LESSON IV

The RELATIONSHIPS PRICE - IMPORTANT TIME PIU' OF FIBONACCI

The mathematics... reveals the order of the relationships in agreement to which the universe is constructed and the proportion that alloy the things together in the cosmos.
Proclus Diadochus (485 to.C.)... Commentary on the First Book of the Elements of Euclide

INTRODUCTION

Although the relationship of Fibonacci (PHI = 1,618) has earned recent popolarità like an instrument for the analysis of the financial market, it is not most valuable. Us they are various relationships that they produce turns out better to you in picking the opportune moment in the financial markets if they are approaches to you from the perspective one you squared - they determine the proportions. Without a such perspective the truths introduced in this lesson and the lessons to follow remain lacking in sense. The PTV supplies the instrument for an approach squared - they determine the proportions.
The relationships introduce to you in this lesson are produced like the markets schiudono in their characteristic geometric models. [1] The single limitation in the scale of time to which these relationships they can be applies to you is the availability of reliable data. The financial markets continue to grow from their data of beginning until their term. If a financial market has been in existence for seven hundred years, (like the world-wide market of the grain), the relationships of the PTV can be calculate and apply you to the geometric model of increase for that time interval to you. In effects, the relationships introduced in this lesson are present on the diagrams of the price - time with time scales that vary from the minuteren to the centuries.

A RELATIONSHIP MUCH IMPORTANT PIU' OF FIBONACCI

The square root of two, 1,414, is **MUCH IMPORTANT PIU'** in the analysis of the financial market of Fibonacci. The square root of two connects the diagonal of the square to its side, like in Figure 4.1.
The relationship of the square root of two has many interesting property, some common ones with Fibonacci. As an example, if one is embezzled from the square root of two the result is 0,414.

$$\sqrt{2} - 1 = 0,414$$

If this value of 0,414 is divided in one, the result is one more the square root than two.
That is,

$$\frac{1}{0,414} = 1 + 1,414 = 2,414$$

This is similar to the relationship of Fibonacci, where embezzling from PHI is equivalent to one divided from PHI. That is,
One embezzled from PHI,

$$1,618 - 1 = 0,618$$

it is equivalent to one divided from PHI,

$$\frac{1}{1,618} = 0,618$$

There are many reasons of because the relationship of the square root of two is therefore prevailing in the diagrams price - time of the financial market. Lesson V, **STRUCTURES GEOMETRIC**, it will clear these reasons. For hour, the objective is to show that this relationship is found in every leaves the securities market. When the presence of this relationship is demonstrated beyond the possibility of the

coincidence, the next step will be to watch in turning out composita geometry. This is made in Lesson V, **GEOMETRIC STRUCTURES**.
The relationship of the square root of two defines the relative largenesses of the beams of two circles concentrates circumscribing and registering a square to us. If a circle is placed within a square and an other circle it is designed around to the square the combination will appear like in Figure 4.2.

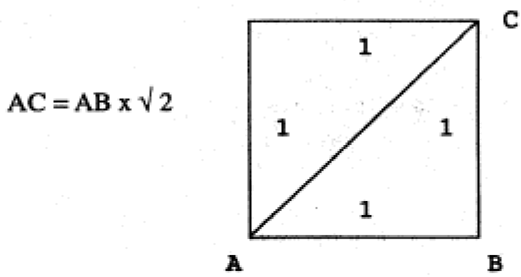

Figure 4.1
Diagonal of the square

THE SQUARE REPRESENTS THE CAUGHT UP BIDIMENSIONAL ENDS FROM THE PTV IS IN THE PRICE THAT IN THE TIME. IT DEFINES ALSO the SUCCESSES [2]
To YOU LEVELS OF INCREASE AS The E' ENERGY ADDED To the SYSTEM.

