The Dogs of the Dow in China

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Abstract

The unique institutional environment of China's stock markets provides a rich setting to study the relationship between investors' behavior and market returns in the case of information inefficiency. This study extends the well documented Dogs of the Dow (Dow Dogs) strategy to China's A share stock market. We find that Dow Dogs portfolios significantly outperform the market benchmark for the period of 1994 to 2009 in China's markets. Further analysis indicates that (1) The fewer Dogs included in the portfolio, the greater the portfolio abnormal returns; (2) In general, the shorter holding period (in months), the greater the portfolio abnormal returns. These findings are robust even after adjusting for transaction costs and taxes. Our study contributes to the behavioral finance literature by providing new empirical evidence of the market anomaly.

JEL Classification: G14, G15

Keywords: Dogs of the Dow, China stock market, Market efficiency, Anomaly.

1. Introduction

The Dogs of the Dow strategy is a portfolio screening method which prescribes purchasing the ten Dow stocks with the highest dividend yield. Since its advent in 1988, this trading rule has gained great popularity in the investment community and has been studied extensively by academia. However, this investment strategy has never been investigated using Chinese stocks. The purpose of the present study is to begin filling this gap in the literature. Our results suggest that the portfolios following the Dow Dogs strategy provides superior performance over the market benchmark for various holding periods before rebalancing, ranging from one, up to twelve months. These results persist regardless of the number of stocks, up to 50, in the portfolio. In addition, we find that the raw returns are negatively related to the number of companies included the portfolio. On the other hand, including more stocks and holding longer time period (in months), or equivalently rebalancing less frequently significantly improve the risk adjusted return of the portfolio.

This study contributes to the literature in the following dimensions. First, it extends the well-documented Dow Dogs strategy in the U.S to the Chinese stock markets and provides empirical evidence for the strong predictive power of the Dow Dogs strategy in China markets. Second, this study explores various versions of the Dow Dogs strategy in terms of the number of components and rebalancing frequency. The result helps to identify the new trading rules that capture the various strengths of the Dow Dogs strategy. Third, given the unique speculative atmosphere in China's stock markets, the findings of this study provide practical references for the financial services community and important implications for the theoretical understanding of the Dow Dogs anomaly in a setting where highly ebullient behaviors of investors are present. The remainder of this paper is organized as follows. Section 2 provides a description of the Chinese stock markets. Section 3 contains a brief review of the Dogs of the Dow literature. Section 4 describes the data. Section 5 explains the methodology. The results are presented in Section 6. The paper ends with a summary and our conclusions in Section 7.

2. The Development of China's Stock Markets

Over the past two decades, China has experienced impressive economic growth and become the world's second largest economy.

The evolution of its capital markets has played a critical role in China's dynamic transition from a centrally planned system to a market economy and provides an important channel for investor wealth allocation. Given the increasing globalization of the economy, astute investors recognize the importance of an internationally diversified portfolio. The unique characteristics of China's stock markets and institutional setting have attracted a considerable amount of investment interest and academic attention from around the world. Currently there are two stock exchanges in mainland China, the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE), which were established in 1990 and 1991, respectively. At the end of 2009, they were the third and fifth largest stock exchanges in the world based on total value of shares traded (World Federation of Exchanges, 2009). By the end of 2009, total market capitalization of the 902 stocks listed on the SHSE amounted to $2,800 billion and the shares of the 830 firms listed on the SZSE were valued at $839 billion. Table 1 reports the annual number of listed companies, total market capitalization, and total value of shares trading over time. Figure 1 provides the graphic illustration of the evolution of the stock exchanges in China.

Insert Table (1) about here

Insert Figure (1) about here

The majority of Chinese companies issue A class shares that are quoted in Chinese Yuan and can be purchased only by domestic investors and selected foreign institutional investors. About 6 percent of all listed companies issue both A class and B class shares, or B class shares only. B class shares are quoted in foreign currencies and historically have been restricted to foreign investors, but starting in March 2001, Chinese investors can also trade B shares with legal foreign currency accounts. This study focuses on A class stocks only.

