



Inflation and the Company Actuary

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“There is a Chinese curse which says “May he live in interesting times.” Like it or not, we live in interesting times. They are times of danger and uncertainty; but they are also the most creative of any time in the history of mankind.”

Robert F. Kennedy - 1966



Hypothesis

- Actuaries are very good at predicting the future when the future looks reasonably like, or is reasonably similar to, the past.
 - Actuaries are less good at predicting the future in a rapidly changing or evolving environment.
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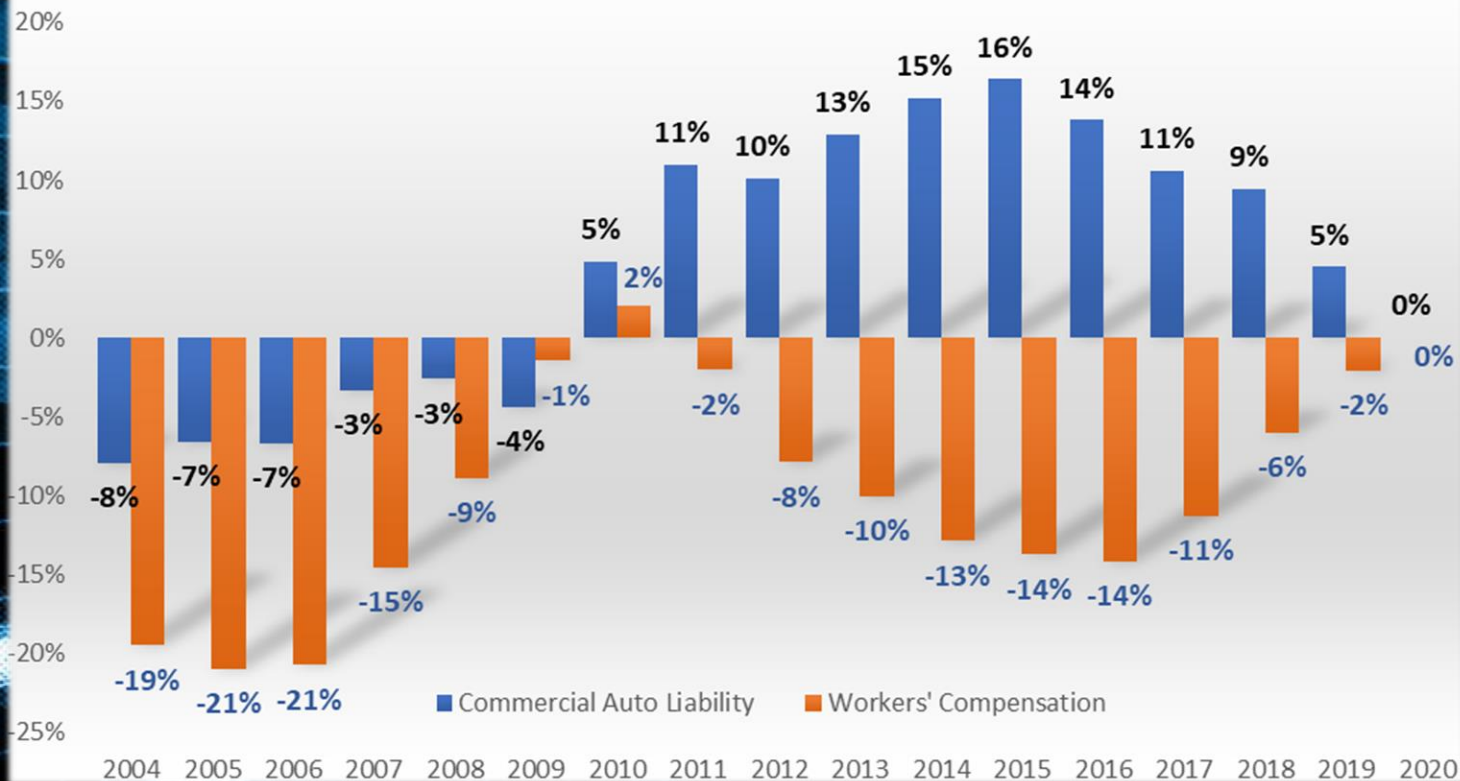
Commercial Auto Liability Data

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Accident Year	Net Earned Premium	Initial Loss and DCC Estimate	Most Recent Loss and DCC Estimate	Change in Estimate	% Change in Estimate	Initial Loss Ratio	Most Recent Loss Ratio	Change in Loss Ratio
2004	18,734,661	11,514,657	10,608,252	-906,405	-7.9%	61.5%	56.6%	-4.8%
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2020	28,464,799	18,755,657	18,755,657	0	0.0%	65.9%	65.9%	0.0%

A Tale of Two Lines

Percent Change from Initial to Most Recent Estimate

Source: 2021 Schedule P Industry Data (SNL)





Inflation: What are we talking about...

