

Impact of RBC on Solvency

3rd June 2011



SAS 3rd General Insurance Conference
“Managing the Risk or Rolling the Dice?”

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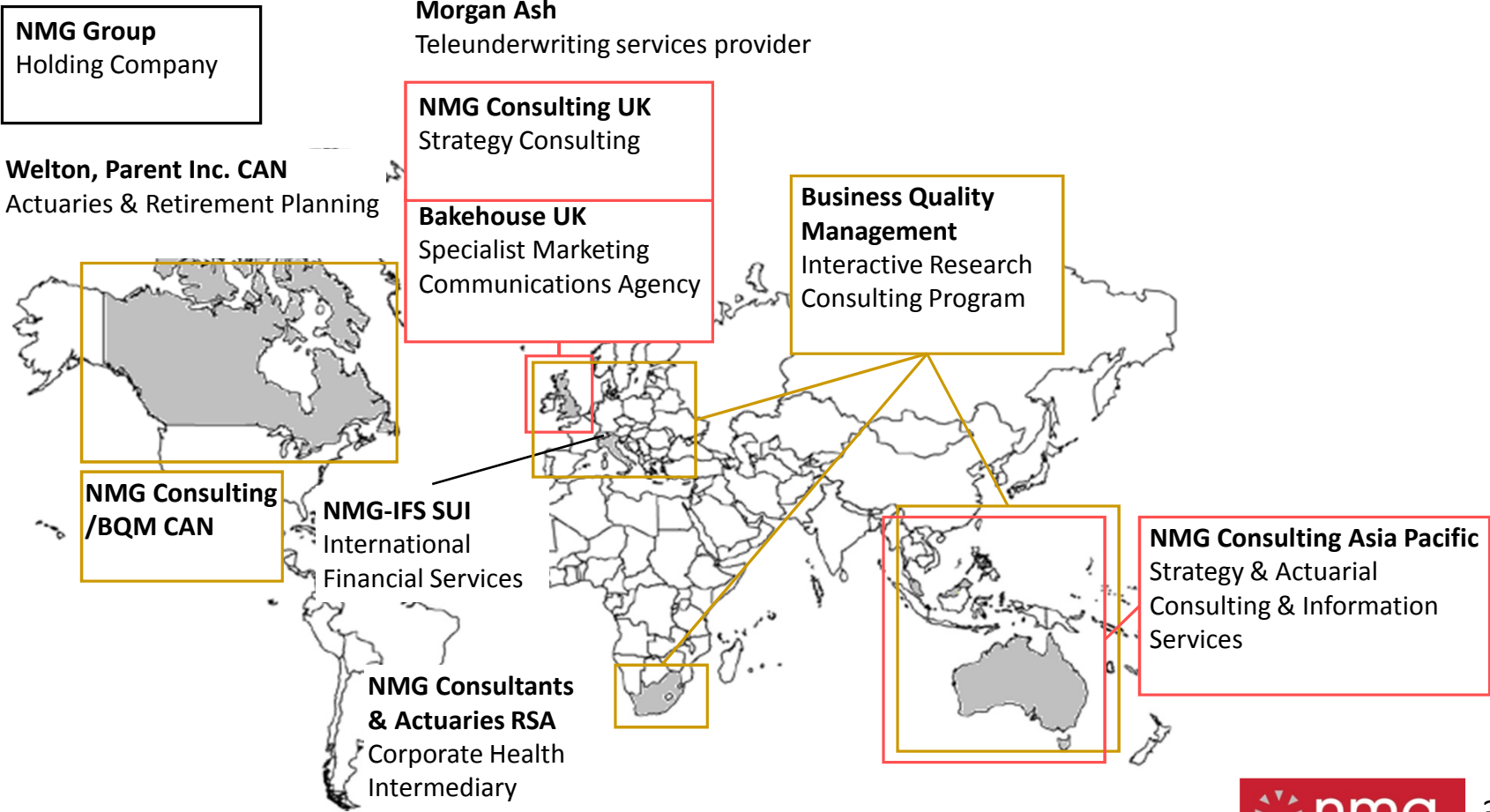


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Introduction



Starting out as an actuarial consulting company, NMG Group consists of diverse businesses (consulting, intermediary, research) focused solely in insurance and wealth management segments.



Introduction



NMG Consulting			BQM
GSCN	INS	ACS	
PMG			



Specialist sector skills

As a multi-national consulting firm focused on the insurance and wealth management industries, NMG has developed specialist financial and actuarial skills to support our clients in the sectors of our dedicated focus, namely:

- Non-Life insurance
- Health insurance
- Reinsurance
- Wealth management
- Takaful
- Alternative Financial Services Providers

We believe there is a strong financial component to any development or strategic initiative. Our consultants accordingly have substantial experience in business modeling and cash flow projections across all financial services sectors.

We offer the following key services to our clients:

- Reserve Calculation (Statutory reporting)
- Company valuation (M&A)
- Product development and pricing
- Capital management (Risk Based Capital modeling)
- Reinsurance optimization

Territories covered:

- Malaysia
- Singapore
- Sri Lanka

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“Managing risk or rolling the dice?”

As actuaries, we are in the business of managing risks, primarily financial risks.

- ▶ As actuaries, we need to be able to:
 - Make sense of risks
 - Quantify upside and downside potential
 - Manage risks and identify business opportunities

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Risk Based Capital



We see a worldwide trend that more and more countries are beginning to implement RBC.

- ▶ 1992: USA (RBC model by NAIC)
- ▶ 1999: Canada (DCAT – Dynamic Capital Adequacy Testing)
- ▶ 2002: Australia (Prudential Standard GPS110 – Capital Adequacy)
- ▶ 2004: **Singapore**
- ▶ 2005: UK (Consultation Paper 190 – Capital requirements, assessments)
- ▶ 2006: Switzerland (Swiss Solvency Test), **South Korea**
- ▶ 2007: **Philippines**
- ▶ 2008: **China**
- ▶ 2009: **Malaysia**
- ▶ 2011/12: **Thailand**
- ▶ Future: **Sri Lanka**, Euro (Solvency II)?

Risk Based Capital



Recap of Risk Based Capital and its framework:

- ▶ Level of capital that is commensurate with risk level
 - Higher risk, potentially higher rewards, need more capital to sustain volatility of results
 - Risk-adjusted return on capital
- ▶ Typical RBC Framework
 - Formula-based
 - Higher risk charge on higher risks
 - General considerations:
 - Exposure to risk, parameters, correlation, risk charges, capital available
 - Enables comparison and better transparency

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Presentation objective



In our presentation, we aim to achieve the following:

- ▶ To observe the CAR movement after the implementation of RBC
- ▶ To observe Malaysian and Singapore industry response to the introduction of RBC
- ▶ To analyse the difference between the Malaysian and Singapore jurisdiction

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Data source:

- ▶ Singapore (RBC has been implemented 6-7 years already):
 - MAS Insurance Returns 2005-2009
- ▶ Malaysia (RBC recently introduced, about 2 years already):
 - BNM Annual Insurance Statistics 2005-2010
- ▶ Focused on general insurance companies, exclude composite insurers

Approach:

- ▶ Level of analysis:
 - Asset class, liability type
 - Split by GI companies, aggregate by insurers
 - Pre and post RBC implementation, trend over time
 - Approximate capital available, capital required, capital adequacy ratio

