Oligopoly Notes for Financial Economics

Theories Exemplified by: 2 Firms P=60-Q MC1=MC2=4

1. Cartel: pretend to be one monopoly firm.
   MR=60-2Q=MC=4
   Q=28 q1=q2=14 P=32 Profit=784
   Profit1=Profit2=392
   But if q2=14 what happens if q1=15? Q=29 P=31
   Profit1=15*31-15*4=405
   Profit2=14*31-14*4=378 Total Profit falls to 783 but firm1 "wins"!

2. Bertrand: compete on price
   P=MC=4 Q=56 Q1=Q2=28 Profit =0

3. Cournot: reaction functions. Compete on Q
   TR1=PQ=[60-q1-q2]q1
   MR1=60-2q1-q2=4=MC
   MR2=60-q1-2q2=4=MC
   q1=28-q2/2 q2=28-q1/2
   q1 will equal q2 because the firms are identical so:
   q1=q2=18.6666666666
   Profit for each firm? P=22.666666 so Profit1=Profit2=348.44444

4. von Stackelberg: Me First!
   Firm 1 knows how Firm 2 will react.
   Go first and rely on them to do what they must.
   q2=28-q1/2
   So: P=60-q1-(28-q1/2)
   P=32-q1/2 MR1=32-q1=MC=4
   q1=28 q2=14 Q=42 P=18
   Profit1=28*18-28*4=392
   Profit2=14*18-14*4=196

5. Nash: a philosophy of stability. I react to you. You react to me reacting to you. I react to you reacting to me reacting to you. You...

   Where does it stabilize? Where do we both stop changing strategies?
   In this case: Cournot.

Lessons:

1. Price competition is a nightmare. Differentiate your product!
2. Cartels are unstable – overproduction is profitable
3. Cournot's answer is stable, but will the firms find it?
4. Know whether or not a first-mover-advantage exists!