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COMPARISON BETWEEN THE PERFORMANCE OF SQUARE (9) AND SQUARE (144) IN WILLIAM D GANN ANALYSIS-AN ANALYTICAL STUDY OF THE EXCHANGE RATE (GBP/USD)

Prof. Dr. Hashim Jabbar Al-Husseini
haider.abbas@uokerbala.edu.iq

Prof. Dr. Haider Abbas Al-Janabi
Hashim.jabbar@uokerbala.edu.iq

Muhannad Rashid Sharqi Al-Majidi
Mohanad.r@s.uokerbala.edu.iq

University of Karbala/Faculty of Management and Economics/
Department of Finance and Banking Sciences

Abstract
Technical analysis is one of the main tools that traders and financial analysts rely on to understand price movements in financial markets, and predict future trends. Among the prominent names in the field, the name William D. Gann, who developed a set of analytical tools and methods based on mathematical and temporal concepts, is still of interest and study today. Two of Gann's most prominent tools are the Square of 9 and the Square of 144, two engineering tools believed to reflect the relationship between price and time, helping to identify support and resistance levels, and timing price reversals with high accuracy. This research aims to make an analytical comparison between the performance of Box 9 and Box 144 in the foreign exchange market (Forex), by applying both tools to the popular currency pair GBP/USD, with the aim of testing the accuracy of each in predicting price movement and identifying critical time points. The importance of this study lies in highlighting the practical differences between the two tools, and evaluating their effectiveness in different time contexts, which can contribute to enhancing the efficiency of technical analysis for analysts and traders in the financial markets.

Introduction

Financial markets, especially the forex market, are some of the most complex and changing markets in the world. It combines many economic, political, and social factors that influence price movements in ways that are difficult to predict. Because of this complexity, technical analysis has become an essential tool for traders and investors to understand future price movements and make informed investment decisions. Among the technical analysis tools, Box 9 and Box 144 stand out as interesting tools with great potential.

These two tools go back to the ideas of William Delbert Jean, who is a pioneer in the field of technical analysis. These two tools are based on the relationship between time and price, and aim to identify crucial time points that may lead to changes in price trends. These tools go beyond traditional methods such as straight lines or static support and resistance, as they seek to connect time to price action in a precise mathematical way.

Although these boxes are powerful tools, using them in the forex market requires a comprehensive study to understand how to apply them accurately, especially in light of the continuous fluctuations of global and economic markets. In this research, an analytical comparison will be made between the performance of Box 9 and Box 144 in the FX market, by applying both tools to the popular GBPUSD currency pair, with the aim of testing how accurate each is in predicting price movement and identifying critical time points. This can help improve the ability to anticipate future market movement.

Also, the digital squares used in the forex market help in understanding the price movement, and are considered prominent tools in making trading decisions, and trying to reach the right time to exit the market with minimal losses. Therefore, this study provides a comparison between the two tools and their application to a research sample that includes the USD/GBP pair, and the selection of trading platforms such as (Meta Trader4, Gannzilla, Trading View).

The first axis/research methodology

first ; The Problem of the Research:

Although William D. Gann is widely used in technical analysis, but there is a noticeable gap in research that compares its various tools in terms of their efficiency and accuracy in predicting price and time changes. Of these tools, box 9 and box 144 remain the most common, but there is no clear scientific guidance that determines which is better or more appropriate for the type of analysis in the various currency pairs.

Therefore, the problem of this study is that there is no analytical comparison that determines which of the Gann tools – box 9 or box 144 – shows its efficiency and effectiveness more in analyzing and predicting the movement of the GBP/USD currency pair, both in terms of timing and price levels.

Second: The importance of research:

This research provides an explanation of the philosophical and mathematical underpinnings of each instrument, enhancing traders' and analysts' understanding of how to use it in a scientific way. The research also helps assess the accuracy of each instrument in predicting price and time movement, which helps traders make informed investment decisions. The GBPUSD pair is one of the most popular pairs to trade, so the results of this study can be of great interest to traders in this market, in terms of choosing the most suitable instrument for analysis.

Third: Research Objectives

This research seeks to achieve several objectives, which include the following:

1. Studying the theoretical and mathematical structure of Box 9 and Box 144 within the framework of William de Jan's theory.

2. Apply box 9 and box 144 to historical data for GBP/USD over a certain period of time.
3. Identify support and resistance levels, as well as potential time points for each instrument individually.
4. Compare how effective both tools are at predicting price movements and time reversals.
5. Provide practical advice to traders and analysts on choosing the most suitable tool to analyze according to the time frame and market conditions.

Research hypotheses:

Based on the research problem, the research is based on the following hypotheses:

1. The research assumes that both Box 9 and Box 144 have distinct technical characteristics that make each of them perform differently in analyzing the market with different time frames.
2. The research assumes that Box 9 is more effective at analyzing short- to medium-term price movements, given its focus on precise price and time angles.
3. The research assumes that Square 144 has a better ability to identify long-term trends and major support and resistance levels due to its broader structural nature.

