

# **Is There a January Effect in the Greater China Area?**

by

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## **Abstract**

Tests for the presence of the January effect are conducted using market index data for the following countries, Taiwan, Hong Kong, China, U.S., Brazil, Japan, and England.

The result (Table 3) shows that Taiwan weighted average index, Taiwan industry indexes, and Hong Kong Hang Seng index show significant January effect. Hong Kong industry indexes, China Shenghi A share and B share, US. Dow Jones Average Index, CRSP Equal-Weighted Average Index, Japan Nikkei 225 Index, Brazil Ibovespa Sao Paulo, and England FTSE 100 Index do not show significant January effect.

# Dedication

將這份報告獻給我的家人

和曾經幫助過我的朋友

股票市場如同人生 總是撲朔迷離 看不清楚全貌

聰明的投資人懂得如何分辨雜音與找出訊息

雖然這份報告也許不具任何學術價值

撰寫這份報告的歷程 可是精彩萬分

這歷程在我生命中將是永遠值得回味的紀念

I devote this project to my family,

And all the friends who help me in my life.

They are the power to push me to go forward.

With them, my life becomes colourful.

## **Acknowledgements**

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# Chapter I

## Introduction

The fast growth of the greater China area, which includes Mainland China, Taiwan, and Hong Kong, has attracted the international investors' interests for the past decade. Since the past twenty years, China enjoys an astonishing high real economic growth, averaged around 9% per annual, and it had grown 9.7% over the year 2003 (as shown in Appendix A) Mainland China's growth results from the following factors: the constant inflow of foreign capital, average U.S. \$40 billion dollars inflow, and the combination of a move to a market economy, rapid urbanisation, strong productivity growth, low costs and surging consumer demand. The emerging consumer demand continues to drive very strong growth over the next decade or so. As a result, China plays the role as the engine of the world economical development not only in the supply side but also in the demand side.

As the increasing importance of Greater China area and the increasing internationalized stock markets, one motive of this study is to investigate and to analyze the January effect of the Greater China area for the reference of the investors.

This study seeks to test whether January effect exists in the market indexes of the Greater China area and to compare with those of US, Japan, Brazil, and England. Chapter II is the literature review of January effect. Chapter III is the stock market structure of the Great China. Chapter IV is the description of methodology and data and the result for the examination of the January effect. Chapter V is the conclusion.

## Chapter II Literature Review

The capital market theories evolve from the traditional theory to behavioural finance. Traditional finance theories are based on the assumptions of symmetric information and perfect markets. These include the Modigliani and Miller Theorems, the CAPM, the Efficient Markets Hypothesis and continuous time finance. In reality, the security market is the result of human investment behaviour; therefore, the real stock market may not perfectly match the theories. The beauty of the traditional finance provides investors an insight to rationally explain the capital market. However, as the reality doesn't match the rigid assumptions, many empirical phenomena, anomalies, are difficult to reconcile with this traditional framework. The January effect or seasonal effect is one of the anomalies, which appears to be present in many different countries and periods.

### **The Existence of January Effect**

- **January effect is not unique to small firms but it is more pronounced for small firms.**

Wachtel documented the first academic study about January effect was documented in 1942. In 1976, Rozeff and Kinney found that the January returns of all US stocks listed in New York Stock Exchange, which included all large and small firms, are significantly larger than those in other months for the period 1904-1974. Rogalski and Tinic (1986) also found the January effect existing in the equally weighted index of NYSE and the American Stock Exchange stocks for the period 1963-1982.

Reinganum (1981), Keim (1983), and Roll (1983) claimed that the January effect is more pronounced in small firms. Lakonish and Smidt (1986) pointed out that January effect didn't exist in the index, like Dow Jones Industrial Average, which is composed of only large firms. Based on the above two papers, Thaler (1987) concluded that January effect is primarily a small firm phenomenon. Their logic is that: an equal-weighted index is a simple average of the prices of all firms listed on the NYSE. Small firms have greater weight than their share of market value. Therefore, the existence of January effect only in an equal-weighted index suggests that it is primarily a small firm phenomenon.

The January effect may decline as firms become larger. Kleim found that half of the January returns came in the first five trading days. Reinganum brought out his point that small firms whose prices had declined for the previous year, had the higher January returns, and small firms whose prices had increased for the previous year, didn't have the excess returns in the first five days of January. His research was based on a possible explanation of January effect, tax-loss selling.

Later on, the researchers then wonder if January effect is exclusively related to the small firm effect. Kohers and Kohli (1991) gave us some insight about this question. They used the data of the S&P composite index, which consists of large firm securities, and the result showed that January effect was independent of the small firm effect. That is, January effect was not exclusively small firm effect.

So far, the more acceptable conclusion is that January effect is not unique to small firms but it is more pronounced for small firms, especially for those whose prices had declined the previous years.

- **January effect happens in some countries, like Germany, U.S., England, and Canada, in some periods.**

Mustafa & Gultekin (1983) tested seventeen countries from 1959 to 1979 and showed that eleven countries, such as Denmark, Germany, Holland, Spain, U.S., and England, have January effect. Tinic & Barone-Anderson & West (1987) tested the Toronto Index and found significant January effect and size effect.

- **In some period, Dow Jones shows January effect; in other period, it doesn't.**

Mehdian & Mark (2002) tested the Dow Jones index, NYSE, SP500 (1964~1998) and got the result that there was significant January effect from 1964 to 1987 and there was no January effect after 1987.

- **January effect happened in Taiwan and Hong Kong markets in a period.**

As for the Taiwan and Hong Kong stock markets, there are several papers to confirm the existence of January effect in both markets. Some studies provide the evidence of January effect in Taiwan from 1967 to 2000. Aggarwal & Rivoli (1989) investigated the Hong Kong stock market since 1976 to 1988 and showed January effect existed in Hong Kong market. Lee (1992) tested the data of Hong Kong and Taiwan since 1970 to 1989 and showed January effect.

## **The Explanation of January Effect**

### ***1. Transaction Cost Hypothesis***

Many studies try to explain why the January effect occurs. Stoll and Whaley (1983) suggest that the market frictions, large transaction costs, may lead to the January returns earned by small firm stocks. Rozeff and Kinney (1976) brought out the idea that

many firms announce their previous year's financial performance in January and that induced the January effect. Keim (1983) suggested that January affects more on the small firms because for large firm, their information costs are less and thus are more efficient.

## **2. Seasonal Real Growth Hypothesis**

Chang and Pinegar (1989, 1990) and Kramer (1994) argued that seasonal real growth provided a partial explanation for the January effect among small stocks.

## **3. Tax Loss Selling Hypothesis**

Wachtel (1942), Branch (1977), Dyl (1977), and Ritter (1988) attempted to explain January effect by the tax-loss selling hypothesis. According to this hypothesis, for tax purpose, individuals sell stocks "losers" in December in order to reduce tax liability by realizing capital losses and setting against capital gains; The down-side pressure on the prices of the stocks is absent when the new fiscal year begins in January; and, investors reinvest the end-of-year bonus in January.

There has been a lot of research to examine seasonal patterns in other countries to investigate the tax-loss selling hypothesis. Gultekin and Gultekin (1983) found January effect in 15 of 16 countries. Tax-loss selling hypothesis may only explain part of January effect for the following evidences. First, Kato and Schallheim's (1985) research showed that Japan's stock market, like US's, is well integrated on an international scale and it also has January effect and size effect. However, Japan and US have different tax regimes. In Japan, there is no capital gains tax or loss offsets exist.

Second, Berges, McConnell, and Schlarbaum (1984) provided the evidence that Canada had no capital gains tax before 1972; however there is January effect in Toronto

Stock Exchange before 1972.

Third, the fact that Great Britain and Australian have January effects but their fiscal years start on April 1 and July 1, respectively, rather in January. Therefore, there may be other factors, rather than tax-loss-selling hypothesis, to explain January effect.

Fourth, Brown *et al.* (1983) provided the evidence of monthly stock return seasonality in January and July in Australia, and the beginning month of the tax-year is in July.

Furthermore, Ho (1990) provided the evidence that the tax-loss selling hypothesis fails to explain for the Asia Pacific markets because only for the three of the nine Asia Pacific markets, the return of the first month of the tax-year was significantly higher than those of other months.

As for the emerging countries, Pang (1988) found that there is return seasonality in January, April, and December in the Hong Kong stock market. Nassir and Mohammad (1987) provided evidence that January effect exists in Malaysia for the period 1970-1986 and tax-loss selling hypothesis cannot explain this study because of the absence of a capital gains tax in Malaysia. Ho (1990) showed that six out of the eight emerging Asia Pacific stock markets, Hong Kong, Korea, Malaysia, Philippines, Singapore and Taiwan, exhibit January effect for the period 1975-1987.

Stilianos Fountas and Konstanti Nos N. Segredaki S (2002) found little evidences in favor of January effect and tax-loss-selling hypothesis for the 18 emerging stock markets in the period of 1987 to 1995.

#### ***4. Other Macroeconomic Factors***

Schneeweis and Woolridge (1979) showed that seasonality is not necessarily inefficient, and some embedded factors, such as the monetary policy, risk adjustment, tax consideration, and the seasonal information difference, make the equity returns seasonal. Therefore, seasonality may exist in the efficient markets.

#### ***5. Window Dressing Hypothesis***

Haugen and Lakonishok (1988) suggest window dressing is related with January effect.

#### ***6. Financial Payment System***

Ogden (1990) brought out the hypothesis that the standardization of the payment system in United States leads to the cash demand at the end of each month, especially December, and investors, who have substantial cash receipts at the turn of the months (year), will increase their demand of stocks then.

#### ***7. Firm Size***

Kohers and Kohli's (1991) observed that the January effect is not related to firm size. Kohers and Kohli (1992) and Kramer (1994) related the January effect to business cycle. They found that January effect was present during expansion, but undetectable during contractions.

#### ***8. Trading Volume and Real Interest Rate***

Ligon (1997) connect the January effect to higher January trading volume and lower real interest rates.

## **Chapter III**

# **Stock Market Structures of the Greater China**

### **Description of Mainland China Stock Market**

Since 2000, U.S. gave China Permanent Normal Trade Relations (PNTR) and China later joined WTO. As the security market of China becomes more mature, no matter Shanghai A, B share or Shenzhen A, B share have the outstanding performance compared with the global market. As a result, since 1999, the Chinese security market has been bullish. From the investigation of 31 China funds, 61% of these funds have the performance in 2003 over 40% and 81% of these over 30%.

The development of China stock market is mainly the privatization of government-owned businesses. Given the China history of boom / bust cycles and the central bank's economic management tools, although there is likely a soft landing resulted from the macroeconomic policy by Chinese government, there is still a concern that China's economy is heading for a sharp downturn by the government's unstable policy. When the economy is too hot, the government tries to cool down. The China security market is still under some degree of the government's control of macro-economy and plan economy. This manipulation of the market adds to the investment risk in the China market.

