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TECHNICAL PRICE PREDICTION AND ACHIEVEMENT OF PRICE OBJECTIVE- A CASE STUDY OF FALLING WEDGE PATTERN

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ABSTRACT

Falling wedge is one of the traditional patterns in technical prediction tool-kit claimed to be potent to foretell security prices. Price objective of this pattern is the 'extent of price rise' that is traditionally expected to follow immediately after price breaks out upper boundary. This paper examines whether the pattern achieves traditional price objective so as to consider it as a predictive tool for superior return. The study finds that all the patterns are not equally reliable to act upon as all of them do not achieve the whole price objective even on the third reversal day post signal and hence lack predictive value.

KEYWORDS: *Technical Analysis, Stock Market, Stock Chart, Pattern, Falling Wedge, Price Objective Achievement, Predictive Tool, Superior Return*

INTRODUCTION

The practice of technical pattern for security price prediction prevails as is evident from diverse media reports. On the other side, the research findings hold its validity as *time specific*, *tool specific* and *market specific*.[1] Falling Wedge (FW) is a pattern or configuration in stock chart that is considered to be potent tool in probing prices. According to the traditional view, once such a pattern configures in a stock chart, it forecasts certain price objective- the immediate post-pattern upward price behaviour. So when price, after completion of the pattern, breaks out its upper boundary, it triggers a 'signal to buy. This paper examines the reliability of this pattern as a predictive tool. The study assumes importance as a lot of resource can be saved if found futile in the prediction process or lacks continuous validity.

Problem

Though falling wedge as a pattern in stock chart still continue to consume pages of media and widely reported, used and commented upon, it is not a tool tested for its validity in Indian stock market. The problem is the practice of reporting this pattern as predictive without assuring its success rate.

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OBJECTIVES OF THE STUDY

The study aims at establishing the traditional predictive capacity of falling wedge patterns in the stock chart of Indian companies. For this, the following objectives are set:

- To assess the success rate of identified FW.

- To ascertain the trend wise difference in performance of FW

- To ascertain the waiting period for the achievement of price objective by FW

HYPOTHESIS

"Falling wedges achieve their traditional price objective."

METHODOLOGY

The study analyses the historical data of selected shares listed on the BSE for a period of fourteen years beginning with 1st January 1990.

Sample Design

A total 3440 companies screened for (1) regularity of trading, (2) activity in trading and (3) reasonable fluctuations to reduce the number to 50 stocks. Out of this ten companies selected at random which were:*(1) Associated Cement Companies Limited, (2) Bajaj Automobiles Limited, (3) Century Textiles and Industries Limited, (4) Escorts India Limited, (5) Great Eastern Shipping Company Limited, (6) Glaxo India Limited, (7) Grasim Industries limited, (8) Hindustan Liver Limited, (9) Indian Tobacco Company Limited and (10) VIP industries Limited.*

Signals from Falling Wedge Pattern

The breakout of upper boundary forecasts a further rise in price and thus gives a buy signal.

Successful Patterns

A pattern is taken to be successful if it achieves its traditional price objective in full (100 %). In this study, the price objective is measured from breakout as shown in the chart.
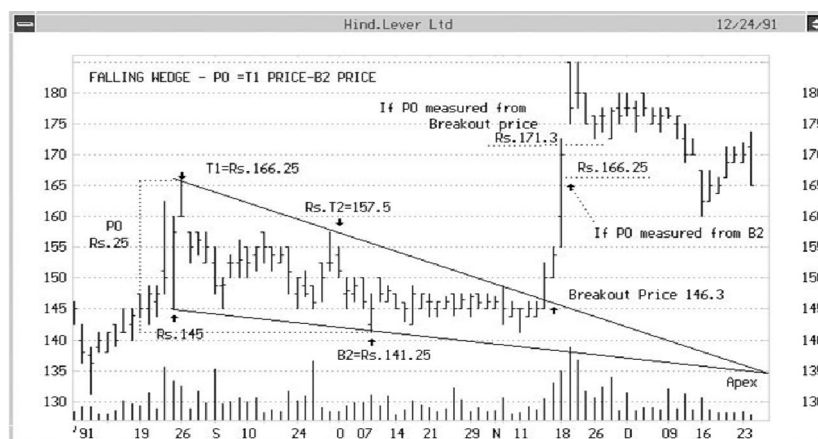

Figure 1

Performance of FW

It is measured by the average percentage of price objective achieved up to three consecutive reversal days.

Trend wise success and Performance of ST

Trend wise superiority of FW in achievement is examined by finding difference in the success rate and performance trend wise -uptrend and down trend

Definitions used in the Study

Price Objective (P O) of a Falling Wedge

The traditional holding about a falling wedge pattern is that if the price breaks upper boundary, then the price should rise at least to the extent of the vertical distance (difference in prices) from first Top and Second Bottom. So the amount equal to the Jaw length (the vertical distance from the first top (T1) or First *Bottom* (B1) to the opposite boundary of a FW) is the traditional price objective of this pattern. The validity of traditional view of predictability of a falling wedge pattern is revealed by the extent of achievement of its price objective (P.O.).It is measured from the breakout point.

Reversal day- It means the day on which price moves in the direction opposite to what is signalled by breakout. The achievement of P O for three consecutive reversal days were examined, though first is expected.

RESULT OF ANALYSIS AND FINDINGS
The Study could find out the Following

Recurring Nature of Falling Wedge Pattern

The study identified 238 falling wedge patterns as have been occurred in the stock charts of 10 companies analyzed during the period of 14 years since 1990 and confirms the repeating history of this pattern.

