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The volatile global economy
Danger or opportunity?

An introduction to your speaker

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Current:

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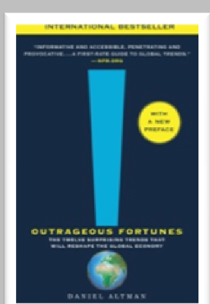
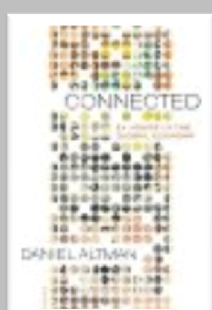
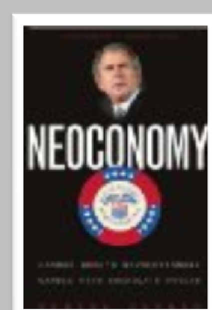
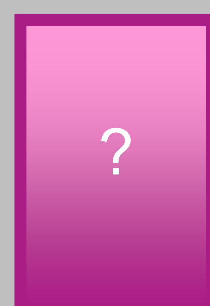
Earlier:

- Director of thought leadership, Dalberg Global Development Advisors
- Economic adviser, Her Majesty's Government
- Global economics columnist, *The International Herald Tribune*
- Economics columnist, *The New York Times*
- Economics correspondent, *The Economist*









BM1

Slide 2

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Ben Morris, 19/04/2012

Today's talk

- Some “trends” in volatility
- The rational approach to prediction
- What will affect volatility in the future?
- What makes volatility so dangerous?
- Can volatility become an opportunity?
- Q & A

Some “trends” in volatility

Some “trends” in volatility

A look into the recent past—has volatility changed?

1

What is volatility?

- Variation from the mean within a fixed period of time
- The likelihood of extraordinary events occurring within a fixed period of time

2

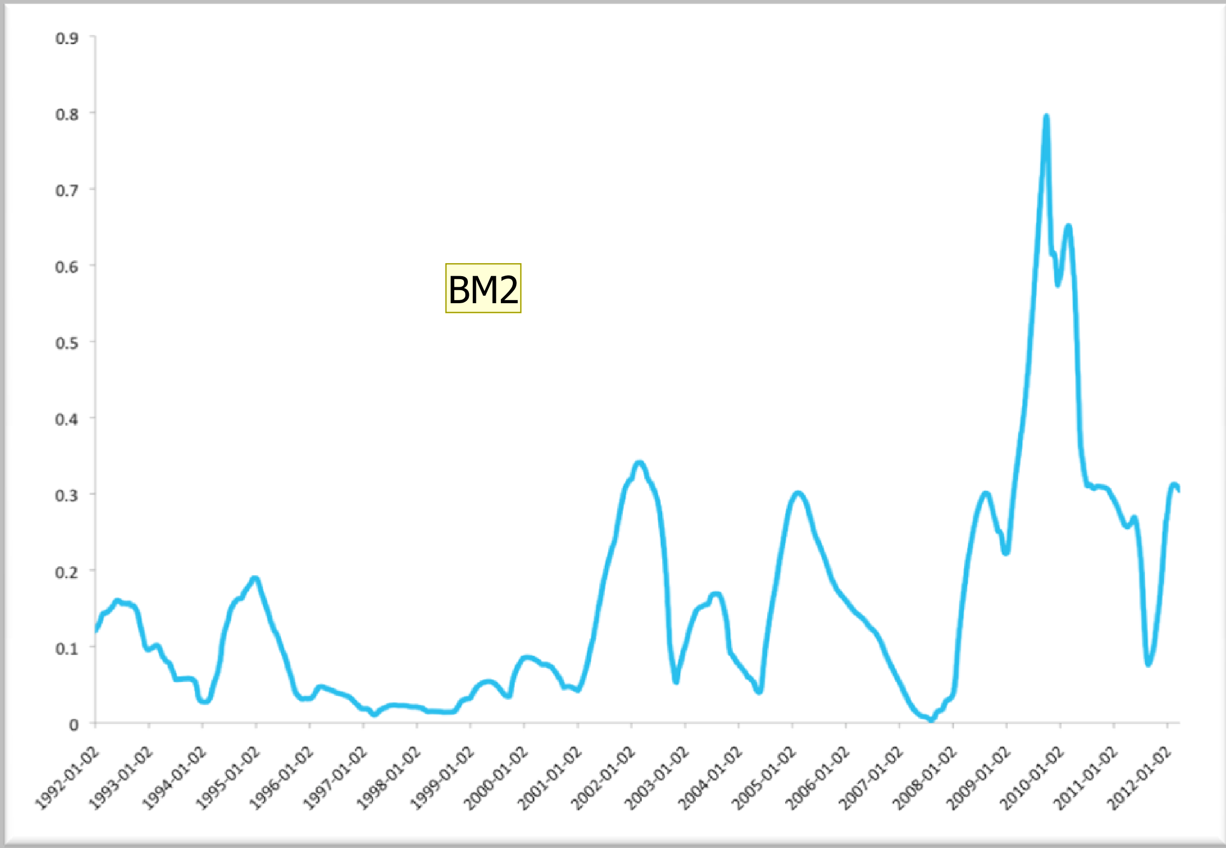
Where can we try to gauge volatility?

