

THE REAL CAUSES OF THE
**FINANCIAL
CRISIS**



A Max Capital presentation

MANY CAUSES HAVE BEEN NAMED:

DEMOCRATS **CDO's** **REPUBLICANS**
D **SHORT**
S **SELLERS**
'S **THE FED**
GREEDY EXECUTIVES
REAL ESTATE SPECULATORS

But there are **3**
SYSTEMIC
reasons for the crisis:

1. INCENTIVES

1. INCENTIVES

2. RISK

MANAGEMENT

1. INCENTIVES

2. RISK

MANAGEMENT

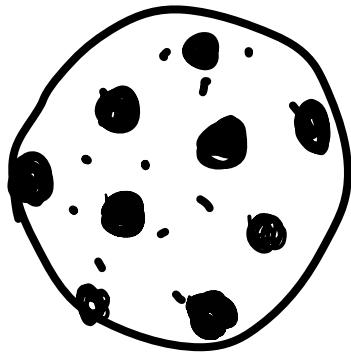
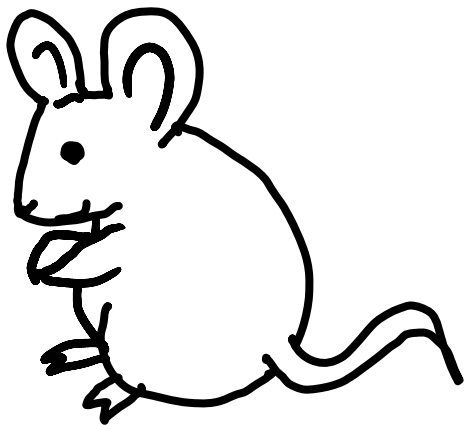
3. COMPLEXITY

1

misaligned

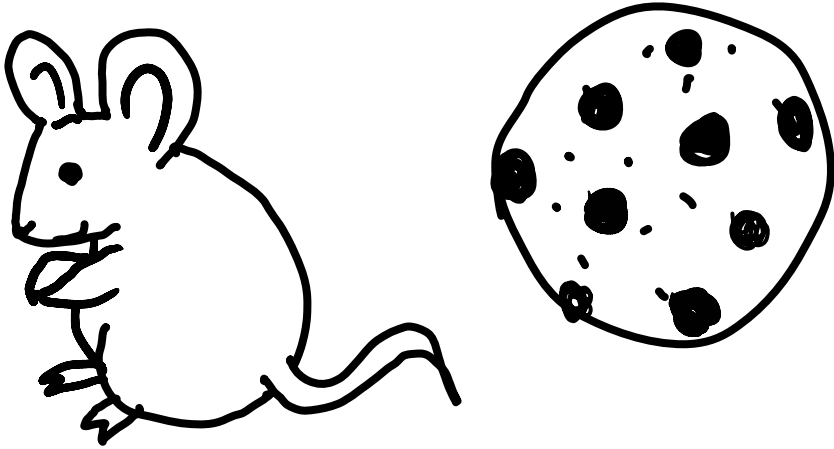
INCENTIVES

were pervasive



**If you give
a mouse a
cookie...**

**If you give
a mouse a
cookie...**

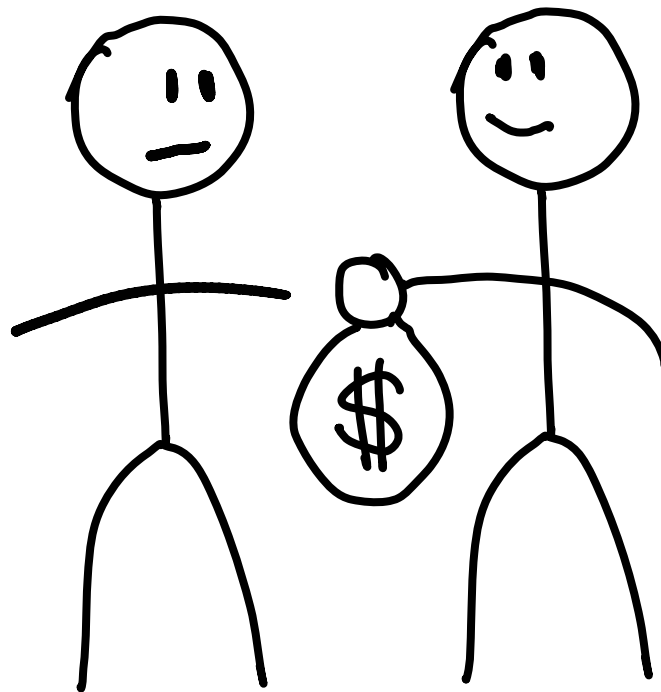


**he's going
to want
some milk.**



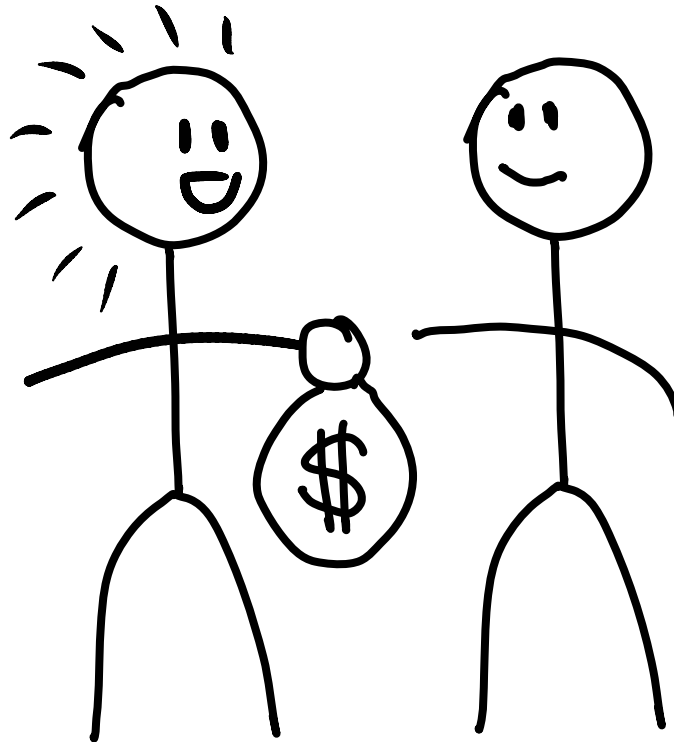
(i.e.)

**When you give
someone something,**

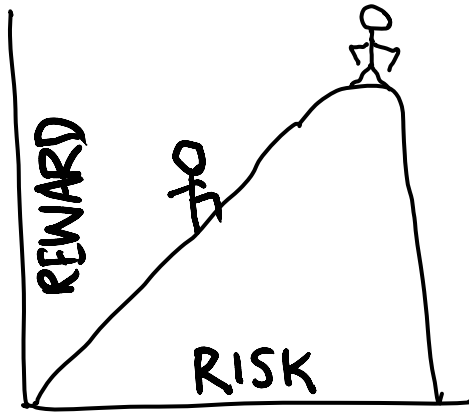


(i.e.)

