

The Changing Role of the CIO



PONY EXPRESS

St. JOSEPH, MISSOURI to CALIFORNIA
in 10 days or less.

➔ WANTED ➔

YOUNG, SKINNY, WIRY FELLOWS
not over eighteen. Must be expert
riders, willing to risk death daily.

Orphans preferred.
Wages \$25 per week.

APPLY, **PONY EXPRESS STABLES**
St. JOSEPH, MISSOURI

“Premature optimization is the root of all evil”

- Donald Knuth

**Change the business model,
don't just optimize**





“The Encyclopedia Britannica has no plans to be on a home computer. And since the market is so small, only 4 or 5 percent of households have computers, we would not want to hurt our traditional way of selling.”

Endowment Effect

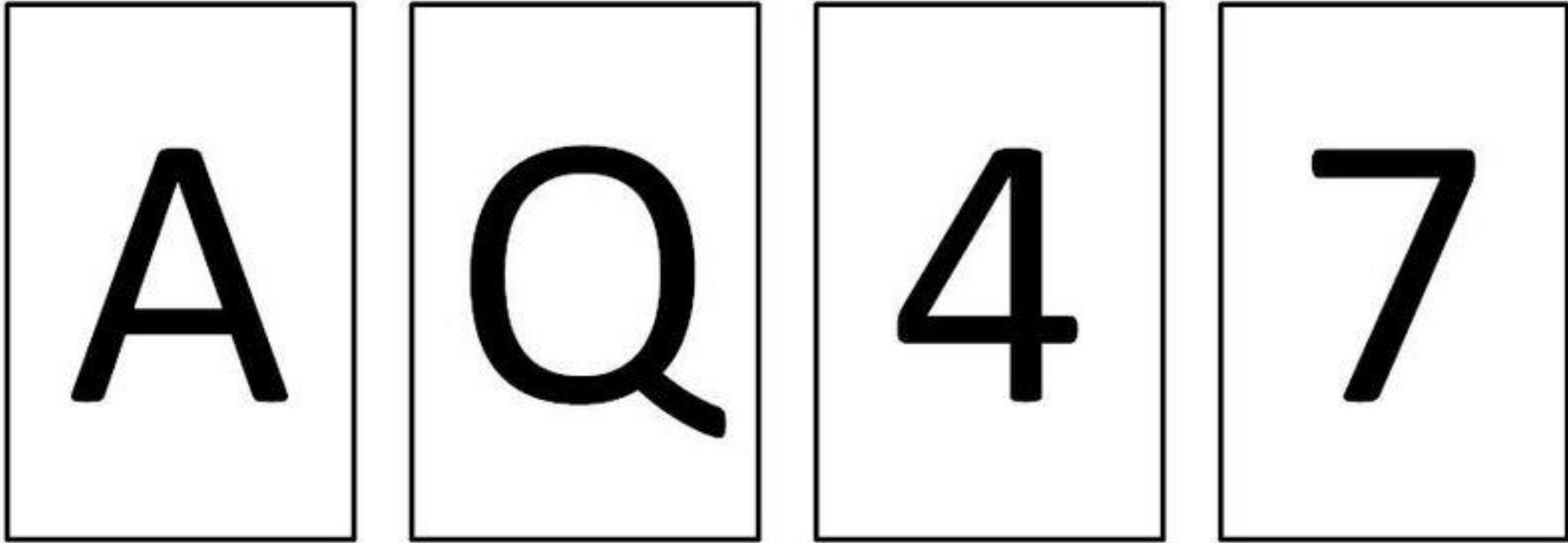


Willing to pay \$2



Willing to sell \$7

If the card has a vowel on one side, then it must have an even number on the other side.



Which two cards would you turn over to test the rule?

A) A, 4

C) Q, 4

B) A, 7

D) Q, 7

Never underestimate the blindness
of a successful company.

