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SHOLLING**

**How Much is the Presence of Timber Exchange Traded Fund Feasible in India?**

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## **Abstract**

*Given the fact that timber is neither traded as commodity nor is any timber ETF available in India, this paper contains the risk-return profiles of the traded timbers stocks and exploring the plausibility of creating a timber ETF. An important finding here is that it is better to invest in a single stock than in a portfolio and therefore the question of forming a timber ETF does not arise here.*

## **INTRODUCTION**

Increasing trade in timber forest products has supported economic growth. The rate of growth of investment in timber is one of the highest rates of growth owing to the continuous compounding. The price-expectation for timber may depend on the derivative contracts in lieu of econometric forecasting and hence may be used as a component in the investment portfolio in order to cut the portfolio risk. The cash flow from timber investment is akin to a long term discount bond. Within the timber component of the investment portfolio there may be further diversification in terms of alternative products like lumber and pulp wood.

## **TIMBER BASED FINANCIAL PRODUCTS**

Since investment in timber is immune to inflation, pay higher returns than stocks, investment in land yields positive return even during recession and finally it is possible to invest in timber without physical possession of timber via investing in exchange traded funds (ETFs), the timber investment is increasingly receiving importance from the global investing communities. It is popular in the developed western countries. For example, in USA two popular timber funds are S&P Global Forestry and Timber Indexed Fund (symbol WOOD) and Timber ETF (symbol CUT).

## **BUSINESS ENVIRONMENT OF TIMBER INDUSTRY IN INDIA**

Since the global recession and/or slow down has adversely affected the Indian manufacturing sector, signs of recovery are not clearly visible and Sarda Plywood (2015) expected that growth in the housing and infrastructure sector will not gain

momentum in the days ahead. The same observed timber to be a sensitive product as far as environmental policy is concerned world over, the availability of which depends on the licenses given by local authorities so much so that any delay or problem in issuing licenses by the Governments of the countries from where timber is imported may affect the availability of raw material. Timber business is reported to be freight sensitive and the companies are prone toward remaining fragmented and local (Centuryply, 2015). There are problems of interrupted power supply and hikes in the prices of the raw materials, fire woods and resins faced by Mangalam Timber in Odisha. Though there has been a significant change in the customer preferences in the interior decor of the modern-day dwelling & work place which sees the increased use of prelaminated panels in space saving – functional furniture, imports from China, Indonesia, Vietnam, Malaysia and even Bangladesh is biggest challenge to the Industry *pari passu* with plywood & laminar wood products becoming expensive (Mangalam Timber, 2015). The largest supplier of timber raw material, Myanmar is restricting the supply (Greenply, 2014). There is still a considerable chunk of plywood business operated in the unorganized sector. Uniply Industries (2015) expects a pivotal shift from the unorganized sector to the organized sector because this market has historically been driven by demand from the housing and construction, furniture, modular kitchens and flooring industries. As India's economy rebounds to best-in-class GDP growth rates, the same foresees increased urbanization and a growing middle class as secular tail-winds that will drive the business forward based on the observation of a rise in willingness to spend on branded plywood amongst the growing middle class, primarily due to a growing customer emphasis on product quality, durability and eco-friendliness. Overall there is a tune of gloom in the timber business atmosphere.

## **THE PROBLEM**

But globally billions of dollars in timber investment are lost each year because of downward pressure on timber prices caused by illegal logging. A further investigation to the factors behind the above kind of loss reveals that poor communities who are completely dependent on forests lose out to powerful interests, logging companies and migrant workers who reap most of the benefits. There is however little evidence that increased demand for forest products has brought some financial benefits for poor people living near to forests. This is one of the reasons why investment in legal timber

is not taking off in the emerging economies including India though increased demand for forest products has brought some financial benefits for poor people living near to forests. The second reason is inefficiently small, lacking economies of scale and usage of outdated technology.

