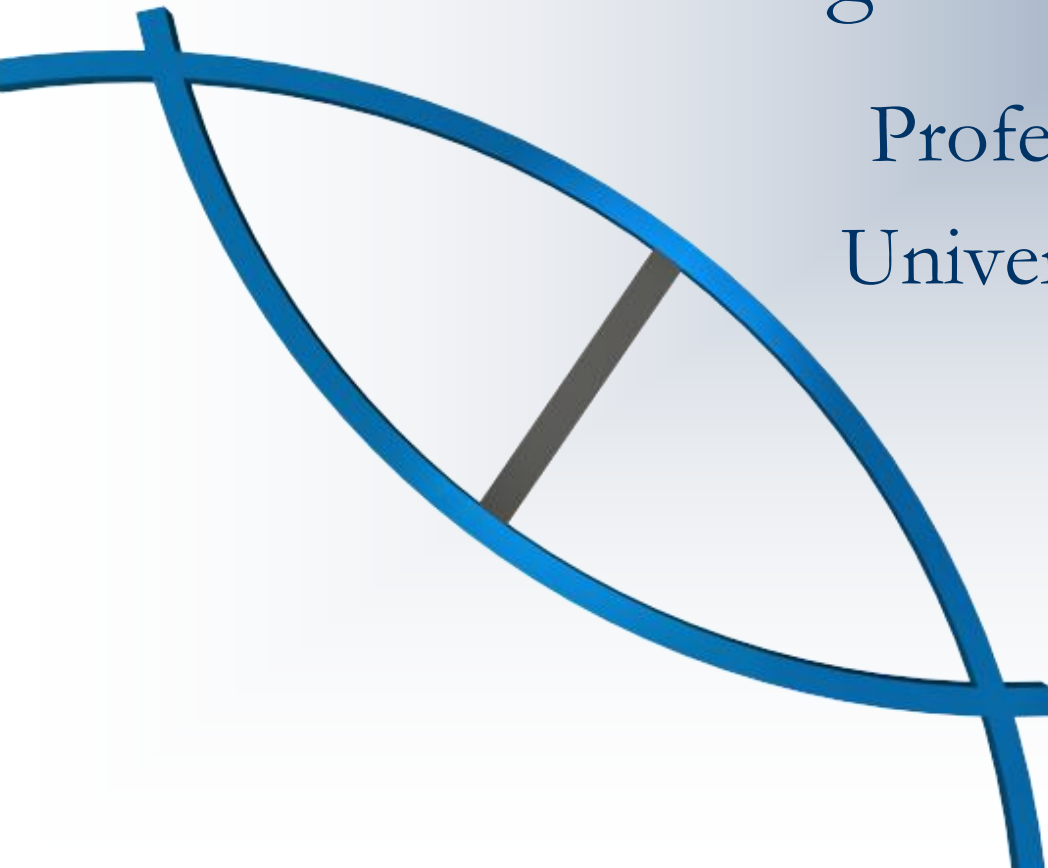


Taking into Account Regulatory Risk

Professor Joshua Gans
University of Melbourne





“Regulatory Risk”

- Regulated firms:
 - Argue that they should be compensated for regulatory risk borne by them
- Federal government:
 - Agrees

But what is “regulatory risk”? Who bears it and how should be taken into account?



Defining regulatory risk

- Regulatory risk as volatility
- Regulatory risk as opportunism
- Regulatory risk as commercial risk
- Regulatory risk as a real option



