INVESTMENT TRIVIA

The Seasonality of Stock Market Returns

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DRW INVESTMENT RESEARCH

Part 4:

Are there notable differences in stock market returns between the months or quarters of the year?

Hypothesis:

Stock prices react to news, whether company- or industry-specific and macroeconomic or socio-political in nature. Since "news" is not predictable in advance or bound to happen at random, so should short-term stock price movements generally be random. Therefore, one should not expect any significant differences in stock market returns between the months or quarters of the year.

Data:

- The closing values of the FTSE JSE All Share Index at month-end from January 1960 to 31 December 2010.

- The closing values of the FTSE JSE All Share Index at quarter-end from January 1960 to 31 December 2010.

Results:

Monthly returns for the period January 1960 to December 2010

Number of years: 51

Overall average monthly return: 1.2%

Overall median monthly return: 1.4%

Return profile	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average	1.3%	1.0%	1.7%	1.0%	1.3%	-0.2%	1.9%	0.8%	0.5%	0.2%	0.9%	3.5%
Standard Deviation	6.6%	5.5%	6.6%	5.5%	6.0%	5.8%	6.1%	7.8%	5.9%	6.5%	5.6%	5.8%
Median	2.0%	1.2%	1.8%	1.3%	1.6%	0.0%	2.0%	1.8%	1.1%	0.8%	1.0%	2.7%
Minimum return	-15.5%	-14.4%	-14.2%	-10.3%	-17.9%	-12.8%	-13.3%	-29.5%	-14.0%	-23.8%	-16.9%	-5.7%
Maximum return	15.7%	12.3%	17.0%	11.8%	14.0%	10.4%	16.8%	15.9%	12.8%	13.8%	11.0%	17.6%
Positive months	56%	63%	63%	55%	61%	43%	71%	63%	53%	53%	55%	69%
Negative months	44%	37%	37%	45%	39%	57%	29%	37%	47%	47%	45%	31%
Excess return	0.1%	-0.1%	0.6%	-0.1%	0.1%	-1.4%	0.7%	-0.3%	-0.6%	-1.0%	-0.2%	2.3%
t-value	0.24	-0.35	1.22	-0.33	0.26	-3.27	1.69	-0.59	-1.49	-2.19	-0.56	5.50