Several institutional characteristics make the Chinese market a unique environment in which to test the Dogs of the Dow strategy. First, the investor body is dominated by individual investors who normally have less expertise and resources than institutional investors. Second, the security legal system is still underdeveloped and compared to American securities markets information transparency is less reinforced in China's market. Both of these factors may contribute to a higher level of speculative behaviors. Third, the financial market in China is relatively young. The number of investment vehicles and the number of listed stocks are limited and cannot meet the growing investment demand of public investors. It has been argued, therefore, that the A share market is likely to be plagued by speculative forces. These limits and the special features of the investment environment in China, however, afford us the opportunity to observe the effect of the Dow Dogs strategy that would be difficult to accomplish in more developed markets.

3. Literature Review

The world was introduced to the Dogs of the Dow strategy in a 1988 Wall Street Journal article (Dorfman, 1988). In this article, John Slatter, a financial analyst, states that the annual return for the ten highest yielding DJIA stocks beat the DJIA by 7.6 percent, on average, for the period 1972 to 1987. The success of the strategy is confirmed in studies conducted by Knowles and Petty (1992) and O'Higgins and Downes (1992), both of which investigate longer sample periods. Obviously, the success of the Dogs of the Dow challenges the classic efficient market hypothesis (Fama, 1970). The effectiveness of the Dow Dogs has been constantly debated among academics ever since and various explanations behind the effect have been proposed. The literature mainly can be classified into two streams. One is based on implications of the traditional efficient market hypothesis. The other is based on the recently emerging behavioral hypothesis that allows for irrational behavior on the part of investors.

Originally, it is suggested that dividends represent the true measure of value of the company. The Dow Dogs strategy happens to select the undervalued stocks that tend to climb up when the market conditions become favorable. O'Higgins and Downes (1992) claim that window dressing along with the rise of institutional investors during the 1970s are important explanatory factors for the Dogs' superior performance. Nevertheless, some studies report inconsistent performance for the Dow Dogs strategy. For example, McQueen et. al. (1997) test the Dogs method using a 50-year sample period between 1946 and 1995. They find that the top 10 Dogs' annual returns beat the DJIA statistically but not economically if adjusting for risk, taxes and rebalancing costs. They believe that the Dogs technique may disappear after it becomes widely known by investors. Keating (1998) finds that the Dogs have lost their bite since 1995. He posits that the growing knowledge about the Dogs strategy among investors prompts them to capitalize on the opportunity and, therefore, arbitrages away the abnormal profits associated with the Dogs.

Domian et. al. (1998) examine the connections among past returns, dividend yields, and future returns during, before, and after the 1987 market crash. Their results demonstrate that the Dogs effect is a loser-winner effect during the pre-crash period. But, during the post-crash period the past returns of the selected Dogs based on dividend yields outperform S&P500 and are not real "Dogs" any more. Hough (2007) draws a similar conclusion about the declining Dogs effect since 1996 and argues that the increasing use of share repurchase as an alternative to dividend payment causes the disappearance of the Dogs in the 1990s. Hirschey (2000) reexamines the Dow Dogs strategy and argues that the previously documented outperformance of the Dogs is attributable to data errors and data mining. Therefore, the Dow Dogs effect still conforms to the traditional asset pricing model.

However, Prather and Webb (2002) replicate the Dow Dogs approach and conjecture that the success of this strategy is not caused by data errors nor data mining problem, and also reject the window dressing of the institutional investment hypotheses raised by O'Higgins and Downes (1992). Nevertheless, they consider their finding an unexplainable myth related to the widely recognized efficiency anomalies. More recently Cordeiro (2006) finds that the Dow Dogs have regained their power Aside from the U.S. markets, several international markets have also been investigated for the Dow Dogs effect. Filbeck and Visscher (1997) find that the Dogs failed to outperform in the British market. Da Silva (2001) applies the dividend yield strategy to the Latin American stock markets and his findings do not support the Dow Dogs theory. Bruce (2006) examines the New Zealand market and finds no Dow Dogs effect possibly due to a small sample problem. On the other hand, Visscher and Filbeck (2003) analyze Canadian stocks and find significant superior performance of the Dow Dogs strategy in Canada. It appears so far that the puzzle of the Dogs of the Dow is still unresolved and worth another visit, especially given that the China markets have yet to be examined.

