



*PBR: What does it mean for  
smaller companies*

Alexandre Lemieux, FSA, MAAA  
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## *Agenda*

- 1. Companywide exclusion**
- 2. Deterministic exclusion**
- 3. Stochastic exclusion**

**Part 4 (also known as the key part):  
What it all means.**

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# *Companywide Exclusion*

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## ***Small Company Exemption***

*NAIC has outlined the requirements to be exempted from PBR*

This exemption would apply to the entire company if the following conditions are met:

- **Premium threshold:** The company's ordinary life premiums must be less than \$300M for the legal entity and less than \$600M for the associated group (based on premium in exhibit 1)
- **Risk-Based Capital (RBC) threshold:** The company's RBC must be at least 450%.
- **ULSGs:** There can be no material Universal Life with secondary guaranty business in force.
- **Reserve methodology** that applies for exempted companies is CRVM

**Key Point: This excludes all products from the PBR requirement**

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# *Deterministic Exclusion Test*

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## ***Deterministic Exclusion Test (DET)***

*DET allows groups of policies to be excluded from deterministic reserve calculation*

### **A company can elect to not calculate deterministic reserves for a group of policies that passes the DET**

- A group of policies passes the DET if

$$\sum \text{Valuation net premiums for DET} < \sum \text{Corresponding guaranteed gross premiums}$$

- ULSG and groups of policies which are not excluded from the stochastic reserve requirement are deemed to fail the DET.
- Companies may not group together policies of different contract types with significantly different risk profiles for this calculation.
- For term policies subject to shock lapses under VM-20, the comparison of valuation net premiums to guaranteed gross premium shall be performed considering only the initial premium period.

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## ***Deterministic Exclusion Test (DET)***

*Different policies have different stipulations around net premium*

### **For purposes of the DET, the valuation net premiums shall be calculated as follows.**

- Valuation net premiums need not be calculated for ULSG since ULSG is deemed to fail the DET.
- For term life insurance policies, the valuation net premiums shall be set equal to the VM-20 valuation net premiums with the following adjustments:
  - Lapses for all durations are = 0%.
  - If the APV of future death benefits using anticipated mortality > the APV of future death benefits using valuation mortality, then substitute the anticipated mortality to determine the net premium. For this purpose, the APV reflects discounting at the valuation interest rate used for the net premium.
- For all other policies, the valuation net premium is the amount determined according to VM-A/C

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## ***Deterministic Exclusion Test (DET)***

*Different policies have different stipulations around gross premium*

**For purposes of the DET, the gross premiums shall be calculated as follows.**

- Gross premiums need not be defined for ULSG since ULSG is deemed to fail the DET.
- For UL policies without SG, the guaranteed gross premium shall be the premium specified in the contract, or if no premium is specified, the level annual gross premium at issue that would keep the policy in force for the entire period coverage is to be provided based on the policy guarantees of mortality, interest, and expenses.
- For all other policies, the guaranteed gross premiums shall be the guaranteed premium specified in the contract.



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## ***Deterministic Exclusion Test (DET)***

### **Closed blocks of business are eligible for less frequent testing.**

- If a group of policies no longer adds new issues and the test has been passed for 3 consecutive years, the group passes until deemed otherwise.
- For each closed block group that is deemed to pass by virtue of this test, the test must be computed at least once each 5 years going forward.
- If a closed block fails this test when re-tested under the 5 year rule, the company will then need to keep testing this block until it passes the test for 3 consecutive years.

# *Stochastic Exclusion Test*

## ***Stochastic Exclusion Test***

*Three potential ways to pass the SET and eliminate a block of business from stochastic testing*

**A company can elect to not calculate stochastic reserves for a group of policies that passes the SET**

### **3 Ways to Pass the SET**

#### **Methodology**

- Stochastic Exclusion Ratio Test (SERT)
- Stochastic Exclusion Demonstration Test
- Certification by a qualified actuary that the group of policies is not subject to material interest rate risk or asset return volatility.