The beams of the two circles in Figure 4.2 are OA and OB. OA is the beam of the inner circle and OB is the beam of the external circle. For the scope of this analysis, beam OA is placed equal to one. Triangle OBA is a triangle resisted with OA = AB = 1. The Lesson has shown that the distance, OB, are the hypotenuse of this resisted triangle, and has the value Ö 2 = 1,414. This [3] **means that the relationship of the beams of the two circles is 1,414.** [4]

The difference between the two beams in Figure 4.2 are 0,414. This value is extremely important and will be shown in Lesson V, **STRUCTURES GEOMETRIC**, in order to more recently connect the dimensions of the geometric structures formed in the securities market during first part of the twentieth century to those formed.

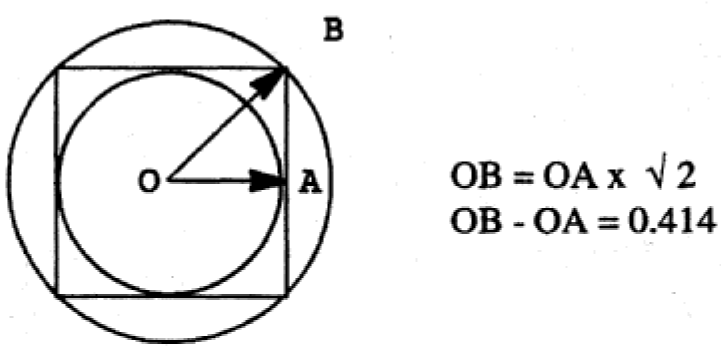

Figure 4.2
Two circles concentrate to us with the beams in the relationship of the square root of two.
If the process of increase shown in Figure 4.2 are continued to the successive level of energy the model will appear like Figure 4.3.to. And without the squares it appears like in Figure 4.3.b. This figure with the shown conical propeller in Figure 3 appears.1. They are the same figure. The single difference is the

observation angle. Figure 3.1 is one perspective three-dimensional of the seen conical side propeller. Figure 4.3.b it is one perspective bi - it determine the proportions them of this same propeller seen from [5] the apex watching in down.

The squares in Figure 4.3 represent the levels succeeded you of a pyramid to four sides when it is seen from one perspective tri - they determine the proportions. This is the same one costrutto found in the great pyramid of Giza, Egypt. The next lesson will show that this geometric formation defines the successes to you levels of energy of the securities market. As the conical propeller is opened, it is expanded. The lengths of sides of the squares to every level of energy are defined from the extension that the propeller has revealed to that particular point in the time.

(a) (b)

Three successes to you levels of energy Three successes to you levels of energy with the squares without the squares

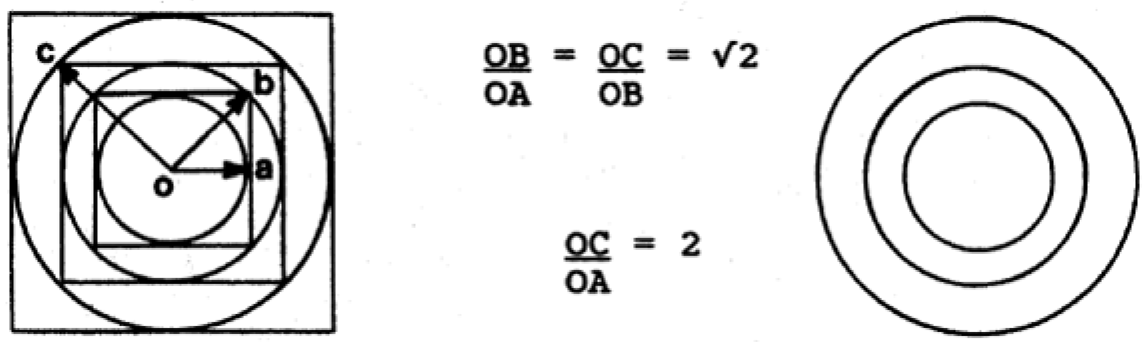

Figure 4.3

Successes to you levels of energy of the two root: (a) with the squares and; (b) without the squares.

EXAMPLES FROM THE DJIA OF THE RELATIONSHIP OF THE SQUARE ROOT OF TWO

Diagram IV.To extension the DJIA salary from the maximum of market in 1966 until the landslide of 1987. The value for the PTV shown on this diagram is contained within Table 4.1.

