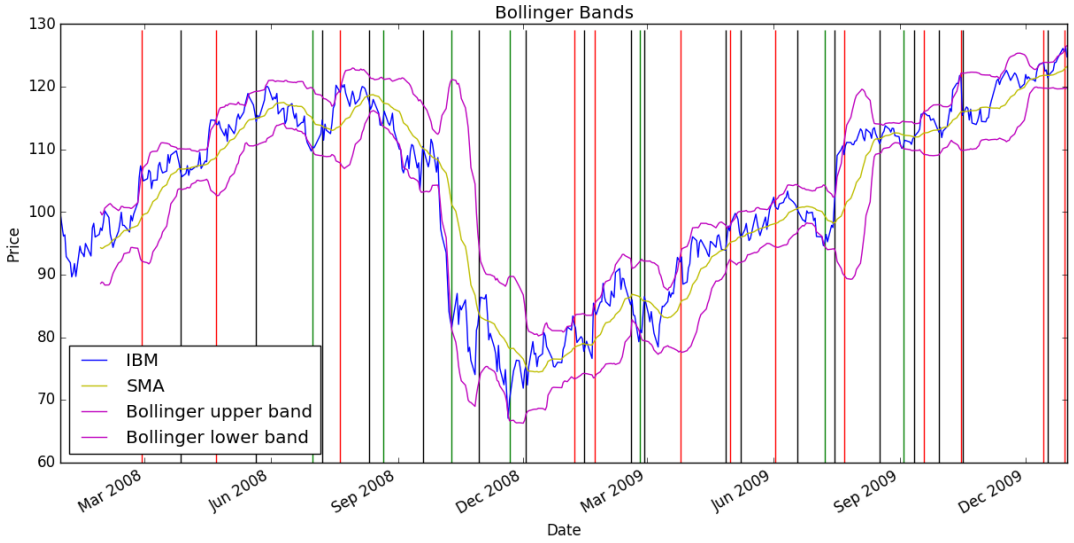
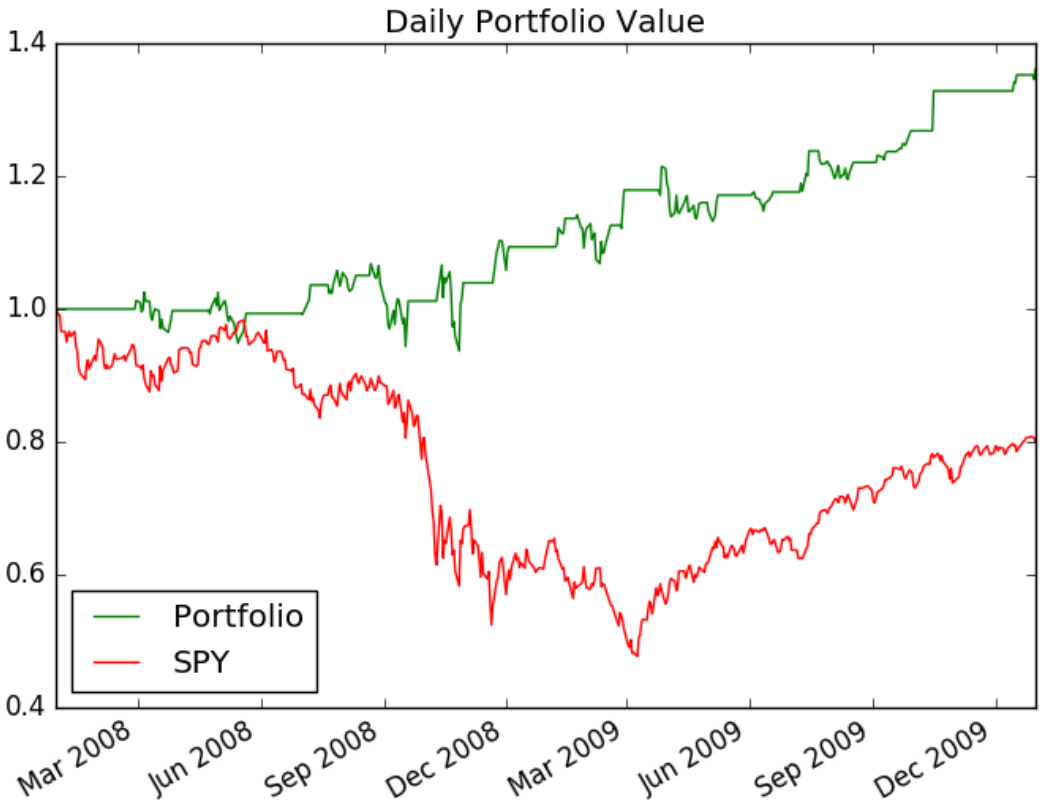
Bollinger Band:





order.txt:

Date	Symbol	Order	Shares

2/28/2008	IBM	SELL	100
3/27/2008	IBM	BUY	100
4/22/2008	IBM	SELL	100
5/21/2008	IBM	BUY	100
7/1/2008	IBM	BUY	100
7/8/2008	IBM	SELL	100
7/21/2008	IBM	SELL	100
8/11/2008	IBM	BUY	100
8/21/2008	IBM	BUY	100
9/19/2008	IBM	SELL	100
10/10/2008	IBM	BUY	100
10/30/2008	IBM	SELL	100
11/21/2008	IBM	BUY	100
12/3/2008	IBM	SELL	100
1/7/2009	IBM	SELL	100
1/14/2009	IBM	BUY	100
1/22/2009	IBM	SELL	100
2/17/2009	IBM	BUY	100
2/24/2009	IBM	BUY	100
2/27/2009	IBM	SELL	100
3/25/2009	IBM	SELL	100
4/27/2009	IBM	BUY	100
4/30/2009	IBM	SELL	100
5/8/2009	IBM	BUY	100
6/2/2009	IBM	SELL	100
6/18/2009	IBM	BUY	100
7/8/2009	IBM	BUY	100
7/15/2009	IBM	SELL	100
7/22/2009	IBM	SELL	100
8/17/2009	IBM	BUY	100
9/3/2009	IBM	BUY	100
9/11/2009	IBM	SELL	100
9/18/2009	IBM	SELL	100
9/29/2009	IBM	BUY	100
10/15/2009	IBM	SELL	100
10/16/2009	IBM	BUY	100
12/14/2009	IBM	SELL	100
12/17/2009	IBM	BUY	100
12/29/2009	IBM	SELL	100

Summary:

Data Range: 2007-12-31 to 2009-12-31

Sharpe Ratio of Fund: 0.97745615082
Sharpe Ratio of SPY: -0.149575888341

Cumulative Return of Fund: 0.3614
Cumulative Return of SPY: -0.201395139514

Standard Deviation of Fund: 0.0108802922269
Standard Deviation of SPY: 0.0219136847778

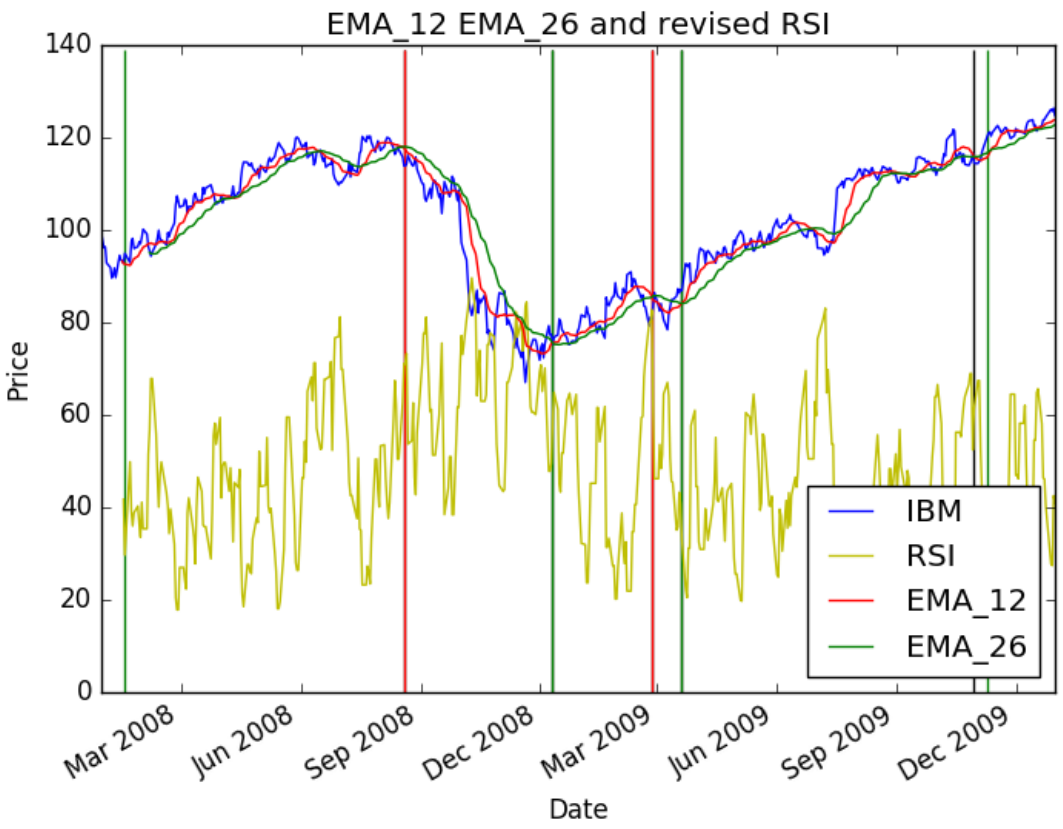
Average Daily Return of Fund: 0.000669942567631
Average Daily Return of SPY: -0.000206479400499