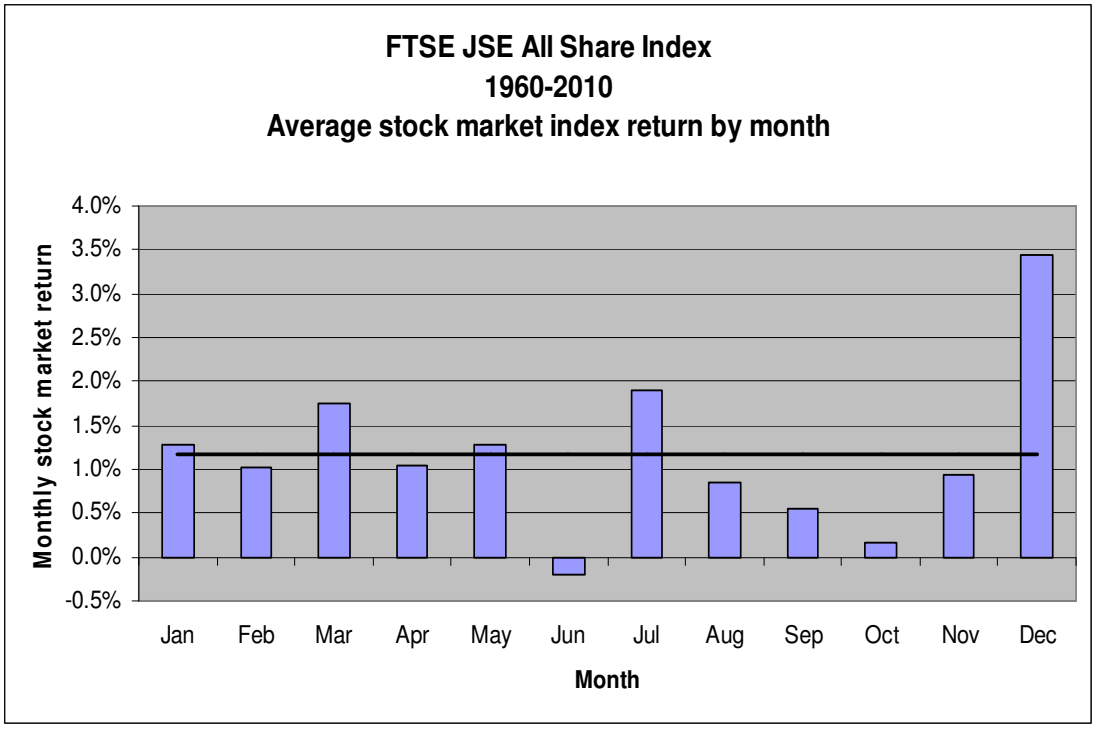


Chart 1

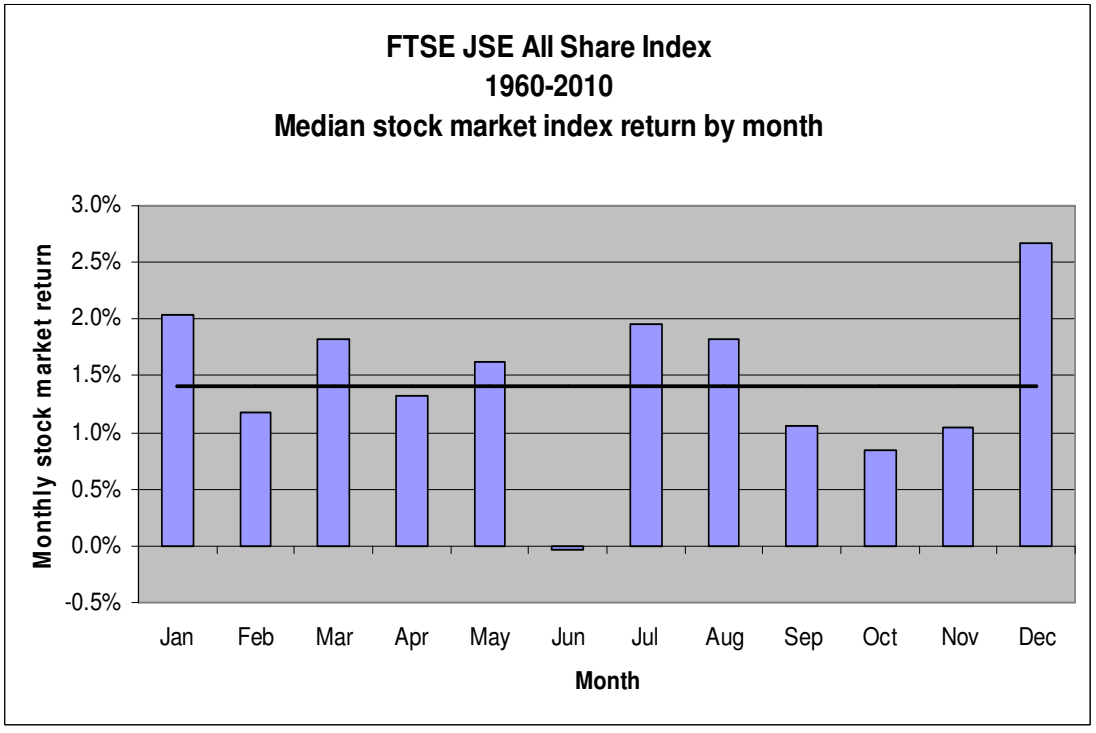


Chart 2

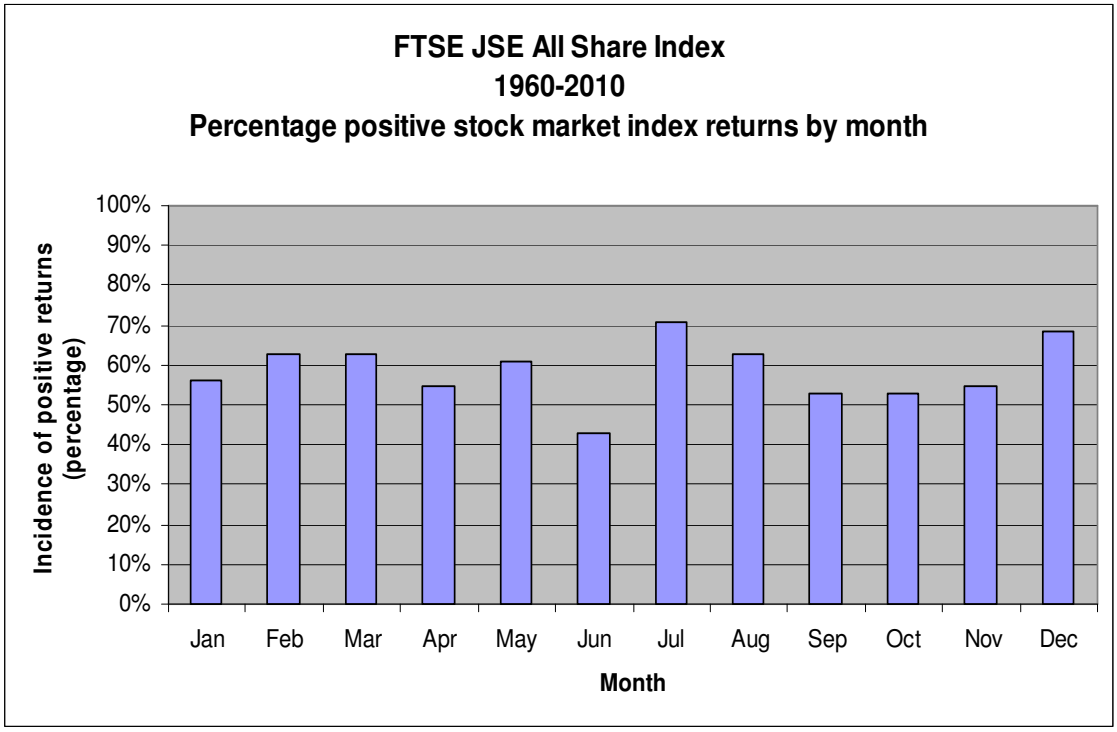


Chart 3

- The best performing months (average and median returns) were identified as **January**, **March**, **July** and **December**, while **June**, **September** and **October** were the worst performing months.

- Nonetheless, the differences in returns for each month relative to the overall average monthly return were not found to be particularly significant, except in two instances, namely the months of **June** and **December**.

- The month of **June** exhibited the lowest average and median return of all months. Also, historically it showed the lowest number of positive return months (43%). The difference in the monthly return for **June** relative to the overall monthly return (excess return) tested statistically significant (p=0.05) with a negative t-value of 3.27.

- The month of **December** delivered the best average and median returns of all months with one of the highest number of positive returns for all periods (July has the highest positive return ratio). The excess return of **December** month tested statistically significant (p=0.05) with a t-value of 5.50.

Since January 1995:

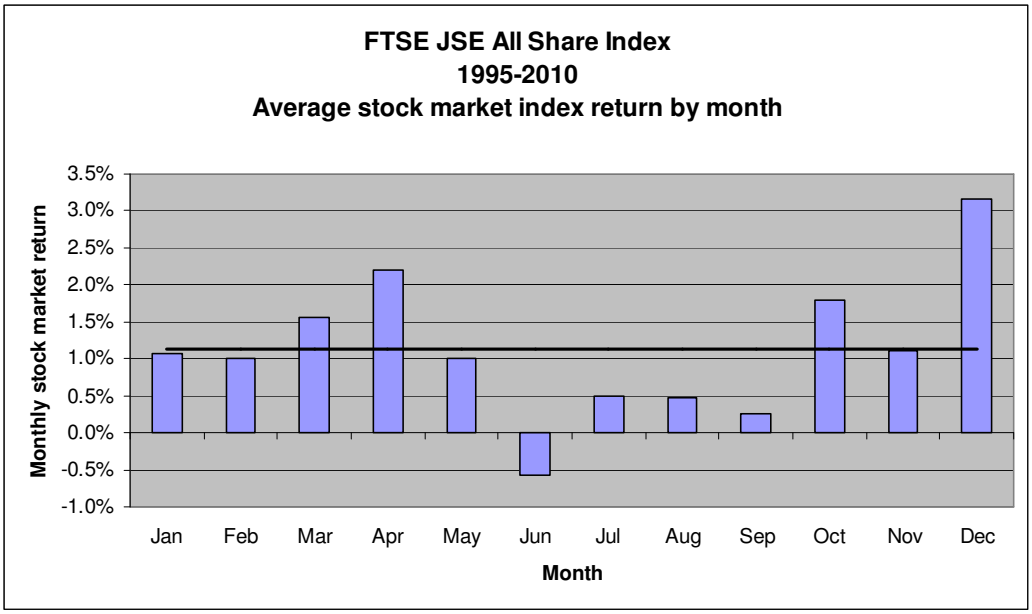
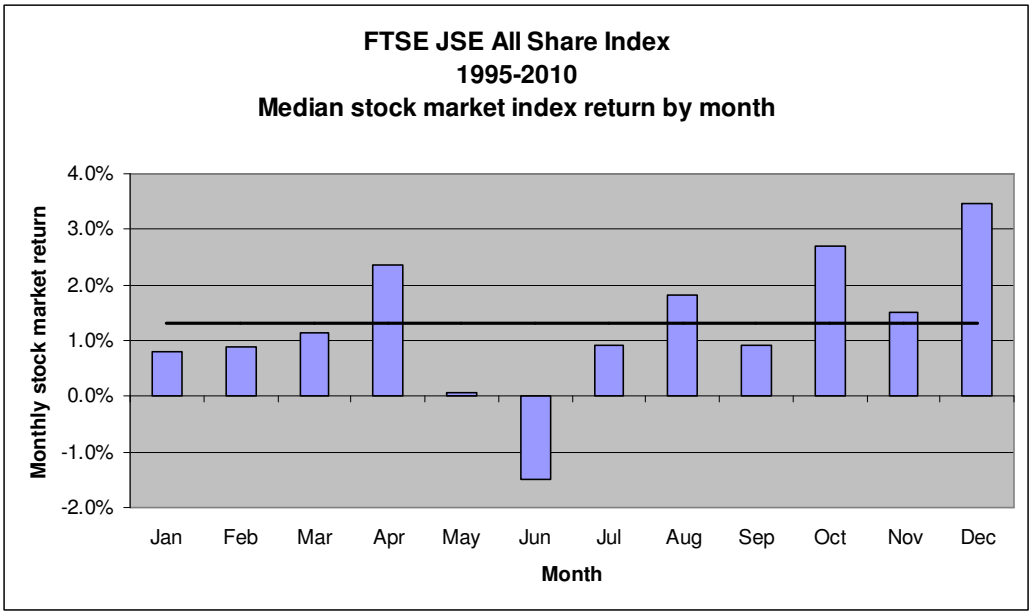