[6]

Table 4.1 it contains many PTV with the relationship of 1,414. As an example, the combining PTV three more meant points to you than carried out within the lateral movement in the securities market between 9 9 February 1966 and August 1982 defined nearly a perfect relationship of the square root of two. These three points were: the maximum of the 9/02/1966, the the 9/12/1974 minimum of and the minimum of the 9/08/1982. Diagram IV.To it defines the three combining PTV these points like EF, FG, and EG and their exact relationships are shown under.

$$\frac{EF}{FG} = \frac{631}{447} = 1{,}412$$

$$\frac{EG}{EF} = \frac{891}{631} = 1{,}412$$

For comparison, the ideal theoretical values are:

(1) EF == FG x √ 2 = 447 x √ 2 = 632,15

Producing an error of: $\frac{632{,}15 - 631}{631} = \frac{1{,}15}{631} = 0{,}18\%$

(2) EG = EF x √ 2 = 631 x √ 2 = 892,37

Producing an error of: $\frac{892{,}37 - 891}{891} = \frac{1{,}37}{891} = 0{,}15\%$

And since, √ 2 x √ 2 = 2;

(3) FG = 447 = EG = 891
2 2

BEAM CARRIER PRICE - TIME	DATE OF THE MINIMUM	PTV THE MINIMAL PRICE	DATE OF THE MAXIMUM	PTV THE TOP PRICE	CHANGE OF TIME IN WEEKS	CHANGE OF PRICE IN POINTS	VALUE OF CARRIER (PTV)
EF	09/12/1974	570	09/02/1966	1001	461	431	631
FG	09/12/1974	570	09/08/1982	770	400	200	447
EG	09/08/1982	770	09/02/1966	1001	861	231	891
GH	09/08/1982	770	25/08/1987	2747	263	1977	1994
GI	09/08/1982	770	04/12/1987	1734	277	964	1003
EH	09/02/1966	1001	25/08/1987	2747	1124	1746	2077
HI	04/12/1987	1734	25/08/1987	2747	14	1013	1013

EXAMPLES Of the SECURITIES MARKET In the long term Of the RELATIONSHIP Of The TWO ROOT

The application of the square root of two is not limited from the scale of the time. The division of the square in order to create the successive level of the increase process happens on a hour diagram, just like ago in the temporal structure that covers the entire period of life of the market, beginning from the date of the first official contract.

Diagram IV.B extension various PTV in the DJIA between 1914 and 1982. The data for these PTV are included in Table 4.2. [7] Some of the relationships of the square root of two on this diagram are described under. There are many more examples than this relationship on Diagram IV.B. However, they are lists only those necessary ones to you to explain the geometry of the solid one that they define. [8] These **geometric formations will be explained in the successive lesson, the GEOMETRIC STRUCTURES**. You take the time in order to find the relationships lists to you under on Diagram IV.B.

The relationships of the square root of two within triangle EFG, between 1966 and 1982, were described in the previous section and here they are not repeated.

JE = BE x √ 2 = 1988 x √ 2 = 2832 (this relationship within 0,23% covering 52 years.)

= DE x √ 2 = 1209 x √ 2 = 1710

AM = AB x √ 2 = 375 x √ 2 = 528

AC = BC x √ 2 = 514 x √ 2 = 721

JK = JM x √ 2 = 350 x √ 2 = 494

AK = LB x √ 2 = 287 x √ 2 = 406

Table 4.2

Calculations of the PTV for Diagrams IV.B and IV.C

12/1914 - 2/1966

BEAM CARRIER PRICE - TIME	DATE OF THE MINIMUM	PTV THE MINIMAL PRICE	DATE OF THE MAXIMUM	PTV THE TOP PRICE	CHANGE OF TIME (WEEKS)	CHANGE OF PRICE IN POINTS	VALUE OF THE CARRIER (PTV)
AB	08/07/1932	40,56	03/09/1929	386,1	148	345	375
AC	28/04/1942	92,69	03/09/1929	386,1	659	293	721
AE	03/09/1929	386,10	09/02/1966	1001	1900	615	1997
AK	20/05/1924	88,33	03/09/1929	386,1	276	298	406
AM	24/08/1921	63,9	03/09/1929	386,1	419	322	528
BE	08/07/1932	40,56	09/02/1966	1001	1752	960	1998
BD	08/07/1932	40,56	14/06/1949	160,62	883	120	891
BC	08/07/1932	40,56	28/04/1942	92,69	511	52	514