- Cost of capital
- Cost of inputs
- Currencies
- Regulation

Some “trends” in volatility

Cost of capital:
Three-month LIBOR

Volatility has increased since the 1990s, in large part as a result of the growth of the derivatives market



Source: Federal Reserve System

Slide 6

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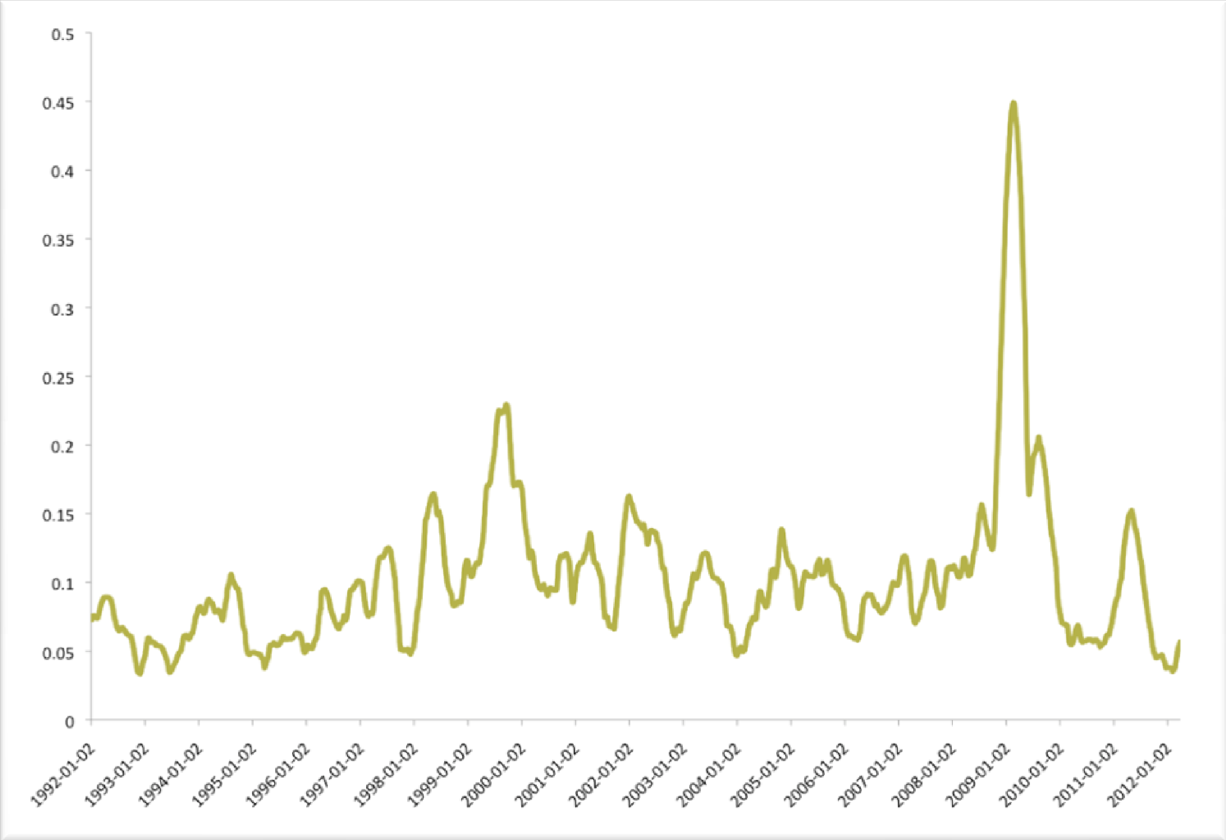
Ben Morris, 19/04/2012

Some “trends” in volatility

Cost of inputs:
Brent crude oil

A change from moderate but constant volatility to spikes and calm periods?