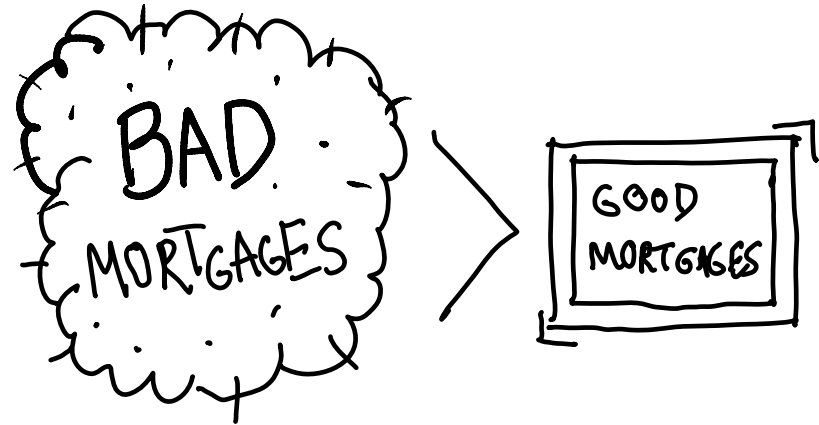
**it will drive and shape
their behavior.**



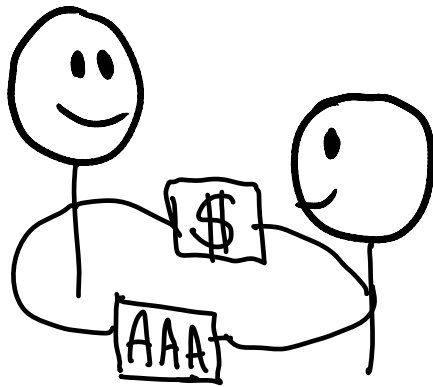
Bad incentives were everywhere...



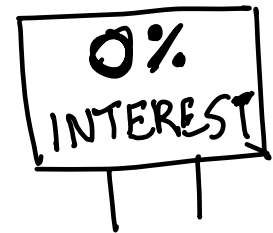
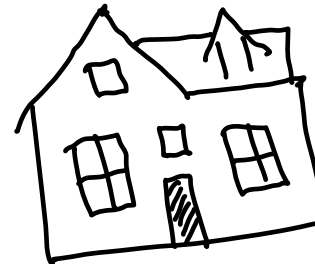
EXECUTIVES



**MORTGAGE
BROKERS**



**RATING
AGENCIES**



HOME BUYERS

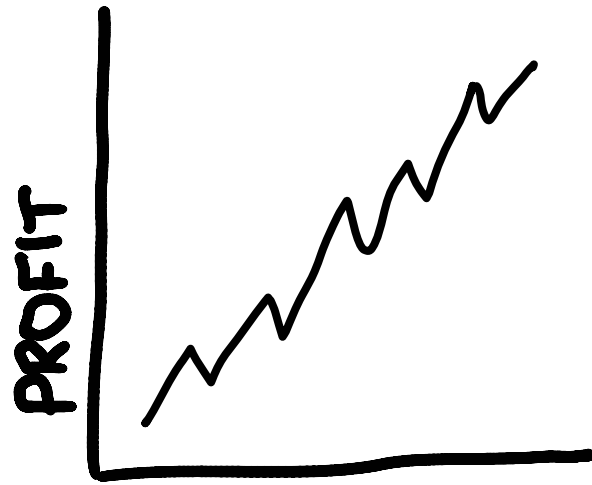
**IMMEDIATE
ACTIONS**

**There was
no l-i-n-k
between**

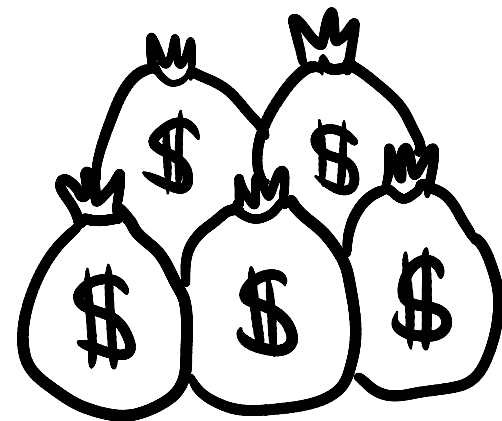
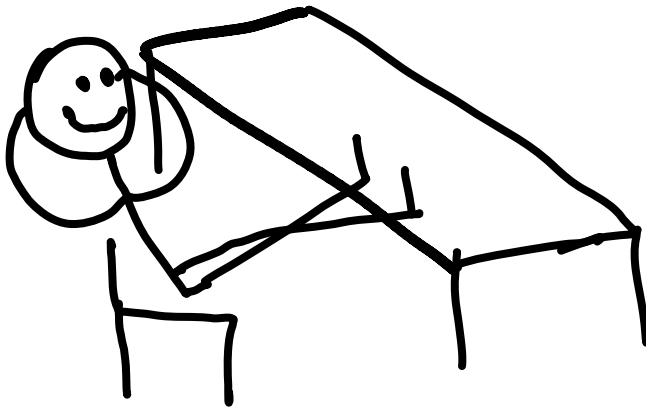
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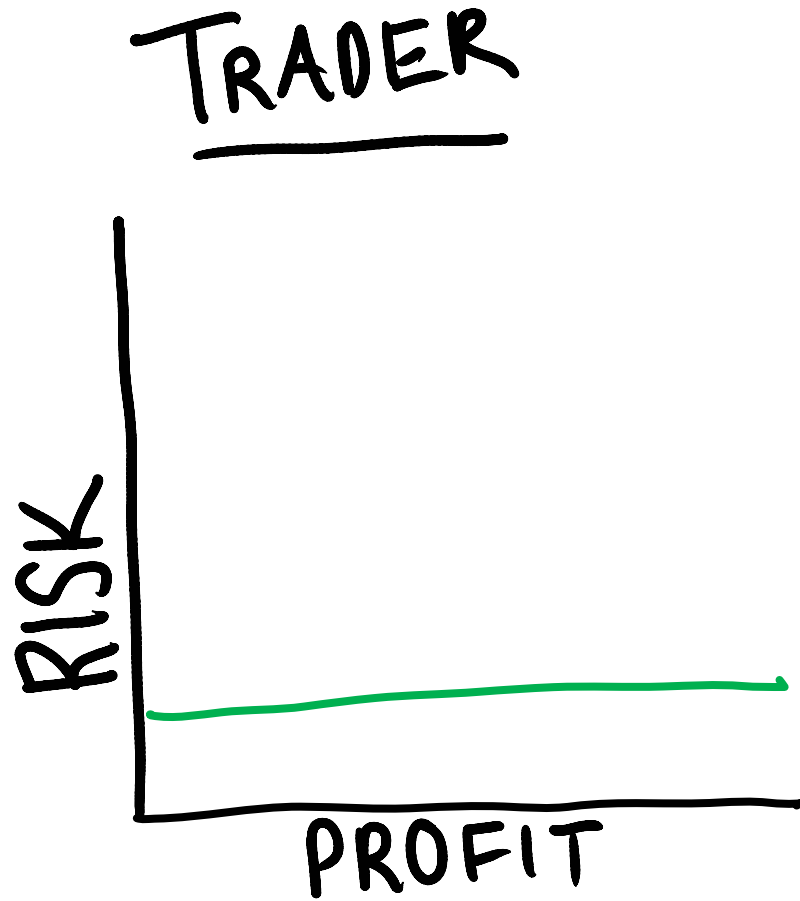
**FUTURE
CONSEQUENCES**





