

THE IMPACT OF INVESTMENT INCOME ON WORKERS' COMPENSATION UNDERWRITING RESULTS



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◆ INTRODUCTION

This article is an updated version of an article by John Burton (Burton 2014) that appeared in the *Workers' Compensation Resources Research Report* with data through 2013. In the current version, the National Association of Insurance Commissioners (NAIC) uses data from the NAIC for the most recent data and from A.M. Best for historical data. The NAIC will publish updated versions of this article on an annual basis after this transition year, in which Burton participated in the preparation of the article.

◆ WORKERS' COMPENSATION INDUSTRY UNDERWRITING RESULTS FLUCTUATE, BUT REMAIN PROFITABLE

The operating ratio is the most comprehensive measure of underwriting results because it considers investment income. The overall operating ratio is calculated as (1) the total of all company expenditures (2) minus investment income (3) as a percentage of premiums¹. The operating ratio for the workers' compensation insurance industry decreased from 93.7 in 2012 to 83.7 in 2013, but increased to 91.6 in 2014, and again declined to 83.6 in 2015, as shown in Figure A and Table 1.

An operating ratio of less than 100 indicates that the workers' compensation industry is profitable. Using this measurement, the industry has been profitable every year since 2011. The operating ratio of 83.6 for 2015 means the insur-

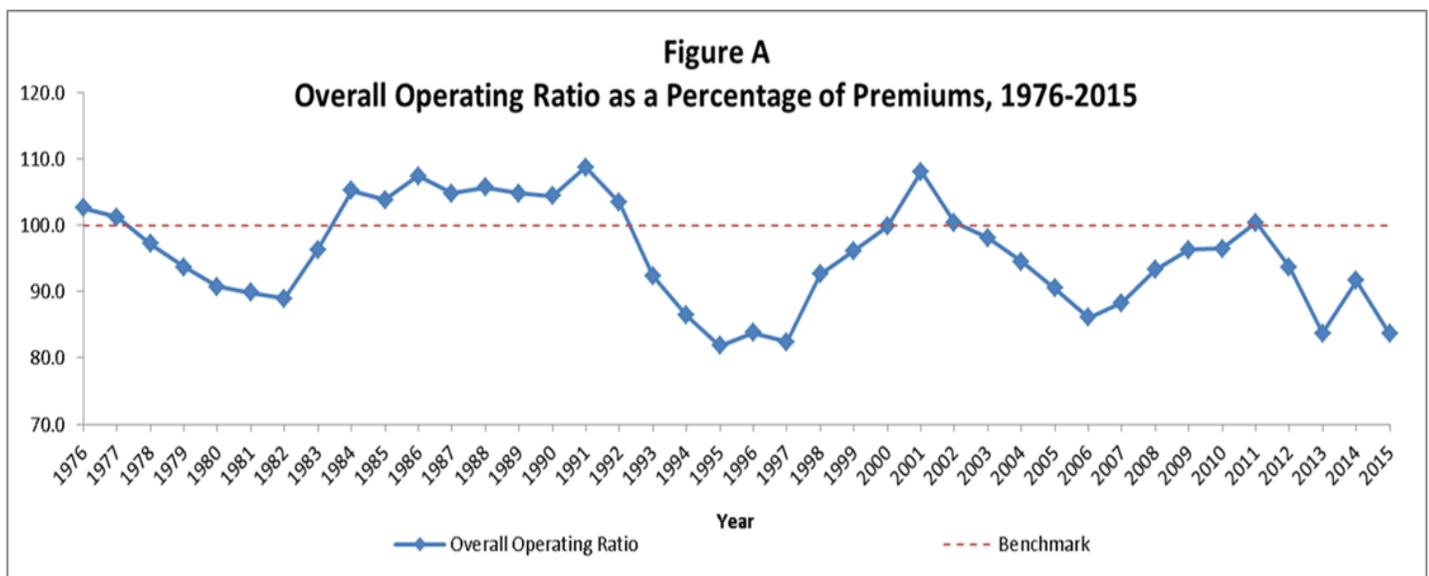
ance industry earned \$16.40 of profits for every \$100 of net premiums. Since 1993, the workers' compensation insurance industry has been profitable in 20 of the 23 years. It was unprofitable in 2001, 2002 and 2011. When the overall operating ratio is greater than 100, carriers lose money even when investment income is considered. Thus, when the overall operating ratio was 100.4 in 2011, workers' compensation carriers lost \$0.40 for every \$100 of premiums. Conversely, an operating ratio of less than 100 indicates that the industry is profitable when investment income is included. The overall operating ratios for 2014 at 91.6 and 2015 at 83.6 mean the insurance industry made profits of \$8.40 and \$16.40 per \$100 of net written premium in these years. The 83.6 recorded in 2015 has only been exceeded in two years, 1995 at 81.8 and 1997 at 82.4. (See column (8) of Table 1.)

◆ UNDERWRITING RESULTS VARY OVER TIME

The overall operating ratio for the workers' compensation industry from 1976 to 2015 is shown in Figure A and Table 1. The cyclical nature of the industry is evident. Two years of losses in 1976 to 1977 were followed by six years of profits through 1983. For example, the operating ratio was below 90 in 1981 and 1982, indicating that carriers had profits that exceeded \$10 for every \$100 of premiums in those years.

The workers' compensation industry was then unprofitable in every year from 1984 to 1992. During the nine-year stretch of unfavorable results, carriers' losses ranged from \$3.40 to \$8.70 for every \$100 of workers' compensation premiums. When workers' compensation rates become un-

(Continued on page 2)



¹ More complete definitions of the overall operating ratio are provided subsequently in text and the notes in Table 1.

