



SOCIETY OF ACTUARIES

**Advanced Seminar on Principle-Based Capital
September 23, 2009**

Session 5: Implications of Principle-Based Capital

[Hubert B. Mueller, FSA, CERA, MAAA](#)



Advanced PBA Capital Seminar

Implications of Principle-based Capital

Hubert Mueller, Principal

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Agenda

- Implications of the new principle-based regulation (PBR)
- State of the Industry

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IMPLICATIONS OF THE NEW PBR

Implications of PBR on Products

- Assessing, measuring and managing the risks in products using stochastic modeling will be the major change in product development and pricing
- Companies that price using a “deterministic” pricing model will need to educate pricing staff on stochastic approaches
- Substantially more discussion with the Valuation Actuary will be needed
- Need to determine approach to calculate expected principle-based reserve levels for pricing
- Need to increase modeling capabilities/sophistication and size of actuarial staff
- Incorporating hedging into pricing implies using stochastic-on-stochastic scenarios

- Impact on the level of capital and reserves by product and in aggregate is not known yet...

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IMPLICATIONS OF THE NEW PBR

... but of course, we have some ideas as to which direction PB capital could go

Product	Expected Trend for PB Capital (vs RBC)
Term	↘
Accumulation Universal Life	↘
Secondary Guarantee Universal Life	↗
Whole Life	→
Variable Universal Life	↘
Fixed Annuity	↘
Variable Annuity	↗
Group Life	→
Group Health	→

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IMPLICATIONS OF THE NEW PBR

Implications on Pricing Function

- We expect to see a flurry of product development activities
 - Leading-edge companies are using their knowledge of the new regulation by introducing features that mitigate tail risk
- Since principle-based capital applies to all in-force products, we may see some repricing activity
- May see an increase in the frequency of experience studies to develop better dynamic assumptions
- Increased use of stochastic pricing
 - Run without, then with capital included
 - More granular analysis required
 - Companies will need to project future income statements and balance sheets
- Required capital is based on tail risk
 - Rating agency capital models are starting to incorporate the new principle-based methodology
 - Implementing hedging programs can help alleviate increases in RBC requirements

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IMPLICATIONS OF THE NEW PBR

Illustrative Case Study: Hedging can reduce RBC requirements, but may increase reserves

Total Assets for Unhedged VA

Projection Year	Reserve	Capital	Total Assets
1	15	55	70
2	15	45	60
3	15	35	50
4	10	30	40
5	10	20	30
6	10	30	40
7	5	25	30
8	5	15	20
9	5	5	10

Total Assets for Hedged VA

Projection Year	Reserve	Capital	Total Assets
1	45	5	50
2	35	10	45
3	30	10	40
4	25	10	35
5	15	5	20
6	5	0	5
7	0	0	0
8	0	0	0
9	0	0	0

Key points

- Hedging reduces capital but may increase reserves at time 0; TAR is lower with hedging
- Capital reduces over time for both, eventually going to 0 due to reduced in-the-moneyness of living benefit and overall fee revenue

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IMPLICATIONS OF THE NEW PBR

Implications on risk and capital management

- Implementing PBR has enabled companies to better understand and implement Economic Capital (EC)
 - EC has become a key metric for quantifying risk within ERM
- Increased scrutiny of regulators and rating agencies
 - All major U.S. rating agencies are currently developing or enhancing their capital adequacy models
 - Analysis of PB capital implementation as part of ERM/EC assessment
- Focus on efficient use of capital
 - Leveraging regulatory work into better EC models
 - Implementation of EC via stress testing or full stochastic model
- Greater focus on risk management and managing financial volatility
 - More volatility expected in statutory capital/reserves
 - Increased use of captives
 - Risk mitigation requires understanding of tail risk
- Better integration of functions
 - All areas need to work closer together

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IMPLICATIONS OF THE NEW PBR

Two approaches have emerged as the most common ways to define EC


- A real-world liability runoff approach
 - The level of total initial assets, less some measure of reserves for liabilities, required to pay all future policyholder benefits at the chosen confidence level
- A one-year mark-to-market approach
 - The level of assets, in addition to the market value of liabilities, needed to cover a fall in the market value of net assets over a one-year time horizon at the chosen confidence level
- In deciding on which approach to use, insurers need to consider a number of factors:
 - Objectives and intended applications of EC framework
 - Constraints (in implementation and ongoing)
 - Nature of the business and underlying risks

