A Study on Share Price Movement of Equities Using Technical Analysis

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Abstract

The relative strength index (RSI) is a technical indicator used in the analysis of financial markets. It is intended to chart the current and historical strength or weakness of a stock market based on the closing prices an average of three months trading period. The indicator should not be confused with relative strength. The RSI is classified as a momentum oscillator, measuring the velocity and magnitude of directional price movements. Momentum is the rate of the rise or fall in price. The RSI computes momentum as the ratio of higher closes to lower closes: stocks which have had more or stronger negative changes. The RSI is most typically used on a 14 day time frame, measured on a scale 0 to 100, with high low levels marked at 70 and 30 respectively. Shorter or longer time frames are used for alternatively shorter or longer outlooks. More extreme high and low levels – 80 and 20, or 90 and 10-occur less frequently but indicate stronger momentum. If the RSI is 70 or greater, then the instrument is assumed to be overbought (a situation in which prices are risen more than the market expectations) fallen more than the market expectations. With this background this paper makes an earnest attempt to study the top 5 Equity stocks during the period of the study in to suggest the investor the entry and exit time.

Key words: Technical Indicator, Momentum Oscillator, Over bought, Oversold.

Introduction

The relative strength index was developed by J. Welles Wilder and published in a 1978 book. It has become one of the most popular oscillator indices. The **relative strength index** (**RSI**) is a technical indicator used in the analysis of financial markets. It is intended to chart the current and historical strength or weakness of a stock or market based on the closing prices of a recent trading period. The RSI is classified as a momentum oscillator, measuring the velocity and magnitude of directional price movements. Momentum is the rate of the rise or fall in price. The RSI computes momentum as the ratio of higher closes to lower closes stocks which have had more or stronger positive changes have a higher RSI than stocks which have had more or stronger negative changes.

RSI is an overbought and over sold indicator. The RSI measures the ratio of up-moves to down moves and normalizes the calculation so that the index emprassed in arrange of 0-100. If the RSI readings greater than 70 level the instrument is assumed to be overbought (a situation in which prices have raised more than the market expectations). At the other end of scale the RSI readings lower than 30 level then the instrument is assumed to be oversold (a situation in which prices have fallen more than the market expectations). In between the 30 and 70 level is considered neutral, with the 50 level a sign of no trend. If the relative strength index is below 50, it generally means that the stock's losses are greater than the gains. When the relative strength index is above 50, it generally means that the gains are greater than the losses. RSI is calculated by using the following formulae.

-) Gain=previous close – close price
-) Average gain=average(5)
-) Average loss=average(5)
-) Relative Strength (RS) = (Average gain/Average loss)
-) RSI=100-100/(1+(RS))

Meaning

Technical analysis is a trading tool employed to evaluate securities and attempt to forecast their future movement by analyzing statistics gathered from trading activity, such as price movement and volume. Unlike fundamental analysts who attempt to evaluate a security's intrinsic value, technical analysts focus on charts of price movement and various analytical tools to evaluate a security's strength or weakness and forecast future price changes.

Definition

The **Relative Strength Index** (**RSI**) developed by J. Welles Wilder, is a momentum oscillator that measures the speed and change of price movements. The **RSI** oscillates between zero and 100. Traditionally the **RSI** is considered overbought when above 70 and oversold when below 30.

Literature Review

The article titled **"Performance of technical analysis in growth and small cap segments of the US equity market"**, authored by **Andrei Shynkevich,** published in " Journal of Banking & Finance" Volume 36, Issue 1, January 2012, Pages 193–208

A large universe of technical trading rules applied to a set of technology industry and small cap sector portfolios over the 1995–2010 period yields superior predictability after adjusting for data snooping bias in the first half of the sample period and delivers statistically significant profits for a number of portfolios when the transaction cost is assumed to be of small to moderate size.

The article titled "**Technical trading revisited**: False discoveries, persistence tests, and transaction costs", authored by **"Pierre Bajgrowicz"** , "Olivier Scaillet", published in "Journal of Financial Economics",Volume106,issue3,december2012.

This study evaluates the historical success of technical trading rules on daily prices of the Dow Jones Industrial Average index from 1897 to 2011, and we use the false discovery rate (FDR) as a new approach to data snooping.

