

## Arbitrage with CATs and TIGRs

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Before there was such a thing as Treasury STRIPS, banks such as Salomon and Merrill Lynch would create their own zero-coupon bonds by setting up trusts. The zeros created by Salomon were called CATs, and those created by Merrill Lynch were called TIGRS.

Consider the following scenario:

1. CAT maturing in one year is priced at \$94.34 per \$100 (YTM = 6%).
2. TIGR maturing in one year is priced at \$95.238 per \$100 (YTM = 5%).
3. Fee charged (earned) for borrowing (lending) TIGRs for 1 year is \$.05 per \$100 due at the end of the year. CATs have no borrowing or lending fee.

Questions:

1. Can you set up a transaction that will yield a riskless profit?
2. What will happen to the prices of TIGRs and CATs as a result?

Set up the following portfolio today:

|   |           |
|---|-----------|
| (1) Buy 1 CAT                                 | -\$94.340 |
| (2) Borrow 1 TIGR (deposit CAT as collateral) | -         |
| (3) Sell the TIGR                             | +\$95.238 |
| Net cash flow today                           | +\$0.898  |

At the end of one year:

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|   |         |
|---|---------|
| (1) Retrieve CAT                                | -       |
| (2) Redeem CAT (at face value) from US Treasury | +\$100  |
| (3) Return face value for TIGR                  | -\$100  |
| (4) Pay fee for TIGR                            | -\$0.05 |
| Net cash flow at the end of one year            | -\$0.05 |

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Net profit:  $\$0.898 - 0.05 = \$0.848$  (this ignores interest for one year earned on  $\$0.898$ ).

1. This transaction is riskless (nomatter what happens you earn  $\$0.848$  for each CAT and TIGR traded). You will do this as often as you can.
2. Buying of CATs drives up their price while selling of TIGRs drives down their price until the price of TIGRs is  $\$0.05$  above the price of CATS.
3. Because the securities have identical cash flows, their prices must be identical up to the  $\$0.05$  lending fee for the TIGR.