

TradersStudio makes it easy to develop relative strength trading models

In TradersStudio it's easy to implement many strategies which are impossible in other platforms. Let's look at the concept of **relative strength analysis with a filter**. This is a powerful but simple concept. We want to buy only the top ranking stocks on a relative basis in each portfolio. We also want to keep our investment in balance, so if one stock increases in value it does not become too large of a percentage of our portfolio. We use dynamic rebalancing, by buying or selling shares once a month in order to have the same dollar value invested in each stock.

TradersStudio has two major constructs; the **first** is the session. The Session allows us to run a set of rules, a system on one or more markets. We will use this portfolio capability in the following example. Let's now look at our system below.

Session Level Code (Trading System)

The code below calculates a "**Filter which is price relative to a 200 bar moving average**". We also have a ranking function which is a 50 bar percentage rate of change. We then pass these to the trade plan level. We use the *marketvar function* to set a *MAPermission screen value* to true/false.

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Sub RankSystem1()

```
Dim MADiff
Dim RawRank
MADiff= Close-Average(Close,200,0)
RawRank=(Close-Close[50])/Close[50]
marketvar("MAPermission")=MADiff>0
marketvar("RawRank")=RawRank
```

End Sub

This system is used for all the sessions which we will use. We will use the Nasdaq 100 stocks in our example and in order to see exactly how this works we will create 3 different sessions.

1. RelativeRankSess1, contains 6 stocks starting with A
2. RelativeRankSess2, contains 4 stocks starting with B
3. RelativeRankSess2, contains 6 stocks starting with C

Since, we are using letters of the alphabet in this test; it will make it easier to see if it's working correctly. Let's start with our first trade plan. This trade plan takes the top ranked stock from each session and on passing the permission screen; it will either buy or rebalance it monthly.

Create a trade plan and use the *RelativeRankTest script* and add all the above three sessions. Make the *account size* \$100,000. Now, run the trade plan. You will need to select *overlapping date rate range* since we are doing relative strength analysis.

Let's first look at our **custom ranking function** which creates a ranking array for a given session.

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Function RelativeRankFunc(SessionObject as tsprocessor.ISession) As Array

```
Dim MCount As Integer
```

```

Dim CustomPer As Array
Dim count As Integer
MCount=SessionObject.MarketCount
ReDim(CustomPer,MCount,2)

For count=0 To MCount-1
    CustomPer[count,0]=SessionObject.Market(count).symbol(0)
    CustomPer[count,1]=SessionObject.Market(count).MarketVar("RawRank")
Next
RelativeRankFunc=CustomPer

```

End Function

The above function is used in the trade plan below; the “*Stock plan*” which takes the top stocks from each session based on their relative strength measures of custom performance.

*' Stock plan takes the top market from each session based on relative strength measures
' or custom performance*

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Sub RelativeRankTest()

```

Dim M As Integer
Dim DollarPerTrade
Dim StartAccount
Dim DollarsPerTrade
Dim Measure
Dim custper As Array
Dim sCount As Integer

For sCount =0 To tradeplan.SessionCount -1
    DollarsPerTrade=tradeplan.SumEquity/(TradePlan.SessionCount)
    TradePlan.Session(sCount).UnitSize = 1
    TradePlan.Session(sCount).RankingType() = Ordinal ' eordinal

```

```

    custper=RelativeRankFunc(TradePlan.Session(sCount))
    Tradeplan.Session(sCount).SetCustomPerformance(custper)

```

' For each session Loop though the trading plans.

```

For M = 0 To TradePlan.Session(sCount).MarketCount - 1
    If
        Month(tradeplan.Session(sCount).Market(M).data(0,"Date",0))<>Month(tradeplan.Session(sCount).Market(M).data(0,"Date",1)) Then

```

```

        Measure =
        tradeplan.Session(sCount).CustomPerformance(tradeplan.session(sCount).Market(M).symbol(0))

```

```

        Dim sizeadjust as integer

```

```

If Measure = 1 and
tradeplan.session(sCount).Market(M).marketvar("MAPermission")=true Then

    *****
    If tradeplan.MarketType=3 Then
        sizeadjust=Floor((DollarsPerTrade)/TradePlan.Session(sCount).
            Market(M).Data(0,"TSClose",0))-
            TradePlan.Session(sCount).Market(M).NumContractsHeld
    End If

    If tradeplan.MarketType=1 Then
        sizeadjust=Floor((DollarsPerTrade)/TradePlan.Session(sCount).
            Market(M).Data(0,"Close",0))-
            TradePlan.Session(sCount).Market(M).NumContractsHeld
    End If

    If sizeadjust<>0 Then
        If sizeadjust>0 Then
            TradePlan.Session(sCount).Market(M).TSBuy("",sizeadj
                ust,0,Market,Day)
        End If

        If sizeadjust<0 Then
            sizeadjust=sizeadjust*-1
            TradePlan.Session(sCount).Market(M).TSExitlong("", ""
                ,sizeadjust,0,Market,Day)
        End If
    End If

Else

    If TradePlan.Session(sCount).Market(M).MarketPositionPlus("")=1
    Then
        TradePlan.Session(sCount).Market(M).TSExitlong("", "",TradePl
            an.Session(sCount).Market(M).NumContractsHeld,0,Market,Da
            y)
    End If

End If
End if
Next
Next
End Sub

```

You can see that all orders buy and sell “*new buy’s*” or “*buy’s and sell’s*” as per the rebalancing done inside the trade plan. Also all exits are (a) a *complete exit*, if the stock is no longer top ranked or, (b) a *partial exit* as per the rebalancing done inside the trade plan.

