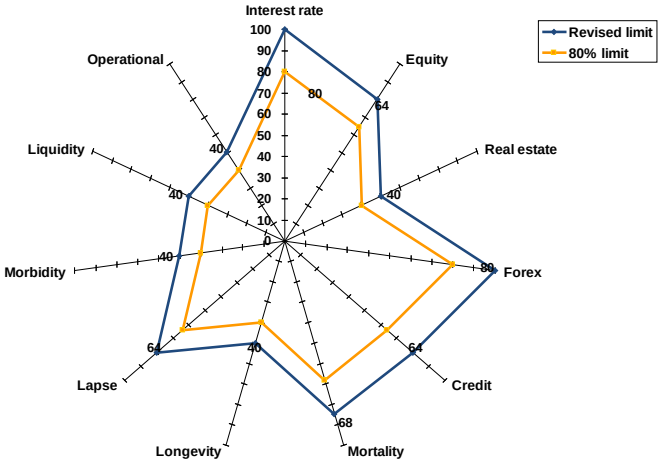
A multi-dimensional view of risk is favoured
But multitude of measures can constrain business decisions

Emerging Risks or Black Swans?

Exposure vs. limit



Revised budget and preference



Aggregation

Risk type (% of risk limit)	Business Group A Unit 1	Business Group A Unit 2	Business Group B Unit 3	Business Group B Unit 4	Business Group B Unit 5	Total company
Major risk exposures						
Interest Rate	50%	90%	30%	125%	85%	75%
Equity	25%	30%	30%	30%	40%	30%
Real Estate		5%	10%	5%		5%
Foreign exchange	5%	10%	90%	50%	60%	40%
Default	65%	75%	110%	20%	60%	65%
Mortality	45%	60%	70%	70%	85%	70%
Longevity	20%			50%	25%	30%
Lapse	50%	35%	60%	0%	0%	30%
Additional in next year						
Morbidity						
Liquidity						
Operational						
Aggregate Risks						
Market Risks	40%	40%	20%	55%	60%	40%
Underwriting	40%	50%	65%	10%	40%	40%
Total	40%	45%	60%	45%	50%	40%

Re-allocation?

Numbers are indicative for illustration purpose only

Testing your appetite via sensitivities

- **Sensitivity:** incremental change in single risk factor performed on key risks with potential significant impact. Risk tolerance limits and early warnings.
- **Scenario testing:** hypothetical combination and ripple effects, more recent attention on emerging cases and reverse testing.
- **Reporting requirements:** e.g. DST – mandated, plausible, ripple effects.
- **ORSA:** dynamic, forward looking base case scenario, stresses reflect topical and relevant future to assess capita adequacy vs. appetite.
- **Harmonize process** for all tests to achieve consistency and efficiency.
- **Partnering**, roles & responsibilities: CRO, CA, CFO, AA

Knowing vs. Not knowing

- Known knowns: things we know we know
- Known unknowns: things we know we do not know
- Unknown unknowns: do not know that we do not know

Donald Rumsfled

Former US Secretary of Defense

Self-reflect: Are most of the risks unthinkable, or are we ignoring the thinkable and think they are distant?

Black swan management in theory

Nassim Nicholas Taleb (2007)

1. a surprise and impossible to predict (to observer)
2. extreme impact
3. retrospective but not prospective predictability

- Call for emergency response and solution formation
- Enquiry and extra requirements from regulatory bodies
- People dynamics and negative impact on productivity
- Panic factor to impact decision making process

- ✓ Reverse stress-testing
- ✓ Actionable quantitative analysis
- ✓ Acknowledge model limitations
- ✓ Do not ignore the tail

Emerging Risks or Black Swans?

Black swan or Emerging risks?

Lies in the identification process…

passive

- Remote and systemic
- Unthinkable
- Change with changing landscape
- Interconnected global financial system surprises
- Limited resource and too many priorities

active

- Plausibility vs. possibility
- Thinkable but ignored
- Herd mentality
- Good time bad time theory
- Fundamental presumptions
- Quarter result focus

Focus only on what-can-go wrong to challenge your business but not what-can-go killing to end your business completely

We cannot be managing it if we do not intend to manage it.