Western Union Board

“The transcontinental telegraph is too risky”

Western Union President

“There is nothing in this patent whatever, nor is there anything in the scheme itself, except as a toy”

Blockbuster

- Netflix market space is too small and we like late fees

Technology enables:

new customers

new cost structures

Change your relationships

Changing Relationships

Win an enemy

Sell to a supplier

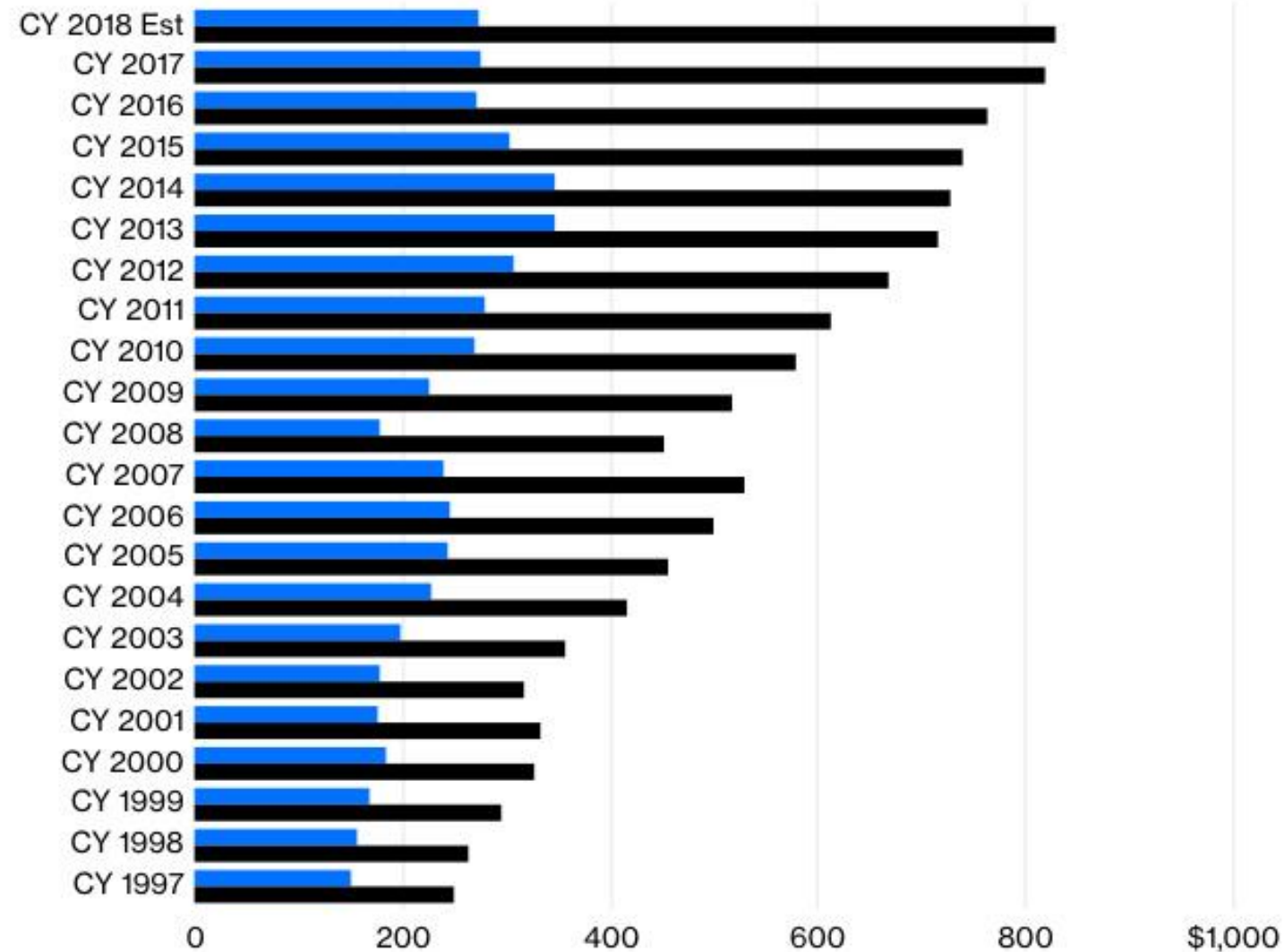
Who is your competitor?