Sources of Data Collection

The research relied on sources represented by references from books, periodicals, scientific studies and websites related to the topic in order to build the theoretical framework of the research. As for the practical analytical aspect, the research relied on the most popular trading platforms and used them, including Meta Trader 4, trading view, investing ,GannZilla

The first axis/theoretical framework of the research

First: Square of Nine

A. Term

It is one of the technical analysis tools used in trading the financial markets, which was developed by the athlete and trader William Jean, as it is considered a square (9) geometric model consisting of (81) cells arranged in (9)rows and (9)columns of each cell in the box representing a certain number, as it starts from the middle with the number(5) and increases by (1)until it reaches the number(45)in the corners of the box. He added (Mt Helen, 2003,9) Square of Nine or Jan Square is the method of squaring price and time.

He added(Greenblatt, 2013,247) The nine square numbers are arranged around each other in a spiral arrangement starting with (1) in the middle "the top of the pyramid " followed by (2) to the left, where it starts from the numbers in the sequence spirally in a clockwise direction until (9), which ends with the first circle of numbers around the number (1), and then the second circle starts from (10) to (25) in a clockwise direction as well, then the third circle from (26)to (49), then the fourth and so on. The square is divided into 8 sections between each corner section (45). The degree of the numbers that pass in the middle forming the shape of (+) are called base numbers, while the numbers that pass in the middle forming the shape of (x) are called corner numbers. In the first circle around the center, we find that there is one number that separates each corner (45). In the second circle (10-25), we find that there are (2) separated between each corner (45). In the third circle, there are also (3) numbers that separate the angles of (45). Therefore, there must be (1000) numbers separating the angles of (45).

Looking at the shape of the square of nine, we will notice that there are circles or rings passing in the form of the last circle representing the daily calendar (result), which goes in a clockwise direction, starting from (21)March (the beginning of spring when the sun is in the zero zone (0 degrees). The first circle or ring drawn from the center up to number (352) of the base numbers (+) This number is located at the same level as number (360), which is far from number 352 by 8 squares left. As we know, the circle is 360 degrees, and this is what made William Jann draw this circle on this level (Kenneth L. Fisher, 2007,276)

The middle circle, which is drawn from the center to the number (716)on the baseline (+), which is located at the same level as the number (720), which is equal to (2x360), which is why the second circle is located here . The third circle passes through the number 1080, which is equal to (3x360), and so it is possible to draw circles as multipliers of the pyramid as it increases. Jean drew that circle at a distance of (4)squares from the second circle, which is the same distance between circle 2 and 1 (Young Ho Seo, 2020,167).

You can look at the number (4)and follow a path at an angle of (45)degrees to the top right. We will find the following sequence (4,16,36,64,100,144) and so on. These numbers are the squares of the following numbers in order (2- 4 - 6 - 8 - 10- 12), as well as if we focus on the number(1) and follow a path at an angle of (45)degrees to the left, we will find the following sequence (1,9,25,49,81,121, 169) and so on, which are the squares of the following numbers in order (1- 3 - 5 - 7 - 9 - 11- 13) and so on (Wing-Keung, 2014,128) .

(Gunn) We use the squares of odd and even numbers not only to obtain confirmation of the market movement, but also on the cases in which prices move, so we note that the second circle passes through the square (361)on the angle line (315).

The nine-square Gann got its name because if we look at the chart again, the number (9)represents the completion of the first square. Square (9)is a spiral of numbers with an initial value (1) starting from the center. Starting from this value, the number increases as we move in a spiral shape and clockwise direction. Each cell in Gann's nine-point square is represented by a vibration point. Among the many trading methods known to Gann, the square of nine is very popular (Chelsea Reid, 2007,155) .

B. How to trade using the nine-committee box?

The trading concepts used by William Delbert Gann are ambiguous and he is known primarily for his abilities to predict the market, such as Gann's nine-committee box, which combines a combination of engineering, astrology and ancient mathematics techniques. It is considered the cornerstone of the trading method based on time and price. Gann began trading at the age of (24), which some attribute to his knowledge of mathematics and ratios. The bulk of Gann's work was open to interpretation, so trading on the basis of Gann's methods requires intensive practice and understanding (Stevens, 2002,318). Unlike trading using technical indicators where you can buy or sell when some variables are met, trading using Gann's methods is not easy. This is because learning methods takes time. You can not only apply some moving averages to the chart and try it (Ross, 2010,149).

C. Basic Structure of the Square of Nine:

The Square of Nine is an analysis tool created by William Gunn. It is based on the order of the numbers in a spiral, where the number (1) starts in the middle and the numbers continue to increase in a circular clockwise direction. Each number in this box represents an important point in the market.

Numbers that are located at key angles such as(45)degrees, (90) degrees, (180)degrees, and(360)degrees are considered key support and resistance levels (MacLean, 2005,147).

D. Calculate important numbers in the box

The numbers inside Jean's square follow a certain harmonic pattern, for example when we take a number, such as (54)from the square, the value that follows (to the right) (29) is derived as follows:

The square root of the number, subtract (2) and resquare the result.