The article titled "**Contingent capital with a dual price trigger**", authored by **Robert L. McDonald**, published in "Journal of Financial Stability",Volume 9, Issue 2, June 2013, Pages 230–241

This study evaluates a form of contingent capital for financial institutions that converts from debt to equity if two conditions are met: the firm's stock price is at or below a trigger value and the value of a financial institutions index is also at or below a trigger value. This structure potentially protects financial firms during a crisis, when all are performing badly, but during normal times permits a bank performing badly to go bankrupt.

Objectives of the study

1.   To study the price fluctuations of various stocks in Indian stock market.
2.   To identify the best investment stocks using Technical analysis.
3.   To give some suggestions based on the study for best investment opportunities.
4.   To study the amount of risk involved in the securities.

Research Methodology

The secondary data is used for the purpose of the study 5 companies are selected and the data for 3 months, day wise is collected. From the collected data, the average gain and average loss are computed to calculate Relative Strength Index which is one of the Indicator of Technical analysis to know the best investment opportunities in the market and preparation of Line charts showing the price & volume of the stocks over the period of time and interpreting them. The data is collected from various sources like,

⟩   Share prices of different NSE Sensex companies.

⟩   Magazines

Websites

⟩   Nseindia.com

⟩   Investopedia.com

The Indicators used for technical analysis are

Exponential moving average	Rate of change Indicator (ROC)
Moving average, convergence and Divergence (MACD)	Relative strength index (RSI)
On-Balance Volume	Aroon up and Down oscillators
Money Flow Index (MFI)	TRIX
Bollinger band width	William's percent rate (W%R)

Scope of the study

1. Technical analysis is widely used by forex, equity, and commodity traders, to determine the short term as well as the long term trends of the market.

2. The scope of technical analysis is increasing every day, as more and more people are trying to learn the skills of technical analysis to earn good returns.

Assumptions

1. Market action discounts everything
2. Prices move in trends
3. History tends to repeat itself

Need for the Study

Investment decisions are influenced by various motives. Some people invest in a business to acquire control and enjoy the prestige associated with it. Some people invest in expensive yachts and famous villas to display their wealth. Most investors however are largely guided by the pecuniary motive of earning a return on their investment.

Return is the primary motivating force that drives investment. It represents the reward for undertaking investment. Since the game of investing is about returns (after allowing for risk), measurement of realized (historical) returns is necessary to access how well the investment manager has done. In addition, historical returns are often used as an important input in estimating future (prospective) returns and to update the portfolio reviewed and adjusted from time to time in tune with market conditions to test the strategies before taking decisions.
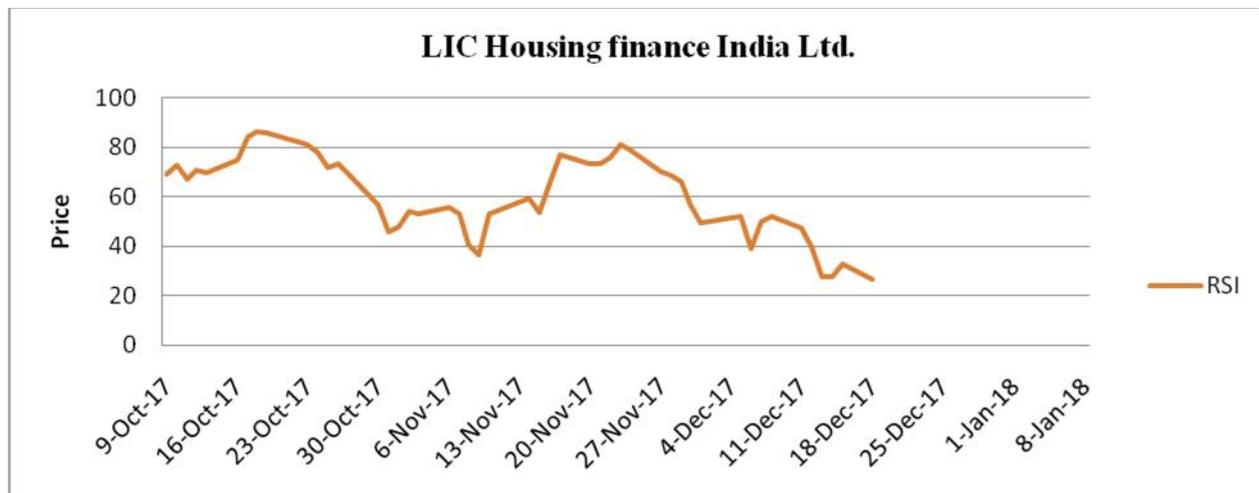
Data Analysis & Interpretation

Calculation of Relative strength Index of LIC Housing finance India Ltd.

