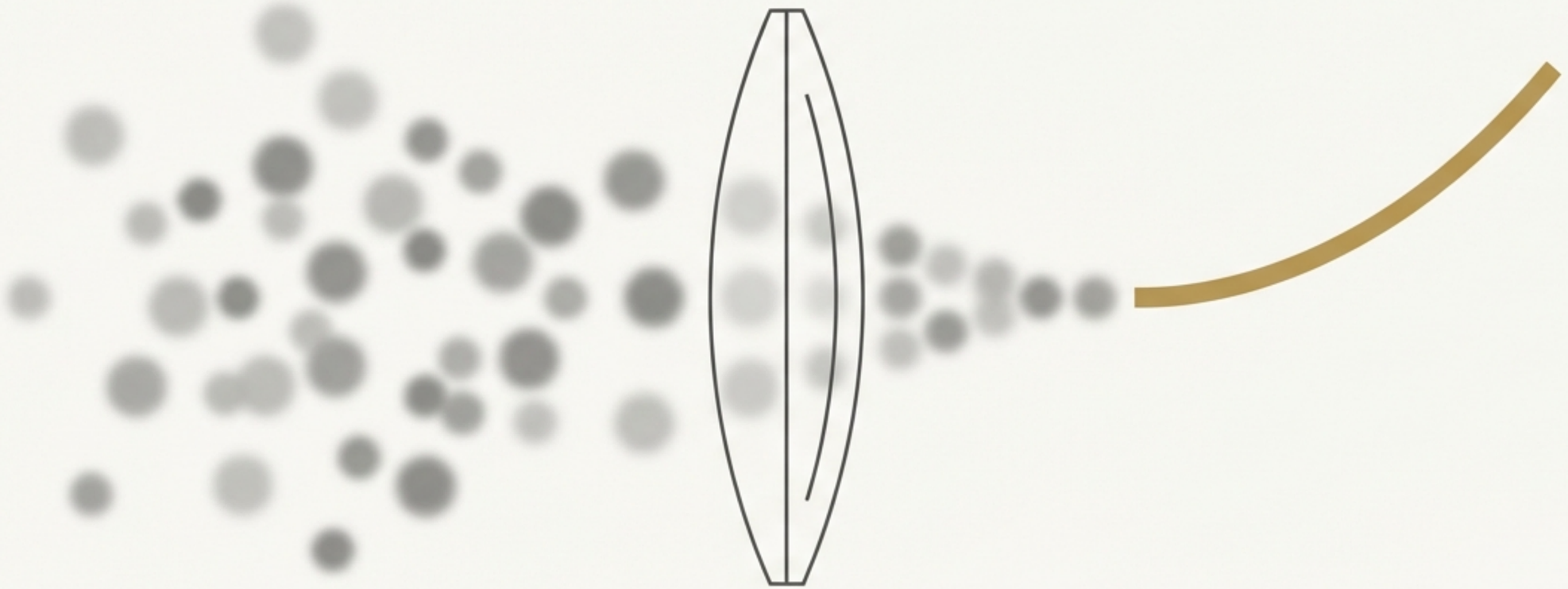
Actuarial Precision

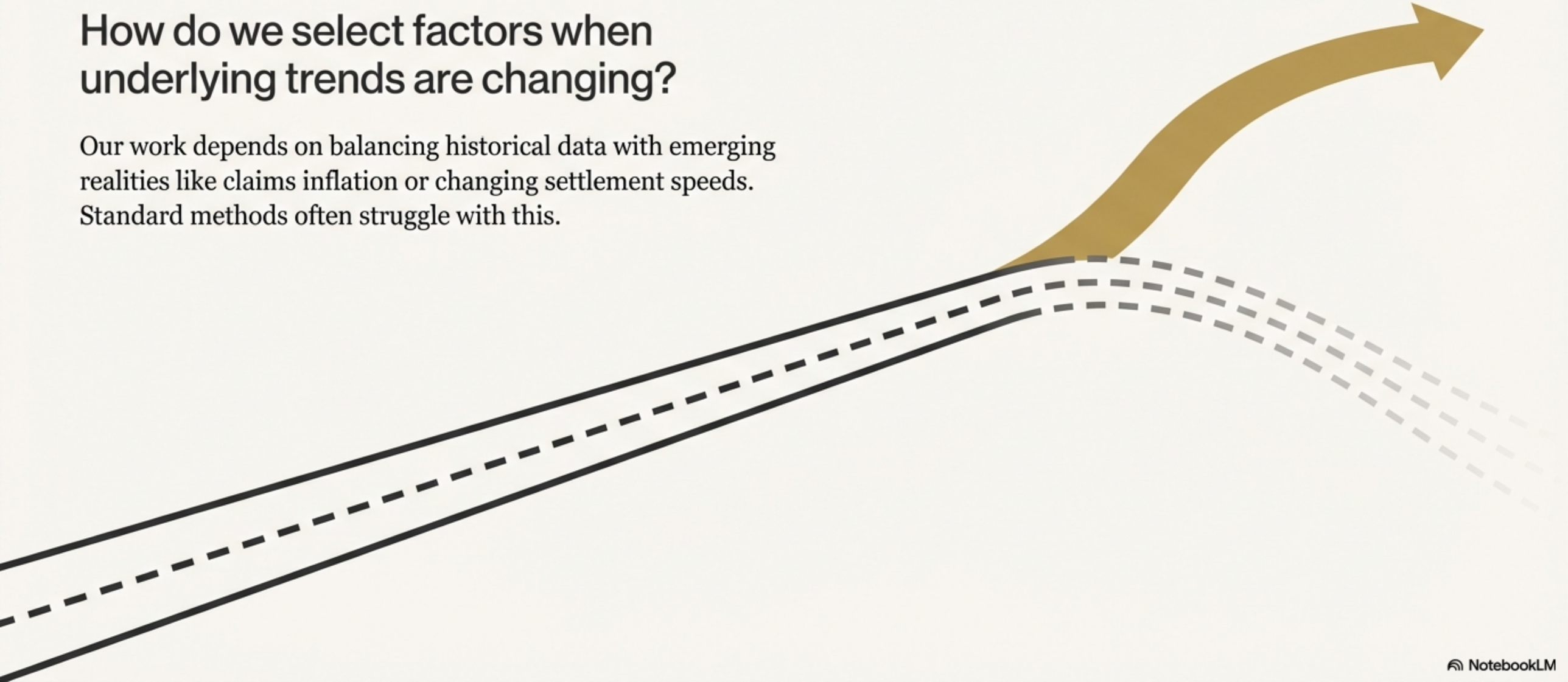
Moving Beyond Averages to Capture the Trend



