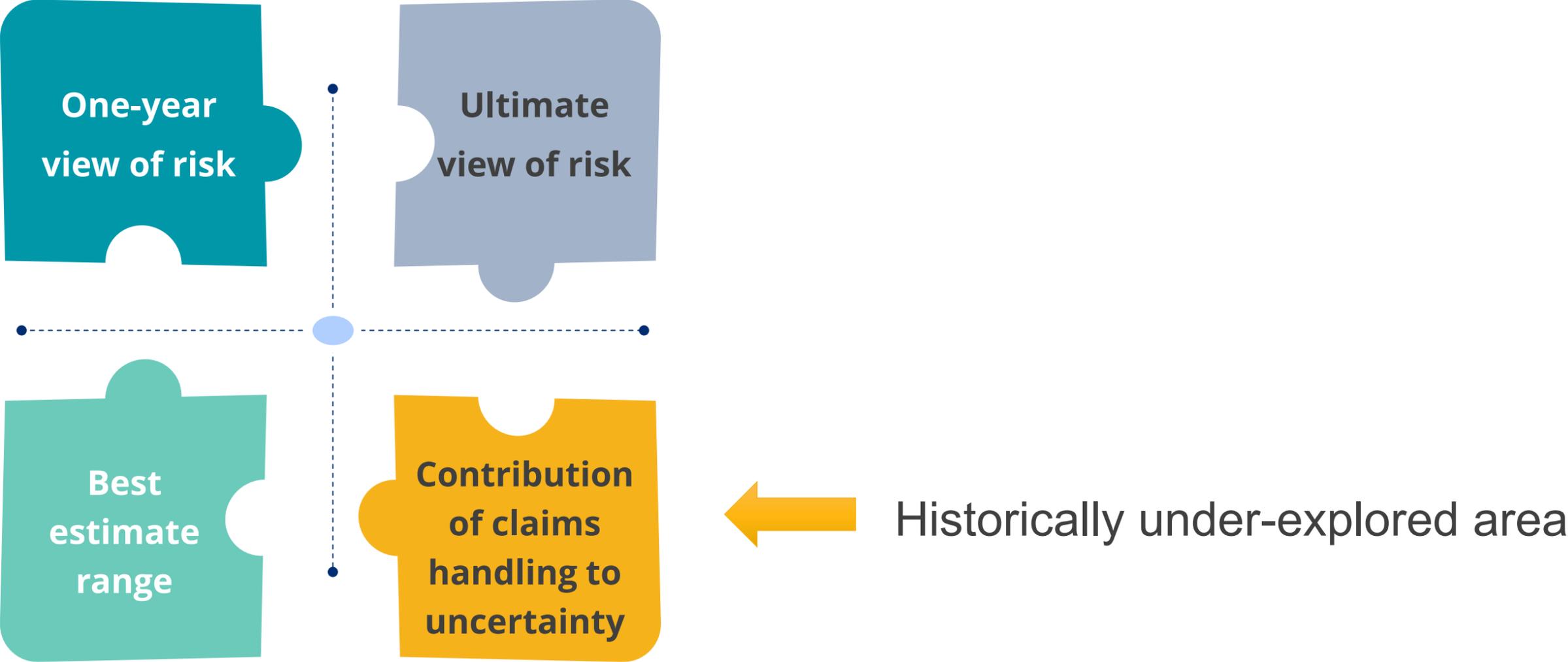# IFoA GIRO Conference

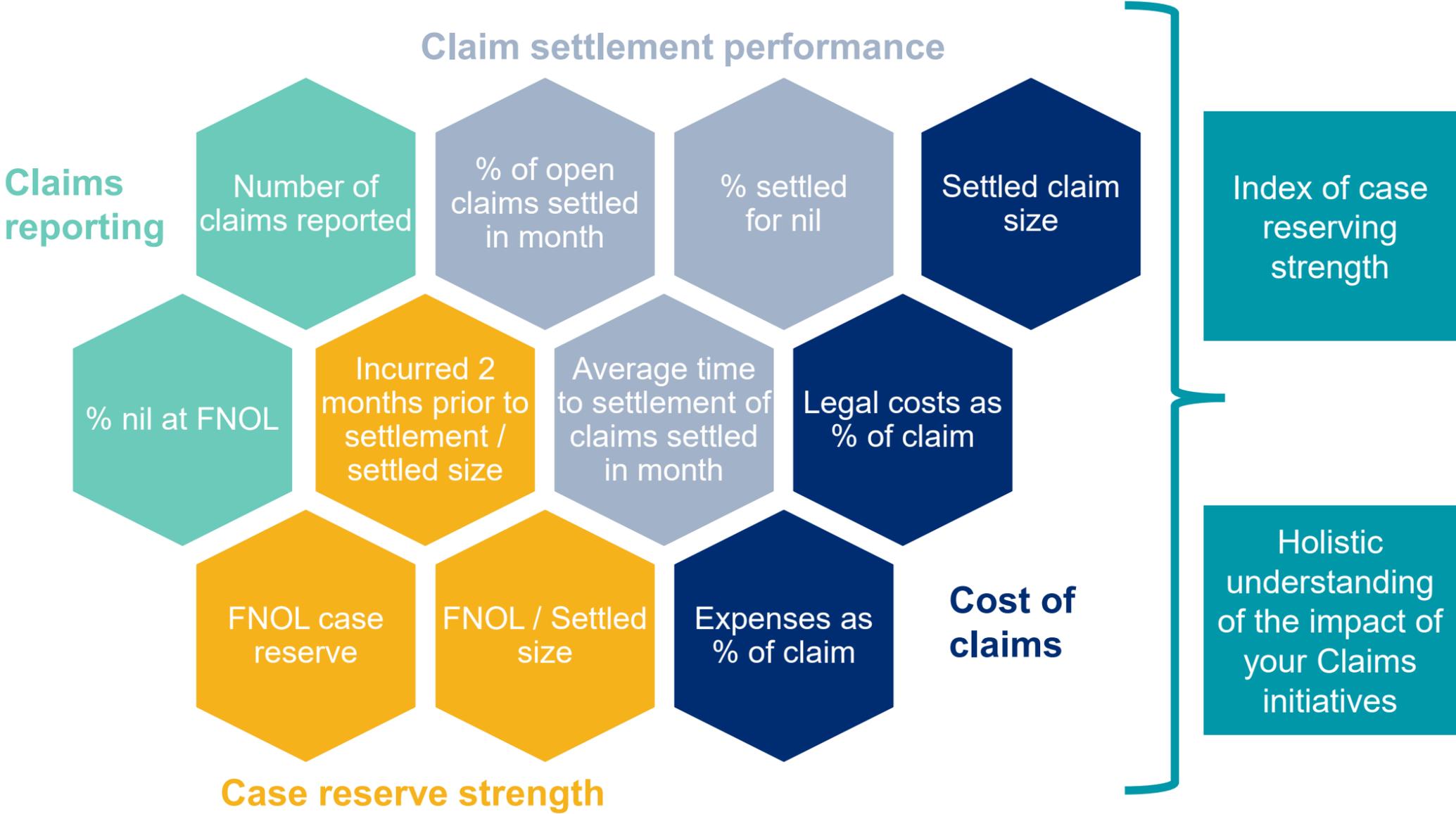Claims analytics – exploring case reserving

Why claims analytics?

- Historically, actuarial work has not focused heavily on analysing claims handling and case reserving behaviour.

- This means that our projections (reserving, pricing, capital) don't fully benefit from this understanding.

- There is a wealth of data to be explored.

- Apart from benefits for actuarial work, there may be benefits for claims teams themselves.

- Actuaries and claims handlers tend to look at claims data differently.

Institute and Faculty of Actuaries

Four dimensions of reserving uncertainty

One-year view of risk

Ultimate view of risk

Best estimate range

Contribution of claims handling to uncertainty

← Historically under-explored area

Institute and Faculty of Actuaries

Reserving KPIs

Claim settlement performance

Claims reporting

- Number of claims reported
- % of open claims settled in month
- % settled for nil
- Settled claim size
- % nil at FNOL
- Incurred 2 months prior to settlement / settled size
- Average time to settlement of claims settled in month
- Legal costs as % of claim
- FNOL case reserve
- FNOL / Settled size
- Expenses as % of claim

Cost of claims

Case reserve strength

Index of case reserving strength

Holistic understanding of the impact of your Claims initiatives

Actuarial vs claims team approaches

"Cohort" vs "calendar" views

"Development" vs "performance" views

Ultimate vs current views

Institute and Faculty of Actuaries

Our goals

- Initial focus on case reserving.

- Identify historical instances of changes in case reserving strength to understand drivers.

- Understand better how claims handlers respond to changes in the claims environment.

- Explore the feasibility of building a "case reserving strength index".

- Test the viability of "leading indicators" of case reserving strength.

What is a case reserving strength index?