#### **Applicability and/or Frequency**

- Annual test
- First year & every 3 years thereafter; include in PBR actuarial report
- First year & every 3 years thereafter; cannot be applied to variable life or ULSG; available to commissioner upon request

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## ***Stochastic Exclusion Ratio Test (SERT)***

*The SERT test uses the deterministic model to validate that a block is non-variable*

### **Basics of the SERT:**

- The SERT attempts to measure, via a small representative set of scenarios, the degree of scenario reserve dispersion that may exist for a group of policies if a full set of stochastic scenarios were run.
- The test involves calculating scenario results for 16 adjusted deterministic scenarios<sup>1</sup> and applying these results in the SERT to measure potential scenario reserve dispersion.
- The scenario reserve dispersion is a function of the difference between the worst of the adjusted deterministic scenario reserves and the adjusted baseline deterministic reserve.
- The dispersion is measured relative to the present value of benefits net of reinsurance ceded. As a result, groups of policies that are heavily ceded may encounter problems passing the SERT.

<sup>1</sup> 9 scenarios for non-variable business

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## ***Stochastic Exclusion Ratio Test (SERT)***

*Goal is to identify relative insensitivity of base reserves to interest rate scenarios*

**A group of policies passes the SERT if:**

$$\frac{(b - a)}{c} < 4.5\%$$

a = the adjusted deterministic reserve using the baseline economic scenario, scenario #9

b = the largest adjusted deterministic reserve under any of the other 15 economic scenarios

c = PV of [benefits (death benefits, surrender or withdrawal benefits and policyholder dividends) computed under the baseline economic scenario and reduced by ceded benefits]<sup>1</sup>

<sup>1</sup> The discount rate for computing the PV is the same as that used in (a) above.

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## ***Stochastic Exclusion Ratio Test (SERT)***

*Adjust deterministic assumptions for performance of the SERT*

**The adjusted deterministic reserve is the amount calculated under the deterministic reserve section of VM-20 with the following modifications**

- Use anticipated mortality with no margins
  - Anticipated mortality experience assumption is determined by removing the prescribed margin from the prudent estimate assumption.
  - The resulting anticipated experience assumptions must be no lower than the mortality rates that are actually expected to emerge and that the company can justify. The company must disclose this conclusion in the PBR Actuarial Report.
- Use the interest rate and equity return assumptions specific to each scenario.
- Use NAER specific to each scenario to discount cash flows.

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## ***Stochastic Exclusion Ratio Test (SERT)***

### *Additional requirements in the SERT computation*

#### **When computing the SERT, the following apply**

- Use the most current available baseline economic scenario and 15 other NAIC economic scenarios (VM-20, appendix 1; updated each January).
- Use anticipated experience assumptions within each scenario that are dynamically adjusted as appropriate for consistency with each scenario.
- May not group together contract types with significantly different risk profiles for purposes of calculating the ratio.
- Mortality improvement beyond the projection start date may not be reflected in anticipated experience assumptions in SERT.

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## ***Stochastic Exclusion Demonstration Test (SED)***

*Alternative approach is to demonstrate that under a number of scenarios that the stochastic reserve would always be lower*

**The demonstration shall provide reasonable assurance that if the Stochastic Reserve were calculated, the minimum reserve would not increase**

- Demonstration should reflect whether the changing conditions in current and 2 subsequent years might impact the conclusion.
- Demonstration shall provide an effective evaluation of the residual risk exposure remaining after risk mitigation and derivative programs.
- If the company determines that the minimum reserves for the group of policies is no longer adequate, the exclusion shall be discontinued and the group of policies shall be deemed to fail the exclusion test



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## ***Stochastic Exclusion Demonstration Test (SED)***

*The acceptable testing methods could include*

- Acceptable methods:
  - Demonstrate the  $\text{MAX}[\text{DR}, \text{NPR-DPA}] >$  stochastic reserve on a standalone basis
  - Demonstrate the  $\text{MAX}[\text{DR}, \text{NPR-DPA}] >$  scenario reserves for sufficient number of adverse scenarios
  - Demonstrate the  $\text{MAX}[\text{DR}, \text{NPR-DPA}] >$  stochastic reserve on a standalone basis using representative sample of policies
- Overall the methodologies will rely on a certain amount of judgment by the actuary
- Discussions with the state regulator should be had to establish acceptable practice

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## ***Certification by a Qualified Actuary***