Volatility

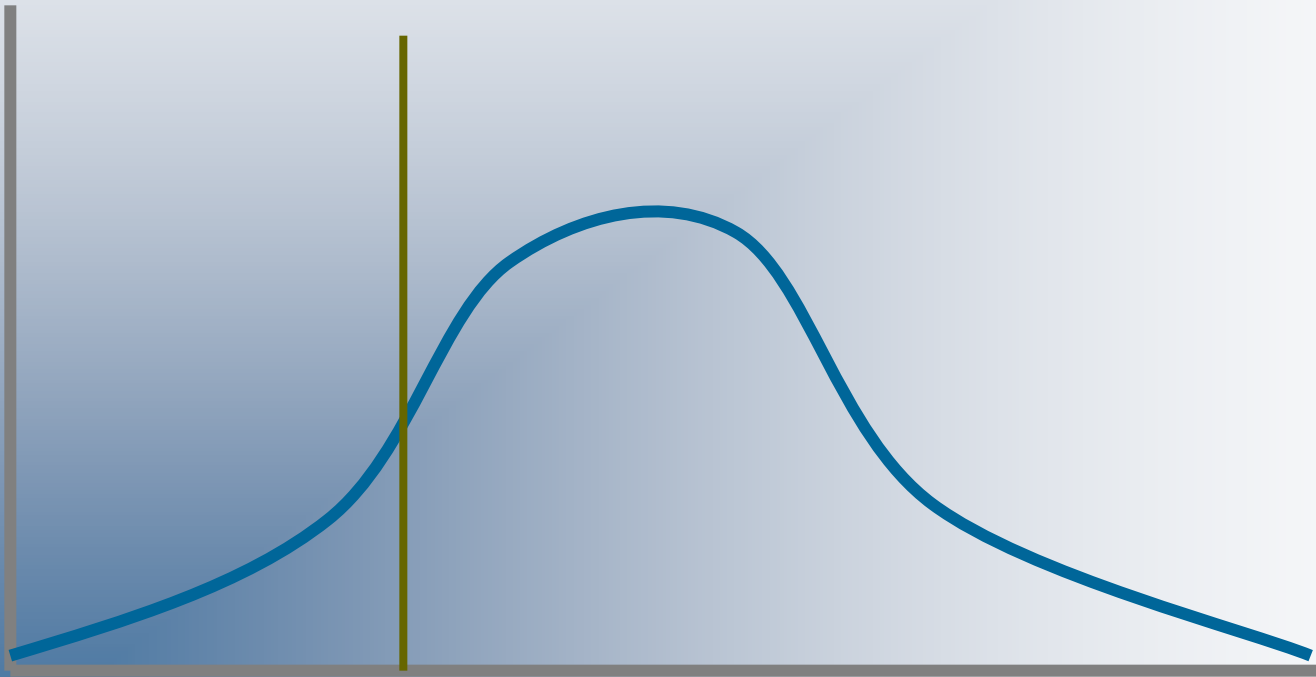
- High variance in returns
 - Probability that returns will be so low that, in hindsight, investment was not worthwhile
 - Need probability that returns are high to be sufficient to compensate for that risk
- If regulator behaves unpredictability this can increase the volatility of returns
 - Price adjustments not based on rate of return
 - Price adjustments based on new information
 - Regulatory errors



