A New Portfolio in Agro Commodity: Ginger

Ginger farming is one of the main sources of cash income for the small farmers of the mid-hills in Nepal. The net income of farmers involved in ginger cultivation is significantly higher than that of competing crops (paddy, maize, wheat and fresh vegetables). The value of ginger export has been increasing over the years and doubled in the last decade. Nepal is a significant producer of ginger ranks within the top 15 world exporters. Ginger in Nepal is traded in three forms – fresh, dry and processed. Ginger is cultivated in 66 districts of Nepal. Ilam, Paanchthar, Terhathum, Kavre Palanchowk, Palpa, Nawalparasi, Tanahu, Kaski, Dang, Salina, and Pythons are the top districts in ginger production in the country. Nawalparasi is one of the most important district of Western Development Region; covering 14.34 per cent (1285 Ha.) and producing 14.21 per cent (12017.2 Mt) respectively of the total area and production of the country.

There are basically two types of ginger that are being currently cultivated in Nepal. They are:

Nase: Rhizome that contains fibers.

Bose: Rhizome which is fibreless or with negligible fibers.

All the ginger producers cleaned ginger immediately after harvest. Farmers clean this product by removing dirt as per the preference of buyers and consumers. In Bhairavsthan area of Palpa, the system of grading ginger as whole ginger and piece-ginger was developed by majority of farmers to cater the demand of India's markets. Once harvested, ginger is sold immediately and rarely kept for storage. The ones that are stored are stored by two methods; storing inside house/ godown in jute bag and storing in the pits.

The area and the production of ginger in the country have been found noticeably increasing each year. The area under ginger cultivation in 1999/2000 was 8314 hectares. As compared to 1999/2000 statistics, the area under ginger increased by 70 percent in 2004/05 and reached 11,930 hectares. Similarly, the ginger production in 1999/2000 was 74,994 metric tons that increased by 50 percent in 2004/05 reaching at the level of 152,704 metric tons. Most of the ginger produced in Nepal is exported in India. In the Year 2006/2007 ginger was produced 160576 MT in Nepal and exported of Rs 541300,000 to India.

Birtamod, Palpa, Pokhara and Kalimati are the major ginger market of Nepal. Different market possess different price of ginger. In Birtamod market price remained at normal level from June to April and rose in the month of May. All the ginger seen in the Birtamod market is old stocked gingers. Demand of ginger is met with locally produced ginger in Birtamod market. In Palpa market price of ginger is found lower as compared to other market. This is due to the fact that Palpa is major ginger producing area in Nepal. In Palpa, market price generally remained lower most of the time but in the month of May it goes high due to the off season. This trend indicate that the ginger being stocked during the period of peak season, the actors involved in the ginger market will have certainly get a good price during off season. The ginger at Palpa is locally harvested once and exported in higher volume in India. Whereas in Pokhara market, local production of ginger isn't enough to meet the demand. Therefore Pokhara market imports ginger to meet its demand. Price of ginger in Pokhara market remains relatively higher as compared to other market. Similarly Kalimati market also depends upon imports from different part of country to meet their demands. Most of the ginger demand of Kalimati market is supplied from Dhading and Makawanpur district. Price is relatively high in Kalimati as compared to all the other markets. Price gets even higher in the month of May because of the lower arrival of ginger in Kalimati market.

In a commodity market, for the development of a product, the main work is benchmarking of the price of the commodity that is to be introduced. In case of ginger, the price can be collected from the above four regions of Nepal i.e. Birtamod, Palpa, Pokhara and Kalimati for a particular quantity and then the price collected from these regions can be summed to take an average for benchmarking. Once the price is collected from the four regions, that price can be used as benchmarked price.