THE IMPACT OF INVESTMENT INCOME ON WORKERS' COMPENSATION UNDERWRITING RESULTS (CONTINUED)

Table 1
Workers' Compensation Insurance Underwriting Experience, 1973-2015

Year	Losses Incurred* (1)	Loss Adjustment Expenses* (2)	Losses and Adjustment Expenses Incurred* (3)	Underwriting Expenses Incurred** (4)	Dividends to Policyholders* (5)	Combined Ratio After Dividends (6)	Net Inv. Gain/Loss and Other Income* (7)	Overall Operating Ratio (8)
1973	68.5	8.5	77.0	19.8				
1974	71.6	8.7	80.3	19.6				
1975	74.0	8.2	82.2	18.9	6.3	107.4		
1976	78.2	8.4	86.6	17.6	5.4	109.6	6.9	102.6
1977	78.0	8.9	86.9	16.7	5.1	108.6	7.4	101.2
1978	74.4	8.7	83.0	16.4	5.6	105.0	7.8	97.2
1979	70.4	9.2	79.6	16.8	6.5	103.0	9.2	93.7
1980	67.6	8.4	76.1	17.4	8.0	101.4	10.8	90.7
1981	66.1	9.0	75.1	19.0	8.7	102.8	13.0	89.8
1982	64.3	9.1	73.4	20.6	9.9	103.9	15.0	88.9
1983	70.6	9.2	79.9	22.0	10.6	112.5	16.2	96.3
1984	81.0	9.8	90.8	21.2	9.9	121.9	16.7	105.2
1985	81.0	9.5	90.5	19.0	9.3	118.8	15.0	103.8
1986	85.4	10.2	95.5	18.0	7.6	121.1	13.7	107.4
1987	82.2	10.9	93.1	18.0	6.4	117.6	12.8	104.8
1988	83.4	10.8	94.2	17.8	6.4	118.4	12.7	105.7
1989	83.3	11.4	94.7	17.4	6.1	118.2	13.4	104.8
1990	83.8	10.7	94.6	17.6	5.1	117.4	13.0	104.4
1991	87.8	11.5	99.3	18.5	4.9	122.6	14.0	108.7
1992	83.9	13.2	97.1	19.8	4.6	121.5	18.1	103.4
1993	71.6	12.4	84.0	20.4	4.7	109.1	16.7	92.4
1994	60.5	13.1	73.6	21.0	7.0	101.6	15.1	86.4
1995	57.0	12.8	69.8	22.7	6.9	99.5	17.7	81.8
1996	57.5	14.5	72.1	24.9	5.4	102.4	18.6	83.8
1997	58.6	14.4	73.0	25.3	6.5	104.8	22.4	82.4
1998	62.0	16.2	78.2	26.3	6.6	111.2	18.6	92.6
1999	68.0	16.2	84.2	27.5	6.7	118.5	22.4	96.1
2000	73.5	16.0	89.5	25.8	5.4	120.7	20.9	99.8
2001	78.9	13.6	92.4	25.0	3.5	120.9	12.8	108.1
2002	74.6	12.9	87.5	22.3	2.8	112.6	12.2	100.4
2003	72.2	14.0	86.2	20.7	1.6	108.6	10.5	98.1
2004	69.7	13.4	83.1	20.8	1.3	105.1	10.6	94.5
2005	66.1	14.1	80.2	20.8	1.7	102.7	12.2	90.5
2006	60.7	13.6	74.3	21.8	2.1	98.2	12.1	86.1
2007	61.5	14.9	76.4	23.7	2.9	103.0	14.7	88.3
2008	61.8	15.0	76.7	24.5	3.1	104.4	11.1	93.3
2009	68.8	16.2	85.0	23.9	2.4	111.3	15.0	96.3
2010	72.2	16.6	88.8	26.8	2.8	118.3	21.9	96.5
2011	70.7	18.9	89.6	26.0	2.8	118.4	18.0	100.4
2012	67.6	14.7	82.3	25.9	3.0	111.2	17.4	93.7
2013	58.5	14.5	73.0	23.1	2.7	98.8	15.1	83.7
2014	61.6	14.6	76.1	23.4	3.1	102.6	11.0	91.6
2015	55.2	14.0	69.2	23.9	2.8	95.9	12.3	83.6

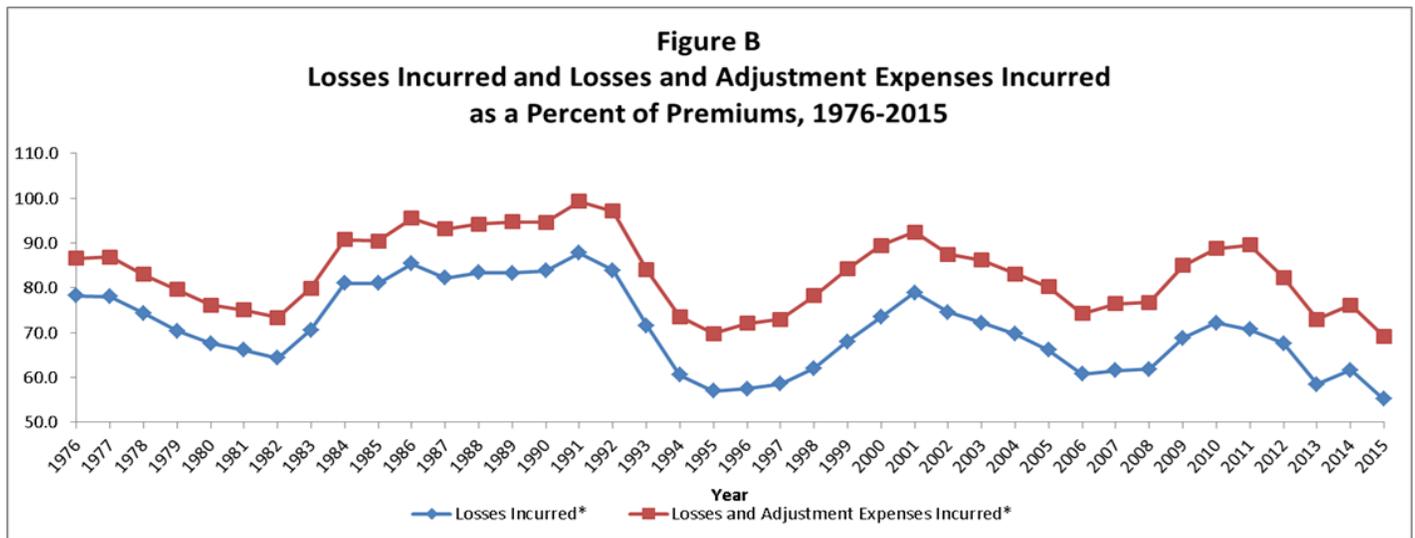
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Notes:

Losses Incurred (also termed the pure loss ratio) (1) plus Loss Adjustment Expenses (2) equals Losses and Adjustment Expenses Incurred (3). Losses and Adjustment Expenses Incurred (3) plus Total Underwriting Expenses Incurred (4) plus Dividends to Policy Holders (5) equals Combined Ratio after Dividends (6). Combined Ratio after Dividends (6) minus Net Investment Gain/Loss and Other Income (7) equals Overall Operating Ratio (8). As of 1992, the methodology for allocating investment income changed slightly; as a result, 1992-2001 numbers in the last two columns are not directly comparable to those for earlier years.