## **THE OBJECTIVE**

A survey of the mutual funds traded in India and the products traded in the commodity exchanges of India reveal that the timbers and timber derivative products are not present in India. This chapter would seek to answer the questions that emerge out of the above discussion is whether timber ETF can be profitably launched in India, i.e. whether such a product would be accepted by the investors, who are found to choose an investment product based on safety, past return and liquidity.

The rest of the paper is an analysis of risk-return profiles of the timber stocks in India and an inquiry into the plausibility of constructing an efficient portfolio based on which a timber ETF may be constructed.

## **MODE OF STUDY**

Doctrinaire with descriptive statistical analysis of secondary data.

## **CONCEPTUAL TOOLS**

### **Sharpe ratio**

It is the ratio of the difference between the average return of the security and the risk free return to the standard deviation of the security (Brealey, Myers and Allen, 2011). Standard deviation is the measurement of risk of the stock It denotes how much excess return over the risk free return is expected by an investor against every unit of risk she bears. In the case where the above difference is positive, higher the quotient of the ratio, the riskier is the asset and vice versa. Sharpe ratio is a measure of risk in a mutual fund (Srivastava, 2011)

### **Efficient Frontier**

An efficient frontier is the locus of the combinations of risk and return of a portfolio, where the return is the highest given the risk. In a portfolio of tradable or traded financial securities , the portfolio return is measured as the weighted average pf the

return of the underlying securities and the risk is measured as the weighted standard deviation of the individual standard deviations of the same. Given a level of risk, the portfolio return that exceeds the risk-free return is considered to be an efficient portfolio. Higher the difference over the risk free rate, more efficient is the portfolio. Investments in stocks are considered to be for long run. The 10 year sovereign yield is generally considered to be the long run risk free rate.

### **Timber ETF**

If tradable financial securities are classified in terms of risk-return profile, mutual funds and ETFs are assets that are less risky than an ordinary share but expected to earn a higher return than fixed income securities. A timber ETF is based on the prices shares of companies selling products of timber, wood and plywood.

### **LISTED AND TRADED TIMBER STOCKS IN INDIA**

Since the information about the listed companies and prices of their stocks are in public domain, the non-listed companies or private limited companies are not considered for this study. In India there are following companies dealing with the products of wood, timber and plywood are listed in Bombay Stock Exchange:

1. Mangalam Timber
2. Woodsvilla
3. Dhabriya Polywood
4. National Plywood
5. Sterling greenwoods
6. Sarda Plywoods

There following six timber and wood companies listed in the National Stock Exchange:

1. Greenply industries
2. Uniply industries
3. Kitply
4. Archid Ply

5. Century Plyboards

6. Mangalam Timber

Out of the above, the daily trading prices are available on Archid Ply, Century Plyboards, Mangalam Timber, Sarda Plywoods, Greenply and Uniply. The rest five are not traded. Among them, VR Woodart is traded but at the same price over a fortnight or so. Similar is the case of Dhabriya Plywood.

### **SAMPLE**

The daily prices of the aforesaid six stocks in the above list for the quarter from 1 September 2015 to 31 December 2016 are collected from the sources like yahoo finance. Out of the daily prices the daily returns are derived. For the said period the daily yield of the sovereign bond 7.88% GS 2030 is collected from CCIL India. During the above quarter this was the most popular risk free security in terms of the maximum traded volume. Now the average and standard deviations of the all returns are calculated for the purpose of calculating Sharpe ratio, but the risk free return is found to exceed the stock return for all the six stocks. The stock returns are negative or nil. In the Table given in the appendix.

### **Nature of the Data**

The time series data in the above sample does not exhibit any trend. Rather it appears to be white noise (Figure 1). This means an investor cannot expect any considerable gain or loss. The average return of all of them is close to zero, while the average return of the risk free security is above 7%.