There are two stock exchanges in China, one is Shanghai Stock Exchange (1990) and the other is Shenzhen Stock Exchange (1991). Currently, stocks are categorized as A share and B share in both Shanghai or Shenzhen exchanges. Domestic natural persons and institutions trade A shares with RMB and both domestic natural persons



and institutions and foreign investors can trade B shares with foreign currency such as US dollars or Hong Kong dollars. Sometimes China companies will also issue stocks, so-called H shares, in Hong Kong stock exchange.

**Table 1: The description of the Greater China stock market characteristics. Data from “International Financial Management” by Eun and Resnick**

|  | Taiwan | Mainland China | Hong Kong | Canada | United States |
|--|--------|----------------|-----------|--------|---------------|
| Market Capitalization (\$US billion) in 2000 | 248    | 581            | 623       | 841    | 15,104        |

The regulation is stricter to issue A shares than B share in China. There are about 113 listing companies for the B share markets in both Shanghai and Shenzhen stock exchanges. 98 of those issue both A share and B share. Originally, foreign investors could not trade on A share. On Dec. 1, 2002, the Chinese government announced the Qualified Foreign Investment Institution (QFII). The regulation allowed foreign institutional investors with at least \$10 billion in assets and government approval to buy yuan-denominated stocks, A shares, and bonds in Shanghai and Shenzhen stock exchanges. Some restrictions of the deregulation for the stock markets might put off the foreign institutional investors; first, foreign investors must leave their money in the market for at least three years; second, local-currency Class A shares have high Price-to-EPS ratio, which once sold for 40 times estimated earnings. The statement placed no ceiling on investments and did not divulge whether dividends and capital gains may be remitted overseas while the principal stays within the market.

The concentration ratio of China Shanghai A share stock market is 27.79% in 2004 (see Appendix B). There are five industries in the top ten companies. Energy and

finance are the biggest two sectors in the A share market. The structure of investors is mainly composed of individual investors. Another characteristic of China stock market is the high turnover rate. In 2000, the turnover rates of Shanghai and Shenzhen stock exchanges in 2000 were 499.10% and 503.85%, correspondently. The high turnover rate reflects the speculative characteristic for China stock market. The inside trading, asymmetry of information, and the inefficiency of the regulation are the main issues for China stock market.

### **Description of Hong Kong Stock Market**

There used to be four exchanges in Hong Kong, the Hong Kong Stock Exchange in 1986, the Far East Exchange in 1969; the Kam Ngan Stock Exchange in 1971; and the Kowloon Stock Exchange in 1972. In March 2000, the four exchanges merger to a unified stock exchange.

Hong Kong is an international financial centre. There are many private China and Taiwan companies issue the stocks in Hong Kong. There are two kinds of China relative stocks, H- shares and red chips (Appendix C), listing in Hong Kong security exchange. For example, the computer manufacture company Legend is one of the red chip companies. Currently, there are 27 red chips, which are about 24.4% of the whole Hang Seng Index market value, and 37 H shares in Hong Kong stock exchange. There is no particular investment regulation for foreign investors in Hong Kong except for some public businesses. Foreign investors enjoy the same tax rates as domestic people. There is no exchange limitation in Hong Kong. Foreigners can freely send capital in or out of Hong Kong. Hong Kong stock market is mostly concentrated on Diversified Industrials and Real Estate industries.

## **Description of Taiwan Stock Market**

The Taiwan Security Exchange Committee, funded by various private and state-owned enterprises, began on February 9, 1962. This has been the sole centralized securities market in Taiwan.

Overseas Chinese and foreign investors who intend to invest in Taiwan should first apply to Taiwan Stock Exchange Corporation (TSEC) for registration. There are restrictions about investment quotes, ratio of shareholding, forbidden conduct, and investment scope. For example, foreign investors are not allowed to short Taiwan stocks.

Taiwan's stock market is not very concentrated in the top ten stock issues or in any industry. The concentration ratio of the Taiwan stock market is 34% in 2002 (see Appendix D). There are seven industries in the top ten companies. So it provides certain level of liquidity and sector diversification.

Lack of momentum is the biggest issue for the current Taiwan security market. The declining volume and turnover rate make the P/E ratio of Taiwan from above 30 reducing to around 12. Last November, S&P reduces Taiwan's rating from "stable" to "negative". The rating greatly influences the inflow of the foreign capital. One reason is the increase of the government deficit; the other is the tense relation between Taiwan and China. The declining margin rates for the Taiwan technology industry also result to the slow or negative growth of Taiwan.

The poor performance of Taiwan stock market induces many Taiwan companies to issue the stocks in other countries. Taiwan stock market used to have twice amount of volume compared with Hong Kong stock market. Now the volume of Hong Kong is

increasing; however, that of Taiwan is decreasing (see Table 5). As the high momentum in Hong Kong stock market and the poor performance of Taiwan stock market, more and more Taiwan companies choose to issue the stocks in Hong Kong.

**Tax Issue for the Three Stock Markets**

The fiscal years for countries are as shown in Table 4. In 2001, the foreign investors will be subject to Chinese income tax on any capital gain of 30% national and 3% local tax. There are no capital gains taxes and no taxes on dividends in Hong Kong (HK). Capital gains go tax free in Hong Kong. Dividends, whether from HK sources or from abroad are excluded from the taxpayer gross income and are entirely exempted from tax. There are no withholding taxes on dividends paid to non-resident shareholders of HK companies. Taiwan has the capital gains tax.

**Table 2: Fiscal Year for Countries**

|                  | <b>Fiscal Year</b> |
|------------------|--------------------|
| <b>Brazil</b>    | Jan. 1-Dec. 31     |
| <b>China</b>     | July 1-June 30     |
| <b>England</b>   | April 1-March 31   |
| <b>Hong Kong</b> | Jan. 1-Dec. 31     |
| <b>Japan</b>     | April 1-March 31   |
| <b>Taiwan</b>    | July 1-June 30     |
| <b>U.S.</b>      | July 1-June 30     |

**Table 3: Market Average Monthly Volume and Average PE Ratio**

|                                     | <b>China<br/>A share</b> | <b>China<br/>B share</b> | <b>HK<br/>Hang Seng<br/>Index</b> | <b>TWII</b> | <b>DJI</b> |
|-------------------------------------|--------------------------|--------------------------|-----------------------------------|-------------|------------|
| <b>Average Volume<br/>2001~2004</b> | 13,575                   | 203                      | 276,388,732                       | 4,264,577   | 14,485,334 |
| <b>Average P/E ratio</b>            | 55                       | 14                       | 18                                | 12.91       | 16~20      |

Note:

Volume: the daily number of shares of a security that change hands between a buyer and a seller.

# Chapter IV

## Examination of January Effect

### Methodology

This paper uses the power ratio method to give a consistent measurement of the contribution of January return to the year return. To identify any possible trend of the January effect, one needs to measure the return in January relative to the return in the remaining months of the year.

As outlined in Gu (2001), the power ratio method can reveal the dynamics of the January effect over time. It also avoids the problem to measure the January effect when return in January and return of the year have opposite signs, (i.e., January positive/year negative, January negative/year positive, or when both January and the year are negative).

The January and annual returns are calculated as the natural logarithm differentials of the index values,  $\ln I_{t+1} - \ln I_t$ .

### Model

$$R_j^* = (1 + \text{January return})^{12}$$

$$R_y = (1 + \text{return of the year})$$

Then, let's compose a ratio: Power ratio =  $R_j^* / R_y$ , When  $R_j^* / R_y = 1$ , then the January effect is as good as the average of other months of the year. When  $R_j^* / R_y > 1$ , then the January return is better than the average of other months of the year, that is

January effect exists. When  $R_j / R_y < 1$ , then the January effect is less than the average of other months of the year. January effect doesn't happen.

## Data

Monthly data, from yahoo financial websites and Reuters database, are used for the stock index returns. The periods of the indexes are shown as follows.

**Table 4: The Codes and Study Period of Indexes**

| Index                               | Code | Period    |
|-------------------------------------|------|-----------|
| <b>Taiwan</b>                       |      |           |
| Taiwan comp average index           | TWII | 1982~2003 |
| Taiwan Ele A & C index              | TEEI | 1997~2003 |
| Taiwan electrical index             | TEII | 1994~2003 |
| Taiwan bank and insurance index     | TFNI | 1993~2003 |
| Taiwan chemical index               | TCHI | 1996~2003 |
| Taiwan Plactical and chemical index | TPII | 1995~2003 |
| Taiwan plastic index                | TPLI | 1996~2003 |
| Taiwan cement index                 | TCMI | 1995~2003 |
| <b>Hong Kong</b>                    |      |           |
| Hang Seng index                     | H SI | 1987~2003 |
| HSI-Finance                         | HSIF | 1987~2003 |
| HSI-Utilities                       | HSIU | 1987~2003 |
| HK-Properties                       | HSNP | 1987~2003 |
| HK-industry                         | HSNC | 1987~2003 |
| <b>China</b>                        |      |           |
| SSE B share index                   | SSEB | 1995~2003 |
| SSE A share index                   | SSEA | 1995~2003 |

| <b>Index</b>                     | <b>Code</b> | <b>Period</b> |
|----------------------------------|-------------|---------------|
| <b>U.S.</b>                      |             |               |
| Dow Jones US Average Index       | DJI         | 1929~2003     |
| Dow Jones Transportation Average | DJT         | 1930~2003     |
| Dow Jones Utilities Index        | DJU         | 1929~2003     |
| S&P 500 Index                    | GSPC        | 1983~2003     |
| Nasdaq Bank                      | IXBK        | 1982~2003     |
| Nasdaq Other Finance             | IXFN        | 1982~2003     |
| Nasdaq Industrial                | IXID        | 1981~2003     |
| Nasdaq-100                       | NDX         | 1986~2003     |
| Russell 1000 Index               | RUI         | 1993~2003     |
| CRSP Equal-Weighted Index.       | CRSP        | 1926~2003     |
| <b>Japan</b>                     |             |               |
| Nikkei 225 Index                 | N225        | 1984~2003     |
| <b>Brazil</b>                    |             |               |
| Ibovespa Sao Paulo               | BVSP        | 1994~2003     |
| <b>England</b>                   |             |               |
| FTSE 100 INDEX                   | FTSE        | 1985~2003     |

## **Results**

The power ratios and trends for the indices are as shown in Appendix E and Table 3. If the power ratio declined to less than one, the January effect is disappearing from the markets. The results are as follows:

1. TWII shows the existence of January effect in the period of 1982 to 2003. The power ratio reveals flat trend for TWII. Most industry indexes do not show the existence of January effect except Taiwan Plastic Index. During 1997 to 2003, there is a pronounced upward trend in the power ratios for the Ele A & C Index and Taiwan Electrical Index.
2. Both Hong Kong Hang Seng Index and industry indexes show significant existence of the January effects in the period of 1987 to 2003. Like TWII,



the trend of the power ratio of Hong Kong Hang Seng Index is flat. The power ratios of H SI Finance, H SI Property, H SI Industry show upward trend.