* Percentage of net premiums earned ** Percentage of net premiums written

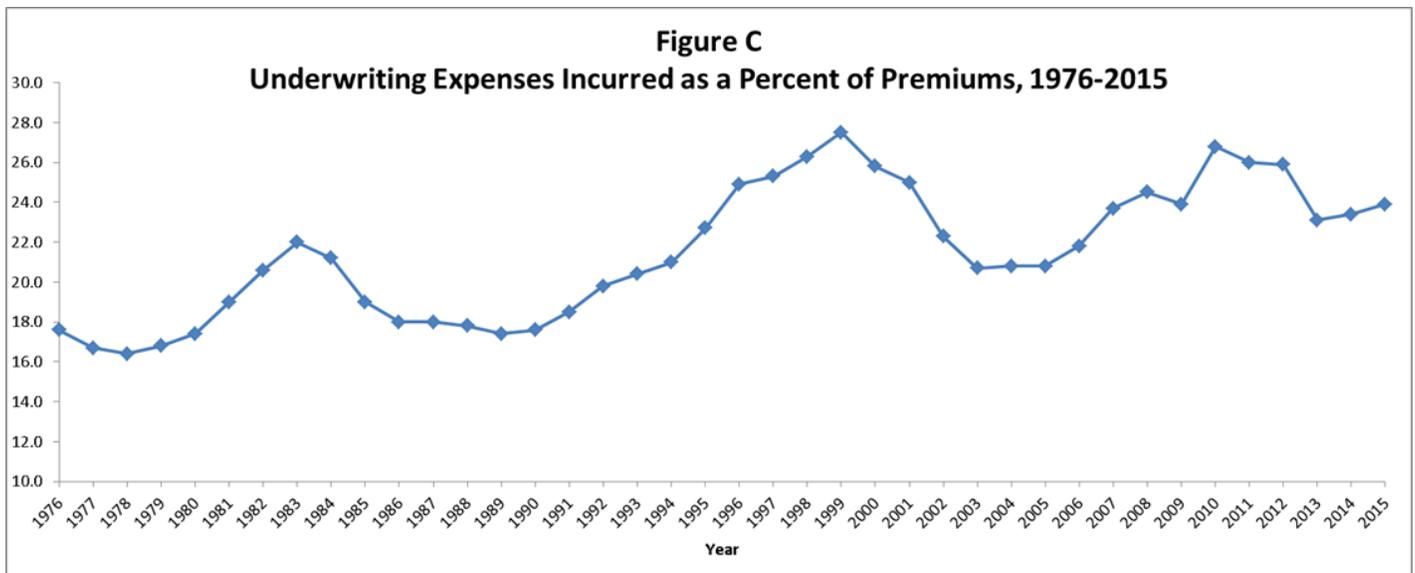


when benefits for injured workers appear to become too generous, causing costs of workers' compensation to be too high. Workers become concerned when benefits appear to be inadequate. Equilibrium is reached when benefits are neither too generous nor inadequate and insurers can increase rates rapidly enough to earn reasonable profits. One result of this period of unfavorable underwriting experience is that the workers' compensation industry took the lead in "reform" efforts that reduced benefits and tightened eligibility standards in many states.²

When workers' compensation rates are rising rapidly, insurers are challenged to remain profitable because of times

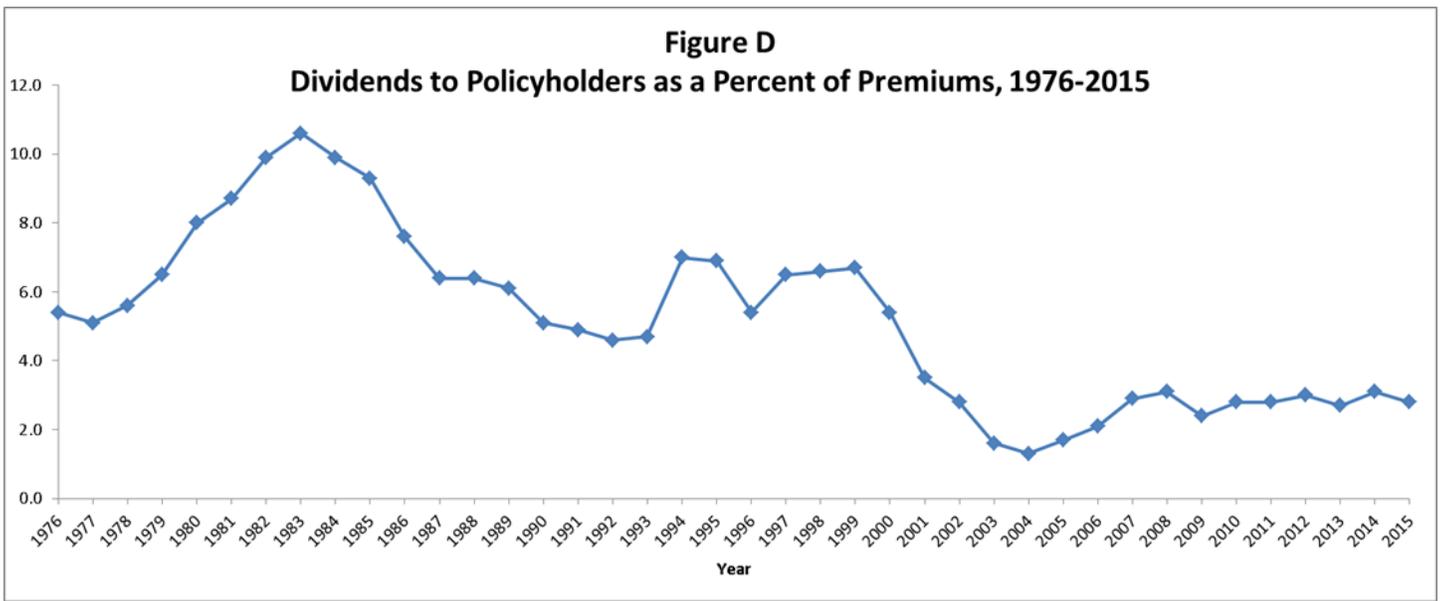
needed to prepare and submit rating systems for regulatory review. In times of rapidly rising rates, implementation delays can be costly. In addition, regulatory actuaries and actuaries for insurers might not always agree on the magnitude of change needed. During the 1984 to 1992 period, insurance regulators in many states refused to accept the rate increases proposed by the insurance industry. It was during this time period that a movement away from administered pricing toward competitive rating for workers' compensation occurred. Increased reliance on competition allowed carriers to be more responsive to market conditions, improving speed to market for rate changes.³

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² The reform efforts are examined in Spieler and Burton (2012).

