Available online www.jocpr.com

Journal of Chemical and Pharmaceutical Research, 2014, 6(6):1540-1548

Research Article

ISSN : 0975-7384
CODEN(USA) : JCPRC5

Investment model research based on inertia law

Pin Wang[1] and Jianjun Xu[2*]

[1]*Mathematics and Computer Science Department, Guangxi College of Education, Nanning, China*
[2]*Department of Electrical Information Engineering, Northeast Petroleum University, Daqing, China*

ABSTRACT

In this paper, Statistical experiment method is used to analyze all A-share historical data of SZSE (Shenzhen Stock Exchange) and SSE (Shanghai Stock Exchange) in the past 15 years via China mainland general securities information and trade platform. By regression analysis, win rate, annual return rate, net profit rate and maximum times of annual trades are chosen managerial targets to prove the inertia law which is prevalent in securities market. It is concluded that inertia law is erroneous and unable to guide investment.

Keywords: Inertia Law; Statistical Experiment; Historical Data; Regression Analysis.

INTRODUCTION

There is an investment method called “buy rising stocks and sell declining ones”, or called “inertia law”, which is prevalent in China stock market. However, as China stock market cannot be the “barometer”[1] of China economy, returns obtained from stock market has no relation with listed company performance, “In china stock market, small-cap stock featuring bad financial situation and low expected performance has the highest market return, while large-cap stock [2] with best business performance has the lowest market return”. “Market index features unpredictability in the short term, while it has significant predictability in the medium and long term, and it has the increasingly rising tendency with the increase of q, this conclusion supports the conclusion that China stock market is valid in the short term, while invalid in the medium and long term, which also conforms to the research results of most scholars [3-6]”. In the principle of tending benefit and avoiding harm [7], average investors (generally referred to as retail investors) are usually guided by technical indicators to make investment through technical analysis method[8-13]. Limit-up or sharply rising stocks undoubtedly have strong appeals to investors, as a result of it, some investors prefer chasing after the rising tendency. “Buy rising stocks and sell declining ones” is the way to shrink holding time by giving up price space. However, risk amplification is usually accompanied with giving up price space. Based on SZSE and SSE historical data in the past 15 years, we adopts LDA-SPSS method [14-18] to analyze inertia law via Dazhihui V5.99.

EXPERIMENTAL SECTION

1. Empirical analysis of inertia law

1.1Experiment Results

(1) Experimental platform: Dazhihui Securities Information Platform V5.99.
(2) Experimental Design: Daily rise is the trade technical indicator, step length is 0.5 and daily rise interval is [0, 9.5]. All funds are used to open one-time position, if any buy condition is met. The first daily k shade line since buying stock is the sell condition, close position if any sell condition is met.
(3) Experimental procedure: (CLOSE-REF(CLOSE,1))/REF(CLOSE,1)*100;
CLOSE＜OPEN;
(4) Experimental parameter: All funds are used to open one-time position, close position if any sell condition is met,

and trade cost is 0.5%,
(5) Experimental sample: All of SZSE and SSE A shares (1996.3-2012.9)
(6) Experimental process and result: see table below
Illustrating SZSE and SSE market test from Mar.1st 19996 to June 30th 2001, we get the test result via Dazhihui Securities Information Platform V5.99 Test System:

System Test Setup
Test Method: Technical Indicator Daily Rise
Test Time: 1996-3-1 — 2001-6-30 excluding forced liquidation
Tested Stocks: 912 stocks in total Initial Investment: RMB10,000.00 yuan
Buy Condition:
If either condition below is satisfied:
1. If all conditions below are satisfied simultaneously
1.1 Technical indicator: The 1st indicator line of daily rise ranging between 0 and 0.5[Daily line]
If condition is met : In meddle price: use all funds to buy at the closing price
If consecutive signal is found: stop buying
Sell condition: No sell condition
Close position condition: (subject to the closing price)
Stock selection:Technical indicator: When the 1st indicator line of daily shade line equals 1.00[Daily line]

