**Quiz B: 7/13/15** Name Key

Note: The following price and payoff information is on a per-share basis.

Assume:

1) The risk-free rate varies by maturity as follows: 1-year = 1%, 2-year = 3%.
2) The following prices, shares available at the prices, and payoffs for Revolving Greek Crisis and the market are given in the table below.

| | Bid | | Ask | | Payments in one year if economy is | | Payments in two years if economy is | |
|---|---|---|---|---|---|---|---|---|
| Security | Price | Number | Price | Number | Weak | Strong | Weak | Strong |
| Market Index | $450 | 500 | $455 | 700 | $100 | $300 | $900 | $1000 |
| Revolving Greek | $700 | 300 | $705 | 100 | $0 | $200 | $1200 | $1300 |

What set of transactions today will generate the highest possible arbitrage profit for you today. In your answer list all transactions required today and all individual and total cash flows today, a year from today, and two years from today. List also the transactions two years from today that generate the cash flows if the economy is strong. Use a "+" for inflows of cash and " – "for outflows of cash. Note: I recommend setting up a table like is in the notes.

Equivalent to Greek:

Buy market + short rf bond paying $100 in 1yr + buy rf bond paying $300 in 2 yrs

Bond prices: 1-yr $= \frac{100}{1.01} = 99.0099$; 2-yr $= \frac{300}{(1.03)^2} = 282.7788$

Possible Arbitrage:

Short Greek + buy portfolio: $\Pi = +700 - 455 + 99.0099 - 282.7788 = +61.2311$ ✓

Buy Greek + short portfolio: $\Pi = -705 + 450 - 99.0099 + 282.7788 = -71.2311$ X

Max shares = 300

⇒ multiply all #s below by 300 (+5)

| Transaction | $CF_0$ | W | S | $CF_1$ W | $CF_1$ S | Transaction |
|---|---|---|---|---|---|---|
| Shortsell Greek (+5) | +700 (+2) | 0 (+2) | −200 (+2) | −1200 (+2) | −1300 (+2) | Buy to cover Greek (+2) |
| Buy market (+5) | −455 (+2) | +100 (+2) | +300 (+2) | +900 (+2) | +1000 (+2) | Sell market (+2) |
| Shortsell 1-yr rf (+5) | +99.0099 (+2) | −100 (+2) | −100 (+2) | − (+1) | − (+1) | − (+2) |
| Buy 2-yr rf (+5) | −282.7788 (+2) | − (+1) | − (+1) | +300 (+2) | +300 (+2) | Bond matures (+2) |
| Total | +61.2311 (+2) | ∅ (+1) | ∅ (+1) | ∅ (+1) | ∅ (+1) | |