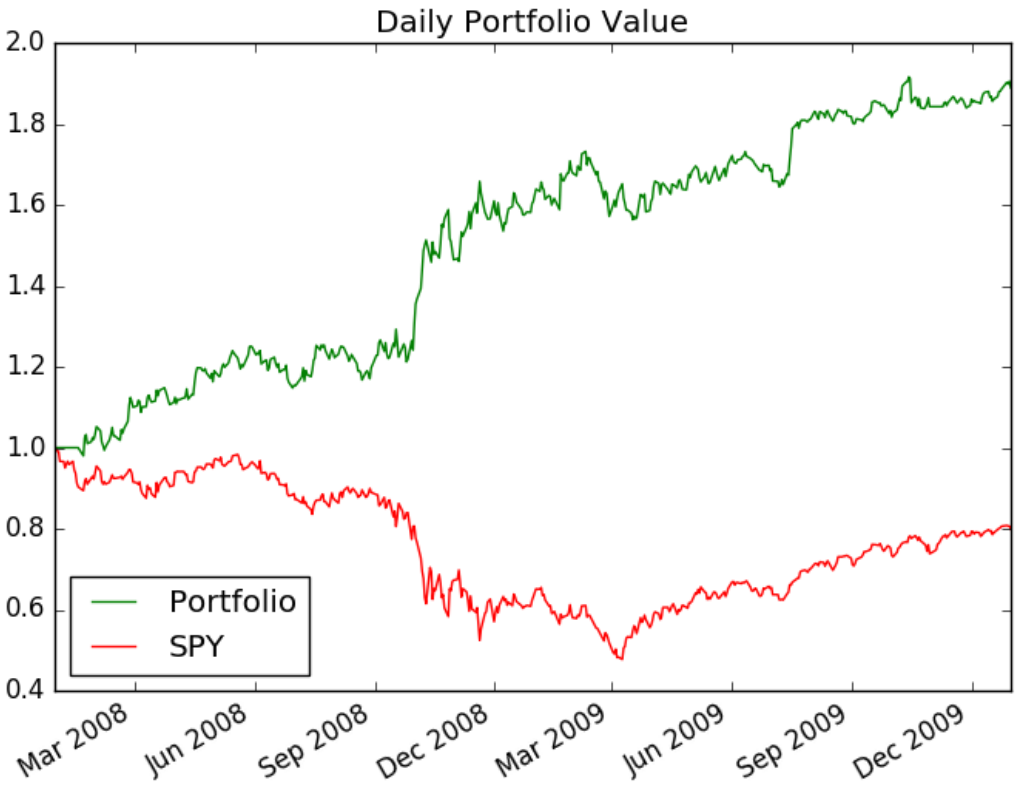
Final Portfolio Value: 13614.0

My strategy:

MACD is a very key indicator in the technical analysis. MACD shows the direction, strength and momentum of the stock price changes. Based on MACD, we can predict an ideal entry/exit point for a trade. MACD line is created from EMA(26) and EMA(12).
When the short-term EMA(12) crosses above the long-term EMA(26), the MACD line cross above the Zero line. A buy signal is generated.
When the short-term EMA(12) crossed below the long-term EMA(26), the MACD line cross below the Zero line . A sell signal is generated.
In my strategy, EMA(26) and EMA(12) will be employed. When EMA(12) crosses above EMA(26), a buy signal is generated.
When EMA(12) crosses below EMA(26), a sell signal is generated.