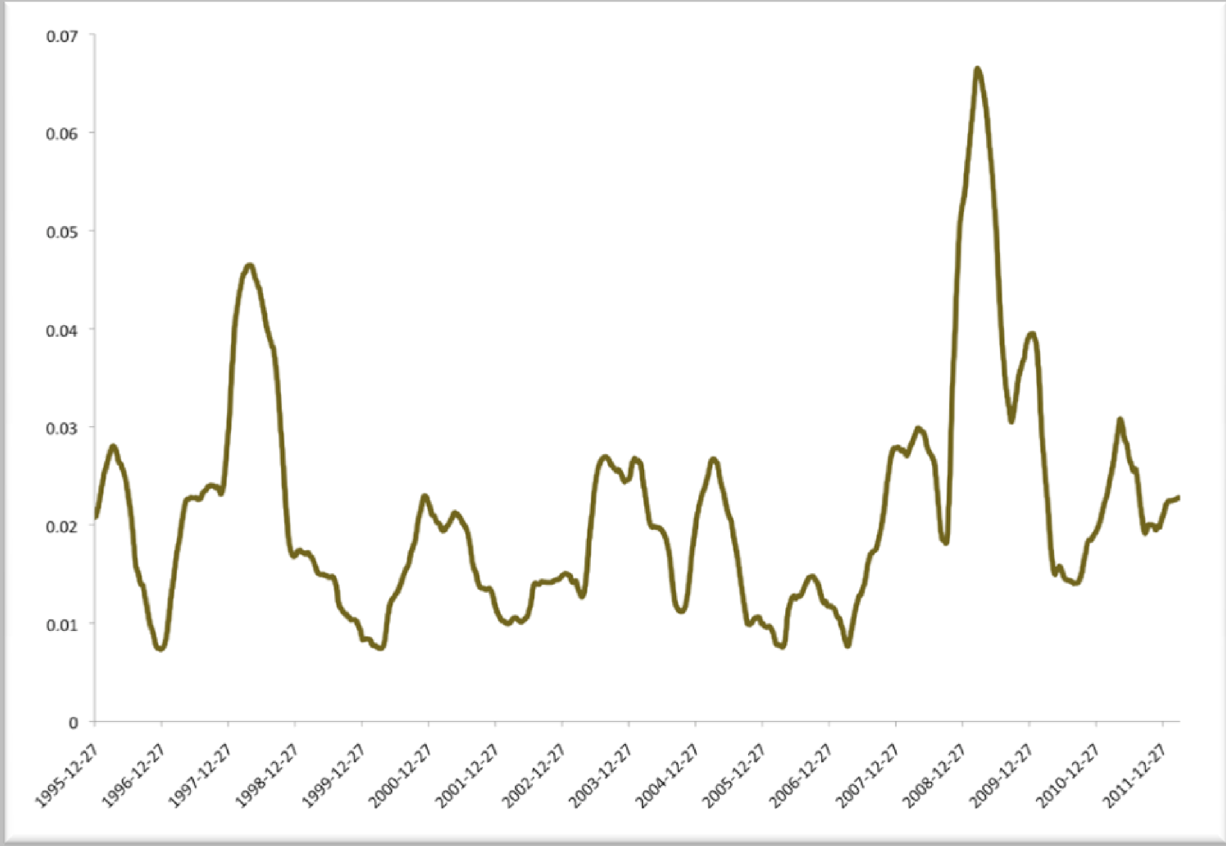


Source: Federal Reserve System

Some “trends” in volatility

Currencies:
Trade-weighted dollar

The beginning of an upward movement in volatility, or the after-effects of a historic shock to the markets?