AND	14/06/1949	160,62	09/02/1966	1001	869	840	1209
EL	10/03/1937	195,59	09/02/1966	1001	1509	805	1710
EJ	24/12/1914	53,17	09/02/1966	1001	2669	948	28,32
JA	24/12/1914	53,17	03/09/1929	386,1	769	333	838
JM	24/12/1914	53,17	24/08/1921	63,9	350	10,7	350
JK	24/12/1914	53,17	20/05/1924	88,33	493	35	494
LB	08/07/1932	40,56	10/03/1937	195,59	243	155	288
LC	28/04/1942	92,69	10/03/1937	195,59	268	103	287

THE IMPORTANT PIU' NOT ENTIRE RELATIONSHIP IN THE ANALYSIS OF THE SECURITIES MARKET

The square root of five is the more important not entire relationship in the analysis of the securities market since defines the increase spiral. Although a description of this spiral is included in the G Appendix, the reader recommends itself to study the material in the next lesson before reading that appendix.

The square root of five defines the diagonal of two adjacent squares, like shown in Figure 4.4.to, and the "grandfather" of the relationship of Fibonacci can be considered, since PHI is derived from the square root of five. That is,

$\frac{\sqrt{5} + 1}{2} = 1,618 = PHI$

1 1 D

TO = AC² + CD²

1 1 = 2² + 1²

= √ 5

To 1 B 1 C

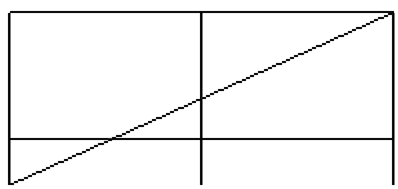

Figure 4.4.to

The two diagonal squared showing the relationship of the square root of five

The relation between PHI and the square root of five are expressed geometrically in Figure 4.4.b, where PHI is derived from two adjacent squares, like it was the square root of five in Figure 4.4.b. Figure 4.4.b it is the double quantity of Figure 3.3, that showed the derived Gold Section from the diagonal of square means. Given distances AH = 3,236, and BF = 2, it follows,

$\frac{AH}{BF} = \frac{3,236}{2} = 1,618$

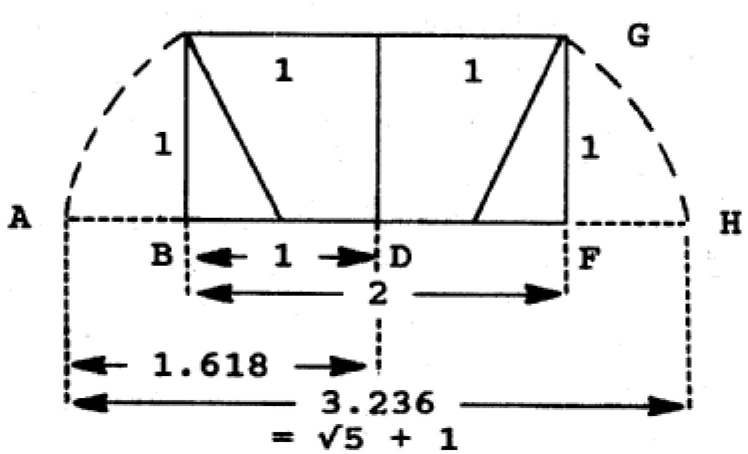

Figure 4.4.b

The relationship of Fibonacci derived from two adjacent squares

EXAMPLES IN THE DJIA OF THE SQUARE ROOT OF FIVE

Relationship 2,236 is obvious when the PTV are calculate to you from Diagram IV.To, like in Table 4.1.

