OLIVER WYMAN

Oliver Wyman Actuarial Consulting

Date October 5, 2009

CAS In Focus: The Underwriting Cycle Seminar LL1: Managing Insurance/ Reinsurance Portfolios Through the Cycle

Rich Lino, Princeton, NJ

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BASIC PLANNING MODEL OF KEY DRIVERS

Impact of Key Drivers on Loss Ratio – Steady State (Year 2003)

		Premium		Loss	Loss Ratio
1	Base Policy Year (2002)	1,000		600	60.0%
	Renewal				
2	Retention (to Base Year)	80.0%		80.0%	
3	Rate Change / Loss Trend	105.0%	/	105.0%	
4	Underwriting Change			97.1%	
5	Renewal - Forecast Year	840		489	58.3%
	New				
6	New Exposure (to Base Year)	20.0%		20.0%	
7	Loss Ratio: New / R/N Fcst Yr			115.0%	115.0%
8	New - Forecast Year	210		141	67.0%
	Total				
9	Forecast Policy Year (2003)	1,050		630	60.0%

Rows 1 to 3 and 7: assumptions

Row 4: solve for value that results in forecast loss ratio same as base year

Row 5: premium = 1 * 2 * 3; loss = 1 * 2 * 3 * 4

Row 8: premium = 5 * 6 / 2; loss = 5 * 6 / 2 * 7

Row 9 = 5 + 8

Impact of Key Drivers on Loss Ratio
Soft Market (Year 2004)

		Premium		Loss	Loss Ratio
1	**Base Policy Year (2003)**	1,050		630	60.0%
	Renewal				
2	**Retention (to Base Year)**	75.0%		75.0%	
3	**Rate Change / Loss Trend**	100.0%	/	105.0%	
4	**Underwriting Change**			98.52%	
5	**Renewal - Forecast Year**	788		489	62.1%
	New				
6	**New Exposure (to Base Year)**	30.0%		30.0%	
7	**Loss Ratio: New / R/N Fcst Yr**			125.0%	125.0%
8	**New - Forecast Year**	315		244	77.6%
	Total				
9	**Forecast Policy Year (2004)**	1,103		733	66.5%
10	**Trended On-Level Loss Ratio (Traditional Method)**				63.0%

Changes in Assumptions from Steady-State

Impact of Key Drivers on Loss Ratio
Soft Market (Year 2008)

		Premium		Loss	Loss Ratio
1	Base Policy Year (2007)	1,276		1,156	90.6%
	Renewal				
2	Retention (to Base Year)	75.0%		75.0%	
3	Rate Change / Loss Trend	100.0%	/	105.0%	
4	Underwriting Change			98.5%	
5	Renewal - Forecast Year	957		897	93.7%
	New				
6	New Exposure (to Base Year)	30.0%		30.0%	
7	Loss Ratio: New / R/N Fcst Yr			125.0%	125.0%
8	New - Forecast Year	383		448	117.1%
	Total				
9	Forecast Policy Year (2008)	1,340		1,345	100.4%

Trended On-Level Loss Ratio for 2008 (TOLLR)
Soft Market Bias of Traditional Method

Year	L/R Actual	Price Index	Loss Index	TOLLR
1999	60.0%	100%	100%	76.6%
2000	60.0%	105%	105%	76.6%
2001	60.0%	110%	110%	76.6%
2002	60.0%	116%	116%	76.6%
2003	60.0%	122%	122%	76.6%
2004	66.5%	122%	128%	80.8%
2005	73.7%	122%	134%	85.3%
2006	81.7%	122%	141%	90.1%
2007	90.6%	122%	148%	95.1%
2008	100.4%	122%	155%	

		Bias Vs. Forecast
All Year Average	76.6%	-24%
5 Year Average	85.6%	-15%
Trended - All Years	93.1%	-7%
Trended - Latest 5 Years Only	100.4%	0%

Forecast Loss Ratio	100.4%

Impact of Key Drivers on Loss Ratio
Hard Market (Year 2009?)

		Premium		Loss	Loss Ratio
1	**Base Policy Year (2008)**	1,340		1,345	100.4%
	Renewal				
2	**Retention (to Base Year)**	70.0%		70.0%	
3	**Rate Change / Loss Trend**	117.0%	/	105.0%	
4	**Underwriting Change**			87.0%	
5	**Renewal - Forecast Year**	1,098		860	78.3%
	New				
6	**New Exposure (to Base Year)**	25.0%		25.0%	
7	**Loss Ratio: New / R/N Fcst Yr**			96.5%	96.5%
8	**New - Forecast Year**	392		296	75.6%
	Total				
9	**Forecast Policy Year (2009)**	1,490		1,156	77.6%

Changes in Assumptions from Soft-Market Year 2008

Impact of Key Drivers on Loss Ratio
Hard Market (Year 2010)

		Premium		Loss	Loss Ratio
1	**Base Policy Year (2009)**	1,490		1,156	77.6%
	Renewal				
2	**Retention (to Base Year)**	70.0%		70.0%	
3	**Rate Change / Loss Trend**	117.0%	/	105.0%	
4	**Underwriting Change**			87.0%	
5	**Renewal - Forecast Year**	1,220		739	60.6%
	New				
6	**New Exposure (to Base Year)**	25.0%		25.0%	
7	**Loss Ratio: New / R/N Fcst Yr**			96.5%	96.5%
8	**New - Forecast Year**	436		255	58.4%
	Total				
9	**Forecast Policy Year (2010)**	1,656		993	60.0%

Impact of Key Drivers on Loss Ratio - Soft Market (Year 2004) Reinsurance Portfolio - Renewal of Quota Share Book

		Premium		Loss	Loss Ratio
	Insurer - Total				
1	**Base Policy Year (2003)**	**1,050**		**630**	**60.0%**
2	**Rate Change / Loss Trend**	**100.0%**	**/**	**105.0%**	
3	**Exposure / Underwriting Change**	**105.0%**	**/**	**105.6%**	
4	**Forecast Policy Year (2)**	**1,103**		**733**	**66.5%**
	Reinsurer Renewal				
5	**Retention**	**75.0%**		**75.0%**	
6	**Underwriting Improvement**			**98.5%**	
7	**Forecast Policy Year (2004)**	**827**		**542**	**65.5%**

Rows 1 to 3: Insurer Soft Market (2004)

Row 3: Exposure = Renewal Retention plus New

Row 3: Underwriting Improvement = Forecast Loss Ratio / TOLLR

Row 4: = 1 * 2 * 3

Rows 5 to 6: Insurer Soft Market (2004)

Row 7: premium = 4 * 5; loss = 4 * 5 * 6

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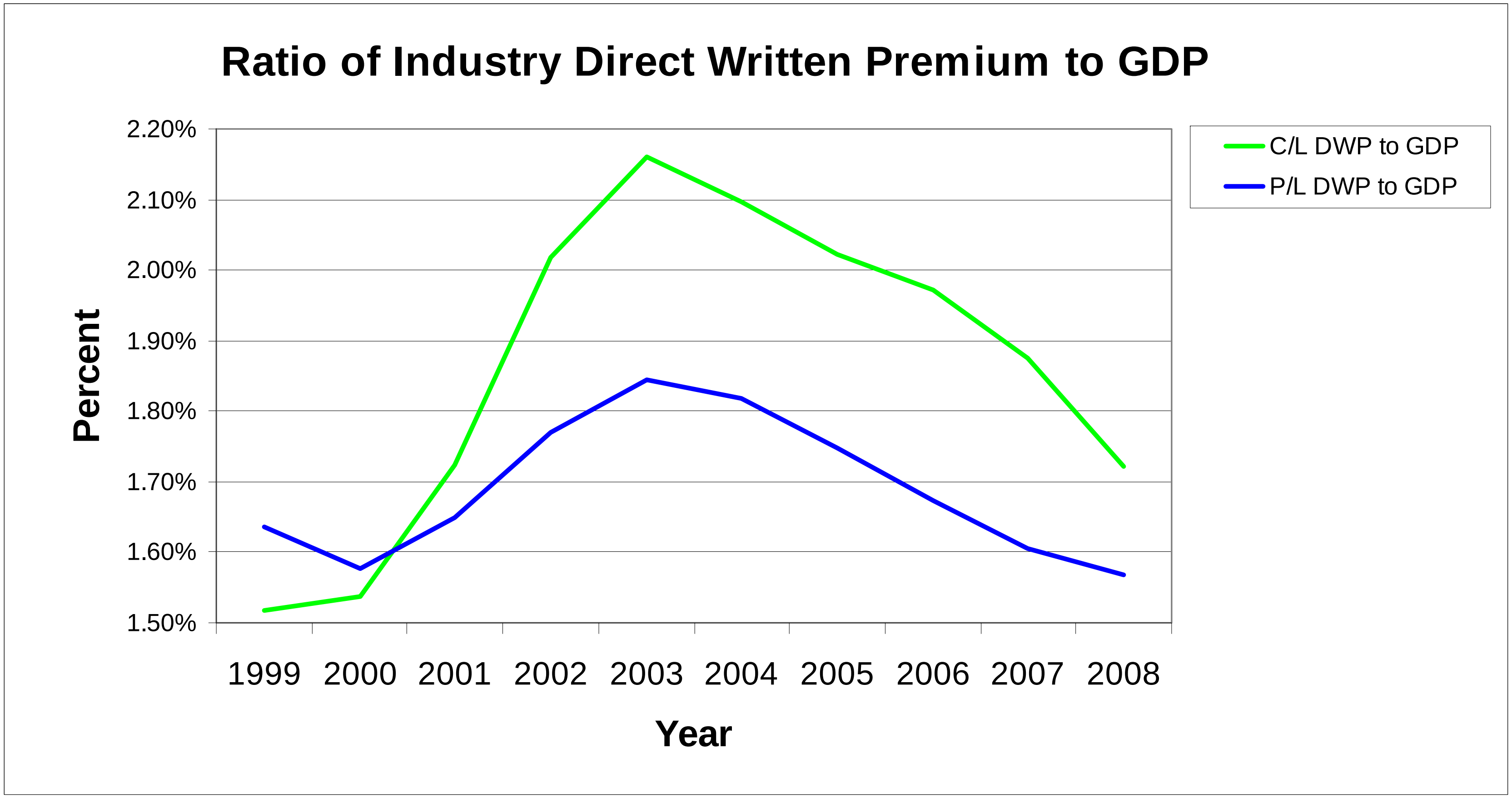
MIX AND QUALITY INDEX FOR NEW AND RENEWAL BUSINESS (MQI)

Industry Rate Level Proxy



Industry Rate Level Proxy
Average Annual Change: Industry Direct WP to GDP

Years	Commercial Lines	Personal Lines
2003 vs 2000	7.1%	3.2%
2008 vs 2003	-4.4%	-3.2%