US PBR approach is more in line with the real-world runoff approach

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IMPLICATIONS OF THE NEW PBR



Implications on Competitiveness

- Before PBR, all companies experienced very similar drag on results due to redundant asset requirement
- Companies that found lower cost financing alternatives greatly improved price
 - The securitization market has pretty much dried up, though
- Increasing underwriting exceptions to place more cases to make sales in year X can destroy profitability in year X+2
- Emerging experience increases the pressure to unlock an assumption
 - PBR requires margins

Greater cost of being wrong

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IMPLICATIONS OF THE NEW PBR

Implications on volatility of statutory gains/losses

- No DAC to cushion the blow of a change in assumption
- All changes flow through dollar for dollar to equity since tax offset very unlikely
 - Not aware of smoothing/transition rules as with C-3 Phase II
 - PV of an assumption change can be more than 10x a year's expected profit
- Statutory income will get a higher level of scrutiny than ever before
- Companies are increasingly looking to captive reinsurance arrangements to reduce on-shore volatility
- Greater scrutiny on modeling risks
 - Use of internal models places onus on the Valuation Actuary

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IMPLICATIONS OF THE NEW PBR

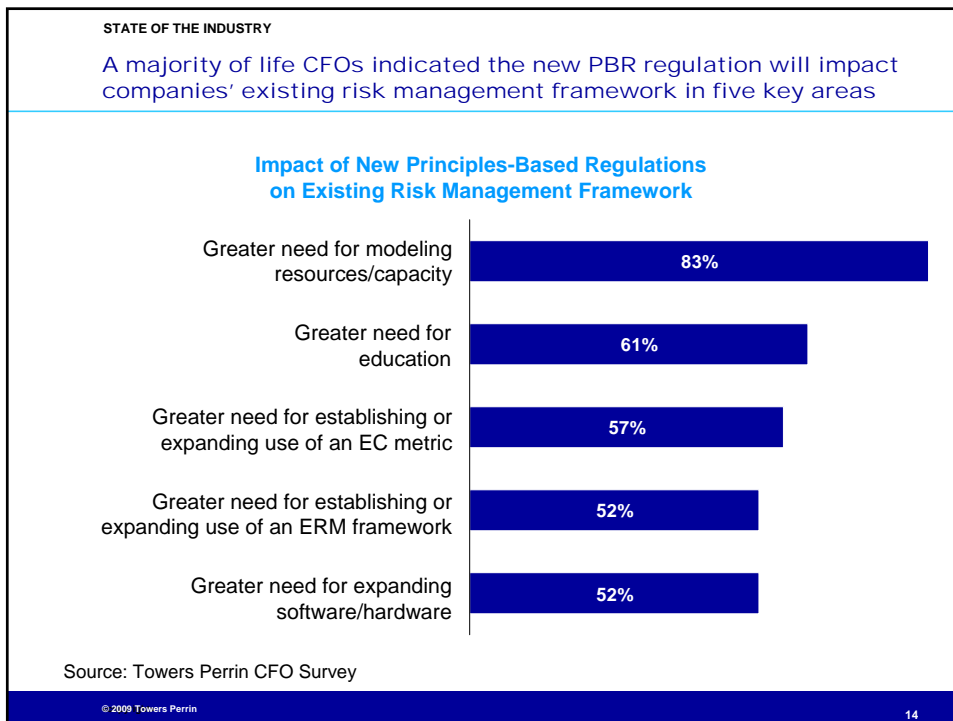
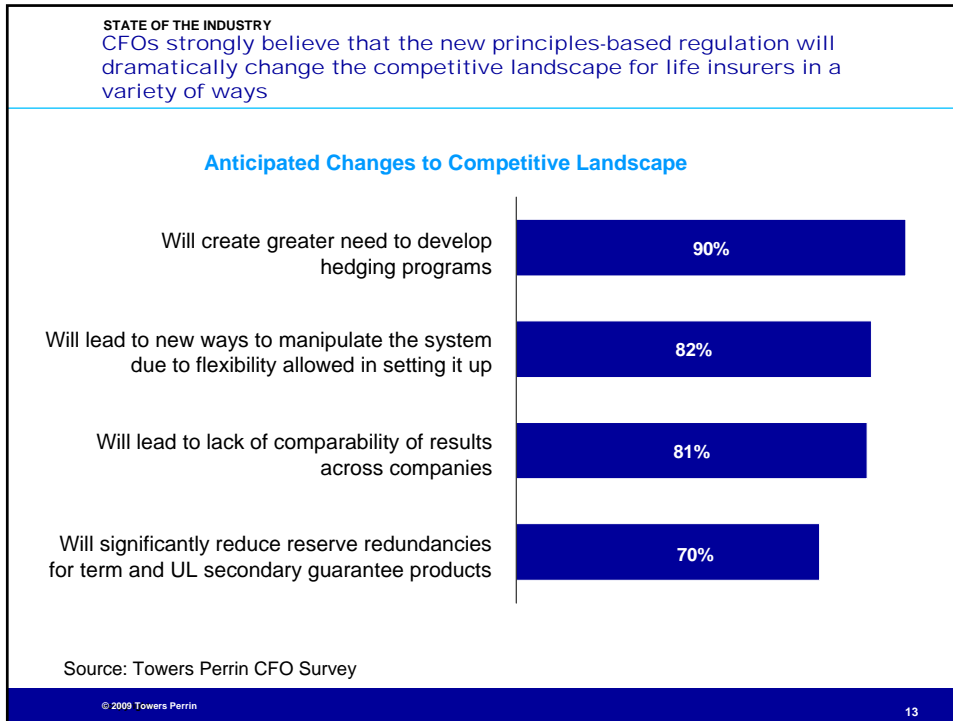
Implications on dynamic behavior