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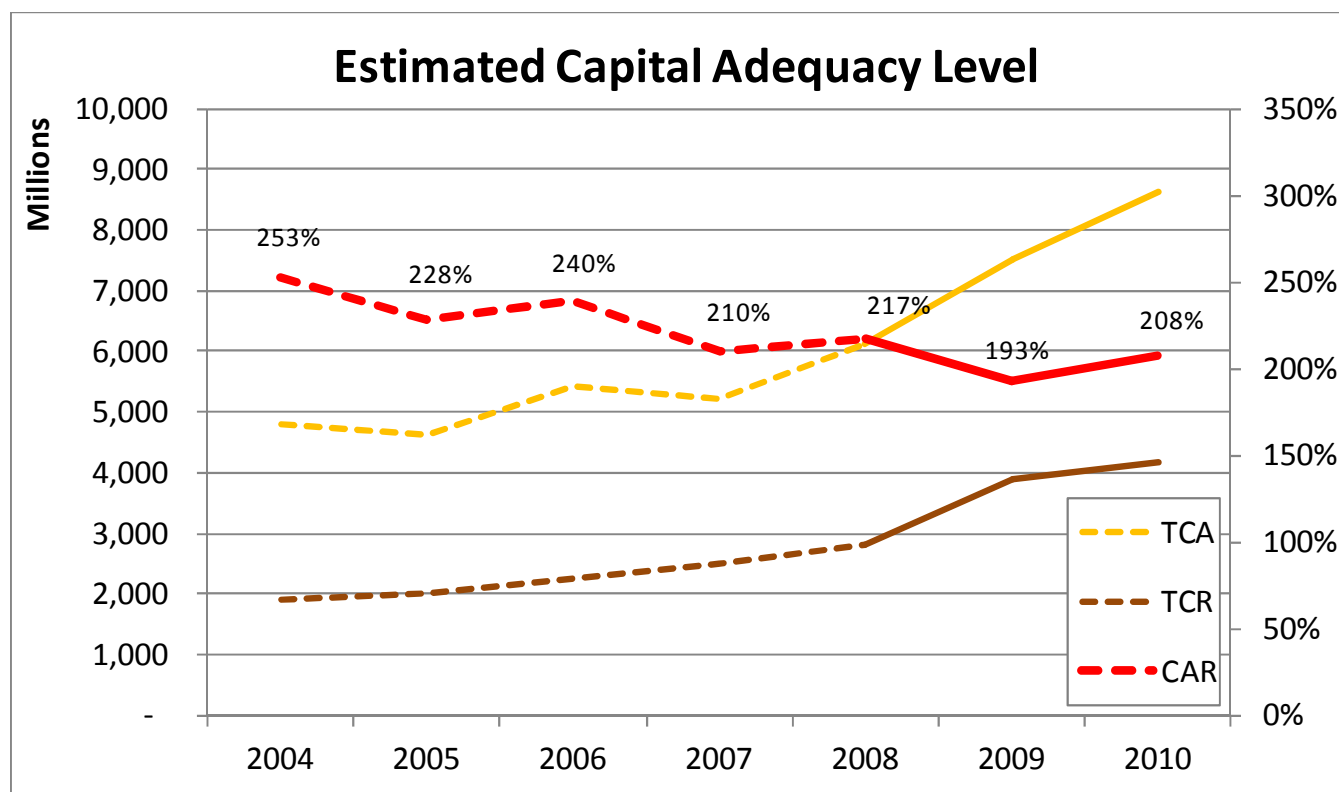
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Results - Malaysia



RBC Framework implemented in 2009 for conventional insurers:

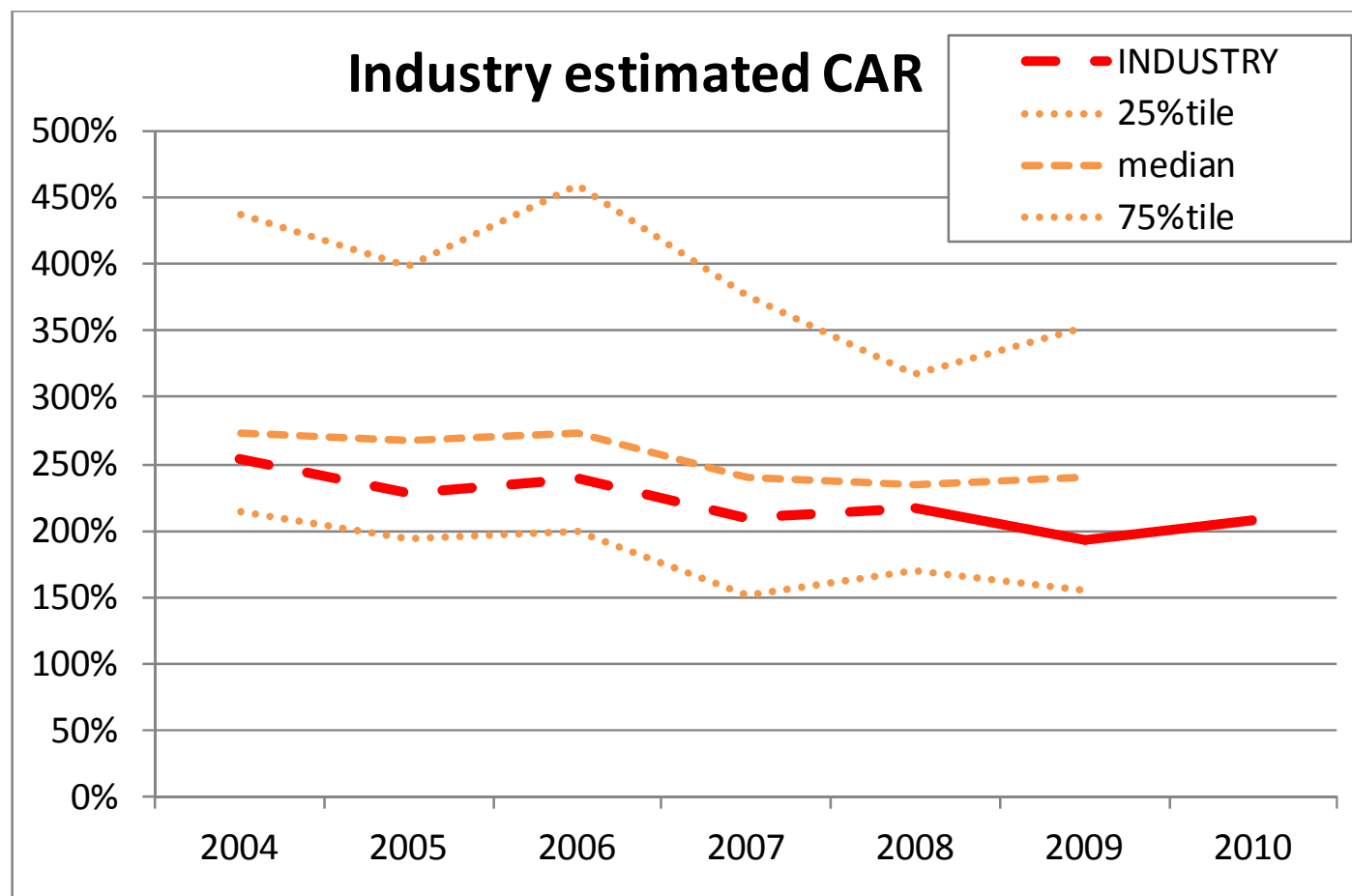
- ▶ Reliance and limitations of public data
- ▶ Industry estimated CAR (TCA/TCR):