Social Inflation

- Changes in societal norms, expectations, or practices that lead to adverse outcomes or trends in loss and expense payments
- Includes but not limited to
 - Changes in driving practices
 - Nuclear Verdicts
 - Litigation Practices
 - Litigation Financing

Economic Inflation

- Changes in the costs of goods and/or services that drive up the costs of loss and expense payments beyond historical norms
- Includes but not limited to
 - Building materials
 - Auto parts
 - Medical costs
 - Labor costs
 - Time element



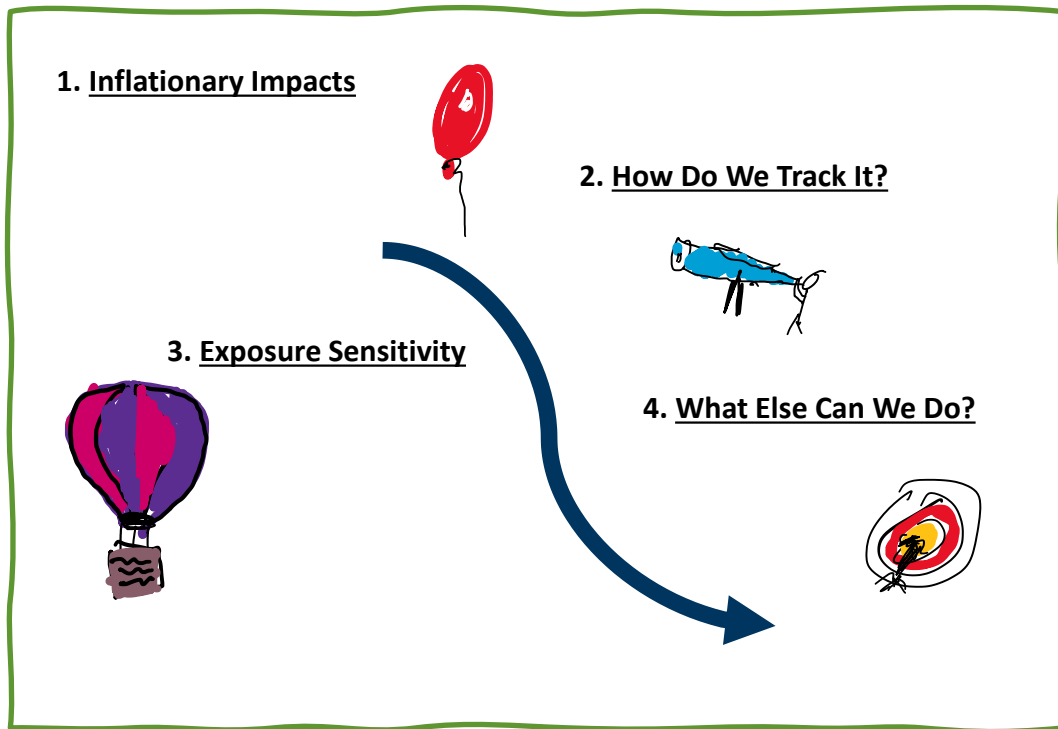
Economic Inflation and the Company Actuary



A Rubric for thinking about inflationary impacts

Lines of Business

- Workers' Compensation
- Commercial Property
- General Liability
- Commercial Auto
- Homeowners
- Personal Auto



Pricing

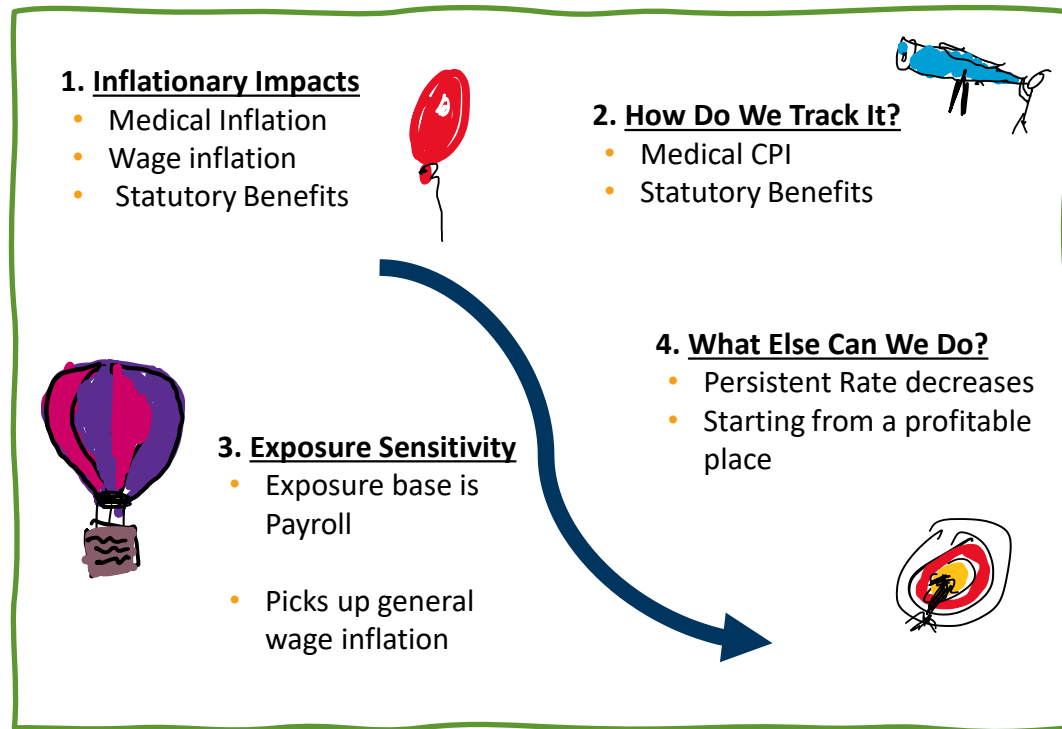
Reserving

Planning



Economic Inflation – Workers' Compensation

- Already a difficult line of business
- Wage inflation drives up indemnity costs
 - Relationship is uneven due to statutory rules around indemnity benefits
- Medical CPI drives up medical costs
 - Relationship is uneven due to cost mitigation feature within WC claim practices
- Exposures