System Test Report
Tested Stocks: 912
Net Profit: RMB 12,428,900.00 yuan Net Profit Rate: 136.28%
Total Earnings: RMB 14,401,236.00 yuan Total Losses: RMB -1,952,341.88 yuan
Number of Trades: 30950 Win Rate: 61.80%
Number of Annual Average Trades: 5,895.24 Earnings/Losses Number of Trades: 19126/11824
Total Trade Volumes: RMB 696,601,280.00 yuan Trade Cost: RMB 430,797.31 yuan
Max. Single Earnings: RMB 30,655.96 yuan Max.Single Losses: RMB -6,721.14 yuan
Average Earnings: RMB 465.31 yuan Average Losses: RMB -63.08 yuan
Average Profits: RMB 401.58 yuan Average Profits/Average Losses: -737.64
Max. Number of Consecutive Earnings: 20 Max. Number of Consecutive Losses: 14
Average Cycles of Trade: 1.93
Average Cycles of Earning Trade: 2.37 Average Cycles of Loss Trade: 1.23
Earning Coefficient: 0.76
Max.Floating Earnings: RMB 21,538,878.00 yuan Max.Floating Losses: RMB 0.00 yuan
Max.Floating Earning-loss Difference: RMB 21,538,878.00 yuan
Total Investment: RMB 9,120,000.00 yuan
----------Buy Signal Statistics----------
(Include all buy signals and exclude any possibility of signal deletion caused by funds and strategies during trade test)
Success Ratio: 61.79%
Number of Signals: 31071 Number of Annual Average Signals: 5,918.29

1996.03.01-2001.06.30 SSE Test Data

Time Frame	Market Rise	Rise	Win Rate	Annual Return	Net Profit Rate	Number of Annual Trades
1996.3~2001.6	298.64	0 ~ 0.5	61.80	62.12	137.12	6113.71
1996.3~2001.6	298.64	0.5 ~ 1	62.54	29.23	153.44	6079.05
1996.3~2001.6	298.64	1~ 1.5	63.07	22.18	116.45	5127.81
1996.3~2001.6	298.64	1.5 ~ 2	62.97	15.65	82.16	4130.86
1996.3~2001.6	298.64	2 ~ 2.5	64.57	11.69	61.37	3279.05
1996.3~2001.6	298.64	2.5 ~ 3	65.22	8.76	46.01	2597.33
1996.3~2001.6	298.64	3 ~ 3.5	68.07	7.15	37.56	2024.38
1996.3~2001.6	298.64	3.5 ~ 4	69.32	5.54	29.10	1579.81
1996.3~2001.6	298.64	4 ~ 4.5	70.70	4.21	22.11	1231.48
1996.3~2001.6	298.64	4.5 ~ 5	73.99	4.47	23.46	1012.00
1996.3~2001.6	298.64	5 ~ 5.5	75.37	3.37	17.68	802.67
1996.3~2001.6	298.64	5.5 ~ 6	74.87	2.19	11.48	595.81
1996.3~2001.6	298.64	6 ~ 6.5	75.23	1.74	9.13	498.29
1996.3~2001.6	298.64	6.5 ~ 7	75.39	1.58	8.32	411.05
1996.3~2001.6	298.64	7 ~ 7.5	76.66	1.20	6.30	315.81
1996.3~2001.6	298.64	7.5 ~ 8	76.05	0.91	4.77	253.71
1996.3~2001.6	298.64	8 ~ 8.5	77.32	0.82	4.47	213.33
1996.3~2001.6	298.64	8.5 ~ 9	76.99	0.62	3.26	155.62
1996.3~2001.6	298.64	9 ~ 9.5	76.44	0.55	2.88	135.81

1.2Value Analysis
We adopt LDA-SPSS method to make regression analysis of the said SZSE and SSE test data via SPSS:

1996.03—2001.06 SSE Win Rate Analysis

Model Summary and Parameter Estimates
Dependent Variable: VAR00004

Equation	Model Summary					Parameter Estimates			
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Cubic	.978	219.654	3	15	.000	61.159	.137	.167	-.007

The independent variable is VAR00001.

According to the above table: the coefficient of determination R=0.978, test value F=219.654, and significance value sig=0.000. Fitting function $y = 61.159 + 0.137x + 0.167x^2 - 0.007x^3$, for the fitting function of win rate analysis, $y' = 0.137 + 0.334x - 0.021x^2$, set: $0.137 + 0.334x - 0.021x^2 = 0$, stagnation point can be obtained as $x_1 = 16.3049$, $x_2 = -0.4001$. As shown in Fig.1, the maximum value $x = 16.3049$ [19], we know that x >0, and $x = -1.65$ is rejected. See function chart in Fig.1.