Results - Malaysia



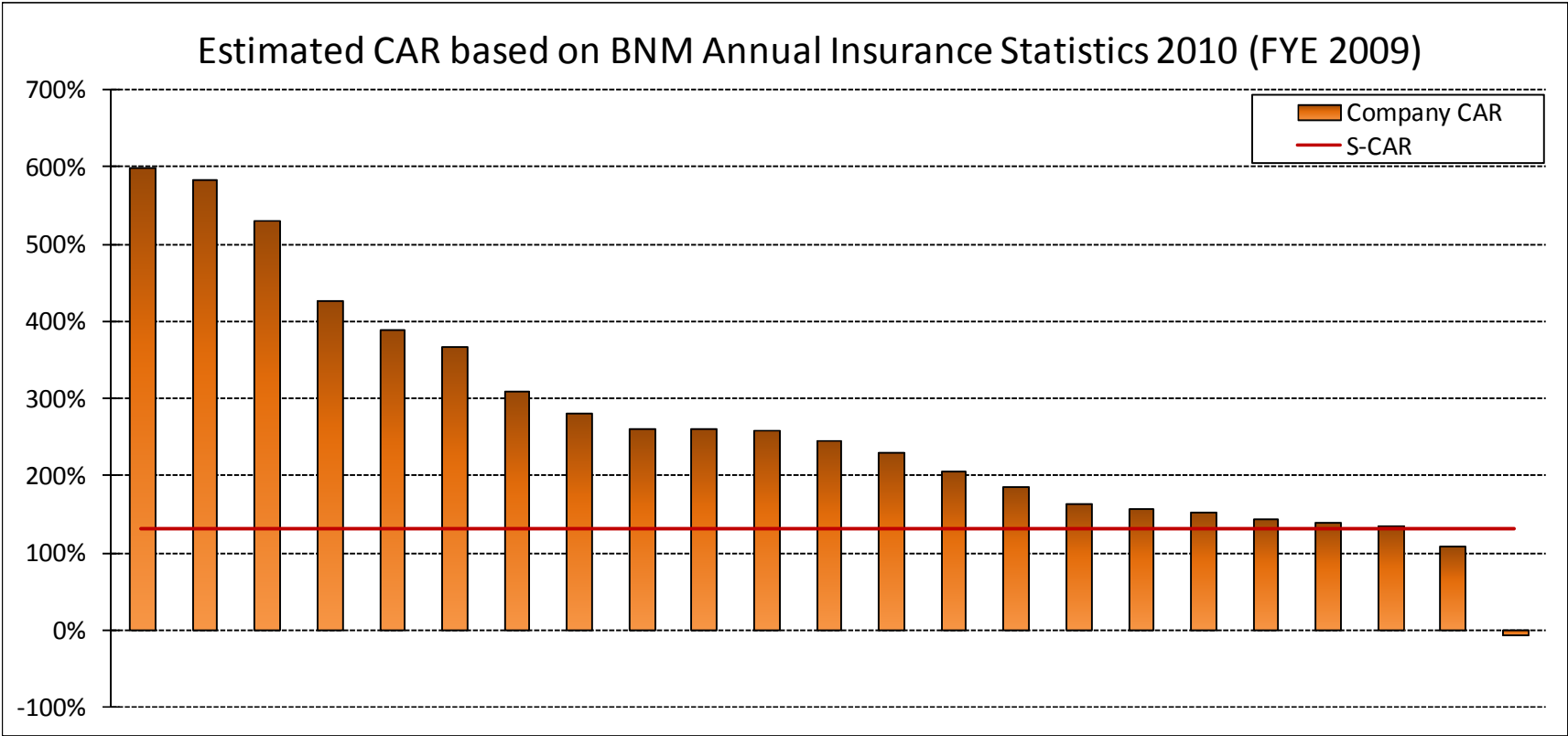
Spread of capitalized general insurers' estimated CAR:



Results - Malaysia



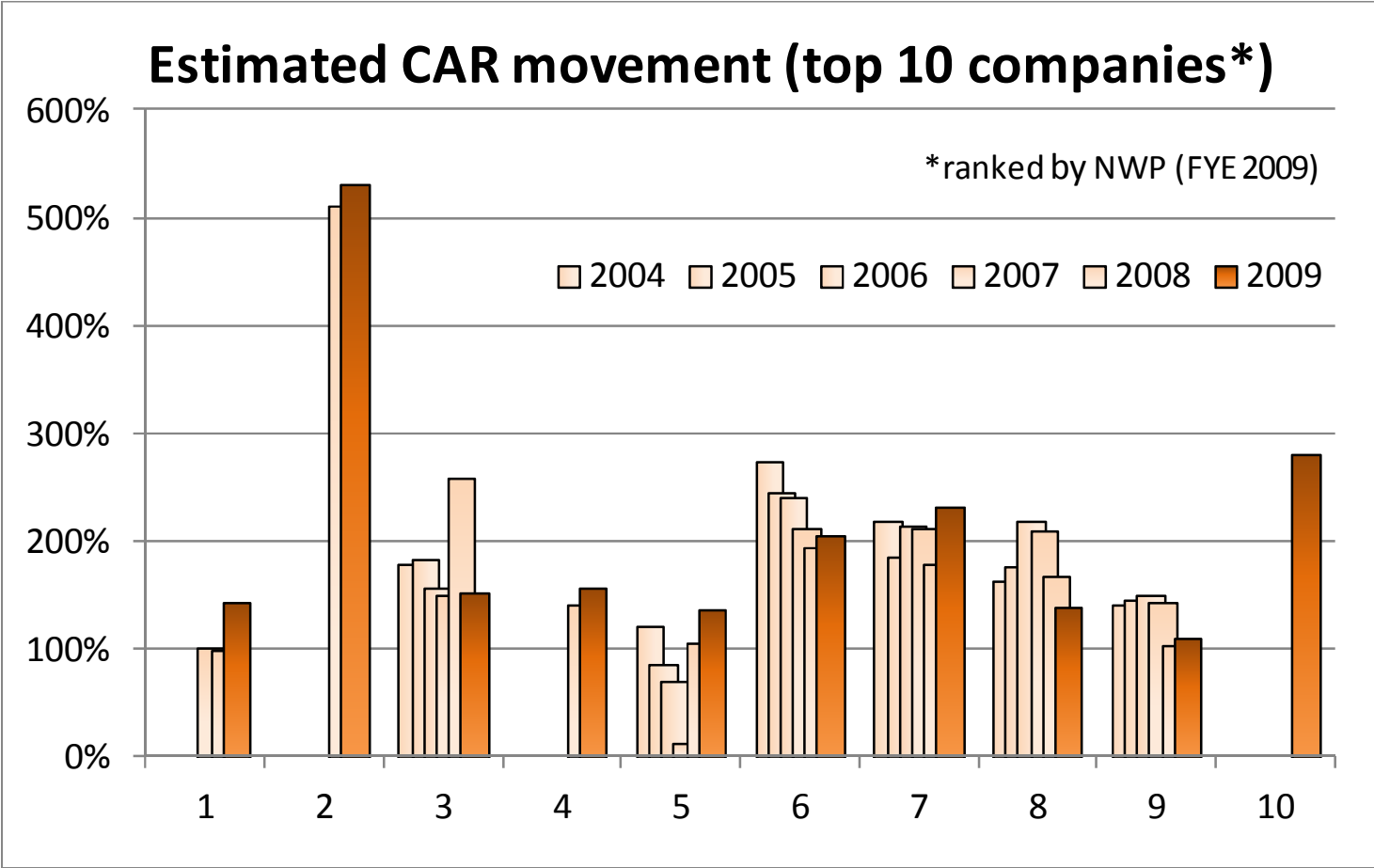
Capital position of general insurers (from BNM annual insurance statistics 2010, i.e. FYE 2009):



