How the Stock Market Crashed in 2008

Alan Rosenthal

Failure of Prediction

Cause of the Collapse

Huge financial institutions leveraged on risky **mortgage-backed securities.**

Expectation vs. Reality

MBS

MORTGAGE-BACKED SECURITY (MBS)

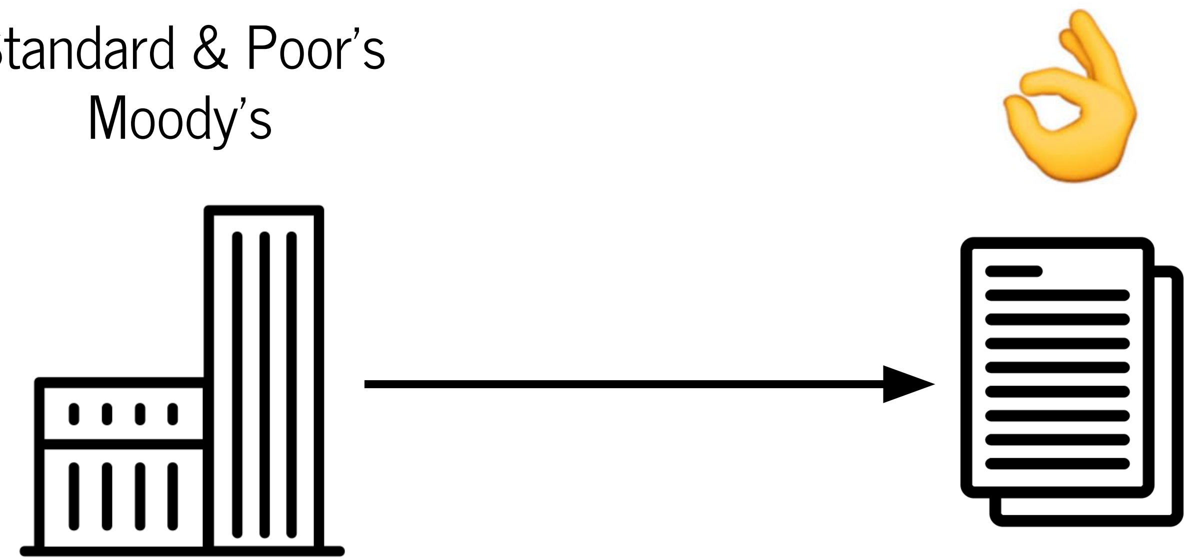
Based on mortgage defaults

Investment

Ratings

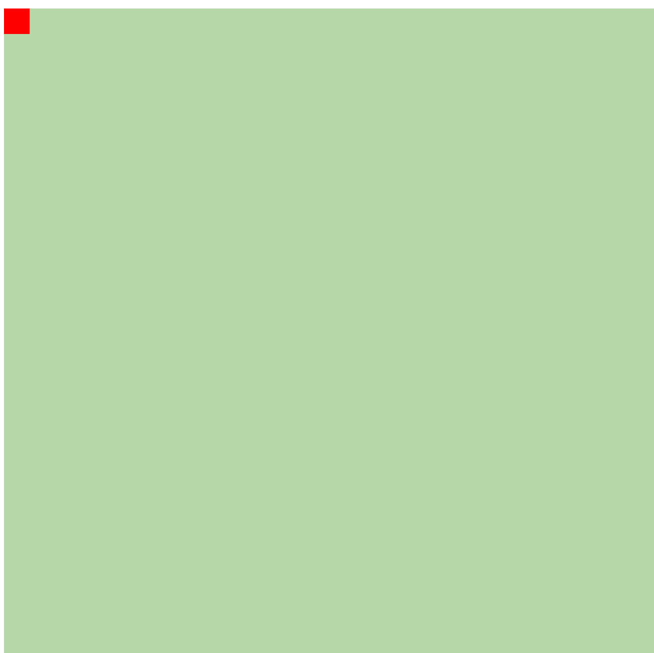
Ratings agencies gave MBSs a **AAA** rating.