### **ANALYSIS**

#### **Finding Efficient Portfolio for ETF**

For constructing an ETF of timbers, similar to a mutual fund of underlying six timber stocks, it is necessary to construct an efficient portfolio of these stocks. Following Docherty (2016) in line with Cvitanić, Jakšić and Zapatero Fernando (2004), the

author attempted to construct an efficient portfolio with these stocks using 'solver' tool in MS Excel (Figure 2 in the appendix). First random weights are assigned to each. The total weight is unity. Then simulation is run using 'solver' in order to find that combination of weights that maximize the portfolio return. On most of the days of the sample the tool is suggesting to choose only a single stock such as to maximize the return because all except one are exhibiting negative returns. The same is happening when mean returns of the stocks are taken to construct the portfolio.

### **Finding Sharpe Ratio**

Secondly all the numerators of the *Sharpe* ratios are negative except one. The mean returns of five of the stocks are less than the risk free return. So the *Sharpe* ratio has no meaning here.

### **CONCLUSION**

The returns of the timber stocks in India are generally below the risk free return. On some particular business day, one of the stocks exhibit positive return while the rest show negative return. Hence it is better to invest in a single stock and so the question of forming a timber ETF does not arise here.

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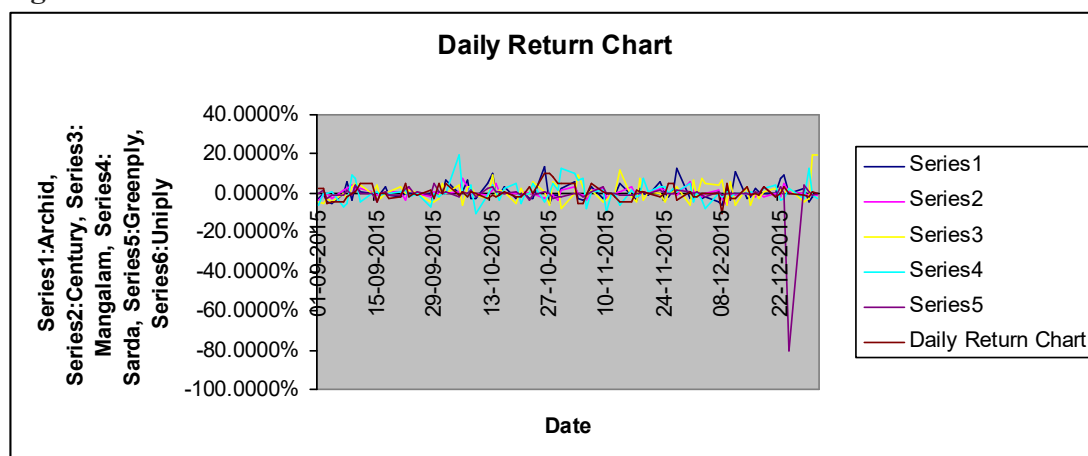
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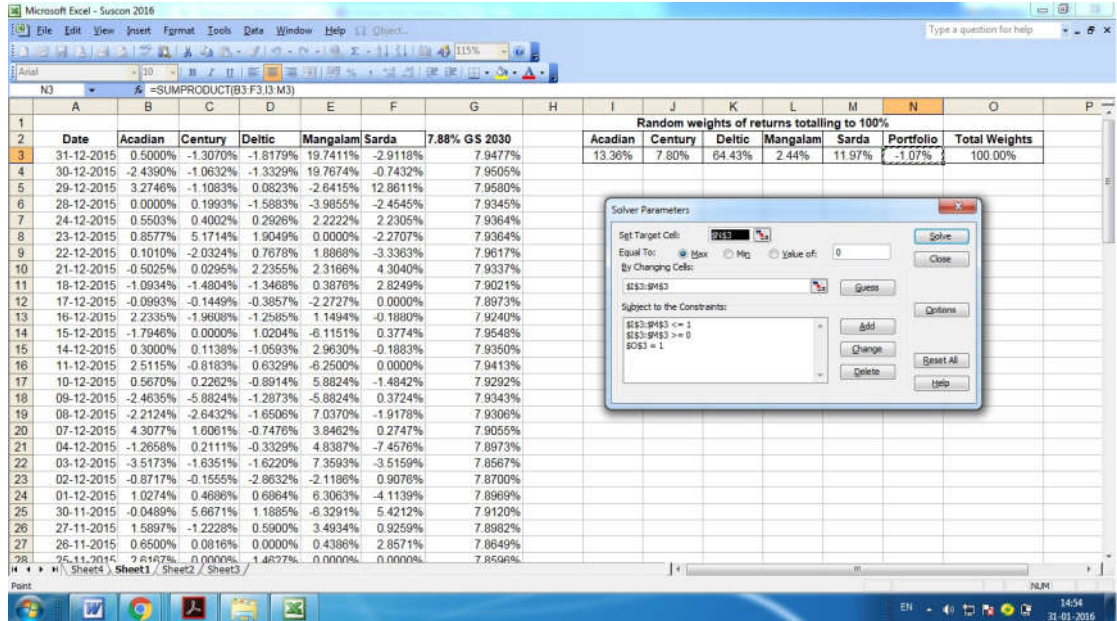
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**Figure 1**