Note:
Does not consider changes in retentions, limits, terms and conditions

Mix and Quality of New and Renewal Business - Defined

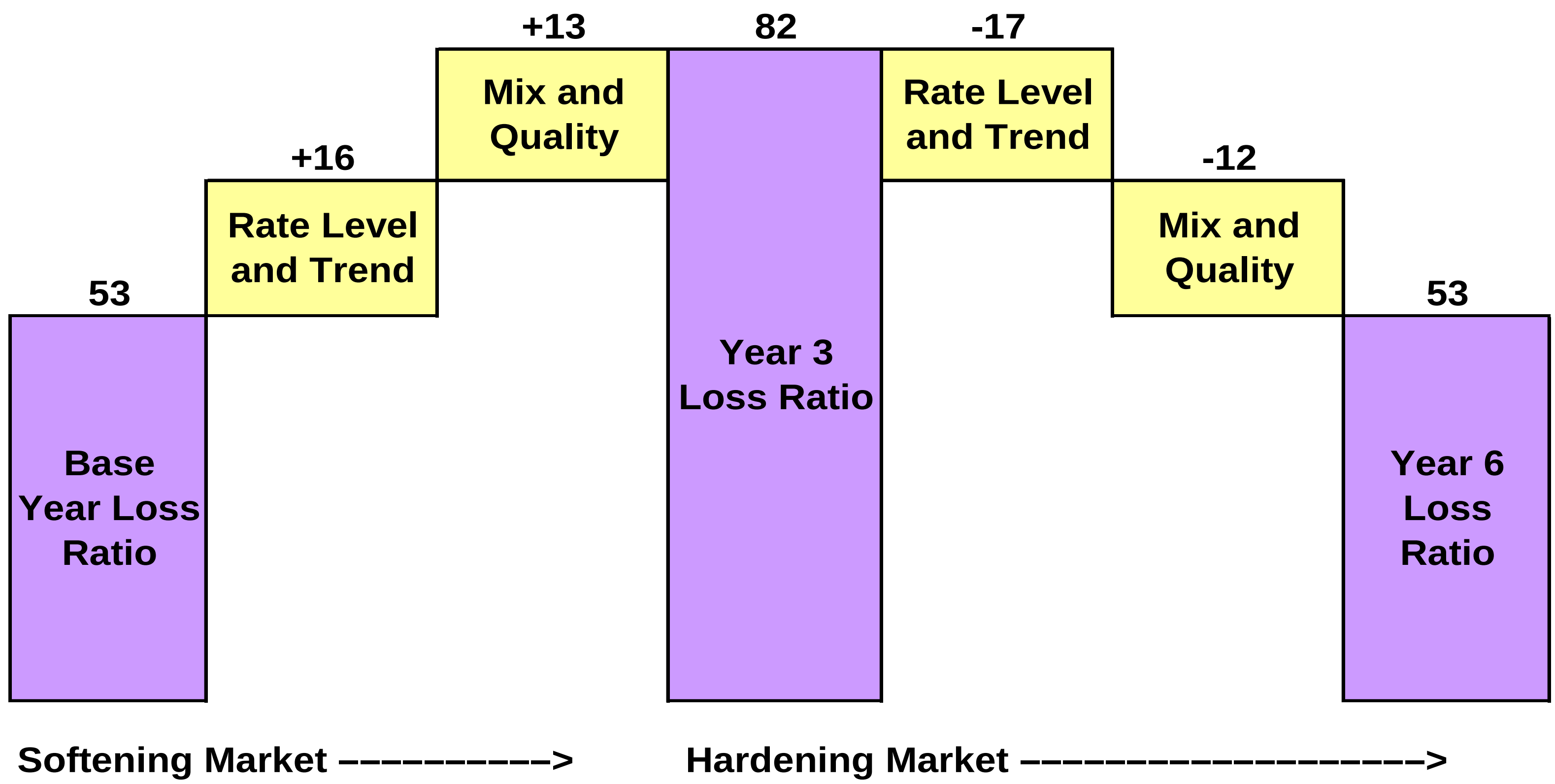
- Mix – Current year's exposure relative to prior year for:
  - Renewal business
  - New business
  - Use exposure or on-level written premium
  - New and renewal mix equals exposure growth
- Quality – Relative measure of performance
  - Renewal: renewal loss ratio year x versus trended on-level loss ratio for total book for year x-1
  - New: ratio of loss ratio for new business to renewal for year x.
  - Mix and Quality Index (MQI) – rate level equivalent that explains the loss ratio change related to mix and quality. Steady-state Annual Change = 1.00.
- MQI: explain past or predict future

MQI: Explain Past or Predict Future

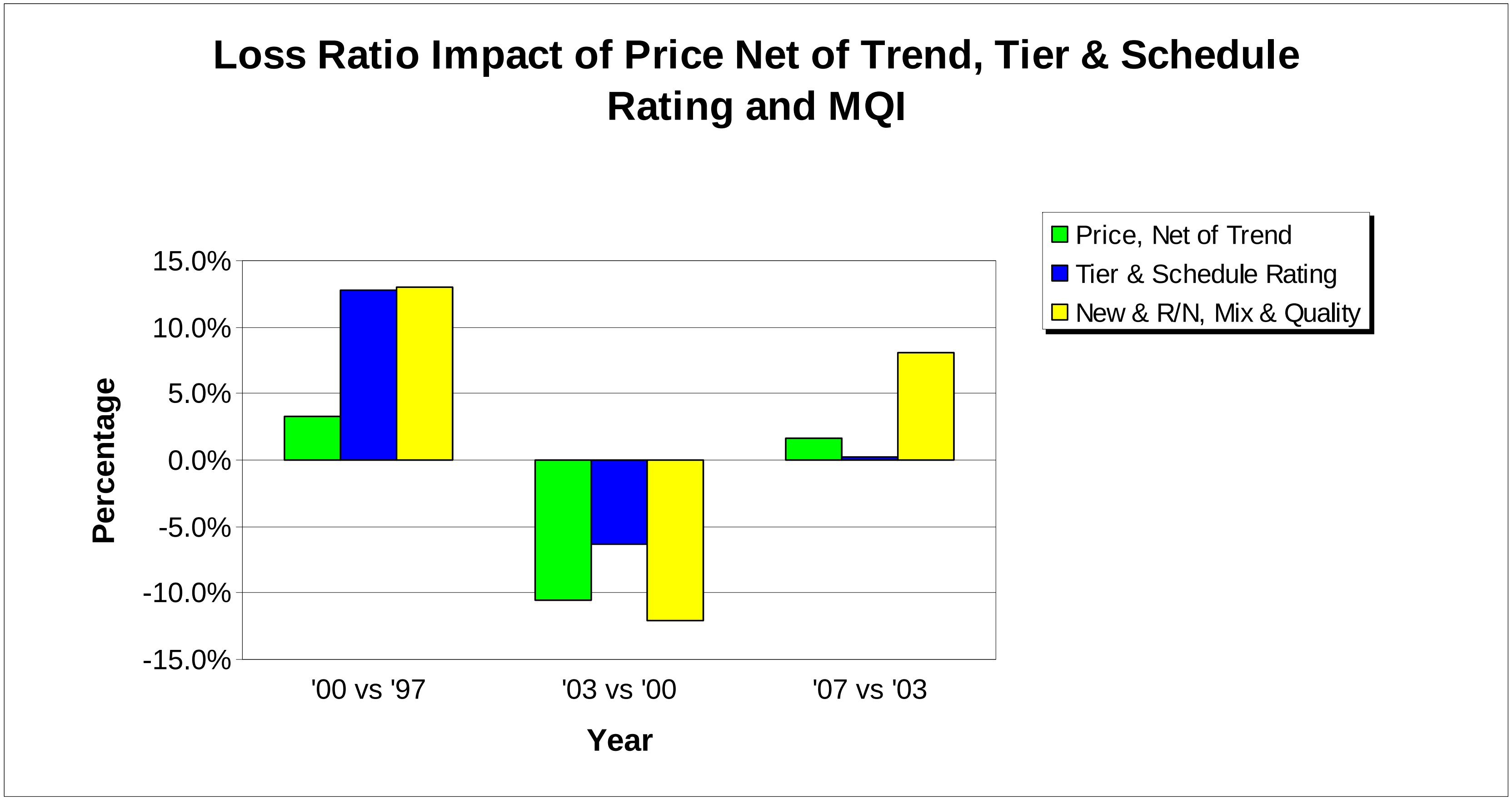
- Explain past:
  - Quantifies changes in loss ratio unexplained by traditional rate level change and trend.
  - Use industry trend
  - Use limited losses to avoid distortion
- Predict future
  - Judgment based on history, or
  - Model based on:
    - Number of competitors
    - Knowledge of competitors
    - Company value-added or differentiation

MQI: Explain Past

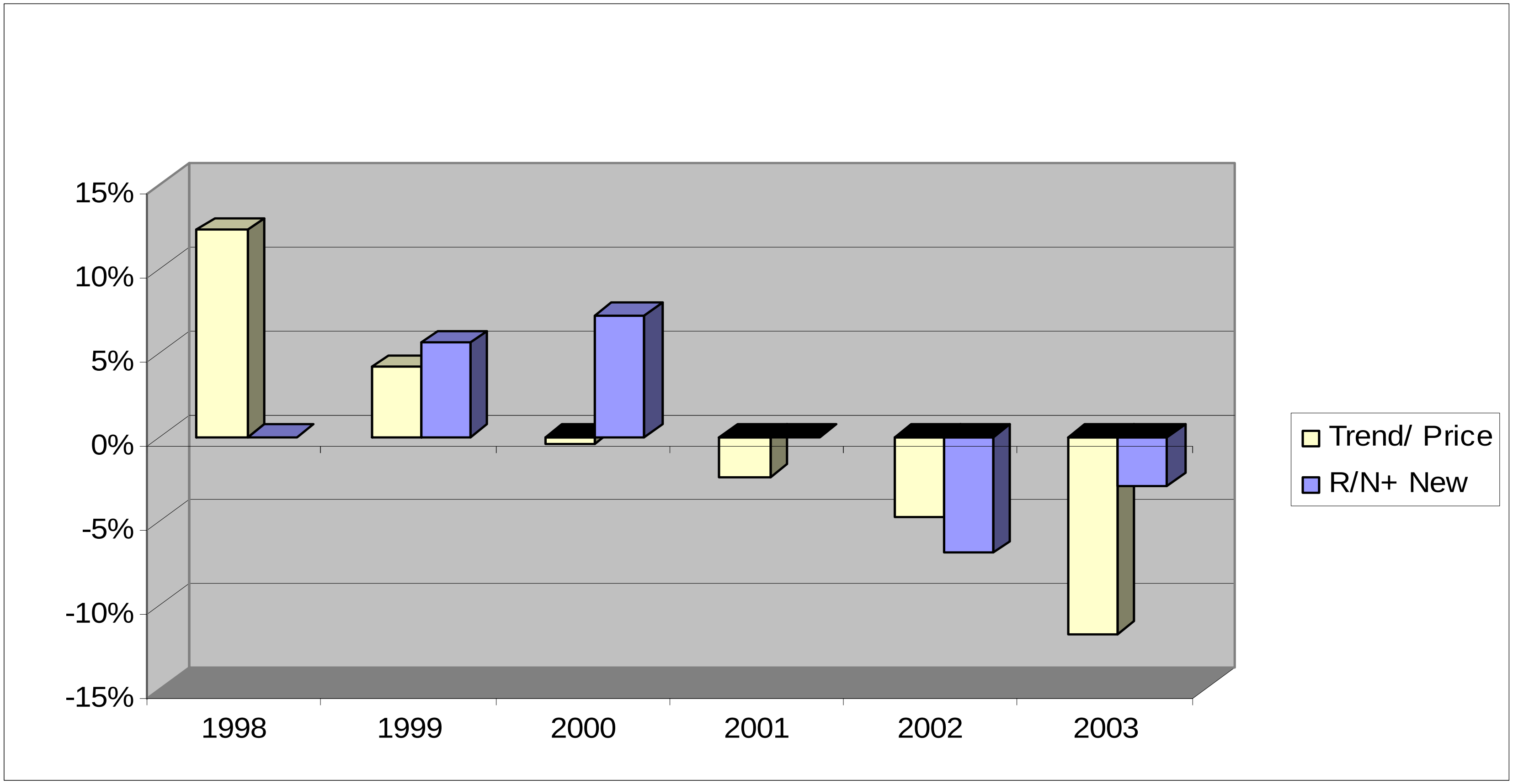
Loss Ratio Impact Overall Cycle: Comparison of Rate Level & Trend Vs. Mix & Quality