Source: Federal Reserve System

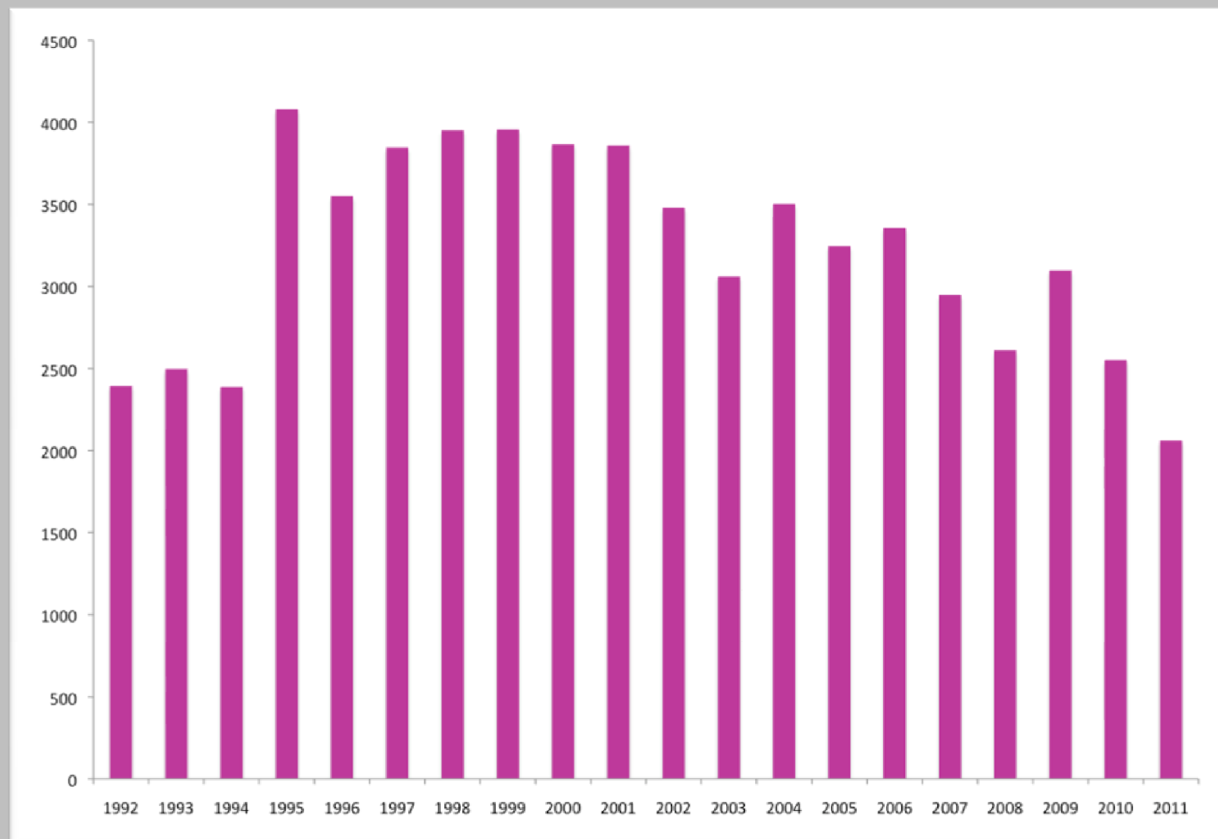
Some “trends” in volatility

Regulation:

EU regulations, directives, and decisions

After an initial flurry of activity, heading for a lower pace of regulatory changes?

BM3



Source: EUR-Lex

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Some “trends” in volatility

Are these really trends?

Can we simply extrapolate to see the future?

How can we determine the likelihood of rare events?

The rational approach to prediction

The rational approach to prediction

Looking behind the numbers

Can we simply extrapolate to see the future?

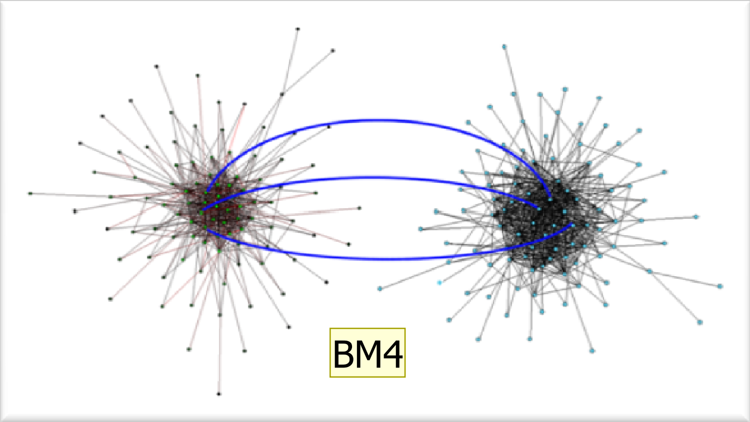
Consider the frequency of subway trains:

The rational approach to prediction

Looking behind the numbers

How can we determine the likelihood of rare events?

Consider the electronic payment system:



Source for photo 3: Sandia National Laboratory

Slide 13

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Ben Morris, 19/04/2012

What will affect volatility in the future?