Results - Malaysia



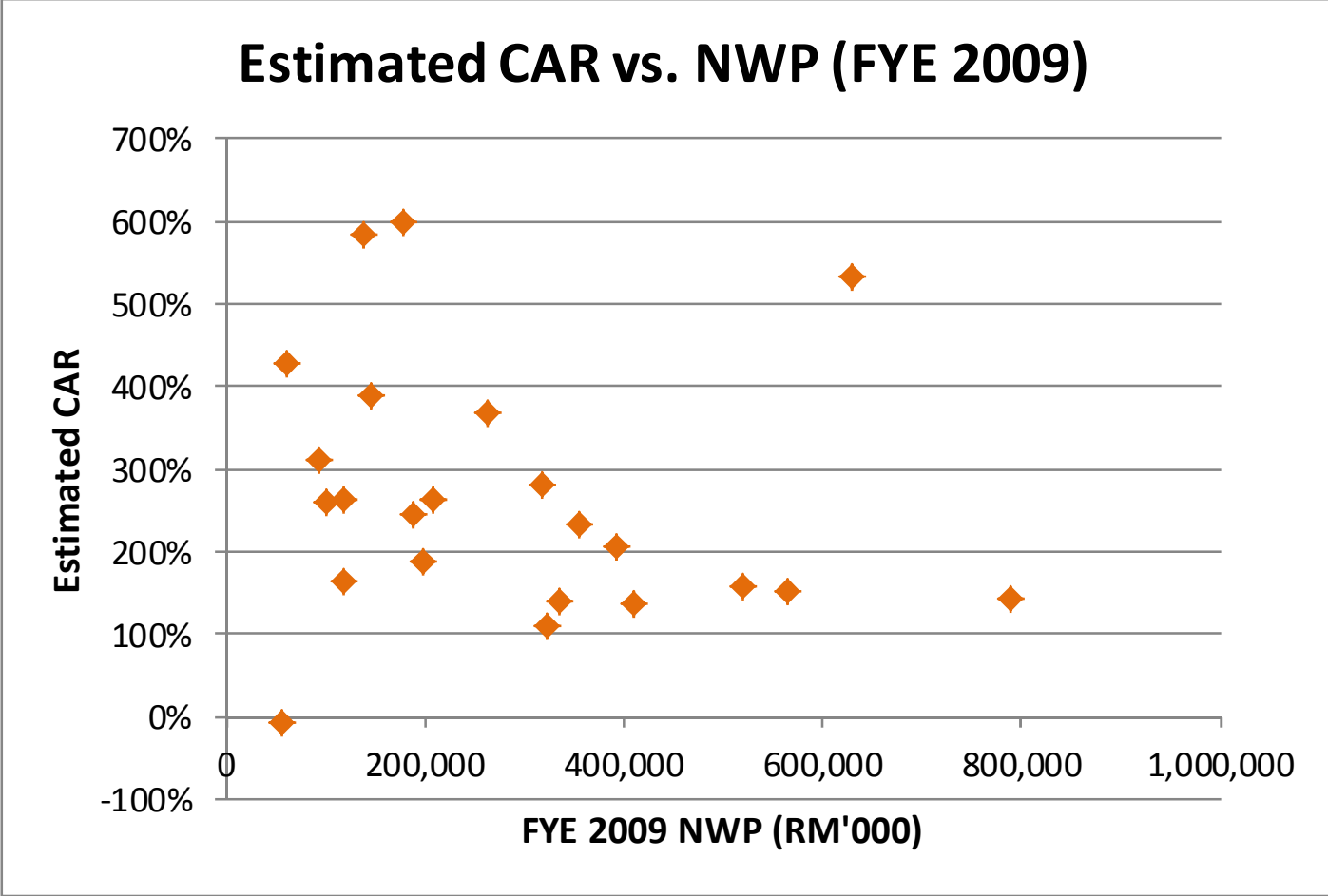
Estimated CAR movement of top 10 companies (by NWP), FYE 2009:



Results - Malaysia



Relationship between estimated CAR movement vs. NWP (FYE 2009):



Results - Malaysia



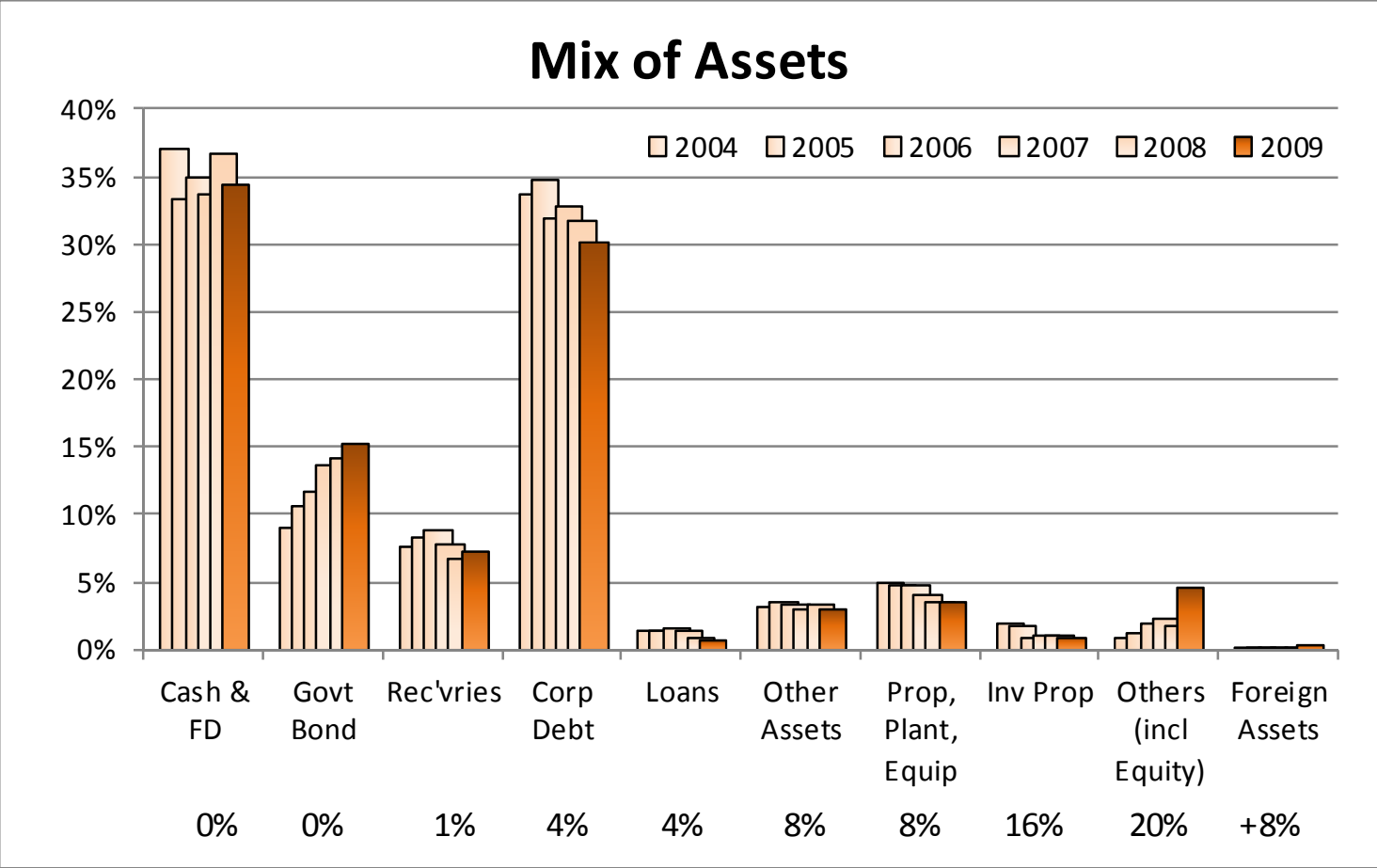
Risk charges under BNM RBC Framework:

- ▶ Credit risk charge (5%-9% of total risk charge)
 - Debt obligation (counterparty) : 0% - 12%
 - Debt obligation (property) : 3% - 12%
 - Other assets : 0% - 12%
- ▶ Market risk charge (9%-11%)
 - Equity : 16% - 35%
 - Property : 0% - 20%
 - Interest rate : 0% - 8%
 - Currency: 8%
- ▶ Insurance risk charge (77%-80%)
 - Claims liabilities : 20%-30%
 - Premium liabilities (75% URR) : 30%-45%
- ▶ Operational risk charge (5%)
 - Operational risk charge : 1% of total assets

Results - Malaysia



Changes in asset mix:





Insurance policy liabilities are the major contributor to risk charge (approx. 80% of total risk charge).

Changing the mix in business written can significantly impact the risk charge required for the insurance liability:

- ▶ Context: predominantly a motor market
- ▶ Look for profitable classes with lower risk charge
- ▶ Level of (claims liability) risk charge by class:
 - 20% : Bonds, Fire, **Motor Non-Act**, Offshore, PA, Others
 - 25% : Cargo, CAR&Eng, Medical, **Motor Act**, WC&EL
 - 30% : Aviation, Liabilities, Hull

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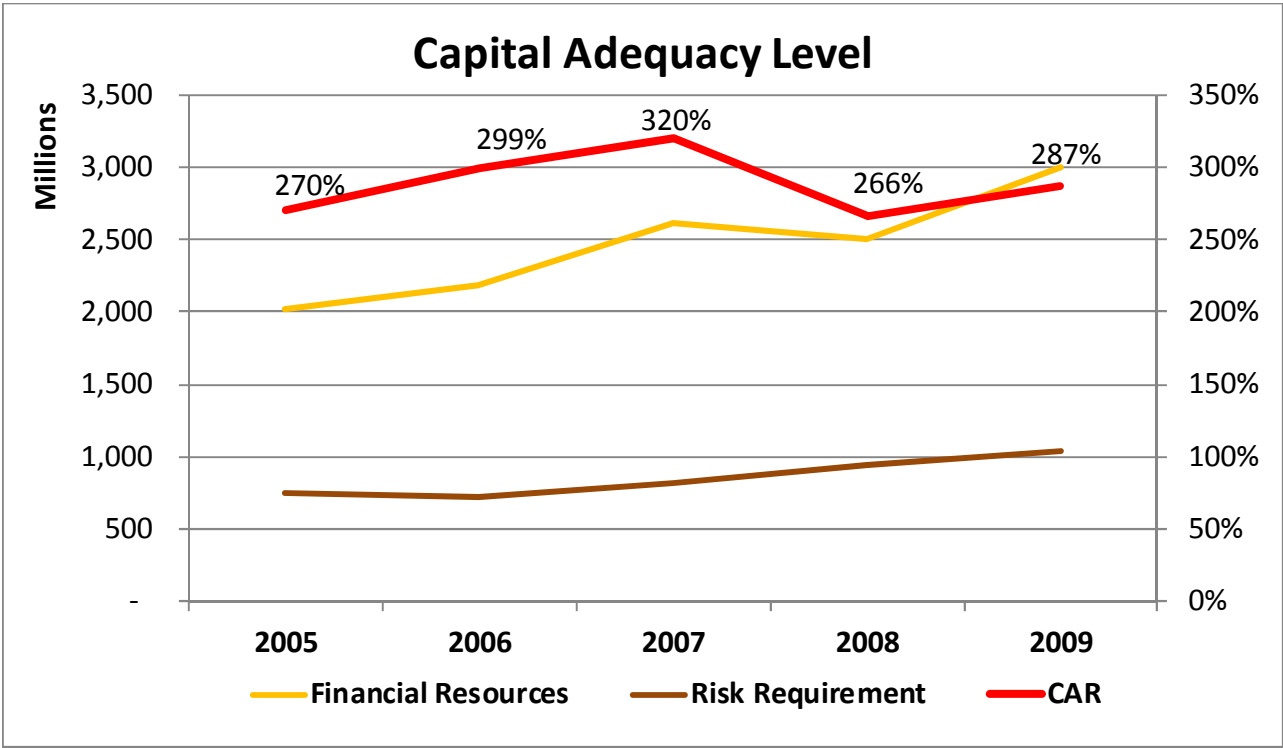
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Results - Singapore



RBC solvency capital regime implemented since 2005, moving towards a more sophisticated Solvency-II style regime?

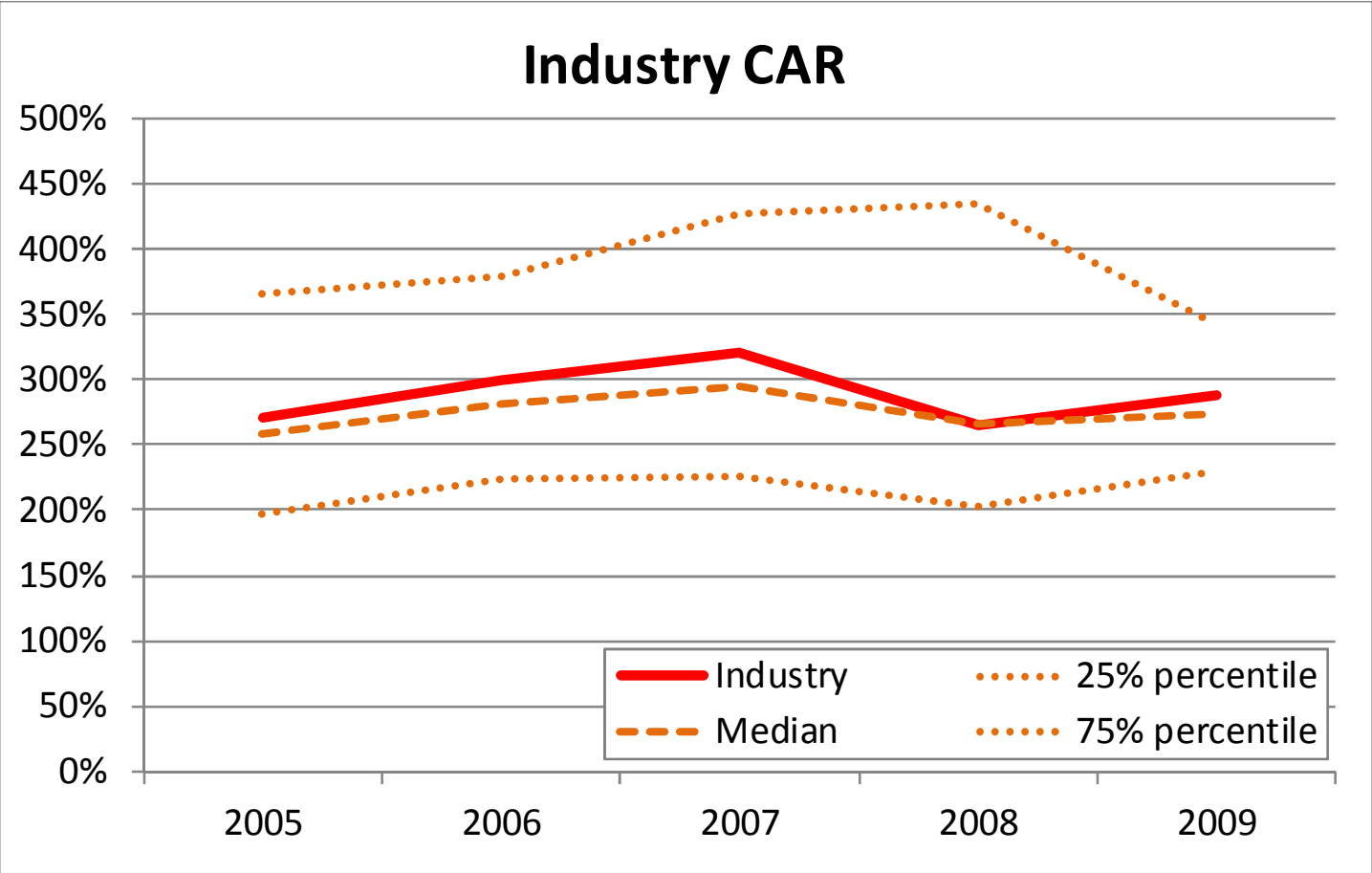
- ▶ Industry CAR (Financial Resources/Risk Requirement):