Volatility

Probability

Breakeven Point

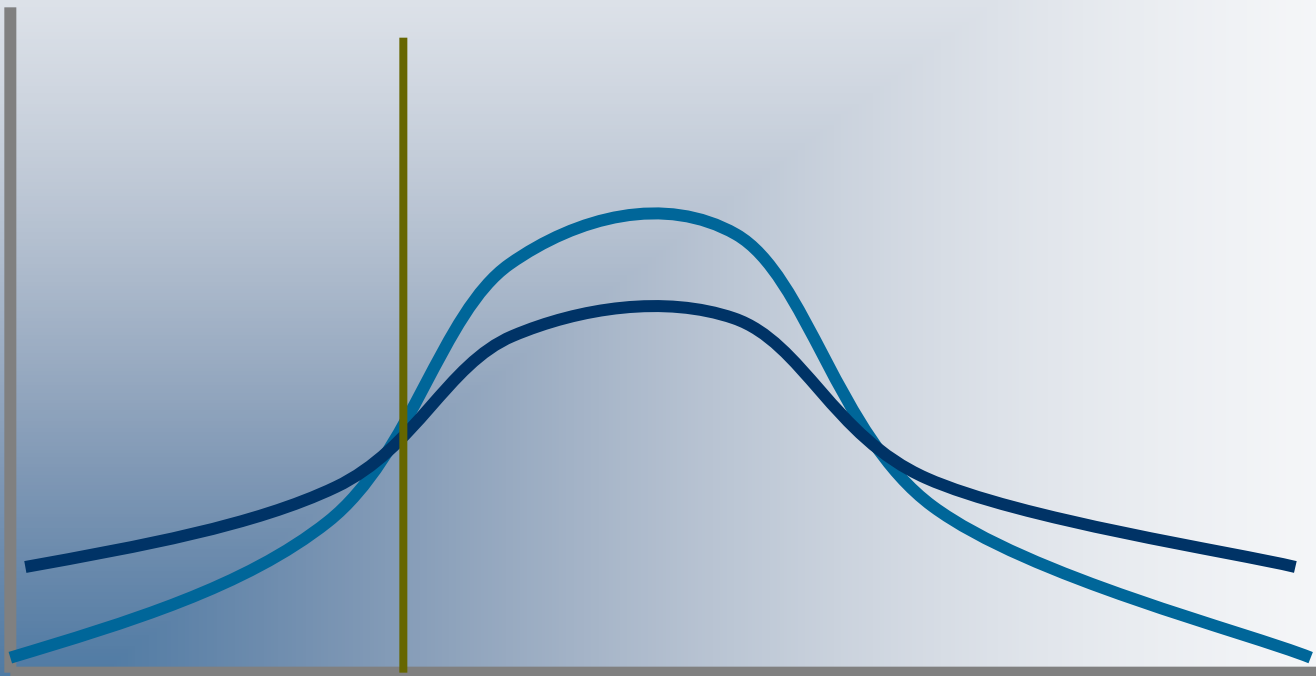


Return

Increased Volatility



Probability



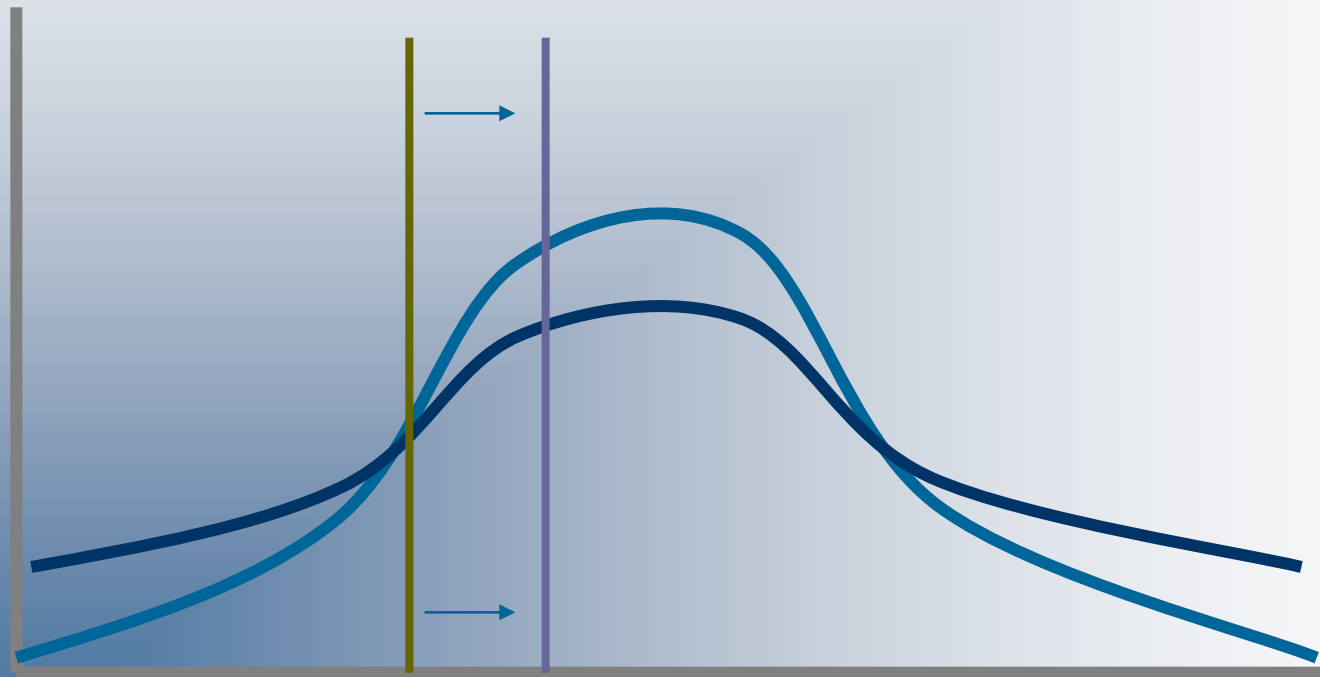
Return



Increased Volatility

Probability

Need higher return



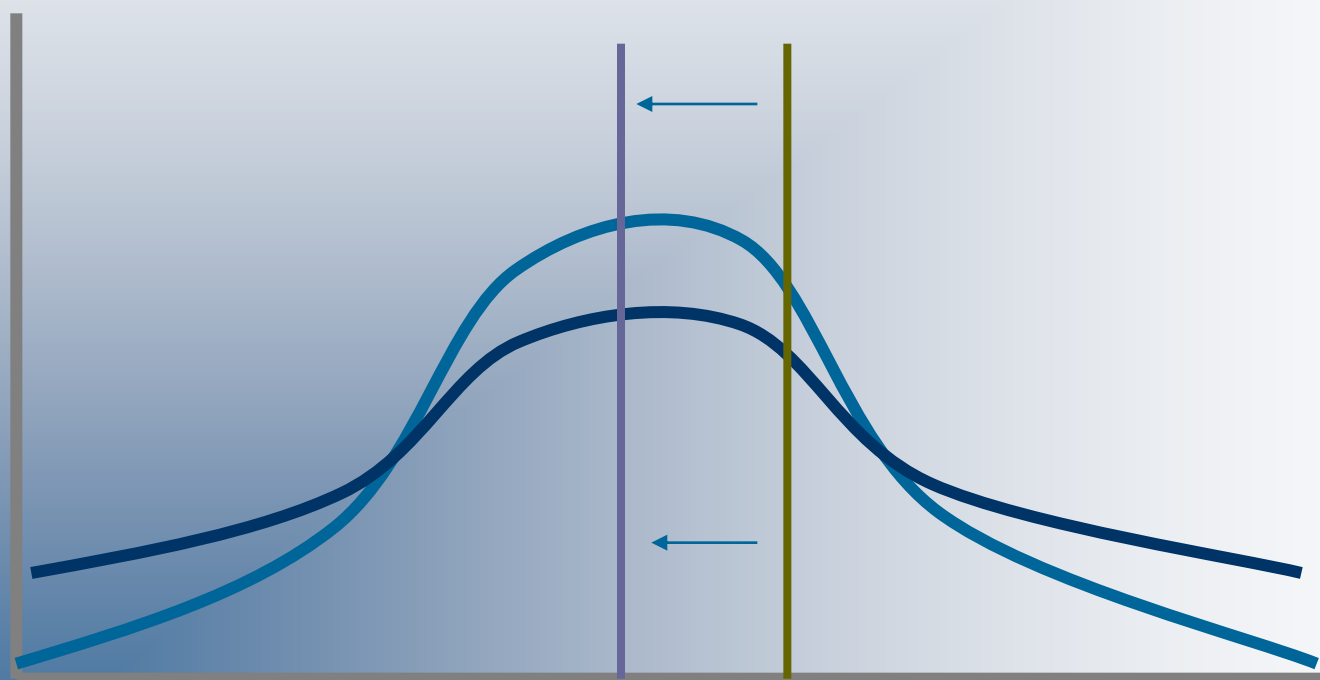
Return



Increased Volatility

Probability

Need Lower return



Return



Dealing with volatility

- Only way to eliminate this risk is to commit to prices.
- Problems with commitment:
 - Impossible politically
 - Efficient inter-temporal Ramsey pricing requires prices moving with demand
 - If costs rise too much, may need to accommodate this to maintain financial viability.
- Providing incentives implies some residual risk.