4. Data

Monthly dividend yield data are obtained from Morningstar Direct. There are 542,640 firm-month observations for the 2,128 firms for the period of January 1990 through March 2011. 1991 is the first year in which the dividend yield is reported for China's stock markets. After screening for firms with available monthly dividend yields, the 1,723 firms that remained provide 121,975 firm-month observations. By March 2011, 80.9 percent of the Chinese companies in our sample have paid a dividend during our sample period. Daily market returns, with cash dividends reinvested, are obtained from the Chinese Securities Market and Accounting Research databases (CSMAR). This data set covers 1,874 stocks, with 4,210,901 firm-day observations between 1990 and 2009. Observations with daily average trading volume less than 50,000 shares are eliminated to help ensure adequate liquidity to execute the investment strategies being tested. In addition, observations prior to 1994 are excluded because of infrequent trading during this time period. This process still provides a reasonable sample size from which to select the top "Dogs" for the Dogs of the Dow strategy. 4,164,203 firm-day observations remain in our sample. Stock prices in CSMAR are quoted in Chinese Yuan (RMB) for all A class shares and are converted into US dollars based on historical currency exchange rates.

From the daily data, we calculate the compound monthly returns for each subsample and merge these with the monthly dividend yield data obtained from Morningstar Direct. In formulating portfolios, we restrict the observations to A share stocks priced greater than $1. After the merge, our sample contains 1,487 stocks covering 83,501 firm-month observations. Table 2 reports the descriptive statistics covering the number of observations of dividend yield, the average dividend yield, the average market capitalization, and the average daily trading volume of the sample firms by year. From the table, it shows that the total number of observed monthly dividend yields, the average market capitalization, and the average daily trading volume all present an overall upward trend, with fluctuations related to the market index level. The average dividend yield however does not demonstrate any discernible pattern, with an average of 1.5 percent over time.

Insert Table (2) about here

5. Methodology

The specific methodology for the execution of the Dogs of the Dow strategy is as follows. Beginning in April, 1994 a certain number (N) of stocks with the highest monthly dividend yield for the previous three months are identified from our sample, where, in separate iterations, N = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, and 50. An equally weighted portfolio consisting of the selected N stocks is constructed. Then, the portfolio is held for a certain number of months (M), where, in separate iterations, M = 1, 2, 3, 4, 5, 6 and 12 months, respectively. The portfolio is then reformulated every M months using the above described selection criteria through the end of 2009.

Using this strategy, we create 126 (18x7) different portfolios from our pooled sample. For each portfolio, we compute: (1) the Terminal Value (TV) of $1 as the initial investment, (2) the Information Ratio, and (3) the Batting Ratio.

Similar to the Sharpe Ratio which measures excess return per unit of risk, the Information Ratio is also a risk-adjusted performance measure. In the Sharpe Ratio, excess return and risk are measured relative to a risk-free rate. In comparison, the Information Ratio measures how much the portfolio outperformed a specific benchmark index per unit of additional risk taken. We use the daily total value weighted aggregate market returns with cash dividends reinvested obtained from CSMAR as the market benchmark. We convert the daily data into monthly returns from 1994 through 2009. In order to have consistent comparison in calculating both the Information and Batting Ratios, the holding period and reforming frequency of the market benchmark is set identical to our Dogs portfolios. To compute the Information Ratio, we use the mean difference between portfolio returns and the benchmark returns as the numerator. The denominator is the portfolio's holding period tracking error, which is the standard deviation of the portfolio's holding period excess returns over the benchmark returns. The equation for Information Ratio is as follows:

$$\text{Information Ratio} = \frac{\text{Excess Return}}{\text{Tracking Error}} = \frac{\sum_{t=1}^{T}(R_t - R_{bm,t})/T}{\sqrt{\frac{1}{T-1}\sum_{t=1}^{T}(e_t - \bar{e})^2}}$$

Where Rt = return of portfolio for time period t;

$R_{bm,t}$ = return of benchmark for time period t;

T = number of time periods;

e_t = excess returns at time t; and

$\bar{e}$ = mean excess return.