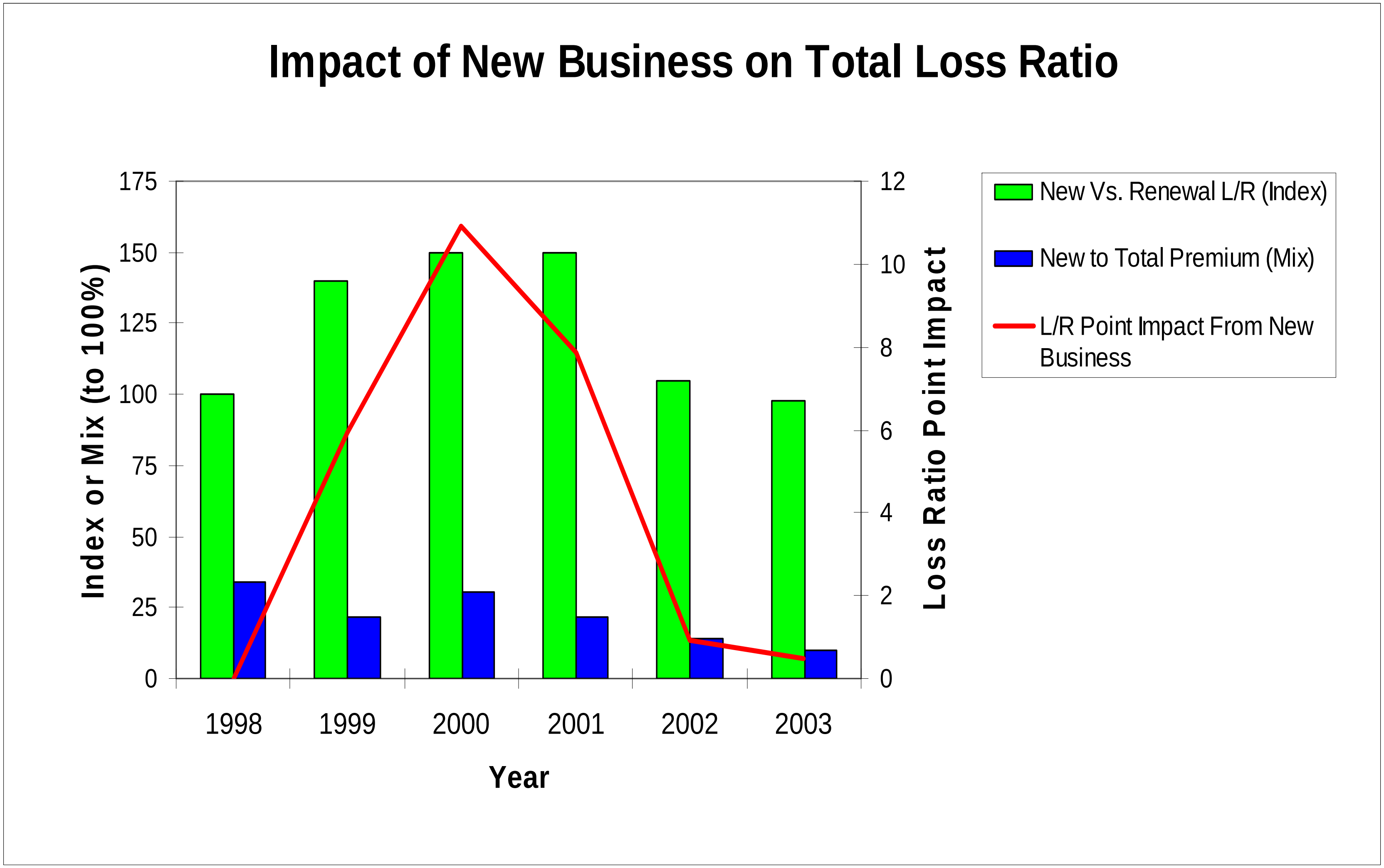


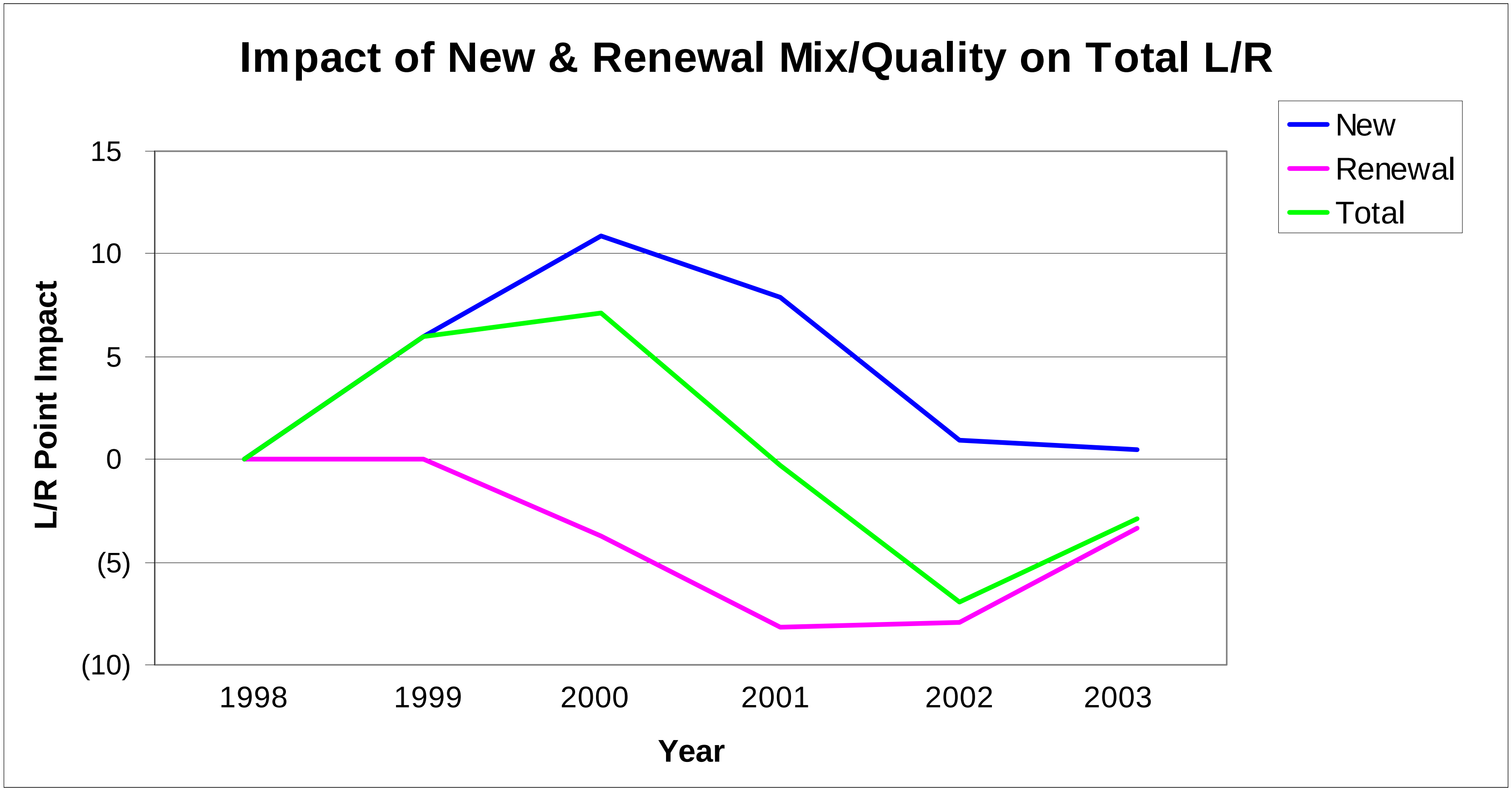
Mix and Quality of New And Renewal Business Has Big Impact in Transition Years



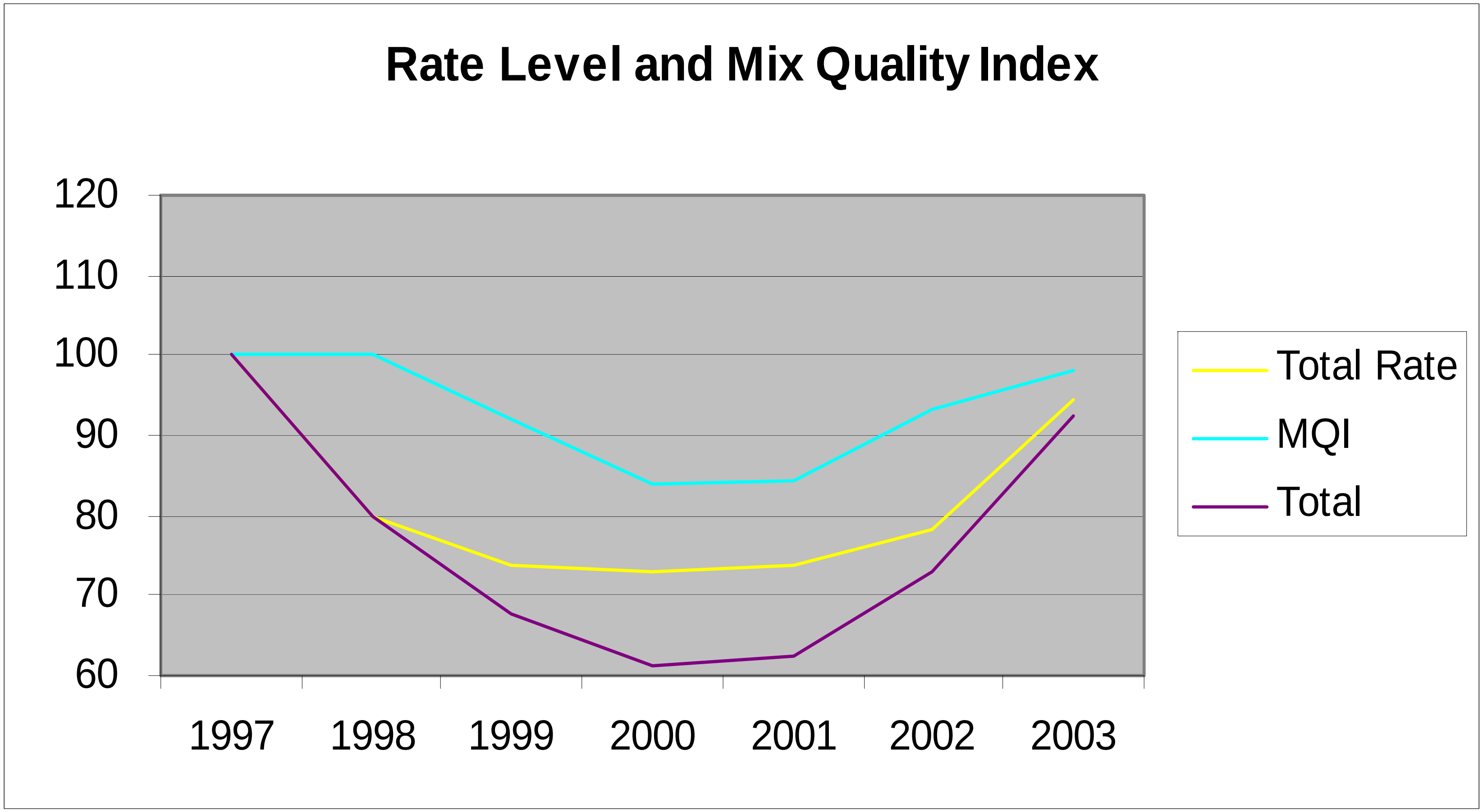
Change in Total Loss Ratio
Trend/Price versus Mix & Quality Index