Paid to Incurred ratios

Reported cohort triangle analysis

Settled amount vs incurred eg 6 months prior

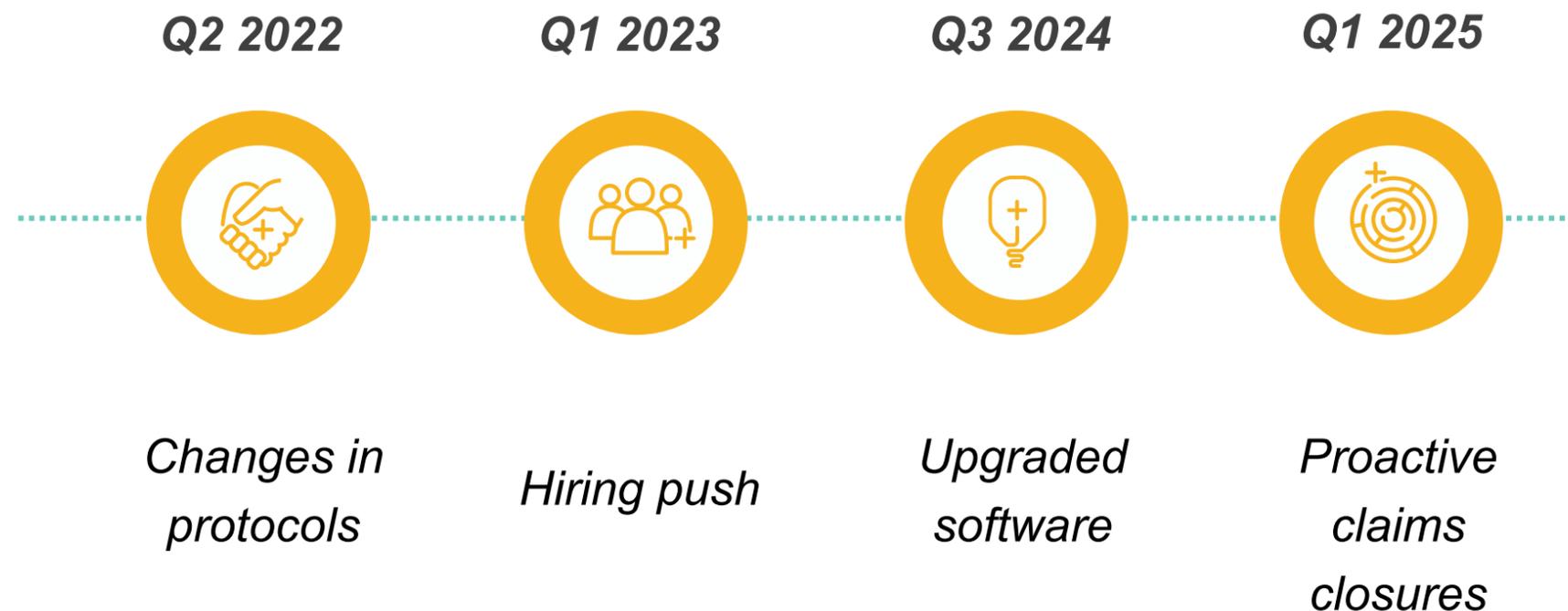Case reserving strength index
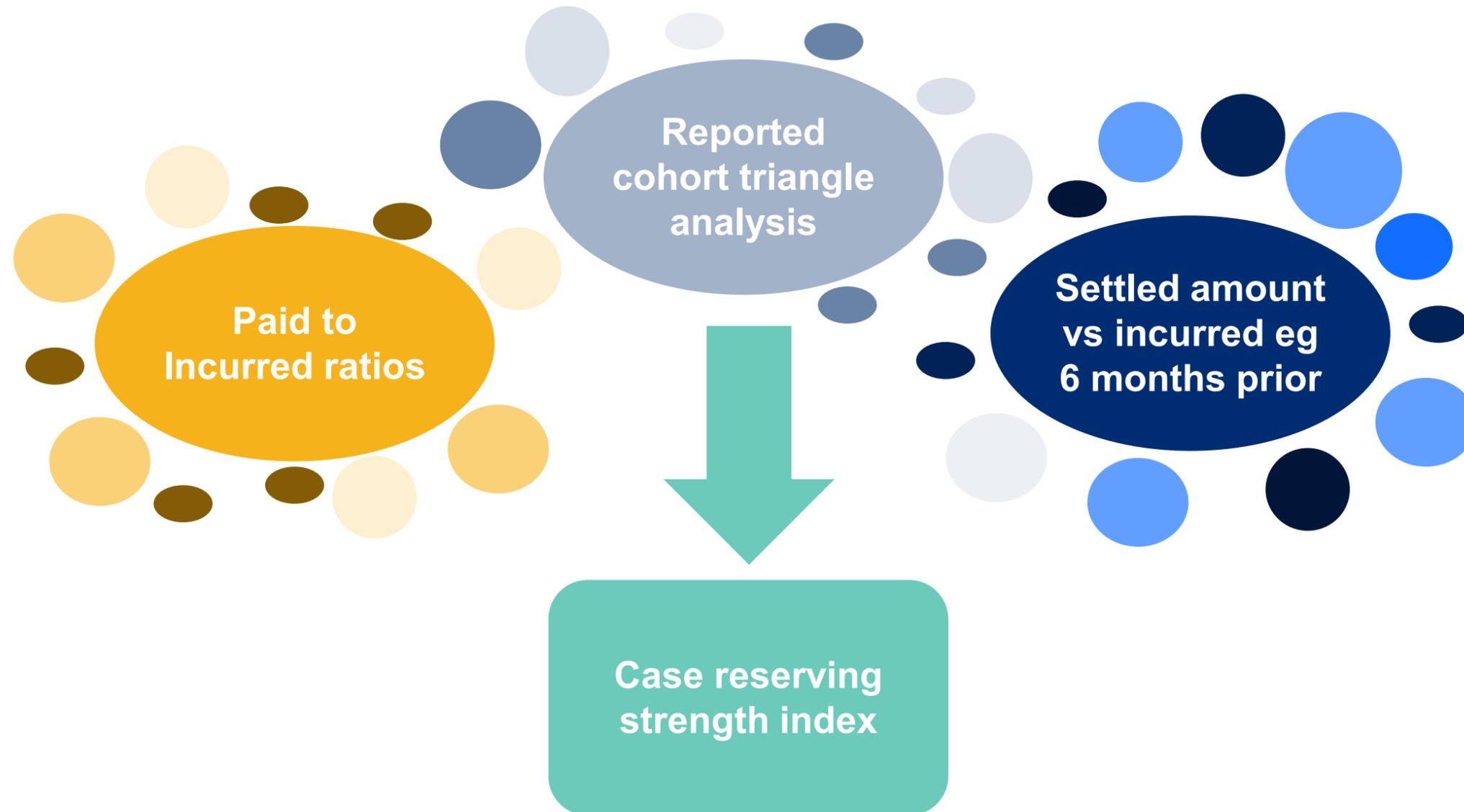
What is a claims event timeline?

The problem

- Key context lives in people's heads, emails, or legacy team memory

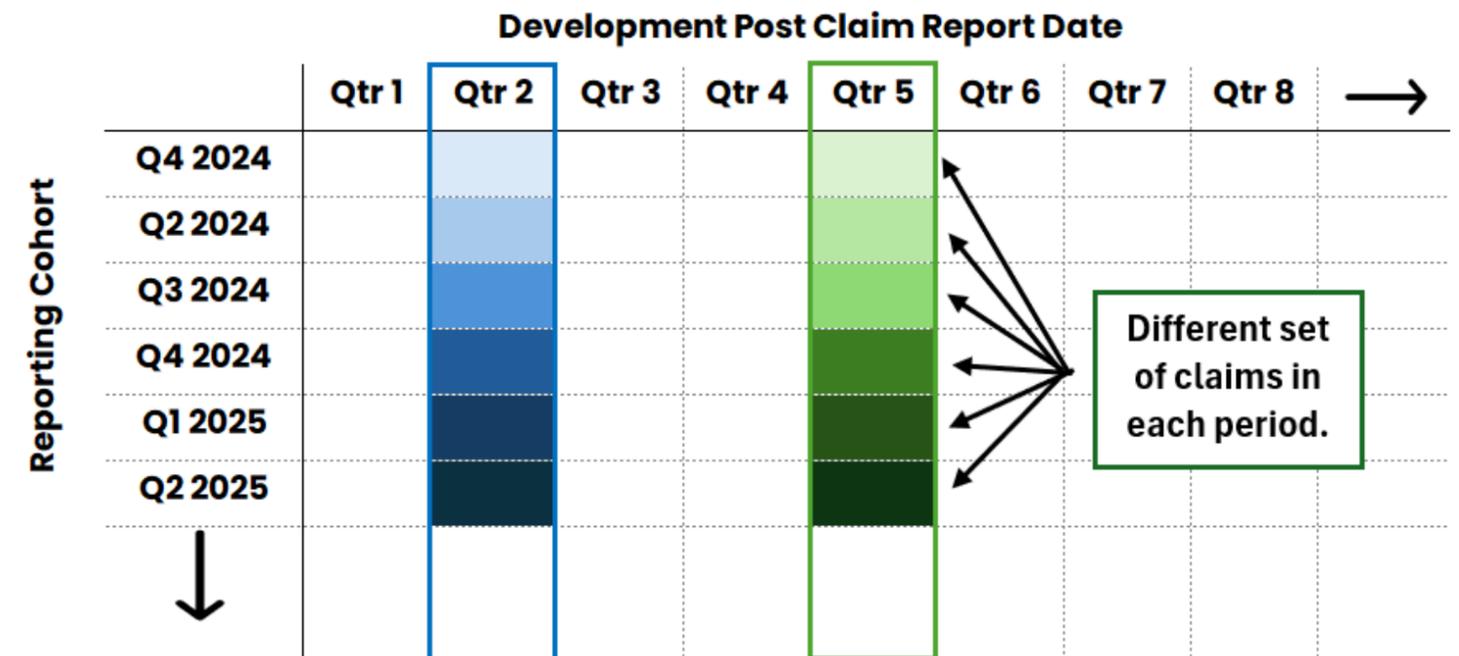- Spurious trends are interpreted as patterns