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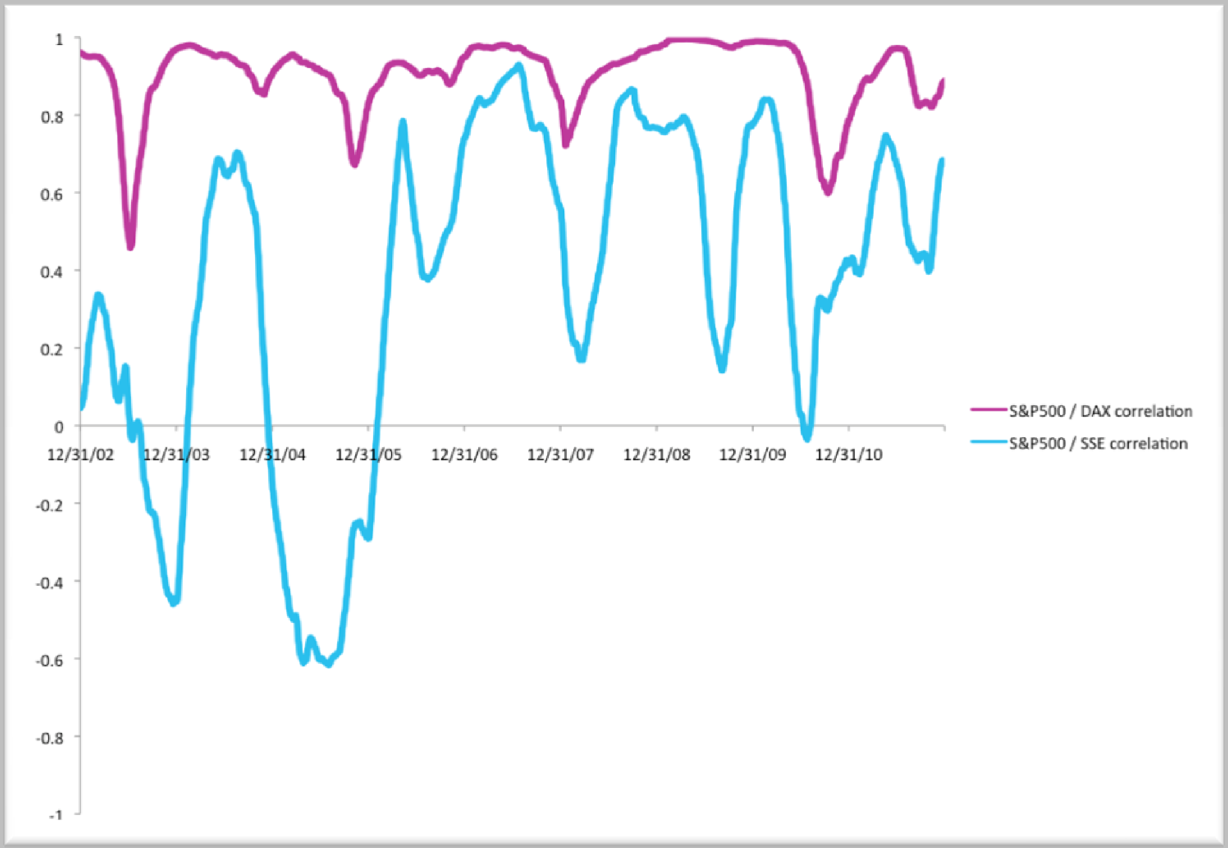
Synchronicity

Global markets are increasingly linked
- More potential stimuli
- Swings are magnified

BM5



Slide 15

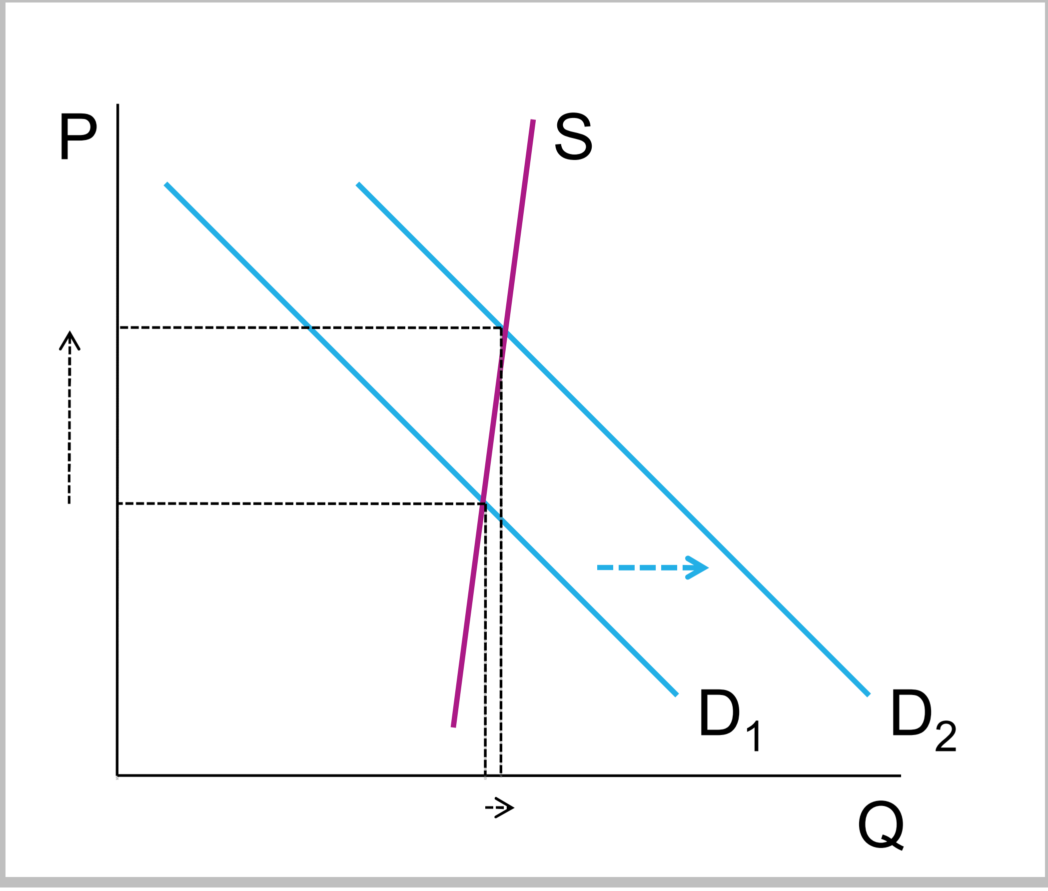
BM5 Slides 15, 16, 21, 22 and 26: There are charts on these slides for which the source has not been identified. If they are hypothetical, that needs to be identified. If not, not only do they need a source, but they may also need permission if they are the copyrighted property of the source and permission has not been obtained.
Ben Morris, 19/04/2012

What will affect volatility in the future?