**Giving a manager
part of the
profits may not
sound bad...**



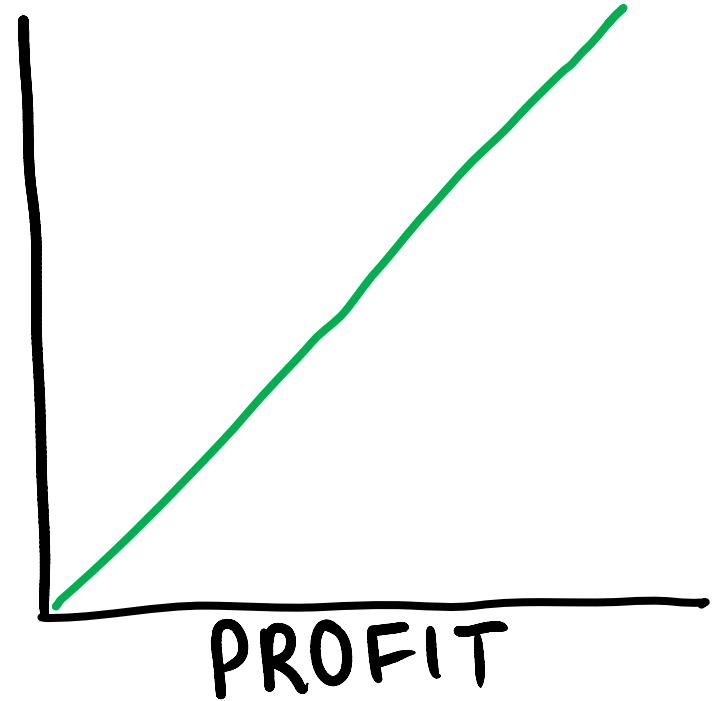


**But when they aren't punished
for taking long-term risks...**

TRADER



COMPANY

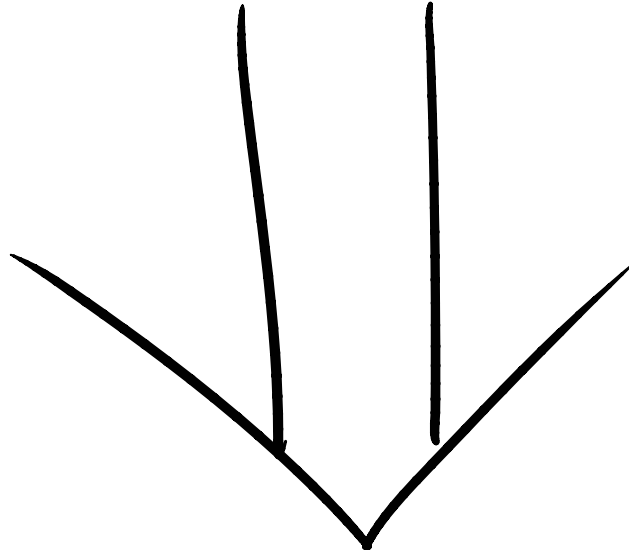


**then that's what they'll do. And
the company will pay the price.**

2

companies didn't
MANAGE RISK
correctly


One example is

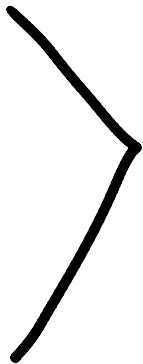


Value at Risk
(VaR)

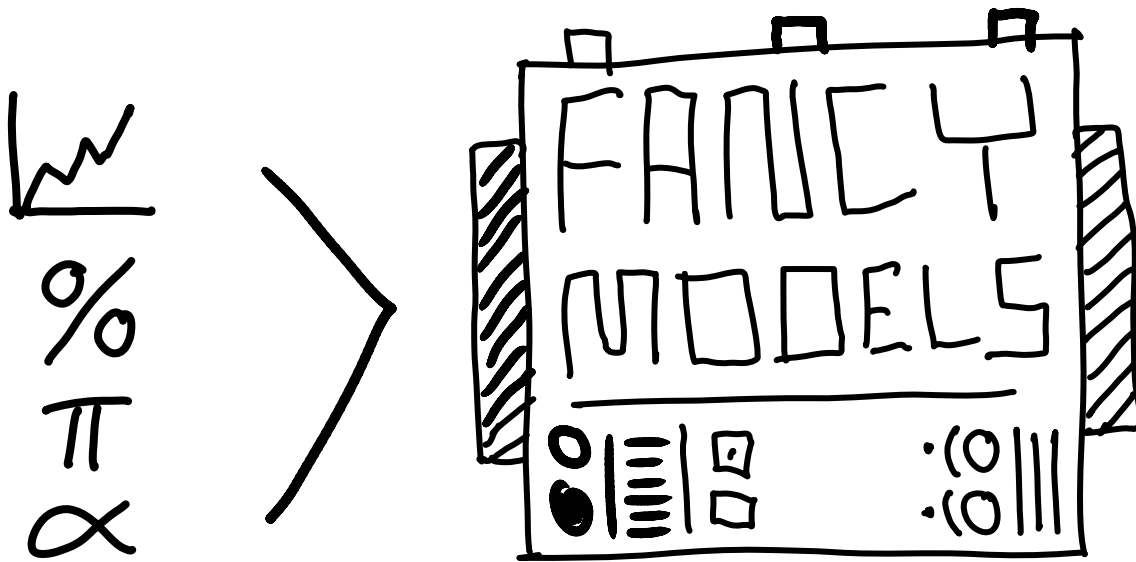
**The VaR analysis
tries to give the
firm a look at how
much risk it's
taking.**

It starts with the analysis of historical data & statistics

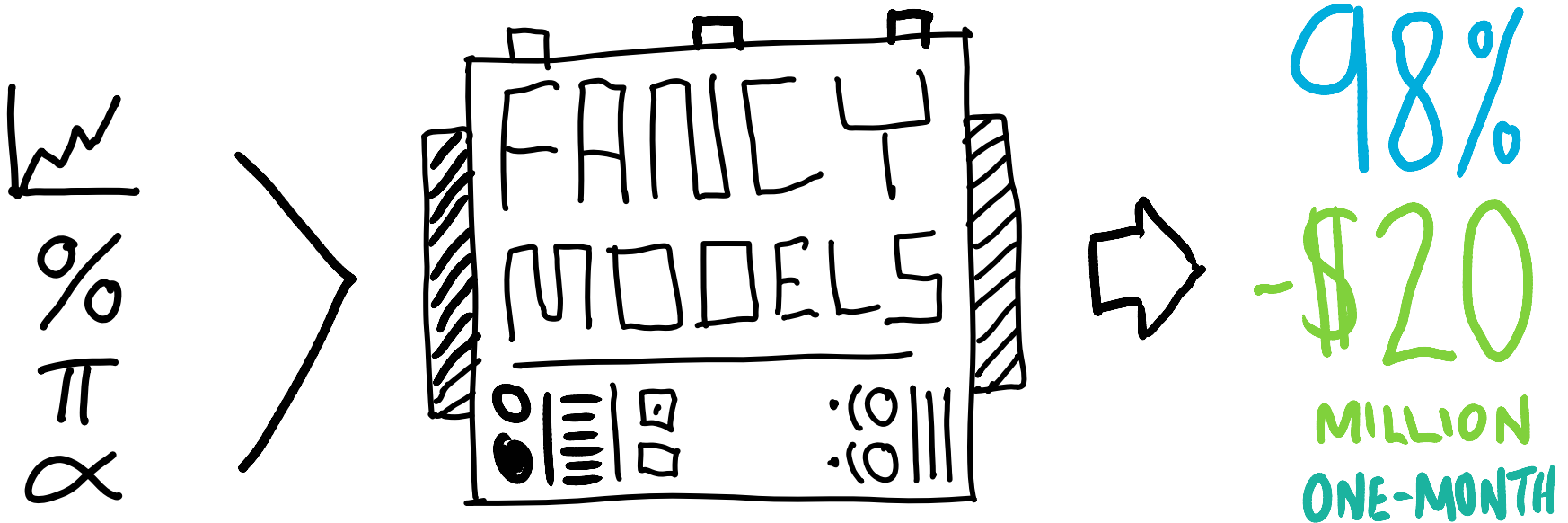

%
 π
 ∞



**The data is then run
through a bunch of
advanced models**




**The final result is a \$
amount for a certain
percentile & time**



**This means that
98% of the time,
your investments
won't lose over
\$20 million in a
one-month
period**

98%
-\$20
MILLION
ONE-MONTH

There are  3 reasons why VaR causes problems:

**Keep in mind that
ALMOST ALL
financial firms use
VaR to manage risk**

1st

**We're not very good at
judging extremely rare
risks**

1st

**For example, we can guess
the odds of rain tomorrow
fairly well**



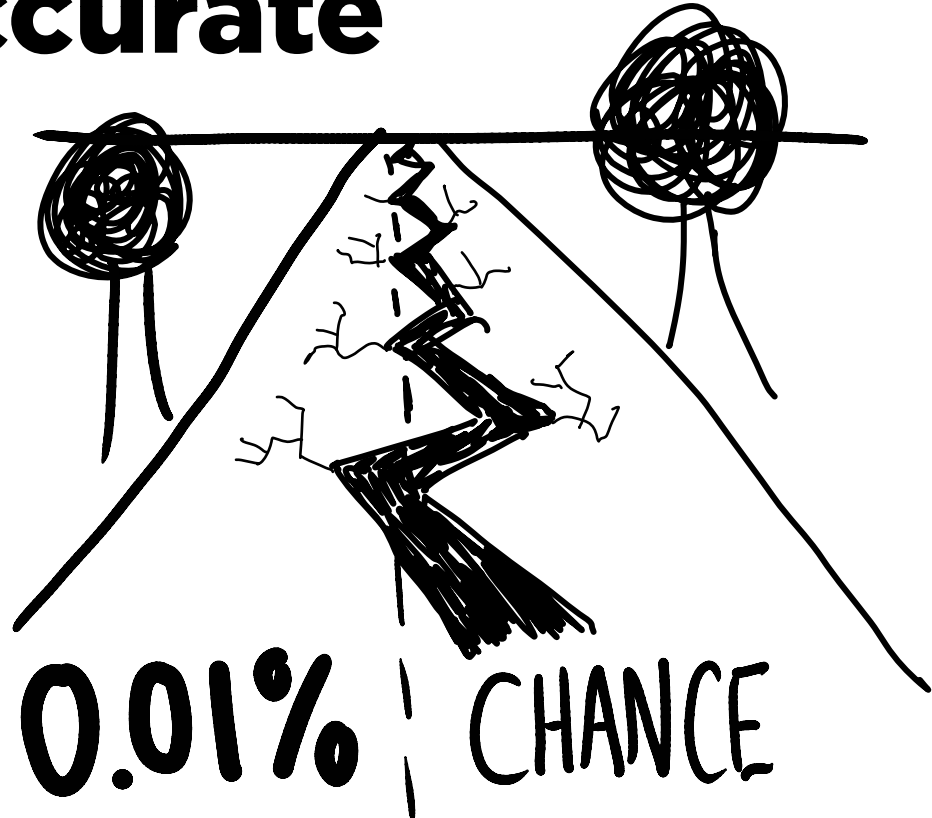
80% CHANCE

1st

**But the odds of an
earthquake will be much
less accurate**



80% CHANCE



0.01% CHANCE

1st

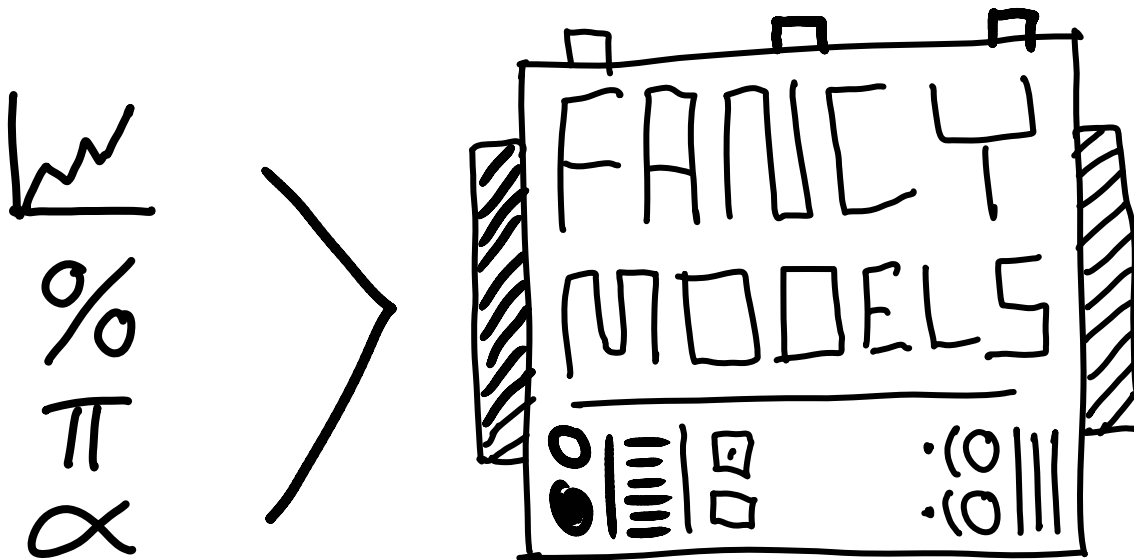
**Without the ability to
judge these rare risks,
the VaR models aren't
very useful**

2nd

***Historical* data
doesn't necessarily
predict *future* returns**

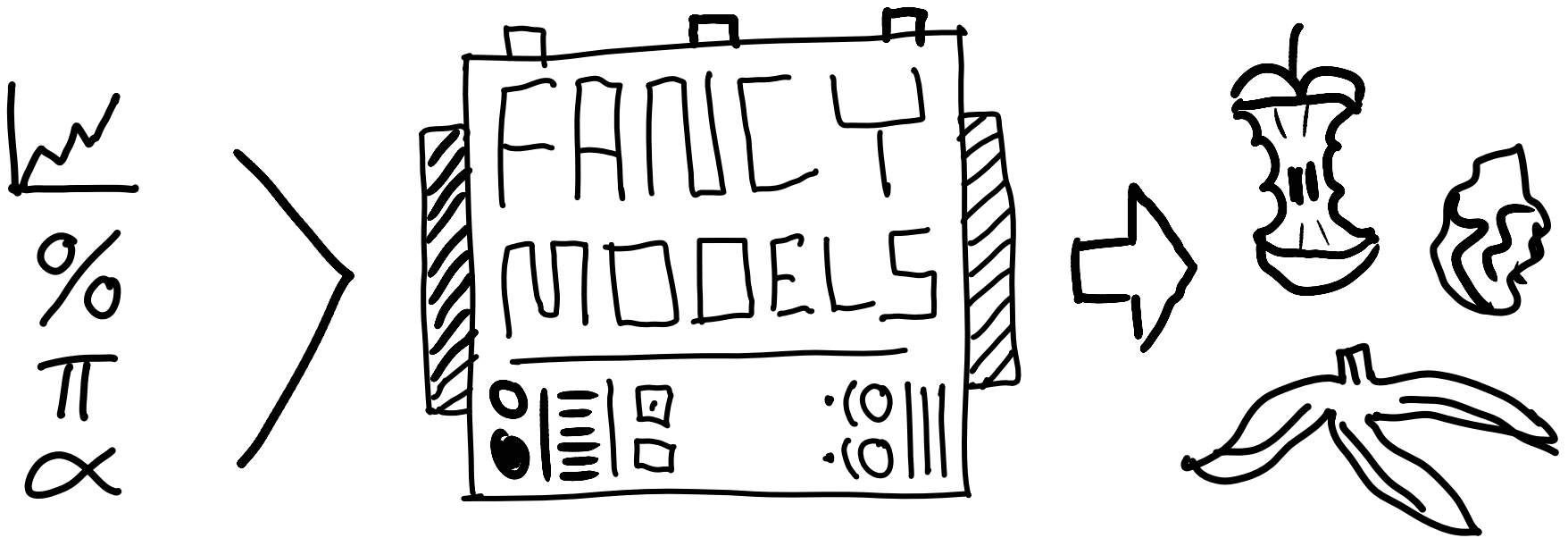
2nd

Garbage in,



2nd

Garbage in, garbage out.