This table extension GH, than extended from the minimum of 9 August 1982 to the maximum of 25 August 1987, to be nearly exact 2,236 EG multiple, than it extended from the maximum of 9 lessened February 1966 of 9 August 1982. That is:

$GH = \sqrt{5} \times EG$

Therefore, GH is the diagonal of two adjacent squares that have the length of the equal side to EG. In order to verify the exact relationship between these two PTV, GH is divided from EG:

$$\frac{GH}{EG} = \frac{1994}{891} = 2,238$$

These PTV measure a temporal dimension of beyond 21 years and still they produce turns out to you with an error less than two points. To exactly foretell an important maximum of market that it measured a temporal dimension of 21 years is truly compliments.

The ideal theoretical value for GH is given gives:

$$GH = EG \times \sqrt{5} = 891 \times \sqrt{5} = 1992,34$$

Producing an error of:

$$\frac{1994 - 1992,34}{1994} = \frac{1,66}{1994} = 0,08\%$$

It observes also that the rise represented from GH is corrected from HI. This value is a ritracciamento of [9] 50% of GH.

That is:

$$\frac{HI}{GH} = \frac{1013}{1994} = 0,508 = 50,8\%$$

This correction of 50% gives an indication of because the relationship of Fibonacci, PHI = 1,62, seems [10] to little often appear therefore in the corrections of the financial markets.

EXAMPLES OF THE SECURITIES MARKET OF ALONG TERM OF THE RELATIONSHIP OF THE FIVE ROOT

The relationship of the square root of five is a precious instrument for the analysis in order as well as backwards in the time how much is available the reliable historical data. Diagram IV.C extension the securities market salary from 1914 to 1993. The used data in order to calculate the PTV in this diagram are included in Table 4.2.

The relationship of the square root of five between EG and GH has been previously analyzed. They are included in this diagram in order to supply the perspective of the largeness of the temporal structure to be studied.

The relationship between EG and GH is the same one between BD and BE. BD connects the minimum of the market of 7/1932 the lessened one of 6/1949, and has the same largeness of EG. Moreover two PTV, AE and BE, have the same largeness of GH. Therefore, the relationship of the five root exists between two PTV, AE and EG, fixing one temporal dimension of 53 years from 1929 to 1982.

In summary, the three greater relationships of the square root of five on Diagram IV.C, between 1914 and 1987, is:

$BE = 1998 = BD \times \sqrt{5} = 891 \times \sqrt{5}$

$GH = 1994 = EG \times \sqrt{5} = 891 \times \sqrt{5}$

$JA = 838 = AB \times \sqrt{5} = 375 \times \sqrt{5}$

A THIRD IMPORTANT RELATIONSHIP PIU' OF FIBONACCI

A circle is a cycle, suit when the entire circumference has been crossed. The circumference of a cycle is established when its diameter is defined. The value DEVOUT, 3,14, are the number that puts in relation the diameter of a circle towards its circumference and defines the completion of the increase process.

In Figure 4.5.to the diameter, D, of the circle is AB. The circumference, C, the circle is the distance round and is defined like:

$C = \pi \times D = 3,14 \times D$

An other way to see Figure 4.5.to it is to enclose the circle in a square, like in Figure 4.5.b. In this figure the diameter of the circle is equal to the side of the enclosing square. That is, D = AB. Therefore, a circle registered within a multiplied square has one equal circumference to 3,14 for the length of the side of the enclosing square, C = 3,14 x AB.

The previous section has shown like the relationship of Fibonacci, 1,62, could be derived from the square root of five. It can also be derived from DEVOUT, 3,14. That is:

1,62 = 5
3,14

This demonstrates the intimate logon between the values of DEVOUT, PHI and five. **VALUE OF FIVE EXTREMELY IMPORTANT E' In the ANALYSIS Of the SECURITIES MARKET** and it will be still dealt in Lesson V, **GEOMETRIC STRUCTURES.** Similarly, DEVOUT it can be approximated using the two previous relationships previously described. That is, √ 5 x √ 2 = 3,16. In many positions of the process of increase of the financial markets this value will be more applicable of puts into effect them value of 3,14. However, for practical scopes us it turns out obtained to you using both these values are much similar.