The Past is Not Always Prologue

How do we select factors when underlying trends are changing?

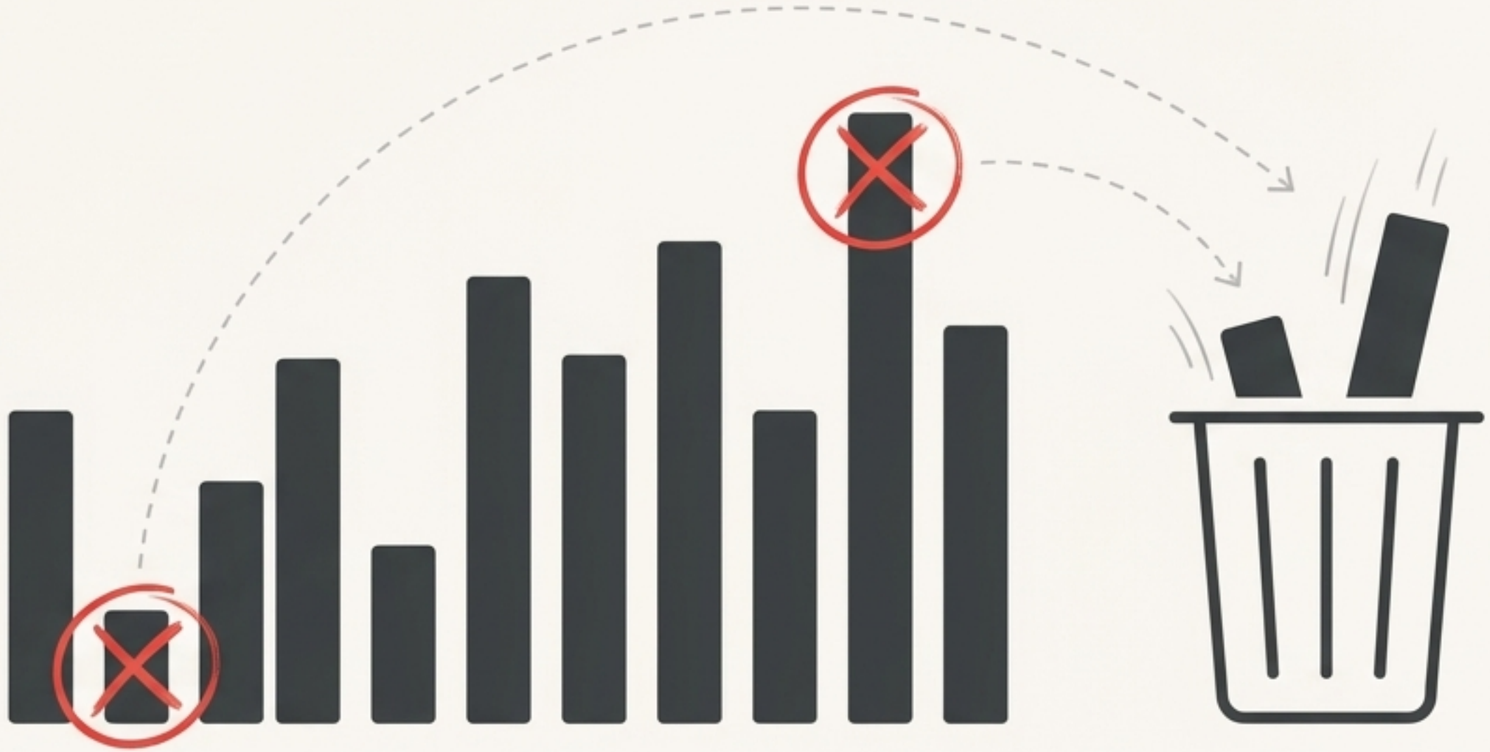
Our work depends on balancing historical data with emerging realities like claims inflation or changing settlement speeds. Standard methods often struggle with this.