3rd

VaR ignores the worst-case scenario



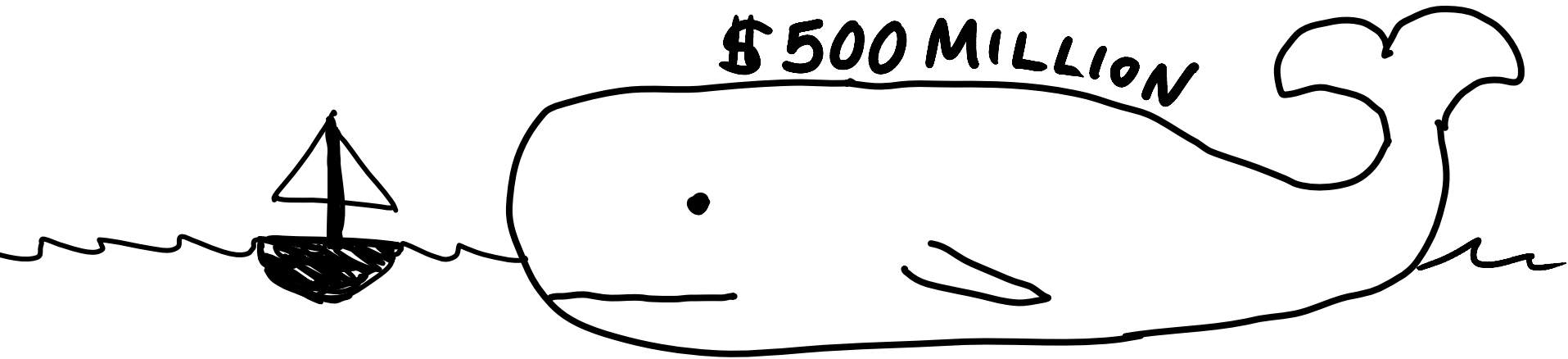
So losses
could be:

OR...