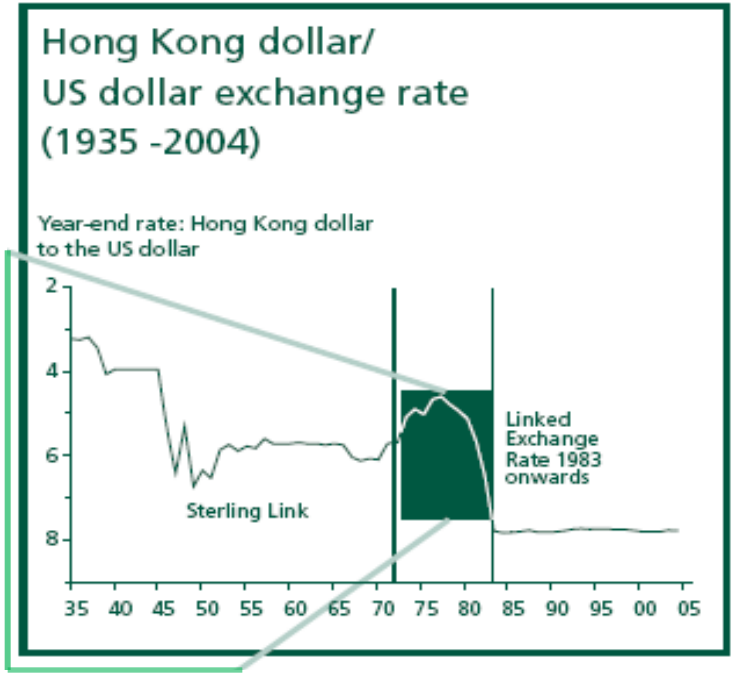
Currency de-peg risk case study: HKD/USD

- Hong Kong adopts a Linked Exchange Rate System with USD peg
- Policies issued primarily in USD/HKD denomination
- Lack of HKD long term investments to back HKD liabilities
- USD assets with 10/20-year USD T-yield as typical benchmark
- Common currency mismatch with mismatch reserves or hedges
- Currency mismatch risk tolerance limits apply
- *"Prudent provision shall be included"*
- *"Zero allowance assuming a peg will never move in not prudent"*
- *"Expected future cost of matching currency swap"*
- *Same bases requires excess capital charge*

Emerging Risks or Black Swans?

Some background history…

- 1935 - Abandoned silver dollar standard during crisis, linked to Pound @ £1: HKD16
- 1967 - revalued @ £1: HKD14.55
- 1972 - linked to USD1: HKD5.65
- 1974 - Free floating
- 1983 - depreciation and confidence crisis
- 1983 - USD1: HKD7.80
- 1997 - Handover to China
- 1998 - weak side commitment HKD7.75
- 2005 - strong side commitment HKD 7.75 and moved weak side to HKD7.85
- Resilience again external shocks recently…



Source:

"Hong Kong's Linked Exchange Rate System" – Hong Kong Monetary Authority. http://www.info.gov.hk/hkma/eng/

The Linked Exchange Rate System (LERS)

CAPITAL INFLOW

Market demand on HKD, upward pressure on HKD exchange rate

↑

Trigger strong side defense

↑

Currency Board sells HKD to expand monetary base

↑

HKD interest rates fall

↑

Force HKD exchange rate down to be within target range

CAPITAL OUTFLOW

Market sells on HKD to increase supply, downward pressure on HKD FX rate

↓

Trigger weak side defense

↓

Currency Board purchase HKD to contract monetary base

↓

HKD interest rate rise

↓

Upward pressure on exchange rate to be within target range

Rationale of the link – taking it for granted?

	Past	Present
Key trading partner?	United States	China, and others
Interest rate anchor?	> 10%	< 2%
International strength?	Strong position GDP growth 9%	Sluggish recovery GDP growth 2%
Business cycle synchronization?	Very close	Divergent
Monetary base?	Low intervention cost as FX stable	Strong side intervention; doubled from HKD507bn to HKD1011bn '2008-2009

"Limitation: …at times when the economic cycles of Hong Kong and the US may not necessarily be moving in tandem…If there is a misalignment …may not be best suited to the macroeconomic conditions of the domestic economy." *Source: Hong Kong Monetary Authority*