Our First ‘Blunt Instrument’: The Excluder

Method Name:
Average-Excluding-High-Low

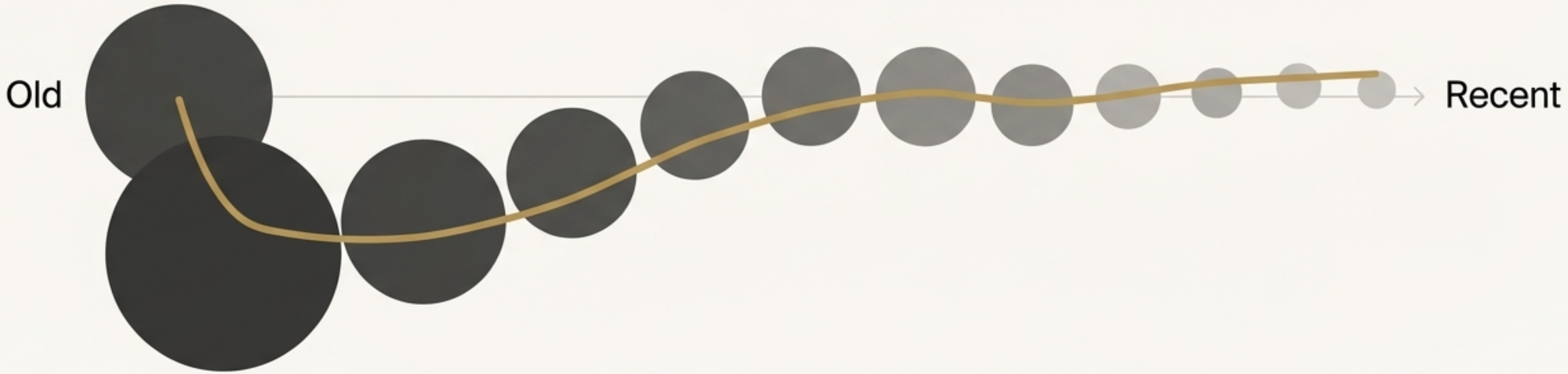
The Problem: The choice of what to exclude is arbitrary and we lose potentially valuable information from the dataset.



Our Second “Blunt Instrument”: The Anchor

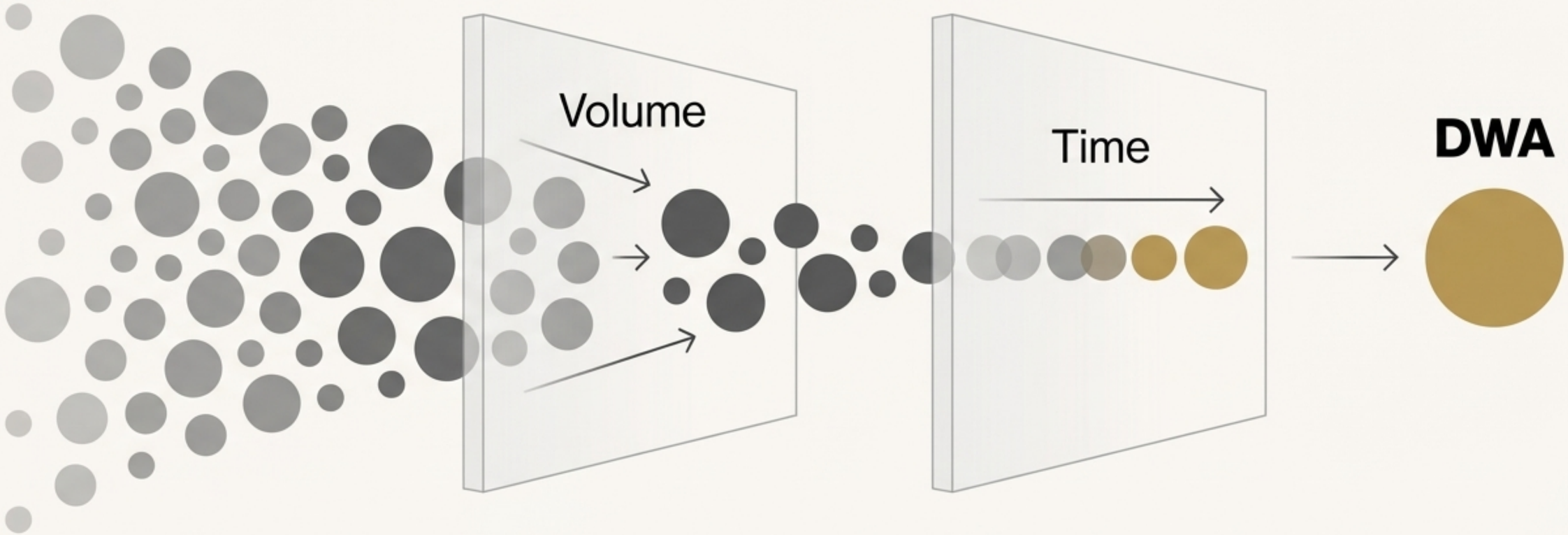
Method Name: Volume-Weighted Average (VWA)