\$21 MILLION



3rd

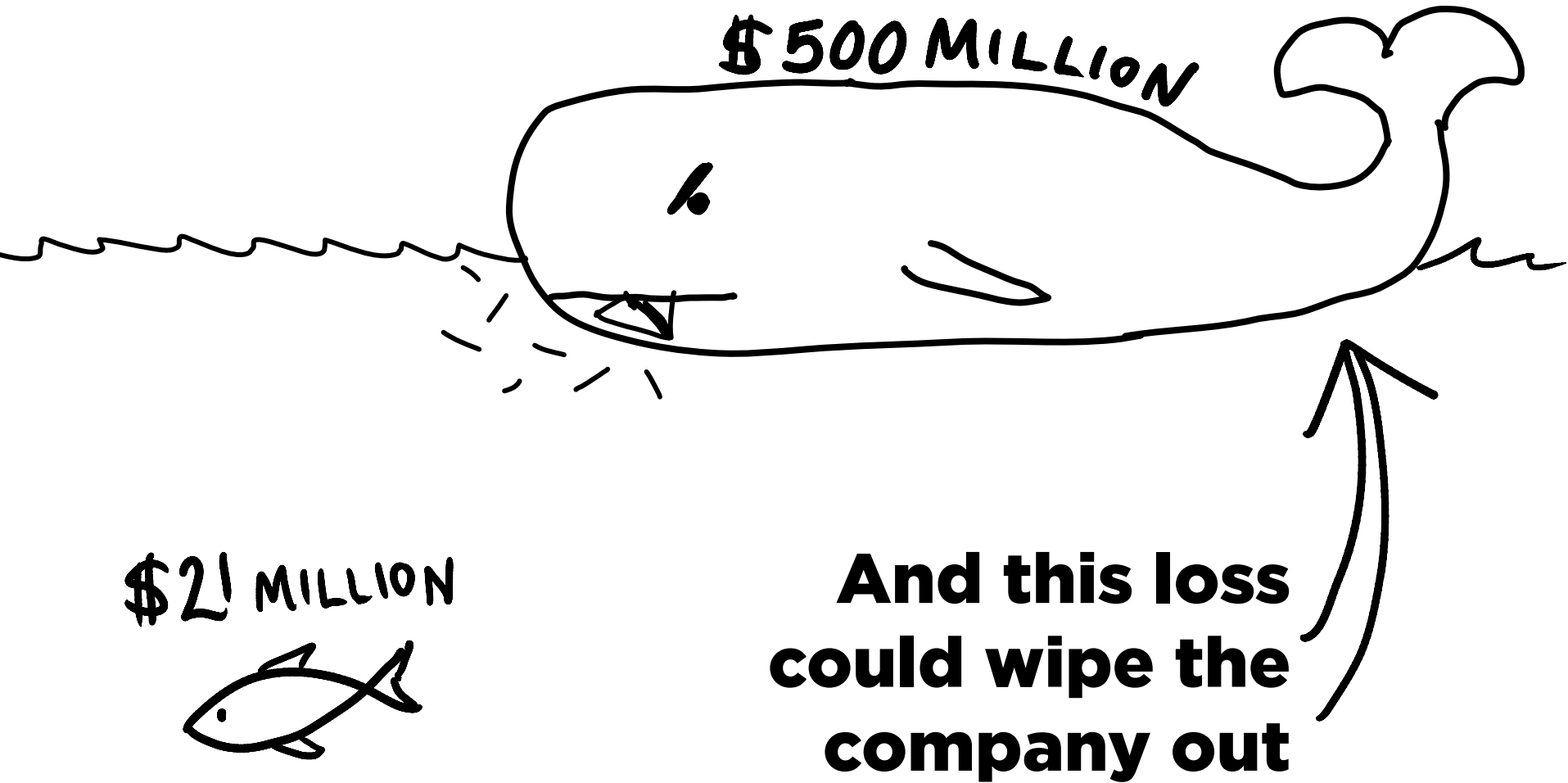


OR

\$21 MILLION



3rd

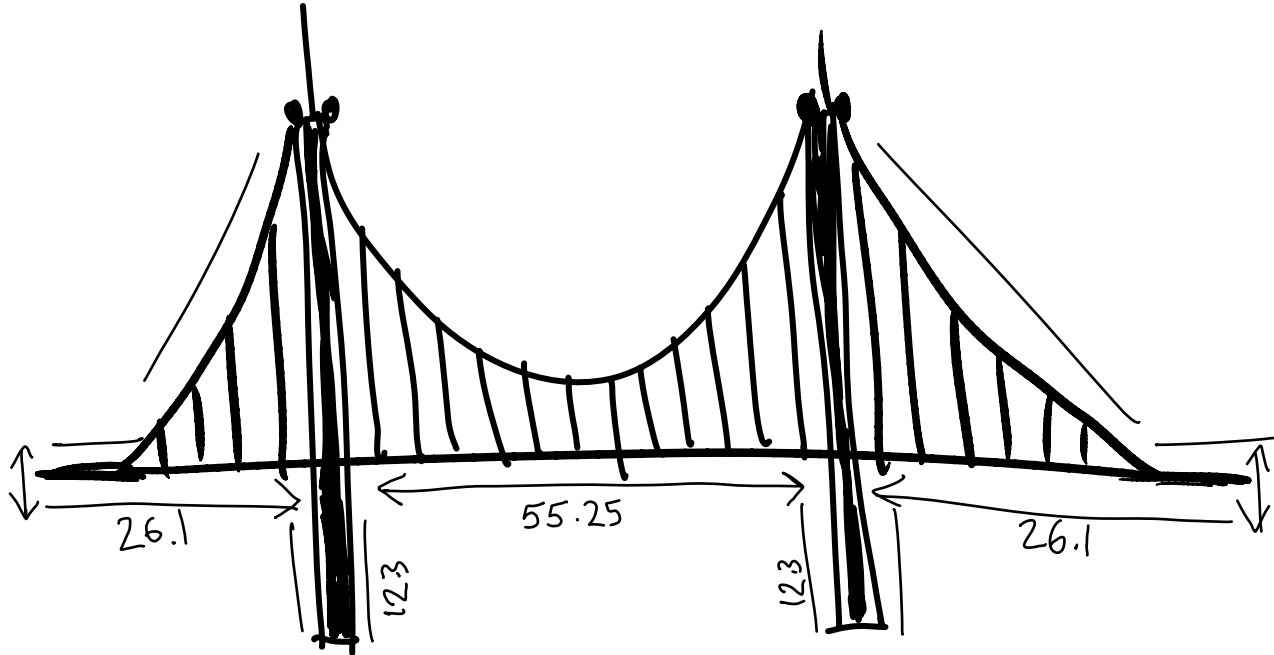


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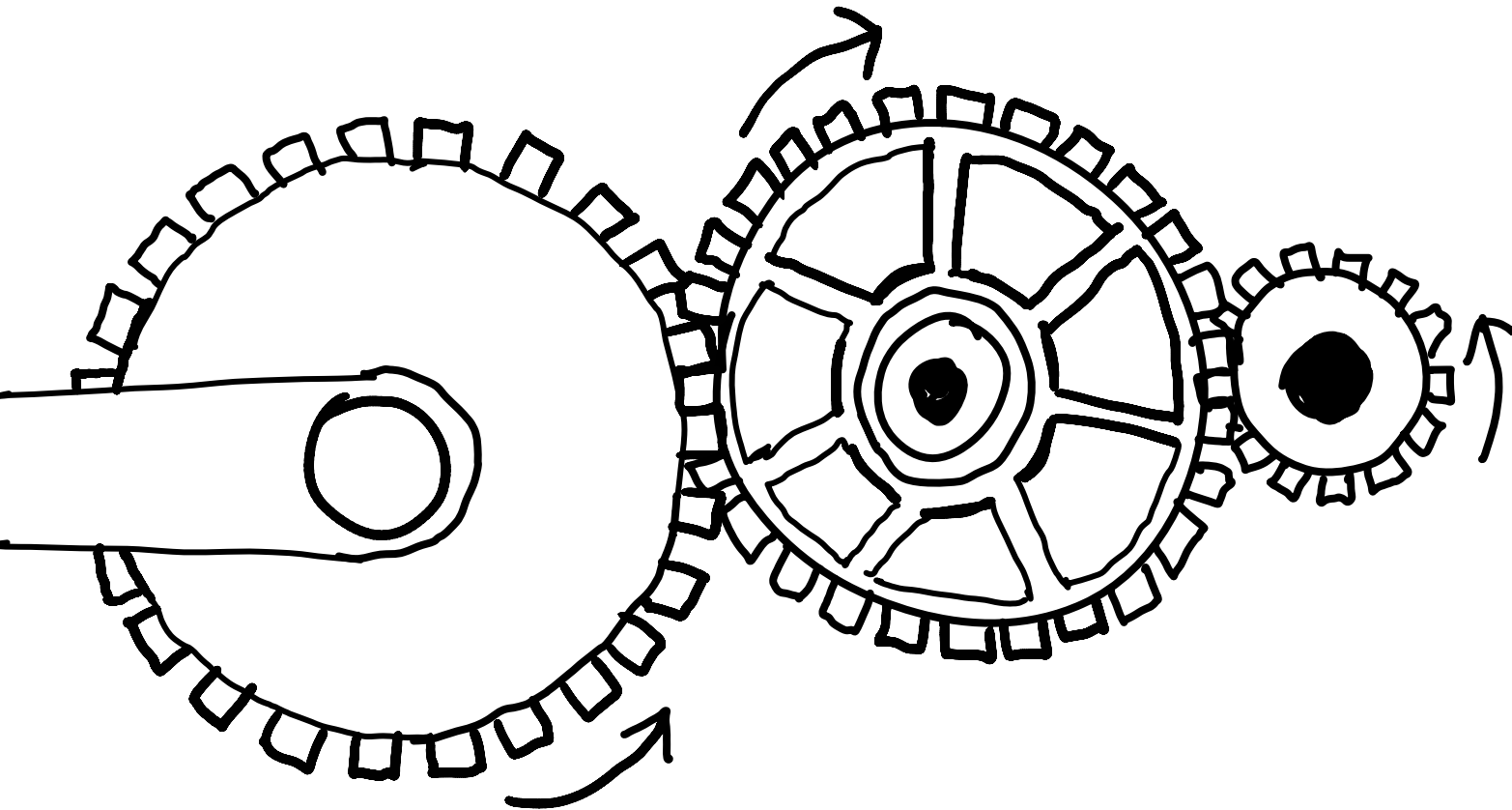
COMPLEXITY

*is one of the biggest
problems of the market*

**Some ENGINEERING
concepts can help
explain the issue**



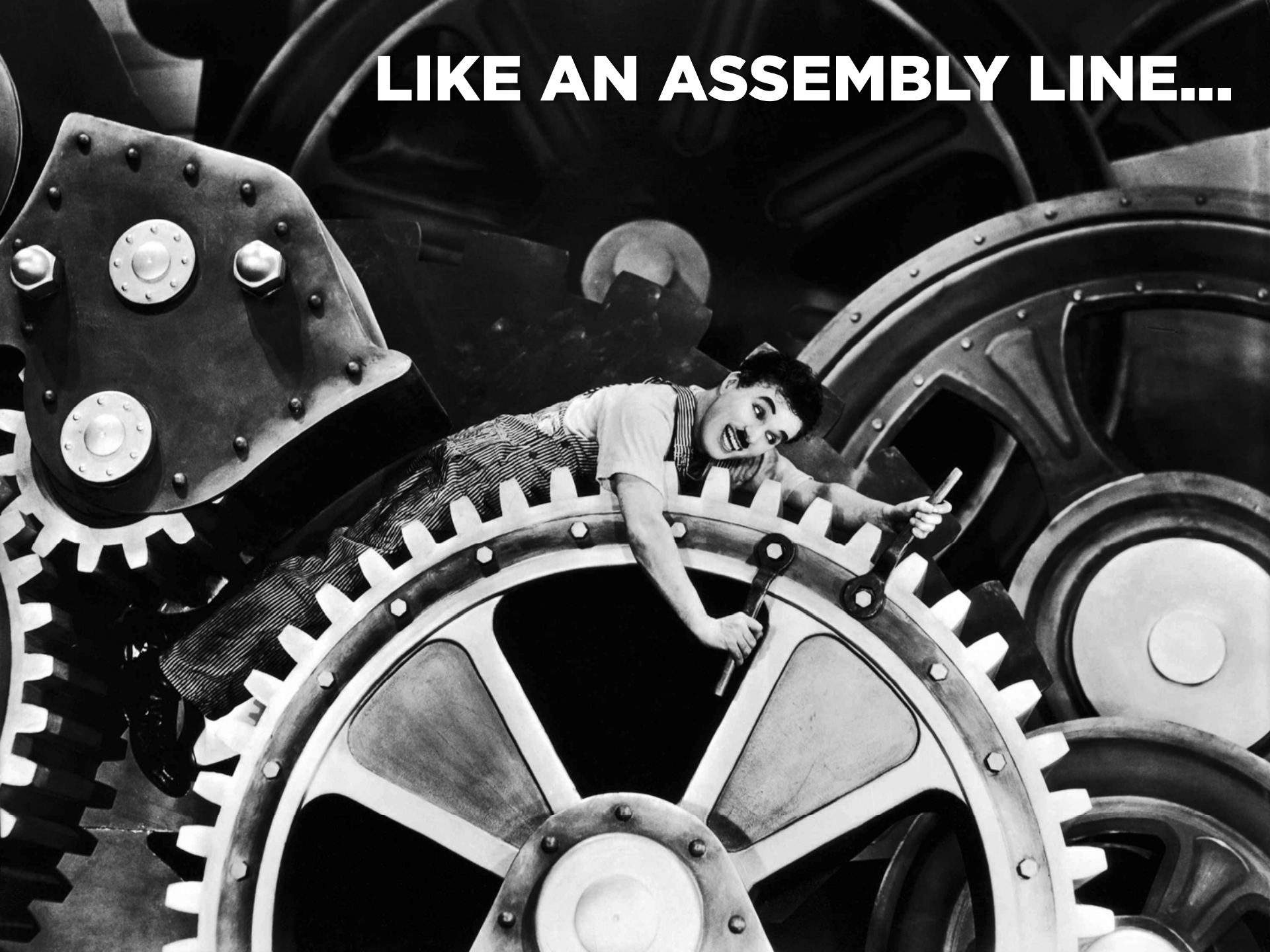
TIGHT COUPLING:



Every component is tightly linked

When something is
TIGHTLY COUPLED,
it provides no slack
if there is a problem,
AND NO OPPORTUNITY
TO INTERVENE.

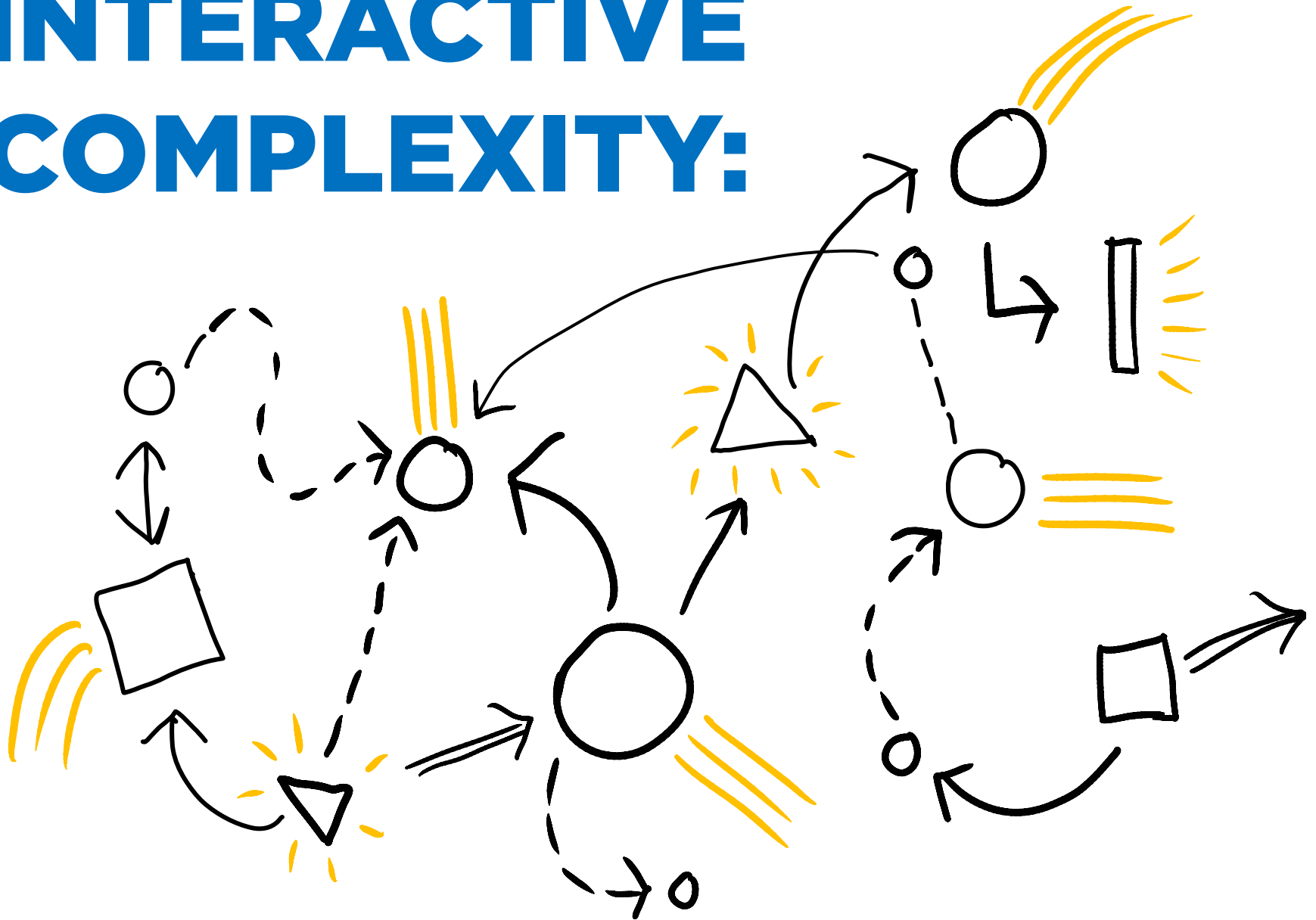
LIKE AN ASSEMBLY LINE...





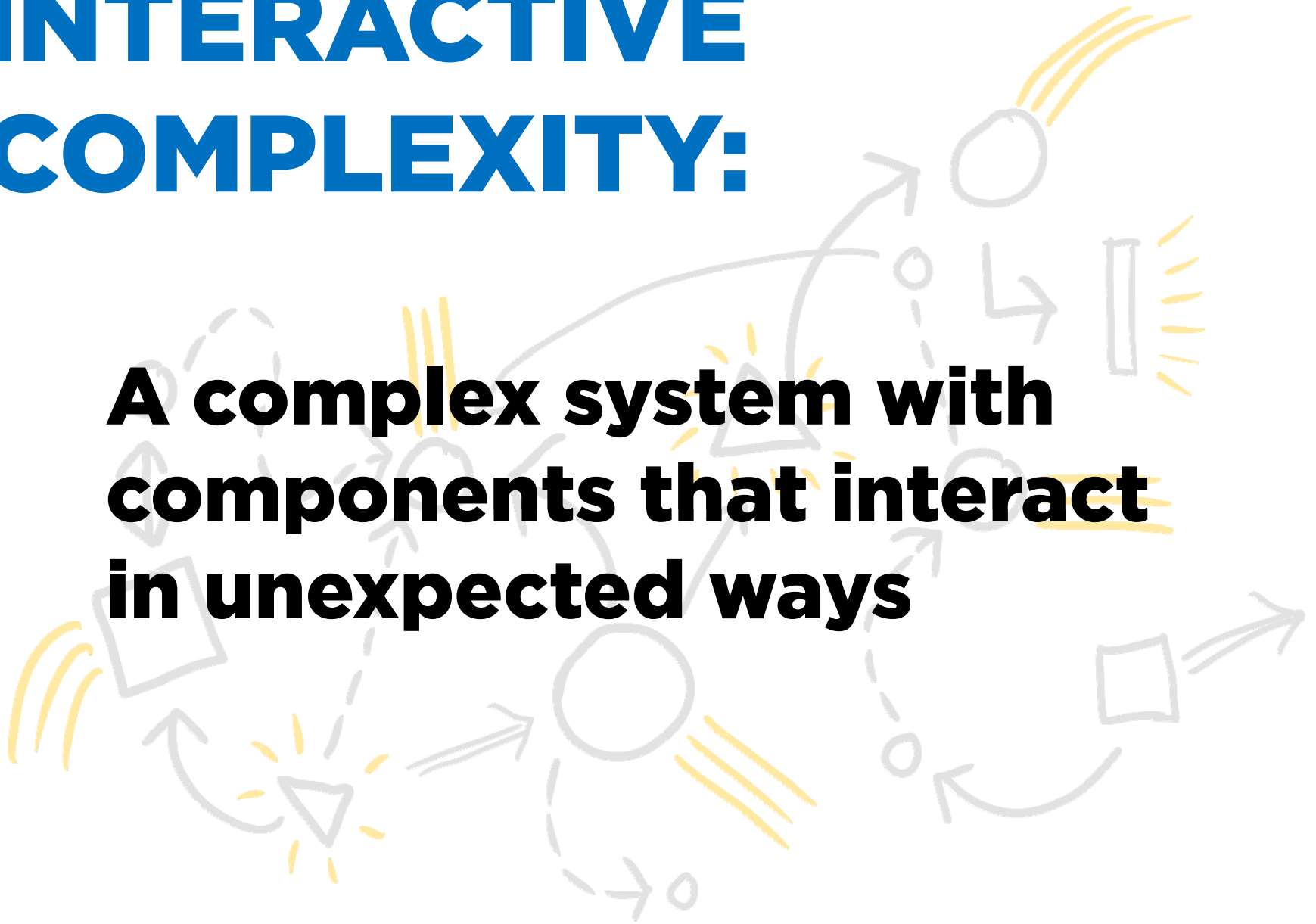
OR MAKING BREAD.
(once the yeast is added)