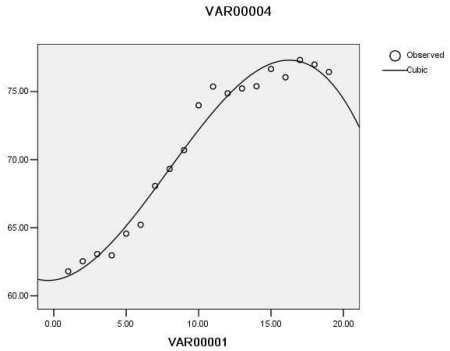
1996.03—2001.06 SSE Annual Return Analysis

Model Summary and Parameter Estimates
Dependent Variable: VAR00005

Equation	Model Summary					Parameter Estimates	
	R Square	F	df1	df2	Sig.	Constant	b1
Inverse	.995	3756.013	1	17	.000	-2.568	65.611

The independent variable is VAR00001.

According to the above table: the coefficient of determination R=0.995, test value F=3756.013, and significance value sig=0.000. Fitting function $y = -2.568 + \frac{65.611}{x}$, for the fitting function of annual return analysis, $y' = -\frac{65.611}{x^2} < 0$, so this function is decreasing function. See function chart in Fig.2.



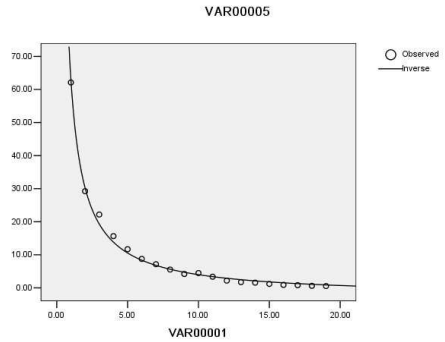


Fig.1. 1996.3-2001.6 SSE Win Rate Analysis Fig.2. 1996.3-2001.6 SSE Annual Return Analysis

1996.03—2001.06 SSE Net Profit Analysis

Model Summary and Parameter Estimates
Dependent Variable: VAR00004

Equation	Model Summary					Parameter Estimates			
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Cubic	.969	157.154	3	15	.000	188.401	-33.509	2.093	-.044

The independent variable is VAR00001.

According to the above table: the coefficient of determination R=0.969, test value F=157.154, and significance value sig=0.000. Fitting function $y = 188.401 - 33.509x + 2.093x^2 - 0.044x^3$, for the fitting function of net profit rate,

$y' = -33.509 + 4.186x - 0.132x^2$, set: $-33.509 + 4.186x - 0.132x^2 = 0$, as the equation discriminant is $\sqrt{b^2 - 4ac}$ □ $41.25i$, there is no real number stagnation point. As shown in Fig.3 and the meaning of actual problem, fitting function of net profit rate analysis has no extreme point within the interval of independent variable. See function chart in Fig.3.

1996.03—2001.06 SSE Annual Trades Analysis

Model Summary and Parameter Estimates
Dependent Variable: VAR00004

Equation	Model Summary					Parameter Estimates	
	R Square	F	df1	df2	Sig.	Constant	b1
Exponential	.997	6612.061	1	17	.000	9458.372	-.225

The independent variable is VAR00001.

According to the above table: the coefficient of determination R=0.997, test value F=6612.061, significance value sig=0.000. Fitting function can be expressed as $y = 9458.372e^{-0.225x}$, for the fitting function of annual trades analysis, $y' = -2128.1337e^{-0.225x}$, whatever real number is assigned to x, it is invariably that $y' = -2128.1337e^{-0.225x} < 0$, so this function is decreasing function. See function chart in Fig.4.