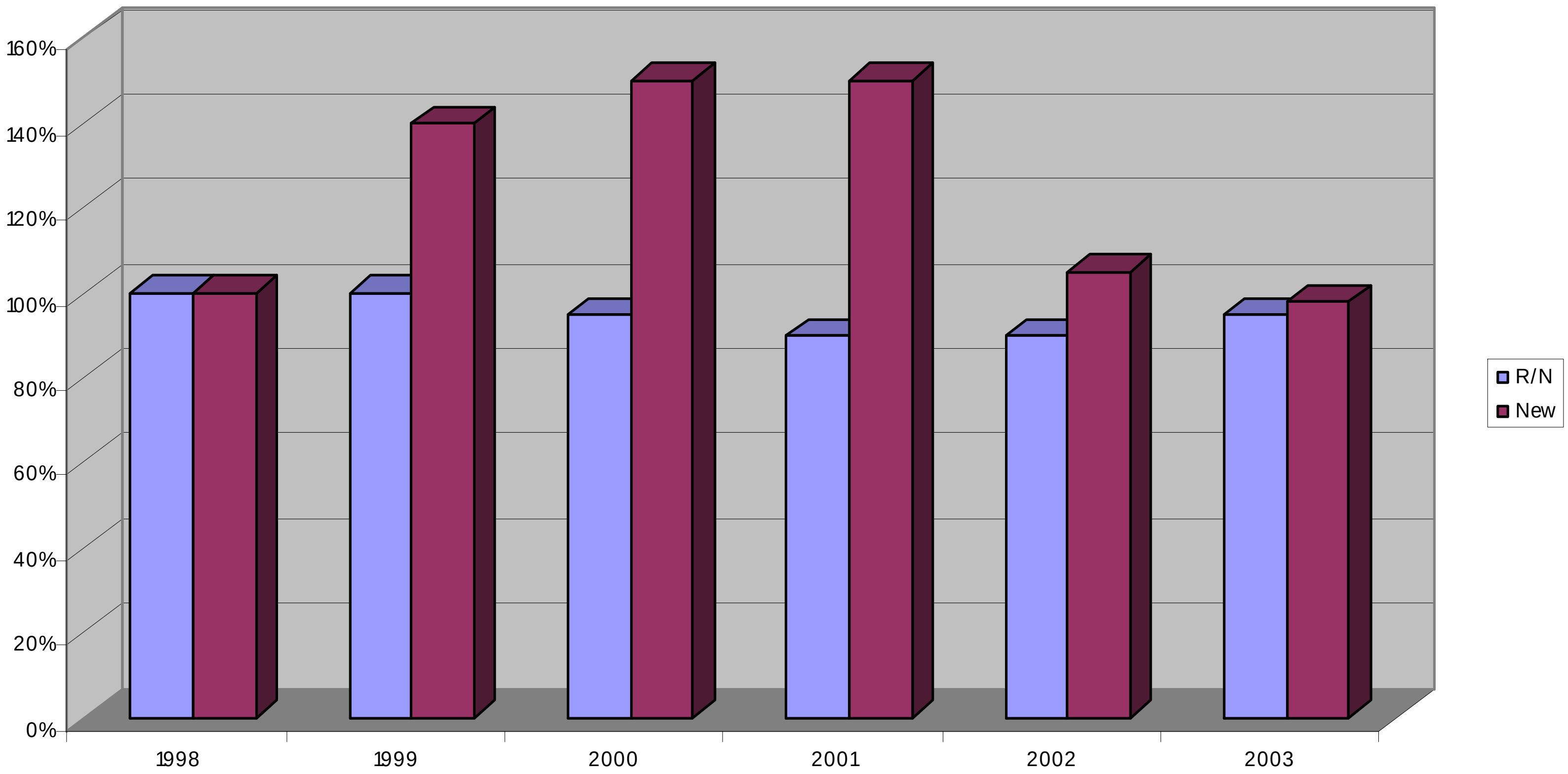

Impact of New Business on Total Loss Ratio
175
150
125
100
75
50
25
0
Index or Mix (to 100%)
12
10
8
6
4
2
0
Loss Ratio Point Impact
1998
1999
2000
2001
2002
2003
Year
New Vs. Renewal L/R (Index)
New to Total Premium (Mix)
L/R Point Impact From New Business


Impact of New & Renewal Mix/Quality on Total L/R
New
Renewal
Total
15
10
5
0
(5)
(10)
L/R Point Impact
1998
1999
2000
2001
2002
2003
Year

Rate Level Index versus Mix and Quality Index

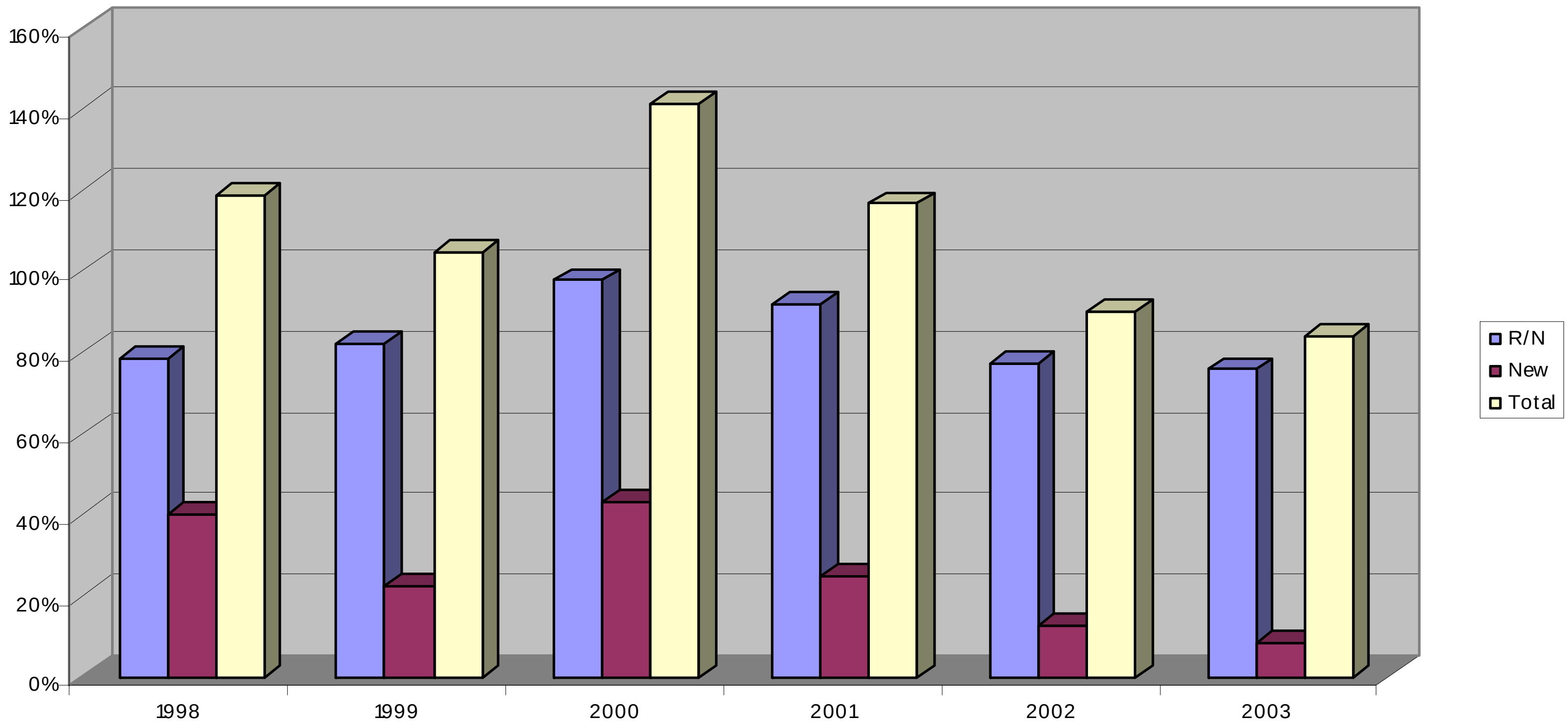


Relative Quality (Loss Ratio) of New and Renewal Business



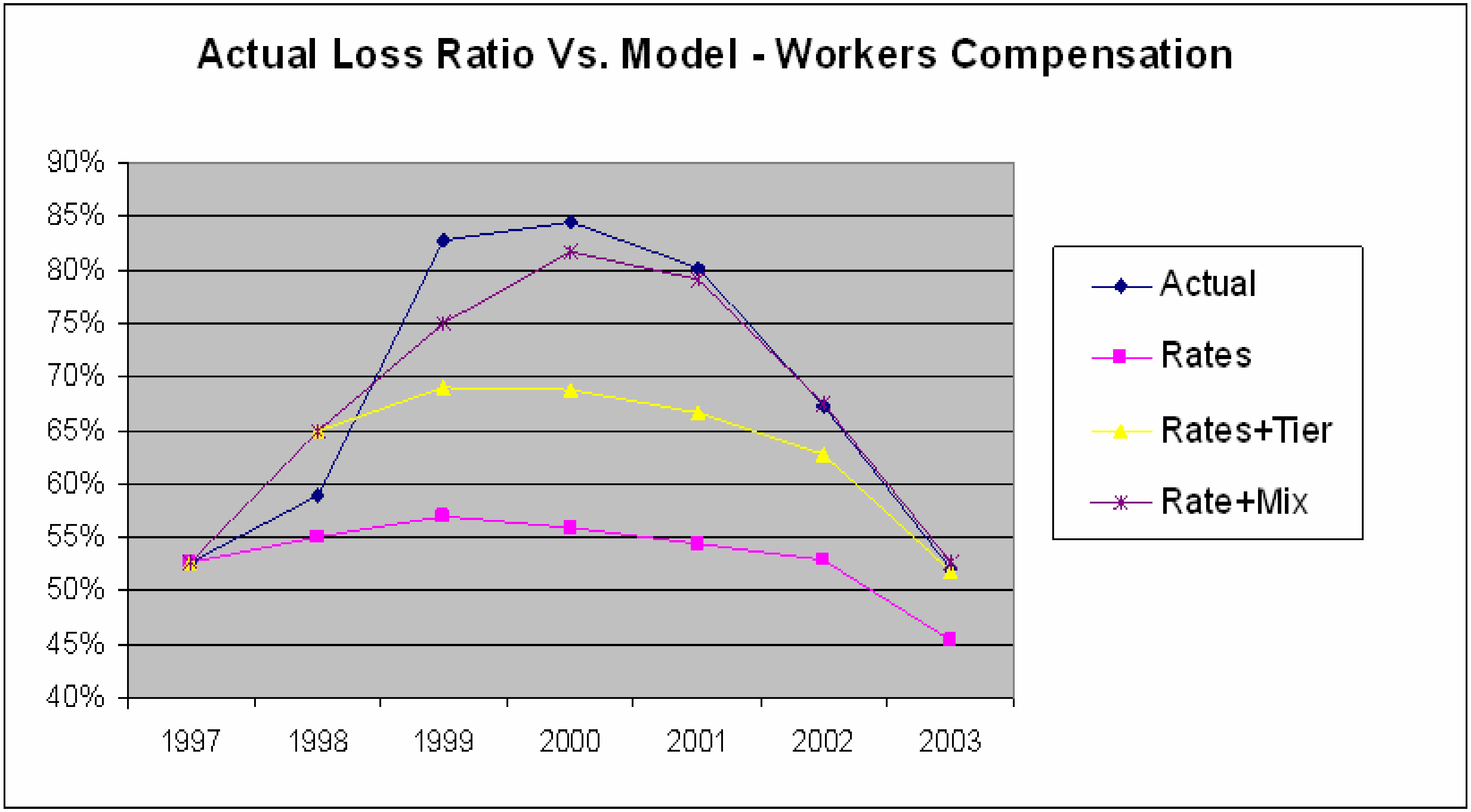
Scale: R/N = Ratio of current year R/N loss ratio to prior year total loss ratio adjusted to current trend and rate level (base 100). New: ratio of new to renewal loss ratio with renewal as base 100.