The Information Ratio is especially helpful for evaluating performance by an active portfolio manager who deviate from the benchmark in an attempt to add value. Typically the Information Ratio for an index fund has a value close to zero, because these funds achieve zero excess return over the benchmark.

The Batting Ratio is a measure of a manager's ability to consistently beat the market. We calculate the batting ratio by dividing the number of months in which the manager beat or matched an index by the total number of months in the period. The formula is presented as follows:

Let I be the indicator function such that

I(True) = 1

I(False) = 0

$$\text{Batting Ratio} = \sum_{t=1}^{T} I(R_t \geq R_{bm,t})/T \times 100$$

Where:

Rt = return of portfolio for time period t;

$R_{bm,t}$ = return of bench mark for time period t; and

T = number of time periods.

6. Analysis of the Cross-sectional Performance

6.1 A snapshot of the top 20 and bottom 20 performing portfolios

In this section, we review the performance of Dow Dogs portfolios. Table 3 provides a snapshot of the top 20 and the bottom 20 performing portfolios. Panel A ranks the top 20 portfolios based on Terminal Value from the highest to the lowest. They all beat the market index performance, i.e. a Terminal Value of $5.85. The best performing portfolio includes four companies and is rebalanced every four months through the sample period. It realizes a Terminal Value of $85.9, equivalent to an annualized return of 34.6 percent during a 15-year span. The average Terminal Value of the top 20 portfolios is $59.08, comparable to a 31 percent annualized return. Their average Batting ratio is 61.18 percent and average Information Ratio is approximately 0.34. Panel B reports the bottom 20 Terminal Value portfolios. We find that only two portfolios fail to beat the market index. They both have a holding period of 12 months. The worst performing portfolio has three stocks included in the portfolio. Comparing the top 20 and the bottom 20 performers, on average fewer stocks are included in the top 20 portfolios than in the bottom 20 portfolios (5.8 vs 15.75). Additionally, on average, the top performers have shorter holding period (in months) and are rebalanced more frequently than the bottom performers (3.35 months versus 9.9 months).

Insert Table (3) about here

Portfolio performance is reduced by both transaction costs and taxes. In China, investors are required to pay a maximum of 0.4 percent brokerage commission a 0.3 percent stamp tax to the government for each transaction. The total transactions cost depends on how often a portfolio is rebalanced. In estimating the transaction costs, we assume a worst case scenario in which there are no overlapping companies in the portfolio before and after rebalancing occur. Hence, each rebalancing is assumed to require both the sale and purchase of the qualified stocks. We multiply two times the number of rebalances minus one[1] by 0.7 percent. The maximum cumulative transaction cost amounts to 2.65 percent of the total return for portfolios that require rebalancing every month, and the minimum is 0.19 percent for portfolios that rebalance every 12 months.

Chinese investors currently are not subject to capital gain taxes. The dividend tax rate is 20% for A share holders. Since June 13, 2005, 50% of the dividends on A shares are taxed. To incorporate dividend taxes into our analysis, we first estimate the average dividend yields of all stocks in our sample set. Next, we calculate the taxes by applying 20% tax rate to the average dividend yield prior to 2006 and 10% tax rate to the average dividend yield during and after 2006, the a weighted average tax expenses on dividends per year is obtained. Chinese companies do not pay dividends on a regular schedule as in the U.S. To be conservative, we assume dividends are paid quarterly and the quarterly dividend/tax ratio is multiplied by four to annualize it. Finally, we multiply the annual ratio by 16 (years) to arrive at a cumulative dividend tax ratio of .1776 percent. On average, the annualized transaction cost and tax expense ratio for the top 20 performing portfolios is approximately 6 percent and 1.9 percent for the bottom 20 performing portfolios. It appears that both sets of portfolios earn sufficient returns to compensate for taxes and transaction costs.