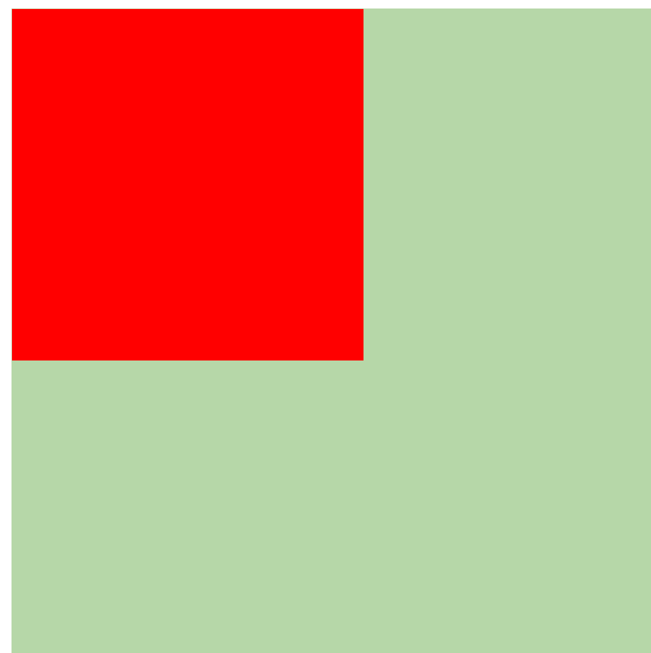
Standard & Poor's
Moody's



Accuracy

Predicted Risk: **0.12%** vs. Actual Risk: **28%**

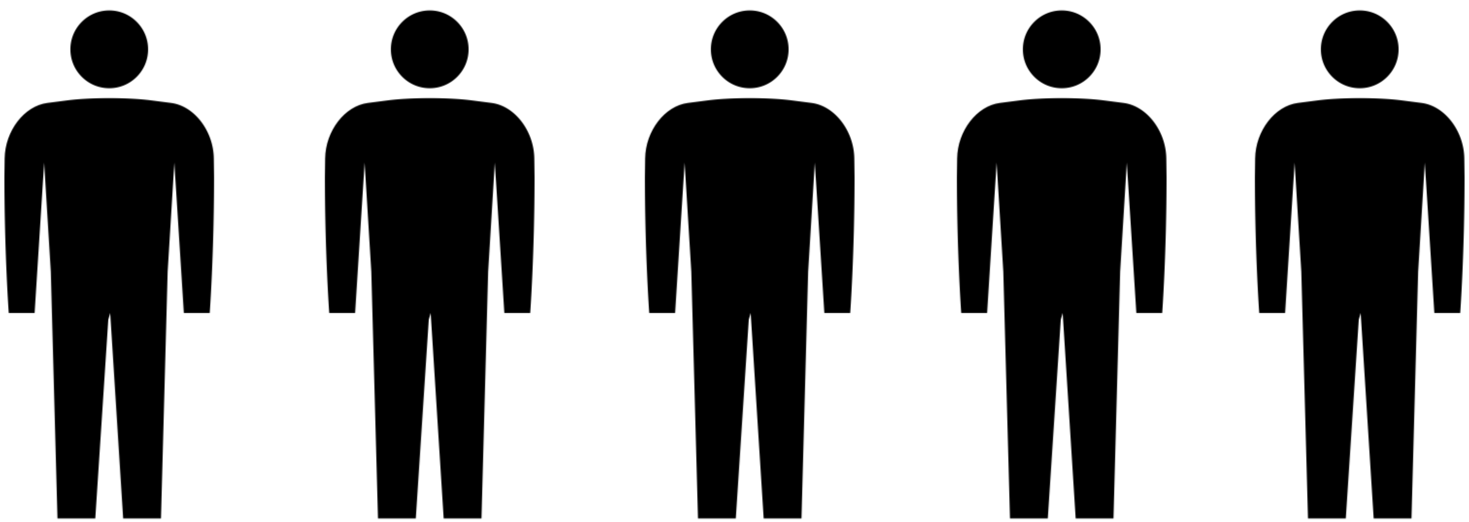




Why did the predictions fail?