The value of a timeline

- Structured, visible history of what's happened in a book

- Shared understanding across claims, actuarial, and management

Q2 2022   **Q1 2023**   **Q3 2024**   **Q1 2025**

Changes in protocols   *Hiring push*   *Upgraded software*   *Proactive claims closures*
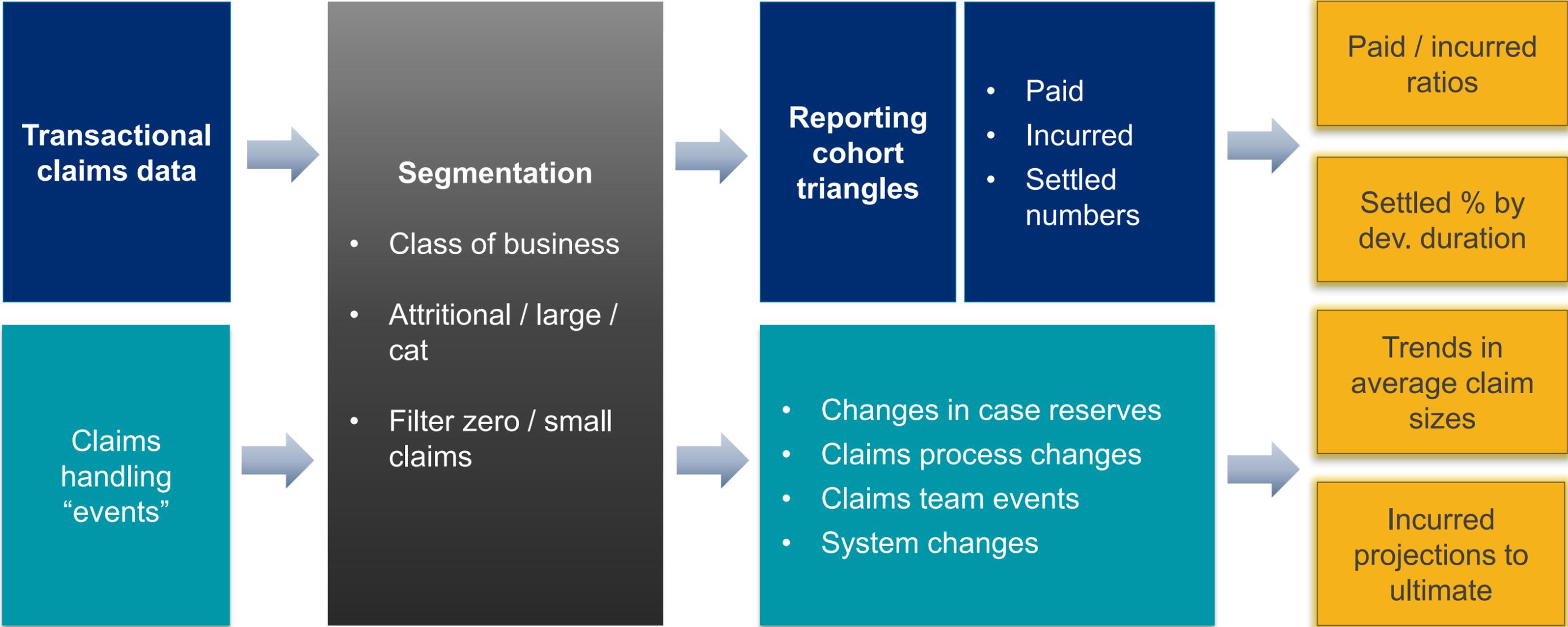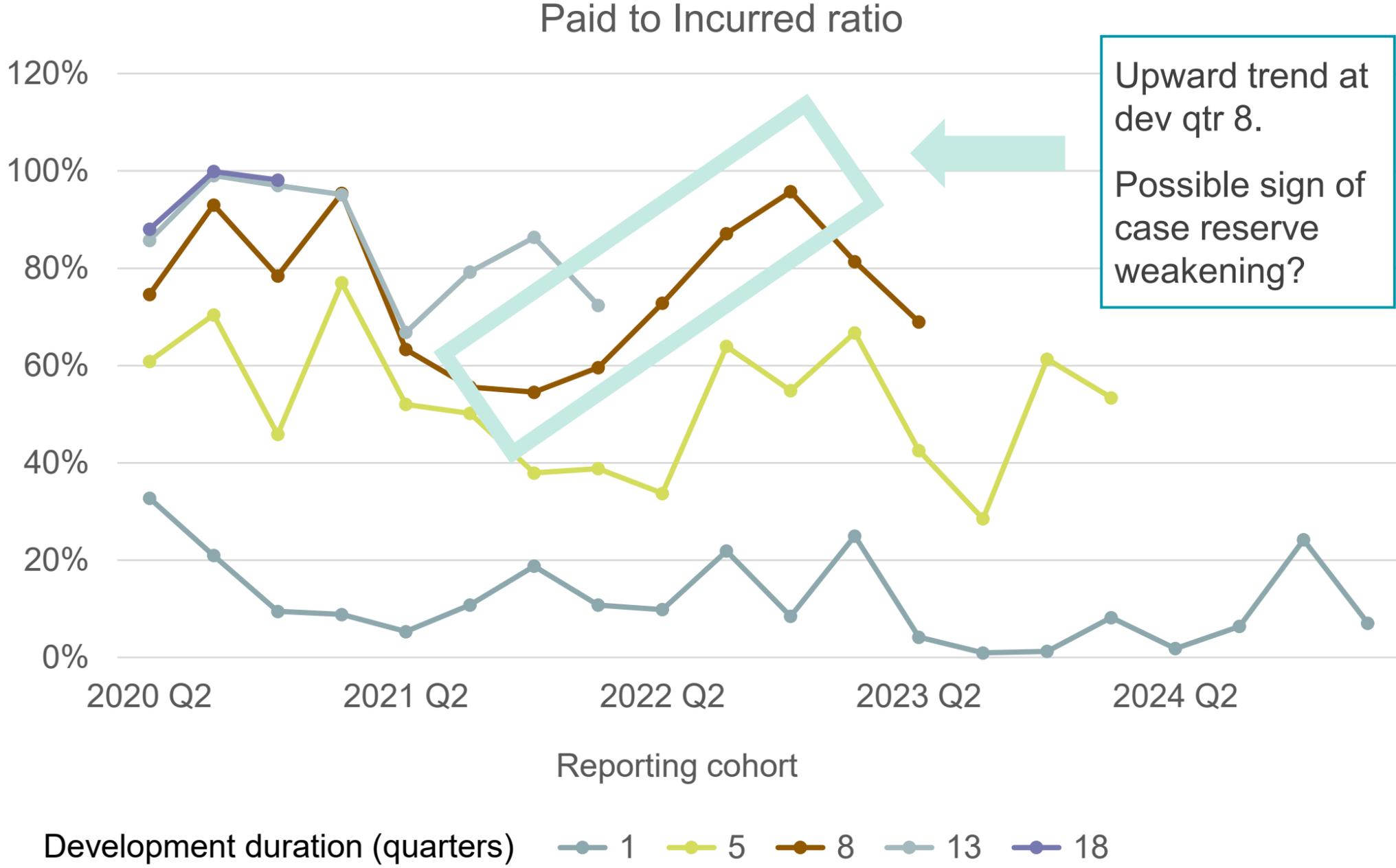
Institute and Faculty of Actuaries

Approach

1. Analyse historical claims data for a selection of classes, using **reporting cohorts**.

2. Key **leading indicators** at each development duration:

    o Paid / incurred ratios

    o Settlement rates

    o Average claim sizes

3. Separately project incurred to ultimate for each reporting period, to derive incurred/ultimate ratios.

4. Back-test P/I ratios against I/U ratios, to determine how strong P/I ratios have been as a leading indicator of case reserving strength.