Chart 4



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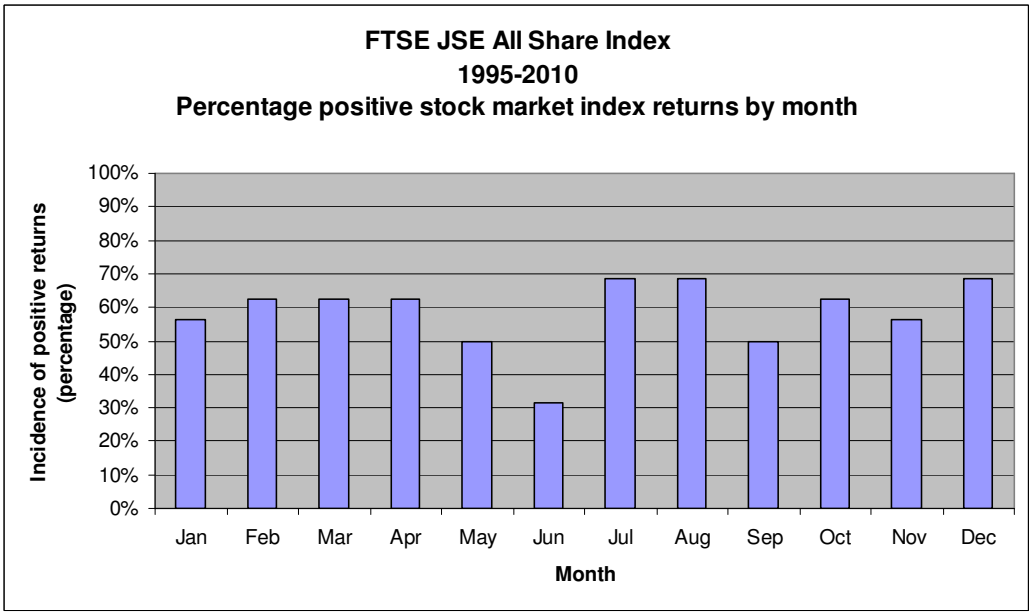

Chart 6

Quarterly returns for the period January 1960 to December 2010

Number of years: 51

Overall average quarterly return: 3.7%

Overall median quarterly return: 4.4%

Return profile	Mar	Jun	Sept	Dec
Average	4.6%	2.1%	3.6%	4.7%
Standard Deviation	12.0%	9.5%	14.2%	11.3%
Median	4.9%	3.0%	5.4%	3.8%
Minimum return	-24.0%	-24.0%	-23.1%	-32.1%
Maximum return	40.9%	19.8%	52.2%	30.7%
Positive quarters	68%	65%	61%	75%
Negative quarters	32%	35%	39%	25%
Excess return	0.9%	-1.7%	-0.2%	0.9%
t-value	1.07	-2.45	-0.17	1.15