Though this commodity can yield exponential benefits, however, there are pressing constraints that needs to be addressed to contribute to the chronic poverty that persists in the region. Farmers and traders in East Nepal are prone to extremely lower margins due to presence of soft rot/rhizome rot disease (loss up to 30% in the field), lack of domestic facilities for industrial extraction and distillation, traditional drying and processing techniques (loss of oil content by 20%) and dominance of a single trade outlet in Naxalbari, India. Despite proven potential for increased income through semi and fully processed ginger that has yielded good results in the west, 75% of ginger from Nepal is traded as fresh. In the Eastern region, processing of any form (even simple washing and packaging) is yet to be institutionalized. This has limited the bargaining power of farmers and traders of Nepal in comparison to their counterparts across the border. Under prevailing production and marketing conditions, the poverty reduction impact is high as most of the farmers producing ginger in the East are small farmers, for whom it is their main source of cash income, while the rest of the supply chain creates income for poor agricultural laborers.

In order to provide relief to the farmers from these problems, an exchange can establish a warehouse in a place where ginger can be stored from all the four places. In addition, the storage and processing mechanism used in abroad can be learned and the same can be taught to the farmers as well as to the warehouse manager. Such type of educational program can bring much more awareness among the producers; can deliver best quality ginger to the producers of such products that involve the use of ginger. The proper storage mechanisms will enable all the farmers to trade ginger thorough commodity exchange by depositing it in warehouse and they can gain fair profit through futures trading.

R&D Team
MEX Nepal


180000
160000
140000
120000
100000
80000
60000
40000
20000
0
14000
12000
10000
8000
6000
4000
2000
0
1999/00
2000/01
2001/02
2002/03
2003/04
2004/05
Production (mt.)
Area (Ha.)

WEATHER DERIVATIVE

A NEW INVESTMENT ALTERNATIVES

Introduction:

Weather derivatives are financial instruments that can be used by organizations or individuals as part of a risk management strategy to reduce risk associated with adverse or unexpected weather conditions. The difference from other derivatives is that the underlying asset has no direct value to price the weather derivative. Weather derivative are generally measured at weather station over the contract period in some way. The underlying assets can be rain, temperature, snow, frost, snowfall etc.

This is one of the newest financial tools that arrive only in July 1997 when Aquila energy entered into weather derivative contract with consolidated Edison co. The transaction involved ConEd's purchase of electric power from Aquila for the month of august. In this contract, the price of power was agreed to the level of temperature for the month of August. If the August turned out to be cooler than expected than Aquila would pay ConEd a rebate.

This concept was later modified for developing the contracts for weather derivatives. As a result, weather derivatives slowly began trading over-the-counter in 1997 and as the market for these products grew, the Chicago Mercantile Exchange (CME) introduced the first exchange traded weather futures contracts, in 1999.

User of Weather Derivatives:

There can be different set of users who can be benefitted from the weather derivative such as farmer, different organization, speculator etc. Some of the examples of usage of weather derivatives are:

• Farmer can be benefitted by using weather derivatives to hedge against poor harvest caught by sudden change in temperature and amount of rain.

• Any sports event managing company can hedge the loss by entering into weather derivative contract because due to rain the day of the sporting event can have less ticket sold.

• A construction company which experience delays when its cold or raining because laborers cannot work outside can hedge using weather derivative.

• A hydroelectricity power generation company, which generates less electricity when rainfall is reduced, can hedge using weather derivative.

• A cloth retailing company, which would sell fewer clothes in the season can choose weather derivative as per their requirement.

Types of Weather Derivatives

Basically there are two types of weather derivatives popularly traded and are tied to an index of Heating Degree Days (HDD) and Cooling Degree Days (CDD).

• Heating Degree Days (HDD) is quantitative indices designed to reflect the demand for energy needed to heat home or business during the time of cooler days. These indices are derived from daily temperature observation and heating requirement for a given structure at a specific location. The calculation of HDD is done by taking the average of a day's high and low temperatures and subtract from base temperature (generally 65oF). For example, if the day's average temperature is 50o F and its base temperature is 65oF then its HDD is 15. If every day in a 30-day month had an average temperature of 50o F, the month's HDD value would be 450 (15 x 30). The nominal settlement value for this month's weather derivative contract would therefore be settled with associated monetary value or a multiplier. The formula for calculating heating degree days in CME is as follows:

Daily HDD = Max [65- (T max+ T min)/2, 0]

• Cooling Degree Day (CDD) reflects the amount of energy used to cool a home or business during the time of hotter days. The numbers of degrees that a day's average temperature is above the base temperature are cooling degree days. For example if the day's average temperature is 80oF, its CDD is 15. If every day in 30-day month had an average temperature of 80oF, the months CDD value would be 450(15 x 30). The nominal settlement value for its month's

weather derivative would therefore be settled with associated monetary value. The formula for calculating cooling degree days (CDD) in CME is as follows:

Daily CDD = Max [0, (T max+ T min)/2-65º]

Some Key Areas of Weather Derivatives

1. The contract period: This refers to the start date and an end date. Generally for HDD contract the time between October and April are suitable for the contract whereas for CDD contract the time between April and October are suitable for the contract.

2. A measurement station: This is the place at which measurement is done and authorizes institution that measure weather and updated it regularly. Normally government agency is entitled to do this task. And in Nepal the weather data is updated by metrological forecasting division situates in airport Kathmandu. Also the back up station is to be used in case the main station Fais needs to be determined.

3. An index: This is the aggregate weather variable over the contract period in some way. Generally, each day deviation from the base temperature would be cumulatively added as per the kind of contract (CDD or HDD).

4. A pay-off function: This converts the index into cash flow that settles the derivative shortly after the end of the contract period. The cumulative temperature would be associated with the monetary unit and final settlement is done.

Research Work for Weather Derivatives in Nepal

For the purpose of introducing Weather derivatives or futures contract on weather for trading, a detailed research was conducted. The research incorporated the daily data of maximum and minimum temperature from the year 2008-2010 of Kathmandu. Apart from that, the average data of last ten years was used in order to determine the mean temperature. Taking the example of the indices used in CME, an index was created for cooling and heating as per the requirement.

Let's have a look at the difference between the CDD and HDD between USA and Nepal:

USA	Nepal
Daily CDD = Max [0, (T max+ T min)/2-65º]	Daily CDD = [0, (T max+ T min)/2-24º]
Daily HDD = Max [65- (T max+ T min)/2, 0]	Daily HDD = [0,24º- (T max+ T min)/2]

- **The base temperature for the indices used in USA is in Fahrenheit**
- **The base temperature for the indices used in USA is in Celsius**

The base temperature for the indices used in USA is in 65º Fahrenheit was determined based on the requirement of cooling and heating the room. Based on the same concept, the base temperature in Nepal for both the indices was determined. At first the data collected for last ten years monthly average temperature was taken and then the frequency of a particular temperature was sum up to determine the base temperature. The So as result, it was concluded that for Heating Degree Day index, the base temperature should be 12º and for Cooling Degree Day index, the base temperature should be 24º.

Temperature	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Frequency of falling within this level of temperature	5	11	4	2	5	8	6	0	1	11	5	10	12	24	2

So as result, it was concluded that for Heating Degree Day index, the base temperature should be 12 º as during the winter season the temperature will start falling and for Cooling Degree Day index, the base temperature should be 24 º as during the summer season the temperature will start rising.

Again the daily data of last three years was used for in order to determine the daily fluctuation in the maximum and minimum temperature of Kathmandu.

Based on the frequency total, it was found that the index fluctuated by 0.35 frequently both upwards and downwards. By looking at the above table it can be seen that the frequency of the index in the upward is the maximum but alone frequency of maximum temperature will

These data can be used to construct derivative index. The index will be used to calculate the daily profit and loss based on the difference between the indexes of two days. Those differences will me multiplied with associated monetary value or a multiplier to calculate profit and loss. The profit or loss earned though out the month will be summed up to calculate Net Profit, which will be paid to the investor at the end of the month.