5. Finally, overlay **claims event timeline** to identify where changes in case reserving strength have been driven by known changes in claims handling.
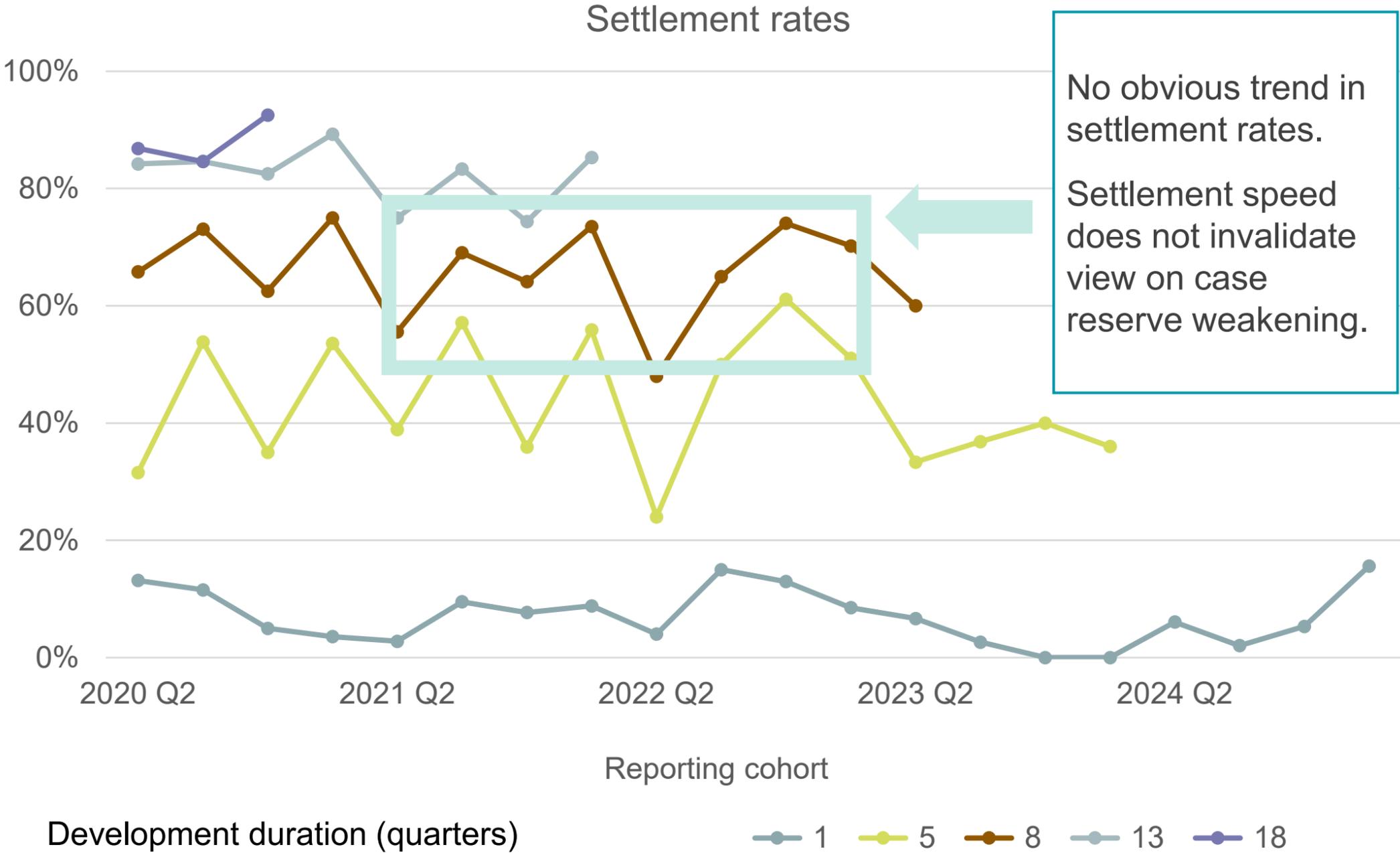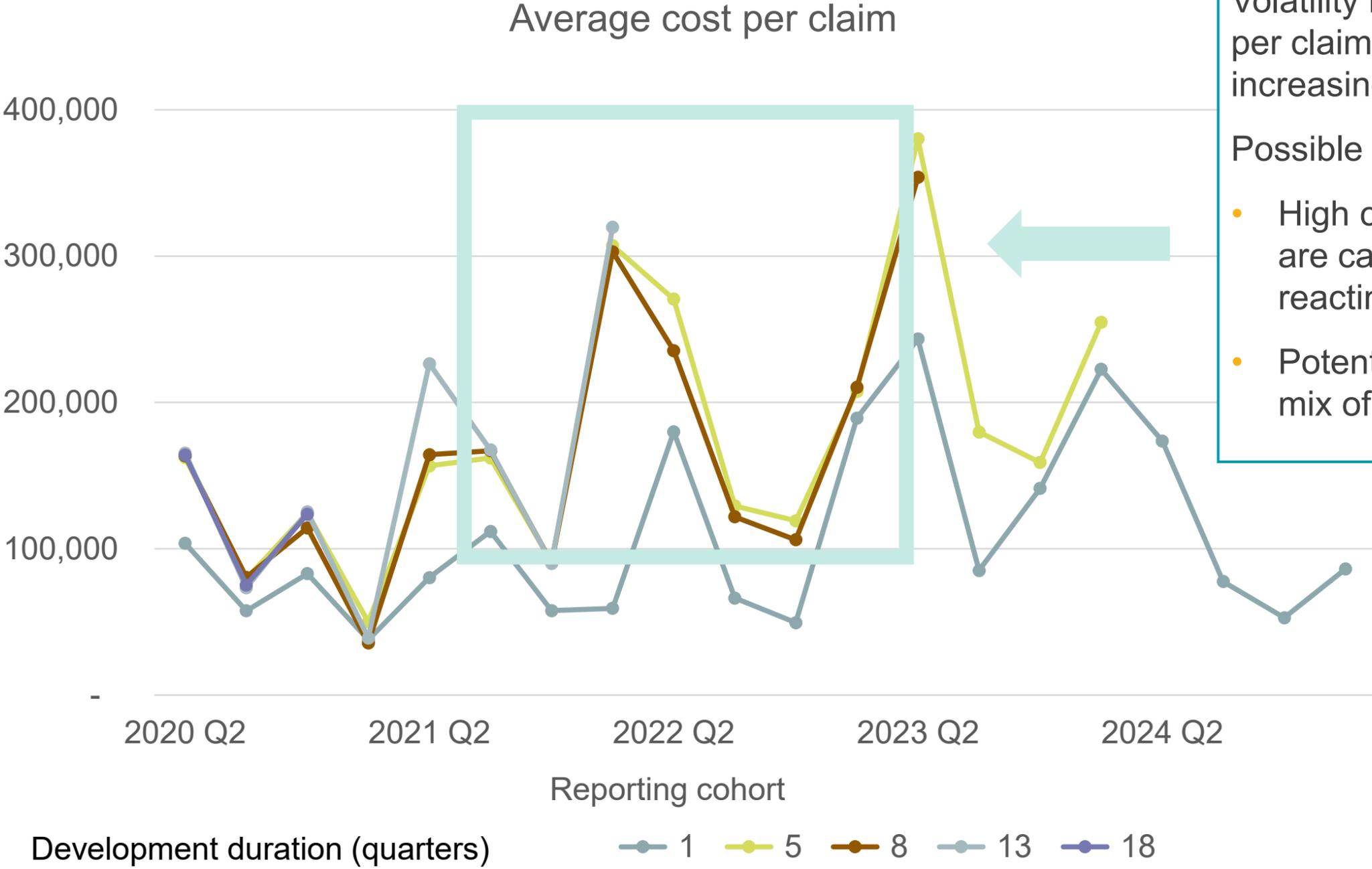
Process

| Transactional claims data | | Segmentation | | Reporting cohort triangles | Paid, Incurred, Settled numbers | | Paid / incurred ratios |

```
Transactional          Segmentation            Reporting        •  Paid            Paid / incurred
claims data                                     cohort           •  Incurred        ratios
                     •  Class of business       triangles        •  Settled
                                                                    numbers         Settled % by
Claims               •  Attritional / large /                                       dev. duration
handling                cat                  •  Changes in case reserves
"events"                                     •  Claims process changes              Trends in
                     •  Filter zero / small   •  Claims team events                 average claim
                        claims                •  System changes                     sizes

                                                                                    Incurred
                                                                                    projections to
                                                                                    ultimate
```

Example 1: paid to incurred ratios

Paid to Incurred ratio

Upward trend at dev qtr 8.

Possible sign of case reserve weakening?

Reporting cohort

Development duration (quarters)   1   5   8   13   18

Institute
and Faculty
of Actuaries

Example 1: settlement rate

Settlement rates

No obvious trend in settlement rates.