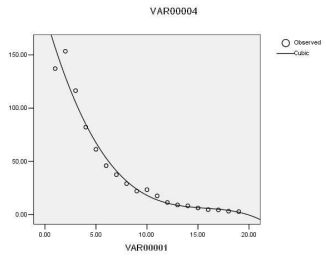


Fig.3. 1996.3-2001.6 SSE Net Profit Analysis

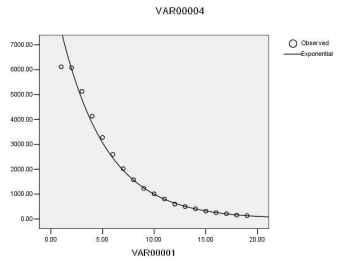


Fig.4 1996.3-2001.6 SSE Annual Trades Analysis

2007.10.1 to 2008.12.30 SZSE Test Data

Time Frame	SZSE Composite Index Rise	Rise	Win Rate	Annual Return Rate%	Net Profit Rate%	Number of Annual Trade
2007.10~2008.12	-63.90	0 ~ 0.5	67.05	13.74	16.03	6846
2007.10~2008.12	-63.90	0.5 ~ 1	68.52	16.11	18.79	7323.43
2007.10~2008.12	-63.90	1~ 1.5	69.64	16.33	19.06	7366.29
2007.10~2008.12	-63.90	1.5 ~ 2	69.44	15.12	17.63	6833.14
2007.10~2008.12	-63.90	2 ~ 2.5	70.00	13.67	15.94	6094.29
2007.10~2008.12	-63.90	2.5 ~ 3	70.09	13.14	15.34	5505.43
2007.10~2008.12	-63.90	3 ~ 3.5	71.00	11.10	12.95	4722.86
2007.10~2008.12	-63.90	3.5 ~ 4	71.27	10.53	12.28	3986.57
2007.10~2008.12	-63.90	4 ~ 4.5	72.30	8.14	9.49	3249.43
2007.10~2008.12	-63.90	4.5 ~ 5	72.71	8.02	9.35	2811.43
2007.10~2008.12	-63.90	5 ~ 5.5	71.41	5.99	6.99	2263.71
2007.10~2008.12	-63.90	5.5 ~ 6	71.85	4.53	5.29	1812.00
2007.10~2008.12	-63.90	6 ~ 6.5	72.89	3.99	4.65	1419.43
2007.10~2008.12	-63.90	6.5 ~ 7	67.91	3.37	3.94	1266.00
2007.10~2008.12	-63.90	7 ~ 7.5	67.88	2.90	3.39	1032.86
2007.10~2008.12	-63.90	7.5 ~ 8	66.17	2.24	2.61	808.29
2007.10~2008.12	-63.90	8 ~ 8.5	66.91	1.56	1.81	714.86
2007.10~2008.12	-63.90	8.5 ~ 9	67.92	1.50	1.75	638.57
2007.10~2008.12	-63.90	9 ~ 9.5	70.96	2.01	2.35	711.43

2007.10—2008.12SZSE Win Rate Analysis

Model Summary and Parameter Estimates
Dependent Variable: VAR00004

Equation	Model Summary					Parameter Estimates			
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	.011	.183	1	17	.674	70.166	-.038		
Logarithmic	.016	.283	1	17	.602	69.103	.329		
Inverse	.095	1.775	1	17	.200	70.310	-2.810		
Quadratic	.384	4.981	2	16	.021	66.928	.887	-.046	
Cubic	.507	5.152	3	15	.012	64.341	2.266	-.214	.006
Compound	.012	.201	1	17	.660	70.157	.999		
Power	.015	.265	1	17	.613	69.097	.005		
S	.094	1.758	1	17	.202	4.253	-.040		
Growth	.012	.201	1	17	.660	4.251	-.001		
Exponential	.012	.201	1	17	.660	70.157	-.001		
Logistic	.012	.201	1	17	.660	.014	1.001		

The independent variable is VAR00001.

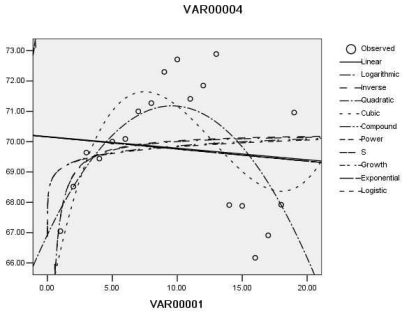


Fig.5. 2007.10-2008.12SZSE Win Rate Analysis

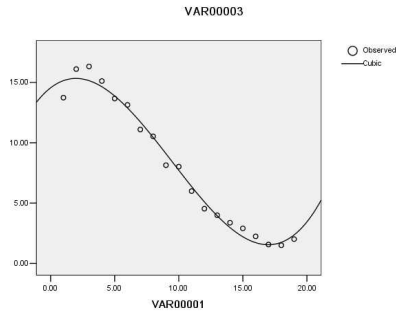


Fig.6. 2007.10-2008.12 SZSE Annual Return Analysis

According to the above table and Fig.5: each determination coefficient of all fitting functions R＜0.6, each significance value sig＞0.01, so there is no fitting function of win rate analysis.