Master decisions from data

Less Tangible

More and more of the assets of S&P 500 companies are patents and other intangibles

■ Tangible book value per share ■ Book value per share



Source: Bloomberg

Intangible

- Research and Development
- Software
- Data
- Patents
- Process
- Training
- Relationships
- Brand
- Organizational Design

Tangible

- Buildings and Office Space
- Office Equipment
- Trucks
- Machinery
- Computers
- Plants

Properties of Intangible Assets

- Sunk – often impossible to recover investment
- Scalable – used over and over in multiple places
- Spillovers – other companies can use it
- Synergies – combinations yield high value

Comptroller Aims to Curb Personal-Injury Claims Against New York City

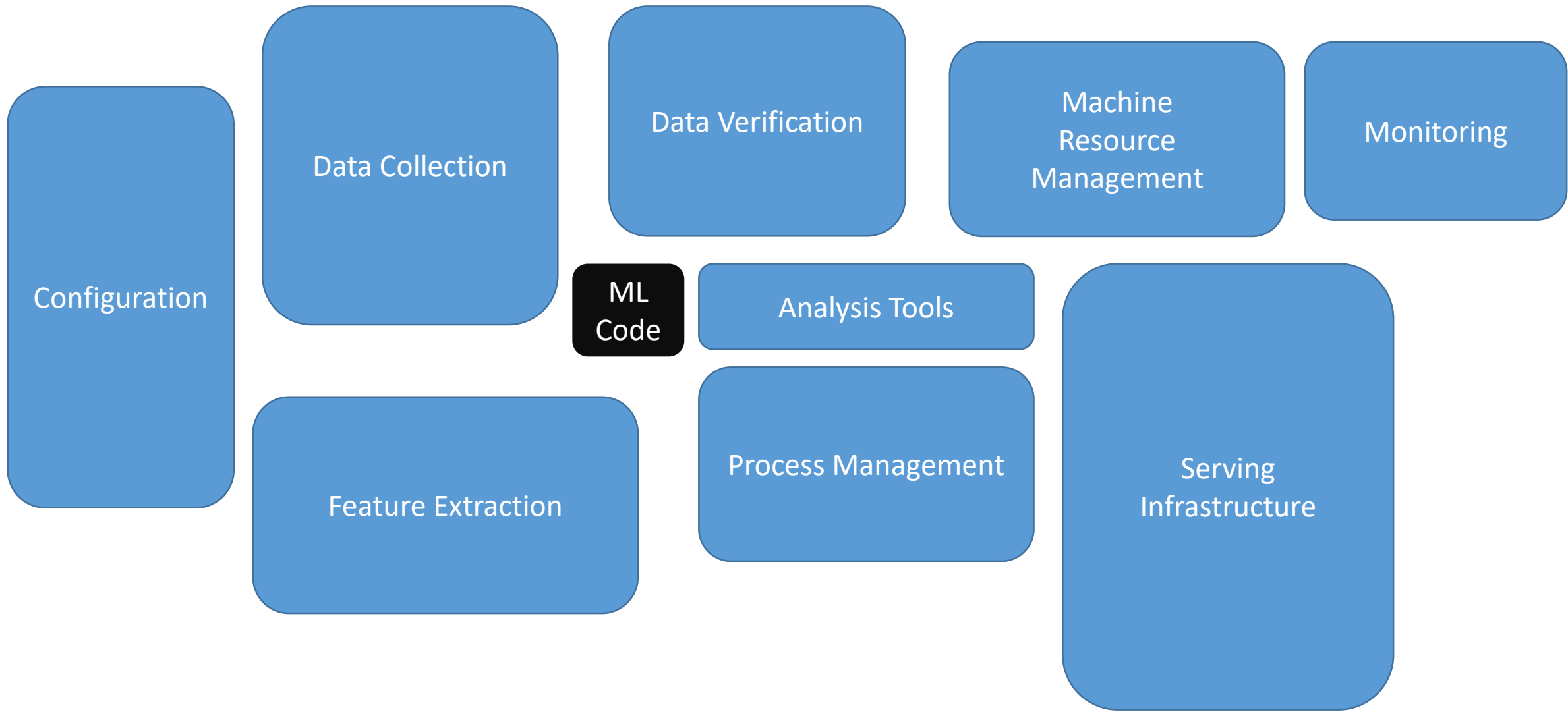
By [Benjamin Weiser](#)