³ The relaxation of rate regulation of the workers' compensation market is examined in Thomason, Schmidle and Burton (2001, 39-43).



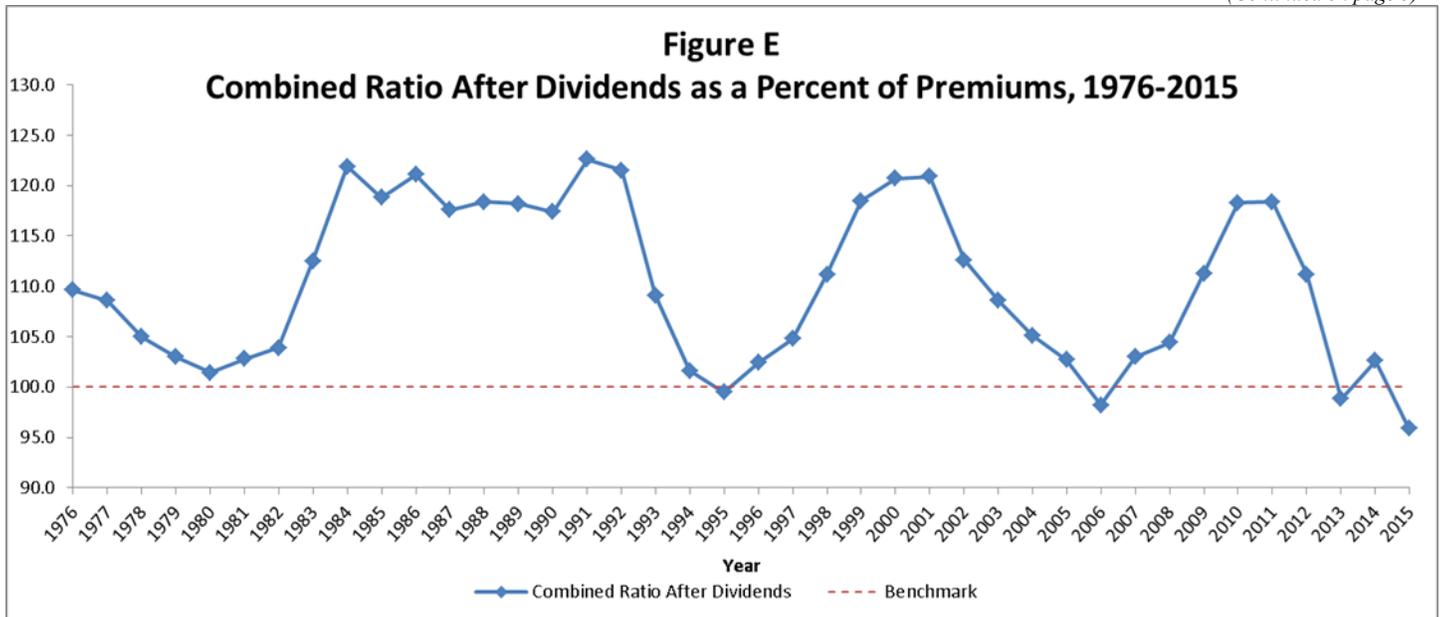
The results of these reforms in the regulation of the workers' compensation insurance markets in most states that began in the early 1990s are evident in the results from 1993 to 2015. In the eight years between 1993 and 2000, the overall operating ratio was less than 100 in every year, which was probably the longest string of profitable years for the workers' compensation industry in the second half of the 20th century (and possibly in the entire 20th century). Then following the unprofitable years of 2001 and 2002, there was another eight-year stretch from 2003 to 2010 in which the operating ratio was less than 100 in every year.

The operating ratio then slightly exceeded 100 in 2011, before falling under 100 the last four years. In short, the workers' compensation industry has been profitable in 20 of the last 23 years, with the exception of 2001, 2002 and 2011.

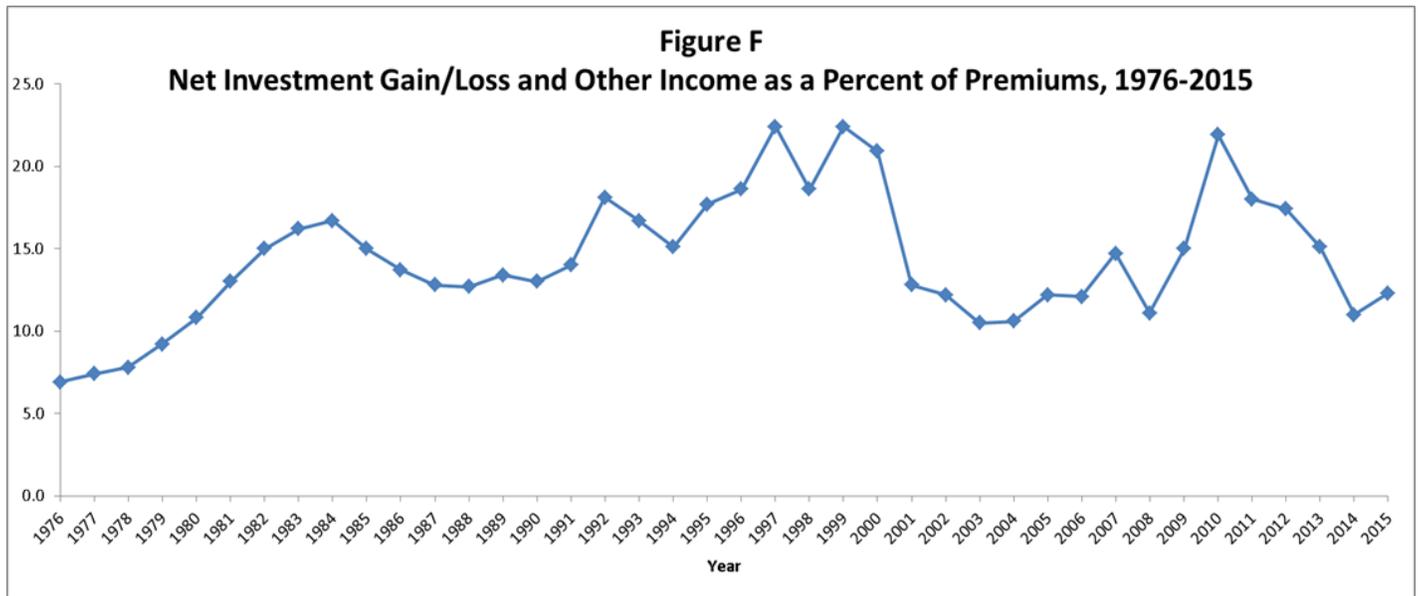
◆ **COMPONENTS OF THE OVERALL OPERATING RATIO**