Relative Strength Index is a technical momentum indicator that compares the magnitude of recent gains to recent losses in an attempt to determine overbought and oversold conditions of an asset.
Generally, when RSI crosses above the 70 level which means overbought condition, a sell signal is generated.
When RSI crosses below the 30 level which means oversold condition, a buy signal is generated.
I noticed RSI indicates the market is strong or weak. It does not mean the market trend is the direction of RSI indicator. And RSI action is too fast.
However, MA action is too slow, so it turns around behind the trend.
In my strategy, I revised RSI indicator that is opposite to common RSI and use its trend signal but not overbought and oversold signals. RS=Loss/Gain RSI=100-100/(1+RS) EMA(12)/EMA(26) and revised RSI will be combined.
The combined technical indicators display better upward trends and downward trends. So when you cover your previous trade, next trade is allowed on the same day.


EMA_12 EMA_26 and revised RSI
Price
Date
IBM
RSI
EMA_12
EMA_26
0
20
40
60
80
100
120
140
Mar 2008
Jun 2008
Sep 2008
Dec 2008
Mar 2009
Jun 2009
Sep 2009
Dec 2009


Daily Portfolio Value
Portfolio
SPY
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
Mar 2008
Jun 2008
Sep 2008
Dec 2008
Mar 2009
Jun 2009
Sep 2009
Dec 2009

my_order.txt:

Date	Symbol	Order	Shares
1/18/2008	IBM	BUY	100
8/19/2008	IBM	SELL	100
8/19/2008	IBM	SELL	100
12/11/2008	IBM	BUY	100
12/11/2008	IBM	BUY	100
2/25/2009	IBM	SELL	100
2/25/2009	IBM	SELL	100
3/20/2009	IBM	BUY	100
3/20/2009	IBM	BUY	100
10/30/2009	IBM	SELL	100
11/9/2009	IBM	BUY	100

Analysis of the performance of my strategy:

My strategy cumulative return: 0.8891
Bollinger Band strategy cumulative return: 0.3614
My strategy well outperforms Bollinger Band strategy.

Summary:

Data Range: 2007-12-31 to 2009-12-31

Sharpe Ratio of Fund: 1.66576075591
Sharpe Ratio of SPY: -0.149575888341

Cumulative Return of Fund: 0.8891
Cumulative Return of SPY: -0.201395139514

Standard Deviation of Fund: 0.0127853082874
Standard Deviation of SPY: 0.0219136847778

Average Daily Return of Fund: 0.00134160157761
Average Daily Return of SPY: -0.000206479400499

Final Portfolio Value: 18891.0

Test my strategy after 2009:

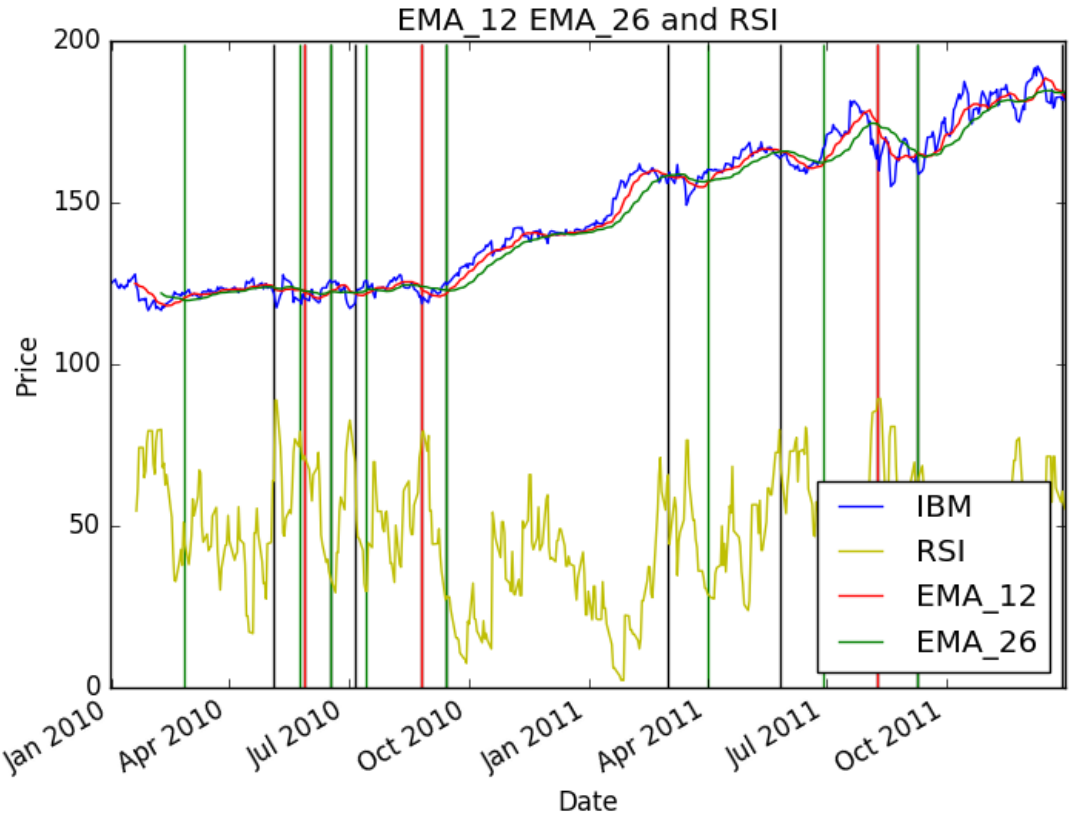
Data Range: 2009-12-31 to 2011-12-31
Cumulative Return of Fund: 0.3995
Final Portfolio Value: 13995.0