6.2 Comparative Analysis of Cross-Sectional Performance of the Portfolios

In the rest of this section, we compare the mean Terminal Values, Information Ratios and Batting Ratios cross-sectionally. Table 4 shows that portfolio returns beat the market benchmark over all different holding periods with the four-month holding period having the highest Terminal Value, \$49.31, equivalent to an annualized return of 29.7 percent[2]. In general, the values demonstrate that shorter holding period or more frequent rebalancing of the portfolios leads to higher returns than less frequent rebalancing. The Batting Ratios all exceed 50 percent and increase as the holding period before rebalancing becomes longer. Information ratios are all positive over different holding period ranging from 0.203 to .497. In contrast with the compound returns, longer holding periods or less frequent rebalancing realize greater risk adjusted returns, suggestive of a higher short term volatility of the stock market.

Insert Table (4) about here

Table 5 presents the Dogs performance over different numbers of companies included in the portfolios. All Terminal Values beat the market benchmark. With the exception of one, an overall negative relationship between the Terminal Values and the number of stocks of the portfolio emerges. The two-dog portfolio generates the highest Terminal Value of \$48, a comparable annualized return of 29.45 percent. As we increase the number of stocks, higher Batting Ratios and Information Ratios are obtained. This pattern suggests that including more stocks improves the overall chance to beat the market and also enhances risk adjusted returns of the portfolios.

Insert Table (5) about here

6.3 Regression Analysis

As a further robustness check, we apply a regression model expressed in the following equation:

$$R_i = \alpha + \beta_1 X_{1,i} + \beta_2 X_{2,i} + \varepsilon_{i,t} \quad (1)$$

Where: R_i is the Terminal Value of portfolio *i*,

$X_{1,i}$ is the number of companies included in portfolio *i (Top_N)*,

[1] The initial and the ending formation of the portfolio are one-way transactions, so the total number of transactions is reduced by one.

[2] We check for seasonality in the data and find that the March and November effect can potentially explain the four-month effect of the Chinese Dogs of the Dow. The greatest monthly returns occur in March, February and November each year for the period of 1994 through 2009. The Dogs portfolio is initially constructed at the end of March, 1994, if held for four months, the next few rebalancings occur in July, 1994, November, 1994, March, 1995 and so on. The high monthly returns in March and November seem to contribute to the four-month abnormal returns.

$X_{2,i}$ is the number of holding period (in months) before rebalancing of portfolio *i (Holding_M)*.

We also estimate Equation (1) after replacing the Terminal Value with the Information Ratio as the dependent variable.

Insert Table (6) about here

Panel A of Table 6 provides the regression results with the dependent variable of Terminal Value. The β_1 coefficient for Top_N is -0.24 and β_2 coefficient for Holding_M is -2.15. Both estimates are significant at the 1 percent level with an adjusted R^2 of 27 percent. This result indicates that the portfolio returns are negatively and significantly affected by the number of stocks included and the holding period (in months) of the portfolios. Panel B presents the results of regression equation (1) with Information Ratio as the dependent variable. The adjusted R^2 is 56.09 percent. Coefficient estimate for Top_N becomes positive, i.e. 0.0032 and is significant at the 1 percent level. Coefficient for Holding_M approximates 0.0239 with a 1 percent significance level. It appears that increasing the number of Dogs in the portfolios and lowering the balancing frequency can boost risk adjusted returns, although hurting the actual return of the portfolio. On the whole, changes in the rebalancing frequency have stronger impact on portfolio performance than changes in the number of stocks included in the portfolios.

7. Conclusion

The Dow Dogs strategy has puzzled academia for a long time given the inconsistent evidence in the effectiveness of this strategy in the U.S. markets. The distinct investment features and institutional setting of China's stock market provide us a unique opportunity to examine the Dow Dogs strategy. The most popular version of Dow Dogs technique in the literature consists of ten components. We test various versions of the Dow Dogs strategy in terms of the number of stocks and the holding periods before rebalancing using China's A class shares. We find this strategy is exceptionally successful even after adjusting for taxes and transaction costs. The results also indicate that the Dow Dogs portfolio returns are negatively and significantly associated with the number of stocks in the portfolio and the frequency of rebalancing. In addition, we find that including more Dogs components in the portfolio provides important diversification benefits by lowering the volatility and improving risk adjusted returns. Furthermore, the regression result suggests that lowering the rebalancing frequency of the portfolio increases the risk-adjusted returns. This study provides empirical evidence to the long-debated effectiveness of the Dow Dogs strategy and considerable practical implications to the investment community.

