



Second-mover advantage

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First-mover advantage

- First-mover advantages often emphasized
- Why?
 - Establishing market dominance (Stackelberg model)
 - Natural monopoly (Bolton and Farrell 1990)
 - Setting the standard in the market
 - Tying in consumers



Second-mover advantage

- Evidence suggests followers often do better than market leaders (eg Sony/RCA)
- Tellis and Golder (1996) found pioneers under-perform relative to early followers



The advantage of being second

- First mover must slay the dragon; cost of being the first to dance at the ball
- The leader pays a cost from moving first
 - Incentive to wait and free ride, so as to avoid this cost
 - Leadership is public good (Bliss and Naebuff 1984)



The advantage of being second

- Why wait?
 - free rider on other's investment: leader invents new product/process that can be copied, or establishes a market that a follower can exploit
- Being a leader is like a public good
 - incur some costs that followers can avoid



Free riding advantages

- Intellectual property rights poorly protected
 - Protection problematic internationally
 - Patents take time
 - Patent protection might not be broad, allowing spin-off inventions



Free riding advantages

- Sunk cost to establish a market
 - Leader open to hold-up problem
 - Particularly relevant when contracting difficult



Free riding advantages

- Investment helps resolve uncertainty
 - Leader's investment provides information regarding different technologies (investment cascades)
 - Option value of waiting



Investment in CleanTech

- These features all possible with CleanTech
 - Large upfront investment required
 - Contracting difficult
 - High degree of uncertainty
 - Option value of waiting



Investment in CleanTech

- Policy needs to recognise problem
 - likely various policy instruments required
 - Role for private market solutions



Further Reading

- Empirical studies of second-mover advantage
 - **Tellis and Golder** 1996, 'First to market, first to fail? Real causes of enduring market leadership', *Sloan Management Review* 37, 65-75
- Free riding and public goods
 - **Bliss and Nalebuff** 1984, 'Dragon-Slaying and Ballroom Dancing: The Private supply of a Public Good', *Journal of Public Economics* 25, 1-12
 - **Admati and Perry** 1991, 'Joint Projects Without Commitment', *Review of Economic Studies*, 58(2), 259-276
- War of attrition
 - **Fudenberg and Tirole** 1991, *Game Theory*, MIT Press, Cambridge, section 4.5
- Second-mover advantage
 - **Hoppe** 2000, 'Second-mover advantages in the strategic adoption of new technology under uncertainty', *International Journal of Industrial Organization*, 18(2), 315-338.
 - **Smirnov and Wait**, 'Market Entry Dynamics with a Second-Mover Advantage', *The B.E Journal of Theoretical Economics*, 7(1) (Advances), 1-23
 - **Smirnov and Wait** 2004 'Hold-up and Sequential Specific Investments', *Rand Journal of Economics*, 35(2), 386-400
 - **Zhang** 1997, 'Strategic Delay and the Onset of Investment Cascades', *Rand Journal of Economics* 28(1), 188-205