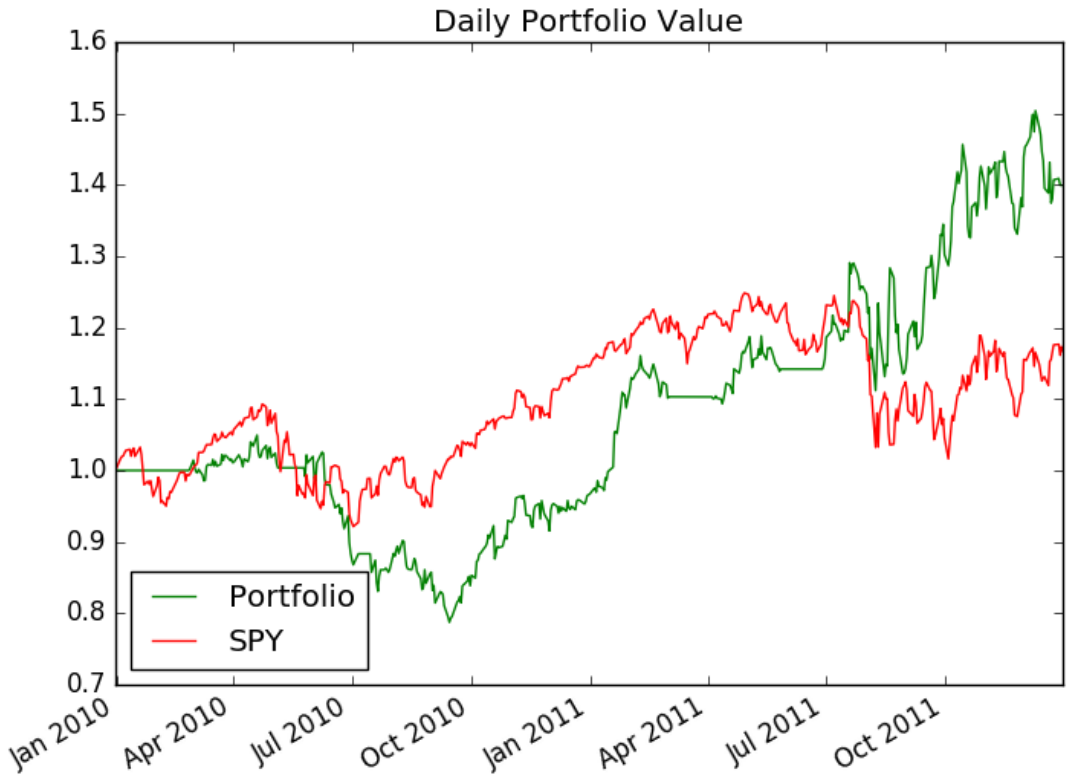
But Bollinger Band Strategy:
Data Range: 2009-12-31 to 2011-12-31
Cumulative Return of Fund: 0.126
Final Portfolio Value: 11260.0