2007.10—2008.12 SZSE Annual Return Analysis

Model Summary and Parameter Estimates
Dependent Variable: VAR00003

Equation	Model Summary					Parameter Estimates			
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Cubic	.986	354.692	3	15	.000	14.557	.819	-.232	.008

The independent variable is VAR00001.

According to the above table: determination coefficient R=0.986, F test value= 354.692, significance value sig=0.000. Fitting function analysis of Annual return rate can be expressed as $y=14.557+0.819x-0.232x^2+0.008x^3$, while $y'=0.819-0.464x+0.024x^2$, set: $0.819-0.464x+0.024x^2=0$, stagnation point is obtained as $x_1=1.965$, $x_2=17.369$. As shown in Fig.6:x1 is the maximum point, while x2 is the minimum point.

2007.10—2008.12SZSE Net Profit Analysis

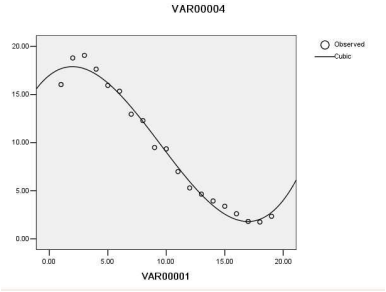
Model Summary and Parameter Estimates
Dependent Variable: VAR00004

Equation	Model Summary					Parameter Estimates			
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Cubic	.986	353.728	3	15	.000	16.983	.955	-.270	.010

The independent variable is VAR00001.

According to the above table: determination coefficient R=0.986, test value F=353.728, and significance value sig=0.000.Fitting function of net profit rate analysis can be expressed as $y=16.983+0.955x-0.270x^2+0.010x^3$, while $y'=0.955-0.540x+0.030x^2$, set: $0.955-0.540x+0.030x^2=0$, stagnation point can be obtained as $x_1=1.988$, $x_2=16.012$. As

shown in Fig.7:x1 is the maximum point, while x2 is the minimum point.



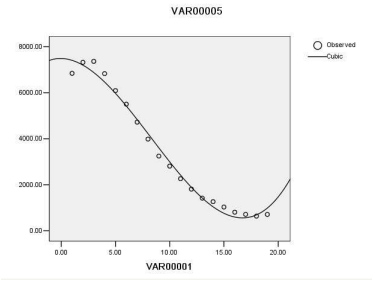


Fig.7. 2007.10—2008.12 SZSE Net Profit Analysis **Fig.8. 2007.10-2008.12 SZSE Annual Trades Analysis**

2007.10—2008.12 SZSE Annual Trades Analysis

Model Summary and Parameter Estimates
Dependent Variable: VAR00005

Equation	Model Summary					Parameter Estimates			
	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Cubic	.989	456.030	3	15	.000	7489.238	-9.630	-73.341	2.939

The independent variable is VAR00001.

According to the above table: determination coefficient R=0.989, test value F=456.03, and significance value sig=0.000. Fitting function of annual trades analysis can be expressed as $y = 7489.238 - 9.630x - 73.341x^2 + 2.939x^3$, while $y' = -9.630 - 145.682x + 8.817x^2$, set: $-9.630 - 145.682x + 8.817x^2 = 0$, and therefore stagnation point can be obtained as $x_1 = -0.06$, $x_2 = 16.70$. As shown in Fig.8: x1 is the maximum point, while x2 is the minimum point.