(a) (b)

Circle with the defined diameter Diameter of the equal circle to side of the square

Figure 4.5

The diameter of the circle is equivalent to the length of the side of the enclosing square

EXAMPLES IN THE DEVOUT DJIA OF RELATIONSHIP (3,14)

An application of the relationship DEVOUT is described under. Figure 3.4 have shown that the defining PTV the greater axis of the ellipse from 3/82 to 8/84 was equivalent to 737. This is the same deliberate value for its opposite ellipse, CE. When they are seen on a diagram bi - price determine the proportions them - time these two ellipses gives the appearance of being contained within the limits of a great square, AE. However, with an understanding of geometry tri - determine the proportions implied they, these two ellipses can be seen to be various sides of the same ellipse, as shown in Figure 4.6. Only a side of the ellipse can be seen to the time on a diagram bi - price determine the proportions them - time. The greater axis of the ellipse in Figure 4.6 are the diameter of the larger circle from which the ellipse it is derived, like were shown in Figure 2.2.to. The circumference of this circle is found multiplying the diameter, AC = 737, for DEVOUT. That is,

Circumference = 3,14 x 737 = 2315.

The result is the value planned for the complete cycle, like defined from the length of the PTV that extends from the beginning of the cycle to the end. It puts into effect them length of this PTV, AG, was calculated in Table 3.1 to be 2323. This value is 8 more of the calculated theoretical value over, producing an error of:

8 = 0,34%
2323

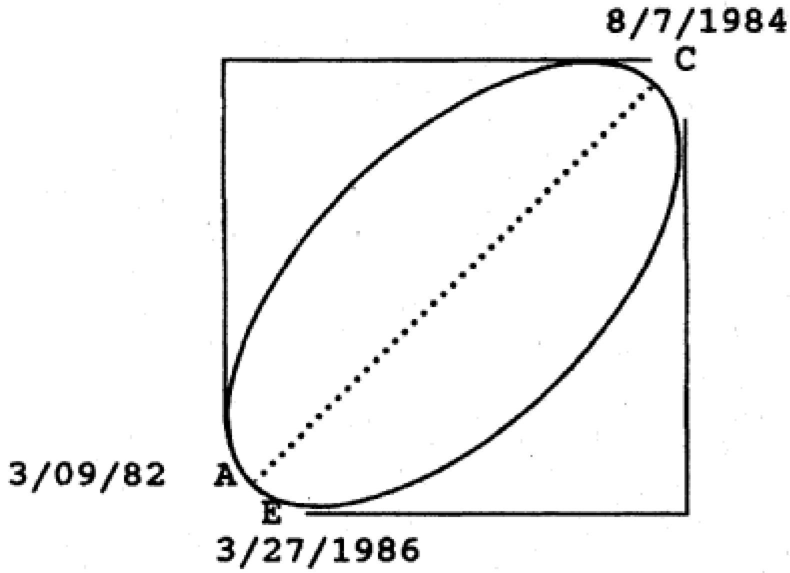

Figure 4.6

Both perimeters of the ellipse shown in Figure 3.4 (DJIA 09/03/1982 - 27/03/1986)

EXAMPLE OF THE RELATIONSHIP DEVOUT IN THE SECURITIES MARKET OF ALONG TERM

An example in the long term in the securities market of the relationship DEVOUT is shown on Diagram IV.To, where EF = 631, is multiplied for 3,14 in order to determine the final point of the completed process of increase, that August 1987 happened 25, when GH equaled 1994. This it previously supplies a good example of described value 3,16 in this section. Like previously described in the two sections on the square root of the two and square root of five, GH is defined using the two relationships √ 2 and √ 5. That is,

EG = EF x √ 2

GH = EG x √ 5

Arranging these two turn out to you;

GH = (EF x √ 2) x √ 5 = 1995,4

This result, 1995,4 is distant from puts into effect them value, 1994, for 1,4 for an error of;

$$\frac{1,4}{1994} = 0,07\%$$

An other application of the relationship DEVOUT using the historical data in the long term it is shown on Diagram IV.B. The PTV, JE, extend from 1914 to 1966, covering a period of 52 years. This PTV is the product of √ 5 x √ 2 x EG, where EG is the base of the equal square to 891. The previous sections in this lesson have shown that:

AE = EG x √ 5 = 1992

JE = AE x √ 2

Arranging the two equations of over the theoretical value for JE is obtained;

JE = (EG x √ 5) x √ 2 = 1992 x √ 2 = 2818

Table 4.2 it calculated the present value them for JE to be 2832, that it produces an error from the theoretical value of:

$$\frac{2832 - 2818}{2832} = \frac{14}{2832} = 0,49\%$$

A FOURTH IMPORTANT RELATIONSHIP PIU' OF FIBONACCI

To this point this lesson has been focused on the relationships that appear in the increase models bi - it

determine the proportions them. However, as it will be demonstrated in Lesson V, **STRUCTURES GEOMETRIC**, the markets not schiudono within the borders of the two dimensions.
If they are puttinges together six squared to angle resisted between of they form a shown cube like in Figure 4.7. This figure extension also the diagonal of the cube, AE, than crosses it from an angle to that [11] opposite one. This diagonal has equal length to the square root of three (√ 3 = 1,73).
Similarly, previously it was shown that the relationship between the beams of two circles, registered within a square and circumscribing round to a square, is the square root of two. The controparte tri - they of this configuration determine the proportions is a contained sphere within a cube, that it is if same content within a second sphere. The relationship of the beams of two such spheres is the square root of three.
This relationship is complicated to identify on the diagrams price - time bi - determine the proportions them because intrinsically it defines a relationship tri - they determine the proportions. Since this could be a source of confusion for the reader, will be dedicated little attention to this relationship of the three previously defined. When the reader is more to its comfort with geometry tri - they of the financial markets determine the proportions, this relationship would have to be still studied. Until that moment, it is not critical to comprise the relationship of the square root of three in order to apply the relationships practically introduces to you previously.
Two examples of the relationship of the square root of three originantesi from the bottom are supplied of the 7/1932.

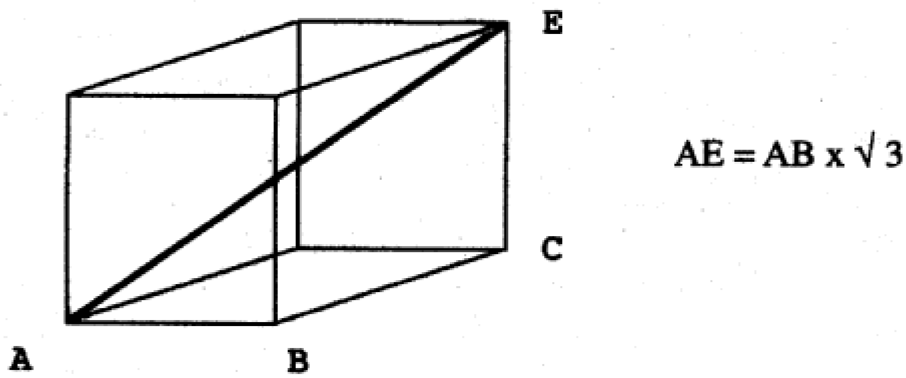

Figure 4.7

The diagonal of a showing cube the relationship of the square root of three.

EXAMPLES OF THE RELATIONSHIP OF THE ROOT OF THREE ON THE MARKET SHARE OF ALONG TERM

Diagram IV.D extension one sequence of PTV with equal relationships to the square root of three. I used data in order to calculate these PTV are contained in Table 4.3.
Two seem of voices in Table 4.3 are in the relationship of the square root of three.