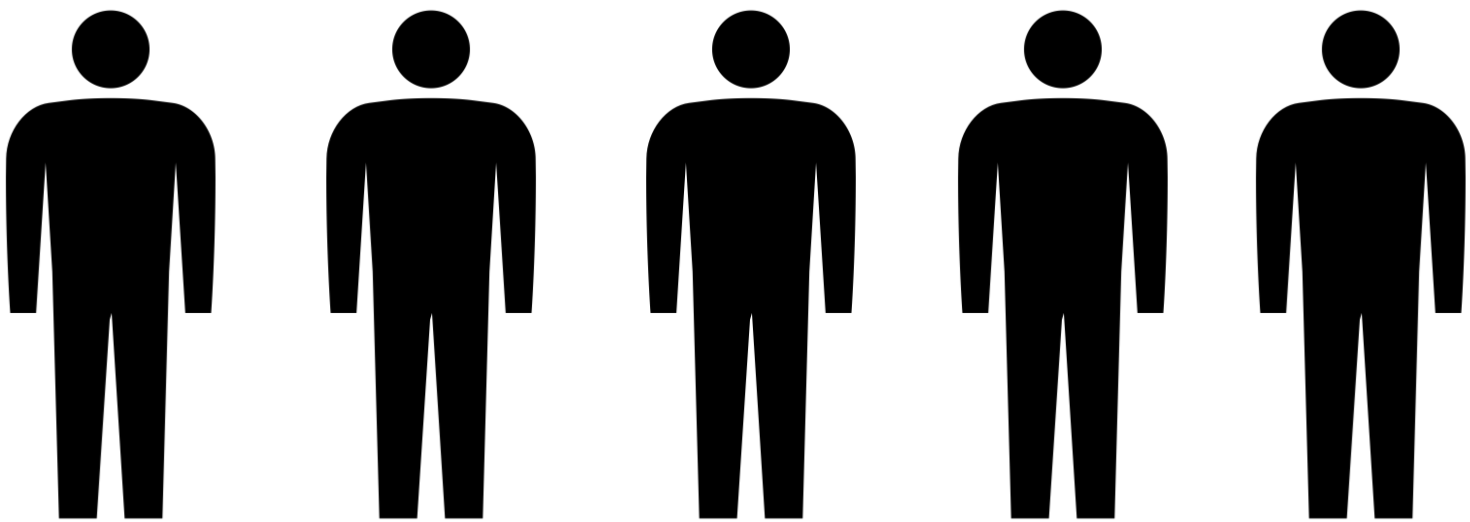
A Closer Look at MBSs

Bundle five mortgages...



A Closer Look at MBSs

...bet on the chance that all
five mortgages default.