INTERACTIVE COMPLEXITY:



INTERACTIVE COMPLEXITY:

**A complex system with
components that interact
in unexpected ways**





**A university
is complex, but
not tightly coupled**

A photograph of a university campus. In the foreground, there are several large, mature trees with green leaves. A paved path leads through the trees. In the background, there are two large buildings: one is white with many windows, and the other is red brick. The sky is overcast.

There are many components that interact, but not a lot of problems. There is plenty of slack and time to fix any issues.

**THE PROBLEM IS WHEN
SOMETHING IS BOTH**

**INTERACTIVELY
COMPLEX**

AND

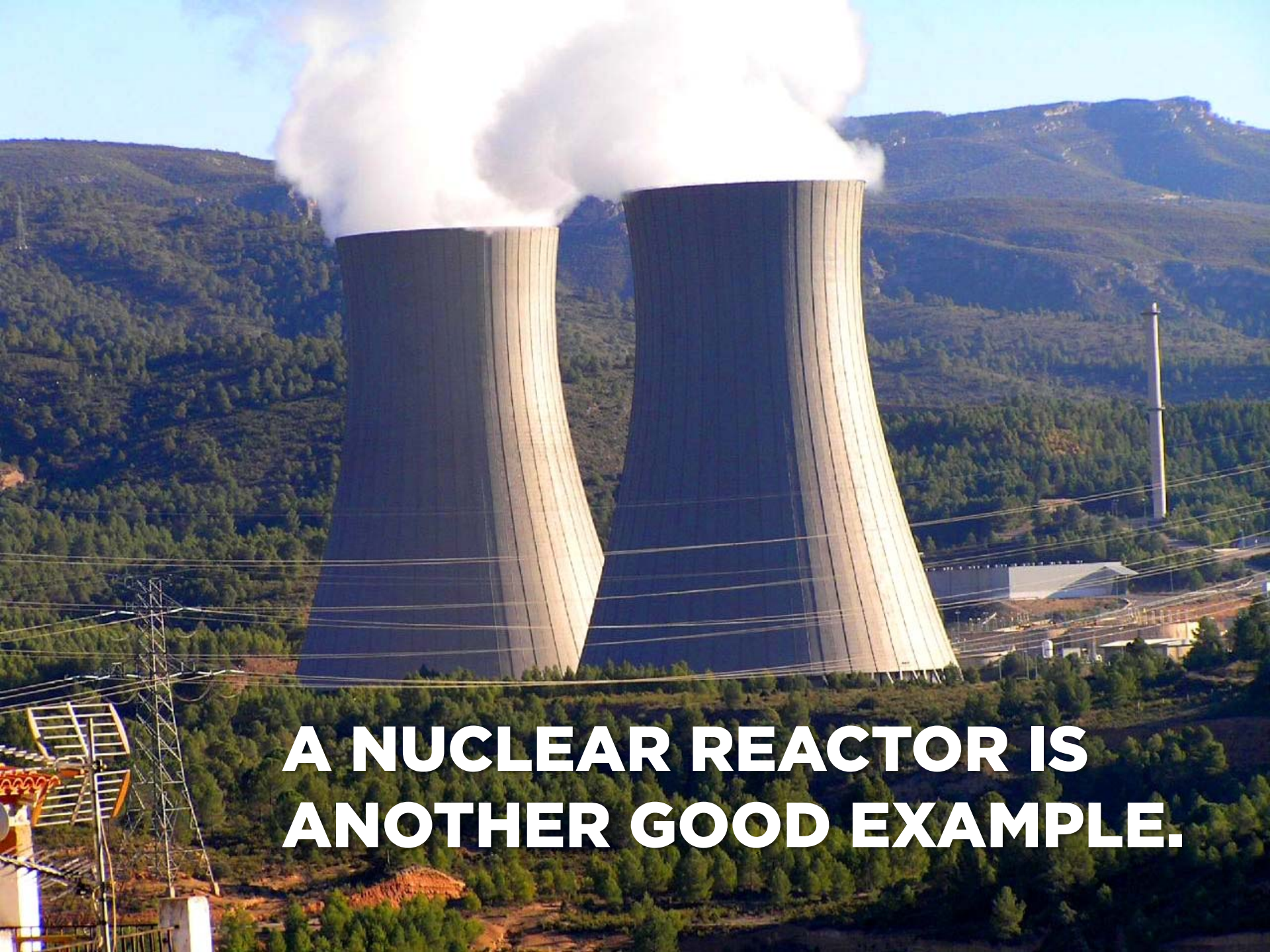
**TIGHTLY
COUPLED**

**An airplane
shares both
qualities.**





AFTER ALL...
**You can't stop a
plane in mid-air to
fix the engine.**



**A NUCLEAR REACTOR IS
ANOTHER GOOD EXAMPLE.**

**It's
EXTREMELY COMPLEX.**

**Any problem
can cause a C-H-A-I-N
REACTION**

that DESTROYS

**the system
and POISONS**

the surrounding area.

**SOUND
FAMILIAR**





FINANCIAL MARKETS
are another perfect
example.

**FINANCIAL MARKETS
WILL NEVER BE SIMPLE**

HOWEVER,
LESS COMPLEXITY
WILL
MAKE A CRISIS **MORE**
AND EASIER **RARE**
TO
SOLVE

**So, as long as these
PROBLEMS
aren't solved:**

1. INCENTIVES

2. RISK

MANAGEMENT

3. COMPLEXITY

THERE WILL BE MORE MELTDOWNS IN THE FUTURE

**(They might *look* different, but
the outcome will be similar)**

CREDITS

Slide 40: Charlie Chaplin (www.doctormacro1.info)

Slide 44: UCLA (knifetricks.blogspot.com)

Slide 45: Harvard

(outdoors.webshots.com/photo/1180073619050918329ZHUCAf)

Slide 47: Courtesy of Boeing

Slide 52: NYSE

(www.cnn.com/CNN/Programs/anderson.cooper.360/blog/archives/2008_01_01_ac360_archive.html)

CONCEPT RESOURCES

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Bookstaber, Richard. A Demon of Our Own Design. Hoboken: John Wiley & Sons, 2007.