Example: 54 is the original number

Square root of 54 = 7.348469

7.348469-2 = 5.438469

(5.438469) 2 = 29 rounded

To determine the value to the left instead of subtracting 2, add the number so we simply add (+2)to the square root of 54 (7.348469), so the value becomes 9.348469 and then square this result to get the value(87) (Tianbao Zhou,2021,13).

E. Identify key levels (crosses)

- Cardinal Cross: The horizontal and vertical lines that pass through the center are major support and resistance points.
- Ordinal Cross: Diagonal lines passing through the center indicate additional support and resistance points.

The following sets of significant numbers are found within the Basic Cross and the Ordinal Cross. The image below shows the basic intersection, shown by horizontal and vertical lines. The cells show ordinal cross numbers. The numbers in the cells represented by the basic and ordinal intersections are the key support and resistance levels. Although both are important, ordinal intersections are less important and can sometimes be penetrated. (Mark Andrew Lim , 2015,704).

57	58	59	60	61	62	63	64	65
56	31	32	33	34	35	36	37	66
55	30	13	14	15	16	17	38	67
54	29	12	3	4	5	18	39	68
53	28	11	2	1	6	19	40	69
52	27	10	9	8	7	20	41	70
51	26	25	24	23	22	21	42	71
50	49	48	47	46	45	44	43	72
81	80	79	78	77	76	75	74	73

Figure (1-1) Cardinal and Ordinal Cross

Source: Prepared by the researcher based on the Gannzilla platform

F. Analyze trends and identify time points

- Determining time points: Each degree in the box represents a specific time period that the numbers at the main angles (such as 45 degrees and 90 degrees) may indicate important time periods for price changes (Amit Patil, 2021,6).
- Trend analysis: Identify expected reversal points for prices when the price reaches one of the key numbers in the box, which can lead to a reversal or change in trend.

The Gann square of nine helps determine the alignment of time and price in order to predict prices.

In Jan Nine Square, the key figures of interest (Mark Andrew, 2015,704) are as follows:

0 or 360 degrees: 2 , 11 , 28 , 53….

45 degrees: 3 , 13 , 31 , 57 , 91 …

90 degrees: 4 , 15 , 34 , 61 , 96 …

180 degrees: 6 , 19 , 40 , 69 …

G. How to construct the mathematical formula for the square of nine?

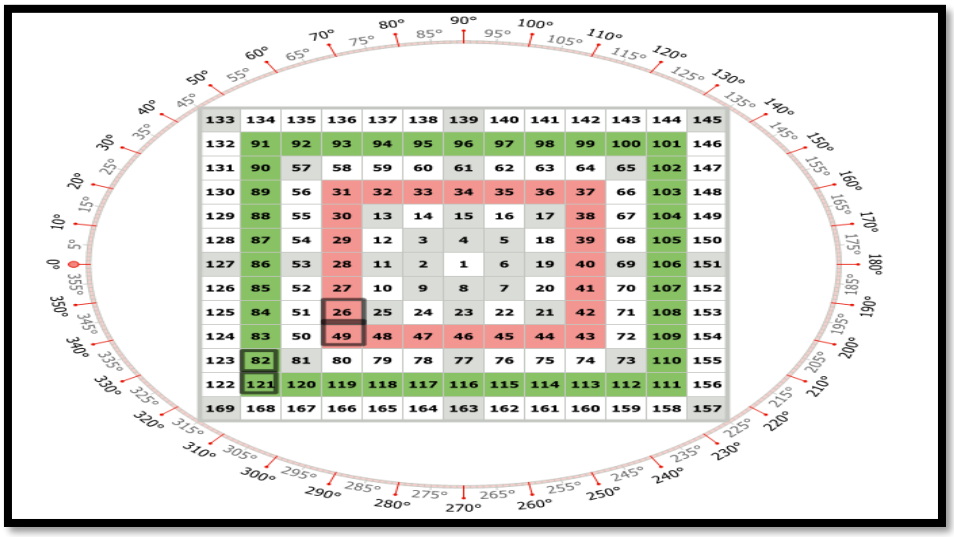
According toBarbara, 2019,310, the square of nine is a coherent set of numbers arranged in a special way. The square starts with 1 and then continues to spin the numbers until it reaches 9 to form the first square. This is followed by the second box which starts at 10 and ends at 25, so this series continues. The square of nine consists of two sets of numbers. The first group is known as the wheel, and it includes the numbers from 1 to 9, and it is organized into a spiral shape. These numbers move clockwise as their value rises, while they move in the opposite direction when their value falls, each number representing an angle around the center. The second group takes the form of diagonals or planes.

From the above, we conclude that the numbers in the Gann square come in two circular and diagonal forms:

- Circular numbers

These numbers are calculated according to the clockwise direction as they are increasing if they are moving in a clockwise direction, and they are decreasing if they are moving counterclockwise (Qiuru Fu, 2011,13). We note the example in Figure (2-1). Table No. (26) begins to increase until it reaches the level of (49), which means that it moves in a clockwise direction.

