Quiz A: 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 = 2%, 2-year = 4%.
2) The following prices, shares available at the prices, and payoffs for Revolving Greek Crisis and the market are given in the table below.

Security	Bid		Ask		Payments in one year if economy is		Payments in two years if economy is	
	Price	Number	Price	Number	Weak	Strong	Weak	Strong
Market Index	$450	300	$455	500	$100	$300	$900	$1000
Revolving Greek	$100	400	$105	200	$200	$400	$500	$600

What set of transactions today will generate the <u>highest</u> possible arbitrage profit for you today. In your answer list all <u>transactions required today</u> and all <u>individual and total cash flows today, a year from today, and two years from today</u>. List also the <u>transactions two years from today</u> that generate the cash flows if the economy is <u>strong</u>. 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 + buy r.f bond paying $100 in 1 year + short sell r.f bond paying $400 in 2 years

Bond prices: 1-yr $= \frac{100}{1.02} = 98.0392$; 2-yr $= \frac{400}{(1.04)^2} = 369.8225$

Possible Arbitrage:
    Short Greek + buy portfolio: $\Pi = +100 - 455 - 98.0392 + 369.8225 = -83.2167$ ✗
    Buy Greek + short portfolio: $\Pi = -105 + 450 + 98.0392 - 369.8225 = 73.2167$ ✓

max shares = 200
    $\Rightarrow$ multiply all #s below by 200 +5

Transaction	CF₀	CF₁		CF₂		Transaction
		W	S	W	S	
Buy Greek +5	−105 +2	+2 +200	+2 +400	+2 +500	+2 +600	Sell Greek +2
short portfolio:						
Short market +450 +5 +2	−100 +2	−100	−300 +2	−900 +2	−1000 +2	Buy to cover the market +2
Short 1-yr rf +5 +98.0392 +2		−100 +2	−100 +2	+1 +2	+1 +2	− +2
Buy 2-yr rf +5 −369.8225 +2	+1	+1	+400 +2	+400 +2	Bond matures +2
Total	+73.2167 +2	Ø +1	Ø +1	Ø +1	Ø +1	