A STUDY ON COMPARATIVE ANALYSIS OF MARKET CAPITAL INDICES WITH REFERENCE TO BOMBAY STOCK EXCHANGE MONARCH NETWORTH LIMITED, KOVILPATTI

Dr.R.Kasi Raman [1] Induja M [2] Keerthana J [3] Karpagalakshmi S [4]

[1][2][3][4] Department of Management Studies, PSR Engineering College, Sivakasi, India.

The study entitled "A Study On Co-Movement Of Selected Indices With Reference To Bombay Stock Exchange In Angel Broking Limited, Kovilpatti" was conducted to identify the comovements and interlinkages of BSE market indices such as S&P BSE200, S&P BSE 250 LARGEMIDCAP, S&P BSE 400 MIDSMALLCAP, S&P BSE ALLCAP and S&P BSE SMALLCAP were considered. During the period from 1st January, 2016 to 31st December, 2020, the daily return data of the selected sample indices were taken for this study. In order to analysis the data, the statistical tools such as such as descriptive statistics, chart and correlation were used in this study to examine the comovement of sample indices during the study period. From the result of analysis, it is found that there was a co-movement between sample indices during the period of study. The results of correlation analysis recorded that the sample indices were recorded significant relationship with each other during the study period. It indicated that the increase in one index lead to increase in other indices when there was an occurrence of positive correlation. While there was a negative correlation, it exposed the opposite reaction among the indices. It is suggested that the investors of the stock market need to analysis the relationship exit between the indices in market. It is found from the study that there was an existence of relationship between the selected indices during the study period.

Keywords: *Comovements,* Stock *Market, Investment*

1 INTRODUCTION

Indian Markets are growing globally at very fast pace. Indian stock exchange is at 11th position among all stock exchanges. With growing globally, the relation among all the stock exchange is an integral part to be considered. The various stock exchanges of various countries are important to be considered when Indian stock exchange is talked about in global scenario. International business is widely growing and therefore the impact of such growth is seen when Indian markets are compared with its counterparts. In this research paper various indices of stock exchange are compared within the Bombay Stock Exchange. Bombay Stock Exchange which is considered to be Asia's oldest exchange is at 11th position in terms of market capitalization followed by National Stock exchange which is at 12th position. The performance of a stock market is an indicator of the economy on multiple levels. At the face of it, the indices show the facts and figures of the price comparative analysis in the market. However, at a deeper level, the way a stock market reacts to economic crises and also shows the nature, type and characteristics of the investing class of the country on one hand and the industries and companies on the other. Thus, comparison of the data of stock markets can help develop useful insight into the differences and similarities in the way stock markets have performed and are likely to perform in the future, based on estimates made from past trends. However, this area remains unexplored to its full potential in research.

2. OBJECTIVES OF THE STUDY

The primary objective of the study is to investigate the short-run and long-run linkage between BSE. The following secondary objectives are formulated to realize the primary objective.

- To study about the performance and importance of stock market in India

- To know about the Selected indices in Bombay Stock Exchange
- To analysis the return of the BSE Sensex and Selected indices
- To study the comparative analysis of BSESelected indices with BSE Sensex.

3. REVIEW OF LITERATURE

Smriti Menon(2018) in his study entitled, "A Comparative Study of the Indian Stock Market with Two International Stock Markets between 2012-17". The stock market of any economy serves as a barometer to check the health of the economy. Ever since the LPG reforms in India, the nation has been on a re-energized path towards a stable and minimally volatile stock market. The study at hand compares the Indian Stock Market through BSE and the stock markets in the USA (New York Stock Exchange) and Japan (Tokyo Stock Exchange) to measure and comparatively study where the BSE stands, in comparison with the world's biggest stock markets.

RavleenKaur(2017) in his study entitled, "Comparative Analysis Of Indian Stock Exchange And Major Index With Global Stock Exchange And Their Major Index". Indian Stock Market at Global Stage holds a predominant place in world's economy. Bombay Stock Exchange and National Stock Exchange are two stock exchanges with advance technologies. Globally India's stock Exchange holds a great significance when it comes to comparison of all stock exchanges. In this research paper we will compare major world's stock exchange in terms of both qualitative and quantitative terms. There are various factors that affect stock exchange including trade barriers or requirements both globally or individually. India's Stock exchange includes both BSE and NSE. Where Bombay stock Exchange is the oldest stock exchange with major index as Sensex and National Stock Exchange is one with far better technologies and has advancement with major index to be NIFTY 50. There are various regulations that are differently applied on different stock exchanges over the world. The Analysis is done in two parts that is quantitative and qualitative where the Stock exchange of various countries are taken with their index are compared thereafter.

