Fractal prospecting of entities with shares in the Bolivian Stock Exchange

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Resumen

En los valores bursátiles bolivianos de los agentes que tienen ahorros o recursos en exceso (inversores) a las empresas o instituciones con necesidades de financiación se canalizan. En el mercado de valores hay una amplia gama de empresas e instituciones de la emisión de acciones son uno de los instrumentos más populares en los mercados financieros, es un valor típico de la participación. Representan una de las fracciones iguales en el capital social de una sociedad está dividida y que hacen compras en el accionista o miembro de la misma. Por lo tanto, es el más adecuado para el mercado inversor para facilitar las tres características que cada inversión demandas; liquidez, seguridad y rentabilidad adecuada a la situación económica del momento. Es a través del fractal de prospección de la situación real de las entidades participantes del mercado de valores se obtiene trazando la estabilidad de estos en el futuro a medida que las entidades en las que los inversores pueden confiar su inversión.

Fractales, Acciones, Bolivia Stock Exchange.

Abstract

In the Bolivian stock exchange values of operators who have savings or excess resources (investors) to companies or institutions with funding needs are channeled. In the stock market there is a wide range of companies and institutions issuing Shares are one of the most popular instruments in the financial markets, it is a typical value of participation. They represent one of the equal fractions in the capital stock of a corporation is divided and who make purchases in the shareholder or member thereof. Thus, it is the most suitable for the investor market to facilitate the three characteristics that every investment demands; liquidity, security and profitability appropriate to the economic situation of the moment. It is through the fractal prospecting the actual situation of the participating entities of the stock market is obtained by plotting the stability of these in the future as entities in which investors can trust their investment.

Fractals, Shares, Bolivian Stock Exchange.

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Introduction

The current operational management of BBV consist in to improve the relationship with the Stock Brokerage as a means of market development also expand and diversify the number of issuers who opt for the stock as a funding source, with this enhance market investors choose the stock, promote market development and regulation and to adopt and strengthen necessary to support the market development in technologies thus: MV = Market, EM = Issuers and BS = bag. Its values and objectives are:

- Transparency: With strict adherence to the rules and professional ethics.

- Efficiency: excellence, quality and following best practices.

- Confidence: Team integrity.

- Innovation: Generating a permanent change and continuous improvement, finally

- Security: Creating the conditions for the operations take place and information is transmitted in a regulated and controlled environment.

1 Fractal emission of BBV

Whereas the Financial System: TR = Transparency, EF = Efficiency, CF = Trust, IV = Innovation, SE = Security:

Agents who participated that time were ASERFIN, Citibank and Santa Cruz Bank. All shares were sold by the Central Bank of Bolivia, which at that time operated wheel directly, free of hiring intermediaries as discussed:

In the conditional expectation of the market, we get:

Mechanisms of exchange trading.

Arena.

For transactions with registered securities and authorized both fixed income and equity in RU = Arena.

Negotiating table.

To settle promissory notes previously traded companies registered and approved only by BBV. This type of transaction is carried out only in securities whose term does not exceed 270 days with MN = Negotiating table.

Auction of unregistered shares.

In order to trade shares of unregistered companies in the BBV. The auction of securities is made by the auctioneer, the best in SPAnib = Public Auction of Shares Not Listed on the Stock Exchange.

Cota get an iterated 3 times:

1st Iteration:

$$Ec = \left\{ \frac{\left(\frac{1.104}{0.141} \int 0\left(\frac{3}{3x} \right) \right)^{1-\frac{1}{x}}}{\left[\frac{\log \frac{1}{x}}{\log x} \right]^{0.95}} \right\}_{1-\frac{1}{X}} \cdots + \left[\frac{\frac{0.99 + \log \frac{1}{x}}{1.50}}{\left[\frac{\log \frac{1}{x}}{2.51} \right]^{\frac{1}{2}}} \right] + \int antlog \frac{1}{x} \frac{\left[\log \frac{B_0}{B_1} + B_1(0.30) \right] \pm (S/D)^2}{1.79 \pm (1.79 < 2.48)} \begin{bmatrix} x & 0 & x^2 \\ 3.09 & . & 1.16 \\ 3.09 & 1 & 1.16 \end{bmatrix} + \begin{bmatrix} 0 & 0.30 & 1 \\ 0 & 0.69 & 0 \\ 1 & 0.60 & 0 \end{bmatrix} \begin{bmatrix} \log \frac{1}{x} & \log \frac{1}{x} \\ \log \frac{1}{x} & 0+1 \end{bmatrix} \begin{bmatrix} 1 - 21.49 \\ z^2 \log \frac{1}{x} \end{bmatrix}$$