Settlement speed does not invalidate view on case reserve weakening.

Reporting cohort

Development duration (quarters)   1   5   8   13   18

Example 1: average cost per claim

Average cost per claim

Volatility in average cost per claim. Part of a wider increasing trend?

Possible interpretations:

- High claims inflation – are case reserves reacting fast enough?

- Potential changes in mix of claims?

Reporting cohort

Development duration (quarters)   1   5   8   13   18

Example 1: incurred as % of ultimate

Incurred as % of DFM ultimate

Based on experience these claims were adequately reserved at the time.

Leading indicators **were not** a strong predictor of case reserve strength.

Reporting cohort

Development duration (quarters) — 1 — 5 — 8

Institute and Faculty of Actuaries

14
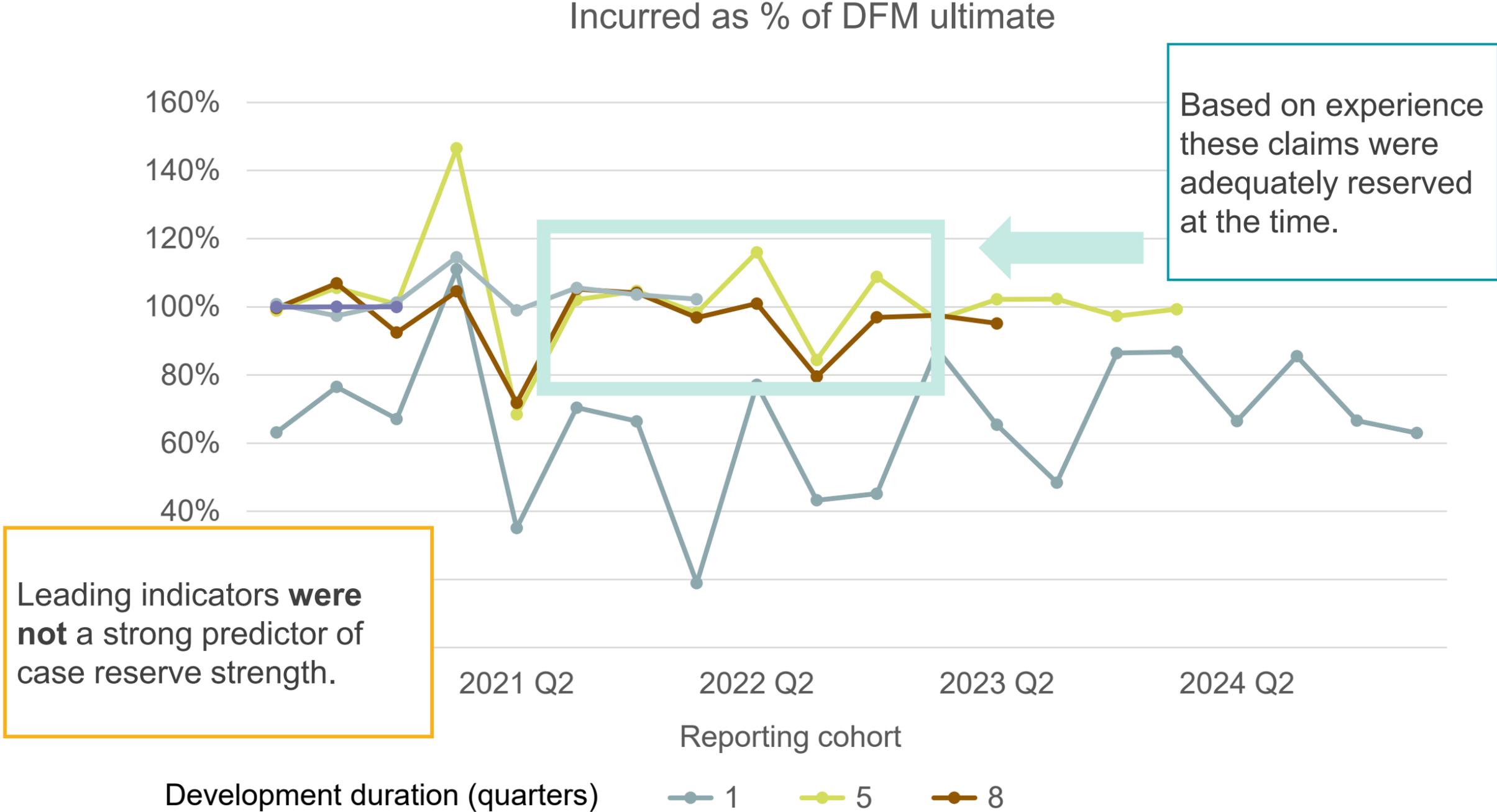
Example 2: paid to incurred ratio

Paid to Incurred

Upward trend in paid to incurred ratio at durations 11, 16, 26.

Possible sign of case reserve weakening?

15
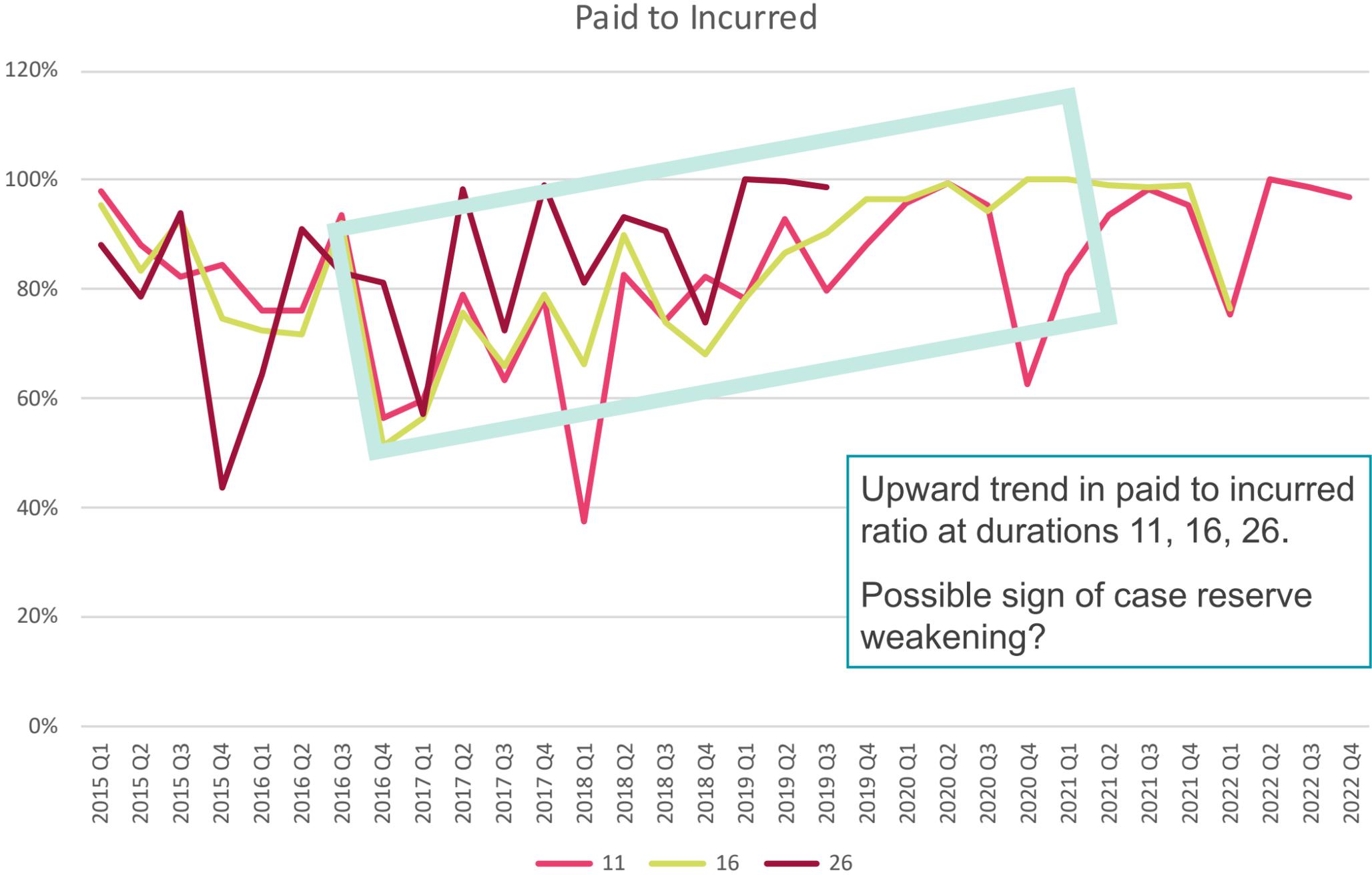
Example 2: settlement rate

Settlement rates

Similar upward trend in settlement rates.

This could explain some or all of the increasing paid to incurred ratio.