According to the said methods, all results are obtained and listed as follows. Wherein, functions are ordered in sequence of win rate analysis, annual return analysis, net profit analysis, number of trade analysis:

	SZSE		SSE	
Time Frame	Function	Extreme Point	Function	Extreme Point
1996.03 ~ 2001.06	$y = 61.764 + 0.542x$ $+0.147x^2 - 0.007x^3$ $y = 25.639 \cdot e^{-0.214x}$ $y = 134.635 \cdot e^{-0.214x}$ $y = 8508.178 \cdot e^{-0.217x}$	Maximum value=15.65 Decreasing function, no extreme point decreasing function, no extreme point decreasing function, no extreme point	$y = 61.159 + 0.137x$ $+0.167x^2 - 0.007x^3$ $y = -2.568 + \frac{65.611}{x}$ $y = 188.401 - 33.509x$ $+2.093x^2 - 0.044x^3$ $y = 9458.372e^{-0.225x}$	Maximum value=16.30 Decreasing function, no extreme point Within the meaningful interval, decreasing function, no extreme point Decreasing function, no extreme point
2001.07 ~ 2005.06	$y = 47.904 + 2.192x$ $-0.052x^2$ $y = 12.871 \cdot e^{-0.194x}$ $y = 50.476 \cdot e^{-0.194x}$ $y = 12658.221 \cdot e^{-0.250x}$	Within the meaningful interval, increasing function, no extreme point Decreasing function, no extreme point decreasing function, no extreme point Decreasing function, no extreme point	$y = 45.673 + 2.641x$ $-0.082x^2$ $y = 27.901e^{-0.209x}$ $y = 109.440e^{-0.209x}$ $y = 16023.716 - 2815.528x$ $+167.899x^2 - 3.345x^3$	Maximum value=16.10 Decreasing function, no extreme point Decreasing function, no extreme point Within the meaningful interval, decreasing function, no extreme point
2005.07 ~ 2007.09	$y = 62.899 + 1.517x$ $-0.027x^2$ $y = 20.561 + 0.358x$ $-0.216x^2 + 0.008x^3$ $y = 44.546 + 0.778x$ $-0.469x^2 + 0.017x^3$ $y = 10747.593 \cdot e^{-0.175x}$	Within the meaningful interval, increasing function, no extreme point Maximum value=0.87, minimum value=17.13 Maximum value=0.87, minimum value=17.52 Decreasing function, no extreme point	$y = 60.331 + 2.331x$ $-0.112x^2 + 0.002x^3$ $y = 78.463e^{-0.154x}$ $y = 170.022e^{-0.154x}$ $y = 11991.809 - 829.864x$ $-25.682x^2 + 2.049x^3$	Within the meaningful interval, increasing function, no extreme point Decreasing function, no extreme point Decreasing function, no extreme point Minimum value=16.54
2007.10 ~ 2008.12	Fitting function does not exist $y = 14.557 + 0.819x$ $-0.232x^2 + 0.008x^3$ $y = 16.983 + 0.955x$ $-0.270x^2 + 0.010x^3$ $y = 7489.238 - 9.630x$ $-73.341x^2 + 2.939x^3$	No extreme point Maximum value=1.97, minimum value=17.36 Maximum value=1.99, minimum value=16.01 Minimum value=16.70	Fitting function does not exist $y = 29.219 + 1.399x$ $-0.445x^2 + 0.016x^3$ $y = 34.092 + 1.632x$ $-0.519x^2 + 0.019x^3$	No extreme point maximum value=1.73, minimum value=16.81 Maximum value=1.74, minimum value=16.47 Minimum value=16.57

			$y=8973.192-22.099x$ $-87.511x^2+3.548x^3$	
2009.01 ～ 2010.12	Fitting function does not exist $y=54.338e^{-0.226x}$ $y=63.807-5.417x$ $-0.035x^2+0.008x^3$ $y=14957.053-1170.048x$ $-23.688x^2+2.433x^3$	No extreme point decreasing function, no extreme point Minimum value=16.55 Minimum value=16.32	Fitting function does not exist $y=45.509-1.036x$ $-0.334x^2+0.015x^3$ $y=41.721-0.951x$ $-0.307x^2+0.013x^3$ $y=13661.606-782.991x$ $-50.412x^2+2.979x^3$	No extreme point Minimum value=16.26 Minimum value=17.16 Minimum value=16.57
2011.01 ～ 2012.09	Fitting function does not exist $y=28.781-3.691x$ $+0.118x^2$ $y=47.976-6.152x$ $+0.196x^2$ $y=47161.709e^{-0.296x}$	No extreme point Maximum value=15.64 Minimum value=15.69 decreasing function, no extreme point	Fitting function does not exist $y=45.509-1.036x$ $-0.334x^2+0.015x^3$ $y=41.721-0.951x$ $-0.307x^2+0.013x^3$ $y=13661.606-782.991$ $-50.412x^2+2.979x^3$	No extreme point Minimum value=16.26 Minimum value=17.16 Minimum value=16.57

1.3 Market Context Implied in Mathematical Results

Market Context implied in mathematical results are analyzed in cases of bull market (within the interval of increasing function) and bear market (within the interval of decreasing function) respectively.