Over bought situations

Date	Close Price	Returns	Gain	Loss	RS	RSI
24-Nov-17	598	1	1	0	4	79
23-Nov-17	603	6	6	0	4	81
22-Nov-17	599	-4	0	4	3	76
21-Nov-17	601	2	2	0	3	73
20-Nov-17	606	5	5	0	3	73
17-Nov-17	605	-1	0	1	3	77
26-Oct-17	615	2	2	0	3	74
25-Oct-17	618	3	3	0	3	72
24-Oct-17	634	15	15	0	4	78
23-Oct-17	651	17	17	0	4	81
19-Oct-17	663	12	12	0	6	86
18-Oct-17	669	6	6	0	6	86
17-Oct-17	670	1	0	0	5	84
16-Oct-17	660	-11	0	11	3	75
12-Oct-17	652	-1	0	1	2	71
10-Oct-17	662	24	24	0	3	73

Over sold situations

Date	Close Price	Returns	Gain	Loss	RS	RSI
18-Dec-17	559	-6	0	6	0	27
14-Dec-17	545	-11	0	11	0	28
13-Dec-17	544	-1	0	1	0	28

LIC Housing finance India Ltd.

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〕 In the above chart RSI is calculated for 14 days.

〕 The broad rule, if RSI crosses 70 there may be downturn & time to sell. If RSI falls below 30 it is time to buy the share.

〕 During October & November the RSI crosses 70 it is time to sell.

〕 During December the RSI crosses 30 so it is time to buy.

Calculation of Relative strength Index of LUPIN LIMITED.

Over bought situations

Date	Close Price	Returns	Gain	Loss	RS	RSI
6-Nov-17	1035	175	175	0	8	89
3-Nov-17	1048	13	13	0	9	90
2-Nov-17	1061	14	14	0	9	90
1-Nov-17	1028	-33	0	33	4	80
31-Oct-17	1028	0	0	0	5	83
30-Oct-17	1026	-2	0	2	5	83
27-Oct-17	1001	-25	0	25	3	77
26-Oct-17	993	-8	0	8	3	76
25-Oct-17	1003	10	10	0	3	76
24-Oct-17	1026	23	23	0	4	79
23-Oct-17	1038	12	12	0	4	80
19-Oct-17	1051	13	13	0	4	81
18-Oct-17	1049	-2	0	2	4	80
17-Oct-17	1066	17	17	0	4	80

Over sold situations

Date	Close Price	Returns	Gain	Loss	RS	RSI
18-Dec-17	867	0	0	0	0	19
15-Dec-17	860	-7	0	7	0	23
14-Dec-17	853	-8	0	8	0	29
13-Dec-17	845	-8	0	8	0	25
12-Dec-17	847	2	2	0	0	28
11-Dec-17	839	-8	0	8	0	16
8-Dec-17	823	-16	0	16	0	11
7-Dec-17	819	-4	0	4	0	11
6-Dec-17	809	-10	0	10	0	11
5-Dec-17	809	0	0	0	0	11
4-Dec-17	814	6	6	0	0	17
1-Dec-17	814	0	0	0	0	9
30-Nov-17	818	4	4	0	0	14

) In the above chart RSI is calculated for 14 days.