Pricing

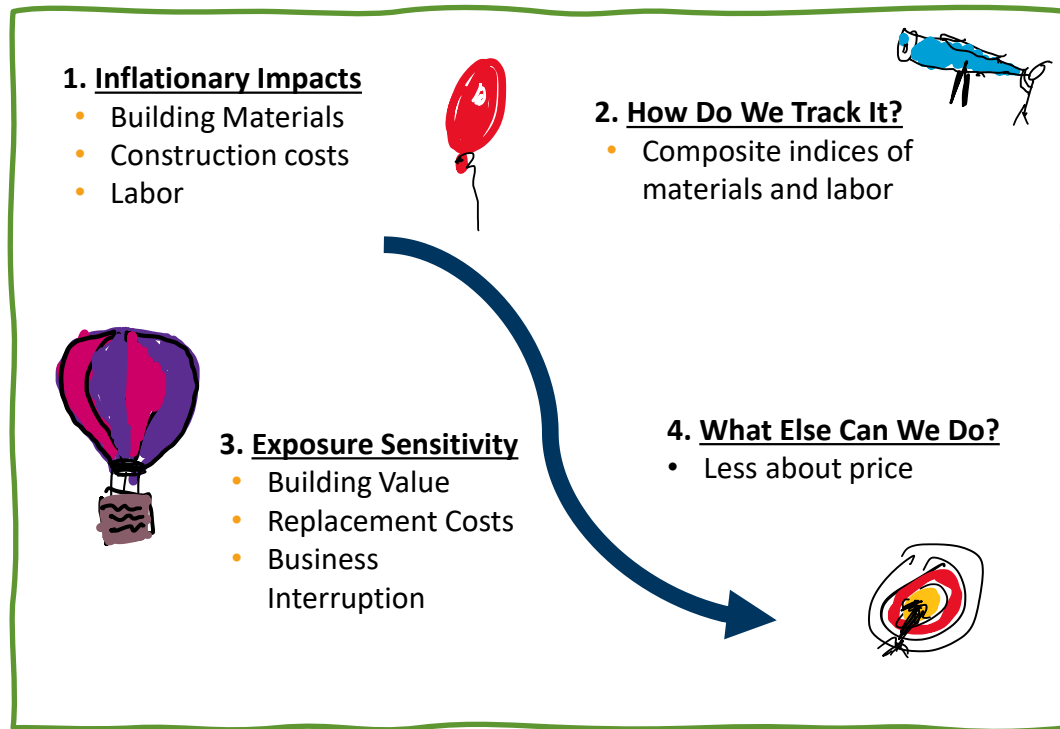
Reserving

Planning



Economic Inflation – Commercial Property

- Commercial Property losses are harder to gauge than Homeowners due to the complex nature of building materials
- Contents can be unique and be hard to replace
- Sensitivity to supply chain issues
- Delays due to labor, material or equipment shortages increase the time element risk