Mathematical Results at Bull Market

SSE					
Time Frame	Market Rise（%）	Extreme Point of Win Rate	Extreme Point of Annual Return Rate	Extreme Point of Net Profit Rate	Extreme Point of Annual Trades
1996.03~2001.06	298.64	Maximum value=16.30	Decreasing function, no extreme point	Within the meaningful interval, decreasing function, no extreme point	Decreasing function, no extreme point
2005.07~2007.09	413.65	Within the meaningful interval, increasing function, no extreme point	Decreasing function, no extreme point	Decreasing function, no extreme point	Minimum value=16.54
2009.01~2010.12	79.98	Irregular	Minimum value=16.26	Minimum value=17.16	Minimum value=16.57
SZSE					
1996.03~2001.06	485.43	Maximum value=15.65	Decreasing function, no extreme point	Decreasing function, no extreme point	Decreasing function, no extreme point
2005.07~2007.09	487.83	Within the meaningful interval, increasing function, no extreme point	Maximum value=0.87, Minimum value=17.13	Maximum value=0.87, minimum value=17.52	Decreasing function, no extreme point
2009.01~2010.12	133.32	Irregular	Decreasing function, no extreme point	Minimum value=16.55	Minimum value=16.32

According to the results listed in the above table, in the state of bull market, the maximum value of SZSE and SSE win rate cannot be determined. However, when daily rise is above 8%, the probability is 66.66% if win rate equals the maximum value; the maximum value of annual return rate doesn't exist and fitting function of annual return rate is decreasing function; the maximum value of net profit rate doesn't exist and fitting function of net profit rate is decreasing function; if the minimum value of annual trades is 16.48, the probability is 50% or annual trades function is monotone decreasing function. The market context implies that when daily rise is 8%, the chance of earning from buying stocks is the biggest (the minimum losses); when buying the stock with bigger daily rise, its annual return rate is found to be smaller (the minimum earnings); When buying the stock with bigger daily rise, its net profit rate is found to be smaller (the slowest earnings); when buying the stock with bigger daily rise, its trade probability is found to be smaller (the lowest chance). In a word, in the state of bull market, the right investment decision is to buy the stock with modest rise, when the "inertia law" is proved to be erroneous through empirical analysis.

Mathematical Results at Bear Market

SSE					
Time Frame	Market Rise（%）	Extreme Point of Winning Probability	Extreme Point of Annual Return Rate	Extreme Point of Net Profit Rate	Extreme Point of Annual Trades
2001.07~2005.06	-51.26	Maximum Value= 16.10	Decreasing function, no extreme point	Decreasing function, no extreme point	Within the meaningful interval, decreasing function, no extreme point
2007.10~2008.12	-67.21	Irregular	Maximum value=1.73, Minimum value=16.81	Maximum value=1.74, Minimum value=16.47	Minimum value=16.57
2011.01~2012.09	-36.34	Irregular	Minimum value=16.26	Minimum value=17.16	Minimum value=16.57
SZSE					
2001.07~2005.06	-60.39	Within the meaningful interval, increasing function, no extreme point	Decreasing function, no extreme point	Decreasing function, no extreme point	Decreasing function, no extreme point
2007.10~2008.12	-63.90	Irregular	Maximum value=1.97, Minimum value=17.36	Maximum value=1.99, Minimum value=16.01	Minimum value=16.70
2011.01~2012.09	-33.86	Irregular	Minimum value=15.64	Minimum value=15.69	Decreasing function, no extreme point

According to the results listed in the above table, in the state of bear market, the maximum value of SZSE and SSE win rate cannot be determined because of non-existent fitting function of win rate; However, when daily rise is 0.93%, the probability is 33.33% or fitting function of annual return rate is decreasing function if win rate equals the maximum value[20]; when daily rise is 0.95%, the probability is 33.33% or fitting function of net profit rate is decreasing function if net profit rate equals the maximum value; Fitting function of annual trades is decreasing function and its maximum value doesn't exist. The market context implies that whatever daily rise is, the chance of buying stock to earn cannot be determined; when buying the stock with bigger daily rise, its annual return rate tends to be smaller (lowest earnings); when buying the stock with bigger daily rise, its net profit rate tends to be smaller (slowest earnings); when buying the stock with biggest daily rise, its trade probability tends to be smaller (lowest chance). In a word, in view of stock market risks in bear market, the right investment decision is to take short position, when the "inertia law" is proved to be erroneous through empirical analysis.