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) During October & November the RSI crosses 70 it is time to sell.
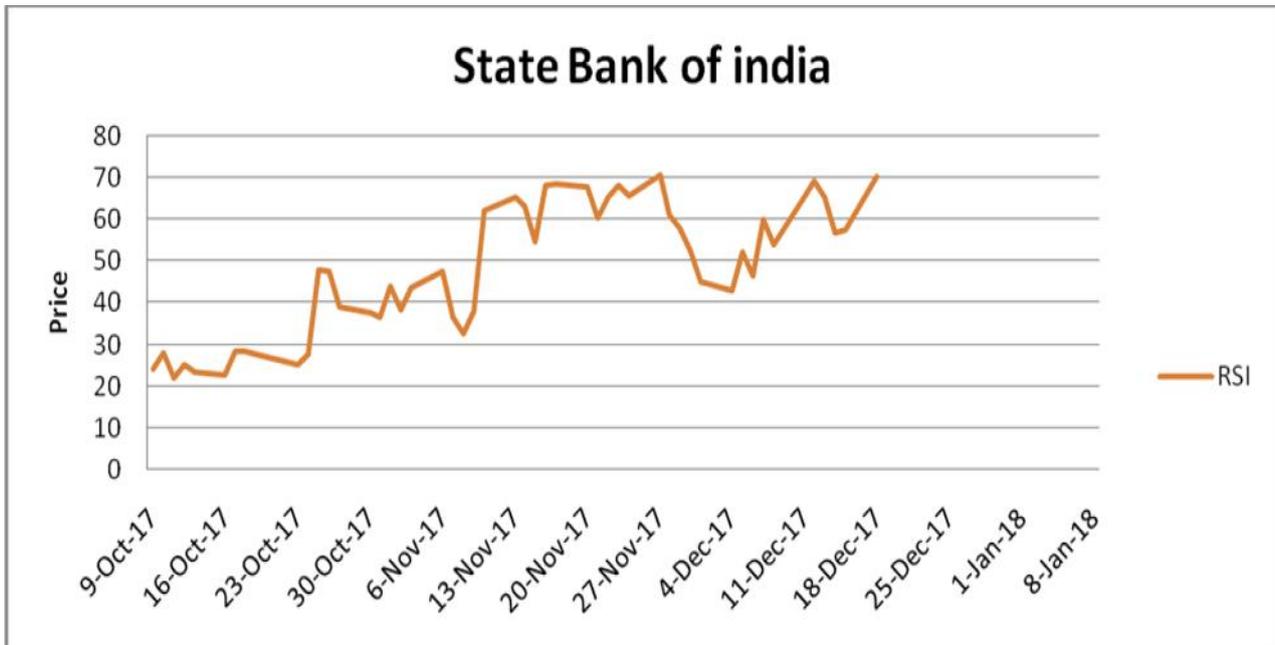
) During December the RSI crosses 30 so it is time to buy.

Calculation of Relative strength Index of STATE BANK OF INDIA.

Over bought situations

Date	Close Price	Returns	Gain	Loss	RS	RSI
18-Dec-17	318.9	-0.9	0	0.9	2	70
27-Nov-17	335.65	3.65	3.65	0	2	71

Over sold situations

Date	Close Price	Returns	Gain	Loss	RS	RSI
24-Oct-17	254.45	-70.45	0	70.45	0	28
23-Oct-17	245.95	-8.5	0	8.5	0	25
19-Oct-17	242.75	-3.2	0	3.2	0	28
18-Oct-17	243.75	1	0	0	0	29
17-Oct-17	251.15	7.4	7.4	0	0	29
16-Oct-17	252.05	0.9	0	-0.9	0	23
13-Oct-17	252.1	0.05	0	-0.05	0	24
12-Oct-17	251.2	-0.9	0	0.9	0	25
11-Oct-17	251.75	0.55	0	-0.55	0	22
10-Oct-17	256.95	5.2	5.2	0	0	28
9-Oct-17	256.85	-0.1	0	0.1	0	24

∫   In the above chart RSI is calculated for 14 days.

∫   The broad rule, if RSI crosses 70 there may be downturn & time to sell. If RSI falls below 30 it is time to buy the share.

∫   During November & December the RSI crosses 70 it is time to sell.