3. China stock markets were established in 1990; and therefore there are not many year data to analyze. China SSEA and SSEB Indexes do not show the significant January effect. However, they do show the upward trend.
4. For the U.S. market, Dow Jones Average Index, S & P 500 Index, and Russell 1000 do not show obvious January effect, and there is the declining trend for those indexes. The result reconciles the research by Lakonish and Smidt (1986), which pointed out that January effect didn't exist in the index, like Dow Jones Industrial Average, which is composed of only large firms. Although Russell 1000 is mainly composed of small stocks, the non-existence of January effect may just show the disappearance or weakness of the effect since the 80s.
5. CRSP Equal-Weighted Index shows significant January effect (83%) and flat trend in the period of 1926-2003. The possibilities of January for 1926-1959, 1960-1979, 1980-2003, are 82%, 75%, and 91.6%, correspondently. That means since 1980, January effect is very likely to happen. That result reconciles the researches by Rogalski and Tinic (1986), who found the January effect existing in the equally-weighted index for the period 1963-1982, and by Richard H Thaler (1987), who concluded that January effect existing in the equally-weighted index is primary a small firm phenomenon.
6. There is no significant January effect for Japan Nikkei 225 Index, Brazil Ibovespa sao Paulo, England FTSE 100 Index. Those indexes either

- show flat or downward trend.
7. The flat trend for the power ratios of Taiwan and Hong Kong stock market indexes may imply the constant efficiency for both indexes. The downward trend in the January effect may indicate further evidence that the markets are becoming more efficient, or that investors are improving at pricing risk adequately, or both.
  8. Most US industry indexes, and US. DJI and RUI, Brazil Ibovespa Sao Paulo Index, Japan N225, and England FTSE 1000 are either flat or declining with the power ratio around 1.0. It may partly result from the maturity of the security markets so that few anomalies happen.
  9. The power ratio (3/11) of the Russell 1000 Index, which is mostly composed of small companies, is less than 1.0, That shows that January return is mostly less than the year return and the result contradicts the previous study from Thaler (1987), which concluded that January effect is primarily a small firm phenomenon. However, the result may only show the failure of January effect since 1993.
  10. The tax loss hypothesis seems not to explain the January effect for Taiwan since Taiwan's fiscal year is from July 1 to June 30. Although the fiscal year of Hong Kong is from January 1 to December 31, there is no capital gain tax. Therefore, tax-loss hypothesis seems to fail to explain the existence of January effect in Hong Kong, too. However, it is possible that for foreigner investors, the fiscal years of those investors' native countries begin in January; therefore, tax-loss hypothesis can possibly explain January effect for the countries, even the fiscal years of those don't begin in January 1st.
  11. Only the CRSP Equal-Weighted Index of U.S. shows January effect

existing in U.S. Tax-loss hypothesis seems not to explain the existence of January effect in U.S. since its fiscal year begins in Oct. 1. However, it is still possible to result from the foreign investors' tax issue.

**Table 5: Power Ratio Results of Indexes**











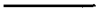


“Trend for Power Ratio” is resulted from Appendix E

$$R_j = (1 + \text{January return})^{12}$$

$$R_y = (1 + \text{return of the year})$$

$$\text{Power ratio} = R_j / R_y$$

| Index                               | Code | Period    | P (power ratio > 1.0) | Trend for Power Ratio |
|-------------------------------------|------|-----------|-----------------------|-----------------------|
| <b>Taiwan</b>                       |      |           |                       |                       |
| Taiwan comp average index           | TWII | 1982~2003 | 13/22                 | —                     |
| Taiwan Ele A & C index              | TEEI | 1997~2003 | 4/7                   | ↗                     |
| Taiwan electrical index             | TEII | 1994~2003 | 6/10                  | ↗                     |
| Taiwan bank and insurance index     | TFNI | 1993~2003 | 5/11                  | ↘                     |
| Taiwan chemical index               | TCHI | 1996~2003 | 5/8                   | ↗                     |
| Taiwan Plastical and chemical index | TPII | 1995~2003 | 4/9                   | ↘                     |
| Taiwan plastic index                | TPLI | 1996~2003 | 6/8                   | ↗                     |
| Taiwan cement index                 | TCMI | 1995~2003 | 4/8                   | ↗                     |
| <b>Hong Kong</b>                    |      |           |                       |                       |
| Hang Seng index                     | H SI | 1987~2003 | 10/17                 | —                     |
| HSI-Finance                         | HSIF | 1987~2003 | 11/17                 | ↗                     |
| HSI-Utilities                       | HSIU | 1987~2003 | 9/17                  | ↘                     |
| HK-Properties                       | HSNP | 1987~2003 | 11/17                 | ↗                     |
| HK-industry                         | HSNC | 1987~2003 | 11/17                 | ↗                     |
| <b>China</b>                        |      |           |                       |                       |
| SSE B share index                   | SSEB | 1995~2003 | 4/9                   | ↗                     |
| SSE A share index                   | SSEA | 1995~2003 | 5/9                   | ↗                     |

| Index                            | Code | Period    | P (power ratio > 1.0) | Trend for Power Ratio   |
|----------------------------------|------|-----------|-----------------------|---|
| <b>U.S.</b>                      |      |           |                       |   |
| Dow Jones US Average Index       | DJI  | 1929~2003 | 36/75                 |    |
| Dow Jones Transportation Average | DJT  | 1930~2003 | 35/74                 |    |
| Dow Jones Utilities Index        | DJU  | 1929~2003 | 29/75                 |    |
| S&P 500 Index                    | GSPC | 1983~2003 | 11/21                 |    |
| Nasdaq Bank                      | IXBK | 1982~2003 | 12/22                 |    |
| Nasdaq Other Finance             | IXFN | 1982~2003 | 14/22                 |    |
| Nasdaq Industrial                | IXID | 1981~2003 | 14/23                 |    |
| Nasdaq-100                       | NDX  | 1986~2003 | 10/18                 |    |
| Russell 1000 Index               | RUI  | 1993~2003 | 3/11                  |    |
| CRSP Equal-Weighted Index.       | CRSP | 1926~2003 | 65/78                 |   |
| <b>Japan</b>                     |      |           |                       |   |
| Nikkei 225 Index                 | N225 | 1984~2003 | 10/20                 |   |
| <b>Brazil</b>                    |      |           |                       |   |
| Ibovespa Sao Paulo               | BVSP | 1994~2003 | 6/10                  |  |
| <b>England</b>                   |      |           |                       |   |
| FTSE 100 INDEX                   | FTSE | 1985~2003 | 8/19                  |  |

## Chapter VI Conclusion

From the power ratio results in Table 3, Taiwan Weighted Average Index (13/22), Hong Kong Hang Sheng Index (10/17), and Hong Kong finance index (11/17), U.S. CRSP Equal-Weighted Index (65/78) show high probability of the existence of January effect. The trends of January effect of those indexes are flat, and that shows the stable probability of the existence of January effect. As for the market indexes in other markets, like Brazil, Japan, and England, January effect is not significant.

With the increasing degree of globalization of the capital market, the test of tax-loss hypothesis may need to consider the foreign capital investing in the local stock markets since the stocks may be sold and bought for the foreign investors' tax issue. If the amount of the foreign investment is large or the influence of foreign investment is big to the local stock market, tax-loss hypothesis may need to also consider the foreign investors' tax issue.

From the study of many researchers, January effect can generally be concluded in three characteristics: first, stocks in generally have a mild tendency to do well in January; Second, small stocks, in particular, thrive in January; third, the previous year's losers often bounce in January. An article entitled "Market likely to be flat" by Dorfman in "Financial Post Investing" on January 12, 2005 reported the failure of January effect for the three patterns in U.S. market in 2005. The author mentioned that the new tension of the Iraq and terrorism might result to part of the reason why January effect failed in 2005. Unexpected new events usually happen and impact on the economy. Sometimes, the

reality is more complicated than just follows the past pattern. As the stock markets become more internationalised and sophisticated, investors should know it is harder to benefit from predicting the January effect.

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## Appendices

### Appendix A: Expected 2004 Economy Growth

| <b>China</b>       | <b>Taiwan</b> | <b>Hong Kong</b> | <b>Canada</b>  | <b>US</b>    | <b>Europe</b> | <b>Australia</b> | <b>UK</b>     |
|--------------------|---------------|------------------|----------------|--------------|---------------|------------------|---------------|
| 7.8%~9.5% (note 1) | 5.4%(note 2)  | 6~6.5% (note 3)  | 3.3%(note 4)   | 4.6%(note 5) | 4%(note 6)    | 3.7% (note 7)    | 2.7% (note 7) |
| <b>Japan</b>       | <b>France</b> | <b>Italy</b>     | <b>Germany</b> |              |               |                  |               |
| 1.8% (note 7)      | 1.7% (note 7) | 1.6% (note 7)    | 1.4% (note 7)  |              |               |                  |               |

**Note:**

1. 9.5% from Goldman Sachs, 8.4% from Deutsche Bank AG, 7.8% from Morgan Stanley.
2. From Chung-Hua Institution for Economic Research.
3. From Economist Intelligence Unit.
4. From TD Economics
5. National Association for Business Economics (NABE)
6. From Directorate General for Economic and Financial Affairs. ISSN 1608-9022.
7. From Organisation for Economic Cooperation and Development's (OECD).



**Appendix B: Top Ten Largest Companies in Shanghai Stock Exchange A Share Market Index in March, 2004**

|           | <b>Company</b>    | <b>Market Capitalisations (10K RMB)</b> | <b>Industry</b> |
|-----------|-------------------|---|-----------------|
| <b>1</b>  | China Petrol      | 37,058,634.03                           | Energy          |
| <b>2</b>  | China Unicom      | 9,552,849.25                            | Telecom         |
| <b>3</b>  | Baosteel          | 9,321,440.00                            | Steel           |
| <b>4</b>  | Huaneng Intl      | 9,072,000.00                            | Energy          |
| <b>5</b>  | Changjiang Elect. | 7,054,688.00                            | Energy          |
| <b>6</b>  | Merchant Bank     | 6,283,206.65                            | Finance         |
| <b>7</b>  | Pudong Devel Bank | 4,224,285.00                            | Finance         |
| <b>8</b>  | Minsheng Bank     | 4,014,808.86                            | Finance         |
| <b>9</b>  | Shanghai Auto     | 3,953,878.90                            | Auto.           |
| <b>10</b> | Shanghai Petrol   | 3,511,270.00                            | Energy          |

**Concentration ratio: 27.79%**

## **Appendix C: Differences between H-share and Red Chip Companies**

Source: Excerpted from Hong Kong Stock Exchanges and Clearing Limited, website:

[http://www.hkex.com.hk/eng\\_compl/index.htm](http://www.hkex.com.hk/eng_compl/index.htm) reprinted by permission.