Pushing on the margins

Scarcity problems

- Demand growing fast
- Low elasticity in short term



What will affect volatility in the future?

Policy changes

Five levels of legislation
- Local
- Provincial/state
- National
- Regional
- Global

Major types of regulation
- Tax
- Financial
- Commercial
- Labor
- Environment

Macro factors
- Monetary policy
- Fiscal balances
- Conflicts

What will affect volatility in the future?

Hysteria

Mob psychology can take over markets

- The 24-hour news cycle
- "Momentum" and "drift" effects
- Crowded trades become systemically important

BM6

… overconfidence implies negative long-lag autocorrelations, excess volatility, and, when managerial actions are correlated with stock mispricing, public-event-based return predictability.

—Daniel, Hirshleifer, and Subrahmanyam [1998] *The Journal of Finance*

Translation: More news and more investors mean more volatility

Slide 18

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What makes volatility so dangerous?

What makes volatility so dangerous?

Complexity

Consider the chess player

- With 16 pieces on an 8x8 board, the player can think 10 moves in advance
- With 18 pieces on a 9x9 board, how many moves can the player think of in advance?
- Economists call this “bounded rationality”
- Decision making can be impaired

What makes volatility so dangerous?

Compounding

Adding a small amount of variance to a fixed factor can make a huge difference

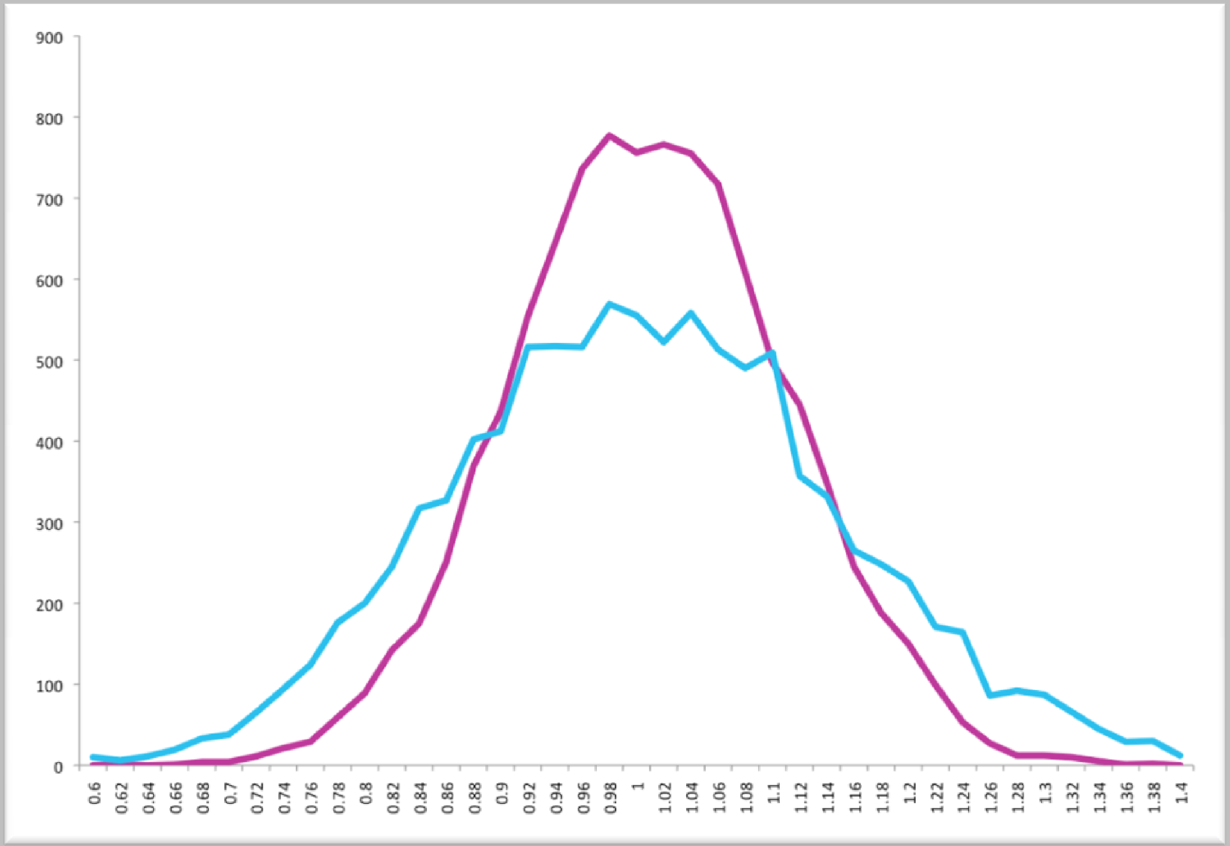
Consider what happens to revenue when we start with

