

# Fair Value of P&C Liabilities: Practical Implications

The Casualty Actuarial Society



Arlington, Virginia

© 2004 Casualty Actuarial Society. All rights reserved  
Printed in the United States of America

Casualty Actuarial Society  
1100 N. Glebe Road, Suite 600  
Arlington, Virginia 22201  
(703) 276-3100  
Fax: (703) 276-3108  
[www.casact.org](http://www.casact.org)

ISBN 0-9624762-3-4 (paper)

“How Might the Presentation of Liabilities at Fair Value Have Affected the Reported Results of U.S. Property and Casualty Insurers?” © 2004 Towers Perrin and  
“An Investigation of Practical Matters Related to Implementing Fair Value Accounting for Property/Casualty Loss Reserves” © 2004 PricewaterhouseCoopers LLP are reprinted and distributed by the Casualty Actuarial Society with permission.

Permission to reproduce or transmit in any form or by any means, electronic or mechanical, including photocopying and recording, or by an information storage and retrieval system must be obtained in writing from the Casualty Actuarial Society.

# Contents

Introduction .....	ix
<b>How Might the Presentation of Liabilities at Fair Value Have Affected the Reported Results of U.S. Property and Casualty Insurers?.....</b>	<b>1</b>
List of Exhibits.....	2
<b>1. Executive Summary.....</b>	<b>3</b>
Research Approach.....	3
Impact of Fair Value on Financial Results.....	5
Conclusions and Implications.....	6
Reliability.....	7
Relevance .....	7
Cost.....	8
<b>2. Introduction.....</b>	<b>9</b>
2.1 Goals of the Paper.....	9
2.2 Who We Are .....	10
2.3 Funding for the Study.....	10
2.4 Roadmap to the Paper.....	11
<b>3. Background .....</b>	<b>13</b>
3.1 Definition of Fair Value .....	13
3.2 Fair Value in a Property and Casualty Insurance Context .....	16
3.3 Estimating the Fair Value of Policy Benefit Liabilities .....	19
3.4 Status of IASB and FASB Deliberations .....	20
Financial Accounting Standards Board .....	20
International Accounting Standards Board.....	21
3.5 Considerations in Evaluating the Fair Value Proposal .....	22
Reliability of the Measure .....	23
Relevance to Users.....	23
Comparability and Consistency of the Measure.....	23
<b>4. Scope of Inquiry .....</b>	<b>25</b>
4.1 Limitations on Scope of Analysis.....	25
4.2 Data Limitations .....	26
<b>5. Research Approach .....</b>	<b>28</b>
5.1 Overview.....	28
5.2 Published Regulatory Financial Data.....	29
5.3 Adjustments to Convert Data to Current U.S. GAAP .....	30
5.4 Discounting for the Time Value of Money .....	31
Development of Payment Pattern Assumptions to	
Project the Future Cash Flows .....	32
Selecting an Interest Rate for Discounting .....	37
Applying the Discount Rates to the Projected Cash Flows .....	39
5.5 Market Risk Margins .....	41
Issues Relating to the Definition and Measurement of Risk.....	42
Overview of Our Approach to Measuring Market Risk Margins.....	43
Empirical Market Pricing Risk Margins.....	45
Measuring Reserving Risk and Deriving Market Reserve Risk Margins.....	50

<b>6. Impact of Fair Value on Financial Results.....</b>	<b>57</b>
6.1 Balance Sheet Impact .....	57
6.2 Income Statement Impact .....	62
<b>7. Conclusions and Implications .....</b>	<b>80</b>
Reliability .....	80
Relevance .....	83
Cost.....	83
<b>8. Technical Appendix.....</b>	<b>84</b>
8.1 Developing the Financial Data.....	84
Published Regulatory Financial Data.....	87
Adjustments to Convert Data to U.S. GAAP .....	89
8.2 Time Value of Money Adjustment.....	93
Schedule P .....	93
Step 1 – Projecting the Future Cash Flows .....	95
Step 2 – Selecting an Interest Rate.....	96
Step 3 – Applying the Discount Rates .....	99
8.3 Market Risk Margin Adjustment.....	100
Step 1 — Pricing Risk Margin .....	100
Step 2 — Pricing Volatility.....	102
Step 3 — Reserve Volatility.....	102
Step 4 — Reserve Market Risk Margins .....	106
8.4 Bibliography .....	107
Research Papers .....	107
Accounting Standards .....	107
Public Data Referenced .....	108

<b>An Investigation of Practical Matters Related to Implementing Fair Value Accounting for Property/Casualty Loss Reserves.....</b>	<b>115</b>
<b>Background .....</b>	<b>116</b>
<b>Scope &amp; Objectives.....</b>	<b>118</b>
<b>Executive Summary.....</b>	<b>120</b>
Findings.....	120
Discounting Methods .....	120
MVM Methods .....	120
Balance Sheet (Loss Reserves).....	121
Income Statement (Incurred Losses).....	121
Significant Issues .....	123
Discounting and MVM Modeling Issues .....	123
MVM Estimation Issues.....	123
Financial Statement Presentation Issues .....	124
<b>Data.....</b>	<b>125</b>
Interest Rates.....	125
Loss Data.....	125
Experience Period .....	125
Companies & Lines of Business.....	125

<b>Methodology .....</b>	<b>127</b>
Discounting .....	127
MVM Methods.....	127
Return on Capital (ROC) Method.....	128
Development Method (DM).....	128
Stochastic Simulation (SS) Models .....	129
MVM Model Calibration .....	130
<b>Analysis .....</b>	<b>132</b>
Discounting .....	132
Personal Auto Liability.....	133
Indicated Market Value Margins .....	133
Indicated Fair Value Factors .....	137
Impact on Calendar Year Incurred Losses .....	140
Impact by Accident Year.....	143
Workers' Compensation .....	147
Indicated Market Value Margins .....	147
Fair Value Factors.....	150
Impact on Calendar Year Incurred Losses .....	152
Impact by Accident Year.....	155
Medical Malpractice (Claims-Made).....	158
Fair Value Factors.....	161
Calendar Year Incurred Loss (CYIL) Impacts .....	163
Impact by Accident Year.....	165
References.....	167
<b>Appendix .....</b>	<b>168</b>
Company Size Criteria.....	168
Interest Rates.....	168
Return on Capital Model .....	169
Development Model.....	170
Stochastic Simulation Method .....	172
Model Calibration .....	173
Definitions/Abbreviations .....	175
 <b>Casualty Actuarial Society Request for Proposals: Research Project on Practical Implications of Fair Value of P&amp;C Liabilities .....</b>	 <b>177</b>