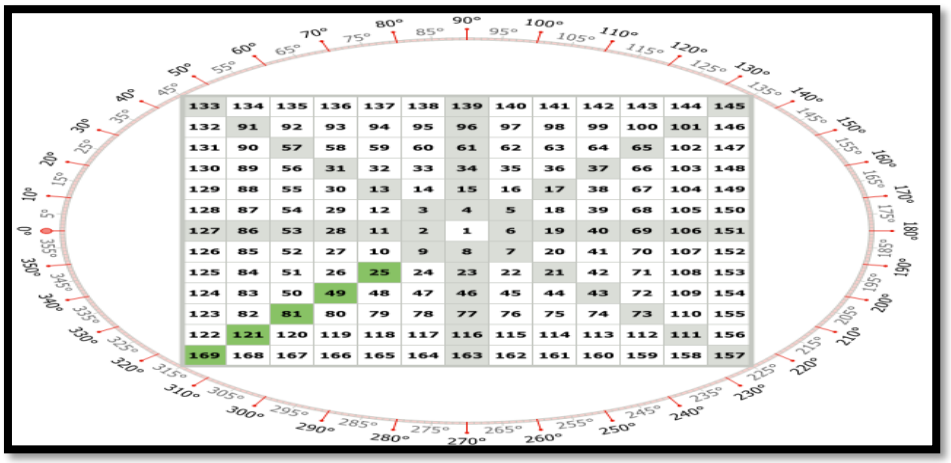
We also note that the square started from (121) and began to retreat until it reached (82), which indicates that it is moving counterclockwise, we also note that the numbers need to rotate (360) degrees in order to move from one square to another.



Figure(2-1) Circular numbers

Source: Prepared by the researcher based on the Gannzilla platform

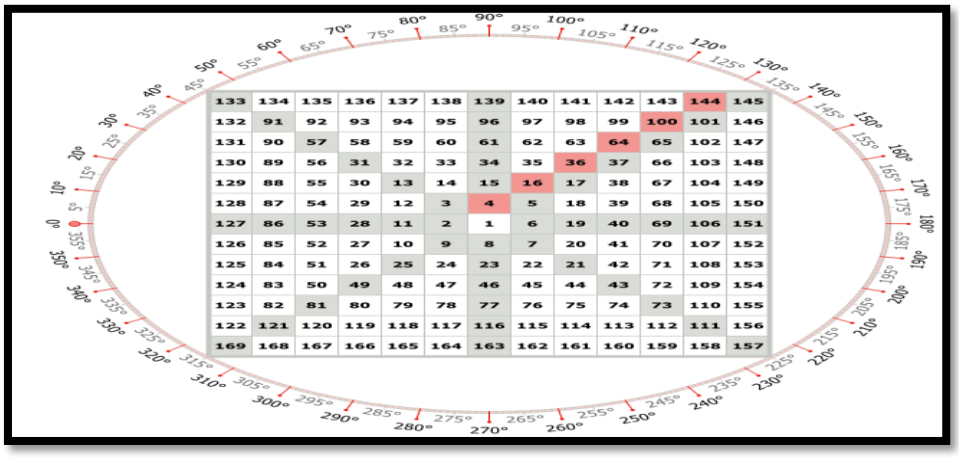
At the end of each cycle (360), we notice that we have an odd number, which is found at the bottom left of the box, namely ($3 \times 3 = 9$, $5 \times 5 = 25$, $7 \times 7 = 49$, $9 \times 9 = 81$, $11 \times 11 = 121$, $13 \times 13 = 169$, etc.) This is the reason why Jan's square is called the square of nine. If we do a full cycle, we will get an odd number starting from (9).



Figure(3-1) Odd squares

Source: Prepared by the researcher based on the Gannzilla platform

From the top right there are even squares of numbers ($2 \times 2 = 4$, $4 \times 4 = 16$, $6 \times 6 = 36$, $8 \times 8 = 64$, $10 \times 10 = 100$, $12 \times 12 = 144$, etc.) of these numbers are of great importance in predicting movements on the chart as we will explain below .