Let’s now look at how this trade plan works. Below are the results of the “*Trades for Trade Plan*”

Trades for Trade Plan

RelativeRank_SamplePlan 8/5/2005 to 10/18/2011. System is RELATIVERANKTEST[]

Buy/Sell	Session Name	Entry Name	Market	EntryDate	Size	EntryPrice	Exit Date	Exit Name	Size	Split	Dividend	Exit Price	Trade P/L	%Return
BUY	RelativeRankSess1		AKAM.CSV	7/5/2006	908	36.5000	8/2/2006		77			38.6000	\$161.70	0.49%
BUY	RelativeRankSess2		BIDU.CSV	7/5/2006	388	8.4490	8/2/2006		388			7.0850	(\$5,292.32)	-16.14%
BUY	RelativeRankSess3		CELG.CSV	7/5/2006	702	47.4500	8/2/2006		18			46.8600	(\$10.62)	-0.03%
BUY	RelativeRankSess1		AKAM.CSV	7/5/2006	831	36.5000	9/5/2006		51			40.8200	\$220.32	0.73%
BUY	RelativeRankSess3		CELG.CSV	7/5/2006	684	47.4500	9/5/2006		684			43.0000	(\$3,043.80)	-9.38%
BUY	RelativeRankSess1		AKAM.CSV	7/5/2006	780	36.5000	10/3/2006		87			50.0400	\$1,177.98	4.14%
BUY	RelativeRankSess1		AKAM.CSV	7/5/2006	693	36.5000	12/4/2006		693			48.2100	\$8,115.03	32.08%
BUY	RelativeRankSess3		CSCD.CSV	9/5/2006	1423	22.1300	11/2/2006		1423			23.9800	\$2,632.55	8.36%
BUY	RelativeRankSess2		BIIB.CSV	11/2/2006	718	47.5800	12/4/2006		718			52.3600	\$3,432.04	10.05%
BUY	RelativeRankSess3		CELG.CSV	11/2/2006	648	51.2300	1/4/2007		5			57.2400	\$30.05	0.09%
BUY	RelativeRankSess3		CELG.CSV	11/2/2006	643	51.2300	2/2/2007		643			55.6600	\$2,848.49	8.65%
BUY	RelativeRankSess1		AAPL.CSV	12/4/2006	402	91.8800	1/4/2007		402			84.0500	(\$3,147.66)	-8.52%
BUY	RelativeRankSess2		BIDU.CSV	12/4/2006	330	11.5150	1/4/2007		30			12.1110	\$178.80	0.47%

First, we can see that we rebalance on the second trading day of the month. Our rebalance active orders are placed when $Month(date) <> Month(Date[1])$, thus these orders are executed on the next bar. This code selects the top ranked stock from each session and invests in the same. It also ensures that we have an equal dollar value for each stock, for example let's look at *CELG*; we purchased 702 shares on 07/05/2006. On 08/02/2006, we exited 18 shares as we now have a higher percentage of our money in *CELG*. In August we exited the remaining 684 shares and purchased 1423 shares of *CSCO*.

Likewise, in *AKAM* we purchased 908 shares on 07/05/2006. Using rebalancing, we exited 77 of them on 08/02/2006. We then exited another 87 on 10/03/2006 as the price of *AKAM* increases. We finally exited our complete position on 12/04/2006.

BUY	RelativeRankSess3		CELG.CSV	7/5/2011	1269	60.9400	8/2/2011		46			58.2600	(\$123.28)	-0.16%
BUY	RelativeRankSess3		CELG.CSV	7/5/2011	1223	60.9400	9/2/2011		1223			58.5800	(\$2,886.28)	-3.87%
BUY	RelativeRankSess1		AAPL.CSV	8/2/2011	180	397.6500	9/2/2011		1			374.7400	(\$22.91)	-0.03%
BUY	RelativeRankSess1		AAPL.CSV	8/2/2011	179	397.6500	10/4/2011		14			374.5700	(\$323.12)	-0.45%
BUY	RelativeRankSess2		BIDU.CSV	8/2/2011	449	158.2900	10/4/2011		449			103.7000	(\$24,510.91)	-34.49%
BUY	RelativeRankSess1		AAPL.CSV	8/2/2011	165	397.6500	10/18/2011	Still Open				422.2400	\$4,057.35	6.18%
BUY	RelativeRankSess2		BBBY.CSV	10/4/2011	1118	54.0700	10/18/2011	Still Open				60.9900	\$7,736.56	12.80%
BUY	RelativeRankSess3		COST.CSV	10/4/2011	757	80.6700	10/18/2011	Still Open				84.5700	\$2,952.30	4.83%

Let's look at our **current positions**, the number of shares owned in each portfolio are *AAPL* (165 shares), *BBBY* (1118) and *COST* (757). These will be rebalanced on the first trading day of November.