H-share companies are companies incorporated in the People's Republic of China and approved by the China Securities Regulatory Commission for a listing in Hong Kong. Shares in these companies are listed on the Stock Exchange, subscribed for and traded in Hong Kong dollars, or other currencies, and referred to as H shares. After finding its way into the Listing Rules, the term H share has been accepted and is widely used in the market. The letter H stands for Hong Kong.

A red chip company is a company that has at least 30 per cent of its shares in aggregate held directly by Mainland China entities, or indirectly through companies controlled by them, with the Mainland China entities being the single largest shareholders in aggregate terms. Alternatively, a company would be considered a red chip company if less than 30 per cent but more than 20 per cent of its shares are held directly or indirectly by Mainland China entities and there is a strong influential presence of Mainland China-linked individuals on the company's board of directors. Mainland China entities include state-owned enterprises, and entities controlled by provincial and municipal authorities.

The most important difference between a red chip company and an H-share company is that a red chip company is not Mainland-registered.

(Excerpted from Hong Kong Exchanges and Clearing Limited)

**Appendix D: The 10 Largest Companies in the TAIEX, 2002.**

|           | <b>Company Name</b> | <b>Market Capitalisations (NTD)</b> | <b>Industry</b>         |
|-----------|---------------------|-------------------------------------|-------------------------|
| <b>1</b>  | TSMC                | 1.29E+12                            | IC Manufacturing        |
| <b>2</b>  | Chunghwa Telecom    | 4.76E+11                            | Communications Services |
| <b>3</b>  | UMC                 | 4.70E+11                            | IC Manufacturing        |
| <b>4</b>  | Cathay Holdings     | 4.24E+11                            | Finance                 |
| <b>5</b>  | Hon Hai             | 3.36E+11                            | Electronics             |
| <b>6</b>  | NPC                 | 3.23E+11                            | Plastics                |
| <b>7</b>  | FPC                 | 2.69E+11                            | Plastics                |
| <b>8</b>  | Fubon Financial     | 2.68E+11                            | Finance                 |
| <b>9</b>  | China Steel         | 2.67E+11                            | Steel                   |
| <b>10</b> | FCFC                | 2.57E+11                            | Plastics                |