### *Sufficient documentation*

**The qualified actuary should sufficiently document so that another actuary can understand the analysis**

### **Examples:**

- Demonstrate reserves for group of policies are  $\geq$  assets required under 16 deterministic scenarios using the company's CFT models.
- Demonstrate reserves for group of policies are  $\geq$  assets required under NY7 scenarios for CFT.
- Demonstration that the group of policies passed the SERT within 36 months prior and the company has not had a material change in its interest rate risk.
- A qualitative risk assessment of the group of policies that concludes that the group of policies does not have material interest rate risk or asset return volatility

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*What does it mean.*

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## ***Exemption Considerations***

*The full company exemption does offer benefits in terms of effort and cost*

- The small company exclusion will permit the company to avoid implementing PBR
  - Eliminate conversion expense and effort
  - Limits need for new systems and processes
  - Limits exposure to PBR volatility
  - 2017 CSO can still be used by companies who do not adopt PBR

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## ***Exemption Considerations***

*As with everything there are some downsides*

- However, there is a risk that by not implementing PBR an insurance company may be left behind
  - New product designs will be based on PBR
  - ALM matching benefits will be reflected in reserves; well-matched companies will be able to pass savings to policyholders
  - Risk groupings can be used to achieve reserve efficiency
  - PBR for annuities is next up; what will valuation look like in 2030?

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## ***Exclusion Test Considerations***

*Companies who do not elect (or do not meet) the company exclusion test may still elect some reserve exclusions*

- SET/DET Consideration
  - Testing for DET still requires buildout of deterministic models
  - Deterministic model is not necessarily the same as the CFT model but can be substantially similar
  - Stochastic models may need to be built requiring considerable effort
    - Not needed to pass SET but needed to pass DET
- Most quarter-end calendars will have reserve reporting requirements around business day 10
  - Roll-forward methodologies will have to be considered for DR

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## ***Exclusion Test Considerations***

*Reminder that meeting the SET/DET would not exempt a company from increased governance requirements*

- Passing the SET/DET leaves increased governance requirements
  - Appointed Actuaries report
  - Board responsibilities

<b>Board Responsibilities</b>	<b>Management Responsibilities</b>
<ul style="list-style-type: none"><li>• Understand the process undertaken by management including infrastructure put in place to implement and oversee principle-based reserving process</li><li>• Evaluate the information provided by management to determine what additional information is necessary to rely on the principle-based reserve valuation function.</li><li>• The degree of oversight should be commensurate with the materiality of the PBR reserves</li></ul>	<ul style="list-style-type: none"><li>• The Appointed Actuary will present a report on the PBR reserves annually to the Board. The report will identify the critical risk elements related to the assumptions, methods and models.</li><li>• The PBR report will summarize the general level of conservatism in the reserves and the materiality of the PBR reserves in relationship to the total reserves of the company.</li><li>• Internal audit will provide an annual certification on the effectiveness of internal controls.</li></ul>

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## ***One more advantages of implementing PBR***

*Companies will have new focus on assumption setting*

- Major benefit of PBR might be the improvement in management and risk reporting
- Experience gains/losses will now dynamically track how accurate your pricing assumptions are relative to experience
  - This will be valid for liability and asset assumptions
- Risk reporting will be more dynamic especially around policyholder behavior
- Cash flow expectations will make dynamic validation easier to perform allowing model refinements



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## ***Sample timeline for implementation***

*Below is a very simple timeline illustrating how PBR could be implemented*

### Accomplishments to date

1. Actively monitoring regulatory developments related to PBR
2. Education of PBR implications to all affected functional areas
3. Initial estimates of financial impacts
4. Resource and implementation plan development
5. Decisions around adoption phases made

### Next steps

1. Implementation steps underway
2. Parallel workstreams in system implementation, assumption determination, documentation
3. Communication with pricing and analysis of any proposed premium changes
4. Proforma calculations and reporting package as of third quarter, 2016
5. Model testing and validation completed prior to production
6. Estimated change to balance sheet including change in capital
7. PBR reporting live first quarter 2017 for [all/certain] products

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***Thank You***

**Questions?**

**If you need to reach me:**

**Alexandre Lemieux**

**303-358-0061**

**Alexandre.Lemieux@pwc.com**