Opportunism

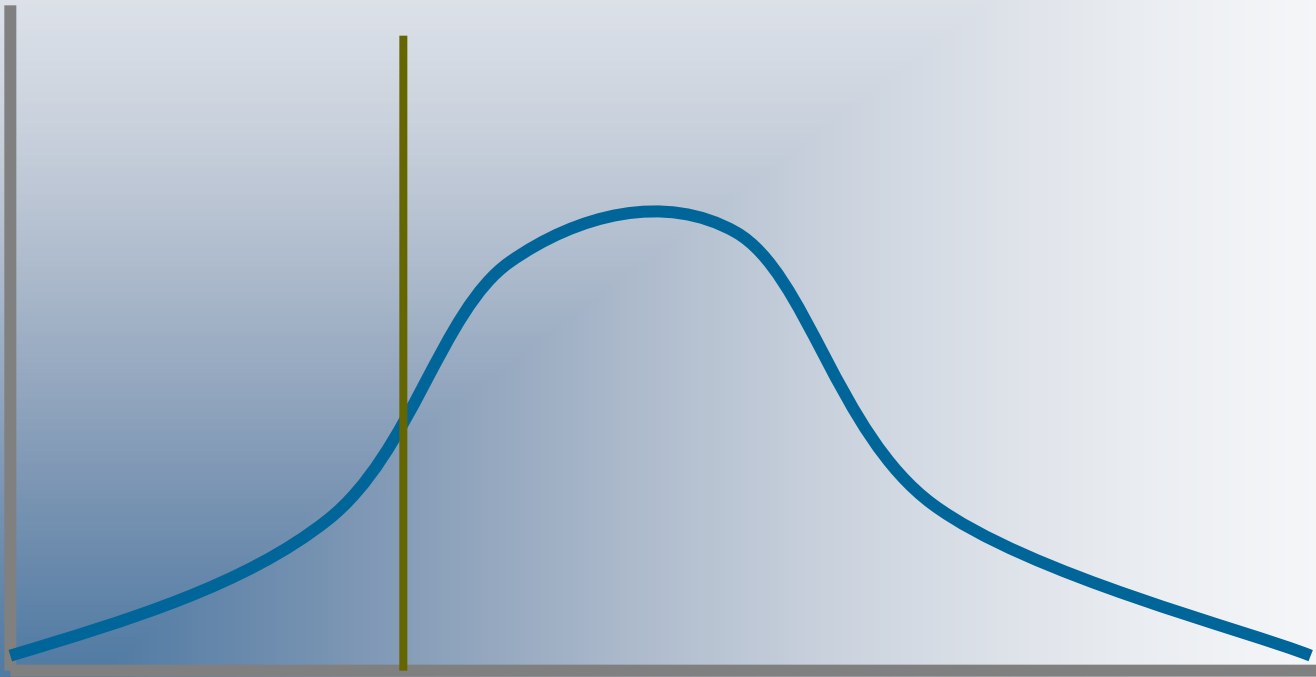
- Regulator has discretion over prices in the future
- With sunk investments, efficient prices at that time are lower
- Regulated firm cannot rely on regulator not to ignore sunk costs
 - Creates risk of ‘expropriation’