**Concentration Ratio: 34%**

## Appendix E: Power Ratio for the Market Indexes

Fig 1: Power Ratio for TWII

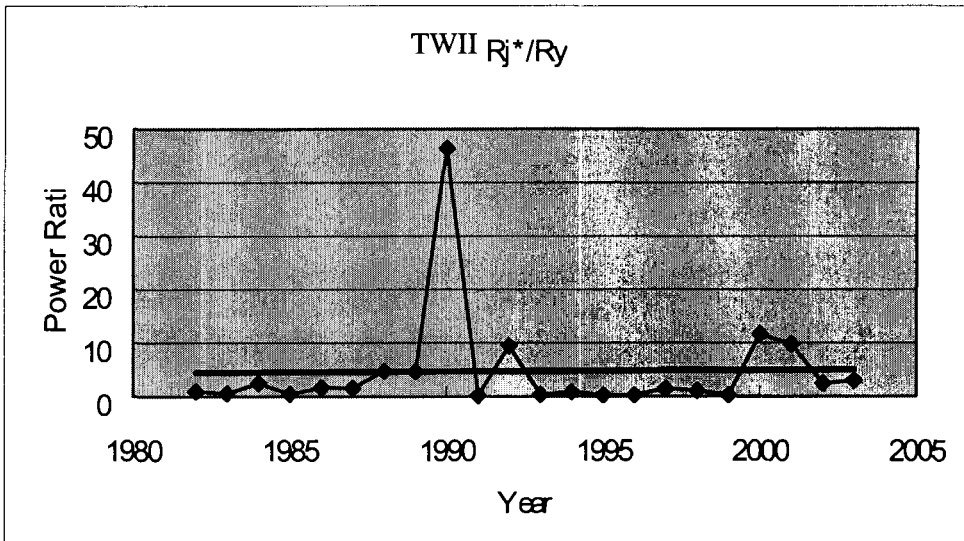


Fig 2: Power Ratio for TEEI

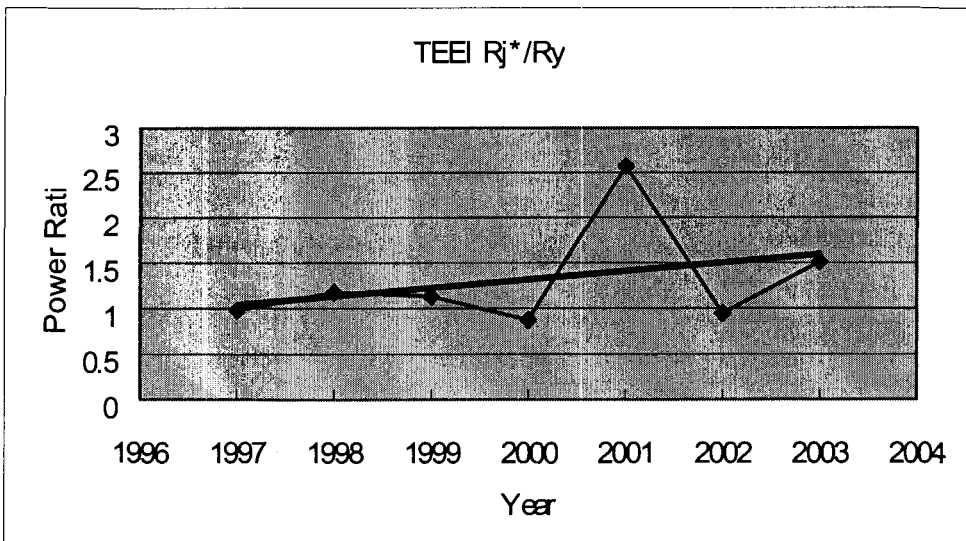


Fig 3: Power Ratio for TEII

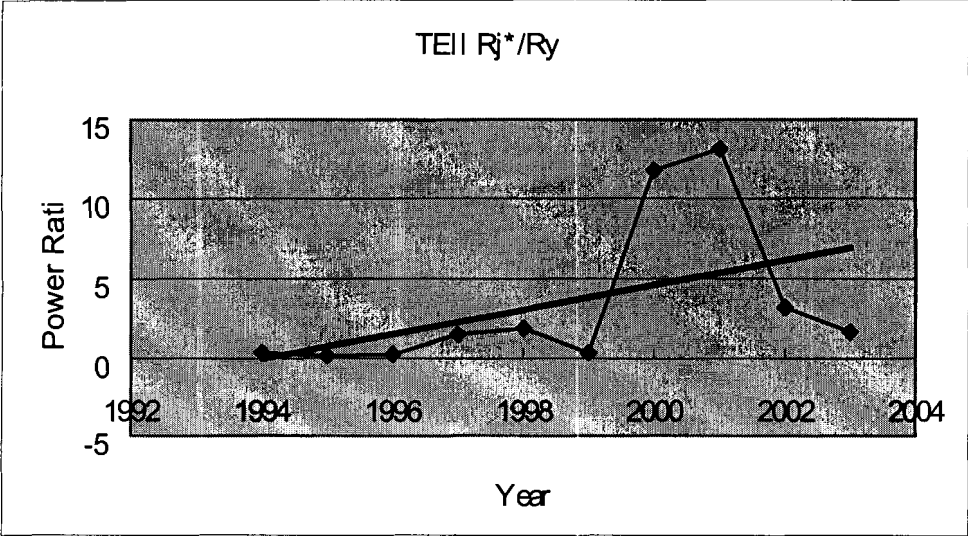


Fig 4: Power Ratio for TFNI

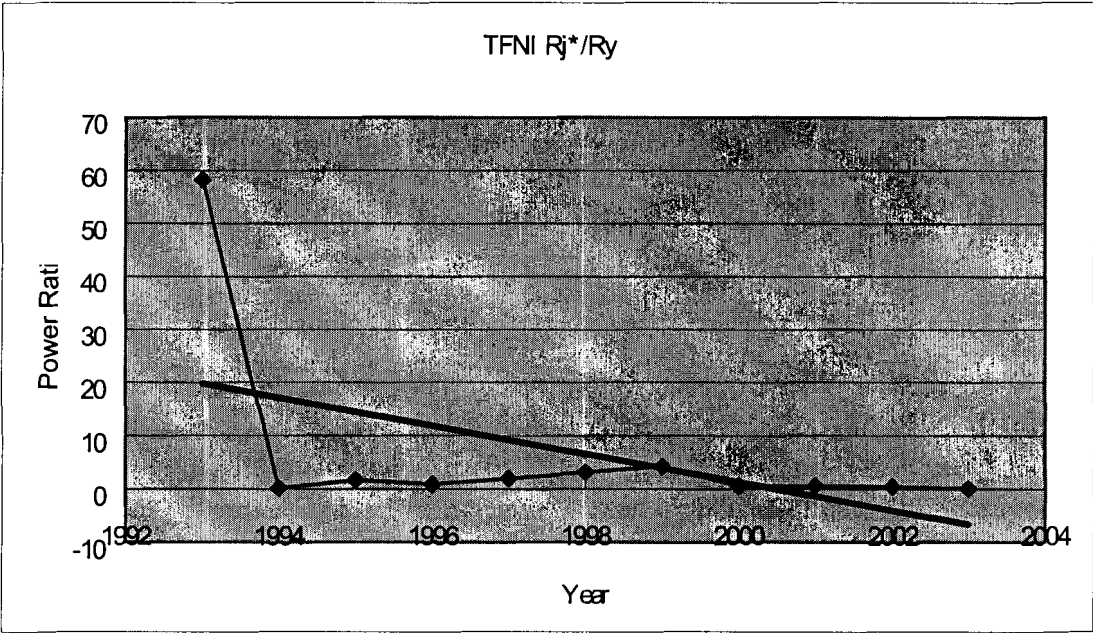


Fig 5: Power Ratio for TCHI

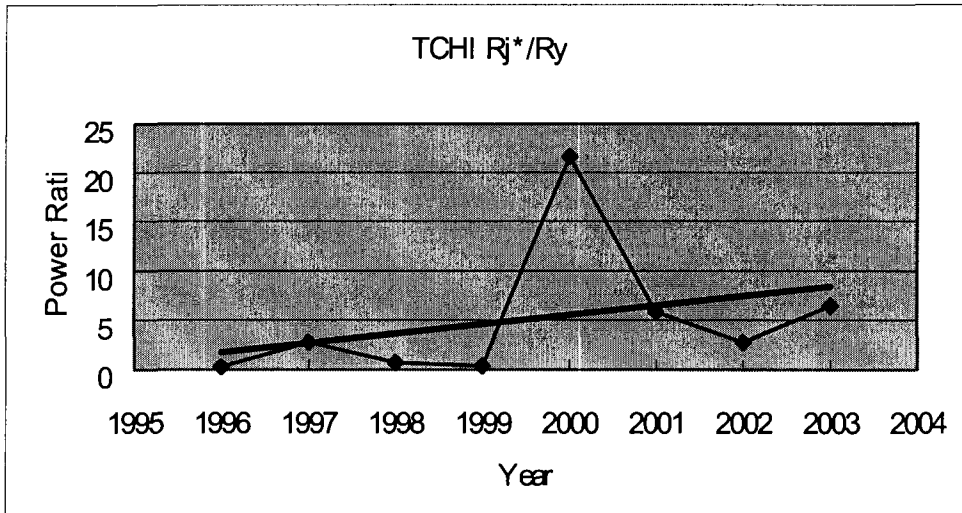


Fig 6: Power Ratio for TPII

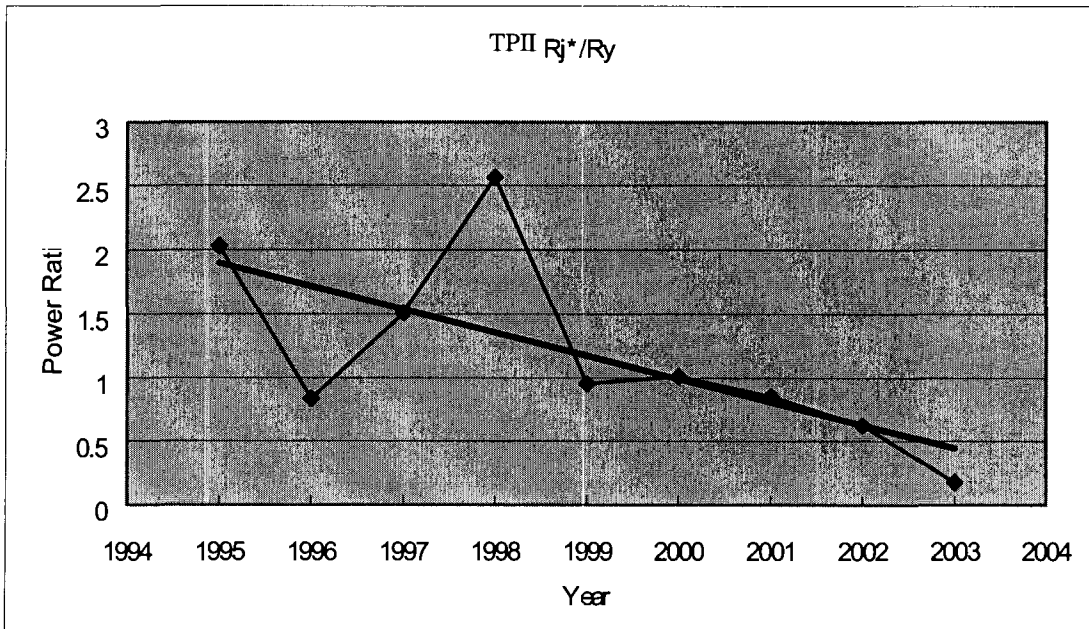


