A STUDY ON MSCI (Morgan Stanley Capital International)

Authors***

1. P.Swetha Reddy
MBA II year
Villa Marie PG College
for Women

2. Talari.Saritha
MBA II year
Wesley PG College

3. Rajendra Prasad
MBA II year
David Memorial
Institute of Management

Abstract:

This paper has been focused to find out the performance measure between MSCI and BDI. Global financial recession when affected the global equity market, how MSCI is trading from 2009-2013 period for selected countries has been considered to find out co-movements with global equity indices. This analysis measure the performance of CALMER, SHARPEZ differential method has been applied along with the world equity premium.

Key Words: BDI, GBI, Inflation, World Exports, World Imports and World GDP

Introduction:

MSCI is a leading provider of investment decision support tools to around 8,000 clients worldwide, ranging from large pension plans to boutique hedge funds. We offer a range of products and services - including indices, portfolio risk and performance analytics, and governance tools - from a number of internationally recognized brands such as Barra, Risk Metrics, IPD and ISS**.** Located in 24 countries around the world, and, with over 3,000 employees, MSCI is dedicated to supporting the increasingly complex needs of the investment community with groundbreaking new products, high quality data, superior distribution and dedicated client support.

The MSCI Index was created by Morgan Stanley Capital International. Each MSCI Index measures a different aspect of global stock market performance. The MSCI indices are now managed by MSCI Barra. The MSCI World Index measures the market performance of 1,500 companies that have a global presence. It is often quoted by financial media to describe how the world's stock market is doing. However, it excludes stocks from emerging market countries, so it should really be considered a developed world index. The MSCI AC World Index includes emerging markets. "AC" stands for "All Country." The MSCI Emerging Market Index tracks the performance of stock markets in 21 developing countries: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Morocco, Peru, Philippines, Poland, Russia, South Africa, Taiwan, Thailand, and Turkey. It compiles the market capitalization for all companies that are listed in these countries' stock markets. The Index is considered a good measurement of the stock performance of emerging markets.

The MSCI EAFE Index measures developed markets excluding the U.S. and Canada. EAFE stands for Europe, Australasia, and the Far East. The MSCI EAFE Index consists of the following 21 developed market country indices: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hong Kong, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, and the United Kingdom. MSCI also

has indices for a variety of other geographic sub-areas, as well as global indices for stock categories such as small-cap, large-cap and the Gulf Cooperation Council (GCC) Countries.

MSCI is a leading provider of investment decision support tools to investors globally, including asset managers, banks, hedge funds and pension funds. MSCI products and services include indices, portfolio risk and performance analytics, and governance tools. The company's flagship product offerings are: the MSCI indices with approximately USD 7 trillion estimated to be benchmarked to them on a worldwide basis 1:Barra multi asset class factor models, portfolio risk and performance analytics: Risk Metrics multi asset class market and credit risk analytics: MSCI ESG (Environment, Social and Government) Research screening, analysis and ratings: ISS governance research and outsourced proxy voting and reporting a services: FEA valuation models and risk management software for the energy and commodities markets: and CFRA forensic accounting risk research, legal/regulatory risk assessment and due-diligence. MSCI is headquarter in New York, with researches and commercial offices around the world. As of June 30, 2011, based on eVestment, Lipper and Bloomberg data.

Objectives:

- To find the co-movements of select countries with MSCI.
- To find the volatility spill over effect of MSCI on select countries.
- To measure the Sharpe Differential Returns of MSCI in longer run.
- To find the performance of MSCI with global economic indicator (BDI).
- To know the MSCI is trading in premium or discount.
- To find the impact of global economic factors on MSCI.

Scope:

The study has been focused for 4 years data of various economic factors of the world economy. MSCI is the world equity indicator and it gives every day movement of world equity performance with one index. The analysis has been emphasized to find the real picture of the world economy with MSCI and how it reacts with world select economic factors.

Literature Review:

George A. Christodoulakis, Stephen E. Satchell: Morgan Stanley Capital International Indices. Information about "Morgan Stanley Capital International Indices" is presented. It is widely used in the finance and banking sector. It refers to a set of stock market indices used by professional investment managers to measure their performance against the relevant benchmark. Such indices helps fund managers decide what weighting within their portfolio to give individual stocks and how well or badly their investments are faring.