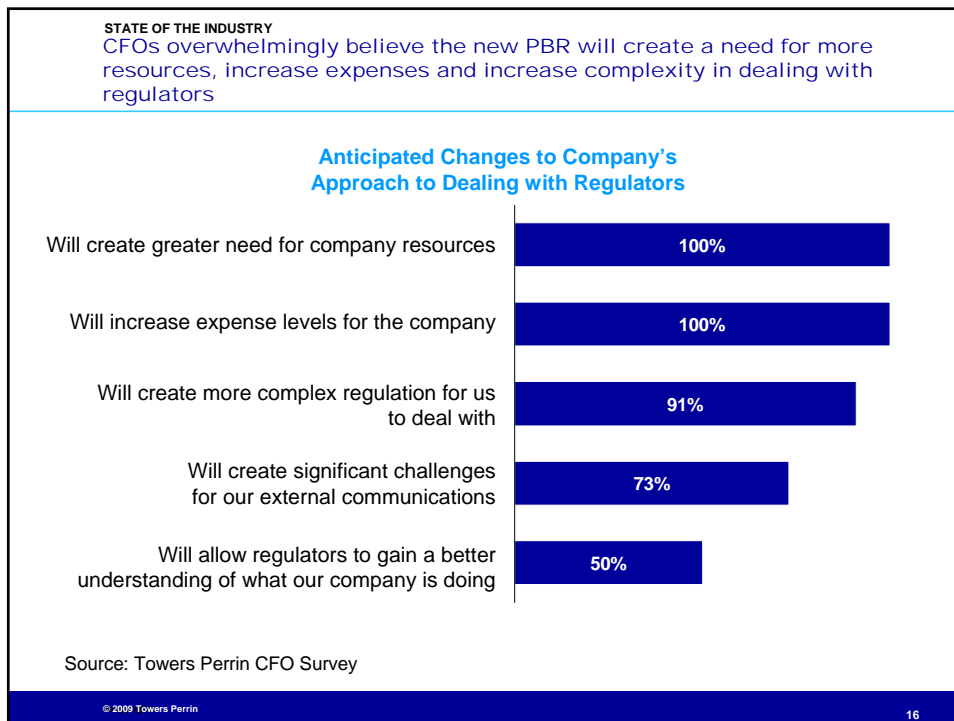
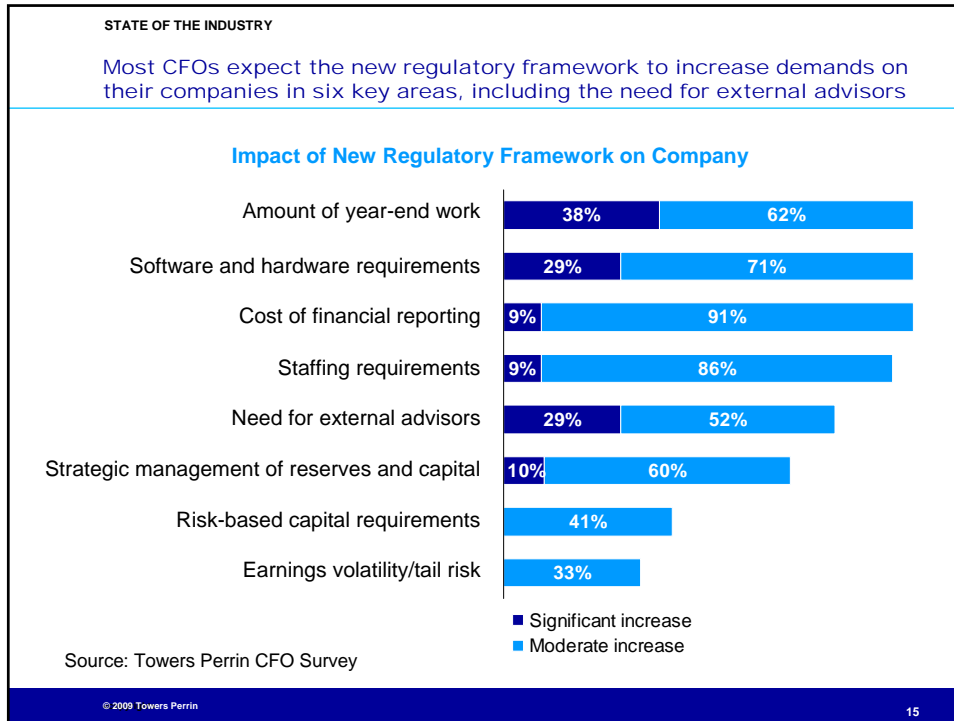
- Surrenders now important to statutory reserve calculations
- For lapse supported products, reserves will be very sensitive to persistency assumptions and even more so to their slope and to shock lapses
 - Again, consider the “cost” of being wrong on a block’s profitability
- Consider the end of the level term period
 - No longer necessarily zero reserve at end
 - Anti-selection can easily require a reserve
 - Zero lapses not necessarily conservative