The overall operating ratio shown in column (8) of Table 1 is a figure derived from the underwriting data for workers' compensation carriers included in column (1) through column (7) of Table 1⁴. The loss ratio, which is incurred losses (benefits)

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⁴ An extended discussion of insurance terminology is included in Thomason, Schmidle and Burton (2001, Appendix B).



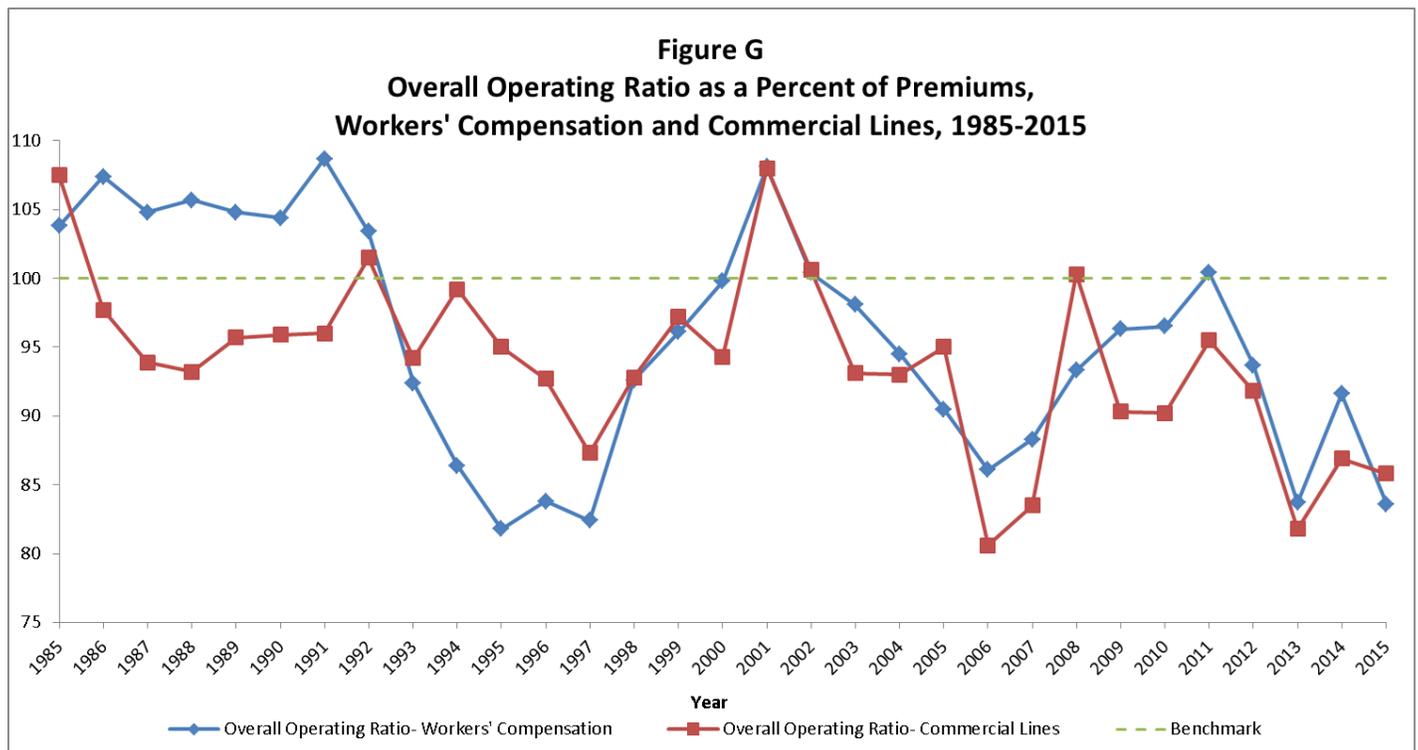
as a percentage of premiums, is shown in column (1) of Table 1⁵.

When premiums drop more rapidly than losses, or when premiums increase less rapidly than losses, the loss ratio will increase. As shown in Figure B and column (1) of Table 1, the loss ratio increased rapidly from 58.6% in 1997 to 78.9% in 2001. It then plummeted to 60.7% in 2006 before increasing

to 72.2% in 2010. The loss ratio subsequently declined over the next five years before reaching 55.2% in 2015.

An extended discussion of insurance terminology is included in Thomason, Schmidle and Burton (2001, Appendix B). Incurred losses include paid losses plus reserves for losses for injuries or diseases that have already occurred.

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⁵ Incurred losses include paid losses plus reserves for losses for injuries or diseases that have already occurred.