**Figure 2**



Table

Date	Archid	Century	Mangalam	Sarda	Greenly	Uniply	7.88% GS 2030
31-12-2015	0.5000%	-1.3070%	-1.8179%	19.7411%	-2.9118%	-0.0016801	-0.0012512
30-12-2015	-1.7256%	-1.0632%	19.7674%	-0.7432%	-0.0118227	0.0040829	7.9605%
29-12-2015	-4.3239%	-1.1083%	-2.6415%	12.8611%	0.0084217	-0.0212112	7.9580%
28-12-2015	-2.331%	0.1993%	-2.4545%	-3.9855%	0.0440148	-0.0076266	7.934%
24-12-2015	0.0000%	0.4002%	2.2222%	2.2305%	-0.8	0	7.9364%
23-12-2015	9.0351%	5.1714%	0.0000%	-2.2707%	0.0013259	0.0308175	7.9364%
22-12-2015	7.142%	-2.0324%	1.8966%	-3.336%	0.0348518	0.0080222	7.9617%
21-12-2015	-0.0939%	0.0295%	2.3166%	4.3040%	-0.0187948	-0.0151328	7.9337%
18-12-2015	1.4604%	0.3976%	2.8249%	0.0000%	0.0352344	0.029164	7.9021%
17-12-2015	0.4695%	-0.1445%	-2.2727%	0.0000%	-0.001503	-0.0088189	7.8973%
16-12-2015	2.4062%	-1.9608%	1.1494%	-0.1890%	0.0035194	-0.0025134	7.9240%
15-12-2015	-1.7029%	0.2262%	6.1151%	0.3774%	-0.0076501	0.0099533	7.9548%
14-12-2015	-2.4908%	0.1138%	2.9630%	-0.1883%	-0.0024884	0.0327658	7.9350%
11-12-2015	11.0656%	-0.8183%	-6.2500%	0.0000%	0.0011626	-0.0244437	7.9413%
10-12-2015	-3.3663%	0.2262%	6.8824%	-1.4842%	-0.0036955	-0.0236518	7.9209%
09-12-2015	3.6961%	-5.8824%	5.8824%	0.3724%	0.000828	0.052496	7.9343%
08-12-2015	-6.2560%	-2.6432%	7.0370%	-1.9178%	0.013774	0	7.9306%
07-12-2015	-4.4158%	1.6061%	3.8462%	0.2735%	0.0108415	-0.0005794	7.9052%
04-12-2015	-1.9838%	0.2111%	4.8387%	-7.4576%	-0.0186325	-0.0040392	7.8973%
03-12-2015	-2.5483%	-1.6351%	7.3593%	-3.5159%	-0.0104217	-0.0043091	7.8967%
02-12-2015	0.7000%	-0.1555%	-2.1186%	0.3076%	0.0045412	-0.0172219	7.8700%
01-12-2015	-2.5862%	0.4686%	6.3063%	-4.1139%	0.0006449	-0.0169303	7.8969%
30-11-2015	-2.4390%	5.6671%	-6.3291%	5.4212%	0.0046349	0.0044606	7.9120%
27-11-2015	12.2757%	-1.2228%	3.4934%	0.9259%	0.018979	-0.0396746	7.898%
26-11-2015	1.6315%	0.0816%	0.4386%	2.8571%	-0.0006048	0.0497738	7.8649%
25-11-2015	1.7908%	0.0000%	0.0000%	0.0000%	0.0017624	0.0498812	7.8596%
20-11-2015	-0.8931%	1.1833%	-4.8025%	3.4946%	0	0	7.8959%
23-11-2015	5.7827%	2.4239%	-0.4167%	2.9520%	0.0148678	-0.0154925	7.8782%
