Why was 1929 so deep?

The bank run as a game with two equilibria, deposit insurance, what a third less money does on the AD/AS chart, deflation and heavy debts, the gold standard, 1929-33 in numbers, three answers still debated, checklist sign 3.

1 The run game

wait or run?

- Coralia (toy island): Lia + Tom deposit **$100** each → bank lends $200 for a year → loan worth `$220` in a year, `$150` if sold today
- Both wait `220 ÷ 2 = 110` each · one runs: runner `100`, waiter `150 − 100 = 50` · both run `150 ÷ 2 = 75`
- **Best reply** = the choice that pays you most, given what the other does · other waits → wait (110 > 100) · other runs → run (75 > 50)
- **Equilibrium** = each makes her best reply → **two**: both wait, both run · **coordination game** (Game Theory, Lesson 3): best choice depends on what you expect
- Diamond + Dybvig (American economists) wrote the game in **1983** · Practice: $240 / $160 → `120 · 60/100 · 80`, two equilibria

Lia / Tom ($)	Tom waits	Tom runs
Lia waits	(110) / (110)	50 / 100
Lia runs	100 / 50	(75) / (75)

2 Rumor, insurance

a run fills itself

- **Bank run** = many savers demand their money at once because each expects the others to → can break a **sound** bank
- False rumor → Tom expects Lia to run → running pays more (75 > 50) → he runs → **self-fulfilling**
- **Deposit insurance** = government promise: deposits back even if the bank fails · US: **FDIC** (Federal Deposit Insurance Corporation), **1933**, ≤ $2,500 from **1934** → waiter gets $100, not $50 → no reason to run → bad equilibrium gone
- Practice: run **more** likely ← rumor, queue on video, neighbor withdraws · run **less** likely ← insurance, more cash kept, central bank lends in a panic (no cheap sale of the loan)

3 Money vanishes

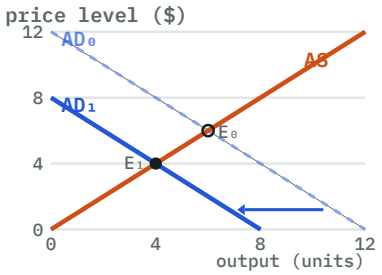
Lesson 2 in reverse

- Banks close → deposits vanish (**less money**) → people + firms spend less → prices fall → debts weigh more → more failures → loop
- Lending made money (Lesson 2) ⇒ failures **destroy** it: the multiplier in reverse
- **Deflation** = a general fall in prices · makes every debt heavier in goods
- US money **−⅓**, 1929-33 · Milton Friedman + Anna Schwartz (American economists), 1963

4 AD and AS

Macroeconomics, Lesson 4

- Coralia: AD (aggregate demand) `P = 12 − Y`, AS (aggregate supply) `P = Y` · Y = output, P = price level → output 6, price level $6
- Money −⅓ → AD left: `P = 8 − Y` → `8 − Y = Y` → output **4**, price level **$4**: both fall
- Debt `$60`: at $6 = **10** units of grain · at $4 = **15** units · debt same, prices lower
- Practice: Palmera (2nd toy island), money halves → `P = 6 − Y` → output 3, $3 · $60 debt = **20** units



5 Gold standard

hands tied

- **Gold standard** = money is a promise to pay a fixed amount of gold (like Rosa's receipts, Lesson 2)
- Money shrinking, but no printing: every new note = another promise of gold → holders could run to cash it in
- Left gold: Britain **Sept 1931** · US **1933** · France **1936** · Barry Eichengreen (American economic historian): earlier out → earlier recovery
- Practice chain: leave gold → central bank creates money → money stops shrinking → spending ↑ → output + prices recover = **AD right**

6 1929-33, debate

checklist sign 3

- **Dow Jones** (index of big US companies' shares): ≈381 on 3 Sept 1929 → ≈41 July 1932 = **−89%** (about a tenth left)
- Banks failed in waves from late 1930: ≈**9,000** of nearly **24,000** by 1933 (more than 1 in 3) · money ≈ −⅓, prices ≈ −¼ · output (goods + services made) ≈ −¼ · 1933: **1 worker in 4** without a job
- March 1933: Franklin Roosevelt (new president) closes every bank ≈1 week · sound ones reopen · April: off gold · June: deposit insurance
- Why so deep? Still debated: **demand** collapsed · **money** collapsed (Friedman + Schwartz: the Fed, US central bank, let ⅓ vanish) · **gold** tied the hands (Eichengreen; Ben Bernanke, American economist, later Fed head, Nobel 2022 with Diamond + Dybvig)
- Spend more? **Yes**: private spending collapsed, only government could replace it · **No**: new debt repaid later, gov. borrowing → less to lend to firms · no verdict
- **Bubble checklist** (warning signs, from Lesson 1) · **Sign 1 · Bought to resell** **Sign 2 · Money is a promise** **Sign 3 · A run fills itself: expect others to run → you should run**

Watch out: a run needs **no** real problem, only the belief that others run · less money moves **AD** (not AS) left: output **and** prices fall · deflation makes debts **heavier**, not lighter · "the crash alone" leaves out the banks and the money