Relative Mix of New and Renewal Business
Current Year Premium as Percent to Prior Year Total Premium

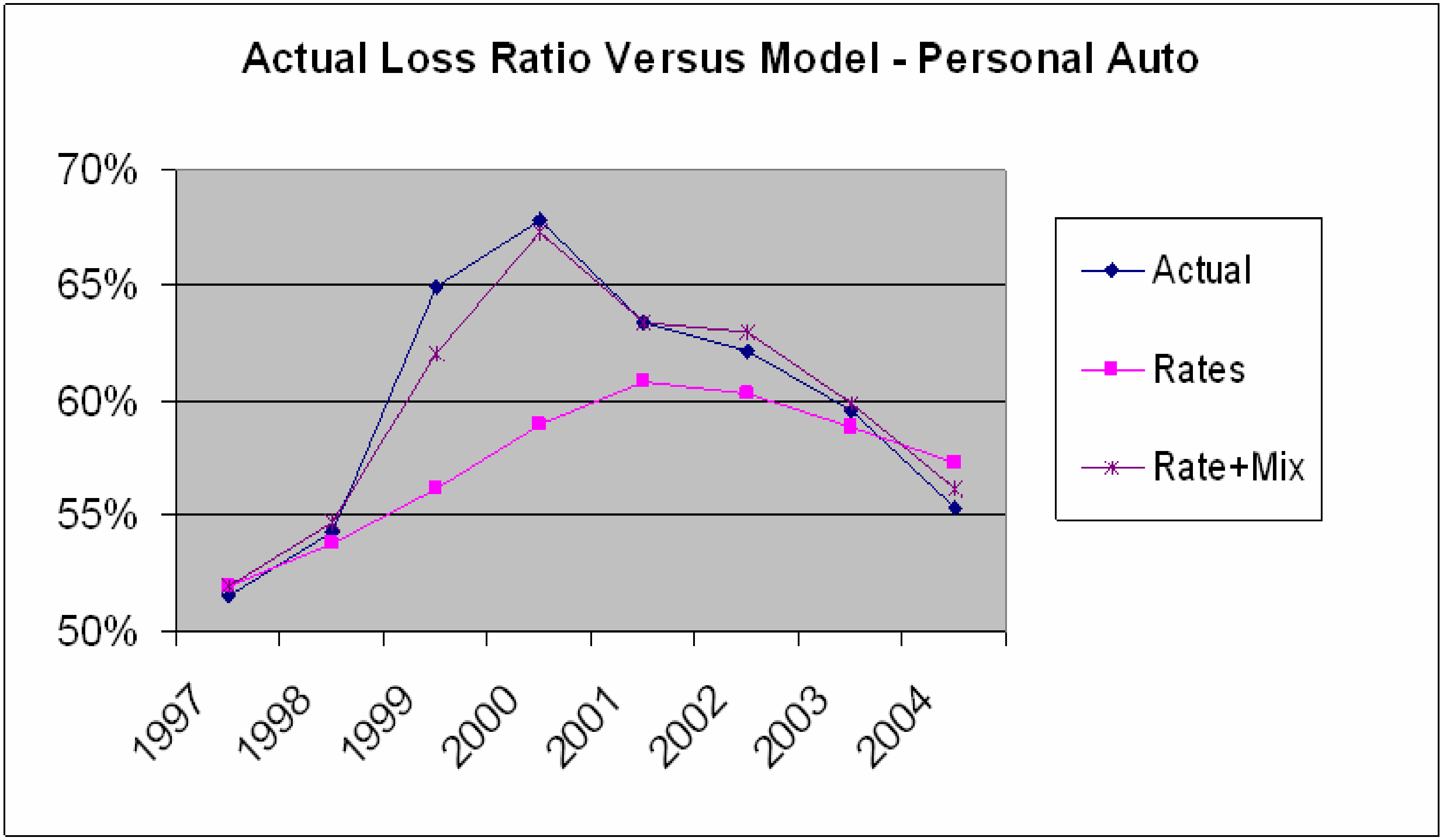


Scale: Base 100% = prior year premium adjusted to current rate level.

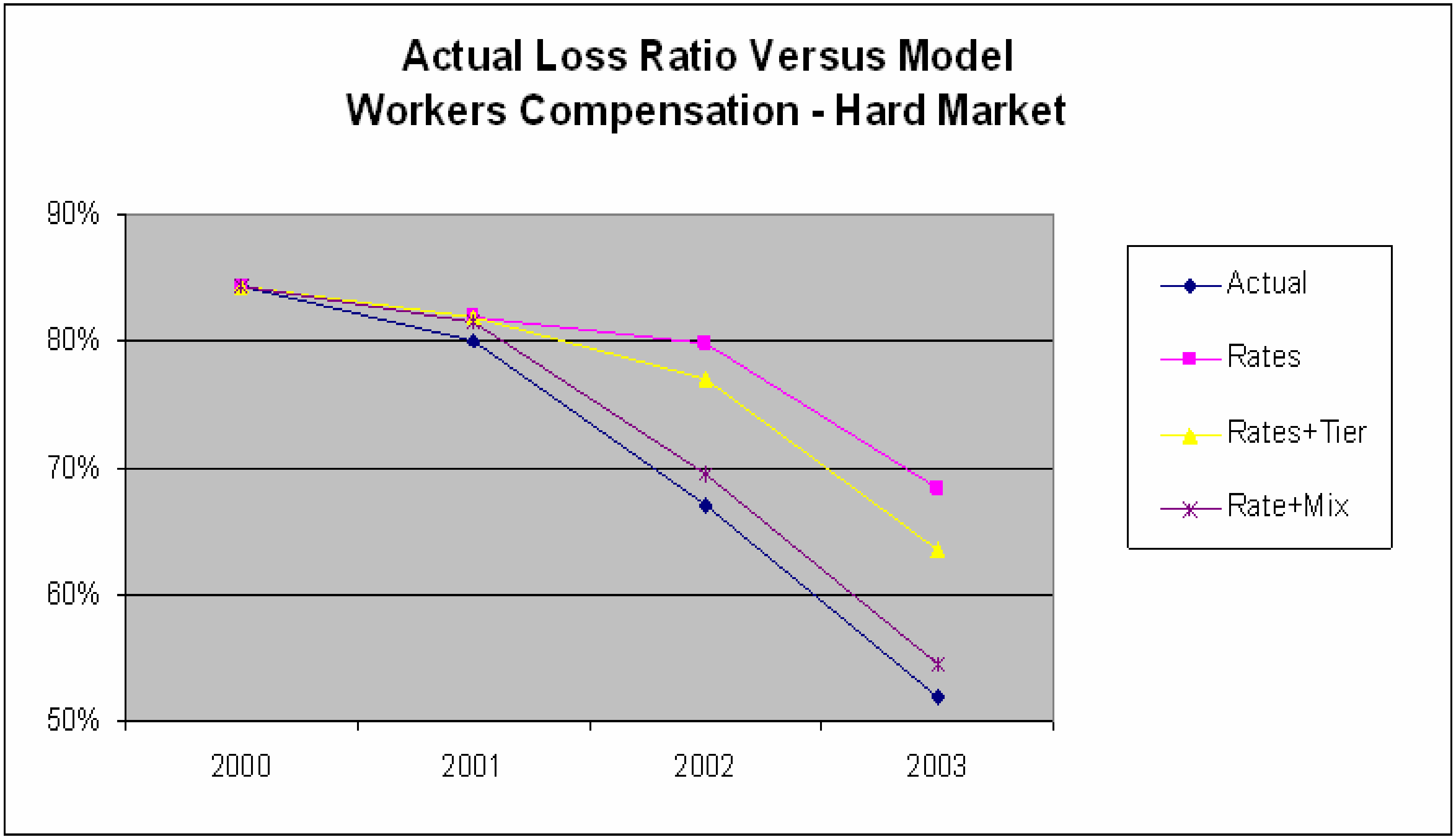
Rate Level and Trend Explain Only Part of Loss Ratio Change Workers Compensation



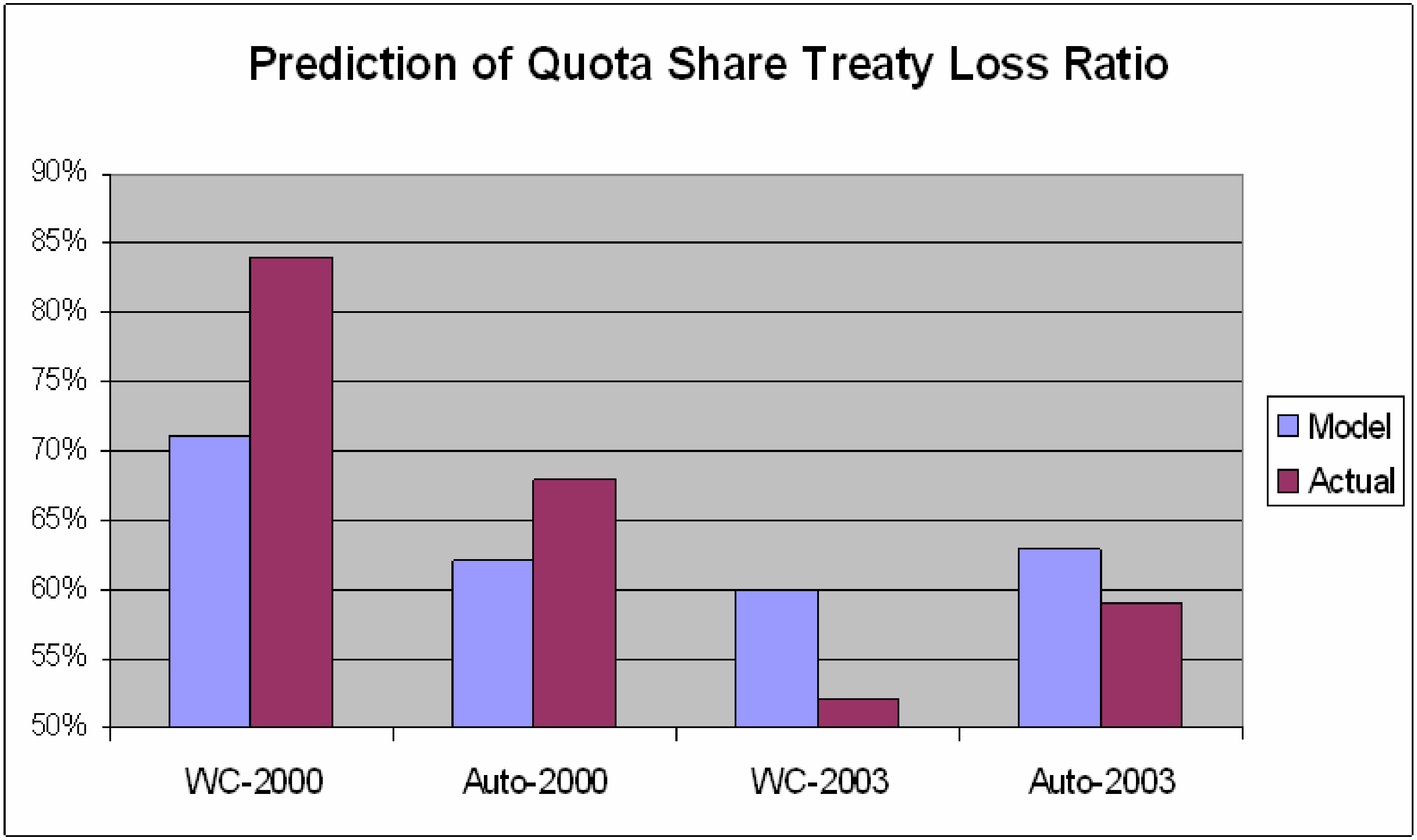
Rate Level and Trend Explain Only Part of Loss Ratio Change
Personal Auto