THE IMPACT OF INVESTMENT INCOME ON WORKERS' COMPENSATION UNDERWRITING RESULTS (CONTINUED)

Table 2		
Underwriting Experience, Workers' Compensation and Commercial Lines, 1976-2015		
Year	Overall Operating Ratio- Workers' Compensation	Overall Operating Ratio- Commercial Lines
1976	102.6	
1977	101.2	
1978	97.2	
1979	93.7	
1980	90.7	
1981	89.8	
1982	88.9	
1983	96.3	
1984	105.2	
1985	103.8	107.5
1986	107.4	97.7
1987	104.8	93.9
1988	105.7	93.2
1989	104.8	95.7
1990	104.4	95.9
1991	108.7	96.0
1992	103.4	101.5
1993	92.4	94.2
1994	86.4	99.2
1995	81.8	95.0
1996	83.8	92.7
1997	82.4	87.3
1998	92.6	92.8
1999	96.1	97.2
2000	99.8	94.3
2001	108.1	108.0
2002	100.4	100.6
2003	98.1	93.1
2004	94.5	93.0
2005	90.5	95.0
2006	86.1	80.6
2007	88.3	83.5
2008	93.3	100.3
2009	96.3	90.3
2010	96.5	90.2
2011	100.4	95.5
2012	93.7	91.8
2013	83.7	81.8
2014	91.6	86.9
2015	83.6	85.8

Source:
Best's Aggregate & Averages Property/Casualty, 2005 and prior Editions, © A.M. Best Company - used with permission. Data for 2006-2015 restated with most recent NAIC annual statement data, © 2017 National Association of Insurance Commissioners

Notes:
 The Overall Operating Ratio is the total of all underwriting expenses and income from investments as a percentage of premiums.
 "Commercial Lines" includes all insurance lines except health and accident, passenger auto, and homeowner multiple perils insurance.

The total of incurred losses and incurred loss adjustment expenses is shown in Figure B and in column (3) of Table 1. The difference between the two lines in Figure B is incurred loss adjustment expenses, which are shown in column (2) of Table 1. Loss adjustment expenses include the cost of processing claims. From 1973 to 1985, loss adjustment expenses were always less than 10% of premium, but they have been at least 12% in every year since 1992. Loss adjustment expenses reached a record of 18.9% of premium in 2011, before dropping to 14.7% in 2012, 14.6% in 2014 and 14% in 2015. The higher loss adjustment expense since the early 1990s compared to earlier years may reflect in part the more intensive efforts in recent years to manage health care costs for disabled workers.

Underwriting expenses incurred as a percent of premiums are shown in Figure C and column (4) of Table 1. These expenses, which include commissions and broker fees, also have generally increased over time. Between 1973 and 1992, underwriting expenses were greater than 20% of the premium only three times. Since 1993, underwriting expenses have been 20% or greater in every year. There have been fluctuations in underwriting expenses recently: Averaging 26.2% of premiums in 1998 to 2001, underwriting expenses averaged only 21.7% of premiums in 2002 to 2007, and then increased to an average of 24.7% of premiums in 2008 to 2015.

Dividends as a percent of premiums are presented in Figure D and column (5) of Table 1. Prior to reforms within the workers' compensation insurance markets in most states in the 1980s and 1990s, carriers were limited in their ability to compete by lowering insurance rates at the beginning of the policy period. However, both mutual and stock companies could compete by offering policies that paid dividends to policyholders after the policy period. In the early 1980s, dividends ranged from 8% to 10.6% of premiums. Since 1990, dividends have never exceeded 7% of premiums. Dividends averaged less than 4% of premiums from 2000 to 2003, reaching their lowest point in the 32 years of available data in 2004 at 1.3% of premiums. Since 2004, dividends have been modestly higher but were 2.7% in 2013, 3.1% in 2014 and 2.8% in 2015.

The combined ratio after dividends is presented in Figure E and column (6) of Table 1. The combined ratio is the sum of the loss ratio column (1), loss adjustment expenses column (2), underwriting expenses column (4) and dividends column (5). When the combined ratio exceeds 100%, premiums are not adequate to cover losses and expenses. As shown in

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THE IMPACT OF INVESTMENT INCOME ON WORKERS' COMPENSATION UNDERWRITING RESULTS (CONTINUED)

Table 3

Workers' Compensation Overall Operating Gain/Loss Ratio, 1976-2015

Year	Overall Operating Ratio (1)	Overall Operating Gain/Loss Ratio (2)
1976	102.6	-2.6
1977	101.2	-1.2
1978	97.2	2.8
1979	93.7	6.3
1980	90.7	9.3
1981	89.8	10.2
1982	88.9	11.1
1983	96.3	3.7
1984	105.2	-5.2
1985	103.8	-3.8
1986	107.4	-7.4
1987	104.8	-4.8
1988	105.7	-5.7
1989	104.8	-4.8
1990	104.4	-4.4
1991	108.7	-8.7
1992	103.4	-3.4
1993	92.4	7.6
1994	86.4	13.6
1995	81.8	18.2
1996	83.8	16.2
1997	82.4	17.6
1998	92.6	7.4
1999	96.1	3.9
2000	99.8	0.2
2001	108.1	-8.1
2002	100.4	-0.4
2003	98.1	1.9
2004	94.5	5.5
2005	90.5	9.5
2006	86.1	13.9
2007	88.3	11.7
2008	93.3	6.7
2009	96.3	3.7
2010	96.5	3.5
2011	100.4	-0.4
2012	93.7	6.3
2013	83.7	16.3
2014	91.6	8.4
2015	83.6	16.4

Source:

Column (1) is equal to Column (8) in Table 1

Column (2) = 100 - Column (1)

Figure E, the combined ratio exceeded 100% in every year between 1975 and 1994. It was greater than 110% every year from 1983 to 1992. The combined ratio then dropped sharply after 1992, until reaching a low of 99.5 in 1995. The combined ratio deteriorated (increased) in every year between 1995 and 2001, reaching 120.9% in 2001 and averaging nearly 118% in 1998 to 2001. Restated, for every \$100 of premiums received by workers' compensation carriers from 1998 to 2001, there was an average of almost \$118 of losses, loss adjustment expenses, underwriting expenses and dividends. The combined ratio then dropped sharply for five years before reaching 98.2 in 2006. This stood as a record low until 2015, when the combined ratio reached 95.9%. The combined ratios after dividends for the last four years were: 111.2 (2012); 98.8 (2013); 102.6 (2014); and 95.9 (2015). It will be interesting to watch the loss development for the 2016 year to see if the combined ratio stays at this record low level.