Harald Hau, Massimo Massa, Joel Peress: Do Demand Curves for Currencies Slope Down? Evidence from the MSCI Global Index Change Traditional portfolio balance theory derives a downward sloping currency demand function from limited international asset substitutability. Historically, this theory enjoyed little empirical support. We provide direct evidence by examining the exchange rate effect of a major redefinition of the MSCI Global Equity Index in 2001 and 2002. The index redefinition implied large changes in the representation of different

countries in the MSCI Global Equity Index and therefore produced strong exogenous equity flows by index funds. Our event study reveals that countries with a relatively increasing equity representation experienced a relative currency appreciation upon announcement of the index change. Moreover, stock markets that are up weighted (down weighted) feature a higher (lower) permanent co-movement of their currency with the basket of other MSCI currencies.

Jensen's Alpha: The aim of this study is to analyze investor response to different pension plan performance measures. To do this, we implement fixed effects panel data methodology corrected by heteroskedasticity, serial correlation and cross-sectional dependence, proposed by Vogel sang (2011). The results obtained show that investors make their decision to invest in a specific pension plan depending on past returns and the type of management company administering the plan. However, participants do not react to risk measures, which may be due to the fact that they consider that all plans making up the equity category have the same risk.

Gurdip Bakshi, George Panayotov, Georgios Skoulakis: This paper shows that the Baltic Dry Index (BDI) has predictive ability for a range of stock markets, which is demonstrated through in-sample tests and out-of-sample statistics. The documented stock return predictability is also of economic significance, as seen by examining the certainty equivalent returns and Sharpe ratios of portfolio strategies that exploit the BDI growth rate. In addition, the BDI growth rate predicts the returns of commodity indexes, and we find some evidence for joint predictability of stock and commodity returns in a system of predictive regressions. Finally, the BDI growth rate predicts the growth in global economic activity, establishing further BDI's role in revealing a link between the real and financial sectors.

Fotis Papailias, Dimitrios D. Thomakos: The cyclical properties of the annual growth of the Baltic Dry Index (BDI) and their implications for short-to-medium term forecasting performance are investigated. We show that the BDI has a cyclical pattern which has been stable except for a period after the 2007 crisis. This pattern has implications for improved forecasting and strategic management on the future path of the BDI. To illustrate the practicality of our results, we perform an investment exercise that depends on the predicted signs. The empirical evidence supports the presence of the cyclical component and the ability of using forecast signs for improved risk management.

Thomas Neukirch: Fundamental and equal indexing have gained more importance in the recent past and meanwhile, a variety of alternative indexing ETFs is being offered to investors. We analyze the benefits from combining equal weighting and equal risk schemes with international diversification. For the MSCI World index, we find significant outperformance of these approaches over the cap-weighted index and we propose an implementation keeping turnover and transaction costs low.

Raman Aylur Subramanian, Arun Kumar, Giacomo Fachinotti, Valery Rousseau, Khalid Ghayu: A method of constructing a value index and a growth index is disclosed. The method includes, determining a value of each variable in a group of variables for each security in a group of securities, determining a standardized score of each variable for each security, and determining an overall value standardized score and an overall growth standardized score for each security. The method further includes positioning each security in a two-dimensional style

space and allocating each security to at least one of the growth index and the value index based on each security's distance from an origin of the two-dimensional style space.

William J.Baumo I: Economists have long recognized that certainty of contract is essential to a healthy economy. Long-term forward contracts, in particular, help reduce financial risk. Those contracts can only accomplish that goal, however, if parties know the contracts will be enforced. From an economic and policy standpoint, long-term energy contracts should be abrogated only in truly exceptional circumstances. The mere fact that a price seems too high in retrospect does not justify abrogating contracts voluntarily agreed to by sophisticated buyers and sellers. Nor do generalized claims of - market dysfunction - at the time the contract was formed.

Jose Menchero, Daniel Stefek, Vijay Poduri: A method of generating a financial market index. The method includes selecting a plurality of constituent securities to comprise the index and determining a weight for each of the securities based on at least one forecasted parameter that is determined for each of the plurality of constituent securities that comprise the index. The method also includes generating the financial market index based on the weights.

Lisa R. Goldberg, Guy Miller, Jared Weinstein: Systems and methods for attributing return, risk, and risk-adjusted performance for an investment portfolio. Residual factors for the investment portfolio may be determined based on a matrix of custom factors. The residual factors may correspond to a matrix of factor exposures for the portfolio that may be obtained by orthogonal zing true factors for the portfolio to the matrix of custom factors. The return of the portfolio may be attributed to the custom factors, the residual factors, and idiosyncratic effects. The risk of the portfolio may be attributed to the custom factors, the residual factors, and the idiosyncratic effects. The risk-adjusted performance may be attributed to the custom factors, the residual factors, and idiosyncratic effects based on the return attributions and the risk attributions. The return attribution, risk attribution and risk-adjusted performance attribution for each of the custom factors, the residual factors, and the idiosyncratic effects may be stored.

