# Handout 02.16: Three Portfolios and a Shock

Name: ___________________ Date: ________ Partner: ___________________

Three merchants each started with AQ25,000 and spent all of it on Day 1. Then the market had a bad week. Then, in a different world, it had a great week. Your job: find out what happened to each merchant both times.

**Risk levels for this sheet:** high risk = SPRK and CLDB; medium = WLLW and MDOW; safe = IRON, SEAL, and HNYP.

## The three portfolios on Day 1

| Venture | Risk level | Portfolio A (all high risk) | Portfolio B (all safe) | Portfolio C (mixed) |
|---|---|---|---|---|
| SPRK Sparkstone Mines | high | AQ12,500 | AQ0 | AQ5,000 |
| CLDB Cloudberry Expeditions | high | AQ12,500 | AQ0 | AQ5,000 |
| WLLW Willowbrook Grove | medium | AQ0 | AQ0 | AQ5,000 |
| MDOW Meadowgold Acres | medium | AQ0 | AQ0 | AQ5,000 |
| SEAL Crown Seal Notes | safe | AQ0 | AQ12,500 | AQ2,500 |
| HNYP The Honeypot Coffer | safe | AQ0 | AQ12,500 | AQ2,500 |
| **Total** | | **AQ25,000** | **AQ25,000** | **AQ25,000** |

## Shock 1: the crash

High risk ventures fall 40 percent (each AQ100 becomes AQ60, so multiply by 0.60). Medium ventures fall 10 percent (multiply by 0.90). Safe ventures hold (multiply by 1.00).

| Venture | Multiply by | Portfolio A | Portfolio B | Portfolio C |
|---|---|---|---|---|
| SPRK | 0.60 | 12,500 x 0.60 = _____ | 0 | 5,000 x 0.60 = _____ |
| CLDB | 0.60 | 12,500 x 0.60 = | 0 | 5,000 x 0.60 = |

| | | | | |
|---|---|---|---|---|
| | | _____ | | _____ |
| WLLW | 0.90 | 0 | 0 | 5,000 x 0.90 = _____ |
| MDOW | 0.90 | 0 | 0 | 5,000 x 0.90 = _____ |
| SEAL | 1.00 | 0 | 12,500 x 1.00 = _____ | 2,500 x 1.00 = _____ |
| HNYP | 1.00 | 0 | 12,500 x 1.00 = _____ | 2,500 x 1.00 = _____ |
| **Value after the crash** | | _____ | _____ | _____ |
| **Loss (25,000 minus value)** | | _____ | _____ | _____ |
| **Rank (1 = lost the least)** | | _____ | _____ | _____ |

### Shock 2: the boom (a different week, same three portfolios from Day 1)

High risk ventures rise 50 percent (multiply by 1.50). Medium ventures rise 10 percent (multiply by 1.10). Safe ventures hold (multiply by 1.00).

| Venture | Multiply by | Portfolio A | Portfolio B | Portfolio C |
|---|---|---|---|---|
| SPRK | 1.50 | 12,500 x 1.50 = _____ | 0 | 5,000 x 1.50 = _____ |
| CLDB | 1.50 | 12,500 x 1.50 = _____ | 0 | 5,000 x 1.50 = _____ |
| WLLW | 1.10 | 0 | 0 | 5,000 x 1.10 = _____ |
| MDOW | 1.10 | 0 | 0 | 5,000 x 1.10 = _____ |
| SEAL | 1.00 | 0 | 12,500 x 1.00 = _____ | 2,500 x 1.00 = _____ |
| HNYP | 1.00 | 0 | 12,500 x 1.00 = _____ | 2,500 x 1.00 = _____ |
| **Value after the boom** | | _____ | _____ | _____ |
| **Gain (value minus 25,000)** | | _____ | _____ | _____ |
| **Rank (1 = gained the most)** | | _____ | _____ | _____ |

## Questions

1. Which portfolio would you want on a bad week? Why (use a number)?

2. Which portfolio would you want on a good week? Why (use a number)?

3. You do not know which week is coming. That is the real situation. Which portfolio do you pick, and what are you giving up to pick it?

4. Portfolio B never lost and never gained. What is one reason a real person might still want part of their money there?

## My own pie (do this before the trading window)

Look at your holdings screen. Estimate the percent in each venture and draw it. Then answer.

[ draw your pie here ]

My biggest slice: _____ (ticker), about _____ percent.

If my biggest slice fell 40 percent tomorrow, my fortune would drop by about AQ _____.

I will: rebalance / hold. Because:

## Grade 8 stretch: Portfolio D

Design your own AQ25,000 pie in the table below and run it through both shocks. Then compute each portfolio’s percent loss and gain (loss or gain divided by 25,000, times 100).

| Venture | Day 1 amount | After the crash | After the boom |
|---|---|---|---|
| SPRK | | | |
| CLDB | | | |
| WLLW | | | |
| MDOW | | | |
| SEAL | | | |
| HNYP | | | |
| Total | 25,000 | | |

## Teacher key

**Shock 1 (the crash):**

- Portfolio A: 7,500 + 7,500 = 15,000. Loss 10,000. Rank 3.
- Portfolio B: 12,500 + 12,500 = 25,000. Loss 0. Rank 1.
- Portfolio C: 3,000 + 3,000 + 4,500 + 4,500 + 2,500 + 2,500 = 20,000. Loss 5,000. Rank 2.

**Shock 2 (the boom):**

- Portfolio A: 18,750 + 18,750 = 37,500. Gain 12,500. Rank 1.
- Portfolio B: 25,000. Gain 0. Rank 3.
- Portfolio C: 7,500 + 7,500 + 5,500 + 5,500 + 2,500 + 2,500 = 31,000. Gain 6,000. Rank 2.

**Percent versions (for the grade 8 stretch and the Lesson 2.18 preview):** A: minus 40 percent in the crash, plus 50 percent in the boom. B: 0 and 0. C: minus 20 percent and plus 24 percent.

**Questions:**

1. B on a bad week (lost 0), or C if the student values still having some growth (lost 5,000 vs A’s 10,000). Accept either with a number.
2. A on a good week (gained 12,500), or C (gained 6,000 with half the crash risk). Accept either with a number.
3. Most students pick C. What they give up: the top of the boom (A’s 12,500 vs C’s 6,000). A student who picks A must say they accept a 10,000 loss on a bad week; a student who picks B must say they accept never growing. All three are defensible if the trade-off is named.
4. Money you might need soon (rent, an emergency), or money you cannot afford to lose, or to sleep at night. Any of those.

**My own pie:** check that the “drop by about” number is 40 percent of the biggest slice’s value, not 40 percent of the whole fortune, unless the biggest slice is the whole fortune.