Pricing

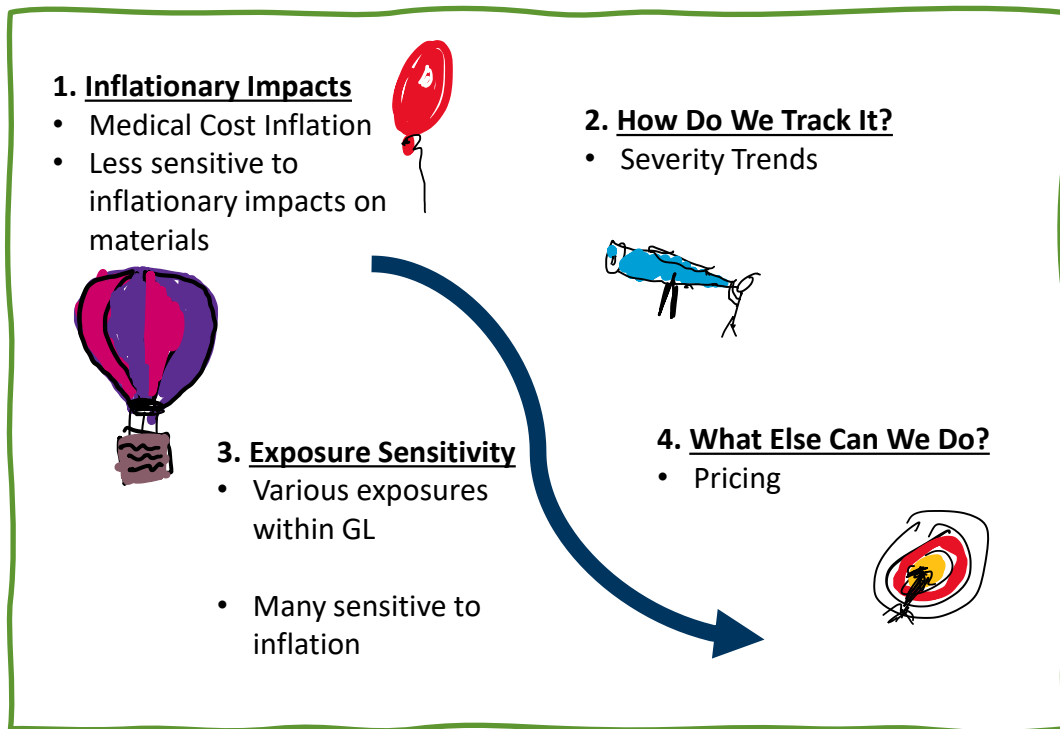
Reserving

Planning



Economic Inflation – General Liability

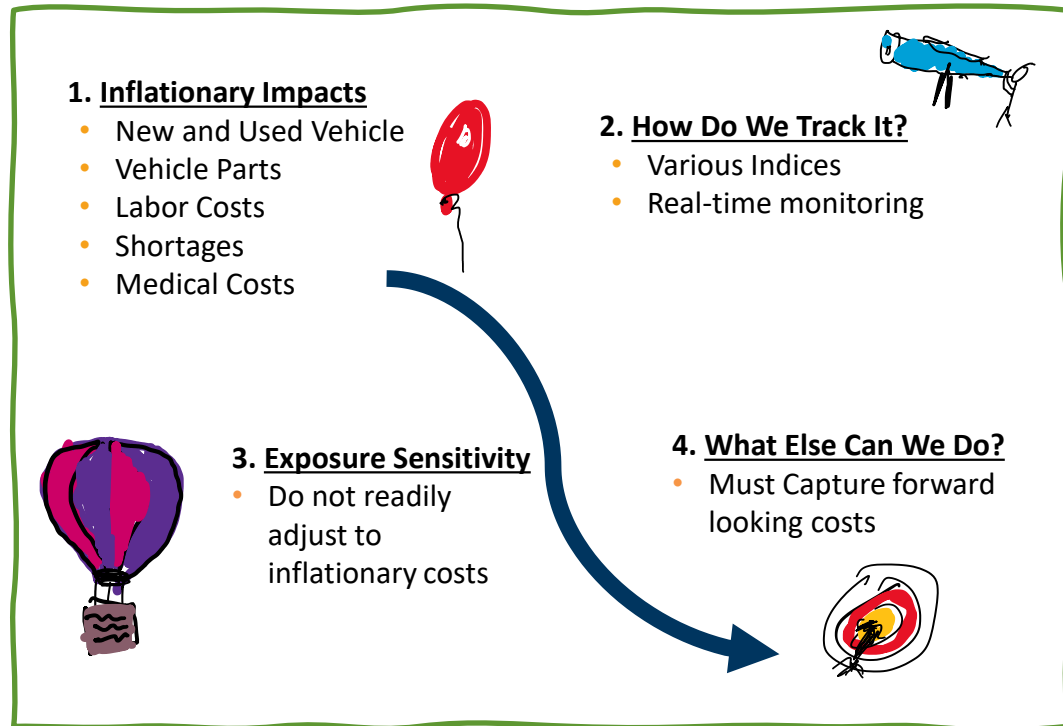
- Medical Cost inflation can have a large impact on losses given lack of direct control around treatments
- General Liability losses can be less susceptible to Economic Inflationary trends than to Social Inflationary Trends
- Exposure bases vary by product and class. Some are inflation sensitive (receipts, revenue, salary) others are not (square footage, etc.)





Economic Inflation – Commercial Auto

- Commercial Auto has been a difficult line over last decade
- Frequency and Severity “noise” of 2020-21 make this even more difficult
- Physical Damage Costs hit by vehicle, parts and labor costs
- Delays = more increased costs
- Beware open claim inventories



Pricing

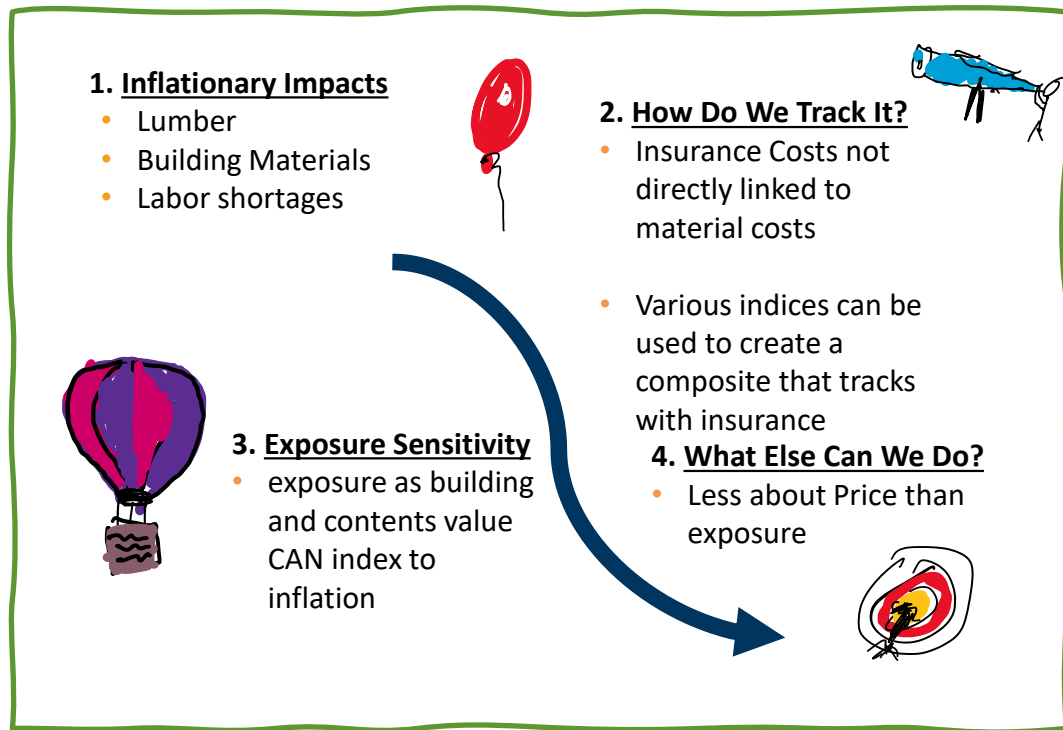
Reserving

Planning



Economic Inflation - Homeowners

- Losses are extremely inflation sensitive to current market conditions:
 - Inflation in the costs to repair
 - Delays in the time it takes to secure materials
 - Increased Contractor demand with stagnant or declining supply
- How good is our claims department at keeping up with costs?
 - Average reserves
 - Cat Reserves
 - Non-Cat Weather (water/Hail)
- Are claim volumes building up?
- Are we adjusting exposures ?
- Is it sufficient?