Opportunism



Probability

Breakeven Point



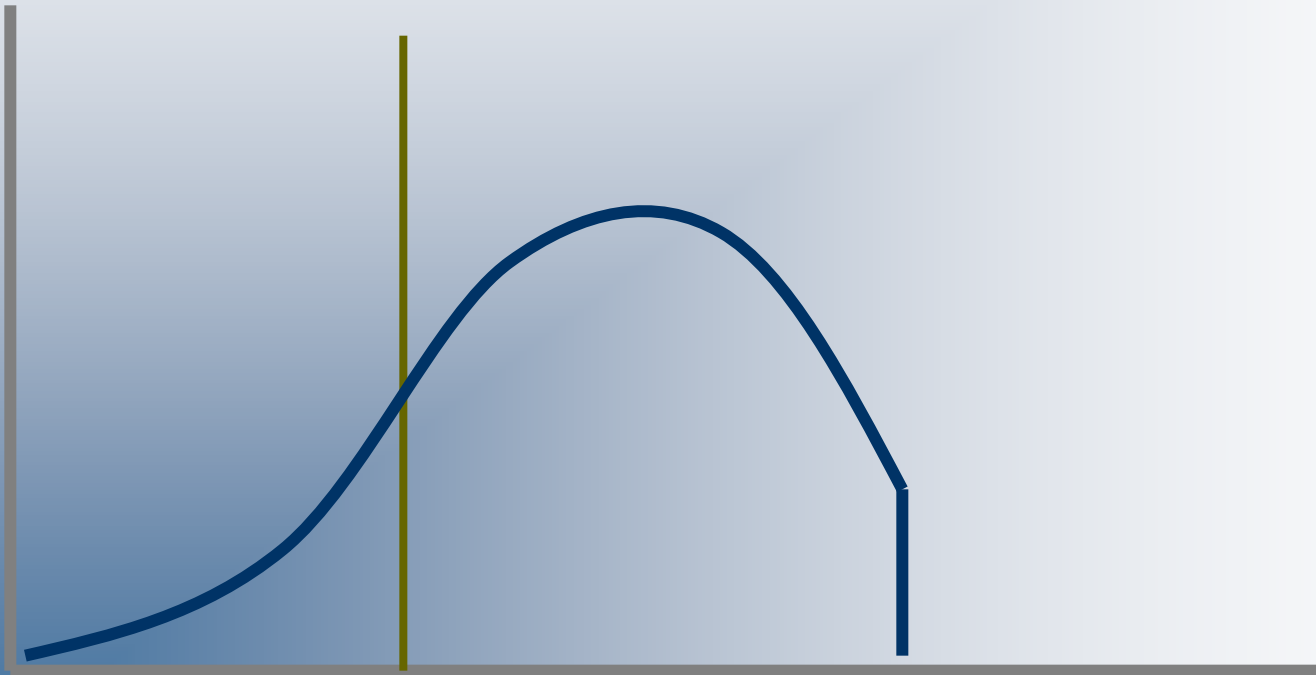
Return

Opportunism



Probability

Breakeven Point



Return



Dealing with Opportunism

- Longer commitments
 - 5 year reviews of CPI-X
- Legislation
 - Bind regulator to take into account sunk costs (removes most naked opportunism only)
- Relational contracting
 - Regulator and firm 'agree' to a premium in return for continued future investment



Relational Contract

- The deal is this:
 - Regulator agrees to “pay back” for efficient past investment.
 - Firm agrees to continue to invest efficiently.
- If firm decides not to invest, deal is off.
 - Regulator should go to price = SR-MC
 - So if a firm cancels a \$4 billion investment in 6 days time, does that mean the ‘deal’ is off?



Rules for Sustainability

- RoR Regulation
 - If regulator forced to give a return on installed capital, then more likely to continue with the deal
 - RoR commitments reduce regulatory risk
- Regulatory risk is also reduced if
 - Generality: regulate many industries
 - Transparency: easy to observe actions
 - Longevity: regulator's term sufficiently long.