The Problem: Older, potentially irrelevant data from high-volume years can dominate our selection, masking critical recent trends.



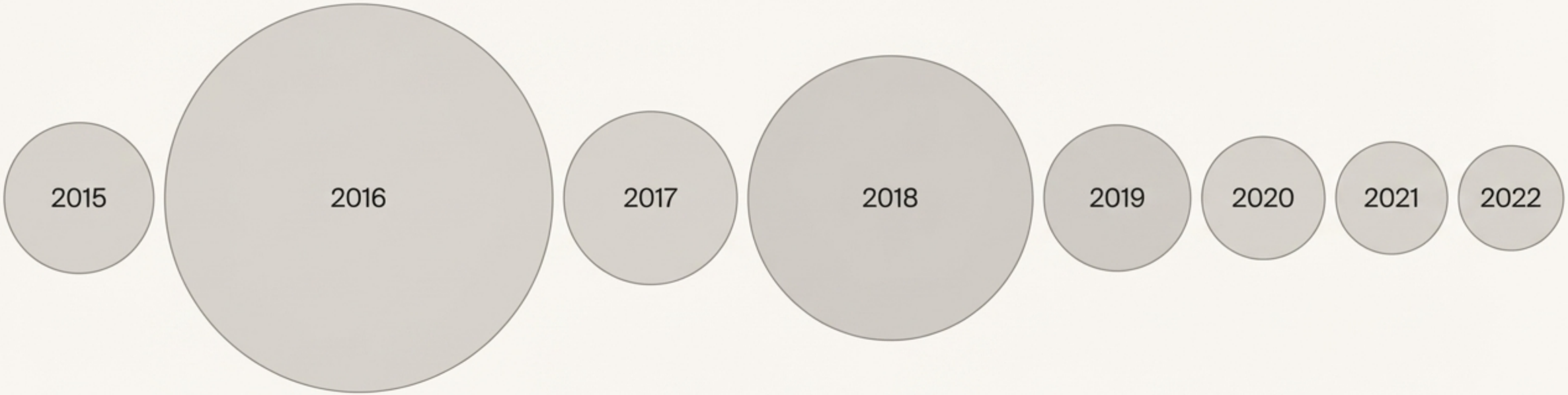
Introducing a More Elegant Approach: The Double Weighted Average

A systematic method to weight data by both **Volume** and **Time**.



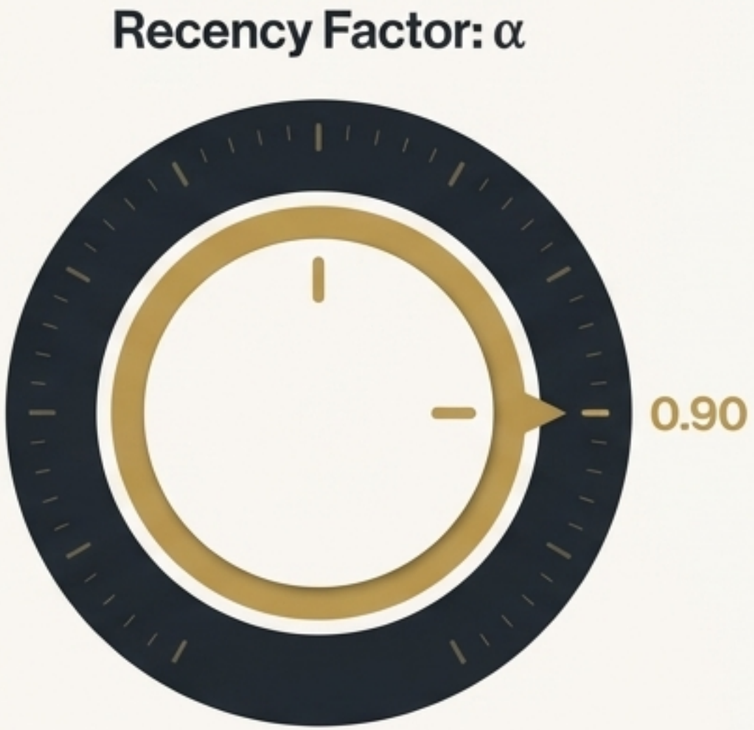
Deconstructing “Double” - Weight 1: Volume

This is the familiar component. It honors the statistical credibility of accident years with higher loss volumes. This is the foundation of the standard VWA.