Pricing

Reserving

Planning

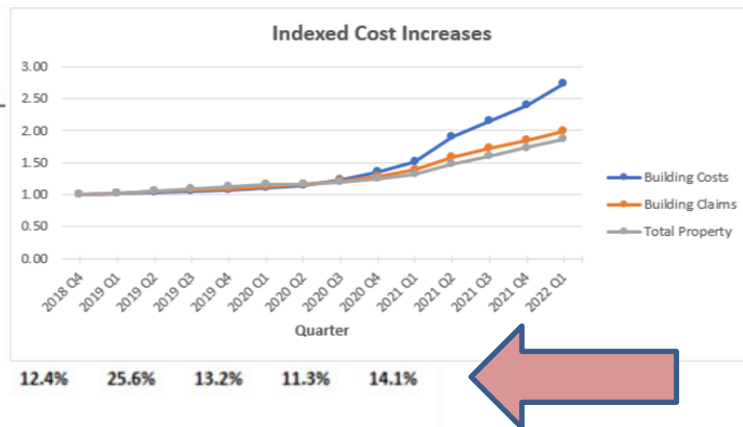


Homeowners Inflationary Metrics

Year over Year Cost Increases

Part A

Building Material	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4
Roofing	7.3%	7.0%	5.2%	3.1%	3.4%	3.3%	1.2%	2.1%	2.2%
Lumber	0.3%	-3.2%	-9.0%	-10.2%	-7.7%	-4.8%	-0.7%	45.1%	54.2%
Carpet	4.5%	4.5%	0.3%	0.1%	0.1%	0.1%	5.1%	6.5%	6.5%
Paint	1.5%	1.5%	4.0%	5.6%	5.6%	6.2%	4.5%	1.9%	3.3%
Drywall	5.3%	2.7%	2.5%	1.3%	1.6%	1.3%	1.5%	2.6%	2.0%
Flooring Non-Carpet	2.6%	1.9%	2.0%	2.2%	2.3%	2.6%	3.0%	3.3%	3.6%
HVAC	5.8%	5.3%	5.7%	5.7%	5.1%	5.4%	5.7%	5.7%	5.8%
Concrete Masonry	5.8%	5.3%	5.7%	5.7%	5.1%	5.4%	5.7%	5.7%	5.8%
Interior Trim and Finish	1.4%	1.2%	2.4%	3.3%	5.4%	5.4%	4.5%	3.1%	1.1%
Siding	5.8%	5.3%	5.7%	5.7%	5.1%	5.4%	5.7%	5.7%	5.8%
Building Costs	3.8%	2.8%	1.7%	1.3%	1.9%	2.3%	2.8%	8.4%	9.4%



Part B

Building Claim Category	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1
Building Costs	3.8%	2.8%	1.7%	1.3%	1.9%	2.3%	2.8%	8.4%	9.4%	12.4%	25.6%	13.2%	11.3%	14.1%
Labor Costs ¹	2.4%	2.4%	2.3%	2.5%	2.5%	2.9%	2.9%	3.2%	4.2%	5.1%	5.6%	5.5%	4.6%	3.8%
Building Claims	3.0%	2.6%	2.1%	2.0%	2.3%	2.7%	2.9%	5.3%	6.3%	8.0%	13.6%	8.6%	7.3%	7.9%

Part C

Property Claims	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1
Building Claims	3.0%	2.6%	2.1%	2.0%	2.3%	2.7%	2.9%	5.3%	6.3%	8.0%	13.6%	8.6%	7.3%	7.9%
Contents Claims ²	4.5%	0.2%	8.8%	7.7%	6.2%	5.7%	-3.8%	-0.8%	0.1%	1.6%	4.8%	5.2%	5.7%	4.2%
Loss of Use Claims ³	0.5%	2.9%	4.1%	5.3%	-0.6%	-7.5%	-16.0%	-15.0%	-11.2%	-7.6%	16.9%	19.8%	27.6%	12.6%
Total Property	3.1%	2.1%	3.5%	3.3%	2.9%	2.8%	0.6%	3.1%	4.2%	6.0%	12.0%	8.5%	8.0%	7.4%



Homeowners Challenges / Questions

Pricing

- How are we projecting future costs?
- Is inflation transitory?
- Do costs come down?
- How are increases in building value/cost being reflected in renewals

Reserving

- Importance of tracking payments
- What are our claims adjuster doing?
- Beware of closed claims
- Systematic or formula reserves