Q = 10 + *x* and **P = 0.10**

but then we move to

P = 0.10 + (*y*/100)

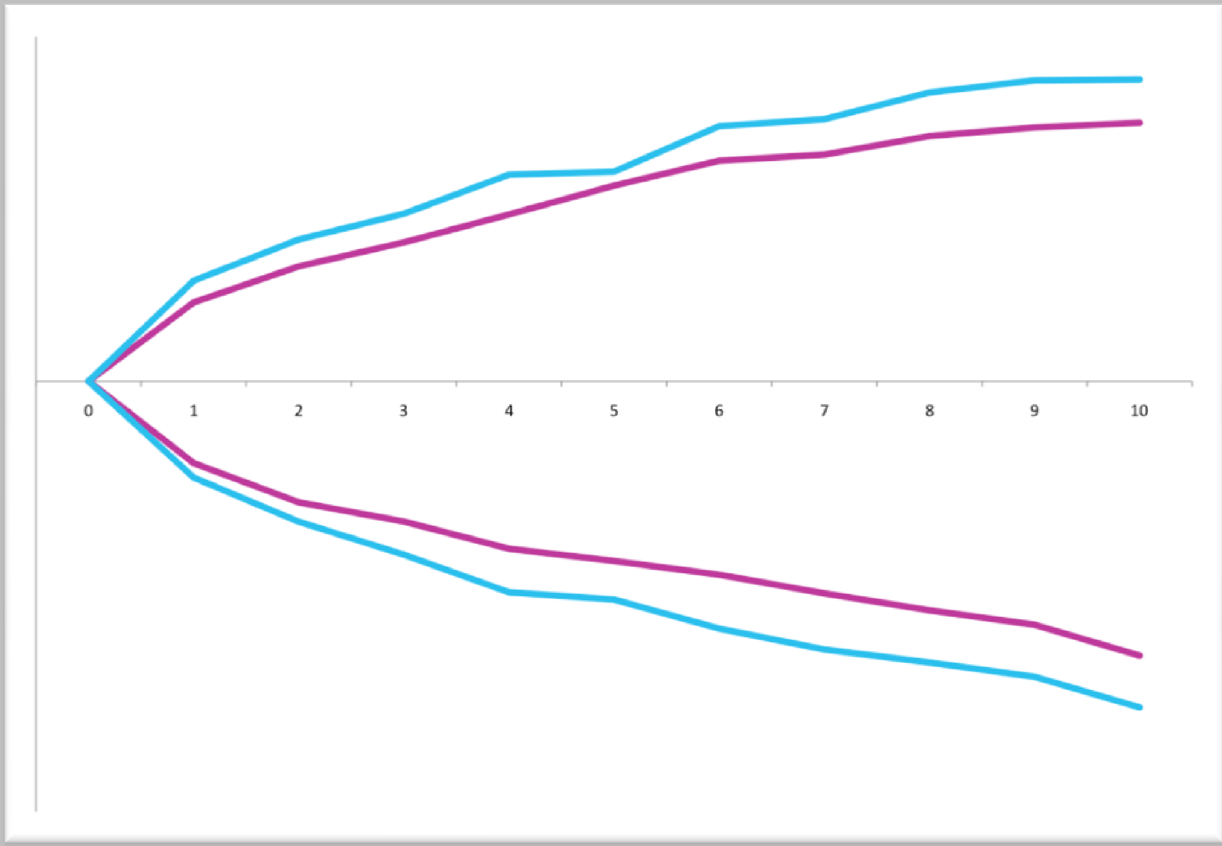
where *x* and *y* are draws from the normal distribution (here 10,000 of each)



What makes volatility so dangerous?

Long-term planning

- Disturbances and errors accumulate over time
- A small increase in the importance of the error or disturbance can make a big difference to the potential range of results
- The image shows 95 percent confidence intervals from 1,000 normal draws each year for 10 years; the second line has a 20 percent increase in the normal interval