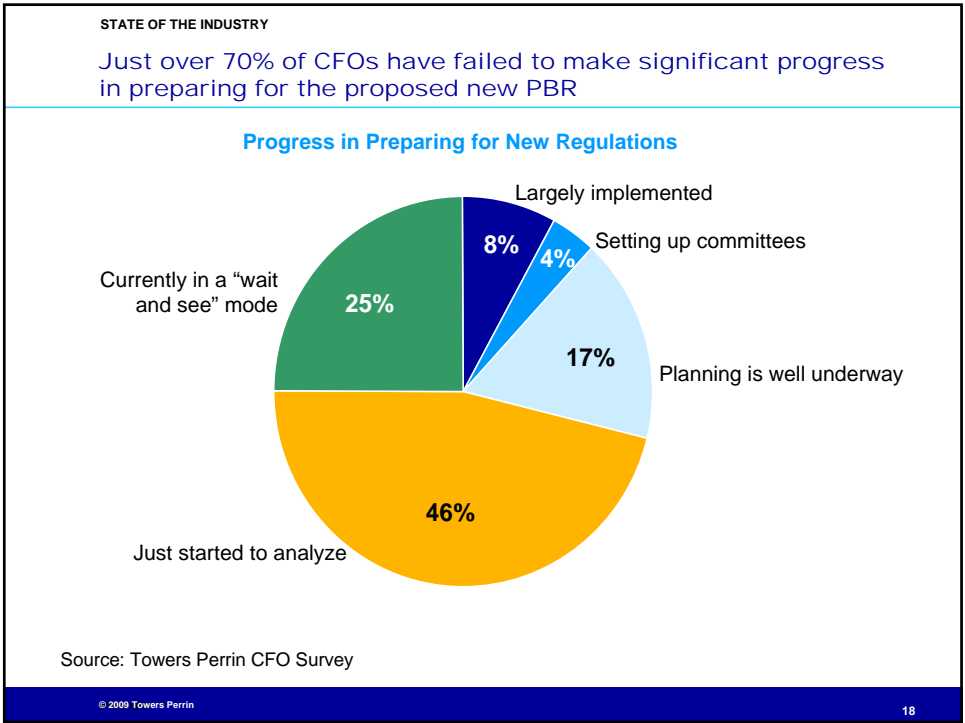
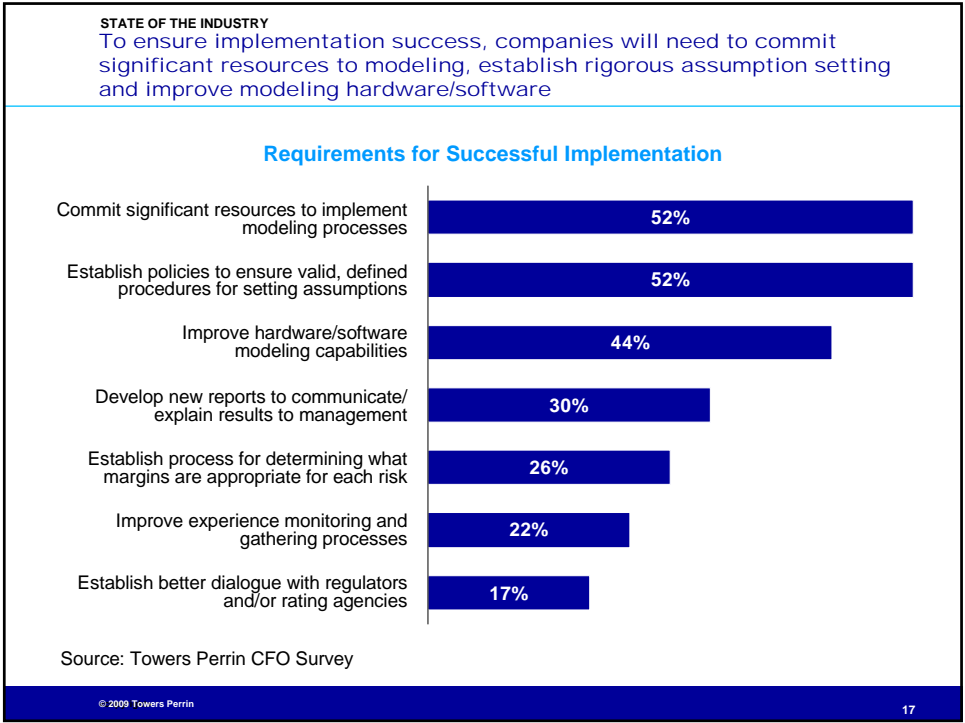
IMPLICATIONS OF THE NEW PBR