Change in temperature	Total Frequency of change in temperature upwards from the year 2008-2009	Total Frequency of change in temperature downwards from the year 2008-2009
0.05	2	2
0.15	2	1
0.65	2	0
0.85	2	4
0.95	2	2
1.25	2	3
1.35	2	2
1.45	2	0
1.65	2	0
2.25	2	0
0.45	3	5
1.55	3	0
0.55	4	1
1.05	4	3
0.10	5	0
0.75	6	6
0.35	8	6
0.25	9	5

Though there are many other factors to be researched for the construction of index but the main one are already shown above. With the help of the data used, it is clear that even in Nepal, weather derivatives can be introduced and to initially start with it only Kathmandu can be taken for the starting purpose. In order to give a brief idea about success of weather derivative apart from the commodities, MEX Nepal has come up with this. In future MEX will be coming up with more of such commodities to provide investment opportunities to the investors in diversified items.

Challenges

Apart from many advantages of the Weather Derivatives, there are few challenges that are faced all over the world providing trade in weather derivatives, they are

1. Communicating and marketing the advantages of weather derivative.

2. Making Weather Derivatives easy to understand for the investor and traders.

3. The forecasting in any country is not reliable and metrological forecasting division is not well equipped for better forecasting.

4. It's not easy to get and analyze the data.

5. Lack of a legal and economic framework

6. Training of qualified specialists for working with these instruments

7. Attracting companies interested in hedging their profits

8. The change of location of weather station due to various reasons.

Conclusion

Weather derivative is one of the newest developments in the field of derivative and hedging which is slowly gaining its popularity. Its use is not only limited to the speculator and traders but also give its appeal to different corporate, social and business organization. With proper marketing, communication and structural framework it can be successful to attract large portion of economic activity that are directly and indirectly related to the weather. Although there are some major and minor challenges that can be mitigated with systematic setup and planning, and also with the use of proper data and consultant one can easily come up with Weather Derivatives in Nepal

R&D Team
MEX Nepal

E-BANKING IN COMMODITY MARKET

As of today's context commodity market has become very burning issue for the investors. In a very short duration an investor can earn lot according to the market and their position which they take. This trade is only possible through online trading software using internet. Investor get the work station after opening an account on exchange called as TWS (Trading Work Station) through which they can be able to take different position and settle it. They can be able to watch the current market situation, different news related to the commodity market as well regarding the factors influencing this market.

I-banking (internet banking) has become very popular and very useful to the traders of commodity market. In Nepal, commodity traders can transfer fund online through their own account to segregate account in bank. Online account of the client is protected by the username and password. After the transaction in the accounts, Clearing Member (CM) transfers that fund to the clients Trading Work Station (TWS). After all the above transactions, clients can also withdraw the fund from TWS to their own account.

Below the figure depict the broad picture how i-banking transfer of fund to segregate then to TWS is shown.

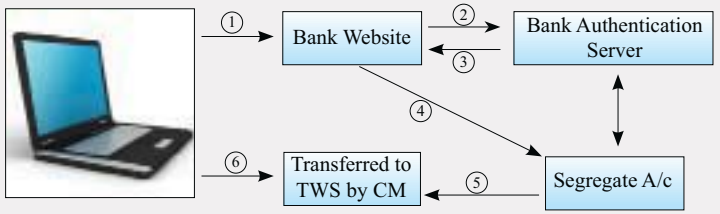

Figure 1(a): Fund Transferred to TWS

1. Trader (clients) opens the respective banks website and enters his/her username and password.
2. The username and password sent to the respected bank authentication server.
3. If rejected then client can't transfer the fund but if username and password is accepted then from his/her bank account, client can transfer the fund.
4. Traders now can transfer the fund to the segregate account of NCM (Non Clearing Member).
5. Now the fund in segregate account is then transfer to TWS of the respective traders By CM (Clearing Member).
6. Then the trader (clients) can trade on TWS.

Below the figure depict the broad picture how online withdrawal of fund takes place.