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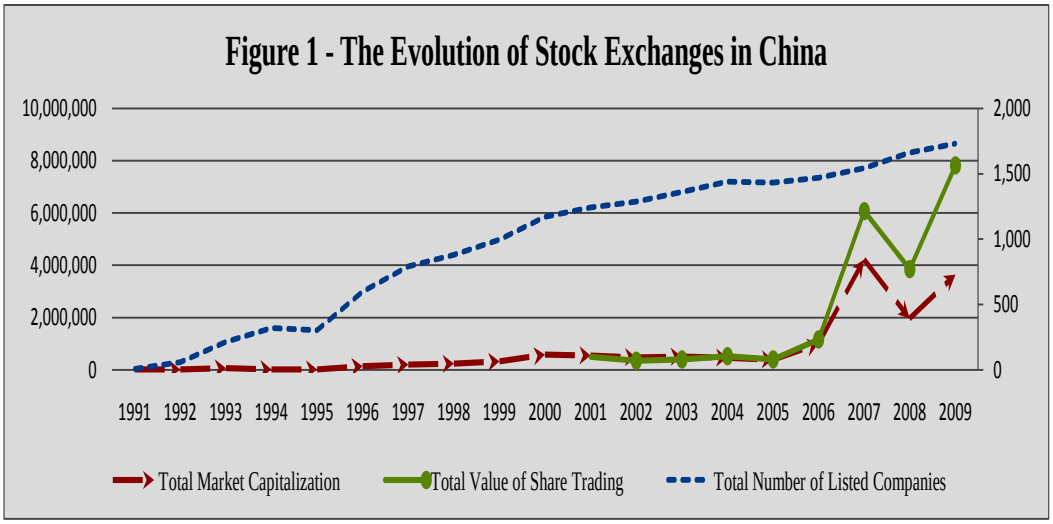
Table 1 - The Evolution of Stock Exchanges in China

	Number of Listed Companies			Market Capitalizaion (in USD Million)			Value of Share Trading (in USD millions)		
Year	Shanghai Stock Exchange	Shenzhen Stock Exchange	Total	Shanghai Stock Exchange	Shenzhen Stock Exchange	Total Market Capitalization	Shanghai Stock Exchange	Shenzhen Stock Exchange	Total Value of Share Trading
1991		6	6	24,917	1,427	26,344			
1992	35	24	59	13,261	8,028	21,289			
1993	123	92	215	41,271	23,596	64,867			
1994	196	125	321	31,186	12,587	43,773			
1995	169	134	303	24,000	11,630	35,630			
1996	329	270	599	74,976	62,055	137,031			
1997	419	371	790	109,391	96,279	205,670			
1998	462	419	881	132,908	109,347	242,255			
1999	508	487	995	182,205	148,346	330,551			
2000	613	559	1,172	326,292	257,702	583,995			
2001	686	556	1,242	344,681	199,212	543,893	290,658	203,073	493,731
2002	750	536	1,286	317,259	160,773	478,032	211,644	140,661	352,305
2003	816	546	1,362	352,958	154,285	507,244	255,965	140,287	396,252
2004	868	571	1,439	323,741	139,941	463,682	322,829	194,458	517,286
2005	860	572	1,432	277,288	110,490	387,778	238,521	154,252	392,772
2006	865	605	1,470	790,749	211,213	1,001,961	736,357	422,640	1,158,997
2007	866	678	1,544	3,517,794	710,392	4,228,186	4,028,590	2,046,014	6,074,604
2008	896	766	1,662	1,614,957	349,445	1,964,403	2,600,209	1,248,722	3,848,930
2009	902	830	1,732	2,800,648	839,005	3,639,653	5,055,349	2,771,730	7,827,079

Note: The data sources for number of listed stocks and market capitalization are from the Chinese Securities Market and Accounting Research databases (CSMAR). The data sources for value of share trading are from World Federation of Exchanges, 2009 [Online] Available: http://www.world-exchanges.org/statistics.