In conclusion, from the perspective of profitable investment, the "inertia law" cannot guide investors to get earnings at any time.

RESULTS AND DISCUSSION

In simulation experiment, this paper chooses win rate, annual return rate, net profit rate and maximum times of annual trades as managerial targets and bases on all SZSE and SSE A shares historical data in the past 15 years. This is intended to make an empirical analysis of inertia law by adopting LDA-SPSS method. It is concluded that: at any time, the "inertia law" is invariably erroneous. This is to alert average investors to overcome fear and greediness, if they are inclined to avoid investment losses.

Acknowledgements
This work is supported by the Key Project of Guangxi Social Sciences, China (project approval number: gxsk201424), the Education Science fund of the Education Department of Guangxi, China (project approval number: 2014JGA268), and Guangxi Office for Education Sciences Planning, China (project approval number: 2013C108), and Guangxi Provincial Natural Science Research Project for Universities (project approval number: 201203YB224) , and Characteristic Professional Project fund of the Education Department of Guangxi, China (project approval number: GXTSZY277).

REFERENCES

[1] Liu Xiangjun; Lu Yanan; *Economy and Management*, **2005**, 19(9), 28-30.
[2] Cheng Siwei; Diagnosis and Treatment Revealing China Stock Market Economic, Science Press, Beijing, **2003**, 28.
[3] Li Jia; Wang Xiao; *Economic Survey*, **2010**, 2010(1), 137-140.
[4] Pin Wang; Haiping Huang; *Energy Education Science and Technology Part A: Energy Science and Research*, **2013**, 31(4), 2011-2018.

[5] Pin Wang; Haiping Huang; *Information Technology Journal*, **2013**, 12(20), 5869-5876.
[6] HUANG Hai-ping; WANG Pin; *International Journal of Applied Mathematics and Statistics*, **2013**, 45(15), 95-102.
[7] Li Shu; *Advances in Psychological Science*, **2011**, 19(1), 9-17.
[8] WANG Pin; HUANG Hai-ping; *Applied Mechanics and Materials*, **2013**, 433-435, 1685-1688.
[9] WANG Pin; HUANG Hai-ping; *Advanced Materials Research*, **2014**, 850-851, 1040-1043.
[10] WANG Pin; HUANG Hai-ping; *Advanced Materials Research*, **2013**, 798-799, 889-892.
[11] HUANG Hai-ping; WANG Pin; *Advanced Materials Research*, **2013**, 798-799, 757-760.
[12] HUANG Hai-ping; WANG Pin; *Applied Mechanics and Materials*, **2013**, 433-435, 2391-2394.
[13] HUANG Hai-ping; HUANG Xiao-ming; WANG Pin; *Advanced Materials Research*, **2014**, 850-851, 1106-1109.
[14] Xu Jian-Jun; Yang Shi-Yan; Yuan Jun; *Journal of Dalian Maritime University*, **2007**, 2007(8), 22-25+31.
[15] Xu Jian-Jun; Liu Chao; Wang Shu-Da; *Electric Machines and Control*, **2009**, 2009(5), 448-451+457.
[16]Xu, Jianjun; Liu, Shengnan; Xu, Bin; et al. *International Journal of Applied Mathematics and Statistics*, **2013**, 47(17), 131-139.
[17]Xu, Jian-Jun; Sha, Li-Ni; Zhang, Yan; et al. *Power System Protection and Control*, **2011**, 39(14), 107-112.
[18] Pang Sulin; Research and Apply Credit Rating and Stock Market Forecast Model: Statistics, Neural Network and Support Vector Machine, Science Press, Beijing, **2005**, 39-47.
[19] Wang Shuxiang; *Journal of Xingtai University*, **2006**, 21(4), 97-98.
[20] WANG Pin; HUANG Hai-ping; *International Journal of Applied Mathematics and Statistics*, **2013**, 50(20), 575-582.