Rate Level and Trend Explain Only Part of Loss Ratio Change workers Compensation - Hard Market



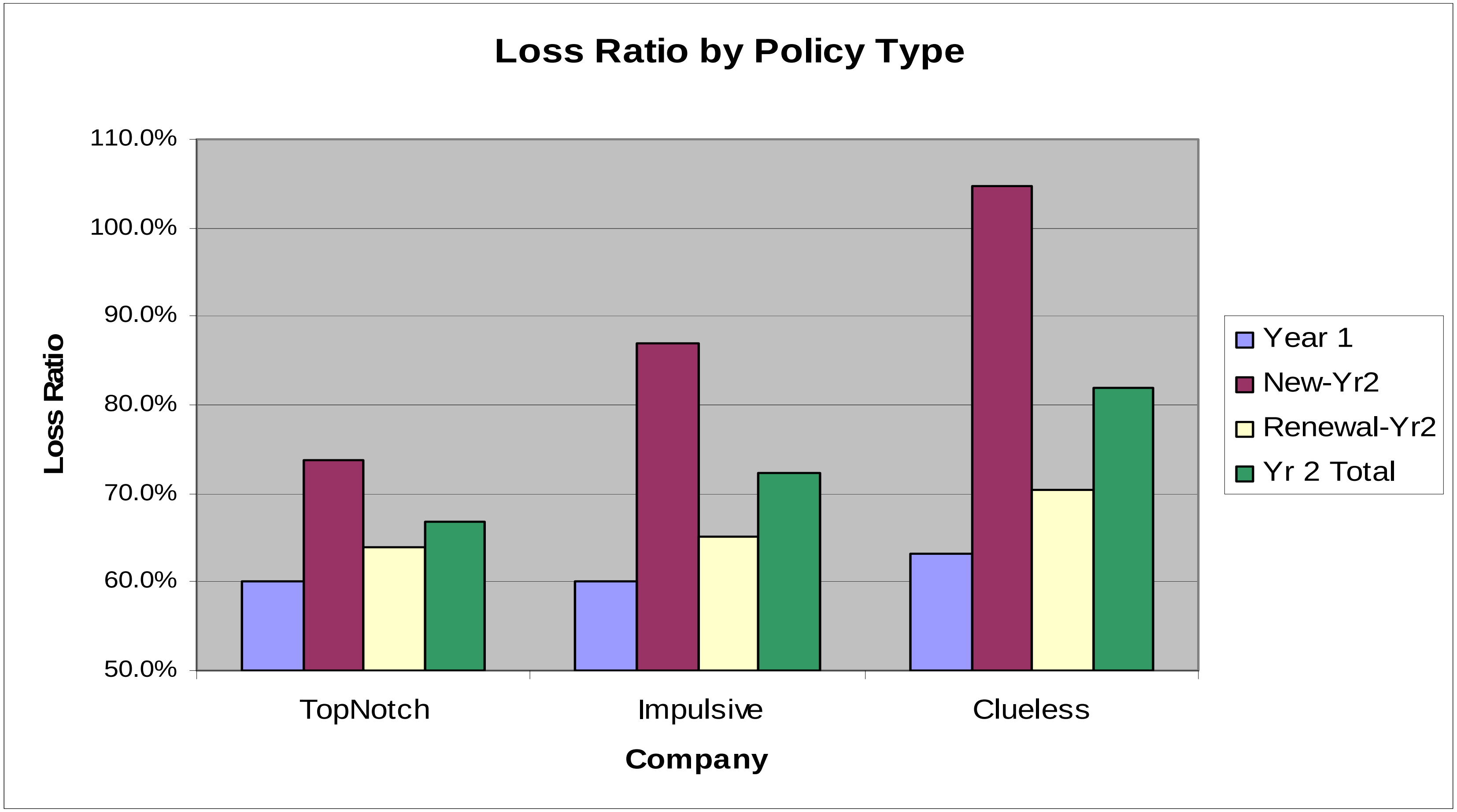
Mix & Quality Affects Forecast Loss Ratio in Soft & Hard Markets
Use for Management, Rating Agencies, Reinsurers



MQI: Predict Future Impact of Competition on Loss Ratio

- Top Notch: Expected value price = target less 5%: Standard deviation of price = 15%
- Impulsive: EV = target less 7.5%; SD = 25%
- Clueless: EV = target less 10%; SD = 40%
- 60% of renewals shop price
- Move for 5% premium difference

Impact of Price Decrease By Company Discipline - “Winner’s Curse”



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KEY DRIVERS OF INSURANCE RESULTS

Key Drivers of Results

- Loss and Expense Ratios
- Price
- Trend
- Renewal Underwriting – Retention Rate and Underwriting Improvement
- New Business – Mix and Quality
- Other Factors to Consider

Key Drivers of Results

Loss and Expense Ratios: Prior Year and Peer Benchmarks

- **Prior Year Loss Ratio**
- **Industry**
- **Peer Companies**
- **Relative Performance Versus Peers and Industry**

Key Drivers of Results

Measure All Aspects of Price

- Base Rates, Individual Risk Rating
- Tiers – Especially if New Business Added Does Not Match Discount
- Terms, Conditions, Limits & Retentions
- Changes in Classification, Mono-line to Multi-line with big discount
- E&S Market to Standard Market
- Industry Aggregate Trends

Key Drivers of Results

Trend

- Frequency, Severity and Distribution by Size of Loss
- Impact of Limits and Underwriting Changes
- Impact of New Business

Key Drivers of Results

Renewal Underwriting – Retention and Quality

- Impact of Company Action Versus Lost to Competition
- Measure Change in Loss Ratio From Price, Trend, Other
- Split Other into Change in Client Retention, Terms, Limit, Conditions, U/W Action, Unexplained
- Measure impact of every underwriting action
- Monitor Number and “Quality” of Competitors Bidding – Winner’s Curse
- Develop codes to track claims for most significant changes

Key Drivers of Results

New Business – Mix and Quality

- Track relative mix versus renewal. Track across cycles.
- Track relative loss ratio to renewal. Track across cycles.
- Correlate mix, loss ratio, market dynamics.
  - Track number and quality of competitors - Winner's Curse
  - Track previous underwriter and price, if possible
- Audit new business and track over time by type:
  - New to company with prior experience (line/class/state)
  - New to company – no prior company experience
  - New to industry – risk not previously underwritten
    - Credit Default Swaps; Residual Value; Enron Surety Bonds; Higher D&O Limits;
  - Return from alternative market: including drop down retentions

Key Drivers of Results

Other Factors to Consider

- Loss Development Cycle - Payments and Reserves
- Impact of Competitor's Case Reserve Adequacy on Pricing
- Investment Income Cycle
- Commission and Brokerage, Including Profit-Sharing
- Reinsurance
- Market Segmentation: Relative Success of Predictive Modeling in Segmenting Profitable Business
- Customer Response

Key Drivers of Results

Underwriting Process

– **Feedback loop on underwriters ability to estimate ultimate combined ratio.**
– **Review Changing Retentions, Terms, Conditions and Limits**
– **Review New Business**
– **Review explicit and implicit incentives**

Key Drivers of Results
Claims Process

- Feedback loop to U/W and Actuarial
- Measure changing case reserve adequacy and speed of payment in audit.
- Interpretation of claim audit results in pricing analysis.
- Talk to run-off staff – what terms might help future claims settlement
- Identify implicit/explicit incentives to set more or less adequate reserves
  - DO NOT CHANGE RESERVE SETTING APPROACH UNDER ANY CIRCUMSTANCES! (WELL, ALMOST ANY)

4

ERM / DFA / ANNUAL PLANNING PROCESS

Apply Mix & Quality Approach to Business Planning Process

- Explicitly measure in planning.
- Discuss implications on tactics
- Discuss implications on strategy (barriers to entry that dilute competitors impact)

Dynamic Financial Analysis – Standard Approach

- Starting Balance Sheet
- Output: Expected and Distribution of Equity in Five Years
- Input: Expected Value and Distribution of:
  - Premiums
  - Loss Ratio
  - Investment Income
  - Loss Payment Pattern
  - Adequacy of starting reserves
  - Reinsurance program
  - Expenses
  - Taxes

DFA – With Mix and Quality Considerations

- Include Assumptions on New and Renewal, Mix and Quality
- Include Assumptions on Number and Nature of Competitors
- Include Assumptions on Industry Results and Relative Performance of Company to Industry

5

OBSERVATIONS ON CYCLE MANAGEMENT

Strategic Message/Business Judgment/Structure

- CEO Message:
  - Mix of growth and profit? Explicit? Implicit?
  - Message down to all levels?
  - Do you (underwriter) hear what I (actuary) hear?
- Incentive structure:
  - Mixture of short-term versus long-term perspective
  - Consistent with riskiness of business written
  - Actuary's assessment of results
- Feedback loops:
  - CEO assessment of underwriter and actuary, especially if views are different
- "Last company" standing: brokers love us when the market turns

Process/Human Element

- Beware “opportunistic” buyers
- Completeness of information
- Role of the actuary in the underwriting process
  – Independent versus part of U/W team
  – How does actuary enhance/undermine influence on decisions
  – Attend U/W or claims audits
- Reinsurance or large account pricing: who can bind?
- Communication of differing viewpoints
- Does underwriter value market relationship more than long-term success at the company?

Technical Competency / Learning From the Past

- Actuary's Role:
  - Potential sources of bias in actuarial analysis across cycles
  - What operational changes should the actuary "accept"
  - What did actuaries do right/wrong in last soft market?
  - Did actuary identify business opportunities in last hard market?
  - Does actuary sell viewpoint in way most likely to impact decision maker?
- Maximize the impact of U/W and claim audits
- Toxic mix of large growth and fighting "meritless" claims
- Does (reinsurance) actuary understand insurer's business plan and read full submission?