Results - Singapore



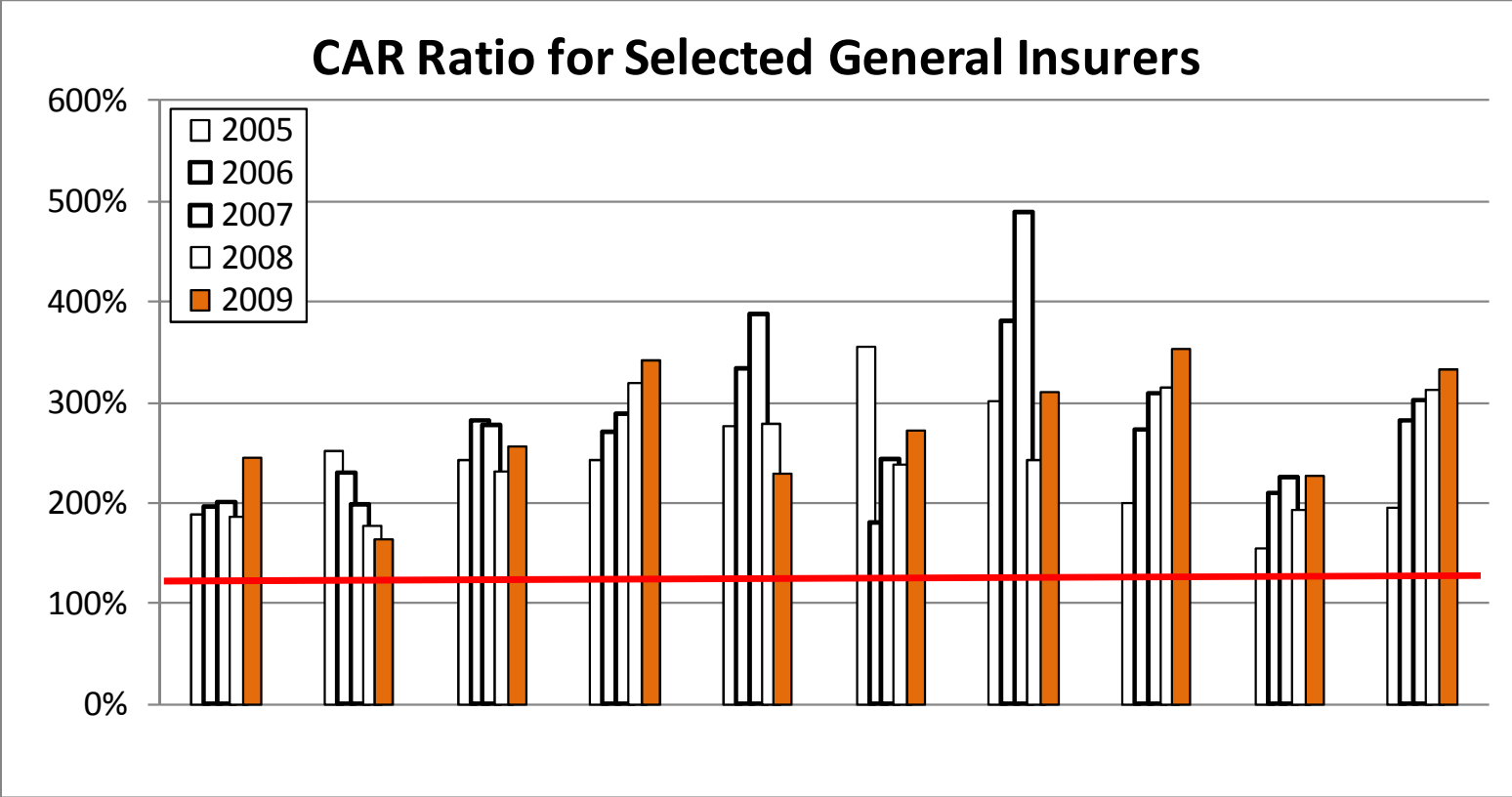
Spread of capitalized general insurers' CAR:



Results - Singapore



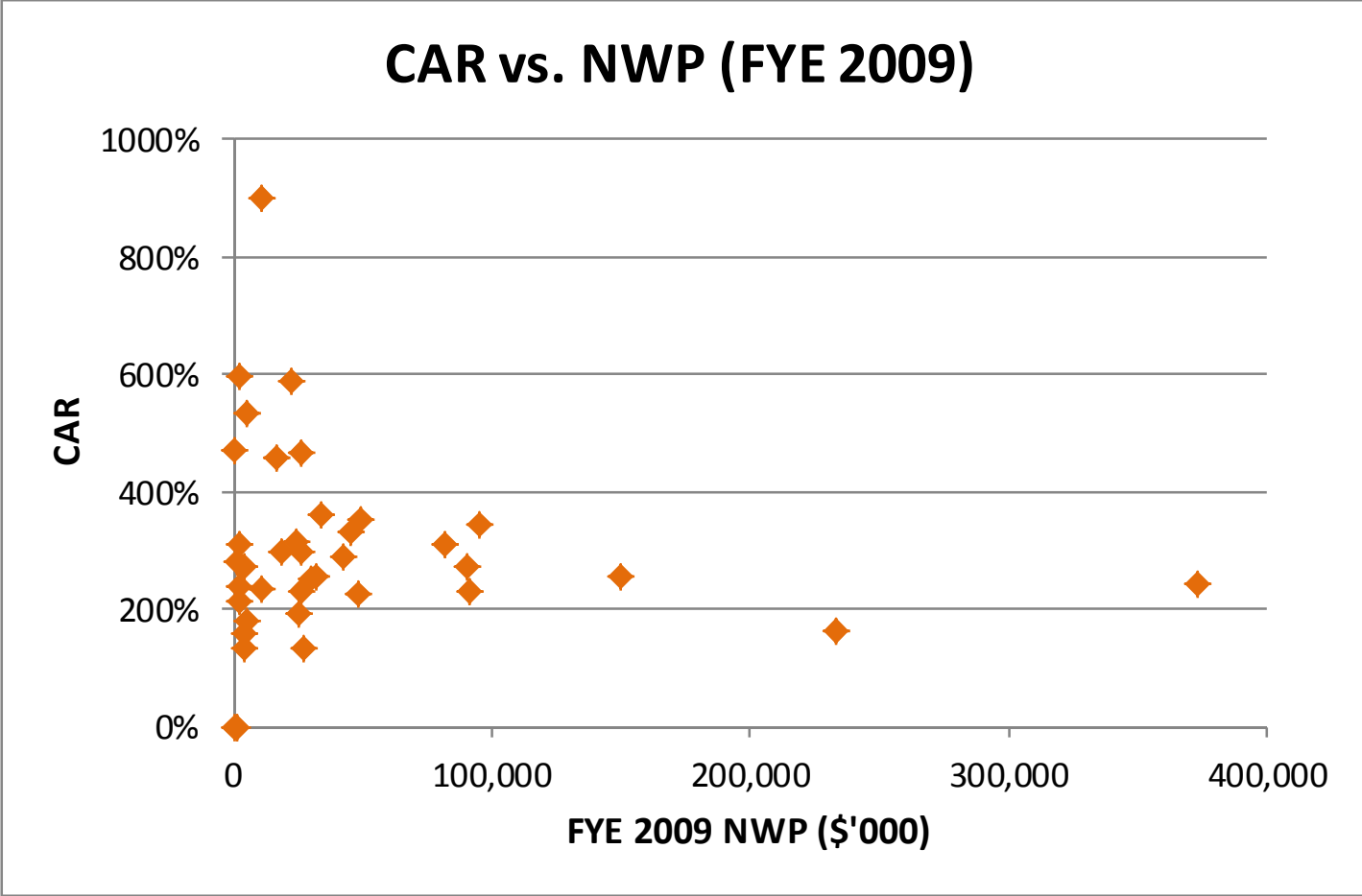
Movement in CAR for top 10 capitalized general insurers :



Results - Singapore



Relationship between CAR movement vs. NWP (FYE 2009):



Results - Singapore



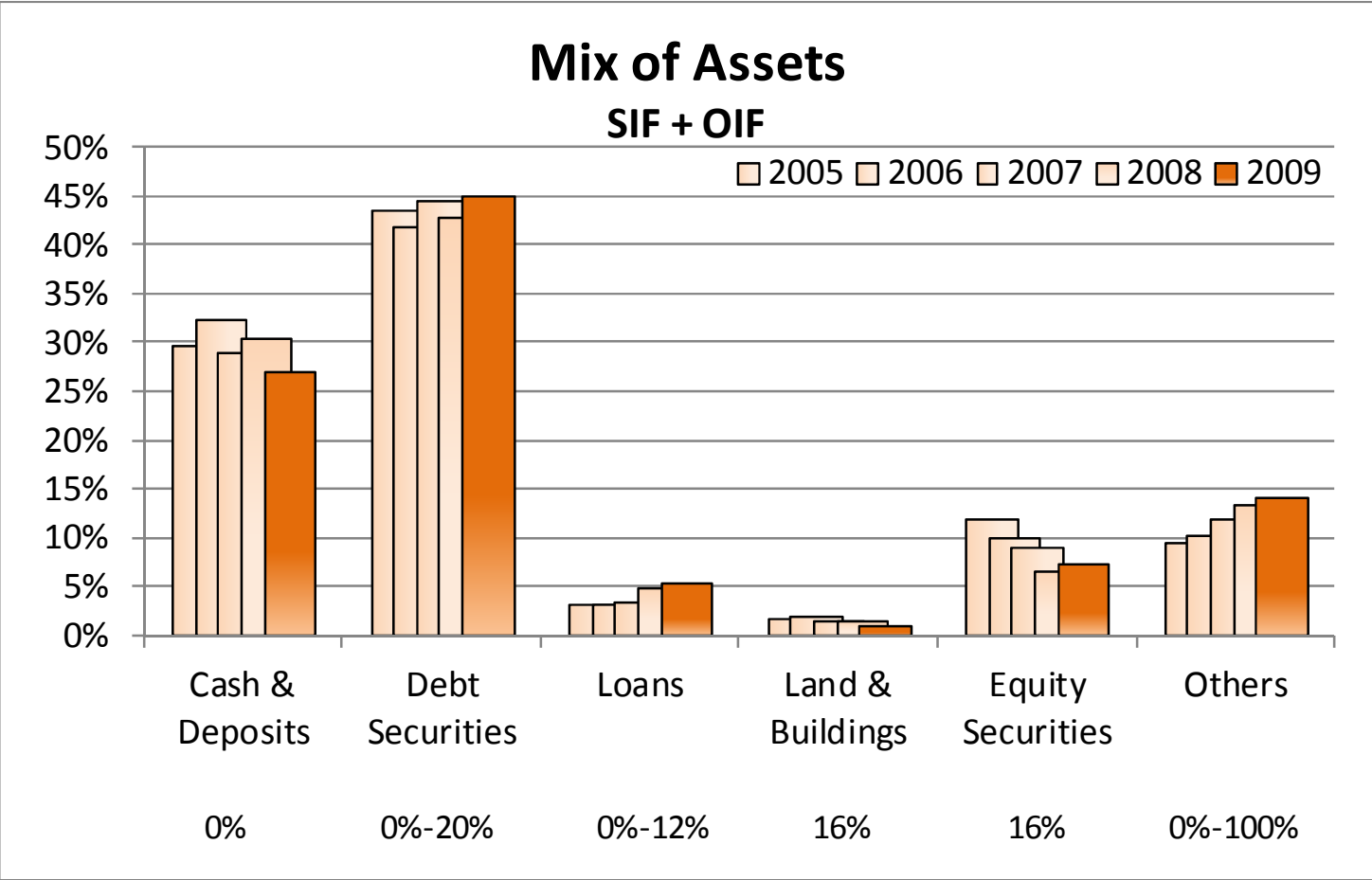
Risk charges under Insurance (Valuation and Capital) Regulations

- ▶ C1 (Insurance Risk) (~68% of total risk charge)
 - Claims Liability : 20% - 30%
 - Premium Liability : 124% - 136%
- ▶ C2 (Market, Credit, Mismatch Risks) (~31%)
 - Equity investment risk (8% specific risk, 8% general risk)
 - *Debt investment risk (0%-8% specific risk, 0%-12.5% general risk)
 - Liability adjustment requirement (adjustment to interest rate)
 - Loan investment risk (0%-12%)
 - Property investment risk (16%)
 - Foreign currency mismatch risk (8%)
 - Derivative counterparty (0%-12%)
 - Miscellaneous (0%-100%)
- ▶ C3 (Concentration Risk) (~1%)

Results - Singapore



Changes in asset mix:



Results - Singapore



Insurance policy liabilities are the major contributor to risk charge (approx. 80% of total risk charge).