Figure 1 – The Evolution of Stock Exchanges in China



Note: The dotted line represents the total number of listed stocks in Shanghai Stock Exchange and Shenzhen Stock Exchange. The solid line with round cap represents total value of shares trading in Shanghai Stock Exchange and Shenzhen Stock Exchange. The disconnected line with arrow cap represents total market capitalization in USD millions of listed companies in Shanghai Stock Exchange and Shenzhen Stock Exchange. The data sources for number of listed stocks and market capitalization are from the Chinese Securities Market and Accounting Research databases (CSMAR). The data sources for value of share trading are from World Federation of Exchanges, 2009 [Online] Available: http://www.worldexchanges.org/statistics.

Table 2 – Descriptive Statistics by Year

Year	Number of Observations for Monthly Dividend Yield	Average Dividend_Yield (%)	Average Market Capitalization (In USD thousands)	Average Trading_Volume
1991	5	2.09	380,472	314,734
1992	18	0.53	613,233	664,119
1993	218	0.59	380,448	721,361
1994	600	1.84	209,462	1,511,873
1995	900	2.49	208,101	668,999
1996	1,534	2.03	269,677	3,048,857
1997	2,287	1.39	359,754	1,852,000
1998	2,424	1.52	362,415	937,025
1999	3,171	1.60	377,866	1,127,722
2000	3,877	1.21	551,319	1,947,785
2001	6,400	1.07	535,831	867,605
2002	8,474	1.16	424,870	852,901
2003	7,408	1.36	422,321	1,102,736
2004	6,369	1.65	465,263	1,899,606
2005	4,972	2.40	431,072	2,529,592
2006	6,371	2.11	507,560	5,976,934
2007	8,441	0.93	2,170,847	11,044,365
2008	9,420	1.47	2,179,981	6,883,235
2009	10,612	1.22	2,268,531	14,072,532

Note: The data sources for number dividend yield are from Morningstar Direct. The data sources for market capitalization and trading volume are from the Chinese Securities Market and Accounting Research databases (CSMAR).

Table 3 - The Terminal Value of $1 Invested and Information Ratios of Top 20 Portfolios

#	Holding Month(s)	Top_N Included	Terminal Value of $1 Invested	Annualized Return	Batting Ratio	Information Ratio
Panel A. Portfolios with Highest Terminal Value						
1	4	4	85.91	34.57%	0.6383	0.396
2	4	2	85.54	34.53%	0.5745	0.334
3	4	3	83.62	34.32%	0.5532	0.374
4	4	5	73.91	33.22%	0.6170	0.432
5	3	3	70.45	32.80%	0.5714	0.322
6	1	3	60.56	31.47%	0.5503	0.201
7	3	2	60.26	31.42%	0.5238	0.288
8	2	2	59.87	31.37%	0.5745	0.225
9	4	6	59.67	31.34%	0.6596	0.417
10	2	3	59.05	31.24%	0.5745	0.256
11	6	2	54.58	30.56%	0.7097	0.342
12	2	6	53.68	30.41%	0.5638	0.306
13	3	5	53.58	30.40%	0.5873	0.339
14	4	10	51.80	30.10%	0.6596	0.378
15	3	4	48.04	29.45%	0.6349	0.306
16	4	15	47.63	29.38%	0.6809	0.416
17	2	5	45.16	28.92%	0.5638	0.286
18	4	9	43.55	28.61%	0.6170	0.355
19	4	20	42.94	28.49%	0.7234	0.432
20	4	7	41.88	28.27%	0.6596	0.387
Average	**3.35**	**5.8**	**59.08**	**31.04%**	0.6118	**0.340**
Panel B. Portfolios with Highest Terminal Value						
1	12	3	3.30	8.28%	0.5000	0.077
2	12	1	4.76	10.97%	0.3077	0.222
3	4	1	9.38	16.10%	0.4667	0.170
4	6	1	10.99	17.32%	0.4483	0.158
5	12	40	11.80	17.89%	0.7333	0.473
6	12	35	12.06	18.06%	0.7333	0.524
7	12	30	12.38	18.26%	0.7333	0.564
8	12	25	12.73	18.48%	0.7333	0.547
9	12	50	13.15	18.74%	0.8000	0.477
10	5	1	13.30	18.83%	0.5429	0.189
11	12	45	13.56	18.98%	0.7333	0.502
12	5	3	15.02	19.80%	0.5135	0.205
13	12	20	15.18	19.88%	0.8667	0.716
14	5	2	15.67	20.14%	0.5405	0.190
15	12	15	16.24	20.42%	0.6667	0.583
16	12	7	16.29	20.45%	0.8000	0.560
17	12	9	16.68	20.64%	0.6667	0.510
18	12	10	17.04	20.81%	0.6667	0.519
19	5	9	17.40	20.98%	0.6486	0.329
20	12	8	17.43	20.99%	0.6667	0.568
Average	**9.9**	**15.75**	**13.22**	**18.30%**	0.6384	**0.404**