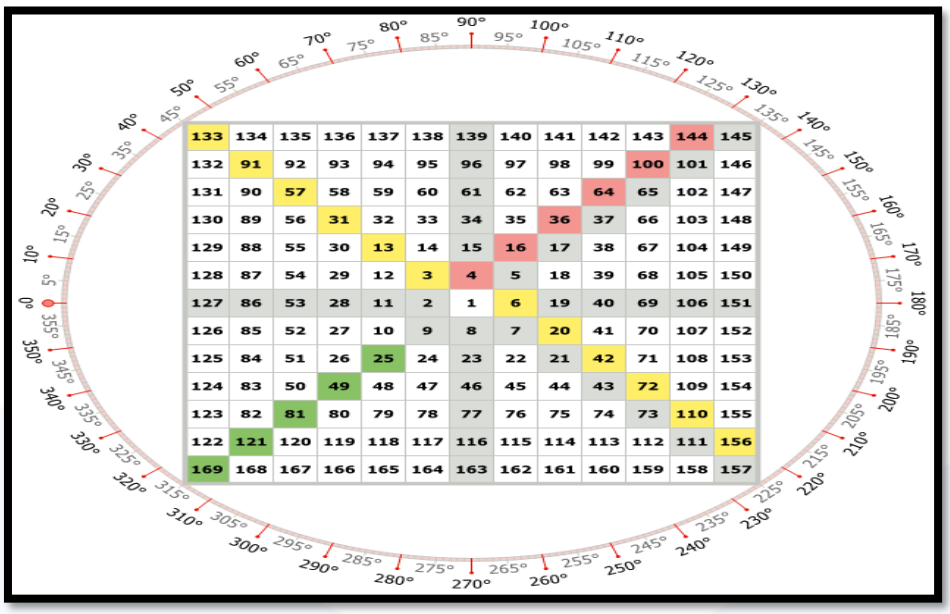


Figure(4-1) Even squares

Source: Prepared by the researcher based on the Gannzilla platform

The degree of correspondence between the nine square numbers can be seen when changing from odd number squares to even number squares (from the lower left corner to the upper right corner) and when moving from even number squares to odd number squares (from the upper right corner to the lower left corner).We will find out that if we add the first and last digits from each angle and then divide the result by 2, the result will be the middle of that angle.

To illustrate this further, let's take an example in Figure (5-1). We notice that when we move from the odd number (25) to the even number (36) when adding the two numbers and dividing them by two, we will get the number that is equal to the rotation to the radius, which is (25 +36)/2 =30.5 There may be a problem with fractions because there is an error rate. In any case, we will round those fractions until we get an integer that will become (31). We will note that the number (31)is based on the radius as in the figure below:



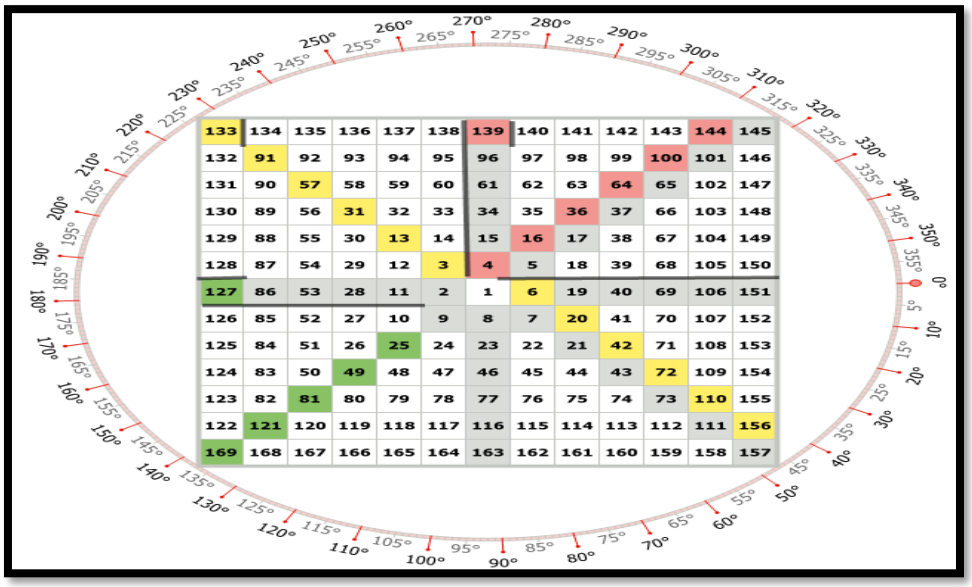
Figure(5-1) Even squares

Source: Prepared by the researcher based on the Gannzilla platform

There is a rule that states that all mixed numbers greater than (0. 5) will be rounded up. Dealing with rational numbers requires attention, because if rational numbers are not precisely organized in cells, errors will occur in the results. There is a way to avoid fractional numbers by multiplying the price by four digits after the comma by (10,000).(David Keller, 2007,112), through the use of Gannzilla software, it works with fractional numbers up to (4)digits after the point.

The main objective of this method is to emphasize the importance of the numbers in the center of the table, as those numbers are considered central points or turning points in the graph. When significant volatility occurs in a price movement, these numbers indicate that a trend may begin at that point. In general, when analyzing a graph, you will divide the square of nine into eight sections, with each section representing a forty-five degree rotation. We can predict the point of rebound at the end of each of these sections, for example.