Empirical study:
- BDI
- GBI
- Inflation
- World Exports
- World Imports
- World GDP
- Gross Investment
- Global FX Reserves
- Global FII
- Global FDI
- Global PMI

Research Methodology:
The analysis will be based on secondary source data. The following statistical tools/formula's has been applied.

- World equity premium = (1 + Equity rate of return) / (1 + Risk-free return) − 1
- Volatility = $\sqrt{}$S.D of country / Period of country
- Sharpe differential Returns on MSCI={Rf+[(excess returns over market) * S.D(p)]}/S.D market
- Calmer ratio = Compounded Annual Return/Maximum Drawdown
- World Equity Premium={[1+Equity rate of return(MSCI)]/[1+Risk free return(GBI)]} -1

Limitations:
- For GBI we consider PIMCO.
- Daily, monthly, quarterly values are taken and averaged to yearly.
- This analysis is focused after recession i.e.1st April 2009.
- In the year 2009 3months data values are not included for BDI average values (i.e. April-May-June).
- For this analysis global economic indicator BDI has been used.

Data Analysis:
1. CO-MOVEMENTS OF SELECT COUNTRIES WITH MSCI

CORRELATION		RANKING
MSCI-DOWJONES	0.627854958	3
MSCI-DAX	0.648099094	2
MSCI-SHANGAI	0.022014773	4
MSCI-NIFTY	0.695453608	1

The above depicts the picture of co-movements of select countries with MSCI during 2009-13 period. The correlation analysis shows that Indian market NIFTY is slightly higher co-related with the MSCI, German index DAX got the 2nd rank, followed by US market DOWJONES got 3rd but surprisingly China index SHANGAI got 4th rank which shows that China market indices is not making along with the global market during the analysis period.

2. VOLATILITY SPILLOVER EFFECT ON MSCI:

Volatility = $\sqrt{}$S.D of country / Period of country

	Standard Deviation of countries	Period	VOLATILITY
DOWJONES	6215.959965	1005	2.487

DAX	3424.874077	1027	1.826
SHANGAI	1405.78848	975	1.201
NIFTY	2803.203375	996	1.678

Volatility spill over has been measured on above 4 countries, during the 4yrs period it has been observed that DOWJONES is highly volatile, whereas Chinese is less volatile during the 4yrs analysis period.

3**.** Sharpe differential Returns

Sharpe differential Returns on MSCI={Rf+[(excess returns over market) * S.D(p)]}/S.D market
Rf is average of GBI
S.D of p means standard deviation of each country
S.D of Market means standard deviation of MSCI

YEARS	MSCI-DOWJONES	MSCI-DAX	MSCI-SHANGAI	MSCI-NIFTY
2009-2010	22139.5	8198.1	4545.7	1823.8
2010-2011	3405.7	438.7	3226.0	366.0
2011-2012	-4819.4	309.2	1061.6	1018.8
2012-2013	-7564.3	-3606.4	870.0	-1475.6

2009-2010		
	Sharpe differential returns	Ranking
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2010-2011

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MSCI-DOWJONES	3405.7	1
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MSCI-SHANGAI	3226.0	2
MSCI-NIFTY	366.0	4

2011-2012

	Sharpe differential returns	Ranking
MSCI-DOWJONES	-4819.4	4
MSCI-DAX	309.2	3
MSCI-SHANGAI	1061.6	1
MSCI-NIFTY	1018.8	2

2012-2013

	Sharpe differential returns	Ranking
MSCI-DOWJONES	-7564.3	4
MSCI-DAX	-3606.4	3
MSCI-SHANGAI	870.0	1
MSCI-NIFTY	-1475.6	2

On select countries indices with MSCI performance measure tool Sharpe differential returns as been applied for 4 consecutive years, and it has been found that US and German markets in the first 2yrs i.e. 2009-11 period performed well. India and china market performance were deteriorating in the same period, but from 2011-13 period china and India markets performance found to be very good.