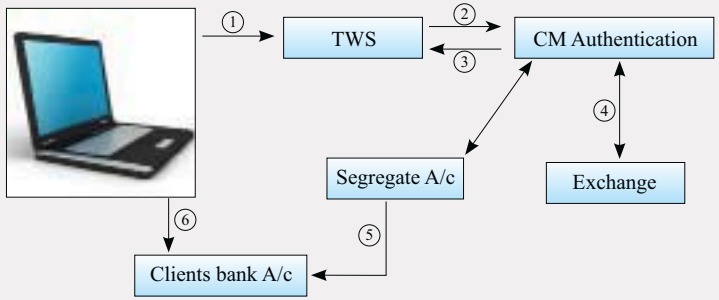

Figure 1(a): Fund Transferred to TWS

1. Trader (client) from his/her TWS place withdrawal request.
2. The request sent to the respective Clearing Member authentication.
3. If rejected then client can't withdraw the fund but if accepted then from his/her own TWS, client can withdrawal the fund.
4. CM provides the information to exchange regarding the withdrawal request put by client.
5. CM now transfers the fund from the segregate account of NCM to the respective client's bank a/c.
6. Then the trader (clients) can withdraw the fund from his/her bank account.

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Client Service Officer
Axis Broking Solution

COMMODITY EXCHANGES
An Emerging Career in Nepal

Most of us are well aware that commodity exchanges in Nepal have grown enormously over the last few years. Apart from being a major contributor to the Nepalese economy, this relatively new field has also created massive employment opportunities to the general people with finance students benefitting the most. The market grew exponentially only after Mercantile Exchange Nepal Ltd (MEX Nepal) came into the future. In a short span of time, commodity market is now not only limited to futures trading but has also spread its faction to spot trading and Nepal Spot Exchange Ltd (NSE), promoted by MEX Nepal, is the first spot exchange in the country.

This increasing number of commodity exchanges in the country shows two things. Firstly, the local investors have welcomed this new area of investment with open arms. Consequently, more and more investors are participating in this market on a regular basis. Secondly, the setting up of a regulatory body and the soon to be introduced regulations by the government further shows that this market has a huge potential in the country. Likewise, participation of different sectors such as banks further drives home the point that commodity market is here to stay.

With the achievement of manifold interest in commodity market increasing day by day, the biggest beneficiary has been the students. Now the students no more have their choices of career development limited to the banking sectors only, but they also have the option of choosing new field i.e Commodity Exchanges. This market gives a new platform to the professionals for developing their career. "Derivatives" as a subject is mandatorily covered in the course content in all academic institutions as one of the major subject for finance students. The students have been very receptive of the new course as commodity exchanges have provided the right platform for graduates to start their career with an added benefit of an immediate practical exposure.

> "Right Man, in Right Place", the challenge is to get the right resources in the right place.

However, this huge influx of interest in commodities has made the work of Human Resource Department all the more challenging. As the saying goes "Right Man, in Right Place", the challenge is to get the right resources in the right place. On one hand we have the banking sector which has been well established in the country for over 25 years and on the other hand, we have commodity exchanges in its infancy phase. Over the years, the general public has had this predetermined mindset of picturizing themselves to be successful bankers. Converting this traditional outlook and making them realize the existence of a relatively new field and convincing them about the potentiality of the market is a challenge in itself.

While it is hard to find the right people in the job market to work in commodity exchanges, we at Mercantile Exchange Nepal Limited have been conducting various talk shows, seminars and career development programs in different academic institutions as an awareness program. We give training to the candidates about the general Know-How of this market prior to the placement. Continuous effort has been put to make our employees full-fledged by providing them relevant trainings related to Technical/ Fundamental aspect of the trading system and other entailed mentoring from time to time. In order to make the system more systematic and effective, we have adapted to the widely accepted ISO standards. Our employees are groomed to work as a team, adhering to all the Rules, Byelaws and procedures required with all the professional approach and etiquette.

Inspite of the purview of an affluent future of this market, it faces another hurdle of security for both the investors as well as professionals in the field. This is primarily due to the non-existence of a regulatory body and governing laws as mentioned previously. However, by appointing SEBON (Securities Board of Nepal) as the regulatory body, the government has shown positive response towards this market. Once the laws come in place, it is anticipated that this market will gain more acceptance and as a result, there will be more and more professionals involved in this sector leaps and bounds.

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