Dr. AlpeshGajeraMarwadi (2020) in his study entitled, "A Study on Comparative Analysis of Major Stock Indices of World". Experts talk lots on integration of major stock indices of the world. In this research paper researcher has tried to establish integration between major stock indices of the world by calculating correlation and applying anova on daily return of 16 major stock indices of the world. In research it is found that preceding and succeeding time of opening the stock market plays vital roles in terms of effect on each other. To achieve the objectives of research, last 5 years daily closing price of these 16 indices is collected and analyzed for quantifying the level of correlation between different stock indices. As sufficient time period is taken and daily closing prices are analyzed so it is found there is not significant difference in the daily return of these stock indices.

P. Venkatesan(2018) in his study enttled, "National stock exchange Vs Bombay stock exchange a Comparative analysis". India currently has two major stock exchanges. The Bombay Stock Exchange and National Stock Exchange, There are important differences in ownership structure, geographic reach, internal control systems and institutionalised risk management facilities between the Bombay Stock Exchange and the National Stock Exchange. The purpose of this study is to examine if these significant structural differences between these stock exchanges contribute to variations in observed measures of quality of markets. We use a paired comparison approach and document significant differences in liquidity and index price volatility between the two markets.

4. RESEARCH METHODOLOGY

Sample Selection

The present study tests the behavior of selected indices listed in BSE. As on 30st, March 2021. Based on its turnover value in the market, it is decided to consider top 10 indices from BSE Selected index. The details of sample indices and sample companies listed in those sample indices and value of Turnover are given in

Index adopted in the Study

- S&P BSE Indian Infrastructure Index
- S&P BSE Indian Manufacturing Index

- S&P BSE CPSE
- S&P BSE PSU
- S&P BSE Private Banks Index

Sources of Data

The study was mainly based on secondary data i.e, daily returns of BSE selected indices. The details regarding sample indices were collected from BSE official website www.bseindia.com while the daily returns of sample indices. The other required data were collected from various websites, books and journals.

The experts in the field of Finance and Stock Market and the officials of companies were contacted by the Researcher. Their views and valuable information helped the Researcher to validate the findings. The consultations with the experts helped the Researcher to fine tune the model formulation. Some of the suggestions offered were based on the interaction with the experts.

5. FINDINGS

(a)Descriptive Statistics

Descriptive Statistics was used to identify the measure of average return and risk. Measures of central tendency include the mean while measures of variability include standard deviation. Descriptive Statistics provided a useful summary of security returns and the historical account of return behavior. Although past information is useful in any analysis, one should always consider the expectations of future events.

I MEAN

Mean is the average value of the series, obtained by adding up the series and dividing by the number of observations. It is the most common measure of central tendency.

The mean is calculated by using the following formula.

Mean ($\bar{x}$) = $\frac{\sum xi}{n}$

Where,

$\bar{x}$ = represents the mean,

Σ = Symbol of Summation

Xi =Value of the ith item x, i= 1, 2, 3 ….n,

n=total number of items

II STANDARD DEVIATION

Standard Deviation is the square root of the mean of the squared deviation from the arithmetic mean. It measures the absolute dispersion, greater the standard deviation, greater will be the magnitude of the deviation of the values from their mean. A small standard deviation means a high degree of uniformity of the observation as well as homogeneity of a series. A large standard deviation means just the opposite. The standard deviation of a random variable X is defined as:

$$\sigma = \sqrt{E((X - E(X))^2)} = \sqrt{E(X^2)} - (E(X))^2$$

$$= \sqrt{Var(X)}$$

Where,

$E(X)$ is the expected variable of X

$Var(X)$ is the variance of X.