Fig 7: Power Ratio for TPLI

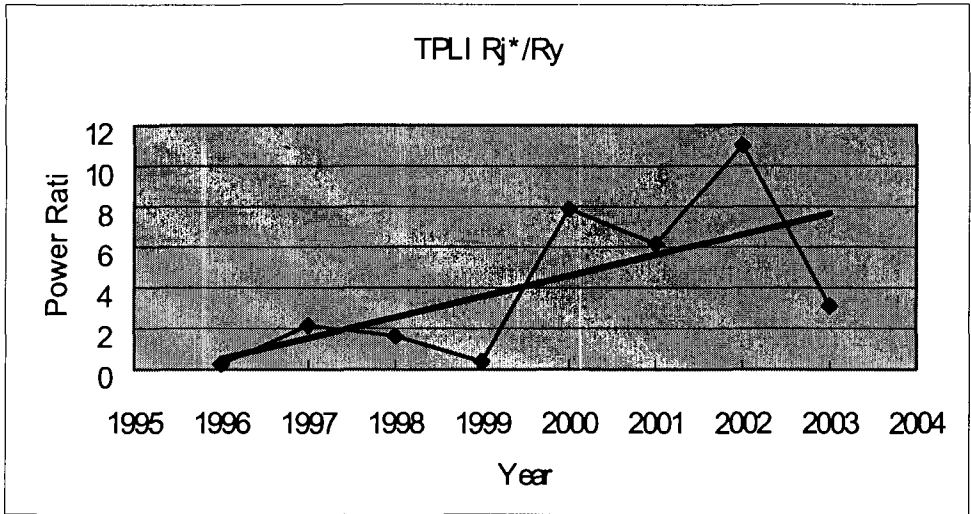


Fig 8: Power Ratio for TCMI

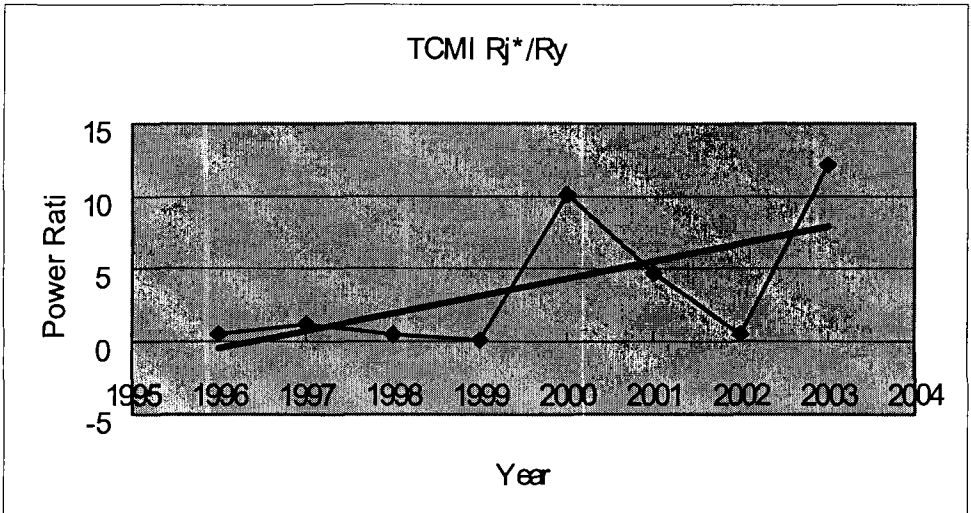


Fig 9: Power Ratio for HSI

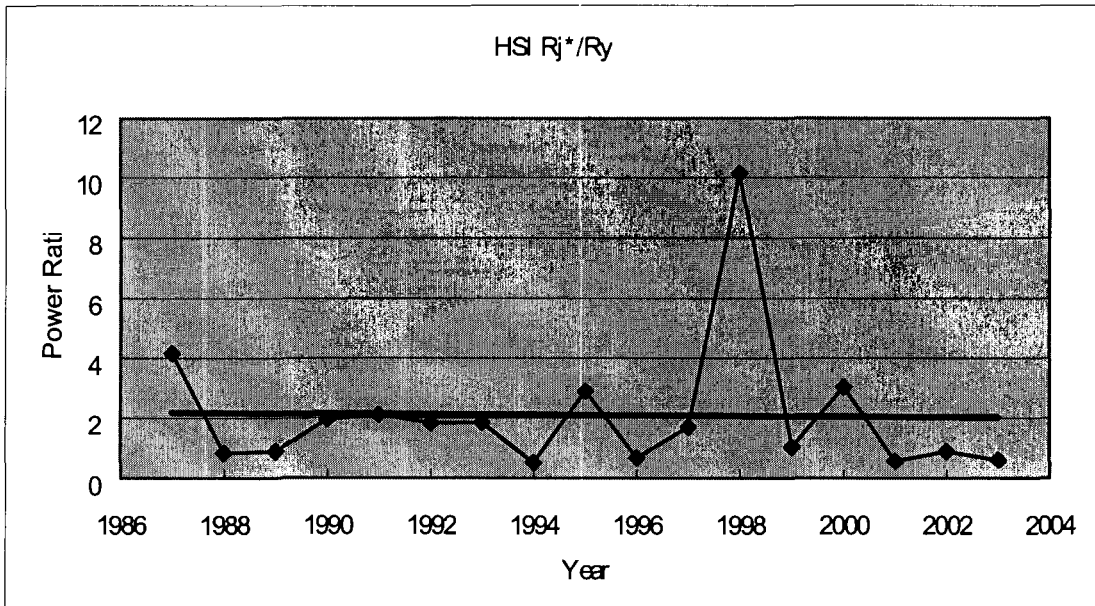


Fig 10: Power Ratio for HSIF

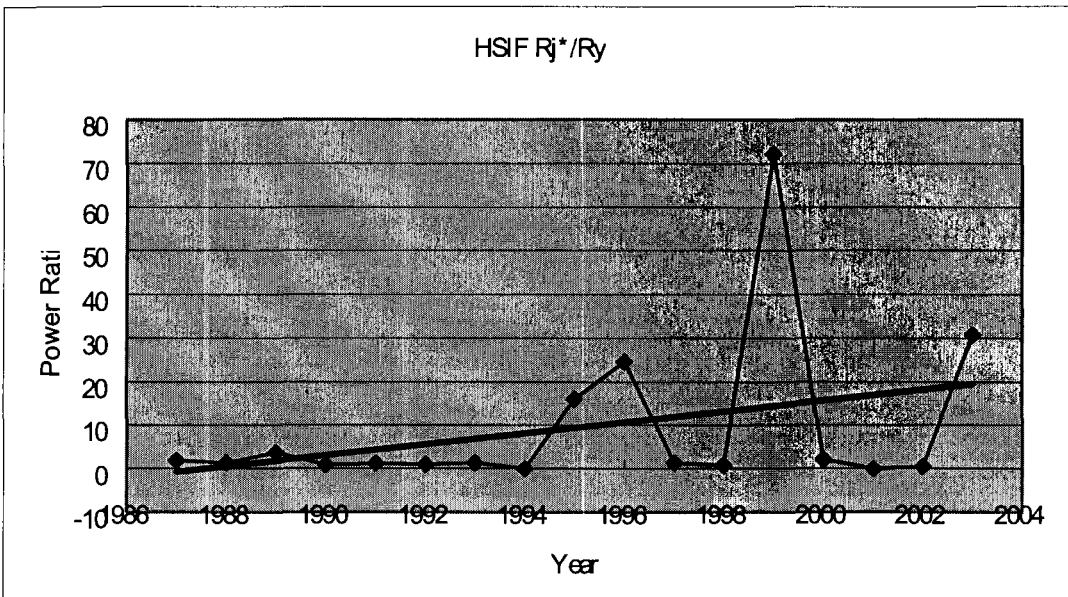




Fig 11: Power Ratio for HSIU

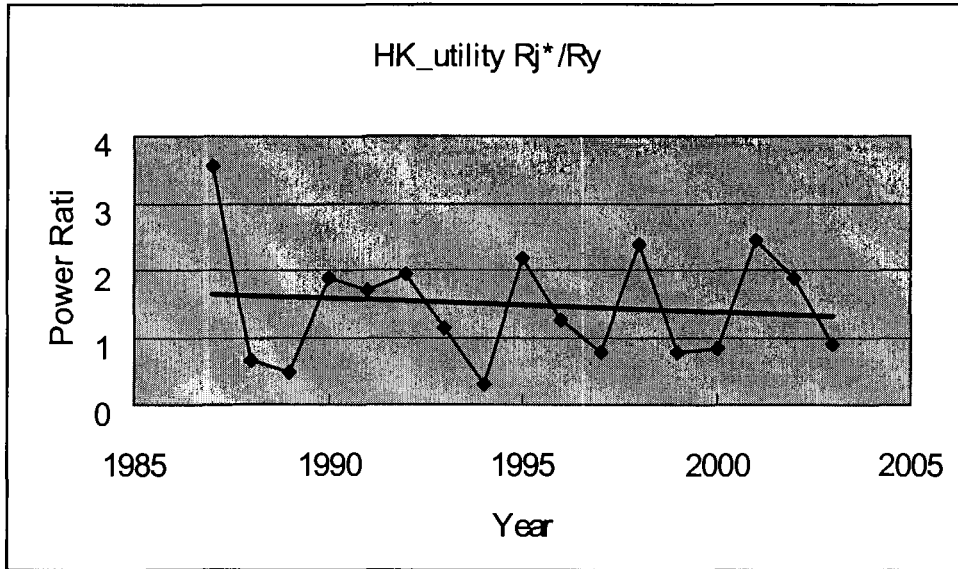


Fig 12: Power Ratio for HSNP

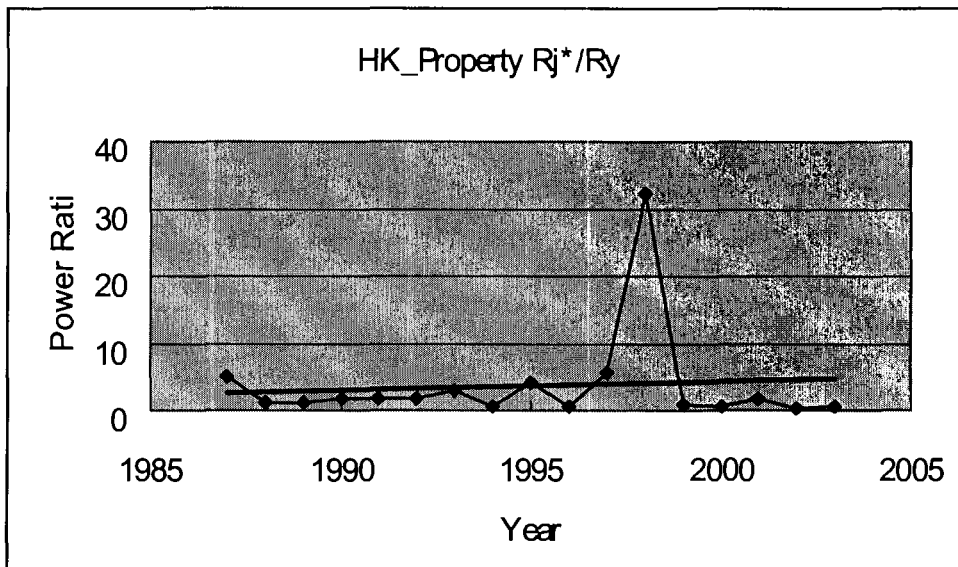


Fig 13: Power Ratio for HSNC

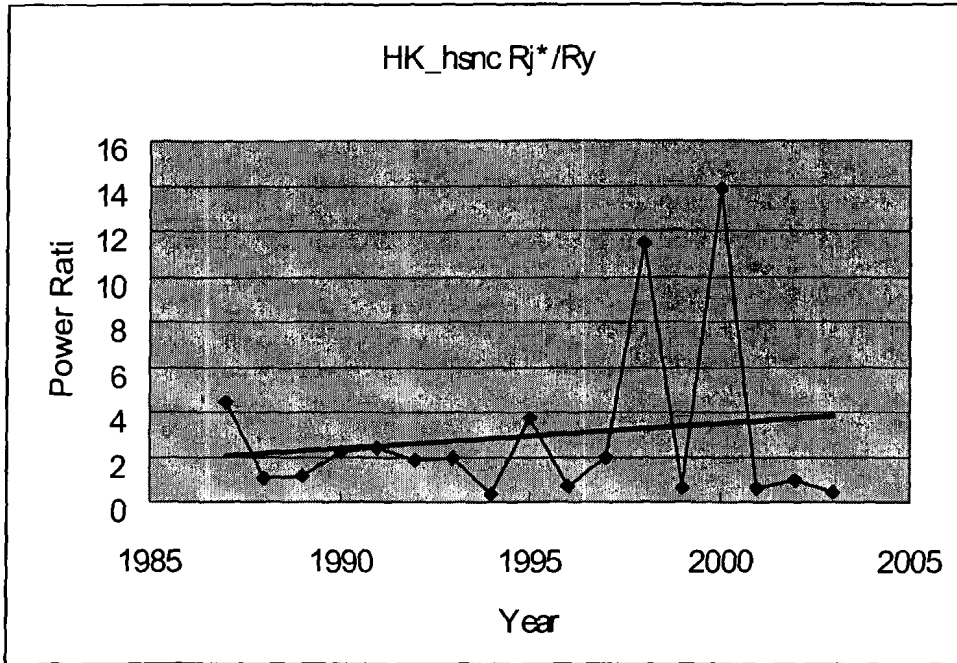