20-11-2015	-0.8931%	-0.1869%	0.7435%	-0.0000%	-0.0001118	0.0029317	7.8621%
19-11-2015	-0.0989%	0.7939%	-3.2389%	7.6000%	0.0063555	0.0038258	7.8342%
18-11-2015	2.0182%	-1.1491%	7.8603%	-0.9901%	0.0029898	0.009207	7.8493%
17-11-2015	-3.6929%	7.7731%	-5.533%	-1.9417%	-0.0045485	0.0123371	7.8955%
16-11-2015	0.8671%	3.2708%	-1.6393%	1.2783%	0.0136258	-0.0417747	7.8055%
13-11-2015	4.6371%	0.5146%	11.4155%	-6.0074%	-0.0105229	-0.0445912	7.8058%
12-11-2015	-0.8991%	0.0000%	0.0000%	0.0000%	-0.0015886	-0.0181081	7.8434%
11-11-2015	0.0000%	0.0000%	0.0000%	0.0000%	0	0	7.8434%
10-11-2015	0.0000%	-2.9412%	-3.9474%	-9.7581%	0	0	7.8434%
09-11-2015	-2.8155%	2.8539%	-4.2017%	6.1029%	0.0298095	0.0078998	7.8610%
06-11-2015	3.3099%	1.4476%	1.7094%	0.5968%	0.0043011	0.0497569	7.8123%
05-11-2015	-2.7317%	-3.9221%	-1.6807%	-7.4921%	-0.0088069	-0.0087968	7.7991%
04-11-2015	-3.3930%	0.6367%	3.4783%	7.1851%	-0.014266	0.0498249	7.792%
03-11-2015	-2.7498%	0.1661%	9.0047%	6.9620%	-0.002317	-0.0486805	7.7608%
02-11-2015	6.1284%	3.4066%	-0.4717%	10.3792%	0.0041751	0.0437579	7.7736%
30-10-2015	2.4925%	1.6293%	-8.2261%	12.3318%	0.0187591	0.0498669	7.7524%
29-10-2015	-1.3766%	-3.7525%	3.1250%	1.3636%	-0.0223967	0.0498073	7.7848%
28-10-2015	1.0700%	-0.7789%	6.1611%	4.7619%	-0.0246209	0.0635207	7.7791%
27-10-2015	-5.0785%	0.6432%	-6.2222%	-0.1189%	0.0002056	0.0988352	7.7818%
26-10-2015	13.1661%	-2.2684%	0.4464%	-4.3231%	0.0082418	0.0997671	7.7746%
23-10-2015	-2.4465%	0.5436%	6.6604%	4.6429%	-0.0068821	0.0003983	7.7515%
22-10-2015	-2.3881%	0.0000%	0.0000%	0.0000%	-0.0314569	0.03	7.7442%
21-10-2015	0.0000%	0.8498%	-1.3953%	-1.1765%	0	0	7.7442%
20-10-2015	-0.6517%	0.7077%	2.3810%	-5.0278%	-0.0056914	-0.0176817	7.7343%
19-10-2015	-2.5987%	-0.2714%	-5.4054%	5.2941%	0.0031276	-0.0200231	7.7199%
16-10-2015	3.3831%	0.2707%	0.4525%	2.4096%	-0.004645	0.0065891	7.7214%
15-10-2015	-0.9852%	0.6814%	1.3761%	-3.4894%	0.0051157	-0.0092166	7.7214%
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13-10-2015	10.2894%	1.4244%	9.3596%	4.2631%	0.0317649	-0.0078799	7.7523%