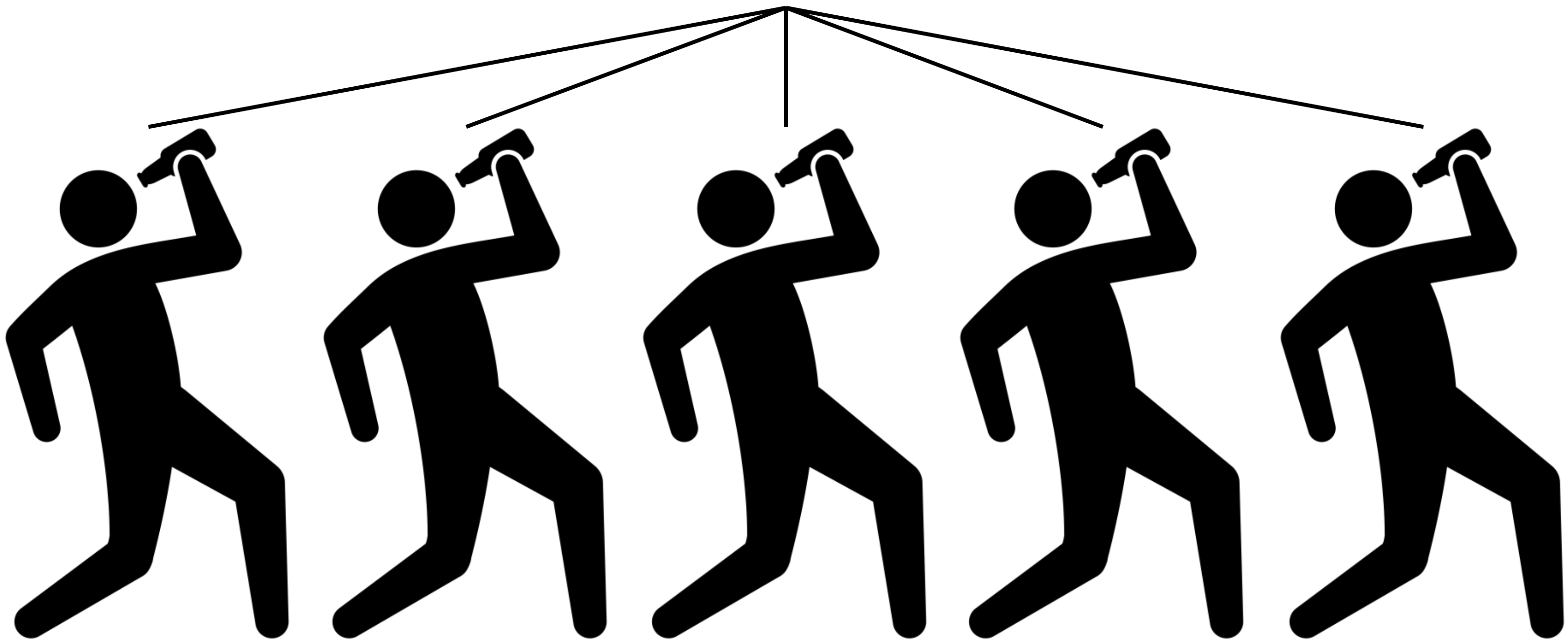
A Closer Look at MBSs

"Subprime" mortgages: average B+ credit rating.

A Closer Look at MBSs

"Subprime" mortgages: average B+ credit rating.

>20% chance of default



Calculating Risk

Chance that all 5 mortgages default:

$$20\% \wedge 5 = 0.032\%$$

(really low)