July 9, 2014



New York City Comptroller Scott Stringer
Ashley Gilbertson for The New York Times

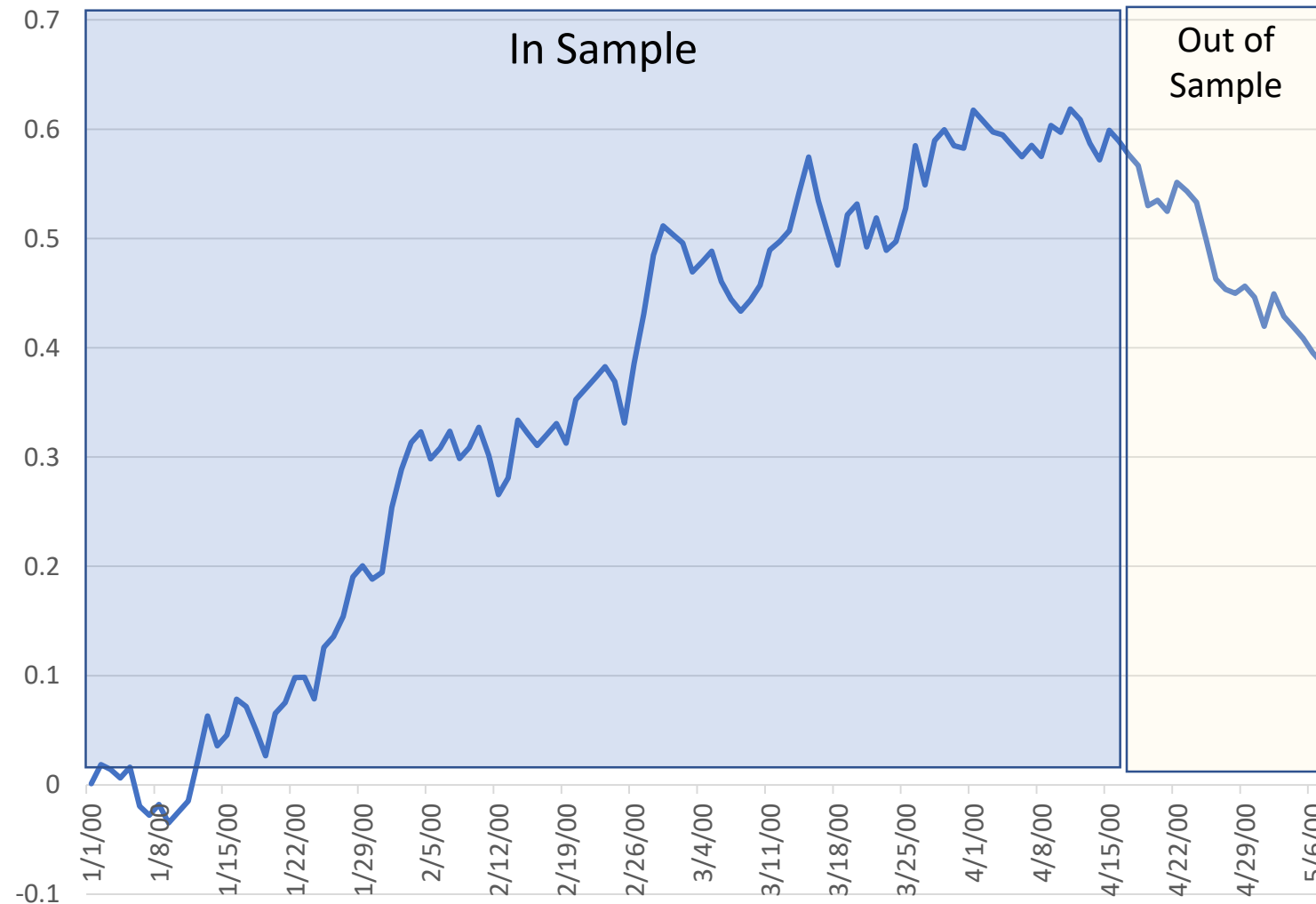
New York City two years ago more than doubled its \$1.45 million budget for pruning trees, adding \$2 million after a spate of injuries and deaths caused by falling tree limbs in parks and along city streets.