Deconstructing “Double” – Weight 2: Time (The ‘Recency’ Dial)

This is the DWA’s key advantage. It gives more credibility to recent years to capture emerging trends. The weight is calculated as $\alpha^{(T-Y)}$, where T is the latest year.

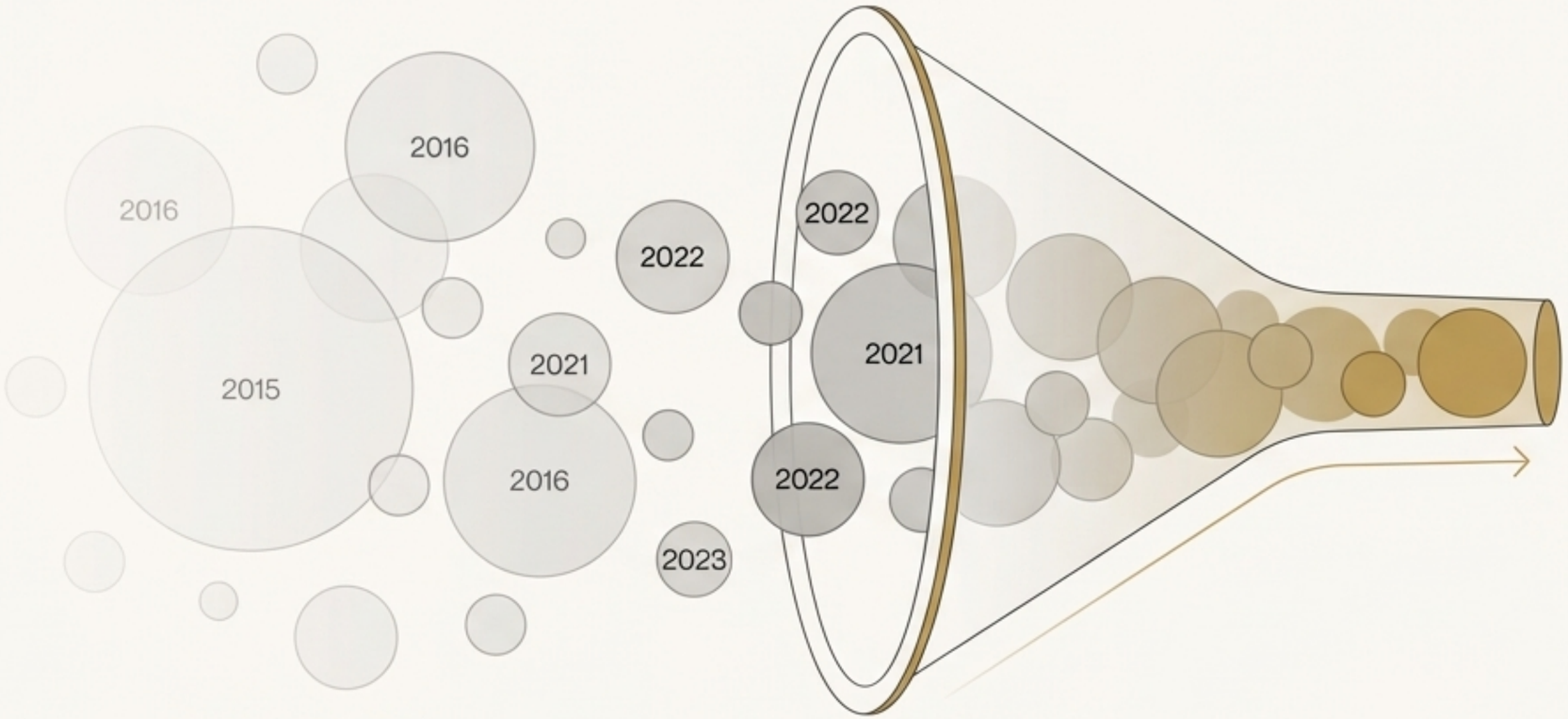


Higher α gives more weight to recent years.

Precision Through Two Lenses

By filtering data first by its volume and then by its recency, we arrive at a single factor that intelligently balances historical credibility with current trends.