Calculating Risk

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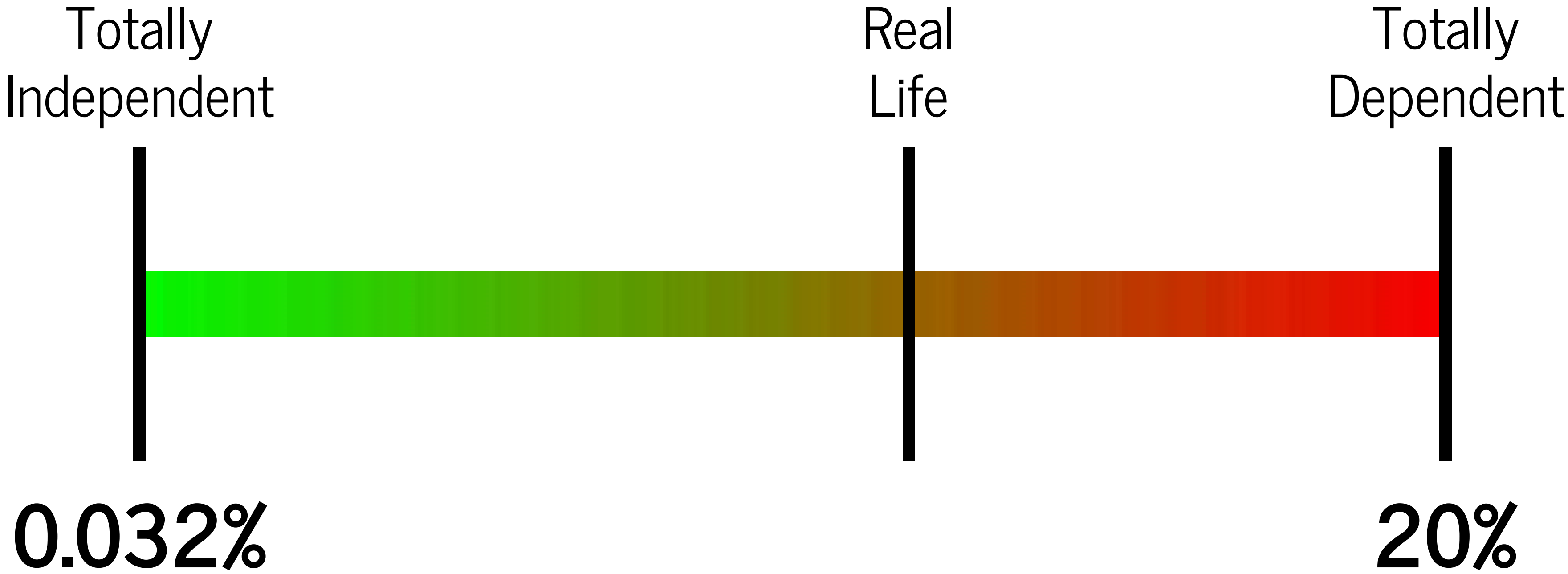
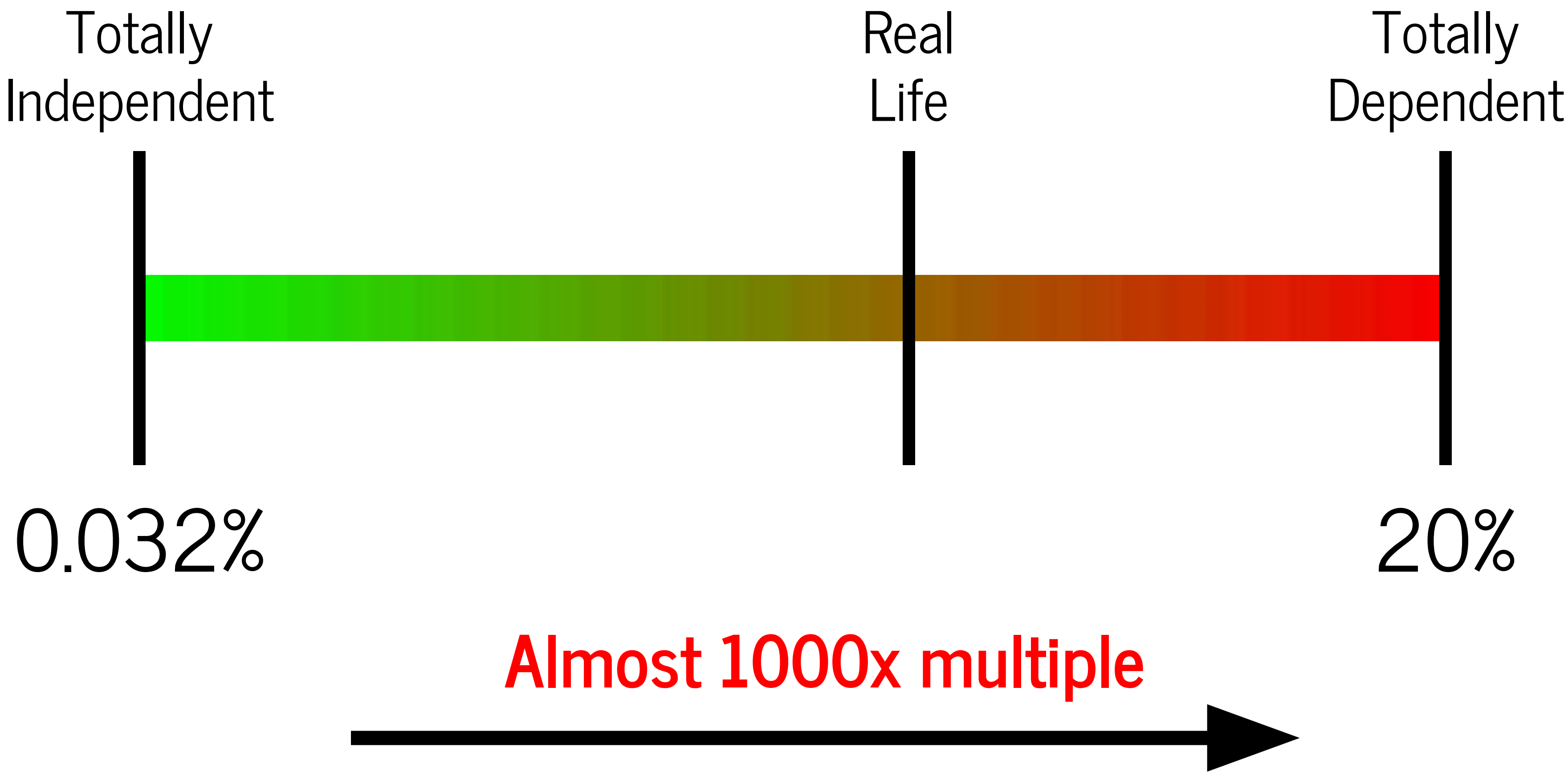
Problem: mortgage defaults were not independent from each other.

Realistic Risk



Realistic Risk



Realistic Risk

Real estate bubble popping → Widespread defaults

Realistic Risk

Real estate bubble popping $\longrightarrow$ Widespread defaults

Feedback cycle

Why did the ratings agencies fail?

Conflict of Interest

Banks could go to a competing
agency to get the rating they want.

Willful Ignorance

Natural human bias against uncertainty.

Unwillingness to oppose strong industry and finance trends.

For more:

The Signal and the Noise: Why So Many Predictions Fail-but Some Don't

by Nate Silver