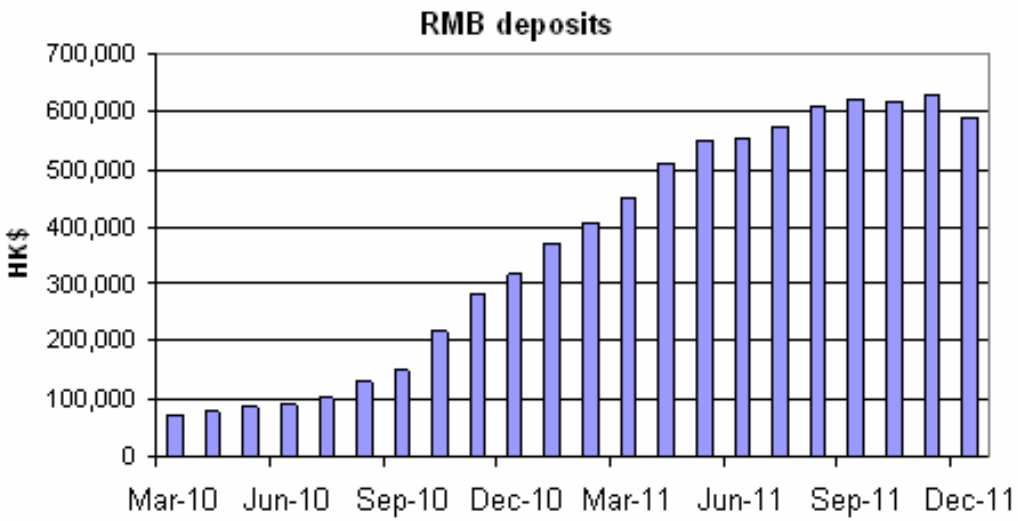
Emerging Risks or Black Swans?

What are the "thinkable" outcome

- HKD float again?
- HKD/USD revalued?
- HKD peg to a basket?
- HKD/RMB to peg?

Factors of considerations:

- Transparency
- Simplicity
- Sustainability
- Trading partners
- Convertibility….



Source: Hong Kong Monetary Authority

Not a question of if but a question of when

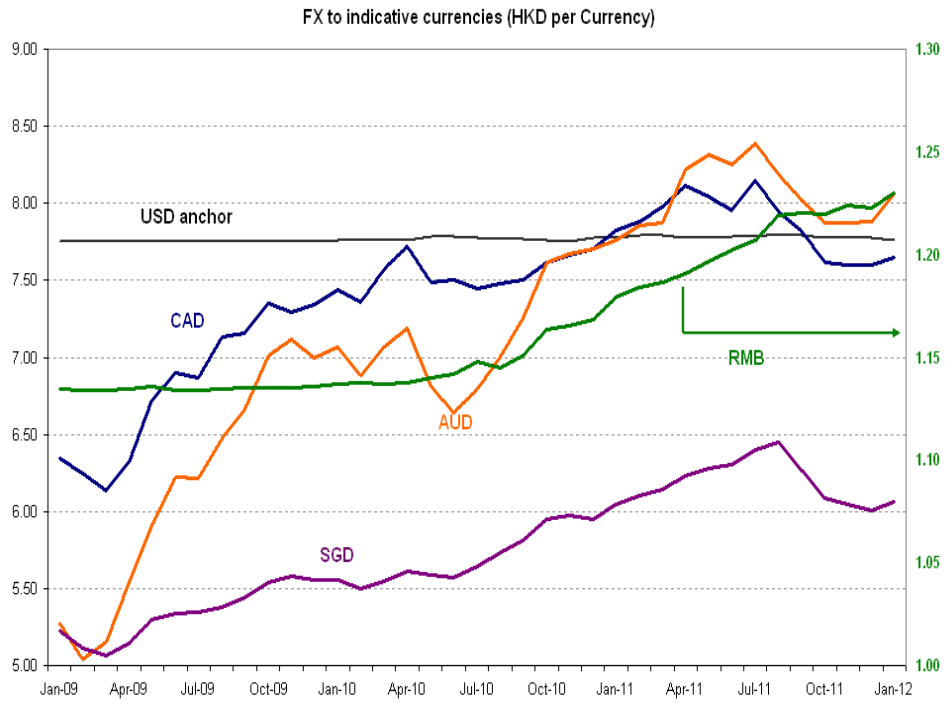
Emerging Risks or Black Swans?