Fig 14: Power Ratio for SSEA

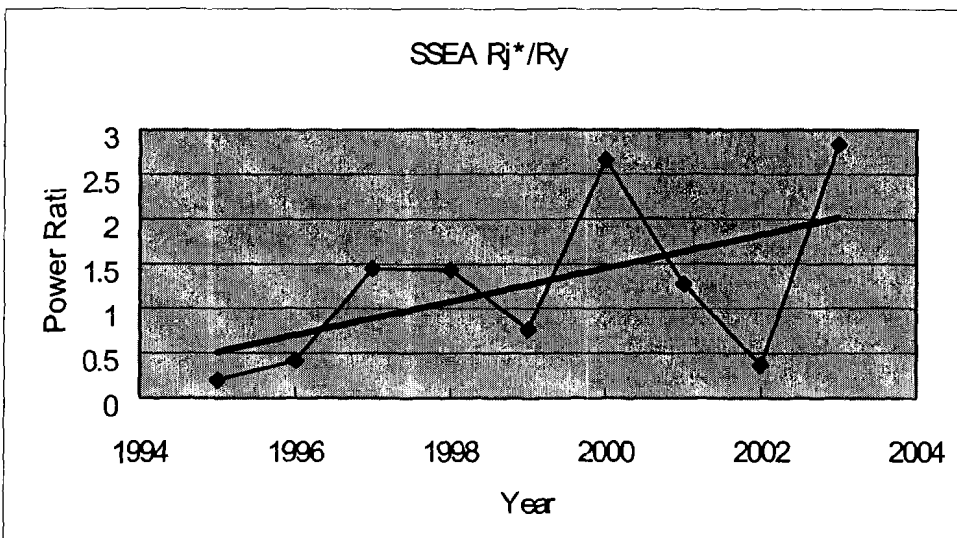


Fig 15: Power ratio for SSEB

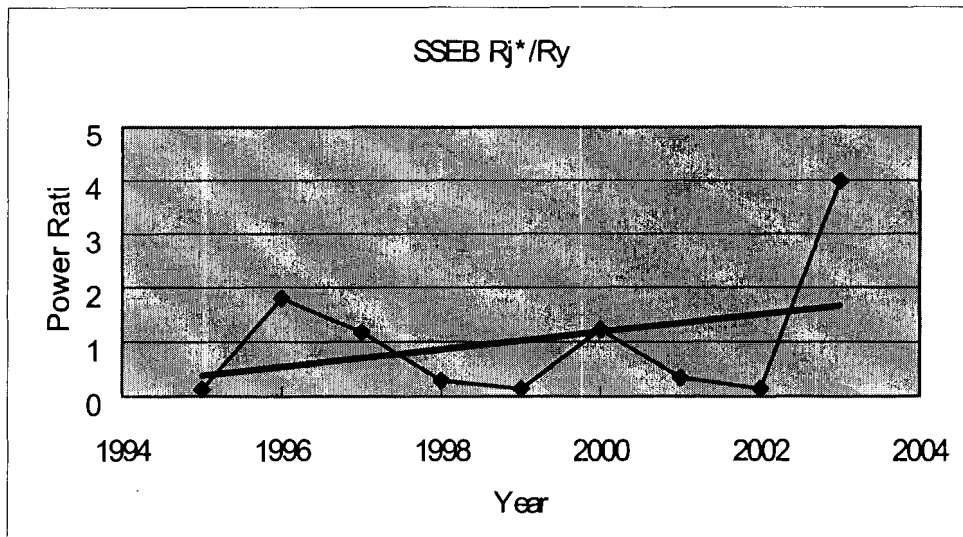


Fig 16: Power ratio for DJI

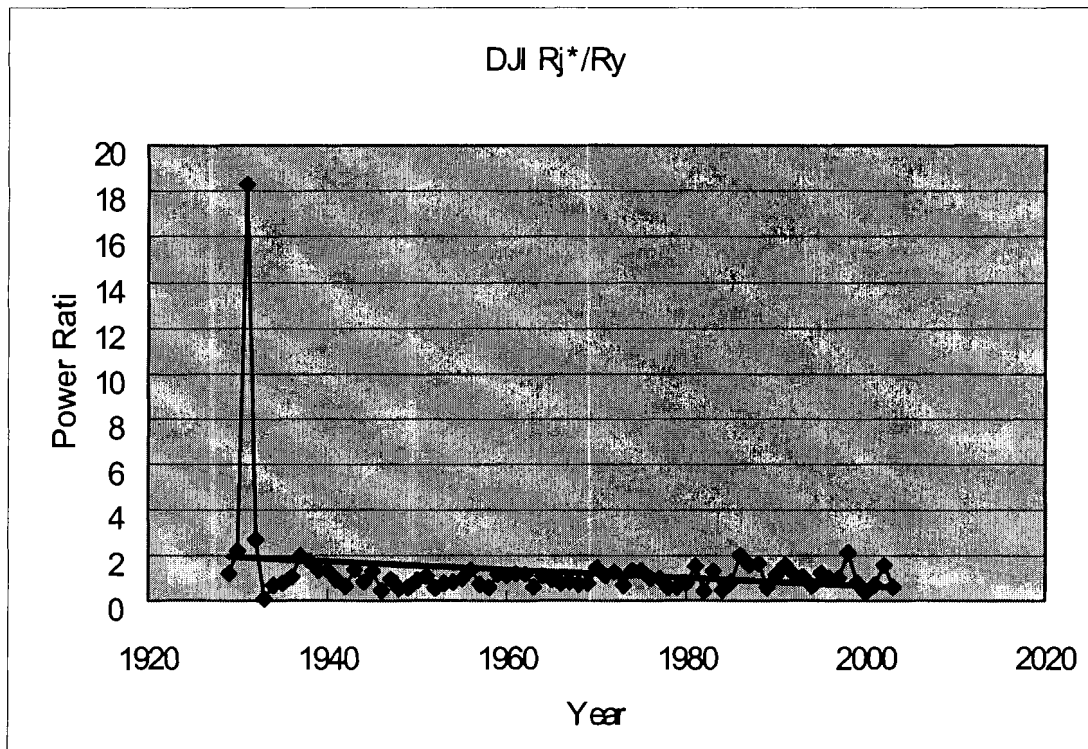


Fig 17: Power ratio for DJT

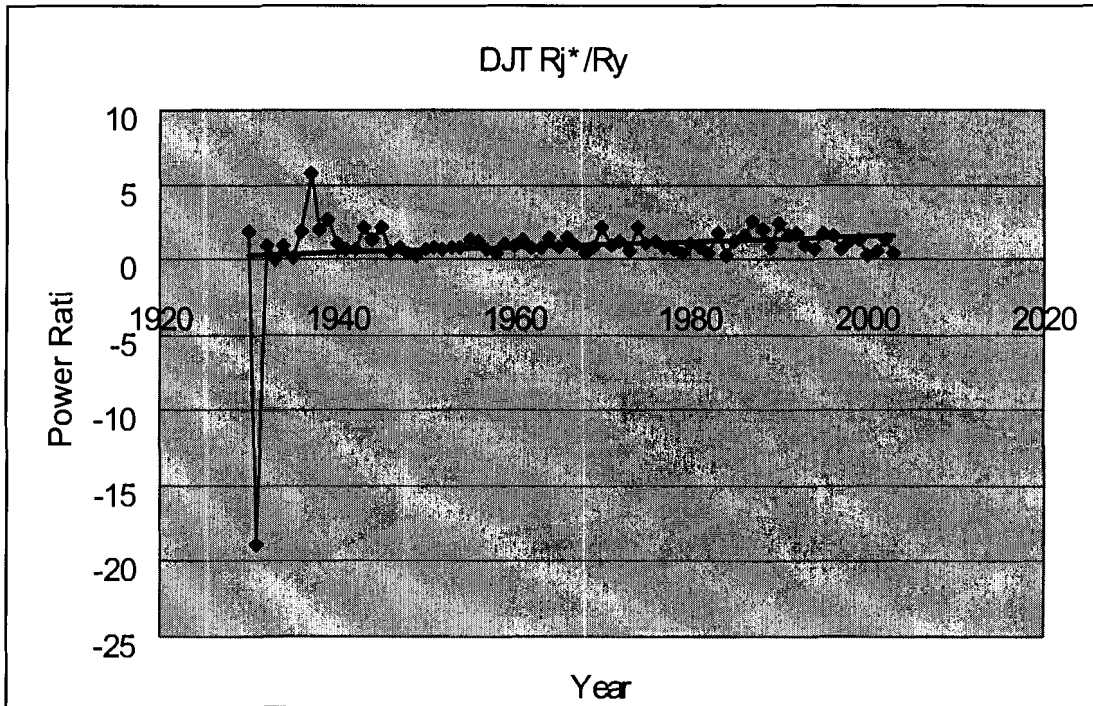


Fig 18: Power ratio for DJU

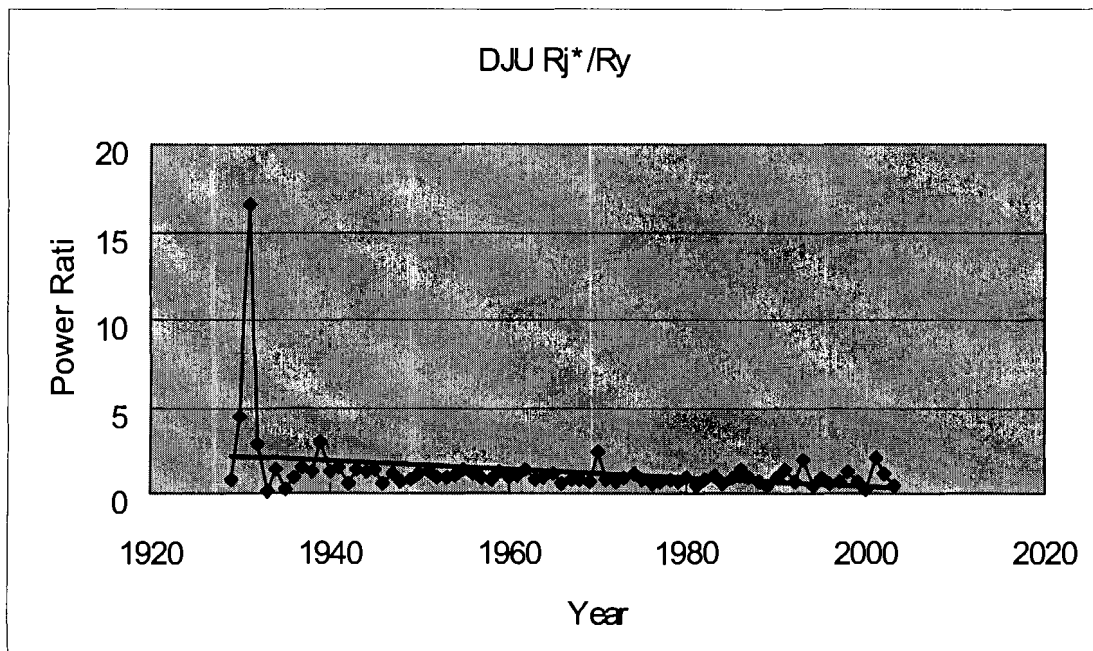


Fig 19: Power ratio for GSPC

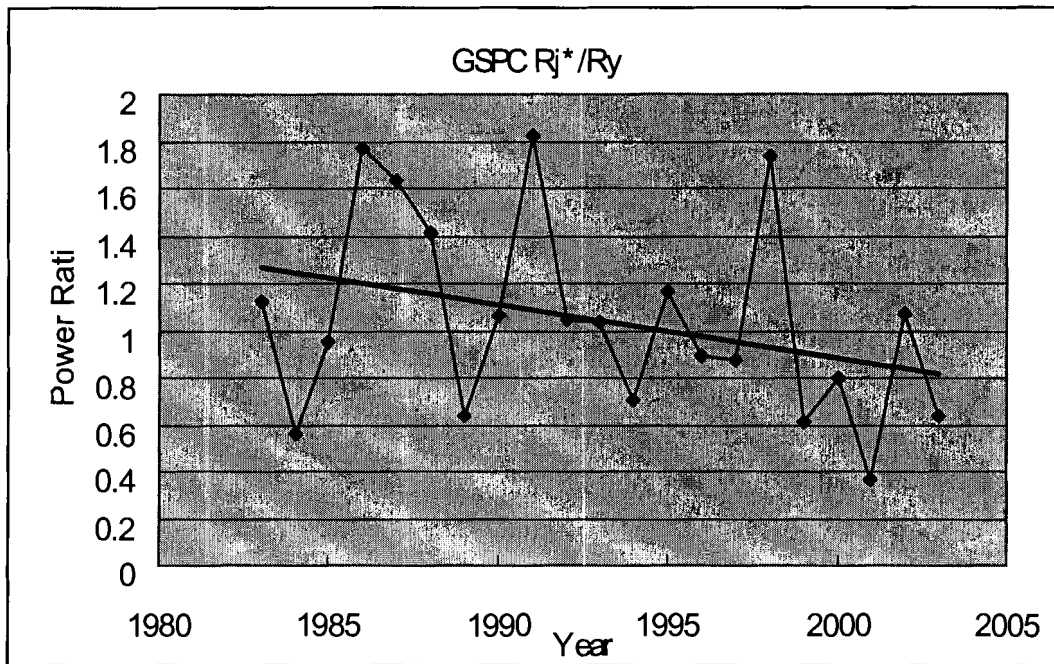


Fig 20 Power ratio for IXBK