4**.** Calmer ratio

Calmer ratio = Compounded Annual Return/Maximum Drawdown

	Compounded Annual Return= avg of all years	Maximum Drawdown=highest value-smallest value
MSCI	32.357	6.498
BDI	1936.086	2179.5

Calmar Ratio for MSCI	4.98

Calmar Ratio for BDI	0.89

REGRESSION EQUATION (Y=a+bx)

a=BDI last value (2012-2013 average values)

b=slope of MSCI &BDI

x=intercept value

YEARS	MSCI	BDI
2009-2010	28.032	3075.2
2010-2011	34.249	2347.7
2011-2012	34.530	1425.8
2012-2013	32.618	895.7

a=895.7

b=-0.001967484

x=8542.720889

Y=a+bx

Y=895.7+ (-0.001967484)*(8542.720889)

Y=878.8576764

Performance measure tool calmer ratio has been applied on MSCI and BDI for 4yrs period, and it has been observed that MSCI performance is superior when it compared with BDI performance.

5. MSCI IS TRADING IN PREMIUM / DISCOUNT

YEARS	MSCI	GBI	World Equity Premium	RANKING
2009-2010	28.032	117.826	-0.755679416	2
2010-2011	34.249	126.897	-0.724398412	4
2011-2012	34.530	136.358	-0.741335753	3
2012-2013	32.618	141.772	-0.764536552	1

World Equity Premium={[1+Equity rate of return(MSCI)]/[1+Risk free return(GBI)]} -1

Base	17	7,761.60	4131.07	3060.35
2009-2010	64.9	22.9	30.7	52.2
2010-2011	22.2	15.8	20.5	19.9
2011-2012	0.8	10.1	-0.3	-6.1
2012-2013	-5.5	8.9	9.8	5.3

YEARLY AVERAGES

YEARS	MSCI	DOWJONES	DAX	NIFTY
2009-2010	28.032	9,541.96	5399.171836	4657.768
2010-2011	34.249	11,049.03	6506.932317	5583.545
2011-2012	34.530	12160.03	6488.363178	5242.737
2012-2013	32.618	13243.74	7122.657047	5520.338

EXCESS OVER MARKET			
YEARS	MSCI-DOWJONES	MSCI-DAX	MSCI-SHANGAI
2009-2010	42.0	34.2	41.0
2010-2011	6.4	1.7	29.0
2011-2012	-9.2	1.1	9.2
2012-2013	-14.4	-15.3	7.5

The above analysis had given clarity that MSCI is trading in discount, because all the calculated values where in negative territory which is less than 1. This indicates world economy is still continuing weakness where investors' confidence is very low across the globe .During this 4yrs analysis global bond index returns are higher than the global equity index, which shows investors doesn't want to take risk and funds are transferred to safer zones like bond market.

Findings:

- MSCI is trading in discount from the past 4 years i.e. 2009-2013.
- In SHARPES differential returns measurement process 4 countries are fluctuating on each year.
- When we compare MSCI and US Market DOWJONES index its performance better on 2009-2010 of 2010-11 but it is not shown good result on 2011-12 and 2012-13.
- MSCI -DAX perform better on 2009 to 2010 and shows a normal returns from 2010 to 2013 (i.e. it got 3rd rank in that year).
- MSCI - SHANGAI changed in increase in the returns in 2009-2010 and got 3rd rank, but from 2010-2013 it got improved and got 2010-11 2nd rank and finally it is first place from 2011-2013.
- In 2012-13 all market indices like DOWJONES, DAX and NIFTY showing negative value except SHANGAI.
- While comparing movement of MSCI with other 4 countries Indian market NIFTY is the better performer than other 3 market.
- It has been observed that performance of MSCI and BDI with Calmer Ratio, MSCI is performing better with BDI value.

- Regression equation is drawn between MSCI of BDI to predict BDI with MSCI value in the year 2012-2013. BDI value is 895.7 but y value showing that the value may be fall from that point.
- When compare to 4 countries DOWJONES volatility is high.
- In correlation analysis MSCI with other variables world export, world GDP, world investment values are strongly correlated.
- There exist negative correlated values between MSCI – BDI of MSCI GLOBAL FII in correlated analysis.
  World GDP is negative in 2009-10 it shows that world economy is not good in 2009-10.

Conclusion:

I conclude the analysis on MSCI during 2009-2013 periods. It has been observed that after global financial recession world equity market was trading at discounted value, which shows that sentiment towards equity is still weak. MSCI has been used as a global economic indicator by few economic experts and it has been analyzed to find out the performance of MSCI with BDI after recession period and MSCI performance found to be good with the help of CALMER RATIO when it is compared with BDI. Hence there is a further scope to do research to find the performance measure and influence of global economic factor on global economy.

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