IIICORRELATION

Correlation, in the finance and investment industries, is a statistic that measures the degree to which two securities move in relation to each other. Correlations are used in advanced portfolio management, computed as the correlation coefficient, which has a value that must fall between -1.0 and +1.0.

$$r = \frac{\sum(X - \overline{X})(Y - \overline{Y})}{\sqrt{\sum(X - \overline{X})^2}\sqrt{(Y - \overline{Y})^2}}$$

where:

$r =$ Correlation coefficient

$\overline{X} =$ Average of observations of variable X

$\overline{Y} =$ Average of observations of variable Y

IV AUGMENTED DICKEY-FULLER TEST

The Augmented Dickey-Fuller test allows for higher-order autoregressive processes by including Δyt−pΔyt−p in the model. But our test is still if γ=0

γ=0.Δyt=α+βt+γyt−1+δ1Δyt−1+δ2Δyt−2+…Δyt=α+βt+γyt−1+δ1Δyt−1+δ2Δyt−2+…

The null hypothesis for both tests is that the data are non-stationary. We want to REJECT the null hypothesis for this test, so we want a p-value of less that 0.05 (or smaller).

Results of Descriptive Statistics for Selected indices During the Period of 1st January 2020 to 31st December2020

	S&P BSE200	S&P BSE 250 LARGEMIDCAP	S&P BSE 400 MIDSMALLCAP	S&P BSE ALLCAP	S&P BSE SMALLCAP
Mean	0.0006	0.000599	0.000895	0.00063	0.001105
Median	0.002553	0.002581	0.003872	0.002795	0.003741
Maximum	0.078046	0.077017	0.045947	0.074546	0.040427
Minimum	-0.13828	-0.1383	-0.1356	-0.13757	-0.13086
Std. Dev.	0.019246	0.019153	0.017605	0.018977	0.017575
Skewness	-1.97617	-2.01492	-2.79839	-2.10048	-2.77991
Kurtosis	16.63458	16.83408	19.45508	17.00297	18.7483

Jarque-Bera	2115.99	2180.022	3171.981	2244.177	2928.667
Probability	0	0	0	0	0
Sum	0.151112	0.150839	0.225521	0.158744	0.278458
Sum Sq. Dev.	0.092972	0.092076	0.077791	0.090388	0.077526
Observations	252	252	252	252	252

Source: Data collected from www.bseindia.com and computed using Eviews

Table 3.1 shows the results of descriptive statistics for sample Selected indices during the study period from 01-01-2017 to 31-12-2017. Summary statistics, namely, mean, minimum, maximum, median, standard deviation (SD), skewness, kurtosis and the Jarque- Bera were used to analyze the sample indices return during the study period.

It is clear from the Table that during the study period, the index of Selected indices earned high mean value of (0.001105), followed by with a value of (0.000895). These values were greater than that of other S&P BSE SMALLCAP sample indices considered for this study. The mean returns of sample indices i.e., S&P BSE 200 (0.0006) and S&P BSE 250 LARGEMIDCAP(0.000599) and S&P BSE 400 MIDSMALLCAP (0.000895) and S&P BSE ALLCAP (0.00063) and S&P BSE SMALLCAP (0.001105) during the study period. In terms of market unpredictability, as measured by the standard deviation of daily returns, China assumed the highest risk value (0.011372), followed by S&P BSE 200 (0.005933), S&P BSE 250 LARGEMIDCAP(-4.41E-05), S&P BSE 400 MIDSMALLCAP (-0.0008), S&P BSE ALLCAP (0.0056091), S&P BSE SMALLCAP (0.008326). This indicates the fact that there was high risk (in the order of indices, namely, S&P BSE 200, S&P BSE SMALLCAP, S&P ALLCAP. High degree of risk was useful for speculators but the investors may carefully study the market risk and carefully take investment decision of portfolio diversification.

The analysis of skewness shows that values for all sample indices, except by S&P BSE 200 (-1.97617), S&P BSE 250 LARGEMIDCAP(-2.01492), S&P BSE 400 MIDSMALLCAP (-2.79839), S&P BSE ALLCAP (-2.10048), S&P BSE SMALLCAP (-2.77991) were negative. It is significant to note from the Table that all sample indices of emerging Indian markets earned values of kurtosis larger than three. Besides, the Jarque-Bera (JB) values of the sample indices implied that all the sample indices were normally distributed.

(b) Correlation

Correlation analysis helps to determine the strength of the linear relationship between the two variables X and Y, in other words, as to how strongly are these two variables correlated. Karl Pearson, in 1896, developed an Index or Coefficient of this association in cases where the relationship is a linear one, i.e. where the trend of the relationship can be described by a straight line.