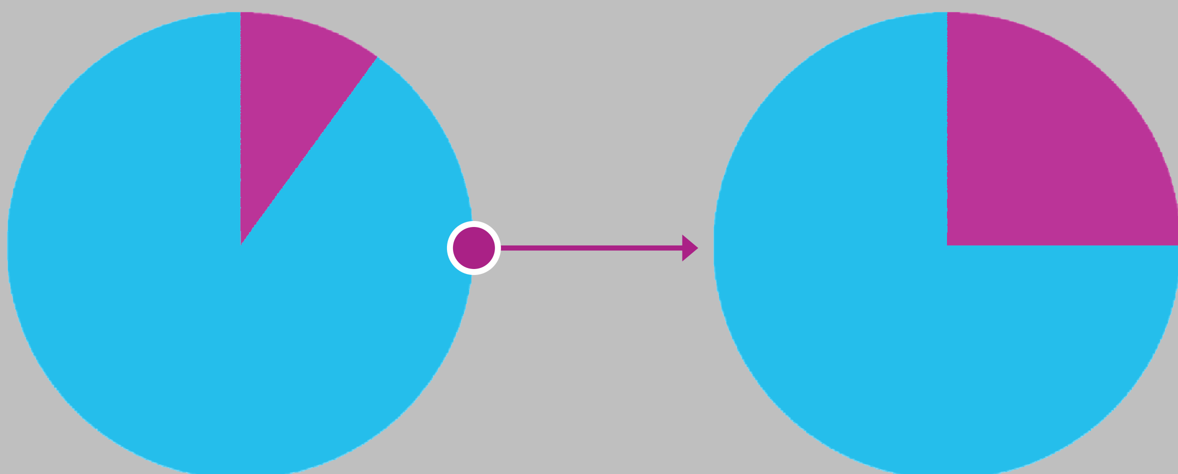
Can volatility become an opportunity?

Can volatility become an opportunity?

A new playing field

Volatility means virtually everyone has to adapt

- An incentive to innovate
- A chance to leapfrog competitors

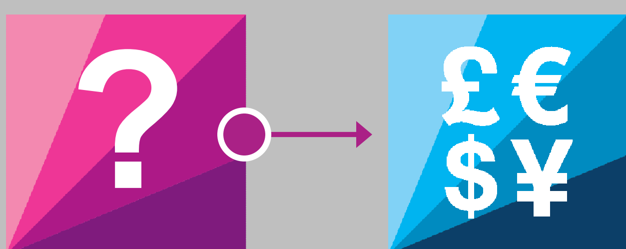


Can volatility become an opportunity?

Using risk tolerance

Can your company take risk away from others?

- Swapping risk for uncertainty becomes more profitable
- Different risk preferences are the key
- Often motivated by different time frames or diversification
- Option value also increases with volatility



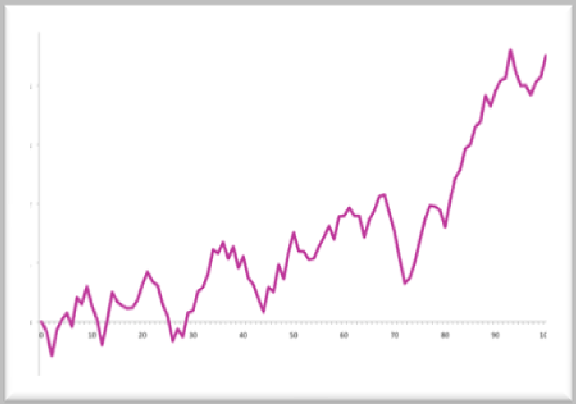
Can volatility become an opportunity?

Constant feedback

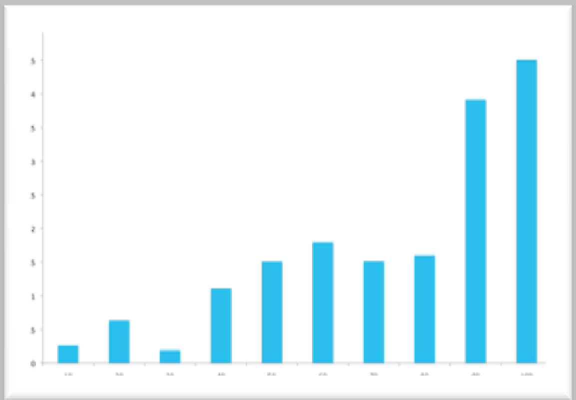
More information from suppliers and customers

- Need to collect data at high frequency
- Need to choose ways of processing data carefully

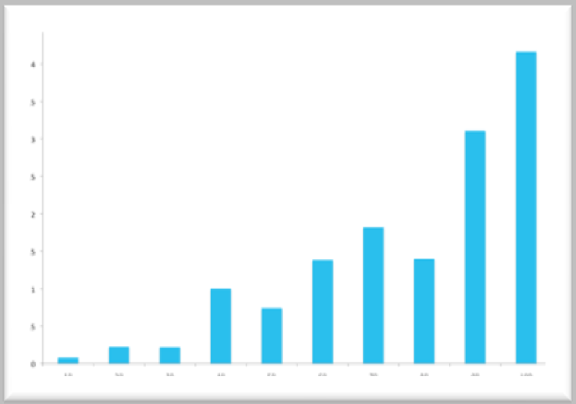
Take a random walk:



Actual data



Periodic data



Averaged data

Bottom line:

Higher volatility is coming, but new data and analysis can turn its dangers into opportunities

Q & A

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