Equity Text B



Refined DWA Factor

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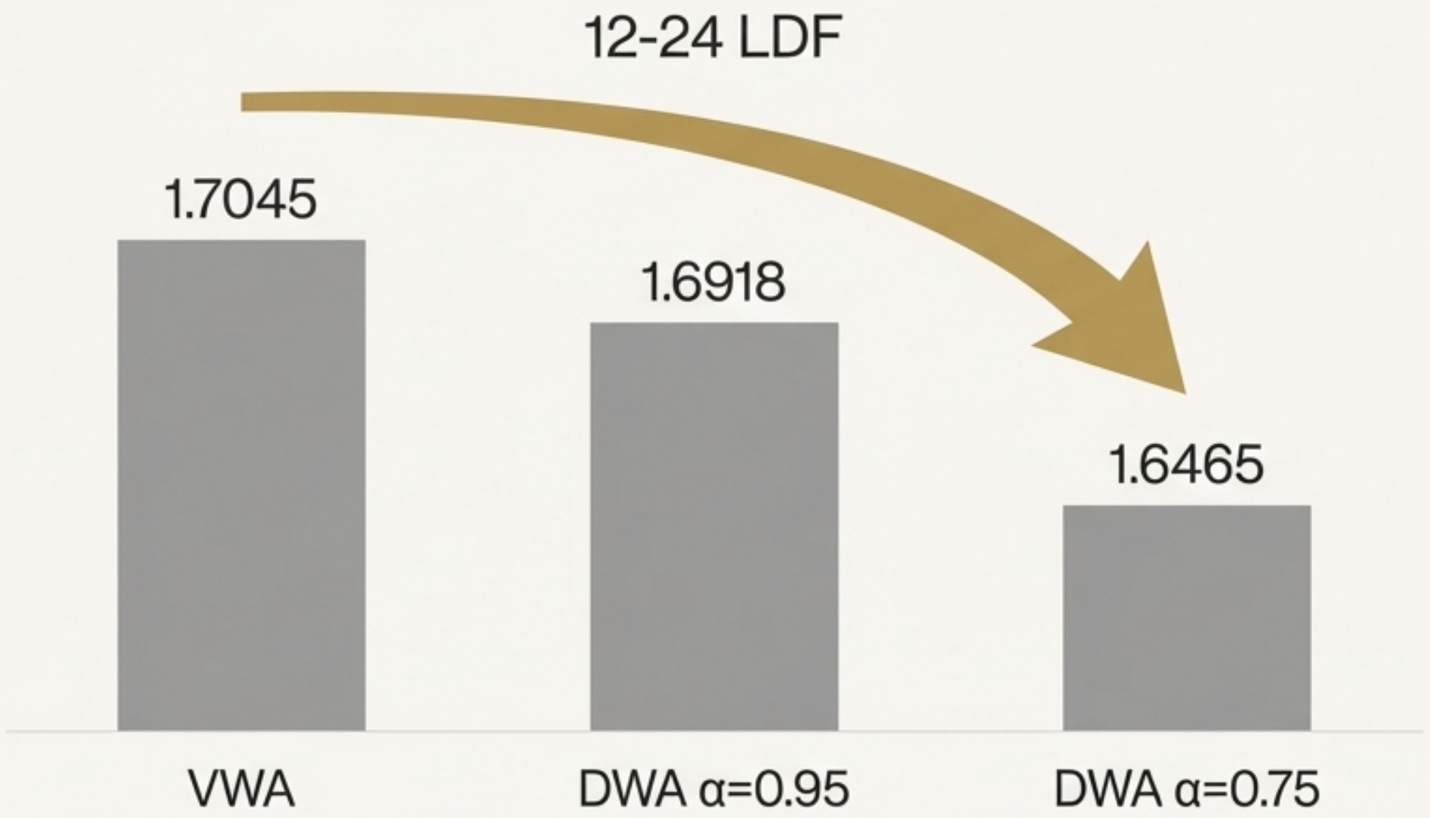
Putting Theory into Practice: A Motor Portfolio Case Study

Analysis of age-to-age factors for a Motor portfolio, Accident Years 2010-2022.

Method	12-24 LDF	24-36 LDF
All-Year VWA	1.7045	1.1046
DWA (α = 0.95)	1.6918	1.1015
DWA (α = 0.75)	**1.6465**	**1.0901**

