Quiz A: 7/15/14 Name Key

Note: The following information on Saba Capital ETF is on a per share (of Saba) basis.

Saba Capital ETF currently has long positions in risk-free bonds that mature a year from today for $100 and short positions in risk-free bonds that mature two years from today for $200. The one-year bonds earn a return of 2% and the two-year bonds earn 3% per year. The fund also owns (is long) three shares of Builder Inc and is short one share of Archer Supply. The ETF will pay out all funds it receives from the investments it has made.

The prices, number of shares available and payoffs on the ETF and the two securities follow:

	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
Builder	$380	~~200~~ 3	$385	~~600~~ 3	$100	$200	$250	$350
Archer	$95	~~2000~~ 1	$100	~~3000~~ 1	$0	$50	$0	$200
Saba ETF	$920	~~300~~ 1	$925	~~500~~ 1				

What set of transactions today will generate an 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. Use a "+" for an inflow of cash and a "-"for an outflow of cash. Note: I recommend setting up a table like is in the notes.

1 yr bond $= \frac{100}{(1.02)} = 98.04$; 2-yr bond $= \frac{200}{(1.03)^2} = 188.52$

Payoff on ETF: Yr 1: $W = 100 + 3(100) = 400$; $S = 100 + 3(200) - 1(50) = 650$

Yr 2: $W = -200 + 3(250) = 550$; $S = -200 + 3(350) - 1(200) = 650$

CF from setting up Arb:

Short ETF + buy equiv. port $= +920 - 98.04 + 188.52 - 3(385) + 95 = -49.52$ X

Buy ETF + short eq. port $= -925 + 98.04 - 188.52 + 3(380) - 100 = +24.52$ ✓

Trans	CF_0	CF_1 W	CF_1 S	CF_2 W	CF_2 S
+3 Buy ETF	-925 +2	+400 +2	+650 +2	+550 +2	+650 +2
+3 Short 1yr	+98.04 +2	-100 +2	-100 +2	— +2	— +2
+3 Buy 2-yr	-188.52 +2	— +2	— +2	+200 +2	+200 +2
+3 Short 3 Build	+3(380) +2	$-3(100)$ +2	$-3(200)$ +2	$-3(250)$ +2	$-3(350)$ +2
+3 Buy Archer	-100 +2	Ø +2	+50 +2	Ø +2	+200 +2
Total	+2452 +2	Ø +2	Ø +2	Ø +2	Ø +2