2nd iteration:

$$Ec = \left\{ \frac{7.82 \int (0)}{[x^2]^{0.95}} \right\}_{1-x}^{1-x} \cdots + \left[\frac{\frac{0.99 + x}{1.50 - (-0.53)}}{\left[\frac{\log x}{\frac{L_1}{L_{10}}} \right]^{\frac{1}{2}}} \right] + \int antlog x \frac{\left[\log \frac{B_0}{B_1} + B_1(0.30) \right] \pm (S/D)^2}{1.79 \pm (1.79 < 2.48)} \begin{bmatrix} x & 0 & x^2 \\ 3.09 & . & 1.16 \\ 3.09 & 1 & 1.16 \end{bmatrix} + \begin{bmatrix} 0 & 0.30 & 1 \\ 0 & 0.69 & 0 \\ 1 & 0.60 & 0 \end{bmatrix} \begin{bmatrix} \log x & \log x \\ \log x & 0+1 \end{bmatrix} \begin{bmatrix} 1 - 21.49 \\ z^2 \log x \end{bmatrix}$$

3rd Iteration:

$$Ec = \left\{ \frac{7.82}{2.95x} \right\}_{1-x}^{1-x} \cdots + \left[\frac{\frac{0.99x}{1.55}}{\left[\frac{\log 1 - L_1 + L_{10}}{2.51} \right]^{\frac{1}{2}}} \right] + \int antlog \frac{\left[\log \frac{B_0}{B_1} + B_1(0.30) \right] \pm (S/D)^2}{\frac{6.06}{[1.16x + 3.09x^2 + 3.58]} + \frac{[0+1+0]}{[0+1.49+z^2]}}$$

Mechanisms off-exchange trading

The operations allowed by the Financial Supervisory Authority and the Bolivian System Stock Exchange to be held outside the arena, but subject to registration bag are:

MNfb = Mechanisms of off-exchange

2 Crossing reported record

• Registration Crossing reported, referring to the reported sale of own portfolio either agency or client to the Central Bank of Bolivia.

• Purchases and sales in the primary market, either for own portfolio or customer base in fixed income. In variable rent they must report increases in portfolio by concepts of royalties, either to own portfolio or client's portfolio.

• Early redemptions of securities.

• Transactions with tax values.

CRr = Crossing Record Reported

3 BCB auction

BCB SBCB = Auction

It is the sale of Bonds and Bills issued by the General Treasury of the Nation or issued by the Central Bank of Bolivia for fiscal and monetary policy of the country, through weekly auctions organized by the BCB as financial agent of the government. The auctions are held weekly on Wednesdays and securities are issued the following Friday. It can participate in the auctions all financial institutions operating license granted by the Superintendency of Banks and Financial Institutions and the Supervisory Authority of the Financial System prior rules of the institution, in which participation is approved in these and previous authorization of the Board of Securities of General Treasury of the Nation (CATT).

BO = Bonds

LT = Letters

TGN = General Treasury of the Nation

BCB = Central Bank of Bolivia

4 Trading Systems

The trading system in the BBV is the double competitive auction.

An equilibrium price based on the occurrence of supply and demand on the wheel, through a paging loudly, which clearly establishes the characteristics of the value to be negotiated. The price is the amount expressed in terms of rate for fixed income instruments and monetary value for equities. When the magnitude of the expected return is not secure or fixed from the beginning and will, in any case, according to the results of the activity which is destined investment. Equity values used are the shares.

5 Action

AC = Action.

It is the value that represents one of equal fractions of the capital stock of a corporation is divided. It serves to demonstrate and convey the quality and shareholder rights owner and the amount states limit the obligation to contract the holder of the share to third parties and to the company. The actions are usually registered and can be sold or transferred. Bolivian Commerce Code recognizes the existence of bearer shares; the shareholders of a company have the preferential right to acquire new shares when the company makes a share issue. When a company goes into liquidation bankruptcy, shareholders accountable only for the amount they have invested in their actions.

6 Classes of shares

There are two classes of shares:

- Ordinary shares: necessarily confer voting rights per share according to Bolivian law both ordinary and extraordinary meetings.

AO = Common Shares

- Preferred shares: preferred shares are issued with special characteristics.

Generally they pay the holder a specified fixed interest, as long as the company obtains profits.

AP = Preferred Shares

As regards the payment of preferred stock dividends take precedence over common stock. The holder of a preference share has no voting rights in ordinary shareholders only voice. However, it has the right to vote at an extraordinary meeting.

PD = Dividend Payment

AO = Common Shares

In the liquidation of the company's preferred shares are redeemed before ordinary ones.

AP = Preferred Shares

Preferred shares with dividends not spread over three years, whether or not being consecutive, acquire the right to vote and other rights of the common shares, until the referred obligation disappears.