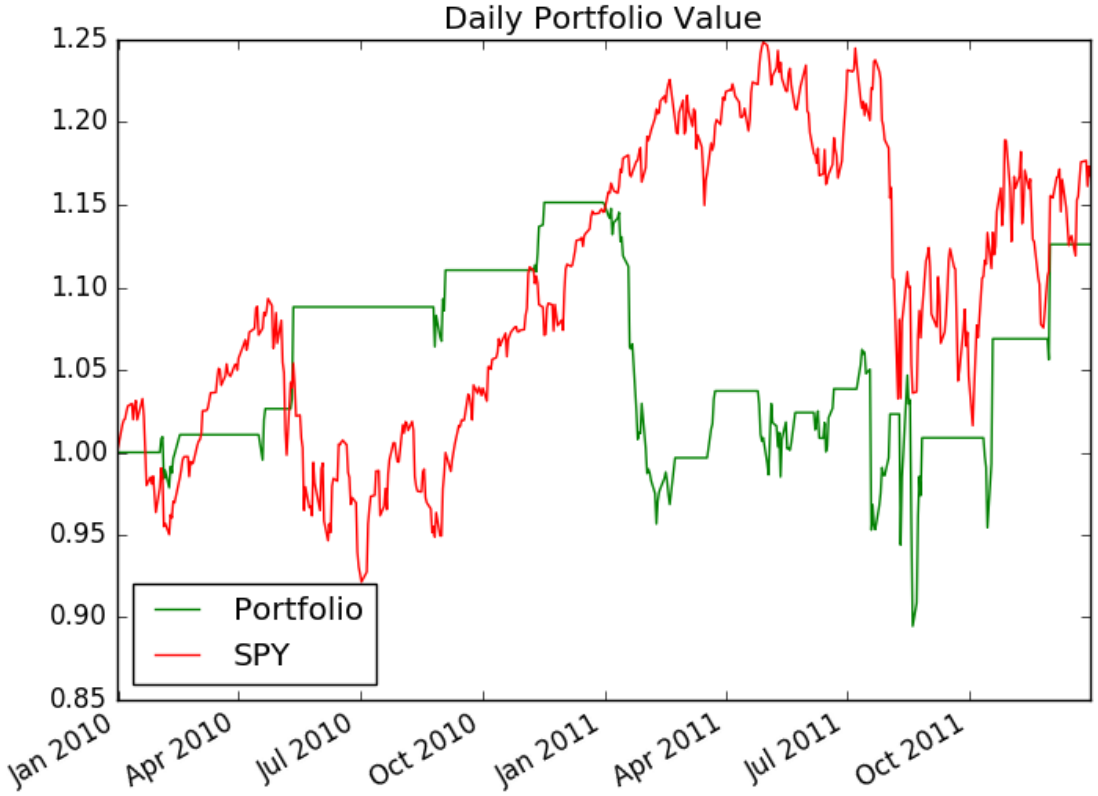
Test my strategy before 2008:

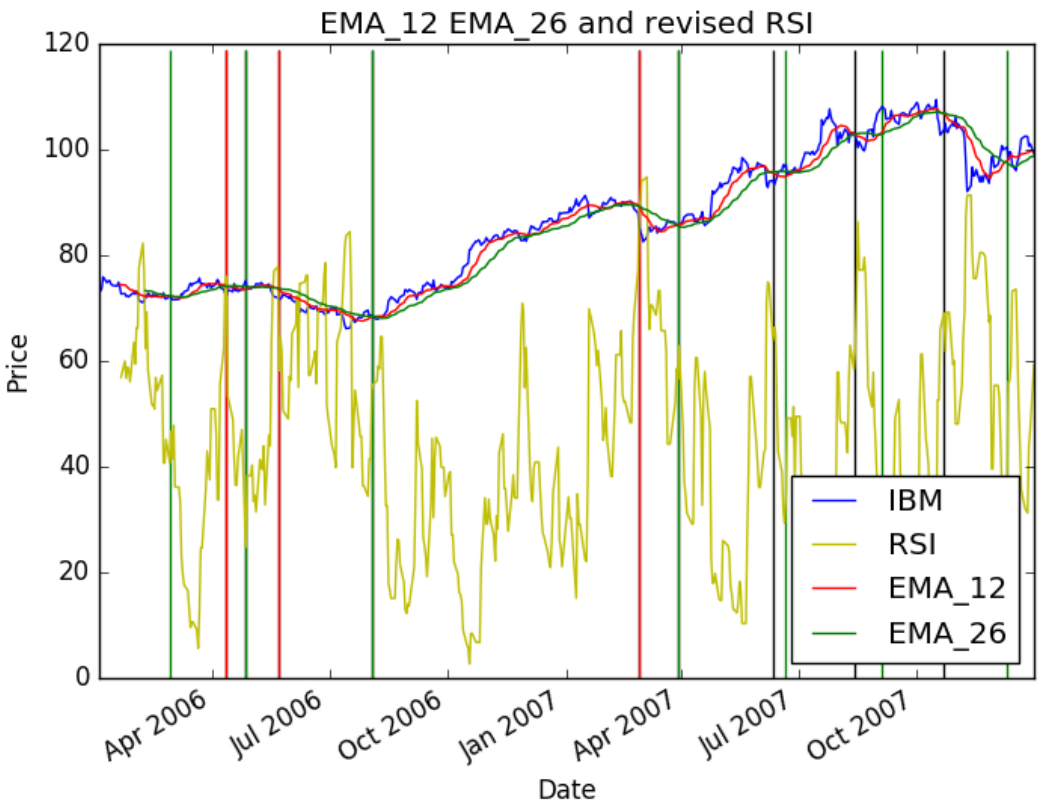
Data Range: 2006-01-03 to 2007-12-31
Cumulative Return of Fund: 0.2209
Final Portfolio Value: 12209.0

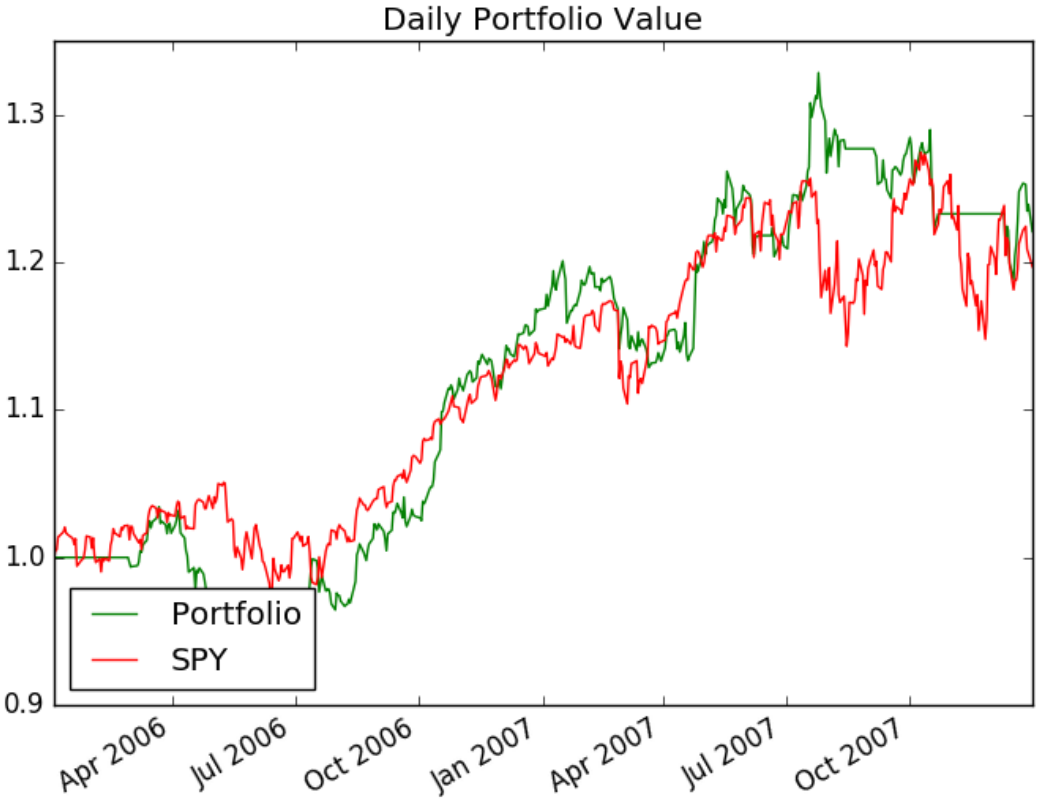
But Bollinger Band Strategy:
Data Range: 2006-01-03 to 2007-12-31
Cumulative Return of Fund: 0.0429
Final Portfolio Value: 10429.0
So my strategy works well in those periods because of strong combined indicator.
But if the price appears flat during one period, the cumulative return is low.