Massive Data + Computational Power =

Overfitting

Machine Learning Realities In Quantitative Trading

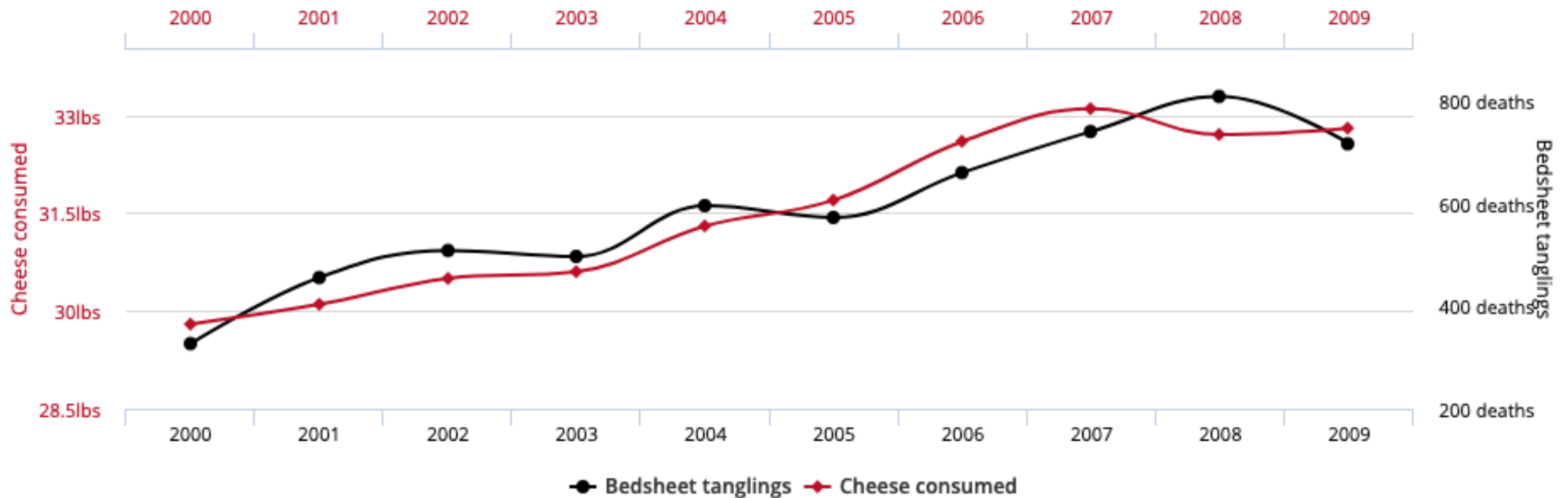


Per capita cheese consumption