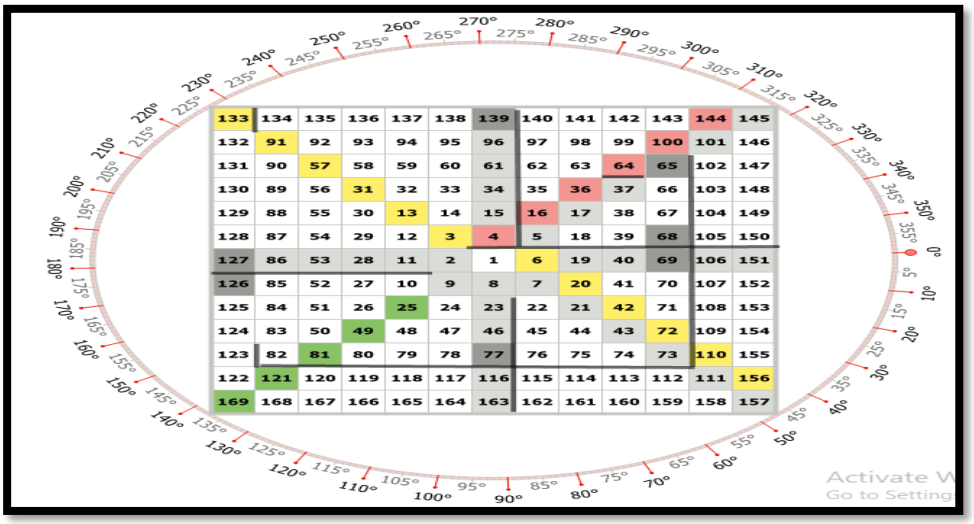
If the price is at the odd number (121) in the figure below and moves clockwise until it reaches the even number (144) (move from odd to even) at this time, we say that the price has moved (4) quarters, i.e. (180) degrees, which is equal to a full diameter, as the following three points are considered a turning point (127, 133 and 139)because each of these numbers represents the end of a quarter.



Figure(6-1) Moving the number from odd to even

Source: Prepared by the researcher based on the Gannzilla platform

Let's take an example of going from an even number to an odd number. For example, if the price is at the even number (64) and then moves clockwise until it reaches the odd number (81), you will notice that the price has moved by four quarters, which is equivalent to (180) degrees. The numbers (68,(72)and (77) represent turning points or a reflection of price movement, as these numbers indicate the end of each of those quarters.

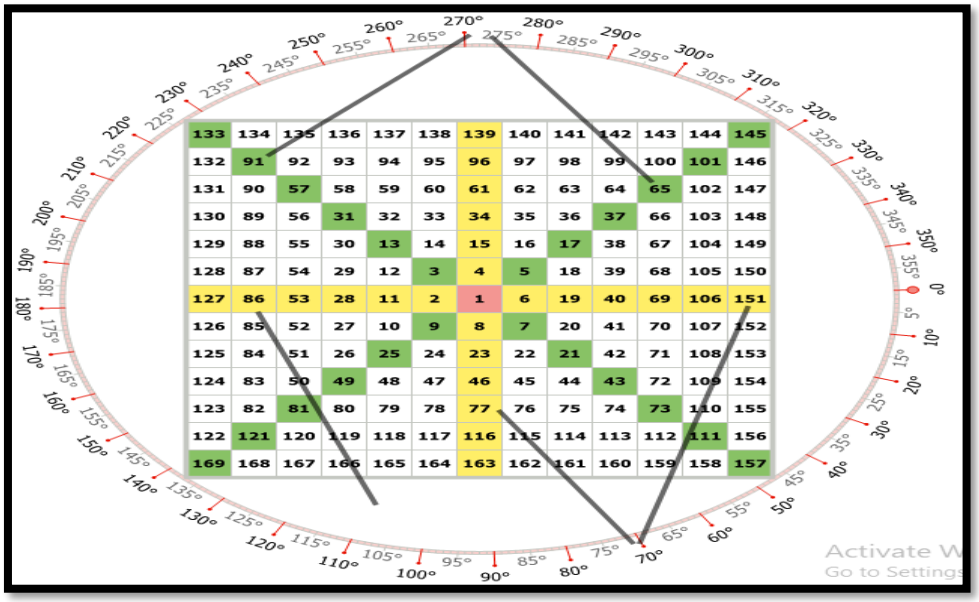


Figure(7-1) The transition of the number from even to odd

Source: Prepared by the researcher based on the Gannzilla platform

- country planning figures

The second part of the composition of the square of nine is the diagonal composition and the meaning of the diagonal composition is to focus on the intersecting numbers (John L. Person,204,150) as shown in Figure (8-1) below:



Figure(8-1) Qatari numbers

Source: Prepared by the researcher based on the Gannzilla platform

The square of nine consists of two types of intersections:

1.vertical intersections with its horizontal.
2.Oblique intersections.

The intersection between vertical and horizontal numbers includes even and odd numbers, while the oblique intersection contains only odd numbers. These intersections result in a ninety-degree rotation.You can easily predict the price movement by selecting the number on which the price appears in the nine square, and then rotating until it reaches ninety or forty-five degrees.

Law of Vibration

The first rule in Gann's theory is the law of vibration, which shows that markets are subject to natural laws that can be observed and studied. Based on this law, markets move in waves. These waves are subject to certain frequencies and oscillations. Traders who know how these vibrations work can use them to predict future price changes.

(James A. Hyerczyk, 2009,23) ,while adding(Julie Dahlquist, 2010,498) is an idea created by Jan to anticipate market movements, based on the belief that everything in the universe vibrates at certain frequencies, and this also includes stock and commodity prices. Jan believes that by being aware of these vibrations, people can anticipate price movements.

William Delbert Gann has made a significant impact on technical analysis in financial markets and has developed a range of theories and analytical tools based on mathematics and geometry. Among these theories is the Law of Vibration, and it is important to understand this law that you are aware of the foundations on which Jean relied.