Commercial risk

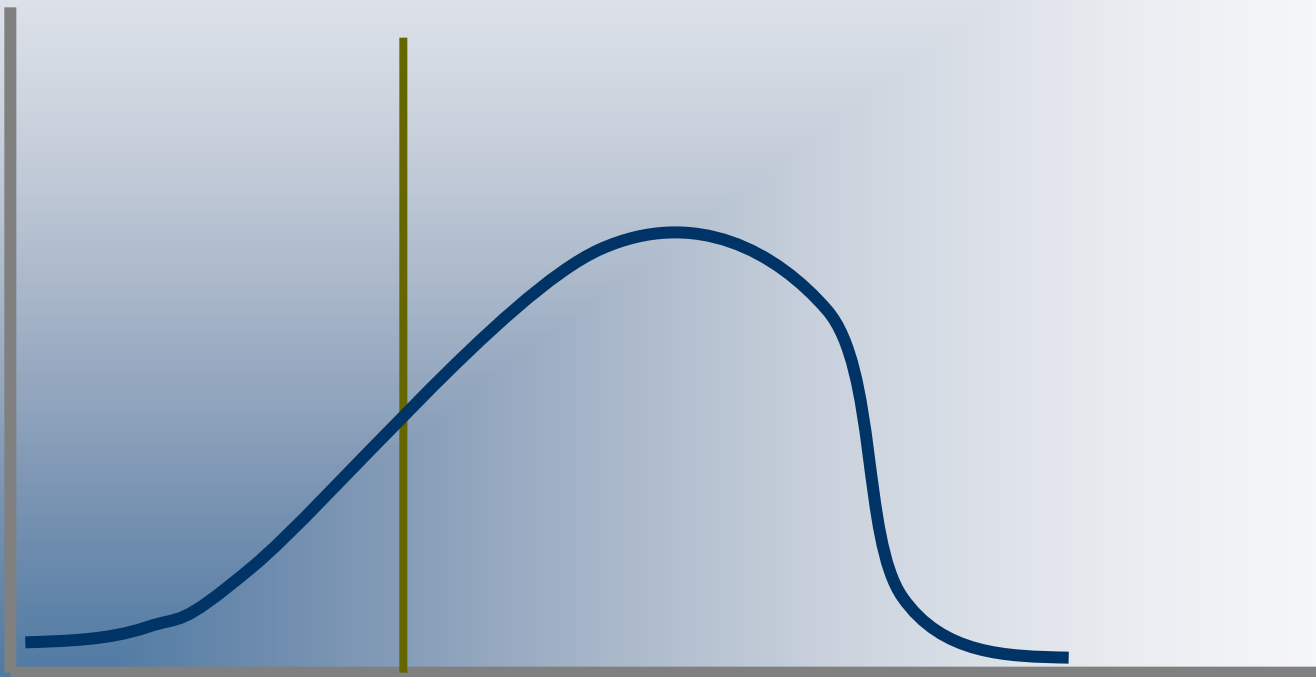
- Risk of opportunism from regulators is highest when demand is high
 - Hard to separate regulatory and commercial risk
- RoR regulation with used and useful criteria
 - Utility receives normal return with extra return if demand is high
 - Insufficient to encourage high investment
 - But to induce high investment, regulator needs to leave rents with the firm!
 - Only alternative is relational contract that gives firm below r when demand is low and above it otherwise.
 - This creates more risk (not less)!



Truncation Problem

Probability

Breakeven Point



Return



Truncation Problem

- In access regulation, this is related to the ‘truncation problem’
 - If demand is low, no entry occurs and there is no regulation
 - If demand is high, entry occurs and there is regulation
- Therefore, firm unable to use high demand states to fund investment properly.
- Need to reflect this risk in access pricing
- Better solution: commit to **frontload** investor returns



Real options

- There is a real option when an investor has a reason to delay in order to wait for information to resolve uncertainty
- How does this relate to regulatory risk?
 - Information has to do with the regulated decision
- Current system mitigates these risks
 - Pre-emptive undertakings
 - Regulation after investment
- Real options only relate to “bad news”
 - So opportunism when demand is high does not create a real option



Accounting for Reg Risk

- Pure risk premium
 - Increased allowed rate of return; i.e., high prices
 - Part of a relational contract
 - Opportunism: increases chances of this and so increases regulatory risk!
- Change time structure of payments ...



Front-loading

- For opportunism or truncation ... as time goes on chances of low regulated prices increase
- Provide means of earning investment returns sooner rather than later
- Commitment to this facilitates investment while at the same time providing signals to entrants of better times ahead.
- Access holiday or high price with high X factor



Conclusion

- When regulators offer long-term commitments, regulatory risk is not an issue and should not be factored in.
- Without long-term commitments, investors face some risks and need mechanisms to minimise them
- Measurement remains a key unresolved issue