The Data is Telling a Story

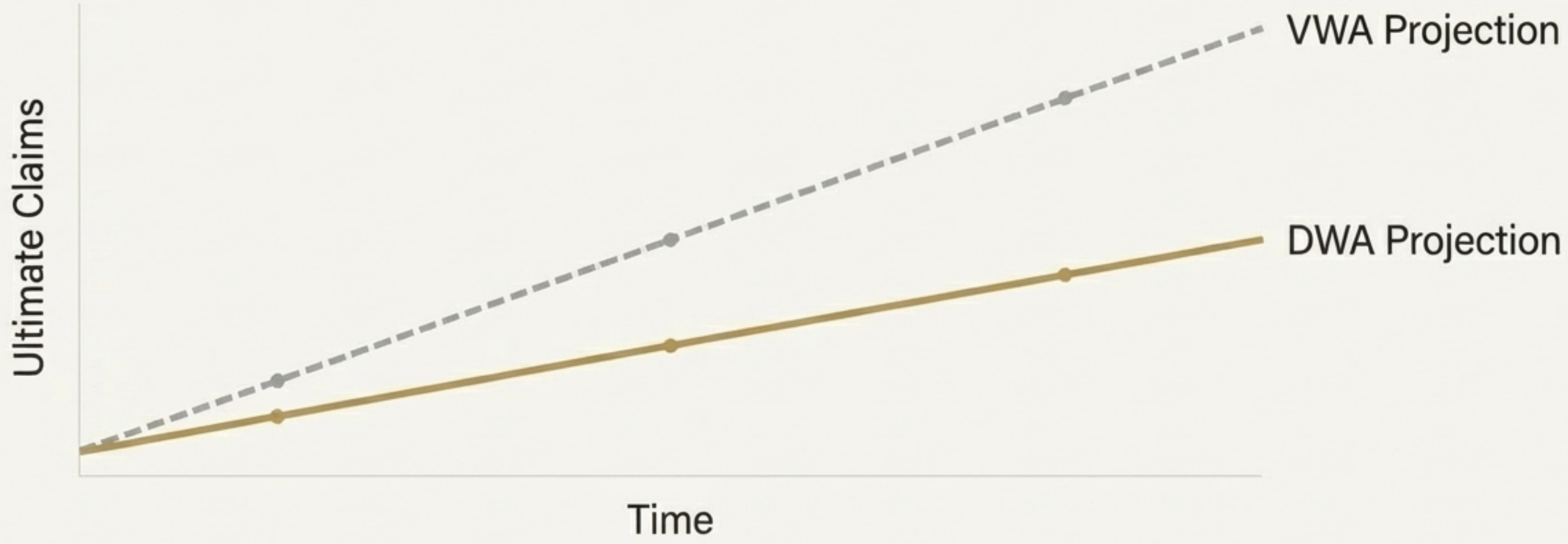
As we increase the weight on recent years (by lowering α), the selected LDF consistently drops.



Development has been improving. Recent years show faster settlement or lower claims inflation than older years.

VWA Overestimates. DWA Reflects Reality.

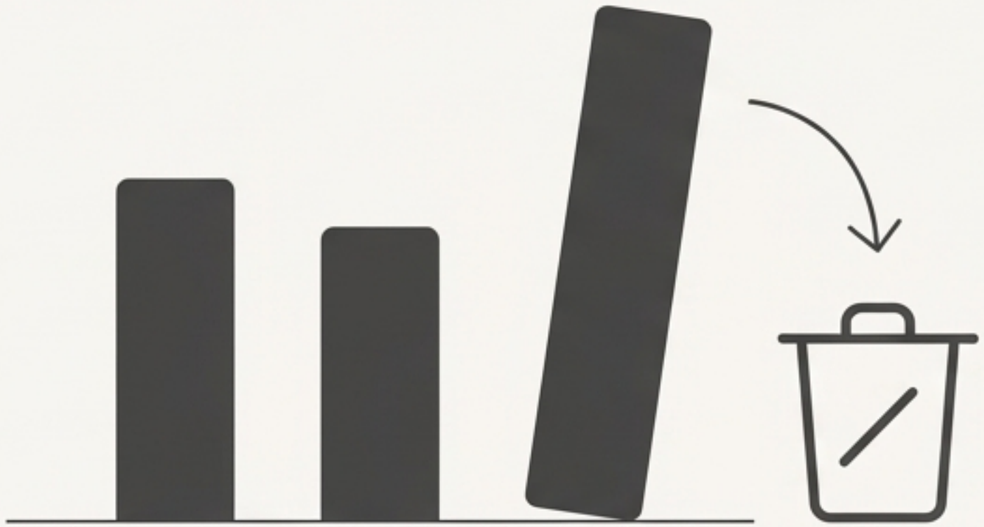
A standard Chain Ladder using the VWA would anchor to outdated development patterns and likely overstate the ultimate claims. The DWA provides a more accurate reflection of current reality.