Legend: 11, 16, 26

Institute and Faculty of Actuaries
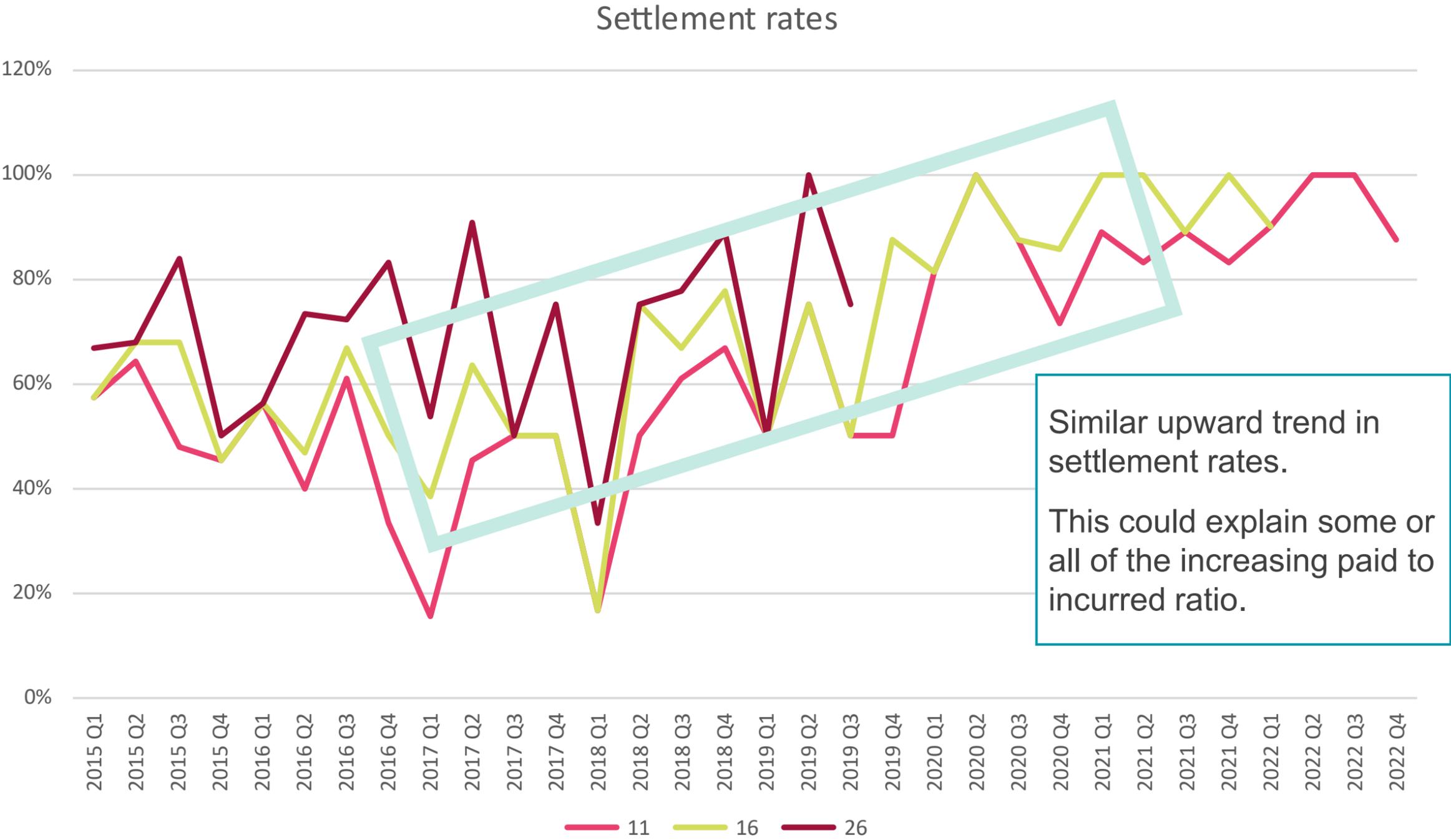
Example 2: incurred as % of ultimate

Incurred as % of DFM ultimate

Based on experience these claims were not adequately reserved at the time.
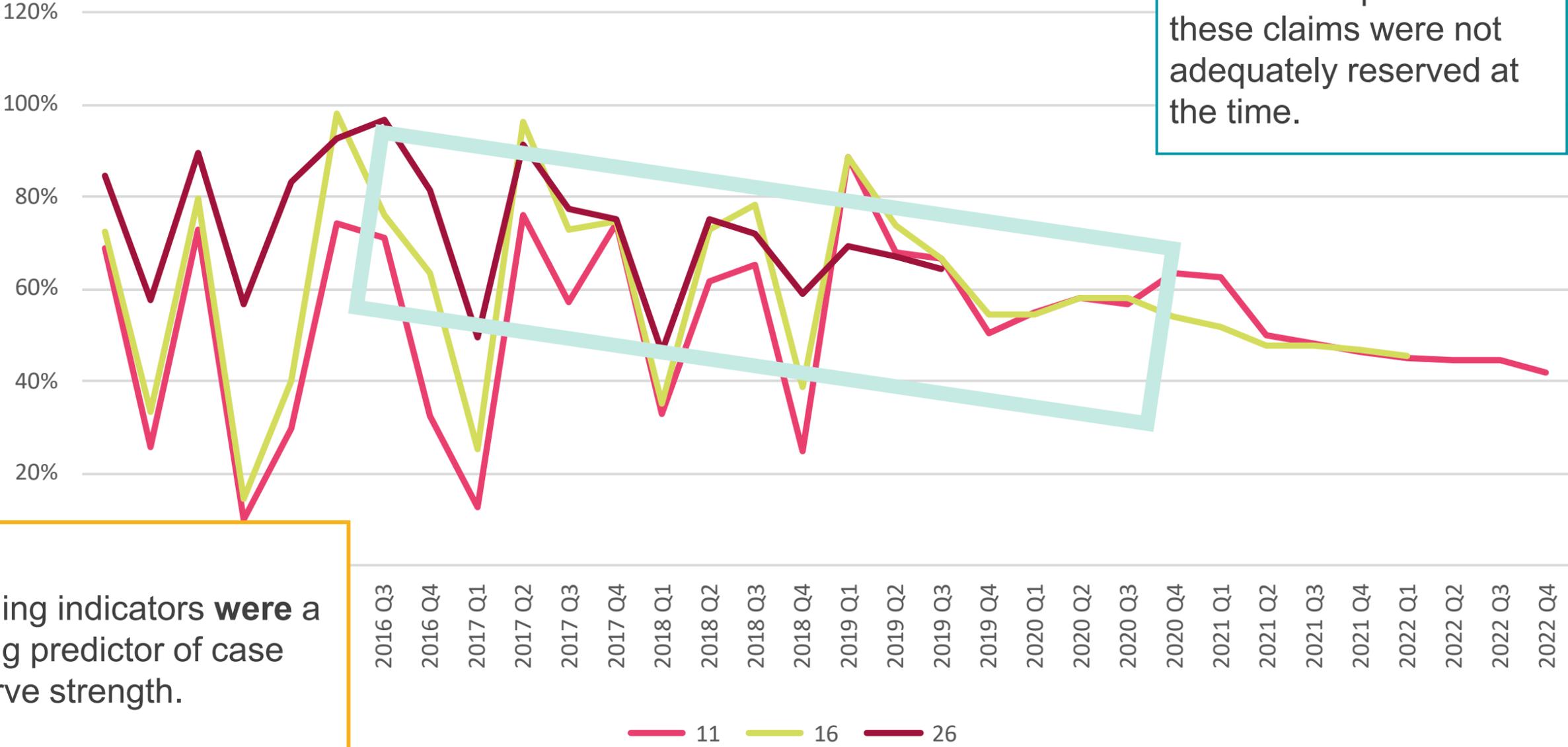
Leading indicators **were** a strong predictor of case reserve strength.

Legend: 11, 16, 26

Institute and Faculty of Actuaries

Summary of initial observations

Choice of development durations
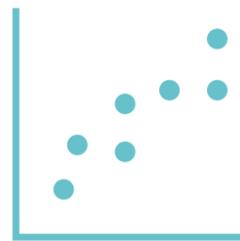
First notification of loss.

Duration at which most facts of claim available.

Duration at which claim amounts are 'firm'.

Segmentation

Key to **avoid distortions** caused by change of mix.

Combination of measures

One measure in isolation could be misleading.