correlates with

Number of people who died by becoming tangled in their bedsheets

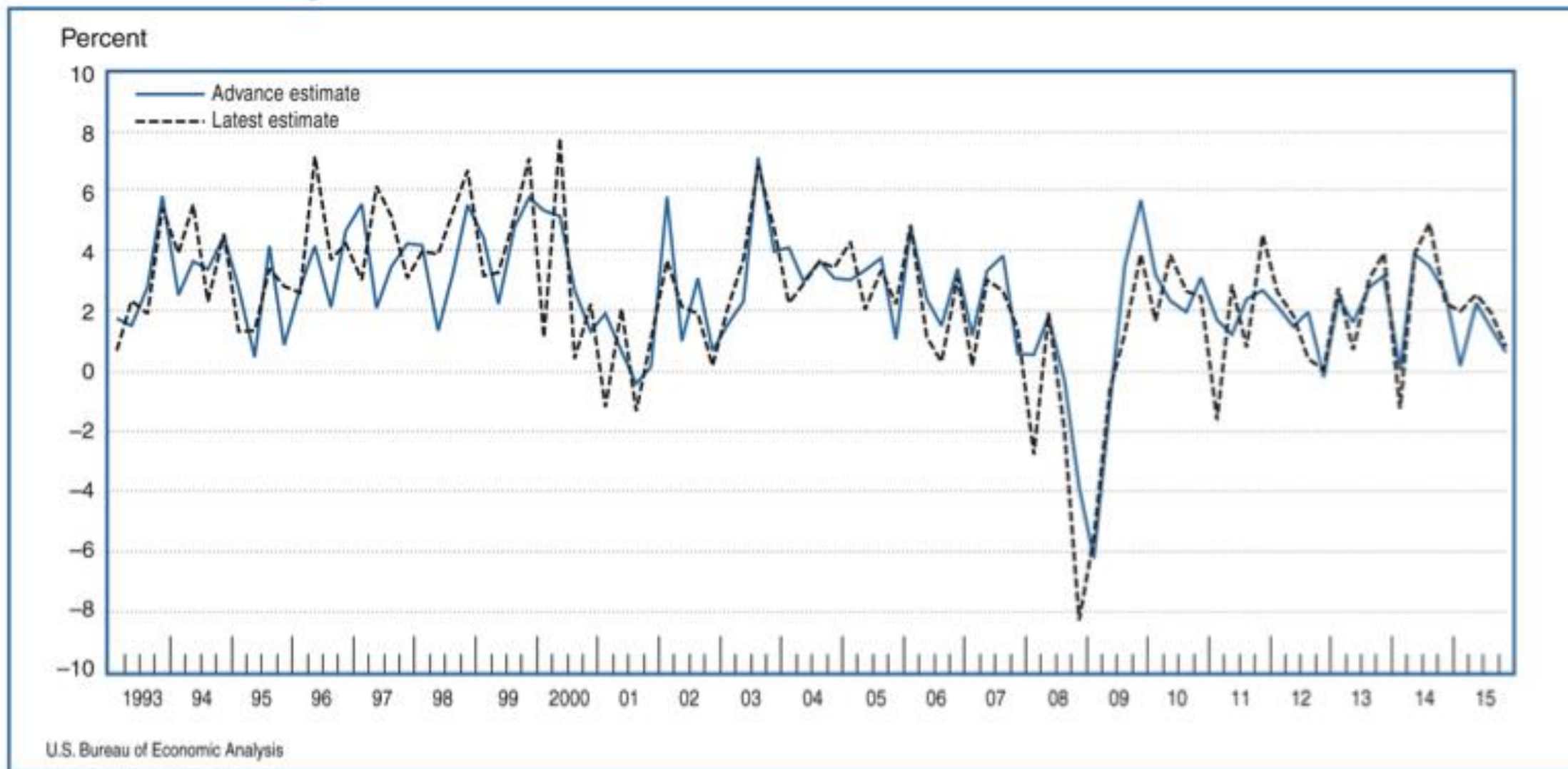
Correlation: 94.71% (r=0.947091)