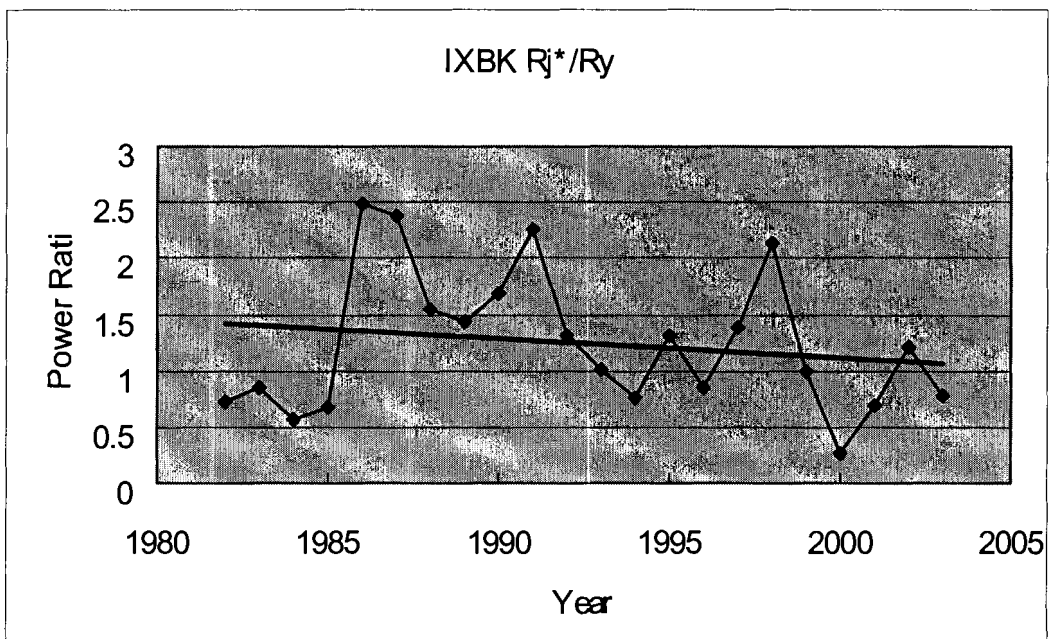


Fig 21: Power ratio for IXFN

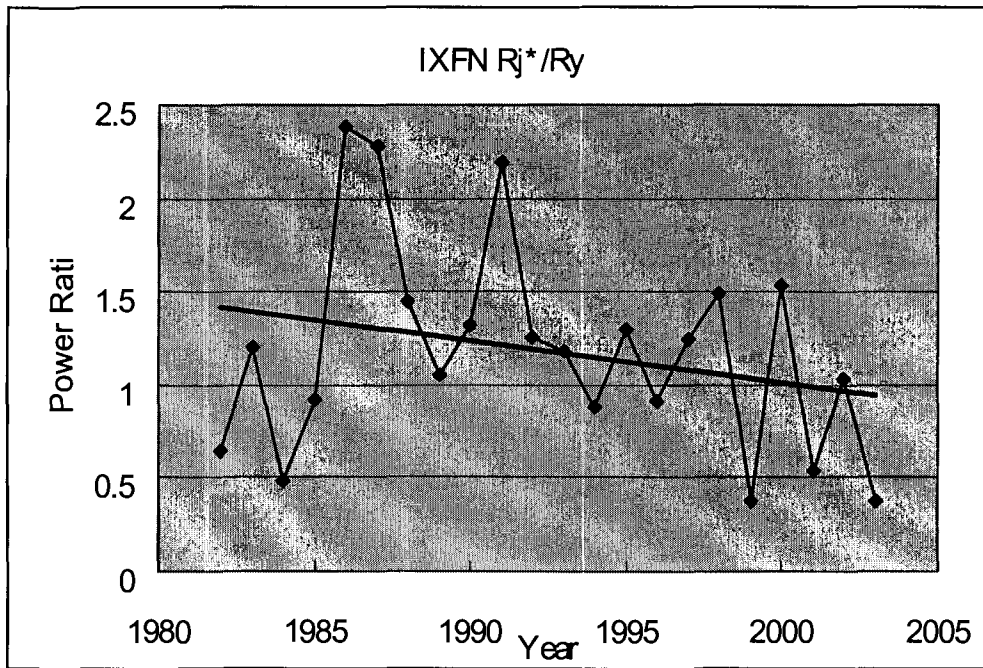


Fig 22: Power ratio for IXID

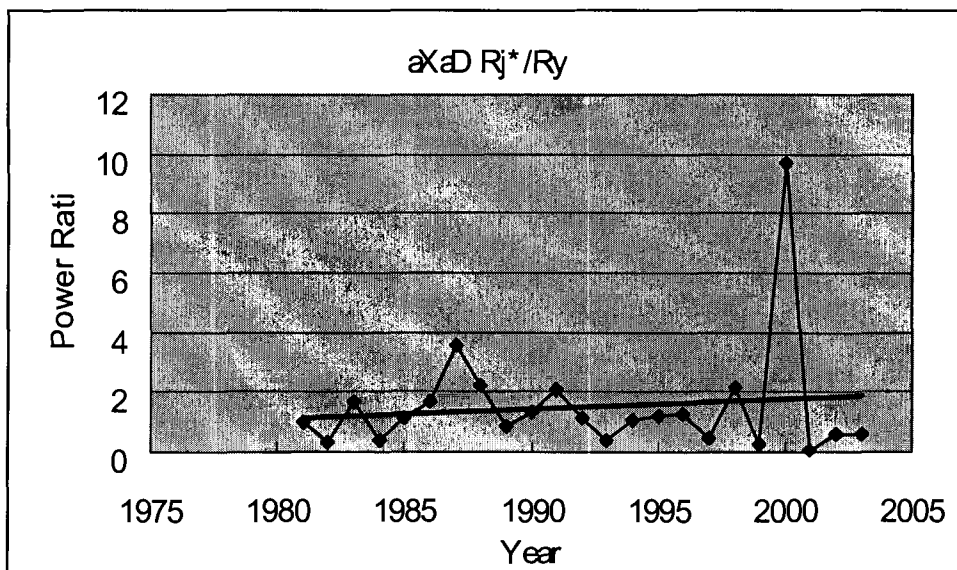


Fig 23: Power ratio for NDX

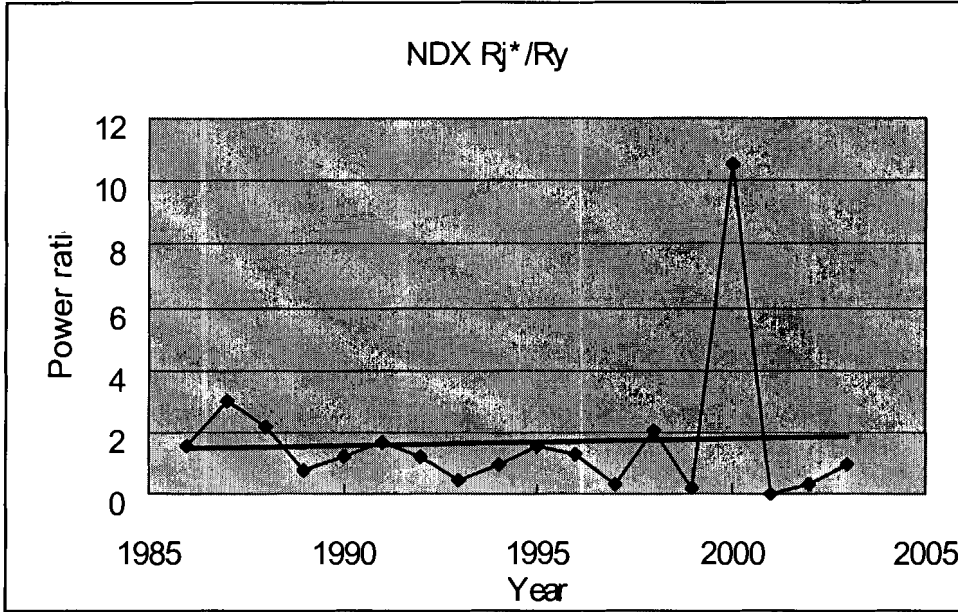


Fig 24: Power ratio for RUI

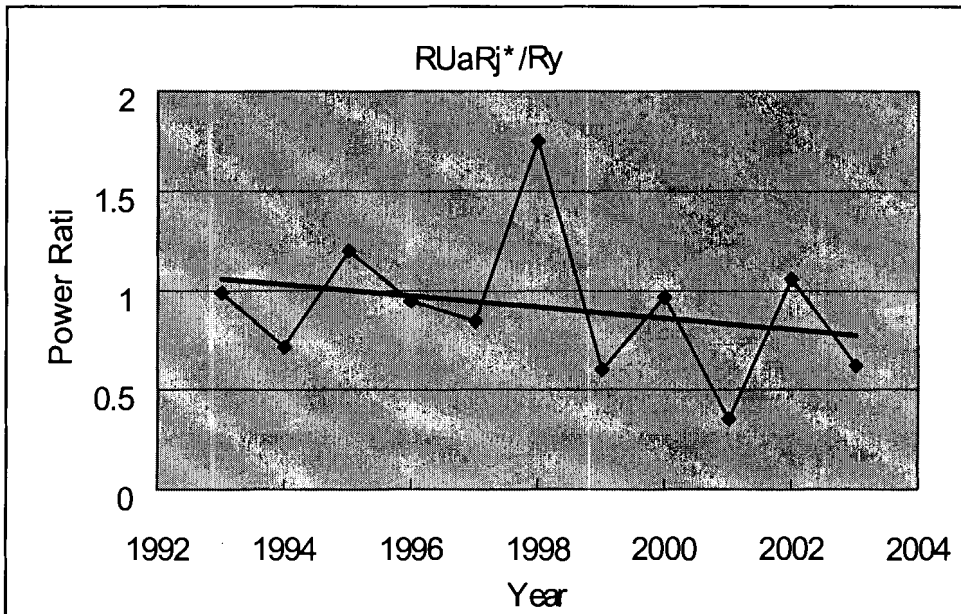


Fig 25: Power Ratio for N225

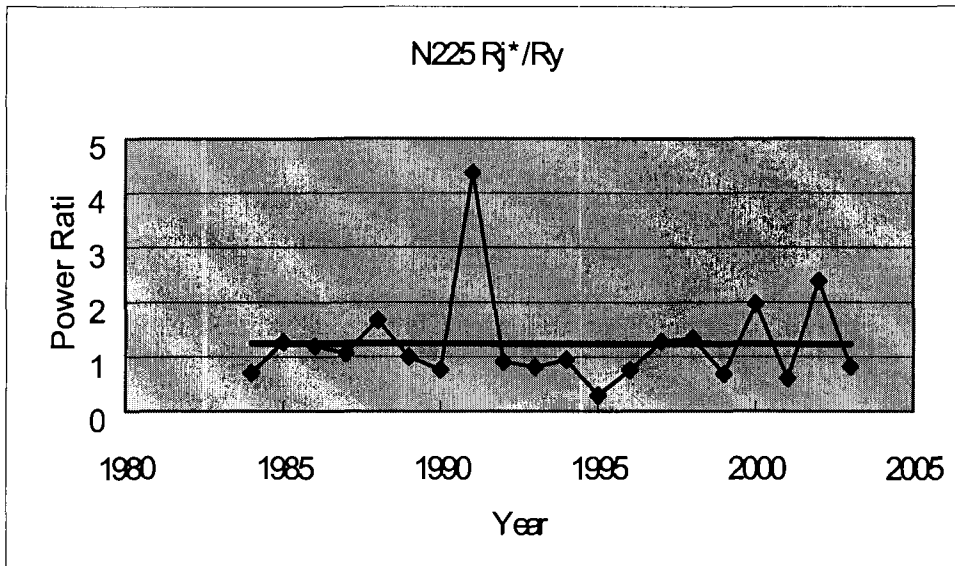


Fig 26: Power ratio for Brazil

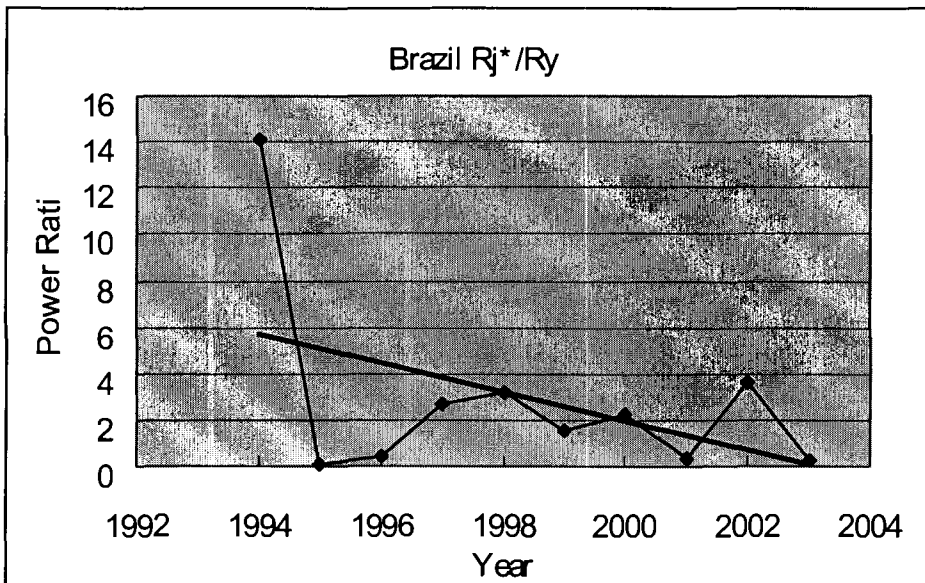




Fig 27: Power Ratio for FTSE 100