Assessing the forces?

RMB liberalization journey

- 2003/4 HK became offshore RMB clearance centre
- 2007/8 Start of RMB bond market ("dim sum bond")
- 2009 RMB trade settlement scheme for cross-border
- 2010 PBOC / HKMA entered agreement for interbank mkt
- 2011 PBOC pilot allow qualified domestics to use RMB for out-investments

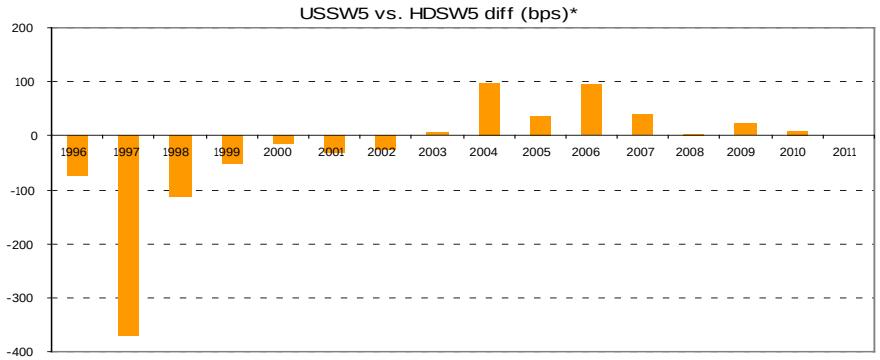
RMB IPO…
MNC dim sum bonds…
More offshore centers…
Reserve currency…



Source: RBS

Emerging Risks or Black Swans?

Inherited risks in all circumstances



Source: Bloomberg

- Immediate loss unlikely
- Hedge cost movements
- Reserve valuation rates
- Lower investment return for shareholders
- Lower dividends and crediting rates for policyholders
- Repricing, new design and denominations
- Inforce block management – **investment / hedging strategies**??

Getting prepared

- Assessing the potential financial impacts
  - Reserve impact
  - Solvency impact
  - With and without hedge coverage
  - Local, IFRS, other reporting bases
- Try single stresses and combined scenarios
  - HKD appreciation by X%
  - Hedge cost multiplied by n times
  - US/HK spread widening, or HKD yield drops
  - Capital injection?
  - Shift in product mix?
  - Sensitivity to hedge durations?