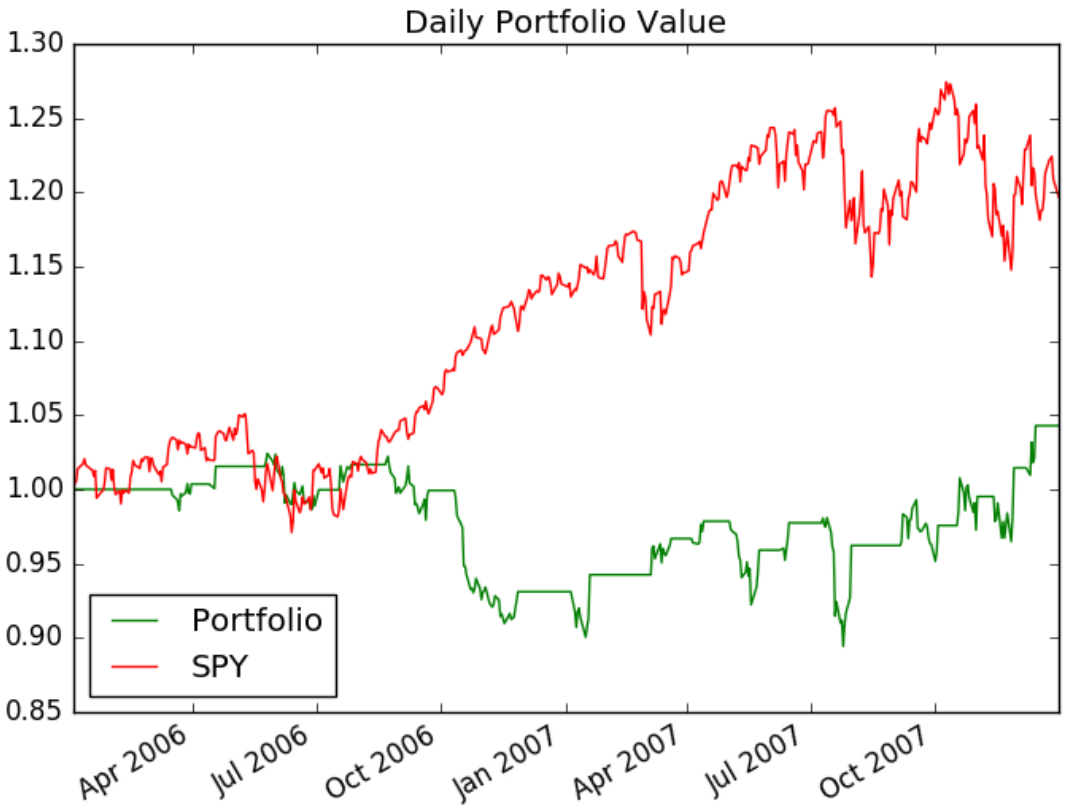



Daily Portfolio Value
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
Portfolio
SPY
Jan 2010
Apr 2010
Jul 2010
Oct 2010
Jan 2011
Apr 2011
Jul 2011
Oct 2011


Daily Portfolio Value
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
Portfolio
SPY
Jan 2010
Apr 2010
Jul 2010
Oct 2010
Jan 2011
Apr 2011
Jul 2011
Oct 2011


EMA_12 EMA_26 and revised RSI
120
100
80
60
40
20
0
Price
IBM
RSI
EMA_12
EMA_26
Apr 2006
Jul 2006
Oct 2006
Jan 2007
Apr 2007
Jul 2007
Oct 2007
Date


Daily Portfolio Value
1.3
1.2
1.1
1.0
0.9
Portfolio
SPY
Apr 2006
Jul 2006
Oct 2006
Jan 2007
Apr 2007
Jul 2007
Oct 2007


Daily Portfolio Value
1.30
1.25
1.20
1.15
1.10
1.05
1.00
0.95
0.90
0.85
Portfolio
SPY
Apr 2006
Jul 2006
Oct 2006
Jan 2007
Apr 2007
Jul 2007
Oct 2007