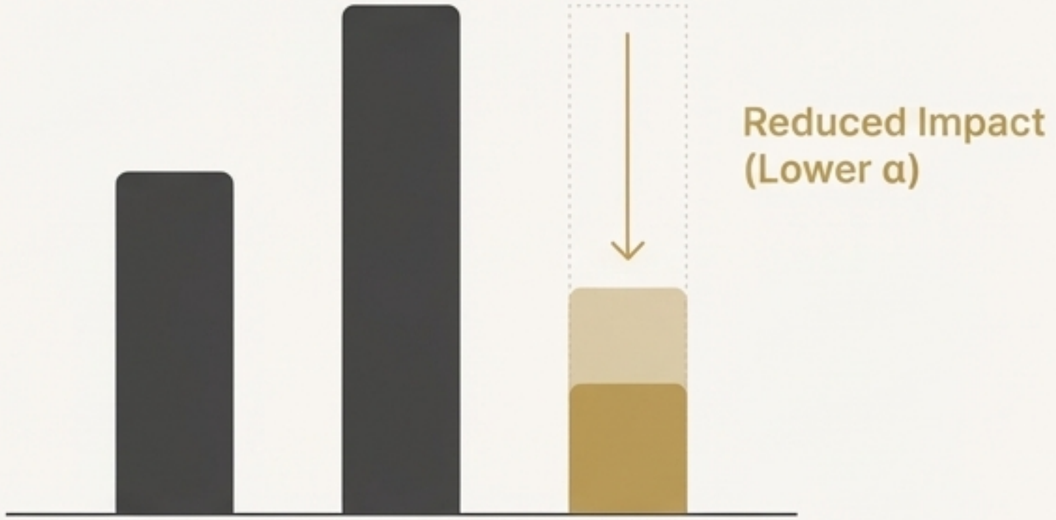
From Crude Deletion to Nuanced Judgment

Instead of arbitrarily deleting a “bad year,” you can systematically dampen its influence with a **lower α**. This retains the data point but reduces its impact in a transparent and defensible way.

Before

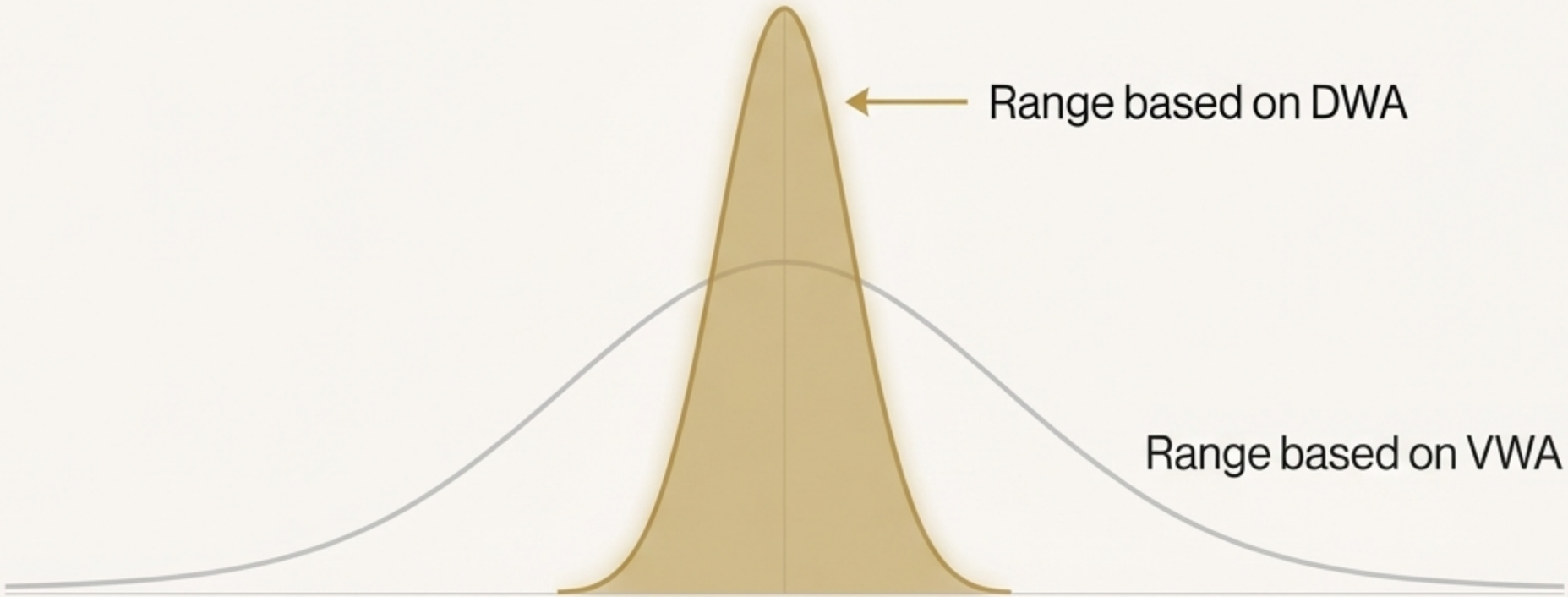


After



Enhancing Your Stochastic Models

The DWA provides a more refined ‘mean’ for your simulations. This leads to a tighter, more realistic, and more defensible range of outcomes (IBNR) compared to a simple average.



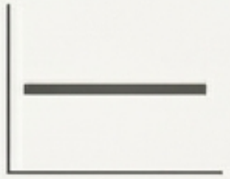
The Ultimate Advantage: The Power of Justifiable Judgment

DWA provides an objective, repeatable framework to support your expert opinion. It turns...

I *think* development is improving...

The data *shows* development is improving, and here is the quantifiable impact of that trend.

The Actuarial Edge

From		To
Blunt Averages		Surgical Precision
Ignoring Trends		Capturing Reality
Arbitrary Exclusions		Justifiable Judgment

How could this refine your next reserve review?