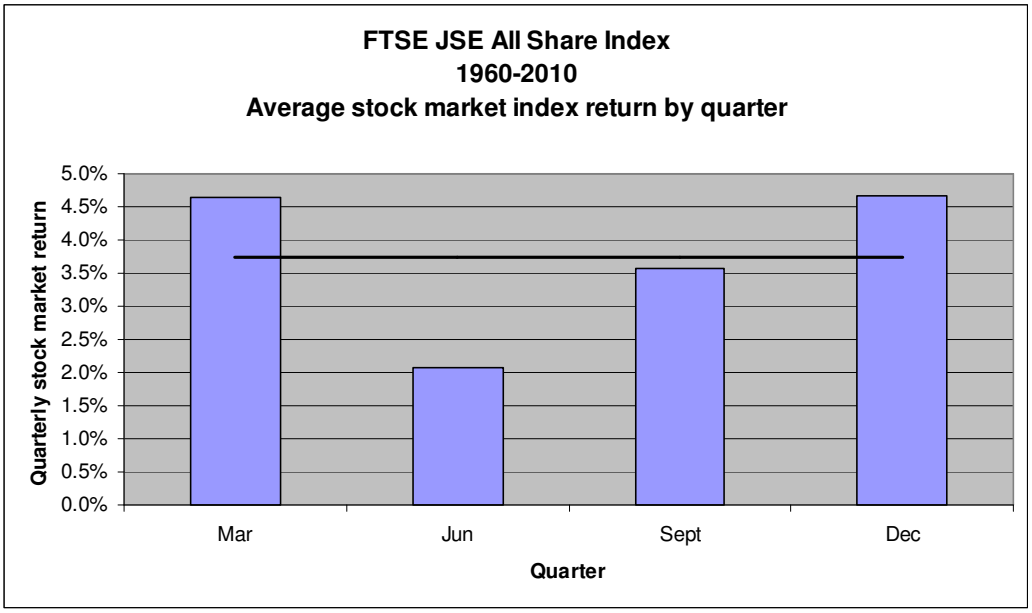

Chart 7

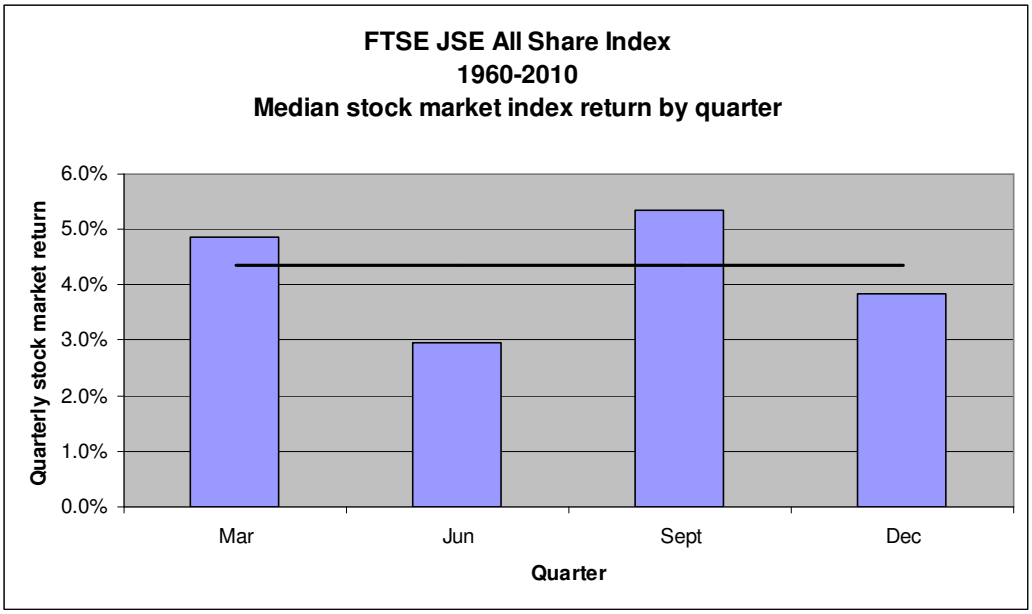

Chart 8

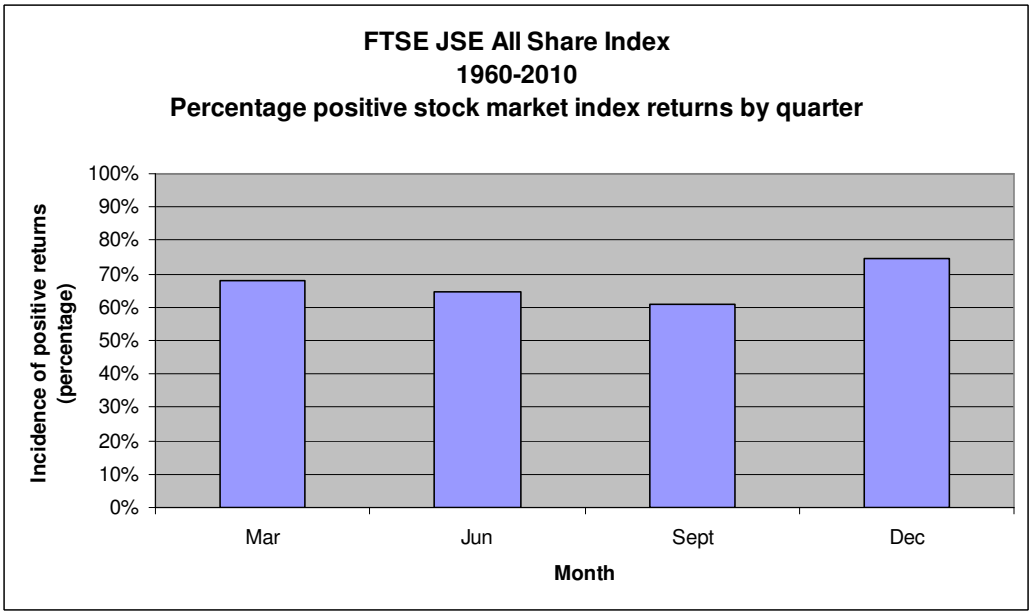

Chart 9

- The quarters ended **March** and **December** (first and last quarters of the year) historically delivered higher average and median returns than the second (**June**) and third (**September**) quarters. Nonetheless, the excess returns for these quarters are not statistically significant better (p = 0.05) than the overall average quarterly return.

- The excess returns for the quarter ended **June** tested statistically significant worse (p=0.05) than the overall average quarterly return with a negative t-value of 2.45.

Since January 1995:

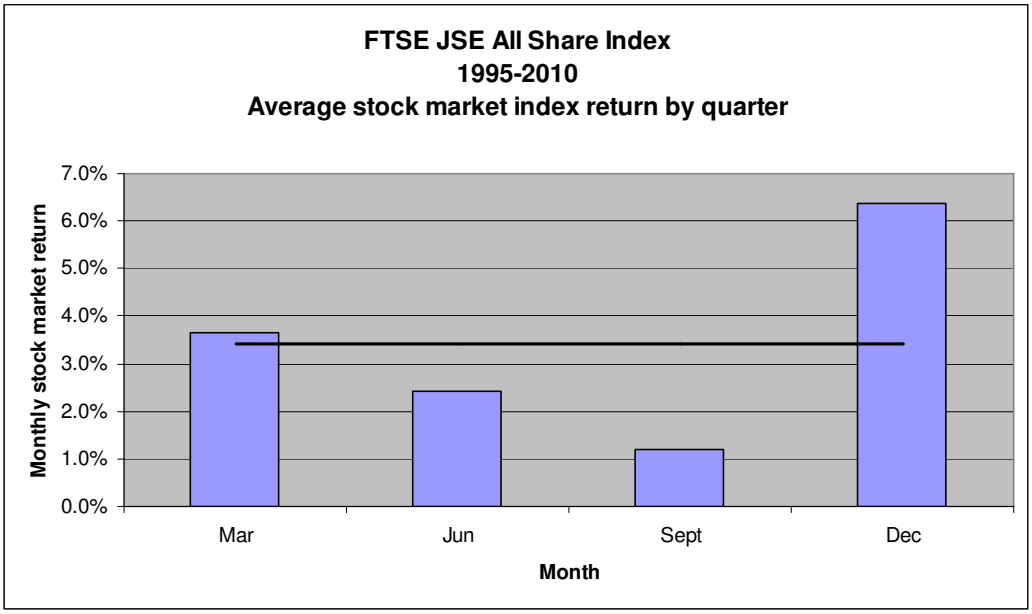

Chart 10

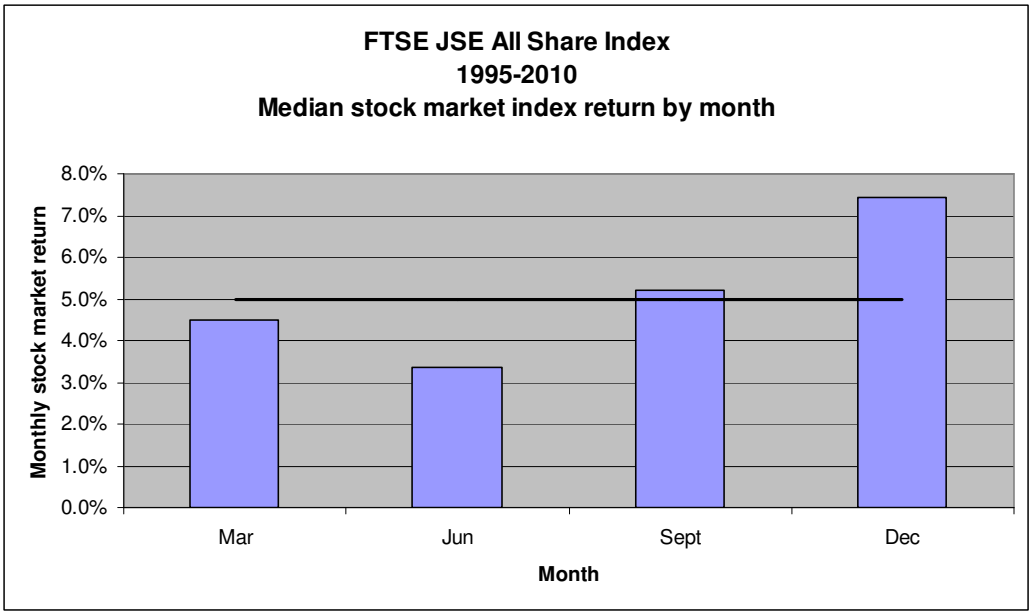

Chart 11

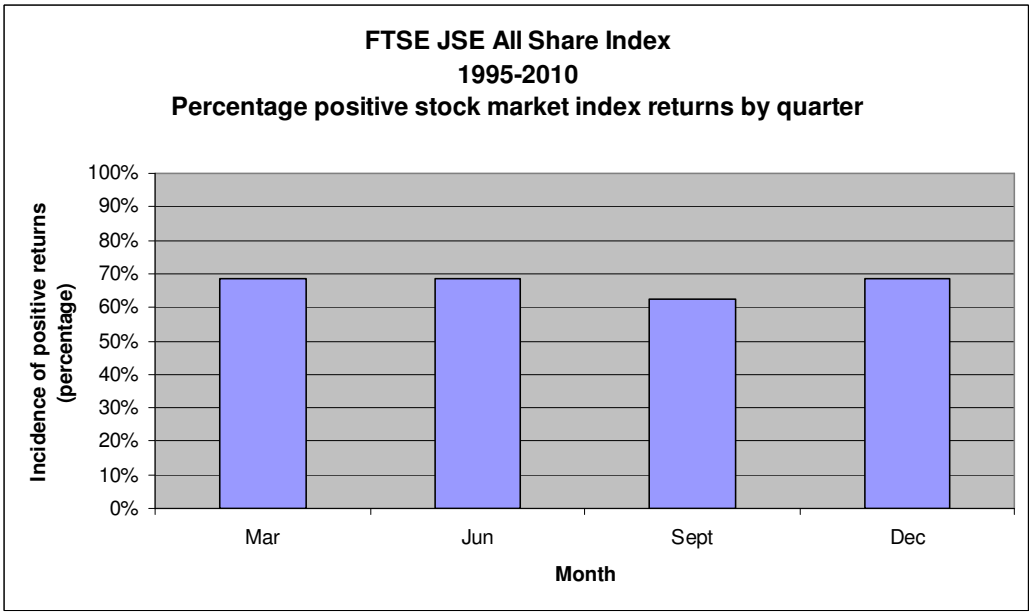

Chart 12

Synopsis:

Despite the theoretical expectation of no significant return differences between the months or quarters of a calendar year, it was found that the **month of June** and the **quarter ended June** fared on average significantly worse than the overall average return for all months and quarters of a year. The returns for the **month of December** proved to be significantly better than the overall average monthly return.

Thus, while the adage “sell in May and go away” may seem true, the investor should be back in the market before December to participate in that month’s historical outperformance. Such a strategy, however, would seem much less viable once real-world transactional fees are considered plus the knowledge that statistical inferences are not absolute certainties or guarantees!

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