The Pearson's coefficient of correlation is designated by r. The coefficient of correlation r can be designed as a measure of strength of the linear relationship between the two variables X and Y.

The sign of the coefficient can be positive or negative. It is positive when the slope of the line is positive and it is negative when the slope of the line is negative.

The Coefficient of Correlation (r)

$$r = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{n\sum X^2 - (\sum X)^2}\sqrt{n\sum Y^2 - (\sum Y)^2}}$$

Results of Correlation for Selected indices During the Period of

1st January 2020 to 31st December 2020

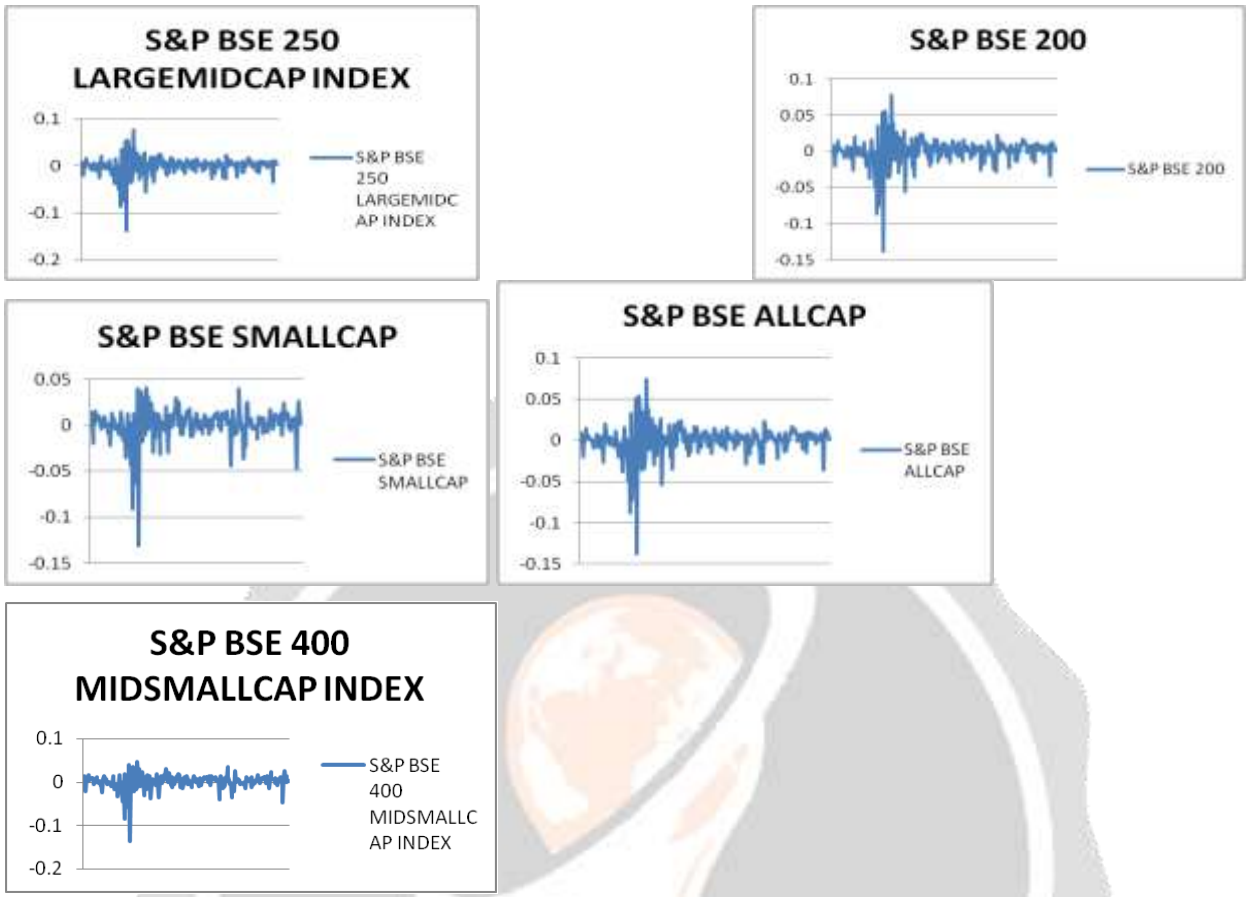
	S&P BSE200	**S&P BSE 250 LARGEMID CAP**	**S&P BSE 400 MIDSMALL CAP**	S&P BSE ALLCAP	S&P BSE SMALLCAP
S&P BSE200	1				
S&P BSE 250 LARGEMID CAP	0.999957	1			
S&P BSE 400 MIDSMALL CAP	0.929283	0.931926	1		
S&P BSE ALLCAP	0.999217	0.999472	0.941965	1	
S&P BSE SMALLCAP	0.903039	0.906188	0.990897	0.91885	1