◆ AN INCOMPLETE MEASURE

Many workers' compensation insurers are hesitant to consider any measure of underwriting results that goes beyond the calculation of the combined ratio after dividends. They believe this ratio reflects the accuracy of their underwriting and pricing programs. However, as pointed out in the 2014 version of this article, the combined ratio after dividends represents an incomplete and potentially misleading record of the profitability of insurance carriers because no account is taken of investment gains (or losses) and other income received by workers' compensation carriers. Net investment gains (or losses) on funds and other income as a percent of premiums are shown in Figure F and column (7) of Table 1. From 1981 to 2002, net investment income was at least 12% of premium in every year. Net investment income dropped below 12% to 10.5% in 2003 and to 10.6% in 2004, which were the lowest since 1979. However in the years from 2005 to 2015, net investment income as a percent of premium averaged 14.6%, with the highest years being 2010 (21.9%) and 2011 (18.0%).

The results for 2013 illustrate why underwriting results that only focus on the combined ratio after dividends are misleading. In that year, the combined ratio was 98.8%, which means that for every \$100 of premiums, there was \$98.80 of losses, loss adjustment expense, underwriting expenses and dividends. However, in 2013 net investment income was 15.1% of premiums, which means that the insurance industry had investment income of \$15.10 for every \$100 of premiums. When the net investment income is subtracted from the combined ratio, the overall operating ratio for

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THE IMPACT OF INVESTMENT INCOME ON WORKERS' COMPENSATION UNDERWRITING RESULTS (CONTINUED)

Table 4
Workers' Compensation Profitability in Eight Least Profitable States by Underwriting Profit, 2015

State	Underwriting Profit (8)	Investment Gain On Insurance Transactions (8A)	Tax On Insurance Transactions (8B)	Profit on Insurance Transactions (8C)
South Carolina	-12.6	11.4	-1.4	0.3
Kentucky	-11.4	24.4	2.4	10.7
Idaho	-8.7	8.4	-0.9	0.6
Massachusetts	-8	13.5	0.7	4.8
Rhode Island	-7.2	8.5	-0.3	1.6
Virginia	-6	12.7	1.2	5.5
Louisiana	-5	12.7	1.6	6.2
Delaware	-2.3	16.8	3.6	10.9
Countrywide	4.7	13.5	5.1	13.0

Source: National Association of Insurance Commissioners (2017), Report on Profitability By Line By State in 2015, pp. 129-130.

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Notes:

Entries are Percent of Direct Premium Eamed

Column numbers correspond to numbers in the NAIC Report.

Column (8) Underwriting Profit + Column (8A) Investment Gain On Insurance Transactions - Column (8B) Tax on Insurance Transactions =
 Column (8C) Profit on Insurance Transactions

*Top 8 least profitable, by measure of underwriting profit, were chosen to compare to countrywide, to show the impact of investment income on profit.

**Results are affected by rounding.

2013 was 83.7% percent. This means the insurance industry had \$17.30 in profit for every \$100 of premiums in 2013.

This example indicates why focusing on the overall operating ratio, and not the combined ratio after dividends, should be the starting point for addressing the profitability of the workers' compensation insurance industry. It should be pointed out that in 2014 and 2015, the net investment gain for the workers' compensation industry declined substantially. In 2014, the return was just 11%. In 2015, it increased slightly to 12.3%, which in combination with the combined ratio that year resulted in a record low overall operating ratio.

◆ COMPARISON TO OTHER INSURANCE LINES

The overall operating ratio of workers' compensation is compared to all commercial lines of insurance from 1985 to 2015 in Figure G and Table 2.

The comparison reinforces the impression of the volatility of the underwriting results in the workers' compensation insurance industry. The workers' compensation industry had smaller losses (a lower operating ratio) than other commercial lines in 1985. Workers' compensation had losses

(overall operating ratios were in excess of 100), while other commercial lines were profitable. Overall operating ratios were less than 100 from 1986 until 1991. Workers' compensation had greater losses than other commercial lines in 1992. Workers' compensation was more profitable (a lower operating ratio) than other lines from 1993 to 1999. Workers' compensation was profitable but less so than other lines in 2000. Workers' compensation had losses that slightly exceeded other commercial lines in 2001 and had losses that were slightly lower than losses in other commercial lines in 2002. For the period between 2003 and 2015—with two exceptions—both workers' compensation and all commercial lines of insurance have been profitable. The exceptions were 2008, when commercial and workers' compensation had modest losses, and 2011, when workers' compensation had modest losses. In some years (such as 2008) workers' compensation was more profitable than all commercial lines. In other years (such as 2009 to 2014), workers' compensation was less profitable, and 2015 workers' compensation was slightly more profitable than all commercial lines.

◆ **AN ALTERNATIVE MEASURE OF UNDERWRITING RESULTS: THE OVERALL OPERATING GAIN/LOSS RATIO**

The overall operating ratio, which is the most comprehensive measure of underwriting experience for insurance carriers, has a characteristic that is counter-intuitive for many readers: The lower the overall operating ratio, the higher the profitability. The overall operating gain/loss ratio shown in Table 3 and Figure H is calculated as 100 minus the overall operating ratio. The overall operating gain/loss ratio shown in Table 3 is similar to the workers' compensation operating gain (pre-tax operating gain ratio) as calculated by the National Council on Compensation Insurance (NCCI) (Antonello 2014, 20)⁶.

The results in Table 3 and Figure H indicate that the overall operating gain/loss ratio for the workers' compensation industry for the last five years was: -0.4 (2011); 6.3 (2012); 16.3 (2013); 8.4 (2014) and 16.4 (2015). This means for 2015, the insurance industry had a profit of \$16.40 for each \$100 of premiums in that year.

◆ **UNDERWRITING RESULTS FOR INDIVIDUAL STATES**

A comprehensive source of information on underwriting results in individual states is published by the NAIC in the *Report on Profitability By Line By State in 2015*.

The NAIC results in Table 4 reinforce the importance of considering investment gain on insurance transactions and not just combined ratio (or underwriting profit in the NAIC data) when determining the profitability of the insurance industry nationally, as well as in individual states.

The 2014 study looked at eight states and the countrywide summary using 2012 data. This 2017 study looks at the eight states with the largest underwriting losses before the application of investment income and taxes using 2015 data. The eight states had a net profit after the application of investment gains and taxes.