Table 4 – Average Terminal Value, Information Ratio and Batting Ratio across Different Holding Periods

Holding Month(s)	Terminal Value of $1 Invested	Annualized Return	Annualized Market Return	Information Ratio	Batting Ratio
1	33.08	26.3%	12.5%	0.20	0.56
2	37.71	27.4%	12.5%	0.30	0.59
3	36.33	27.1%	12.5%	0.30	0.61
4	49.31	29.7%	12.5%	0.40	0.66
5	21.39	22.7%	12.5%	0.38	0.67
6	23.80	23.5%	12.5%	0.42	0.65
12	15.80	20.2%	12.5%	0.50	0.70

Table 5 – Average Terminal Value, Information Ratio and Batting Ratio across Different Number of Stocks Included in the Portfolio

Top_N Stocks Included	Terminal Value of $1 Invested	Annualized Return	Annualized Market Return	Information Ratio	Batting Ratio
1	14.8	19.68%	12.50%	0.17	0.46
2	48.0	29.45%	12.50%	0.30	0.57
3	44.3	28.75%	12.50%	0.24	0.54
4	41.0	28.09%	12.50%	0.34	0.62
5	38.8	27.62%	12.50%	0.34	0.62
6	37.3	27.29%	12.50%	0.35	0.63
7	30.0	25.45%	12.50%	0.35	0.63
8	29.7	25.38%	12.50%	0.35	0.60
9	27.8	24.81%	12.50%	0.33	0.60
10	31.1	25.74%	12.50%	0.35	0.60
15	32.3	26.07%	12.50%	0.40	0.64
20	29.5	25.32%	12.50%	0.42	0.69
25	27.0	24.57%	12.50%	0.40	0.69
30	24.5	23.76%	12.50%	0.40	0.68
35	24.4	23.75%	12.50%	0.41	0.68
40	26.5	24.41%	12.50%	0.42	0.70
45	26.5	24.43%	12.50%	0.44	0.72
50	25.6	24.12%	12.50%	0.42	0.73

Table 6 – Cross-sectional Regressions of Portfolio Performance on the Holding Periods and the Number of Stocks Included in the Dogs of Dow portfolios

Panel A. Dependent Variable = Terminal Value

Variable	Coefficient	t-Stat
Intercept	45.522 ***	18.75
Top_N	-0.247 ***	-3.26
Holding_M	-2.152 ***	-6.13
N	126	
Adjusted R^2	0.2700	

Panel B. Dependent Variable = Information Ratio

Variable	Coefficient	t-Stat
Intercept	0.187 ***	12.30
Top_N	0.003 ***	6.94
Holding_M	0.024 ***	10.90
N	126	
Adjusted R^2	56.9%	

Note: Panel A of this table presents coefficients of the holding period and the number of stocks included in the portfolios in the cross sectional regressions of Terminal Value. Panel B presents coefficients of the holding period and the number of stocks included in the portfolios in the cross-sectional regressions of Information Ratio. The sample period is 1994 – 2009. The results are based on 126 portfolios following the Dogs of the Dow Strategy. The data sources for dividend yield are from Morningstar Direct. The data sources for stock returns are from the Chinese Securities Market and Accounting Research databases (CSMAR). ***denotes the statistical significance at the 1% level.