Average cost per claim

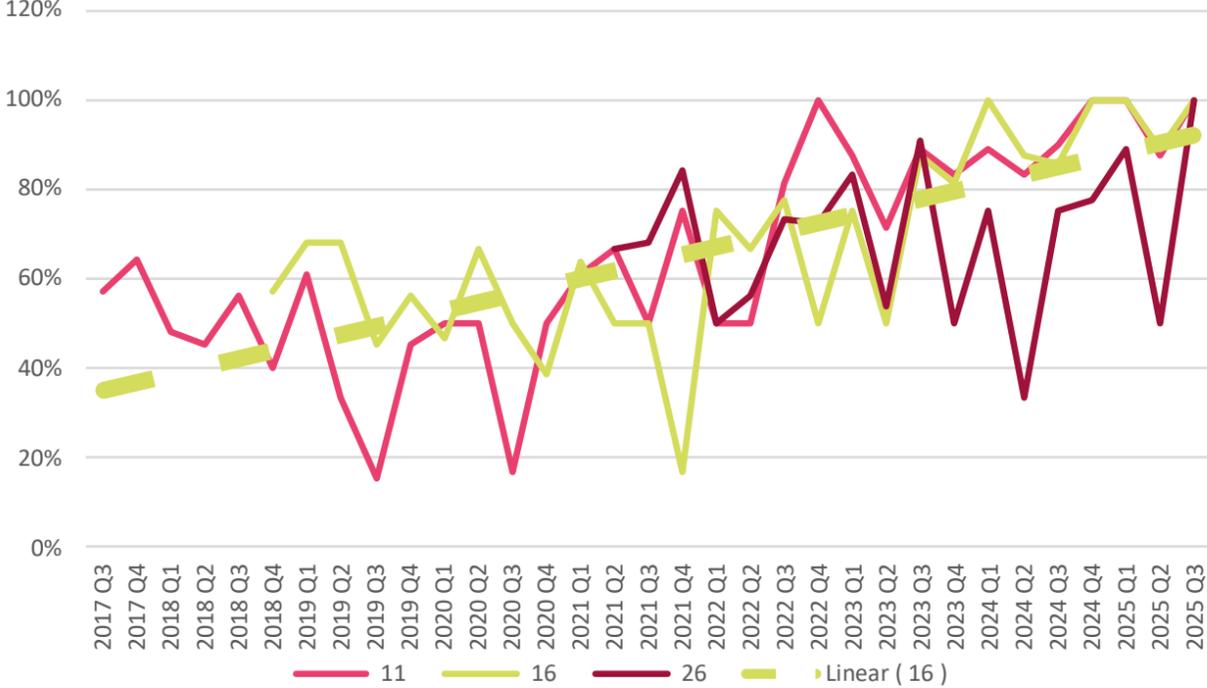Illustrates **inflationary effects** - case reserving in "catch-up mode"?

Volatility may mean that other metrics are less reliable.
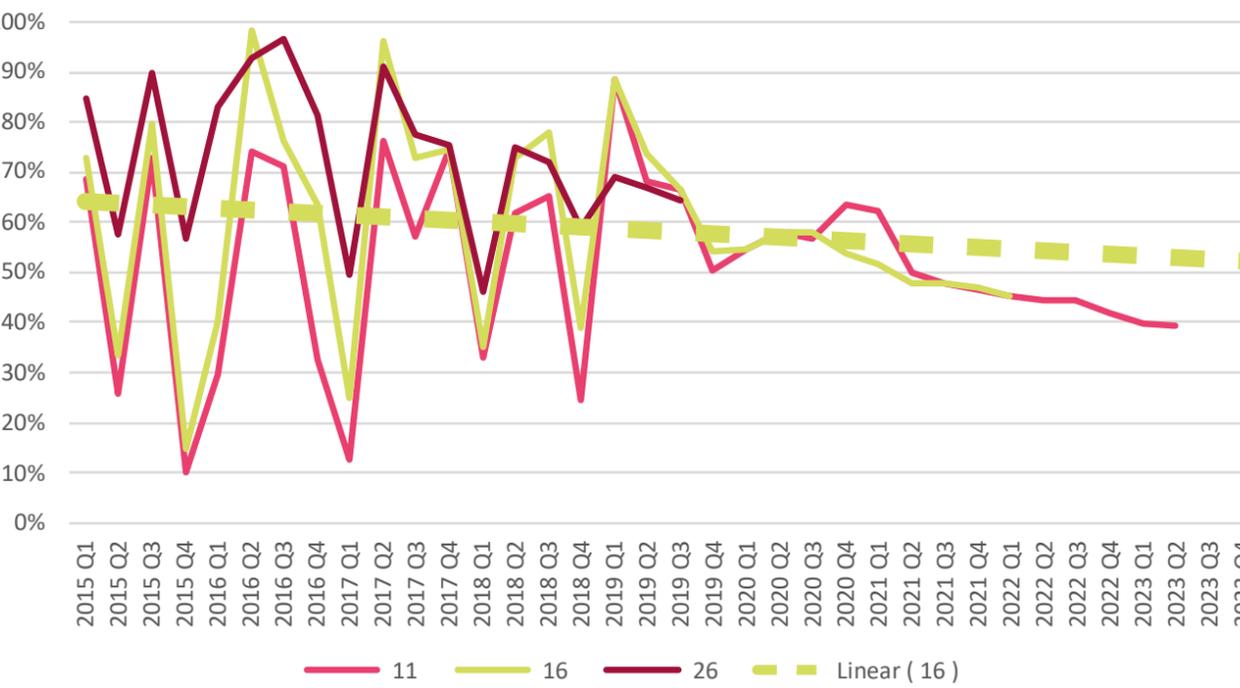
Case reserving strength index – example
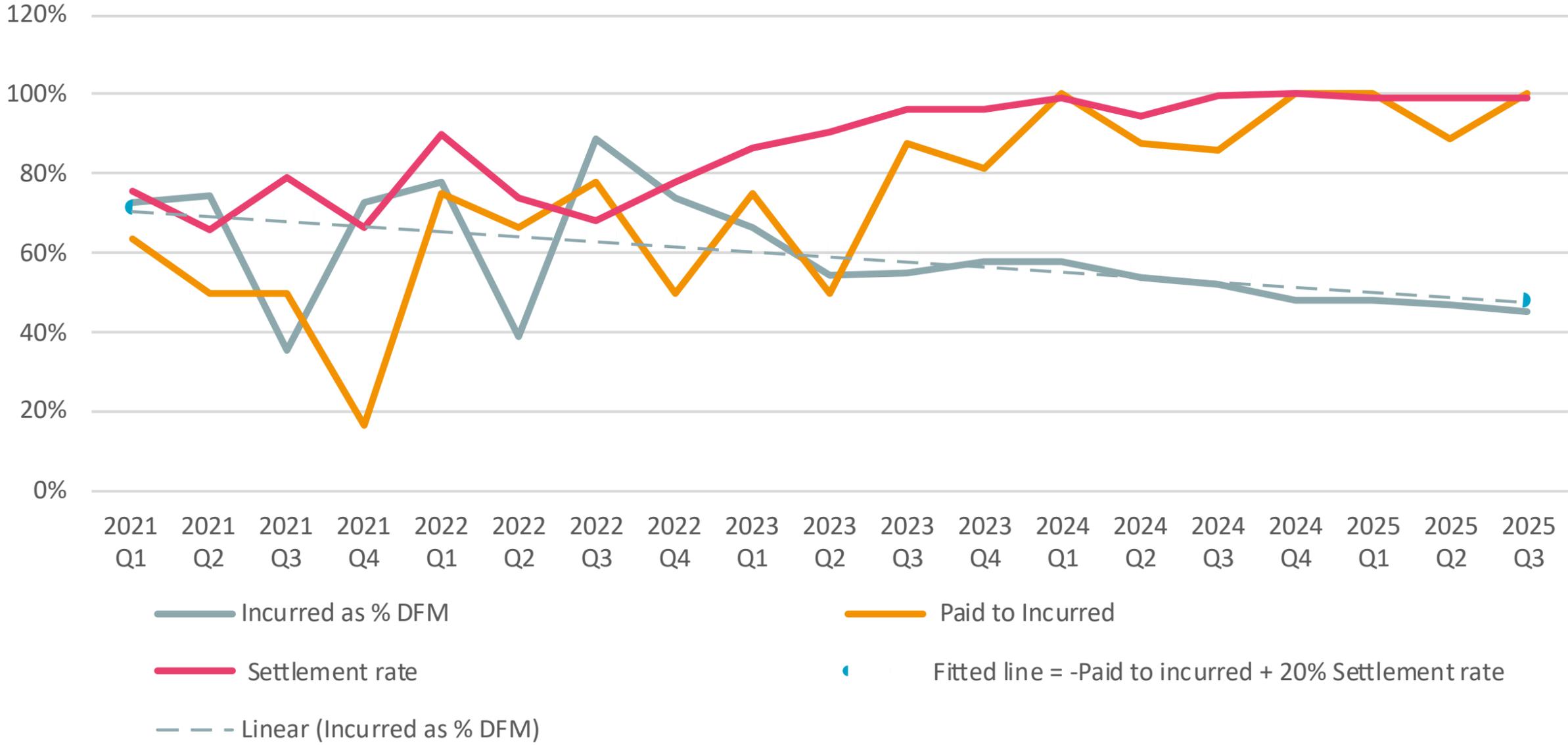