DV = Dividend

The preferred shares are redeemable and can be converted into ordinary shares, on the terms and conditions established at the time of their issue. The preferred shares do not exceed half the subscribed capital. When no dividends are paid on an exercise or these are lower than the dividend, the difference will be covered in the following years with priority over common stock, in addition to the economic benefits provided by stock ownership, there are rights under the law and in the statutes of each company themselves. For example, shareholders can participate in the election of the Board of Directors, in modifying the statutes, also in the approval, modification or rejection of the audited annual accounts, as well as the destination of the results.

7 Share Prices

$$Pr(x_t = x_{t-1}, x_{t-2}, \dots = Pr(x_t = x)$$

- Nominal value of a share: the price or face value of a share is the book value and is printed on the physical security at the time of issuance.

$$U_{t+1} = \log e\,(P_{t+1} + d) - \log e\,P_t$$

- Carrying amount or value of one share equity method: the value obtained by dividing the assets between the numbers of existing shares.
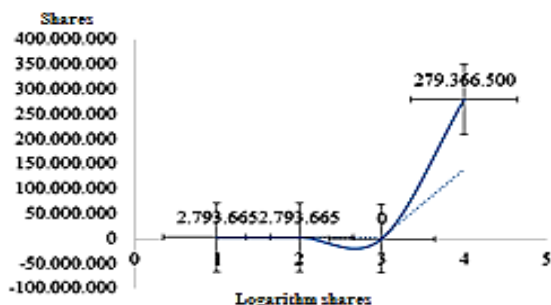
$$\sigma_m$$
$$= \left(\frac{\sum_{i=1}^{3} n_i^2\,[\sum_{i=1}^{3} n_i^2 + N(N+1)] - 2N\,\sum_{i=1}^{3} n_i^3 - N^3}{N^2(N-1)}\right)^{1/2}$$

- Market value: the value that investors are willing to pay for it. In other words it is determined by offer and demand.
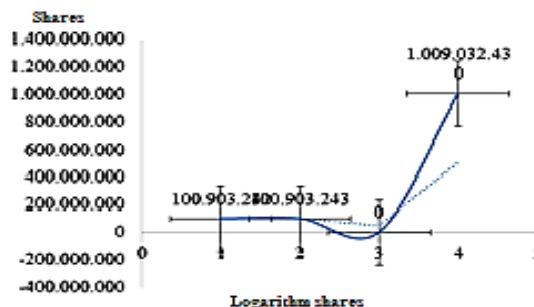
$$\bar{R}_\iota(+) = R(+)P(+)^{i-1}[1 - P(+)]$$
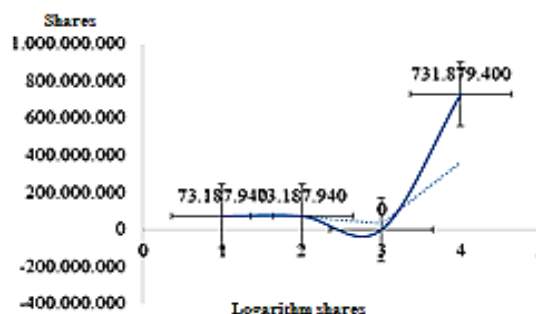
$$\bar{R}_\iota(-) = R(-)P(-)^{i-1} * [1 - P(-)]$$

$$\bar{R}_\iota(0) = R(0)P(0)^{i-1}[1 - P(0)]$$

Graphic 1

Graphic 2

Graphic 3
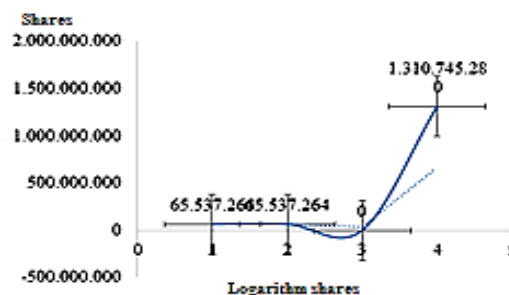
Graphic 4
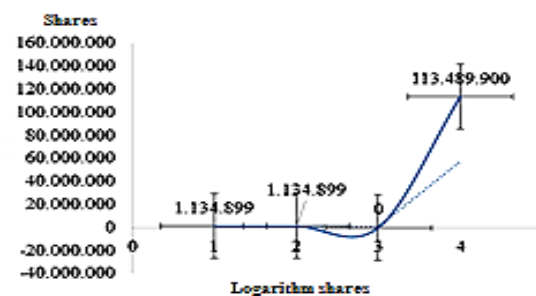
Graphic 5
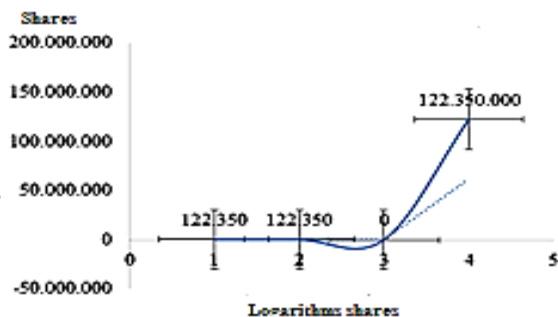
Graphic 6
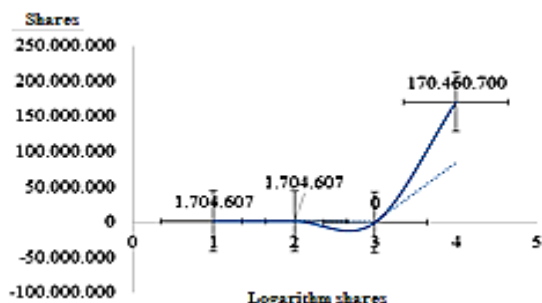
Graphic 7