Changing the mix in business written can significantly impact the risk charge required for the insurance liability:

- ▶ Look for profitable classes with lower risk charge
- ▶ Level of (claims liability) risk charge by class:
 - 24% : PA, Health, Fire
 - 30% : Cargo, Motor, WC, Bonds, CAR&Eng
 - 36% : Hull, Liability, Professional indemnity

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Malaysia vs. Singapore



Comparison of asset risk charge:

Malaysia:

- ▶ Credit risk (0%-12%)
- ▶ Interest rate (0%-8%)
- ▶ Equity (16%-35%)
- ▶ Property (0%-20%)
- ▶ Currency risk (8%)

Singapore:

- ▶ Debt investment risk (0%-20%)
- ▶ Equity (16%)
- ▶ Property (16%)
- ▶ Foreign asset (8%)

Malaysia vs. Singapore



Comparison of insurance liability risk charge:

Malaysia:

- ▶ Claims liability (20%-30%)
- ▶ Premium liability (30%-45%)
 - Risk factor x 75% URR

E.g. UPR = RM 5m, 75% URR = RM 4m,
Risk Factor = 30%
 $30\% * RM 4m = RM 1.2m$

Singapore:

- ▶ Claims liability (20%-30%)
- ▶ Premium liability (124%-136%)
 - Max [0, Risk factor x 75% URR - PL]

E.g. UPR = \$ 5m, 75% URR = \$ 4m,
Risk Factor = 130%
 $Max [0, \$ 5.2m - \$ 5m] = \$ 0.2m$

Malaysia vs. Singapore



Statutory CAR requirements:

Malaysia:

- ▶ S-CAR : 130%
- ▶ I-CAR: approx. 165% - 200%

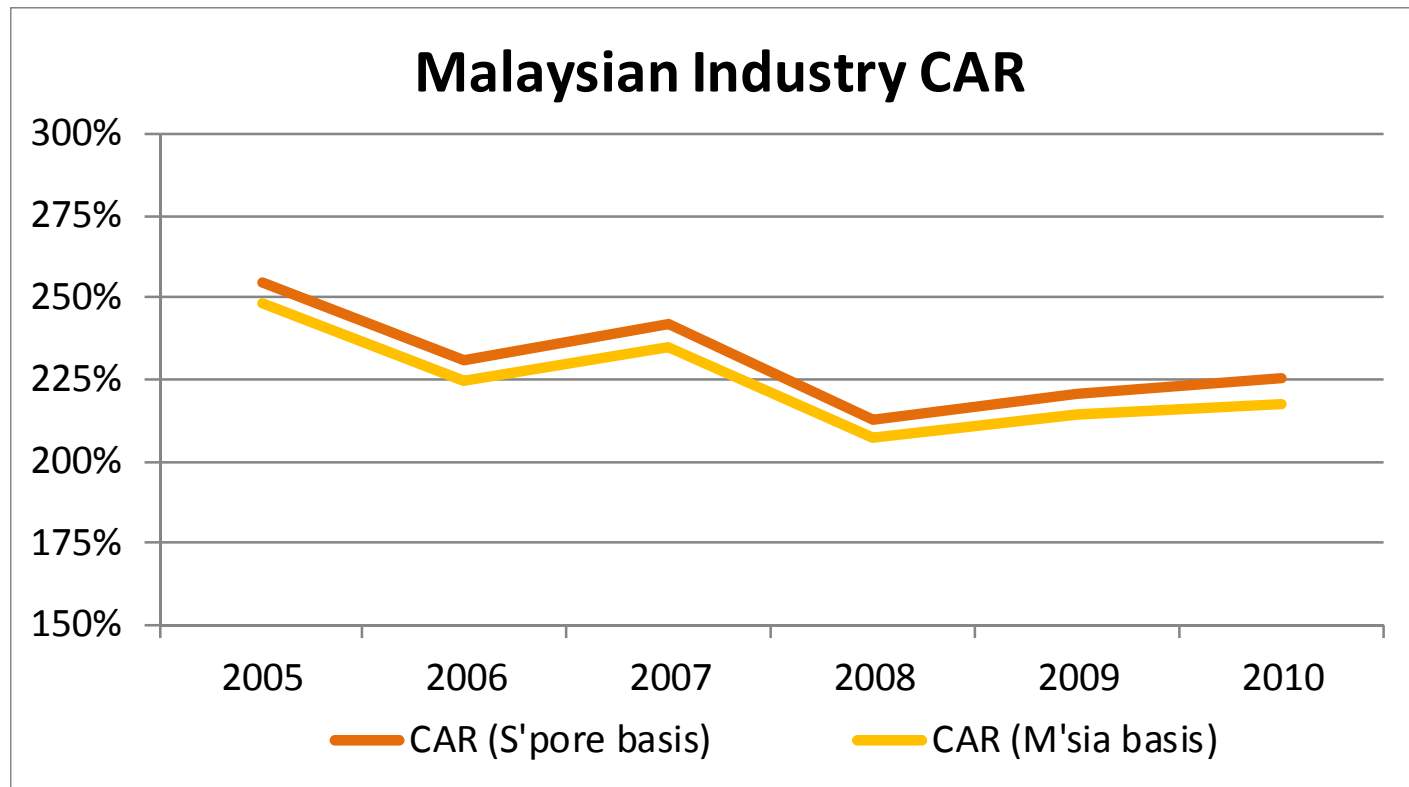
Singapore:

- ▶ 120%
- ▶ Supervisory CAR (exception)

Malaysia vs. Singapore



Applying Singapore capital regulations to Malaysia:



- ▶ At high level analysis, results seem quite similar.
- ▶ Malaysian basis gives CAR that is 6%-7% lower

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How to improve CAR



How to improve CAR:

- ▶ Change in asset mix, or business mix (liability mix)
 - Moving from classes with higher risk charge to lower risk charge

- ▶ Reinsurance arrangements
 - E.g. Loss Portfolio Transfer (immediate impact), Quota Share (gradual impact)

- ▶ Capital injection

- ▶ Reducing business volume

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Conclusion



Conclusion of results:

▶ Malaysia

- RBC has recently been introduced
- CAR deteriorates from 2005-2008, improves from 2008-2009, with observed increase in TCA
- A quarter of general insurers quite close to S-CAR
- Larger companies tend to have lower CAR
- Increase in government bond and decrease in corporate debt proportion

Conclusion



Conclusion of results:

- ▶ Singapore
 - RBC introduced in 2005
 - Increasing trend in CAR, except for 2008
 - Top 10 companies have a higher CAR ratio
 - Main asset classes: cash & debt. Decreasing trend in equity, increasing trend in loans and others.

Conclusion



Conclusion of results:

- ▶ Malaysia vs. Singapore
 - Comparable CAR calculations and asset class risk charge
 - Malaysia has higher CAR requirement
 - Different premium liability calculation



RBC Framework

- ▶ RBC concept is positive
 - Helps insurers understand risks better
 - Creates better transparency within industry and enables comparison between jurisdictions
- ▶ Should not rely on the RBC requirements alone
 - Need to view RBC as part of a more holistic approach
e.g. Stress test
 - Risk management, reinsurance management, etc...
- ▶ Actuarial community need to “step up”
 - Responsible to communicate to stakeholders the risks involved in the insurance business.
 - Need more actuaries!

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How actuaries can be more involved:

- ▶ Under RBC statutory requirements, we need to be able to understand the risks involved, identify opportunities and communicate them to stakeholders.
- ▶ Moving from RBC (formula based) to internal modelling for individual companies. We can help in model building, assumption setting and communicating the uncertainty within the model.
- ▶ CAR represents a snapshot in time. Future outcomes can be modelled for various scenarios.
 - Stress testing introduces stress parameters/scenarios. Next step would be a dynamic financial/solvency model to test company strategies and to introduce economic capital.
- ▶ Taking a step back, we are in the business of managing risks. Beyond the calculations, we can contribute in qualitative risk management (ERM).
- ▶ Reinsurance optimisation, Financial Condition Report

Thank you



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