Basic Concepts of Gann's Vibration Law:

A. Cyclical patterns: Markets move periodically as a result of vibrations that affect prices and trading times. Knowing these cycles can help predict how the market will behave in the future (Gann's Trade Secrets) (Gann's Law of Vibration System).

B. Historical Analysis: To take advantage of this law, it is necessary to examine the historical information of the market in order to detect recurring patterns in price and time. This requires studying past price changes and how long these changes take.

C. Gann angles: Use Gann angles, especially an angle(11 x)that represents a trendline of (45) degrees. This angle indicates a balanced trend and acts as an important support or resistance level. When price crosses this angle, it often indicates a change of direction (Gann's Law of Vibration System).

D. Integration with other tools: Strengthening forecasts is done by integrating Gann's methods with other technical analysis tools, such as Fibonacci retracements and volume analysis. This gives a broader view of market trends and potential changes.

E. Astronomical influences: Gann often added astronomical elements to his analyses to predict short-term market influences, adding an extra dimension to his style. If traders master these ideas, they can predict market trends, helping them make informed trading decisions based on the rhythms and vibrations revealed by Gann methods. However, it is necessary to know that following this method requires deep study and practice to understand it effectively.

The researcher believes that Gann's Law of Vibration is based on the idea that financial markets follow natural laws that are related to fluctuations and time cycles. By using ideas such as time and prices as correlated units, as well as time cycles, important numbers, geometry and angles, and also repetitive patterns, traders can enhance their analysis of the markets and make more effective trading decisions.

Second: Square 144

A. The Concept:

Another of Gann's tools used in technical analysis to predict price movements in the stock and commodity markets. Jan developed several geometric and numerical techniques based on time and price, 144 square being one of them. The number (144) is of great importance in Jean's methods because it represents the square of 12 (12×12), which Gan considered a basic course in the markets (Kaufman, 2019,668).

He added (Guy Cohen, 2013,113) The square (144) is part of the (natural squares), which are mathematical compositions believed to be continuously repeated in natural and market phenomena. The square is used to represent a fixed relationship between time and price, and to create a network where each point corresponds to specific price levels and time periods.

(Finn Samxon, 2024,19)squared (144) is a grid of 12 rows and 12 columns, forming (144) small squares representing each square a unit of time or a unit of price. The basic idea is to divide the main square (144 units long) into smaller squares in a way that balances price and time, helping to identify potential support and resistance points in price action.

A square (144) is used to draw a square on the price chart which helps identify important support and resistance levels. (Cornelius Luca, 2007,418) added that the square (144) of William Gann is a mathematical idea inspired by the famous puzzle of mathematics, as it includes dividing the square into several smaller squares of different sizes so that the total lengths of its sides are equal to the length of the side of the original square. The idea is based on dividing the square (whose side length is 144units) in this case into smaller squares in a certain way that achieves this condition. This idea falls under a type of geometric puzzles that require deep thinking and creative solving of mathematical problems (Reid, 2007,153) .

The sides of the box maintain an equal balance between time and price, and this balance can be expanded to anticipate future price changes. This tool can be used in any high or low market, by identifying an important high or low point and drawing the square from that point. Traders can anticipate where future price levels could act as support or resistance. Although the tool known as Square (144) is considered an effective tool, it is rarely used separately, and achieves the best results when combined with other technical indicators to confirm trends in the market and potential turning points.(Barry Gumm, 2015,67).

Traders should also consider backtesting the instrument on historical data to understand its effectiveness in different market conditions. William Delbert Gann believed that there is a relationship between time and price and that markets move in geometric patterns used the square (144) as a tool to integrate this relationship and identify key levels that may affect price action.

B. The basic steps in using the 144 square in trading

There are five basic steps in using a square (144)in trading: (Constance M. Brown, 2012,213)

- Identify the Pivot Point:

Choose an important price point that is considered the starting point. This point can be a bottom or a top in the price chart.

- Draw or copy a square

A square (144) is divided into (12)columns and(12)rows forming a grid of small squares each square representing a unit of price or time.

- Apply rate

Use the side length of the square (144 units) as a unit of time or price. This unit can be applied to different time frames (e.g. days, weeks, or months).

The box can also be further divided to apply smaller units (e.g. 12, 24, 36, 72, etc.).

- TIERING

Use Gann Angles that represent the relationship between price and time The main angles are 1x1, 2x1, 3x1, 4x1, 8x1, etc. The 1x1 angle is the most famous angle and represents an ideal balance between price and time.

- Interpretation of levels:

When the price reaches one of the corner levels (such as 1x1 angle) it often encounters resistance or support. These levels can be potential price reversal points.

Additionally, these levels can help identify entry and exit points in trading based on the price's interaction with these lines.

C. Examples of Using 144 Committees Box

Example 1 : Select Levels

If the starting point is ()100 units (bottom), and the angle (1x1) represents a balance between time and price:

After (10) time units, we expect the price to be at (110) units.

After (20) time units, we expect the price to be at (120) units.