How Successful Falling Wedges in Price Prediction

The Table 1 shows that only 23.49 % of the FW could achieve their PO in full (100 %) on the first reversal day. This was 35.29 % and 40.76 % for the second and the third reversal days respectively. Successively higher proportion of FW achieving their P O on the first, second and third reversal days means that longer holding period (waiting) results in more number of successful FW as measured by the achievement of their P O in full.[2]

This, being the observed sample values which is less than the target, the next option is to test the result for ascertaining whether the theoretical proportion of 'successful FW' can ever be hundred percent. In other words, whether there is any probability for all the FW to achieve their traditional P O. If this probability is greater than fifty percent that means FW are more probable to succeed than to fail in signalling a buy. The statistical test of significance for proportion of success [S.E. = Sqrt(pq/n] has been done to ascertain the theoretical limits (based on the observed sample values) with which the FW achieve various levels of price objective. According to the Table 2, the best expectation possible is, even if waited till the third reversal day, only 46.99 % (less than half) of the FW are found successful in the traditional view. It means that more than half the number of FW fail in their traditional predictability, even if waited till third reversal day. ***Hence the hypothesis that "Falling wedges achieve their traditional price objective" is rejected.***

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[2]*Signals resulting in smaller achievement of price objective will further make the deal unprofitable due to commission and other transaction coFW and achievement with longer holding period would make the deal less profitable owing to interest factor*

Table 1 Achievement-Wise Distribution of Falling Wedges According to Predictability

Percentage of P O Achieved	Reversal Days					
	First		Second		Third	
	No	%	No	%	No	%
100 or More	62	26.05	84	35.29	97	40.76
75-100	33	13.87	34	14.29	31	13.03
50-75	45	18.91	37	15.55	32	13.45
25-50	75	31.51	56	23.33	43	18.07
Less than 25	23	9.66	27	11.34	35	14.71
Total	**238**	**100.00**	**238**	**100.00**	**238**	**100.00**

Table 2: The Standard Error and 95 % Fiducial Limit Range Values of Various Proportions of FWs Achieving Different Levels of Price Objective

P.O. Achievement	First Reversal Day			Second Reversal Day			Third Reversal Day		
	S.E	Range of proportions		S.E	Range of Proportions		S.E	Range of Proportions	
		P-1.96 S.E.	P+1.96 S.E.		P-1.96 S.E.	P+1.96 S.E.		P-1.96 S.E.	P+1.96 S.E.
>=100 %	2.845	20.474	31.627	3.098	29.223	41.366	3.185	34.513	46.999
75-100 %	2.240	9.475	18.256	2.268	9.840	18.731	2.182	8.749	17.301
50-75 %	2.538	13.933	23.882	2.349	10.943	20.150	2.211	9.111	17.779
25-50 %	3.011	25.610	37.415	2.750	18.140	28.919	2.494	13.179	22.955
<25 %	1.915	5.910	13.418	2.056	7.315	15.374	2.296	10.206	19.205

Trend-Wise Probability of Falling Wedges to Repeat

Tables 3 show that there is trend wise-difference in the occurrence of FWs.

Table 3: Test of Significance for Difference Between Trend Wise Proportions of Falling Wedges

In Down Trend	In Up trend	Total
85	153	238
Standard Error	Difference between Proportions	Difference / S.E.
0.0311	0.29	9.1990

Trend-Wise Performance of Falling Wedges in Achieving PO

Tables 4-6 show that there is significant difference between the probabilities of successful FW in uptrend and down trend. But difference is mixed in the different classes of achievement on all the reversal days. The best (100 %) and worst (25 % or less) achievements differ significantly on second and third reversal days. That is extreme performance is influenced by trend. Table 6 shows that more than half of the falling wedges that occurred during uptrend could achieve their price objective in full, though on third reversal day.

Table 4 Trend-Wise and Achievement of P O by Falling Wedges on First Reversal Day

% of P O Achieved	Down Trend		Up Trend		S.E	Difference/S.E
	Number of FWs	% of Total	Number of FWs	% of Total		
100 % or More	12	14.12	50	32.68	0.05938	3.12621
75-100	12	14.12	21	13.73	0.04675	0.08388
50-75	16	18.82	29	18.95	0.05297	0.02468
25-50	33	38.82	42	27.45	0.06285	1.80958
Less than 25	12	14.12	11	7.19	0.03997	1.73330
Total	**85**	**100**	**153**	**100**		

Table 5: Trend-Wise Achievement of P O by Falling Wedges on Second Reversal Day

% of P O Achieved	Down Trend		Up Trend		S.E	Difference/S.E
	Number of FWs	% of Total	Number of FWs	% of Total		
100 % or More	18	21.18	66	43.14	0.06465	3.39697
75-100	12	14.12	22	14.38	0.04734	0.05523
50-75	16	18.82	21	13.73	0.04902	1.04003
25-50	23	27.06	33	21.57	0.05738	0.95676
Less than 25	16	18.82	11	7.19	0.04290	2.71175
Total	**85**	**100**	**153**	**100**		

Table 6: Trend-Wise Achievement of P O by Falling Wedges on Third Reversal Day

% of P O Achieved	Down Trend		Up Trend		S.E	Difference/S.E
	Number of FWs	% of Total	Number of FWs	% of Total		
100 % or More	20	23.53	77	50.33	0.06647	4.03126
75-100	12	14.12	19	12.42	0.04553	0.37322
50-75	14	16.47	18	11.76	0.04615	1.01971
25-50	19	22.35	24	15.69	0.05205	1.28086
Less than 25	20	23.53	15	9.80	0.04791	2.86477
Total	**85**	**100**	**153**	**100**		

CONCLUSIONS

Falling wedge patterns are no longer a tool to predict prices and act upon even if waited till third reversal day. So, any one depending on its predictive power is cautioned of limited success.

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