8 Considering the amortization of capital

$\Pr(u > û \rightarrow (û/U_1)^{-a}, û > 0,$ and

$\Pr(u < û \rightarrow (\backslash û \backslash / U_2)^{-a}, û < 0,$

$\frac{Pr(u>û)}{(û/U_1)^{-a}} \rightarrow 1$ as $û \rightarrow \infty$

$\log Pr(u > û) \rightarrow -a(\log û - \log U_1)$

And $\log Pr(u < û)$
$-a(\log \backslash u \backslash - \log U_2)$

$r_1 \pm 2\sigma(r_1) = 0 \pm 2\sqrt{1/(n-1)},$

$n = 5, 10, \dots, N$

• At maturity: when bonds pay capital provided by the issuer on the maturity date contained therein.

$cov\left(u_{tj}, u_{t-r,j}\right)$
$$= E[b_j I_t + \xi_{tj})(b_i I_{t-r} + \xi_{t-r, \ j})] = b_j^2 \ cov\ (I_t, I_{t-r})$$
$+b_j\ cov\left(I_t, \xi_{t-r, \ j}\right)$
$+b_j\ cov\left(I_{t-r}, \ \xi_{tj}\right) + cov\left(\xi_{tj}, \qquad \xi_{t-r, \ j}\right)$

• Periodically: capital provided by the issuer of a particular bond can be paid periodically (monthly, semi-annual, annual, etc.) in two ways:

$$P(+run) = NP(-)[1 - P(+)]/m$$

$$P(-run) = NP(-)[1 - P(-)]/m$$

$$P(0\ run) = NP(0)[1 - P(0)]/m$$

9 Clearing and Settlement

A concerted operation in the arena of BBV is considered settled when funds and securities resulting therefrom have been delivered and received by each of the parties to the conditions and agreed term. The netting is the process by which, after the close of market operations, the respective obligations to deliver securities and brokerage funds is calculated.

Trade settlement is the process comprising the cancellation of the obligations of operations, by providing funds from the buyer and the delivery of securities by the seller.

Forms of settlement. In the BBV the following forms of payment are supported:

Settlement periods allowed. The BBV allows brokerages to agree in the ring the following periods of settlement of transactions: For operations with Fixed Income Securities to T + 1.

This means that an operation with these values can be liquidated on the day on which it was made or the next day, as long as, any of these alternatives has been established and agreed between the parties, at the exact moment the operation .

$$T1 = T + 1$$

For operations with Equities up to $T + 2$. This means that an operation with these values can be liquidated on the day on which it was made or the next day or two days, provided that any of these alternatives has been established and agreed between the parties at the time materialize the operation.

$$T2 = T + 2$$

Deposit institutions of Securities. The Securities Market Law also authorizes the operation of "depository institutions", which are specialized institutions that receive securities for safekeeping and for the clearing and settlement of transactions performed with them. Deposit institutions seek to reduce the risk posed by physical handling of values, speed transactions on the secondary market and facilitate their settlement. They are also responsible for administering the securities held, meaning the exercise of emerging economic rights of the same, ie the collection of dividends, coupons, principal and interest on behalf of its depositors.

10 Conclusions

For the fractal analysis of actions by entity was resorted to direct source of the Bolivian Stock Exchange, with information to July 2014, for each entity, requiring data on the total shareholders, Ordinary Shares, Preference Shares, outstanding amount of the shares, then the application of mathematical modeling of fractal prospective of these is broken.

The settlement of securities transactions in book-entry account held by the Bank Securities Depository (link to or concept EDV's EDV) in charge of keeping track of such securities. The settlement of securities shall be made by electronic transfer them between accounts that the seller and the buyer must have their name on that entity within the parent account by the brokerage that performed these operations.

The settlement funds will be made through a financial institution selected by the Bank Securities Depository, called settlement bank, in which each hold a brokerage account for this purpose, the funds should be given and received through the means of payment established by the BBV and values should be given and received in his documentary representation.

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