12-10-2015	5.4237%	-1.2065%	-2.4035%	-0.8454%	0.022606	-0.024167	7.730%
09-10-2015	-2.8540%	-0.4574%	-0.9524%	-10.0000%	0.016212	0.0007329	7.6940%
08-10-2015	2.9819%	-0.3135%	2.9412%	4.5455%	0.0124684	0.011152	7.6975%
07-10-2015	6.4626%	3.0241%	3.5533%	-2.0045%	-0.0007885	0.0186456	7.6965%
06-10-2015	0.5701%	7.5466%	-6.1905%	0.3352%	0.0061885	0.0114013	7.6827%
05-10-2015	-0.1139%	0.7636%	4.4776%	19.4927%	-0.020516	-0.0089394	7.6983%
02-10-2015	7.0732%	0.0000%	0.0000%	0.0000%	0.0107876	0.0514593	7.6986%
01-10-2015	0.0000%	0.7049%	4.6875%	-0.2663%	0	0	7.6986%
30-09-2015	0.9852%	-0.4466%	-3.0303%	-2.1355%	0.008343	0.0470446	7.6992%
29-09-2015	-0.4902%	0.3842%	-4.3478%	-0.3891%	0.0496619	-0.0250882	7.7683%
28-09-2015	-0.2445%	-1.8542%	-4.6083%	-7.1084%	-0.0080273	0.0179569	7.8338%
25-09-2015	-1.2077%	0.0000%	0.0000%	0.0000%	0.0198375	-0.00955	7.8335%
24-09-2015	0.0000%	-0.2508%	0.9302%	-1.1905%	0	0	7.8335%
23-09-2015	-0.2410%	2.6053%	1.8957%	-1.8692%	0.0326561	-0.0217307	7.8357%
22-09-2015	0.3601%	-3.4773%	0.0000%	1.5421%	0.0249412	0.0471353	7.822%
21-09-2015	-1.4201%	0.4679%	3.4314%	0.3571%	-0.0113405	-0.0214712	7.8089%
18-09-2015	-0.9379%	0.9128%	0.9901%	0.0000%	-0.0127462	-0.0298575	7.8345%
17-09-2015	3.3939%	0.0000%	0.0000%	0.0000%	0.0080449	0.0019342	7.8890%
16-09-2015	0.0000%	-0.2512%	-2.1555%	-1.1765%	0	0	7.8880%
15-09-2015	4.8252%	-1.1177%	4.5555%	1.0702%	0.041708	-0.0436363	7.8935%
14-09-2015	0.1208%	1.1303%	0.0000%	0.0000%	0.0026693	0.0486702	7.8936%
11-09-2015	0.9755%	2.2800%	4.2105%	-4.6485%	0.009349	0.0492671	7.9042%
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09-09-2015	-3.5452%	3.8697%	3.4286%	9.3333%	-0.0108496	-0.020458	7.8986%
08-09-2015	6.2338%	2.5409%	-2.7778%	-5.0633%	0.0126141	-0.0184739	7.9121%
07-09-2015	-0.2691%	1.9679%	0.0000%	-6.6194%	-0.0092911	0.0467075	7.8086%
04-09-2015	-5.2761%	-2.9290%	4.7619%	0.5945%	-0.0071469	-0.041116	7.8939%
03-09-2015	-4.7897%	-0.4118%	-3.0769%	0.0000%	-0.0309102	-0.0498779	7.8848%
02-09-2015	0.0000%	-0.9181%	-4.8780%	0.9300%	0.0181675	0.0231977	7.8801%
01-09-2015	-2.9478%	-3.8675%	-4.6512%	-6.3545%	0.0013559	0.0278797	7.9023%