Paid to Incurred
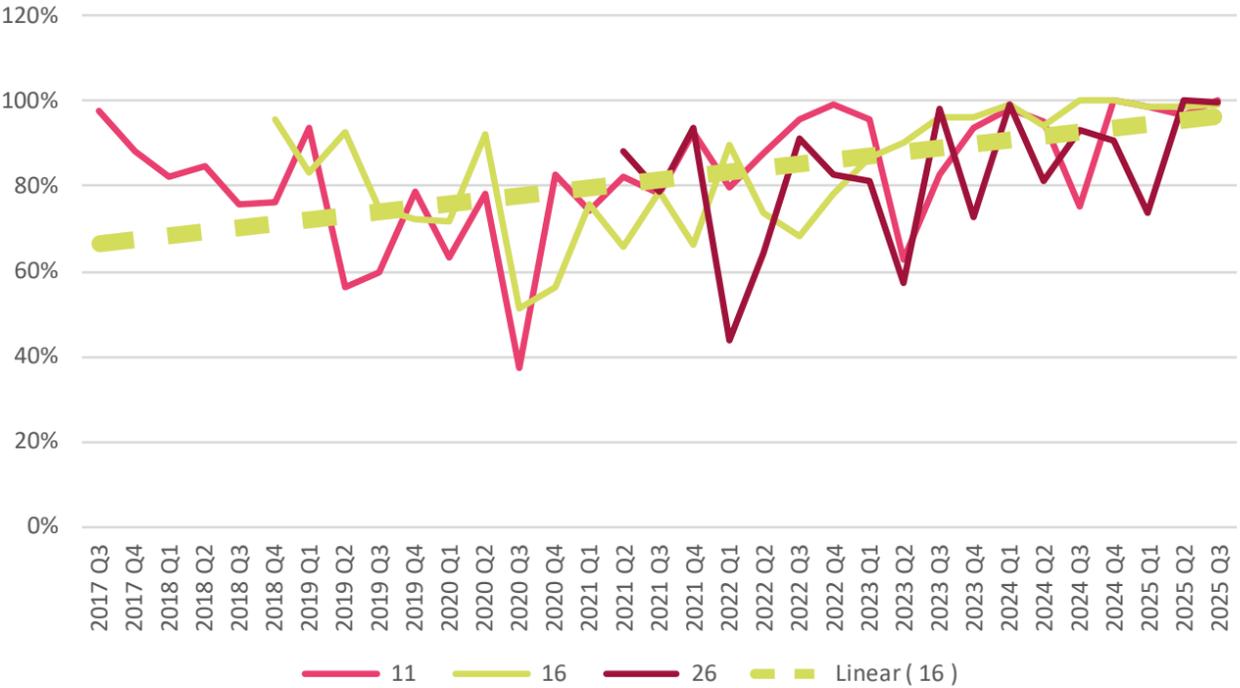
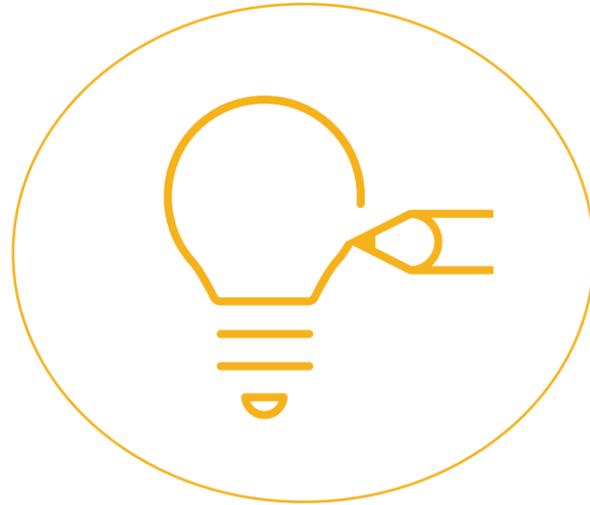Settlement rates

Incurred as % of DFM ultimate

Institute and Faculty of Actuaries

Confidential

Case reserving strength index – example

Duration 16

Confidential

What have we learnt?

Practicalities

Transactional data

Accessible

Regular reviews

Insight

Alternate perspective

Identifying trends

Feedback to Claims

Analysis

Lines of business

Filtering out noise

Drilling down

Application

Overall KPI / Index

Impact on IBNR?

Engaging with claims teams

Claims handlers are **closest to the detail**.

There may be many factors driving a trend in case reserve strength.

Likely to be an **unfamiliar perspective**.

Collaboration rather than criticism.

Uncertain Matters

Underwriting strategy

Market trends

Claims Cycle

Institute and Faculty of Actuaries

Practical considerations

Data accessibility

Data quality

Data production

Communication

Claims event timeline

Now, next and beyond

Algorithmic monitoring

- Understand "normal" behaviour
- Flag exceptions
- Feed into bespoke training
- Drive continuous optimisation

Claims journey analytics

- FNOL to closed
- Track each segment

Case reserving strength index

- Basket of tailored measures
- Proxies (eg Paid to Incurred)
- Reporting cohort triangles

Claims event timeline

Institute
and Faculty
of Actuaries
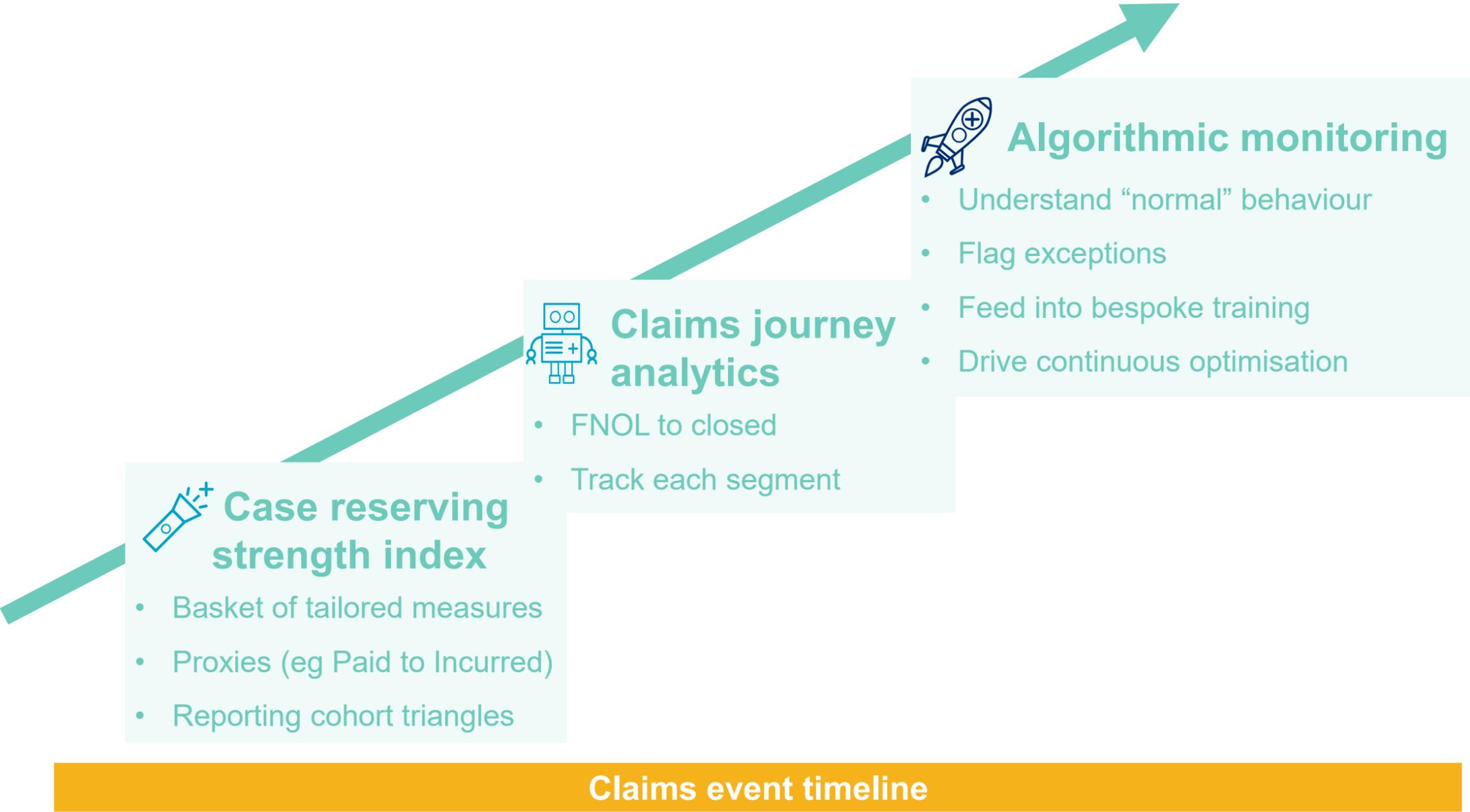
Institute and Faculty of Actuaries

charl.cronje@lcp.uk.com

edward.rolland@canopius.com

richard.revill@canopius.com