Source: Data collected from www.bseindia.com and computed using Eviews

Table 3.6 shows the results of correlation among the sample Selected indices in BSE. According to the results of the Table, the values of correlation ranged from 0.999957 (S&P BSE 250 – S&P BSE 200) to 0.929283 (S&P BSE 400-S&P BSE 200). Similarly, all the sample Selected indices in BSE, with the value of (0.999217), S&P BSE ALLCAP-S&P BSE 200, and S&P BSE SMALLCAP-S&P BSE 200, with the value of (0.903039) were positive correlated. It is significant to note from the correlation values earned by emerging indices like S&P BSE 250 LARGEMIDCAP (0.999957), S&P BSE 400 MIDSMALLCAP (0.929283), S&P BSE ALLCAP (0.999217) that they were positively correlated.

Comparative Analysis of Selected indices During the Periodof

1st January 2020 to 31st December 2020



Source: Data collected from www.bseindia.com and computed using MS Excel

Figure 3.1 shows the comparative analysiss of comparative analysis(., S&P BSE 200 and S&P BSE 250 LARGEMIDCAP and S&P BSE 400 MIDSMALLCAP and S&P BSE ALLCAP and S&P BSE SMALLCAP) during the study period from 01st January 2020 to 31st December 2020. It is clear from the Figure that selected indices were fluctuating highly during the above period.

6. SUGGESTIONS

It is found from the study that there was an existence of relationship between the selected indices during the study period. From the study, it is to be note that the investor need to anlaysis the linkages arise between the indices of stock market. It is suggested to include the selected indices in the investment portfolio for the optimum return. The regulators and policy makers should consider the relationship and co-movement between the indices of share market. For construct the effective portfolio, the performance of market and indices are the fruitful information to the investors.

7. CONCLUSION

For the regulators and policy maker the information about the performance, co-movement and linkages are very important. It acts as a road map for the investors in designing the diversified portfolio for the optimum return. Further, the growth of an economy is also depends on the development of capital market. It is concluded that the investor need to analyse the linkages exist between the indices of stock market. This study also concluded that the information about the performance of financial market supports the investors for the further portfolio construction.

REFERENCES

- **BOOK**

Avadhani V.A. (2001). Investment Management. Himalaya Publishing House, Mumbai

Kevin S (2015). Security Analysis and Portfolio Management. PHI Learning, New Delhi.

- **WEBSITE**

www.bseindia.com

www.nseindia.com

- **JOURNAL**

Abdalla I S A and Murinde Victor (1997), "Exchange Rate and Stock Price Interactions in Emerging Financial Markets: Evidence on India, Korea, Pakistan and the Philippines", Applied Financial Economics, Vol. 7, No. 1, pp. 25-35.

Abken A P (1980), "The Economics of Gold Price Movements", Economic Review, Vol. 66, pp. 3-13, Federal Reserve Bank of Richmond.

Agrawal Gaurav and Srivastava Ankita (2011), "Stock Market Returns and Exchange Rates Volatility: A GARCH Application", Research Journal of International Studies, Vol. 20, pp. 12-23.

Agrawalla R K and Tuteja S K (2007), "Causality Between Stock Market Development and Economic Growth: A Case Study of India", Journal of Management Research, Vol. 7, No. 3, pp. 158-168.

Blitz, D., Pang, J., & Vliet, P. van. (2013). The volatility effect in emerging markets. *Emerging Markets Review,16,*31-45.http://dx.doi.org/10.1016/j.ememar.2013.02.004

Choudhry, T. (1996). Stock Market Volatility and the Crash of 1987: Evidence from Six Emerging Markets.*JournalofInternationalMoneyandFinance,15*(6),969-981.