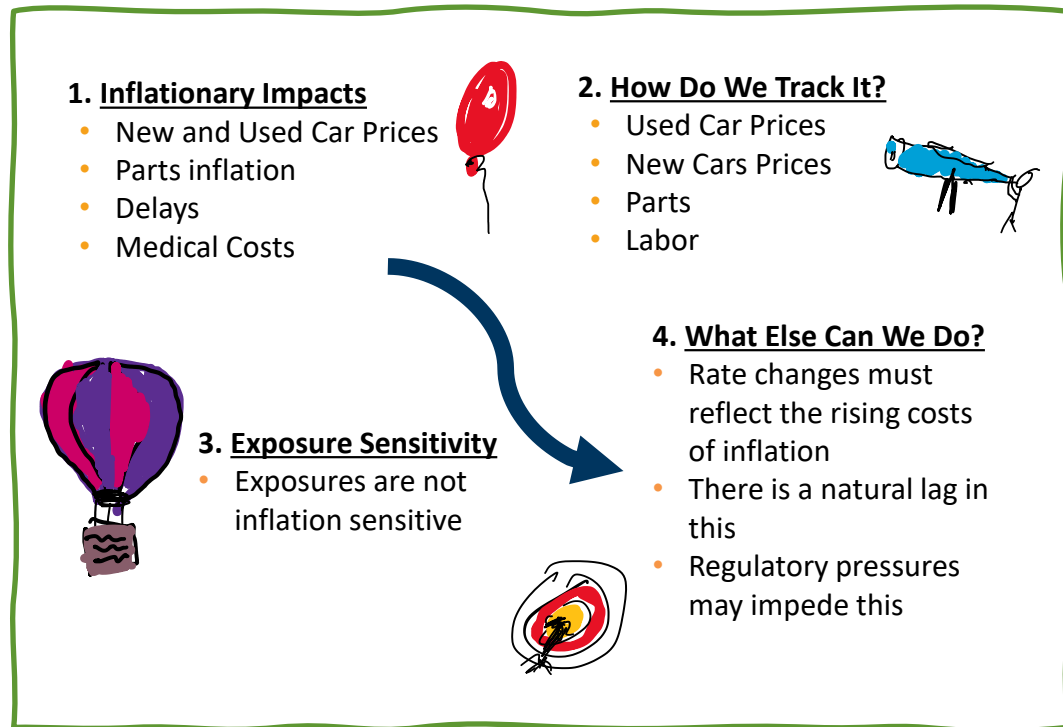
Planning

- Standard loss planning may not be adequate
- What is my baseline for losses
- How do I think about prospective severity
- How are we adjusting insured value
- How do I balance that against rate need



Economic Inflation – Personal Auto

- Physical Damage Losses are extremely sensitive to cost and time
 - Used car price changes
 - Repair delays (settlement lags)
 - Labor shortages and increased costs
- BI and PIP may be affected by medical costs inflation and utilization
- Repair lags and supply shortage can exacerbate the problem



Pricing

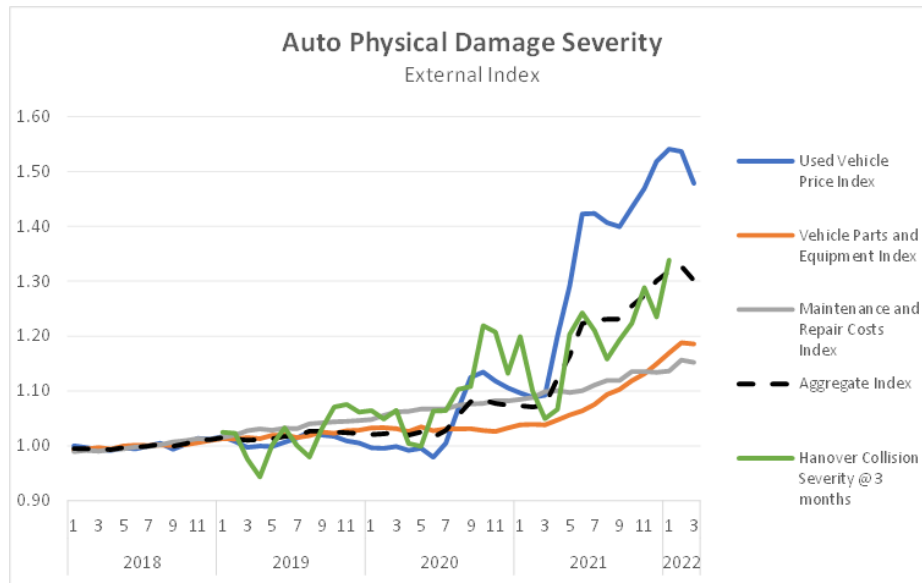
Reserving

Planning



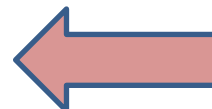
Personal Auto Physical Damage

- Where are costs going ?
- Will there be a deflation when supply chain issues resolve themselves?
- How do costs influence the mix of driveable vs non-driveable (total vs non total)



Part A - Physical Damage Index

	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1
Used Car Prices	1.1%	0.9%	1.4%	-0.7%	-1.0%	-1.2%	9.1%	10.0%	9.6%	34.4%	28.5%	37.3%	39.0%
Vehicle Parts and Equipment	1.9%	1.8%	2.1%	1.8%	1.9%	1.3%	0.5%	0.4%	0.6%	3.0%	8.0%	11.3%	13.7%
Maintenance and Repair	<u>3.1%</u>	<u>3.5%</u>	<u>3.5%</u>	<u>3.4%</u>	<u>3.4%</u>	<u>3.4%</u>	<u>3.3%</u>	<u>3.4%</u>	<u>3.4%</u>	<u>3.4%</u>	<u>4.6%</u>	<u>4.8%</u>	<u>5.3%</u>
Aggregate Index	1.8%	1.8%	2.1%	1.1%	1.0%	0.7%	4.8%	5.1%	5.0%	16.3%	15.9%	20.8%	22.5%