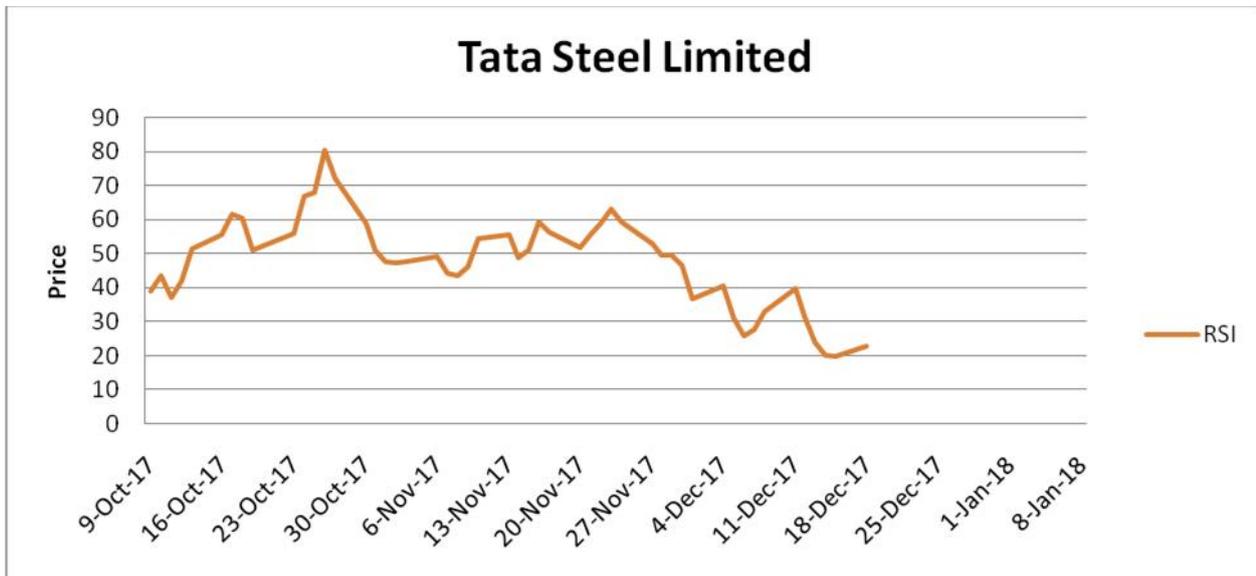∫   During October the RSI crosses 30 so it is time to buy.

Calculation of Relative strength Index of TATA STEEL LIMITED.

Over bought situations

Date	Close Price	Returns	Gain	Loss	RS	RSI
27-Oct-17	726.8	8.55	8.55	0	3	72
26-Oct-17	729.2	2.4	2.4	0	4	80

Over sold situations

Date	Close Price	Returns	Gain	Loss	RS	RSI
18-Dec-17	704.7	-5.5	0	5.5	0	23
15-Dec-17	694.7	-10	0	10	0	20
14-Dec-17	685.75	-8.95	0	8.95	0	20
13-Dec-17	680.85	-4.9	0	4.9	0	24
7-Dec-17	688	-9.8	0	9.8	0	28
6-Dec-17	667.6	-20.4	0	20.4	0	26

Tata Steel Limited

⟩ In the above chart RSI is calculated for 14 days.

⟩ The broad rule, if RSI crosses 70 there may be downturn & time to sell. If RSI falls below 30 it is time to buy the share.

⟩ During October the RSI crosses 70 it is time to sell.
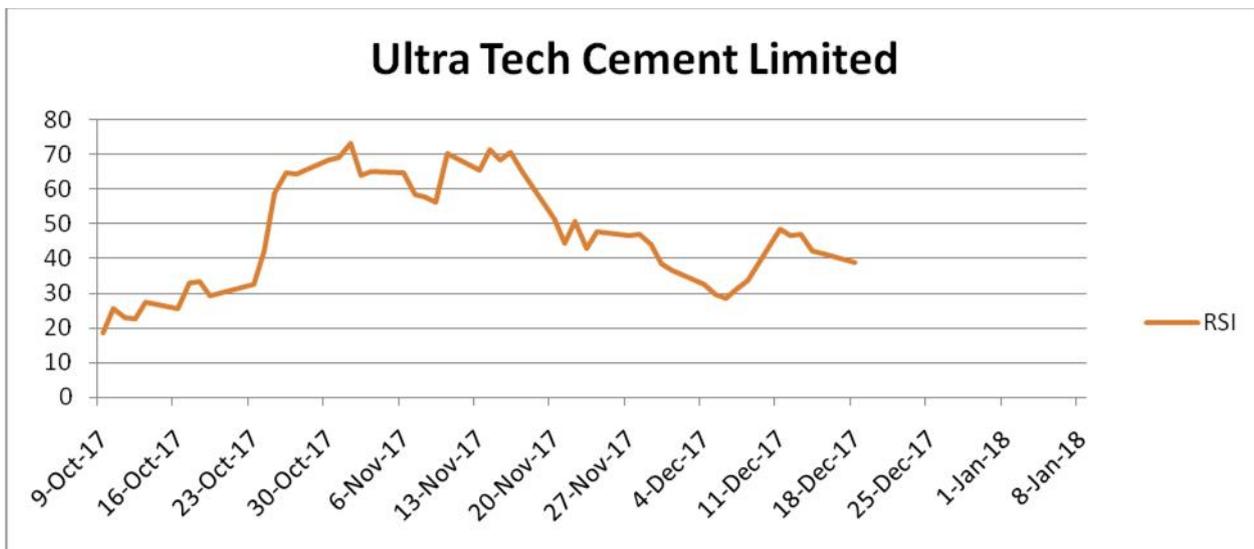
⟩ During November the RSI crosses 30 so it is time to buy.