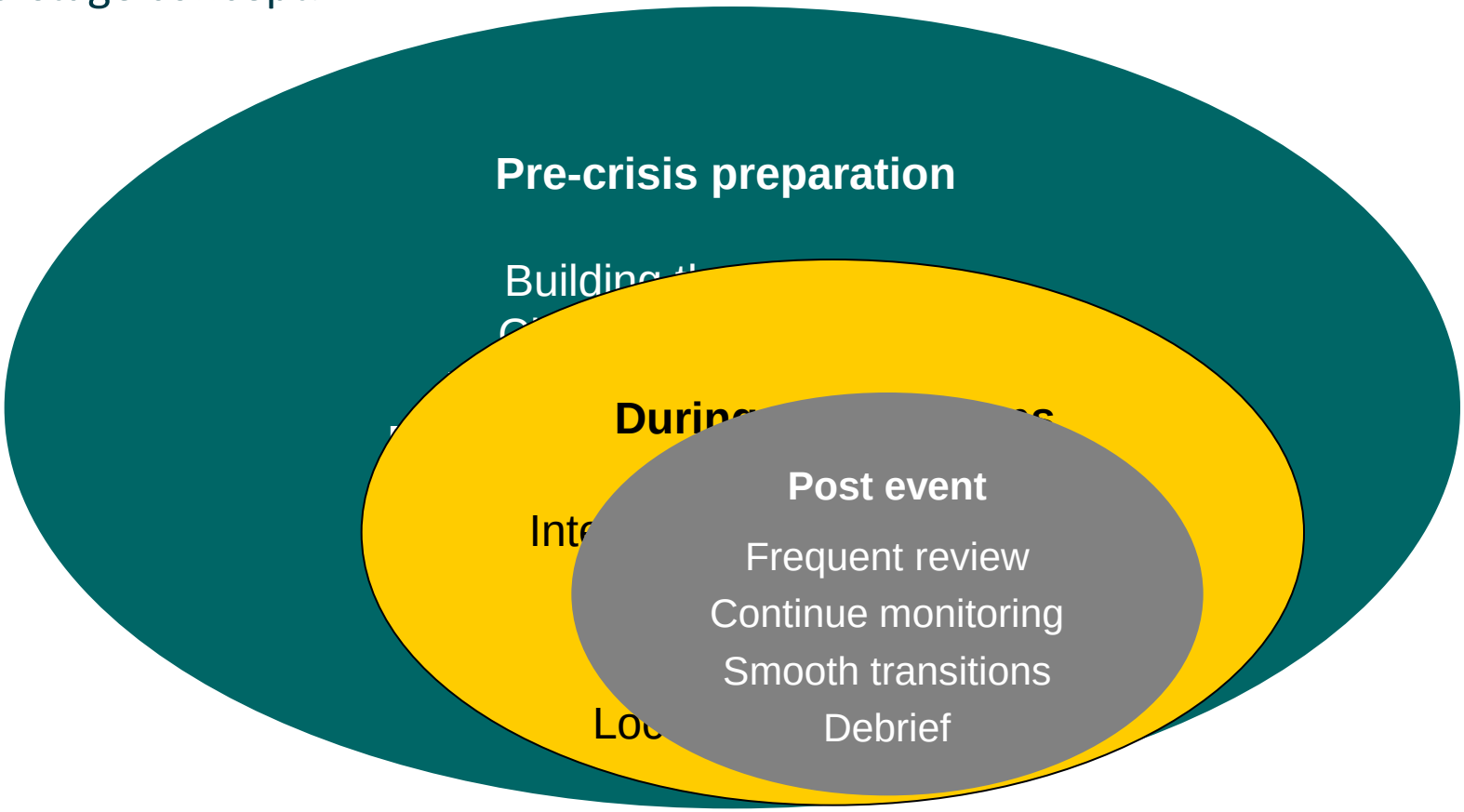
Emerging Risks or Black Swans?

So, are we fully prepared now…anything more?

Financial risks	➢ Different shocks to assets and liabilities leading to changes in net income and capital ➢ Unpredictable policyholder behaviour heightens liquidity needs over a short timeframe
Operational & IT risks	➢ Set and execution of exchange rate or band ➢ Bulk transaction volume: system/resource capability issues ➢ Inadequate infrastructure to sufficiently handle various requirements
Reputation risks	➢ Distribution and/or customer expectations not fully met ➢ Pro-activeness in reacting to competitors' responses ➢ External communication ➢ Internal planning
Product risks	➢ Ability to maintain the existing product sales ➢ Sales tools and contracts
Business model	➢ Sustainable for traditional products?

Concept of crisis management

3-stage concept:



Sample plan (pre)

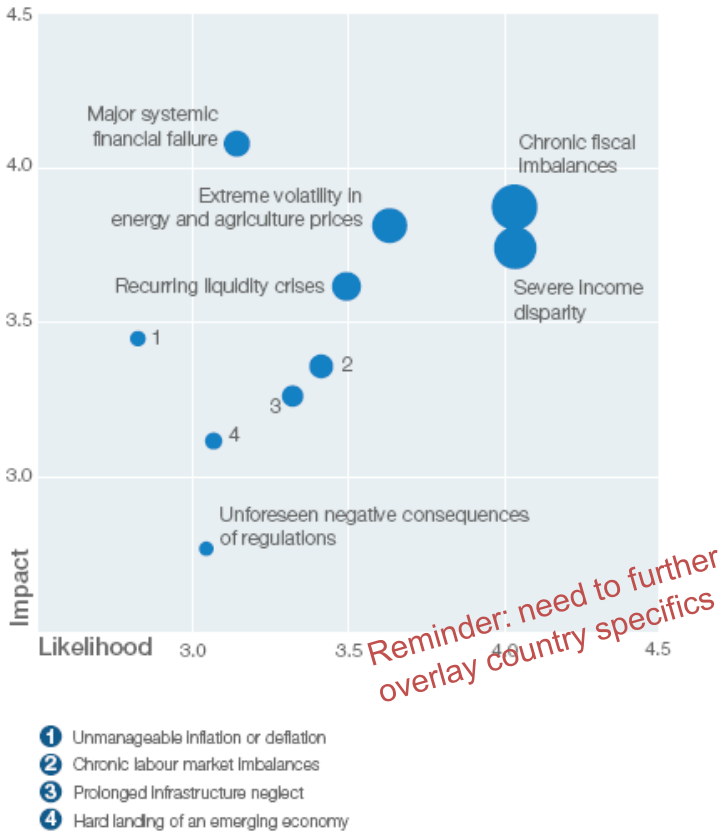
- **Business rule:** Finance, Investments, Operations, IT
  - Frequency of spot rates / Fix or band width / Time to fix
  - Implementation to scenarios
  - Impact checklist and procedures / system enhancement
  - Application vendor
- **Product elements:** Marketing, Legal
  - Sales material and provision on guarantees
  - Careful handling of promises and potential disputes
  - MVA features in products
- **ALM checkpoints:**
  - Trigger monitoring and whistle blowing
  - Local bonds purchase capability and hedge position monitoring
- **Others:** accounting entries, distribution compensation