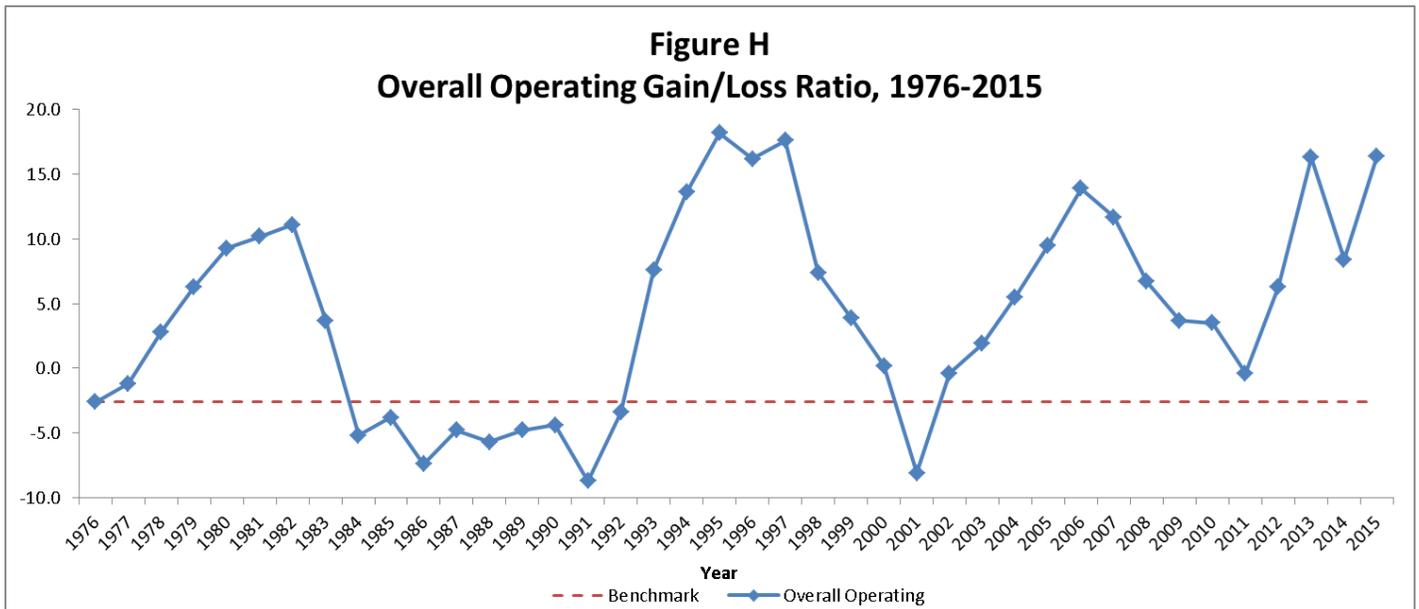
The countrywide underwriting profit was 4.7%. After the application of the investment gain and taxes, the line produced a profit for underwriting companies of 13.0%.

◆ **CONCLUSIONS**

The workers' compensation insurance industry has been profitable since 2011 as measured by the overall operating ratio in Table 1 and Figure A or the overall operating profit/loss ratio in Table 3 and Figure H. The level of profit for 2015 has been exceeded twice since 1976.

Although commonly used as a measure of insurance industry performance, the combined ratio after dividends is mis-

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⁶ The National Council on Compensation Insurance (Antonello 2014) indicates that "Operating Gain Equals 100 minus (Combined Ratio Less Investment Gain on Insurance Transactions and Other Income)."

leading because investment income is not considered. The overall operating ratio or overall operating gain/loss ratio is a superior measure of the performance of the workers' compensation insurance industry because the measure includes investment income.

Evaluating workers' compensation insurance performance at the state level by using the combined ratio after dividends is particularly suspect since investment income as a percentage of premium is not considered. Although none of the eight states in Table 4 had underwriting profits (combined ratios after dividends that were more than 100% of premium), all of the eight states were profitable after investment income was considered.

Investment income varies widely by states. For the eight states in this study, investment gain on insurance transactions ranged from 8.4% to 24.4%.

◆ APPENDIX

A Comparison of Table 1 and Table 4 Data from the National Association of Insurance Commissioners

This Appendix provides a comparison of the four columns of NAIC countrywide 2015 Profitability Report data in Table 4 with the 2015 NAIC Financial Annual Statement data in Table 1.

- The NAIC underwriting profit in column (8) of Table 4 is roughly comparable to 100 minus the combined ratio after dividends in column (6) of Table 1.
- The NAIC investment gain on insurance transactions in column (8A) of Table 4 is roughly comparable to the A.M. Best investment gain on funds and other income in column (7) of Table 1. (Note that the formula for calculating the investment gain is the same. However, due to differences in timing, A.M. Best and the NAIC results may differ. The NAIC data is restated for the most recent 10 years, each year. The restated data includes companies that refiled and/or late filed their annual statements with the NAIC. The NAIC data for 2006–2015 in Table 1, Table 2 and Table 3, as well as the NAIC data in Table 4, is restated data. The A.M. Best data for 1973–2005 in Table 1 is not restated.)
- Table 4 does not include data comparable to the overall operating ratio from data shown in column (8) of Table 1.
- The data in Table 1 does not include data comparable to the NAIC tax on insurance transactions shown in column (8B) of Table 4.

- The 100 minus the overall operating ratio from A.M. Best shown in column (8) of Table 1 is identical to the overall operating gain/loss ratio in column (2) of Table 3. Both of these measures are roughly comparable to the profit on insurance transactions in column (8C) of Table 4 plus the tax on insurance transactions in column (8B).

◆ REFERENCES

- Antonello, K., 2014. State of the Line. Presentation to the 2014 Annual Issues Symposium. Boca Raton, FL: National Council on Compensation Insurance.
- Burton, J.F. Jr., 2014. "Workers' Compensation Insurance Underwriting Results Continue to Increase in 2013," *Workers' Compensation Resources Policy Review*, (8): 2–12.
- Spieler, E., and J.F. Burton Jr., 2012. "The Lack of Correspondence Between Work-Related Disability and Receipt of Workers' Compensation Benefits," *American Journal of Industrial Medicine*, 55: 487–505.
- Thomason, T., T.P. Schmidle, and J.F. Burton Jr., 2001. *Workers' Compensation: Benefits, Costs and Safety under Alternative Insurance Arrangements*, Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.