Part B - Anticipated Coverage Impact from Physical Damage Index

	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2	2021 Q3	2021 Q4	2022 Q1
Collision	1.8%	1.8%	2.1%	1.1%	1.0%	0.7%	4.8%	5.1%	5.0%	16.3%	15.9%	20.8%	22.5%
Com p	1.1%	1.1%	1.3%	0.7%	0.6%	0.4%	3.0%	3.2%	3.1%	10.1%	9.9%	12.9%	14.0%
PD	1.6%	1.6%	1.9%	1.0%	0.9%	0.6%	4.3%	4.6%	4.5%	14.6%	14.3%	18.7%	20.2%
Injury / Liability	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>	<u>0.0%</u>
Total Auto	1.0%	1.0%	1.1%	0.6%	0.5%	0.4%	2.6%	2.8%	2.7%	8.8%	8.6%	11.2%	12.1%



Personal Auto Challenges / Questions

Pricing

- How are we projecting future costs?
- How has frequency changed since 2019?
- Is inflation transitory?
- Do costs come down?
- When and How ?

Reserving

- Can we even track Frequency and Severity?
- Importance of tracking payments
- Has our mix of claim type changed?
- What are our claims adjuster doing?
- What is our open/pending inventory look like?
- Is Salvage and Subrogation keeping up?

Planning

- Standard loss planning may not be adequate
- What is my baseline for losses
- How do I think about prospective severity
- How are we adjusting insured value
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Wrap up Economic Inflation

	<u>Inflation Sensitivity</u>	<u>Knowable</u>	<u>Exposure Sensitivity</u>	<u>Overall</u>
Worker's Comp	○	○	●	○
Commercial Property	●	○	○	●
General Liability	○	○	●	●
Commercial Auto	○	○	○	○
Homeowners	●	●	●	○
Personal Auto	●	●	●	●

What are we doing as Actuaries to help our companies: understand, anticipate and manage through this spike in Economic Inflation.





Social Inflation

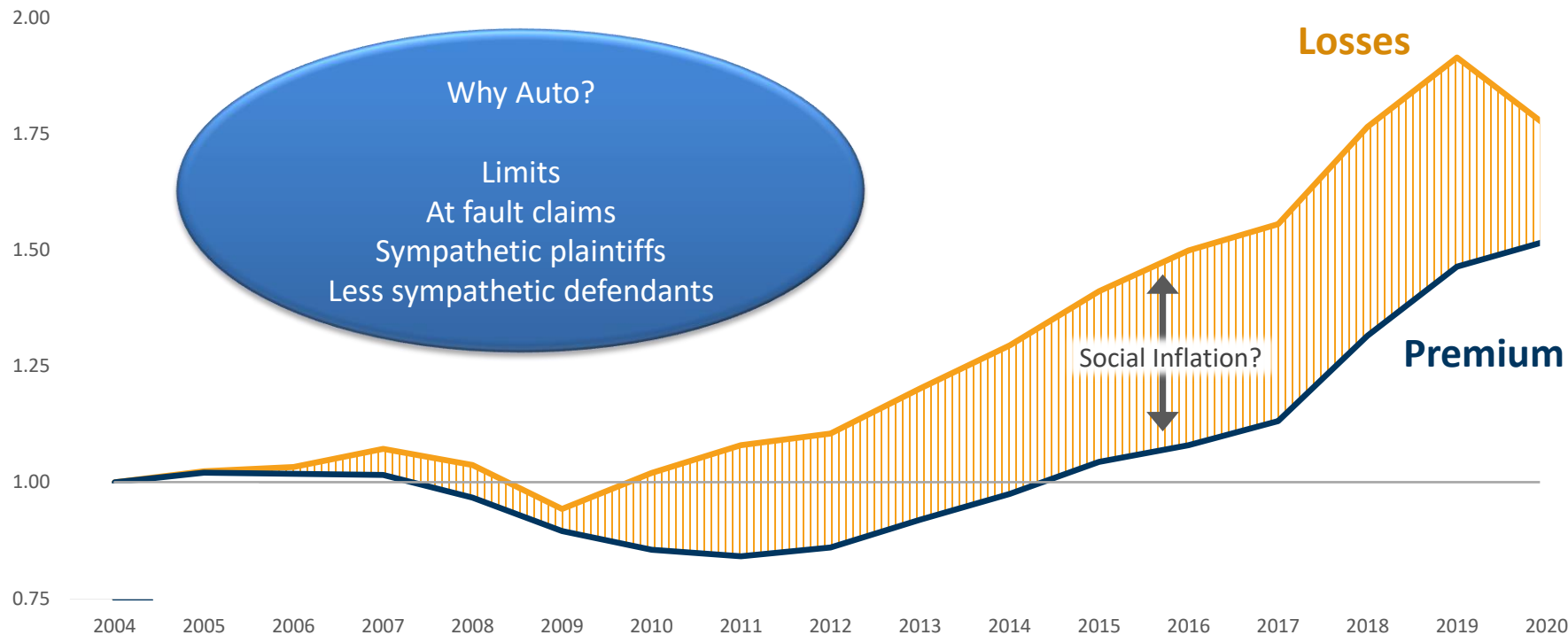


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Another look at Commercial Auto





The Conundrum

What happens when we look out the rear window ?