BD = BC x √ 3 = 514 x 1,73 = 891

JK = LB x √ 3 = 288 x 1,73 = 494

Table 4.3
Calculations of the PTV for Diagram IV.D
Relationships of the square root of three in the DJIA
12/1914 - 6/1949

BEAM CARRIER PRICE - TIME	DATE OF THE MINIMUM	PTV THE MINIMAL PRICE	DATE OF THE MAXIMUM	PTV THE TOP PRICE	CHANGE OF TIME (WEEKS)	CHANGE OF PRICE IN POINTS	VALUE OF CARRIER (PTV)

BC	08/07/1932	40,56	28/04/1942	92,69	511	52	514
BD	08/07/1932	40,56	14/06/1949	160,62	883	120	891
JK	24/12/1914	53,17	20/05/1924	88,33	493	35	494
LB	08/07/1932	40,56	10/03/1937	195,59	243	155	288

SUMMARY

This lesson has dealt the relationships in the securities market in the two and three dimensions. Every relationship was demonstrated on just graphical its in order to avoid the disorder. These relationships were dedicate to you to the increase models represent to you from square and composed of squared in the two and three dimensions.

In the next lesson these diagrams will be puttinges together in order to see like these relationships create geometric structures in the securities market.

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[1]
A detailed explanation more of geometry of the financial market is supplied in Lesson V, the GEOMETRIC STRUCTURES.

[2]
The concept of the levels of energy of the cycles is explained in the Lesson WAYS, **The CYCLES**.

[3]
If you possess a "divisor of precision relationship" the relationship of the square root of two it can be obtained regulating it in order to divide the circle in four parts. The reason for which this it works can be seen in Figure 4.2. It remembers, in order to make to work whichever graphical study exactly the diagrams must "be squared" like described in Lesson I. This because the increase models do not limit to one single dimension.

[4]
Reference to Geometric Cosmology of Keplero.

[5]
The figure of a circle contained within an other remains recurrent in this analysis of the financial markets. It was used: 1) in the Lesson in order to construct the ellipse; 2) in Lesson III in order to show the conical propeller within the increase models; 3) in order to demonstrate to the successes to you levels of energy.

[6]
The relationships calculate you for this diagram are nearer the ideal theoretical values of those calculate using given older for one variety to you of reasons. First, the members within the index did not change as well as how much in the previous years. Therefore, the homogeneity of the index better was maintained. Moreover, the techniques in order to record improved the exact data were a lot.

[7]
During the week of the 6/03/1933 until the 11/03/1933, the securities market was closed for the "civil festivity". Also half of the successive week was sluice. The calculations of time in this course that use the data weeklies magazine embezzle the single complete week in which the market it was closed.

[8]
Famous the smallest PTV in Table 4.2 that is 287. This according to "is squared of twelve" used from W. D. Gann. In its *Master Course for Stock* it has supplied I polish (overlay) called the "square of twelve", that it has 0 - 144 on vertical axis and 0 - 144 on the horizontal axis. The twelve square is 144, that it is the half of 288. Table 4.2 extension two squared of twelve defining two cycles of five years: 1932 - 1937 and 1937 - 1942. Nobody of these it would be visible if they were observes only the axis to you of the time or that one of the price.

[9]
The B Appendix is an analysis of the ritracciamento of 1987, known like the "landslide of 1987".

[10]
It is worth the pain taking of the time and studying the following explanation, because power of attorney an understanding of as PHI it is a product of market geometry, that it will be explained in Lesson V.

(1) From the section on the square root of two; $EG = EF \times \sqrt{2}$.

(2) From the section on the square root of five; $GH = EG \times \sqrt{5}$.

(3) Arranging these two equations; $GH = (EF \times \sqrt{2}) \times \sqrt{5}$.

(4) Since HI is one correction of 50%; $HI = GH/2$.

(5) Arranging the equations from (3) and (4);

$$HI = \frac{\sqrt{5} \times \sqrt{2}}{2} \times EF = \frac{\sqrt{10}}{2} \times EF = 1.581 \times EF$$

(6) The final result, 1.581, are therefore close to 1,618, (a difference only 0,037), than many analysts of market erroneously

they identify a relationship $\sqrt{10}/2$ like PHI.
[11]
Since the square has the length of the side, EC, equal to one, the diagonal of the square, AC, is $\sqrt{2}$. With these two values the diagonal of the cube, AE, is calculated using ACE like straight triangle. THAT IS, $AE^2 = AC^2 + CE^2 = \sqrt{2^2 + 1^2}$. Therefore, $AE = \sqrt{3} = 1{,}73$.