Calculation of Relative strength Index of ULTRA TECH CEMENT LIMITED.

Over Bought situations

Date	Close Price	Returns	Gain	Loss	RS	RSI
16-Nov-17	4273	6	6	0	2	70
14-Nov-17	4361	55	55	0	2	71
10-Nov-17	4451	102	102	0	2	70
1-Nov-17	4426	27	27	0	3	73

Over sold situations

Date	Close Price	Returns	Gain	Loss	RS	RSI
6-Dec-17	4037.4	-44.45	0	44.45	0	29
19-Oct-17	4034.35	-170.7	0	170.7	0	29
16-Oct-17	4004.25	-85.15	0	85.15	0	26
13-Oct-17	4005	0.75	0	-0.75	0	27
12-Oct-17	3919.8	-85.2	0	85.2	0	23
11-Oct-17	3951.2	31.4	31.4	0	0	23
10-Oct-17	3970.8	19.6	19.6	0	0	26
9-Oct-17	3957.35	-13.45	0	13.45	0	19

⟩ In the above chart RSI is calculated for 14 days.

⟩ The broad rule, if RSI crosses 70 there may be downturn & time to sell. If RSI falls below 30 it is time to buy the share.

⟩ During November the RSI crosses 70 it is time to sell.

⟩ During October the RSI crosses 30 so it is time to buy.

Findings

The share prices of a company are very sensitive and may change very rapidly (upward or downward), but we follow a systematic study, it is possible to predict the share prices to a certain extent. The stocks move according to some patterns, we can predict the stock prices by identifying such patterns.

⟩ Relative strength index shows a buy signal for the LIC Housing Finance Limited in the month of December as it has crossed 30 and shows a sell signal during October and November.

⟩ The RSI graph indicates it is the right time to purchase the scripts of Lupin Limited in the month of December as it has crossed 30 points and shows a sell signal during October and November.

⟩ Relative strength index shows a buy signal for the State Bank of India in the month of October as it has crossed 30 and shows a sell signal during November and December.

⟩ The RSI graph indicates it is the right time to purchase the scripts of Tata Steel Limited in the month of December as it has crossed 30 points and shows a sell signal during October.

⟩ Relative strength index shows a buy signal for the Ultra Tech Cement Limited in the month of October as it has crossed 30 and shows a sell signal during November.

Suggestions

⟩ The RSI of LIC Housing Finance Limited lies between 80 & 50 which may increase to some extent in future so I recommend investors to hold for some more period and sell the shares.

⟩ The RSI of Lupin Limited lies between 90 to 30 which may decline drastically in future so better to sell the shares.

⟩ The RSI of State Bank of India lies between 70 to 30 which may decline drastically in future so better to sell the shares.

〕 The RSI of Tata Steel Limited lies between 70 to 30 which may decline drastically in future so better to sell the shares.

〕 The RSI of Ultra Tech Cement Limited lies between 70 to 30 which may decline drastically in future so better to sell the shares.

〕 The overbought situation of Lupin Limited is much higher than the other stocks in the study i.e. 90 where the investor can sell his shares to earn higher profits.

Limitations

〕 The sample study is restricted to 5 companies.

〕 Technical analysis is a vast area to cover, but only one indicator is taken for analyzing different scrip price, because of time constraint.

〕 Expand or contract of the size of the portfolio reflect the changes in investor risk disposition.

Conclusions

〕 Remember that stocks are never too high for you to begin buying or too low to begin selling. But after the initial transaction don't make a second unless the first shows you a profit.

〕 There is only one side to the stock market and it is not the bull side or the bear side but the right side.

〕 Always sell what shows you a loss and keep what shows you profit.

〕 It is very helpful in determining the trend of the stock price.

Bibliography

The data was collected from the list of books and websites given below:

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