Cooray,A.V.(2007).Theefficiencyofemergingstockmarkets:EmpiricalevidencefromtheSouthAsianregion. *JournalofDevelopingAreas,41*(1),171-183.Retrievedfromhttp://ro.uow.edu.au/commpapers/564

Dimitrakopoulos, D. N., Kavussanos, M. G., &Spyrou, S. I. (2010). Value at risk models for volatile emergingmarketsequityportfolios.*TheQuarterlyReviewofEconomicsandFinance,50,*515-526.http://dx.doi.org/10.1016/j.qref.2010.06.006

Eizaguirre, J. C., Biscarri, J. G., & Hidalgo, F. P. de G. (2004). Structural changes in volatility and stock marketdevelopment: Evidence for Spain. *Journal of Banking & Finance, 28*, 1745-1773. http://dx.doi.org/10.1016/j.jbankfin.2003.06.004

Gil-Alana, L. A., Shittu, O. I. & Yaya, O. S. (2014). On the persistence and volatility in European, American andAsianstocksbullandbearmarkets.*JournalofInternationalMoneyandFinance,40*,149-162. http://dx.doi.org/10.1016/j.jimonfin.2012.12.002

Jaleel, F. M., & Samarakoon, L. P. (2009). Stock market liberalization and return volatility: Evidence from theemergingmarketofSriLanka.*JournalofMultinationalFinancialManagement,19*,409-423.http://dx.doi.org/10.1016/j.mulfin.2009.07.006

Lagoarde-Segot, T., & Lucey, B. M. (2008). Efficiency in emerging markets-Evidence from the MENA region.*Journal of International Financial Markets, Institutions and Money, 18*, 94-105. http://dx.doi.org/10.1016/j.intfin.2006.06.003

Lim, C. M., &Sek, S. K. (2013). Comparing the performances of GARCH-type models in capturing the stockmarket volatility in Malaysia. *Procedia Economics and Finance, 5*, 478-487. http://dx.doi.org/10.1016/S2212-5671(13)00056-7

Lingaraja, K., Selvam, M., & Vasanth. V. (2014). Co Movements and Inter-Linkages among Emerging andDeveloped Stock Markets in Asia with Reference to Singapore Stock Exchange. *International ResearchJournalofFinance andEconomics,122*,102-120.

Nartea,G.V.,&Wu,J.(2013).IsthereavolatilityeffectintheHongKongstockmarket?*Pacific-BasinFinanceJournal,25*,119-135.http://dx.doi.org/10.1016/j.pacfin.2013.07.004

Plesoianua, A., Todea, A., &Capusan, R. (2012). The informational efficiency of the Romanian stock market:evidencefromfractalanalysis.*ProcediaEconomicsandFinance,3*,111-118.http://dx.doi.org/10.1016/S2212-5671(12)00128-1

QueenslyJeyanthi, B. J., Albert, M., & William, S. J. (2009). An Empirical Analysis of Dynamic Linkages: ACase of India, Japan, Singapore and USA Stock Markets. *SMART Journal of Business Management Studies,5*(1),58-64.

Rejichi, I. Z., &Aloui, C. (2012). Hurstexponent behaviorandassessmentof theMENA stockmarketsefficiency. *Research in International Business and Finance, 26*, 353-370. http://dx.doi.org/10.1016/j.ribaf.2012.01.005

Selvam,M.,Raja,M.,&YazhMozli,P.(2007).ForecastingtheTimeVolatilityofEmergingAsianStockMarketIndex.*Asia-PacificBusinessReview,8*(2),27-37.http://dx.doi.org/10.1177/097324700700300205

Sharma, J. L., & Kennedy, R. E. (1977). A Comparative Analysis of Stock Price Behavior on the Bombay,London and New York Stock Exchanges. *Journal of Financial and Quantitative Analysis*, September,183-190.

Syed Aun R. R., Dewandaru, G., Bacha, O. I., & Masih, M. (2014). An analysis of stock market efficiency:Developed vs Islamic stock markets using MF-DFA. *Physica A, 407*, 86-99. http://dx.doi.org/10.1016/j.physa.2014.03.091

Wang, P., & Theobald, M. (2008). Regime-switching volatility of six East Asian emerging markets. *Research inInternationalBusinessandFinance,22*,267-283.http://dx.doi.org/10.1016/j.ribaf.2007.07.001