Sample plan (at & post)

- Taskforce chairperson: declare event and activate procedures
- **Operations:**
  - Customer notification / Customer service training / Q&A templates
  - Staff sourcing plan
  - Policyholder behaviour changes
  - System triggers and user notification / Vendor standby mode
- **Business:**
  - Assess competitors' response to market
  - Product line management and channel reactions
- **Financials:**
  - Movement on exchange rate / yields / hedge cost / credits
  - Capital impact and volatility
- **Line of communication** and seamless collaboration

Emerging Risks or Black Swans?

The Emerging risk radar



Source: Global Risks 2012 Seventh Edition, by World Economic Forum, Insight Report, 2012

Extreme thoughts….

US downgrade further

Eurozone breakdown

Interest rate goes below 1%

Product flaws

Exemptions no longer available

Radical change to solvency regime

Significant reputation scandal

Fundamental model error

Flight to safe credits in plan unavailable

Hyperinflation

Infrastructure failure

Emerging Risks or Black Swans?

Regulatory changes

OSFI guideline for capital requirements:

- Segregated funds capital
- Holdco & Solo capital standards

Canada

Capital Requirement by Bermuda Monetary Authority

Bermuda

Solvency II: New regulatory solvency standards for insurance industry

Europe

The Financial Services and the Treasury Bureau (FSTB) proposed establishment of an Independent Insurance Authority (IIA).

Proposed revision to Privacy Ordinance.

Tight control on requirements re Investment Linked Assurance schemes (ILAS).

Hong Kong

ERM guideline
VA guideline

China

India

United States

- National Association of Insurance Commissioners: Solvency Initiatives
- Dodd-Frank regulations for financial services
- FATCA

Indian Regulatory changes impacting the Unit Linked Insurance Products (ULIP) Structure, Charges and Distribution channels

Global Regulatory Changes leading higher capital requirement :

- International Financial Reporting Standards
- Anti Money Laundering / Anti Terrorist Financing Act

Emerging Risks or Black Swans?

Risk management is all about execution

Strategy

- Assess existing threats to realization of business strategy
- Identify emerging hurdles to longer term goals and business targets
- Defined appetite for tolerance levels in various exposures
- Make go / no-go decisions ahead

Value

- Understand risk drivers to financial results and plan, supporting management decision on risk-adjusted returns
- Ownership of risks concept and improved accountability
- Prepare for emerging risks before it hits as a surprise
- Enhanced efficiency of overall enterprise operations

Capital

- Optimize capital management and allocations
- Capital intensiveness and volatility
- Increasing risk-based focus of regulatory initiatives
- Rating agency expectation on ERM

The next step: Going from Good to Great…

"It is not a task, it is a journey….A well-conceived strategy is important, but I could give our strategic plan to our competitors and not worry about it – because it's all about execution."

Richard M. Kovacevich, Chairman, Wells Fargo Bank

"Be skeptical of history-based models. Constructed… using esoteric terms … these models tend to look impressive…" "Risk comes from not knowing what you're doing."

Warren Buffett, CEO, Berkshire Hathaway

Thank you

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