- Litigation delays can look like favorable case development
- Claim pattern changes can be missed for multiple planning cycles
- Changes in signal can be mistaken for noise
- Other short-term trends may mask what is going on in the environment



Where do we see Social Inflation Manifest

- Claims impact of process and timing
- Impact to reserving in the absence of a new “normal”
- Missing the Trend / Baseline in the planning process
- Aiming our arrows at the wrong targets
- Missing the Risk
- Inability to sufficiently recognize and build the escalating costs into pricing





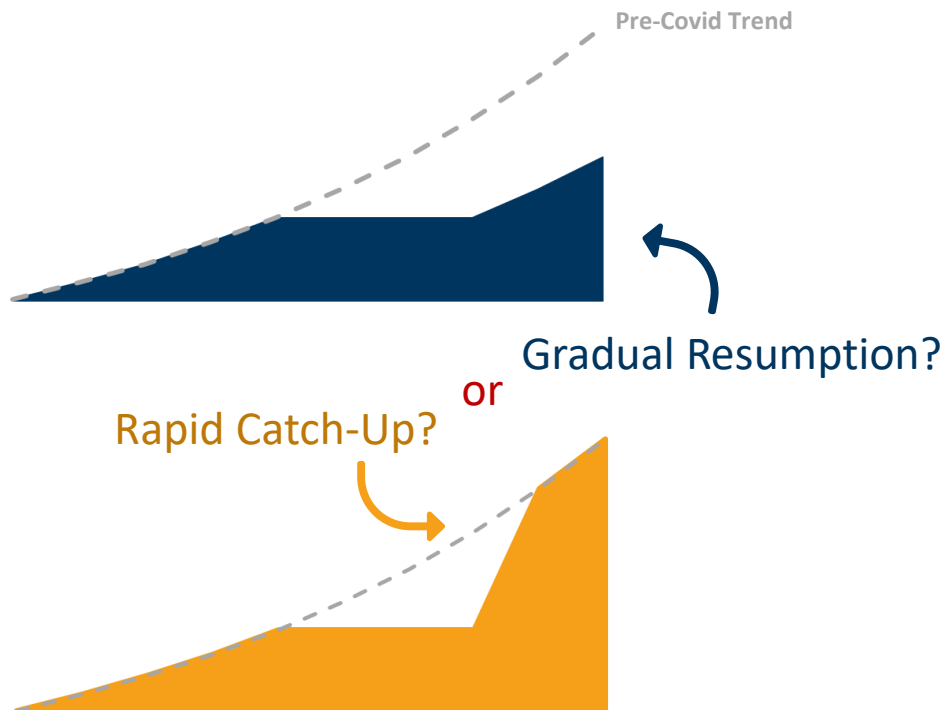
Social Inflation during the Pandemic

- Social Inflation may be dormant / invisible / masked
 - Litigation trends
 - Medical Facilities
 - Medical Procedures
- Pandemic Impacts on Medical Costs
 - Delayed or deferred treatments
 - Avoidance of Doctors and Hospitals
- Actuarial Central Estimate
 - What are the methods telling us
 - Need to discover and monitor leading indicators of litigation
 - Information Bias: Unclear whether losses are deferred or didn't happen
 - What is happening in ALAE ?
- Management's Best Estimate
 - What are the actuaries not considering ?
 - How are actuaries informing this?



Social Inflation in the wake of a Pandemic

- The Underlying Environment is Unchanged
 - Litigation Financing
 - Nuclear Verdicts
 - Societal changes
- Need to Vigilantly Track Litigation Trends
 - What are leading indicators
 - Court or Legal Filings
 - Scheduled Trial Dates
- Medical Costs and Utilization
 - Catch-up costs / procedures





How do we combat the impact of social inflation today, and get better at seeing around the next corner

- **Talent**
 - What is the goal of Actuarial Development ?
 - Need to focus on broad based understanding of our business
- **Function**
 - Build in room for actuaries / analytics professionals to pick their heads up
 - Encourage Innovation and Empowerment (*its ok to be wrong*)
 - Strong cross-collaboration across functions (*Claims, Underwriting, Pricing, Reserving, etc.*)
- **Enterprise**
 - Use our position to advocate for strong Data Driven and Analytical decision making
 - Ensure enterprise integration
- **Portfolio Management**
 - How well do we get paid for the risk we take
 - Thoughtful about geographies
 - Thoughtful about classes / industries
- **Claims**
 - Help to revise the playbook to combat tactics
 - Continue to advance claims analytics to see changes across new segments
 - Impact of claim modeling
- **Industry**
 - Continue to discuss, analyze, disclose and advocate for our policyholders
 - It's a biased world !



“There is a Chinese curse which says “May he live in interesting times.” Like it or not, we live in interesting times. They are times of danger and uncertainty; but they are also the most creative of any time in the history of mankind.”

Robert F. Kennedy - 1966



Hypothesis - revisited

- Actuaries are very good at predicting the future when the future looks reasonably like, or is reasonably similar to, the past.
 - Actuaries are less good at predicting the future in a rapidly changing or evolving environment.
-
- Our job must be more than predicting the future, it must involve discussion of the risks associated with predictions, the signs that those predictions could be flawed, and an acknowledgment of the business impacts of errors in our underlying assumptions. It must also include driving **Innovation** in our thinking and our analytics, and a commitment to developing our young talent to be agile, courageous and broad thinking Actuaries and Insurance Business Professionals.



End of Presentation