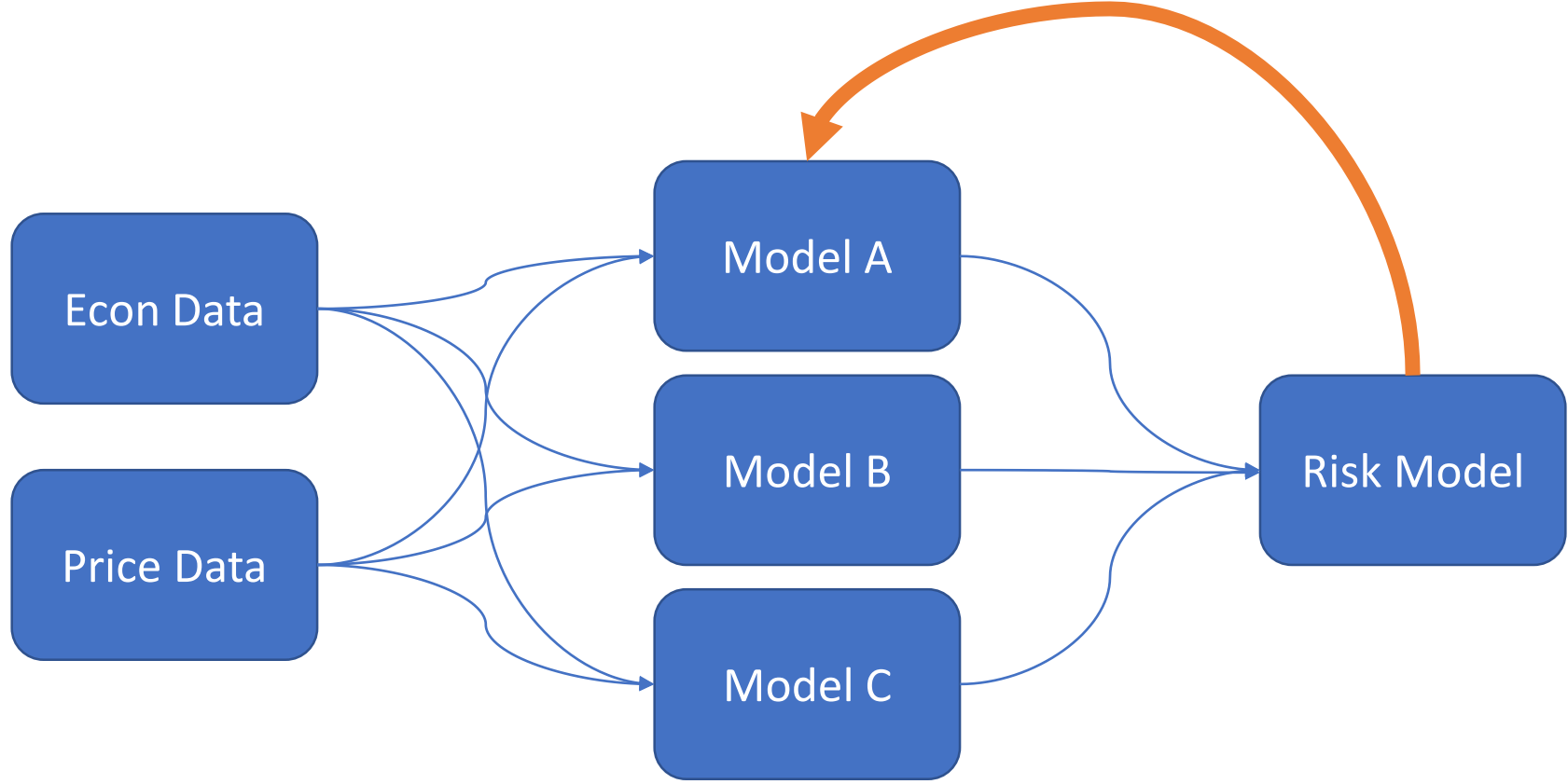


Data sources: U.S. Department of Agriculture and Centers for Disease Control & Prevention

tylervigen.com

Chart 1. Percent Change in Real Gross Domestic Product, 1993–2015





Keep it simple to avoid overfitting.

Design for changing data.

The Changing CIO Role:

Change the business model, don't just optimize

Change your relationships

Master decisions from data

Questions

- What opportunities has leadership said no to in the last few years?
- What blind spots do your organizational metrics create?
- What is your biggest barrier to cooperating with rivals? Is it worth it?
- If my business disappeared who will miss me? What value do I bring to them?
- What happens when Amazon enters my space? What would they be seeking?
- What analytic/model holds the highest risk of curve fit in your firm?
- How much are you paying for maintenance of analytics/models?