Technical Competency / Learning From the Past Reinsurance

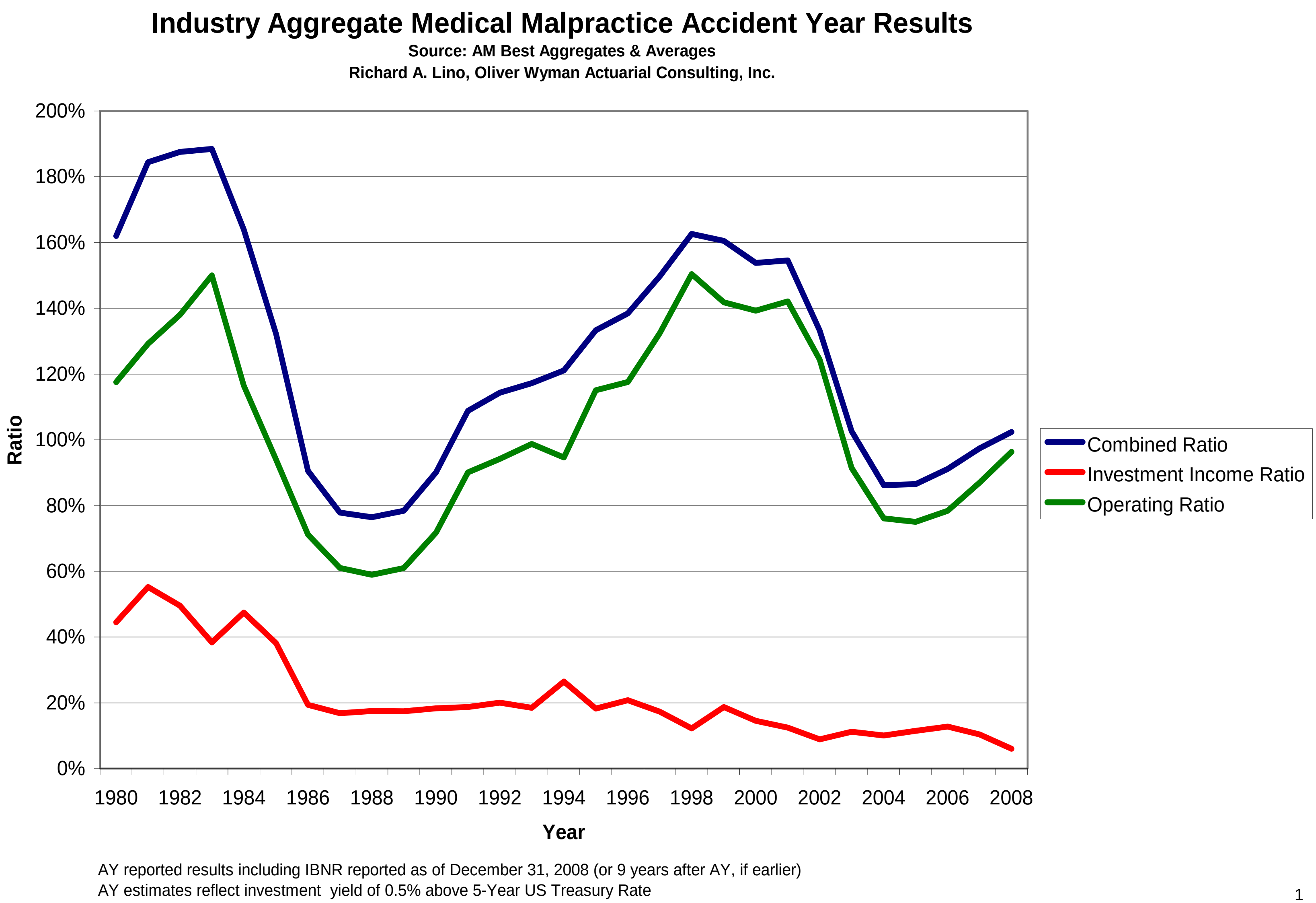
- Quality of price monitors in soft markets
- Reinsurer: how to judge new business of insurer?
- What’s your favorite 1000% loss ratio example?

Things That Go Wrong in Combination

- Emphasis on top-line growth
- Declining price in market
- Lower standards on renewal and lower retention ratios
- Higher mix of new business and unknown new business
- Changing industry case reserve adequacy and claims closure rate
- Changes in classifications to get lower premium to capture account
  – Writing E&S business as standard.
- Loosening terms and conditions
- Increasing limits at low price
- Accepting previously excluded business
- Putting complex business, e.g. nursing home, into umbrella program

Things That Go Wrong in Combination (continued)

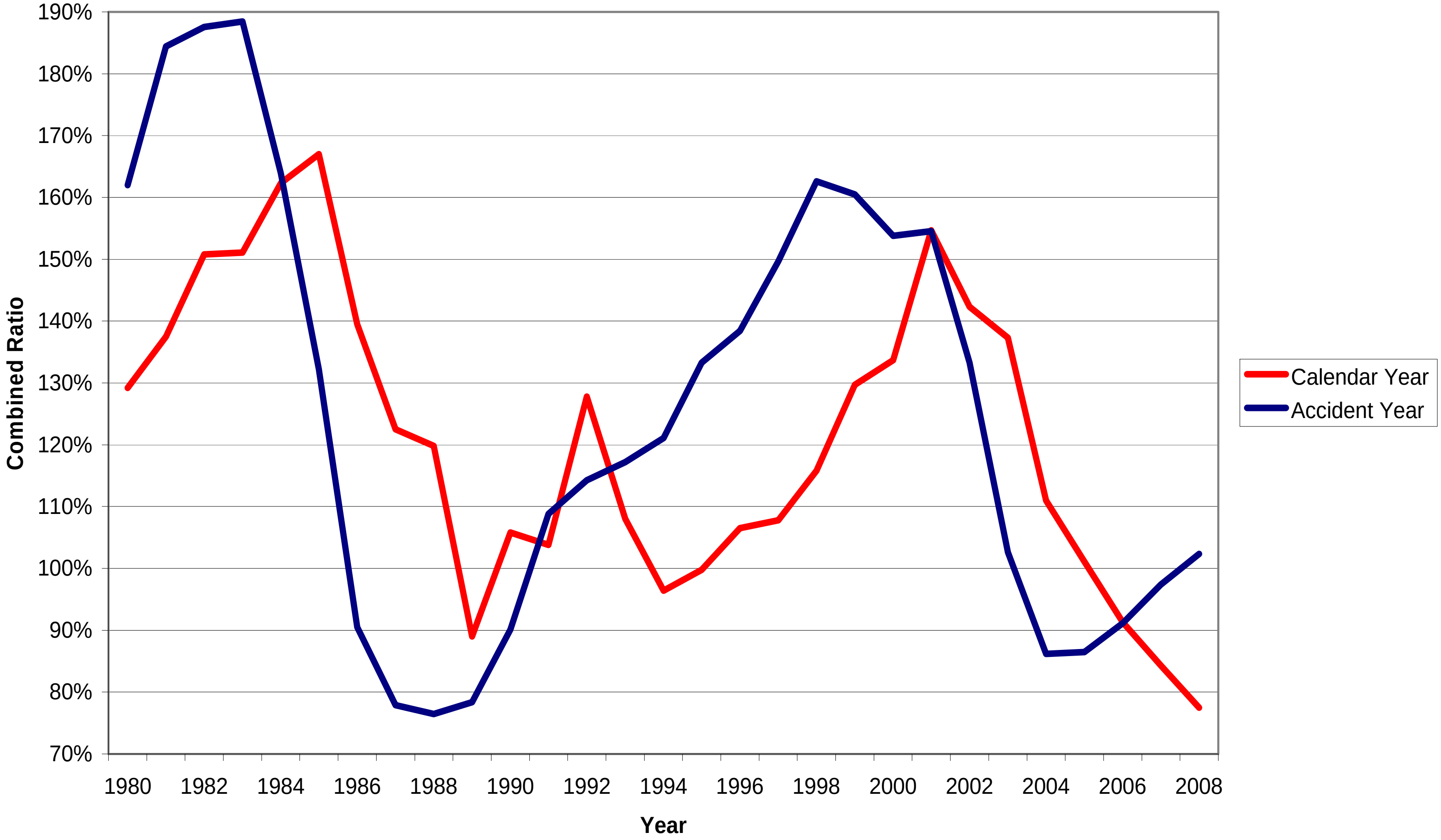
- Plaintiff's bar targeting of new, higher limits
- Expanding MGA and TPA business
- Focus on fighting "meritless" claims, with minimal success.
- Expanding length of policy terms
- Misstating price changes in price monitors
- Lowering of retentions (self-insured, insurer, reinsurer, retrocessionaire)
- Changes in profit-sharing
- Failure of data to be shared effectively: primary, broker, reinsurer; underwriter, actuary, claims, financial, executive.
- Cycle in ISO /NCCI rates


Industry Aggregate Medical Malpractice Accident Year Results
Source: AM Best Aggregates & Averages
Richard A. Lino, Oliver Wyman Actuarial Consulting, Inc.
200%
180%
160%
140%
120%
100%
80%
60%
40%
20%
0%
Ratio
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
2008
Year
Combined Ratio
Investment Income Ratio
Operating Ratio
AY reported results including IBNR reported as of December 31, 2008 (or 9 years after AY, if earlier)
AY estimates reflect investment yield of 0.5% above 5-Year US Treasury Rate
1

Industry Aggregate Medical Malpractice Combined Ratio

Source: AM Best Aggregates & Averages

Richard A. Lino, Oliver Wyman Actuarial Consulting, Inc.



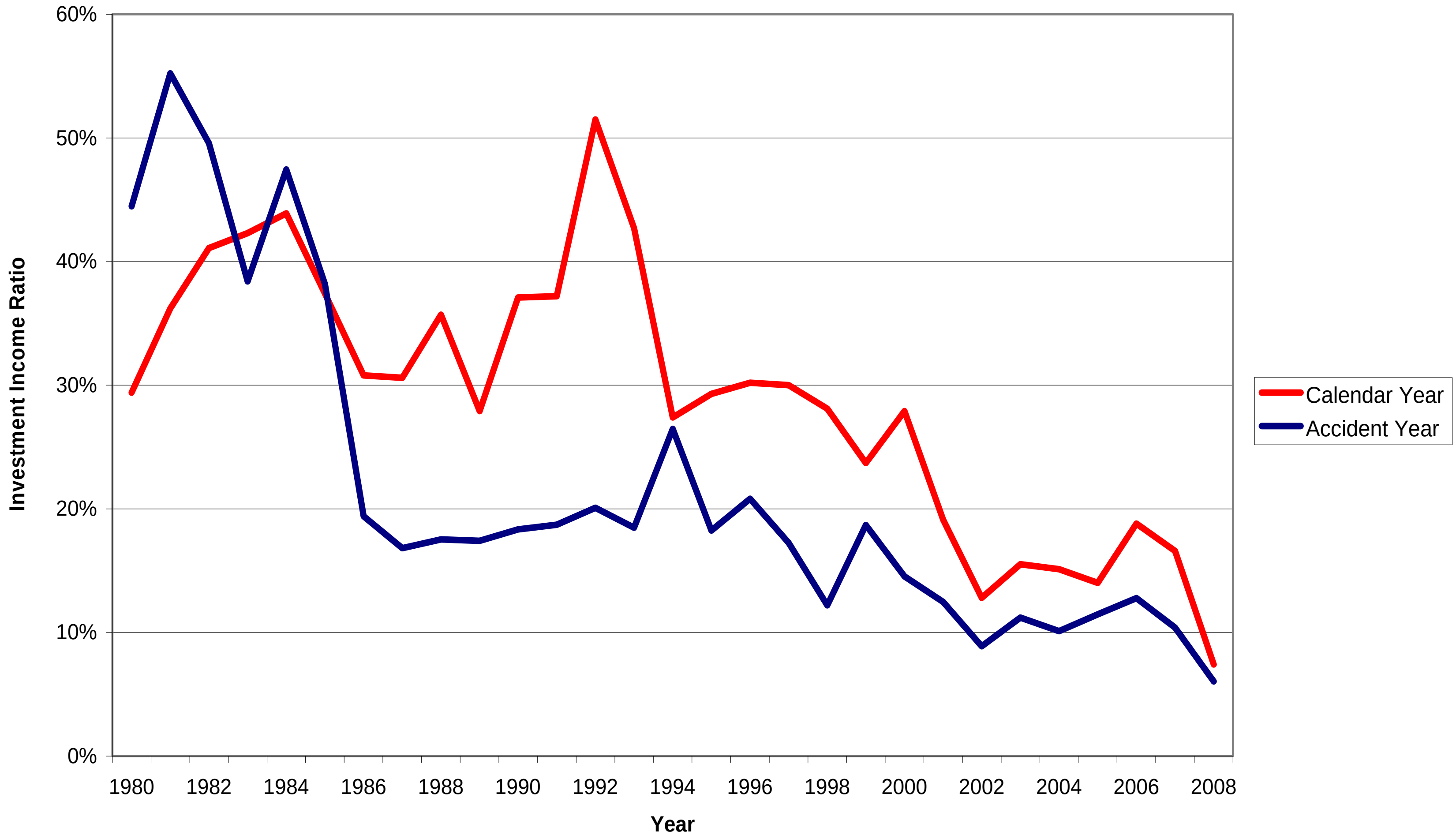
AY reported results including IBNR reported as of December 31, 2008 (or 9 years after AY, if earlier)

2

Industry Aggregate Medical Malpractice Investment Income Ratio To Earned Premium

Source: AM Best Aggregates & Averages

Richard A. Lino, Oliver Wyman Actuarial Consulting, Inc.