Implications on organizational resources

- Greater freedom = greater responsibility
- Need significant hardware / software investments
- Increased cost of financial reporting
- Shortage of modeling actuaries (industry-wide)
- Need more education / training (understanding the tail)
 - Most companies do have a proper understanding of their risk appetite / risk tolerances
 - Link in with hedging results (if using a CDHS)







STATE OF THE INDUSTRY

Conclusions

- The status quo is not going to work for companies as they adapt to principle-based regulation
- Preparing for and analyzing the potential impact of this new regulation should be a major priority for life insurers
- Implementation of the proposed principle-based framework is a landmark undertaking that will lead to further bifurcation in the industry
 - Larger, more sophisticated companies will be better able to capitalize on the new rules through new products and risk management techniques
 - May need replicating portfolios to project future balance sheets
- Leading-edge companies are already seizing opportunity to forge ahead (eg on VA)
 - Innovative products with lower tail risk

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- Lower cost of capital and reserves

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- More competitive pricing/lower cost to consumers

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Contact



Hubert Mueller, FSA, CERA, MAAA
Principal, Towers Perrin
175 Powder Forest Drive
Weatogue, CT 06089-9658

Telephone: 1-860-843-7079
Fax: 1-860-843-7001

E-Mail: hubert.mueller@towersperrin.com
Internet: www.towersperrin.com

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