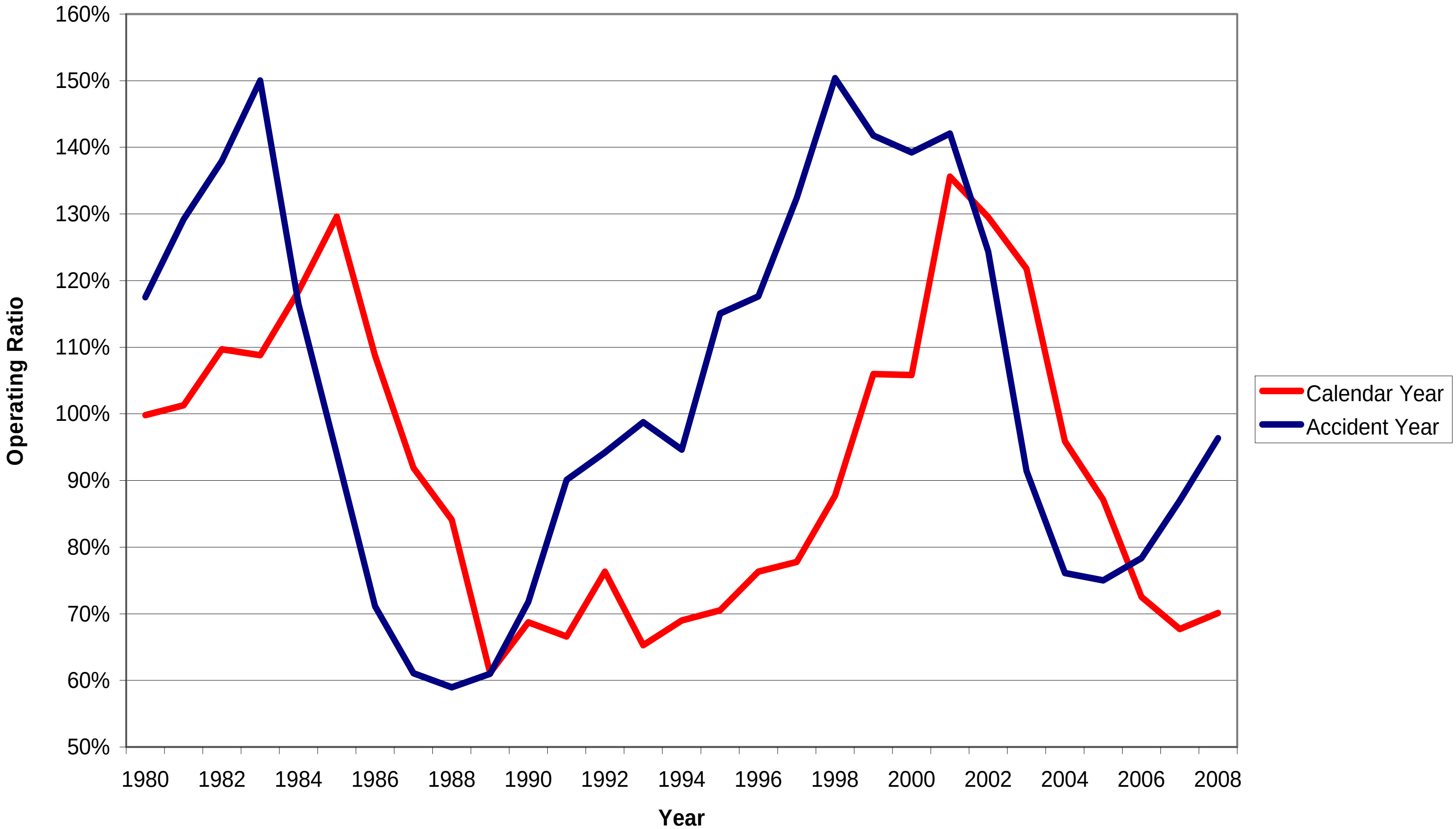


AY Estimates reflect investment yield of 0.5% above 5-Year US Treasury Rate

3

Industry Aggregate Medical Malpractice Operating Ratio

Source: AM Best Aggregates & Averages



AY reported results including IBNR reported as of December 31, 2008 (or 9 years after AY, if earlier)
AY Estimates reflect investment yield of 0.5% above 5-Year US Treasury Rate

4

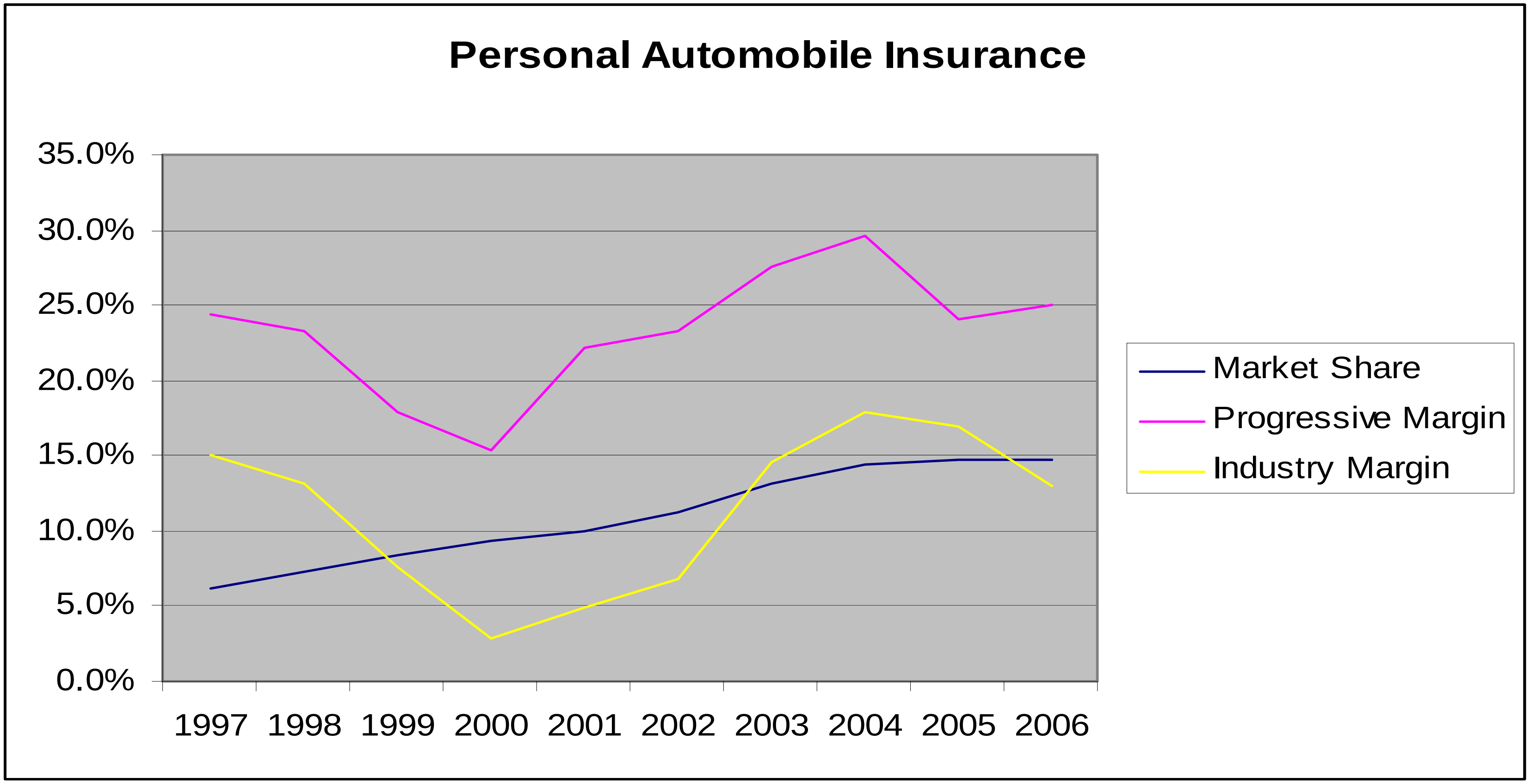
Impact of Opportunistic Market Timing

Medical Malpractice

	Average Market Share					
	96-97	98-01	06-07	Market Share Growth - 06/07 vs. 98-01	Pro-forma Operating Ratio: 96-06	Points Vs Industry
ACE LTD GRP	0.4%	0.3%	0.9%	264%	83%	-13%
ALLEGHANY GRP	0.1%	0.0%	1.0%	3132%	56%	-40%
AMERICAN INTL GRP	5.1%	3.4%	8.7%	252%	85%	-11%
BERKSHIRE HATHAWAY GRP	5.8%	5.6%	6.8%	122%	92%	-3%
CNA INSURANCE GROUP	5.7%	3.4%	4.3%	125%	93%	-3%
FAIRFAX FIN GRP	1.2%	0.6%	1.2%	203%	90%	-5%
MARKEL CORPORATION GRP	1.0%	0.9%	1.4%	154%	91%	-4%
WHITE MOUNTAIN GROUP	0.0%	0.0%	0.7%	31667%	62%	-34%
WR BERKLEY CORP GRP	0.1%	0.3%	0.9%	340%	79%	-16%
BERKSHIRE HATHAWAY GRP Adjtd	0.2%	0.2%	6.8%	2857%	88%	-7%
INDUSTRY					96%	

Pro-forma Operating Ratio: Assumes industry average result by accident year (AY) from 1996 to 2006.
Industry average loss ratio from AM Best reported AY results valued as of 2006 or 9 years after AY, if earlier.
Industry expense ratio from AM Best; investment income ratio from Oliver Wyman calculation at risk-free rate.
Market Share data from Highline

Progressive Corporation: Growth Through Soft and Hard Market Impact of Low Cost, High Knowledge Operator



Industry data: Oliver Wyman analysis of AM Best data. Company data from Highline.

Lifetime Value of Client Relationship: Impact of Retention and Market in First Year of Relationship

	Lifetime Value: Profit Vs. Target	Profit - Year 1	Profit - All Other Years	Renewal Retention - Year 1	Renewal Retention - All Other Years
Base Case	0.0%	-6.3%	19.4%	91.0%	91.0%
Lower Retention Ratio	-1.4%	-6.3%	19.4%	85.0%	85.0%
New Business in Moderately Soft Market	-2.2%	-15.8%	19.4%	81.0%	91.0%
New Business in Very Soft Market	-9.5%	-25.3%	19.4%	41.0%	91.0%
New Business in Hard Market	4.4%	19.4%	19.4%	94.0%	91.0%

OLIVER WYMAN