Example 2: Using Levels

Suppose that the price rose to (144) units (top) after (12)units of time:

The (1x1) angle indicates that the price should be at (144)units after (12)units of time, which reinforces the expectation that this point may be a strong resistance if the price breaks this level, it may indicate a strong uptrend.

Example 3 Assuming the starting point is(1.2000)in the EUR/USD currency pair.

A grid of (12)rows and(12)columns is drawn so that each small square covers one unit of time (e.g., one day) and one unit of price (0.0001).

We draw an angle (1x1)starting from the pivot point (1.2000) after (12)days. The price is expected to reach (1.2012). We draw an angle (2x1)that expects the price to reach (1.2024) after(12)days.

On day (12), if the price reaches (1.2012) this could be a support or resistance level.

At day (12), if the price reaches (1.2024) this can be a strong resistance level.

The researcher believes that the number (144) is a central number in Gann's philosophy. This number can be divided into smaller numbers such as(12, 24, 36 and 72), which allows greater flexibility in time and price analysis. These numbers can be used to identify important levels in different time periods.

The second axis/practical aspect

In line with the research topic and to analyze the prices of the forex market, we will allocate this aspect to apply box 9 by choosing the pentagonal geometric shape and box 144 by choosing the hexagonal shape at the future prices of the research sample exchange rate GBP/USD and thus the appropriate price and time levels for buying or selling in the currency market, and then making the rational decision.

First: Square 144- pentagonal shape

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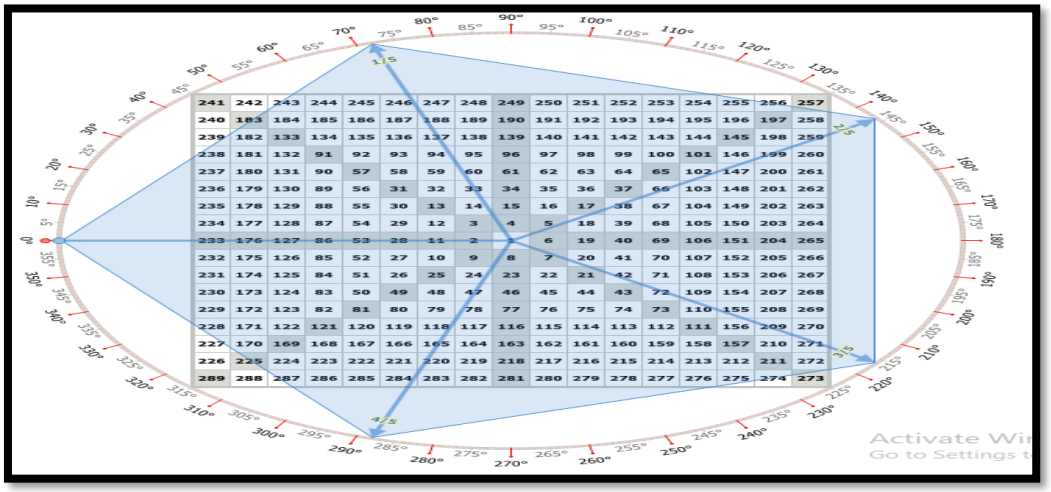
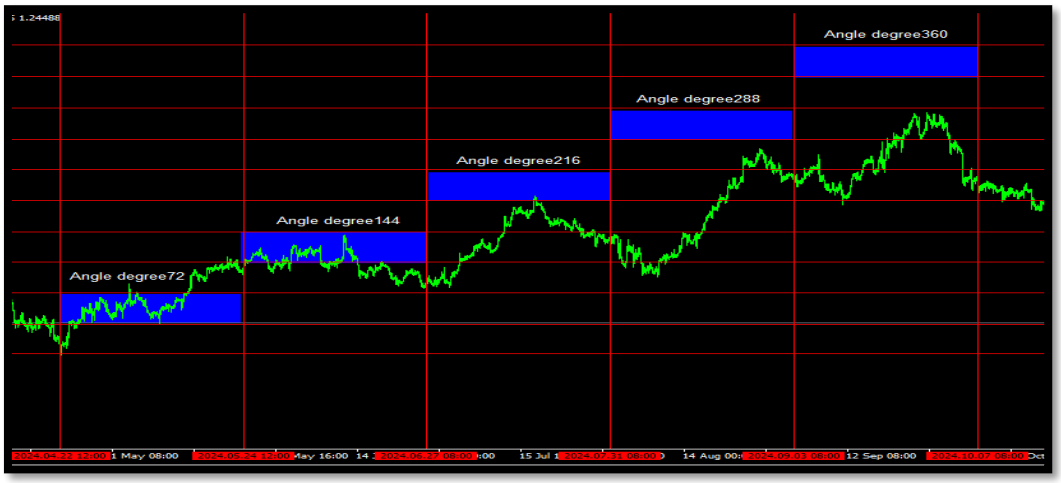
THE ANGLES IN THE PENTAGON ARE EQUAL ANDEACH ANGLE WITHIN THE GEOMETRY IS EQUAL TO 108°



FIGURE(9-1) FIVE-POINT GEOMETRY

Source: Gannzilla

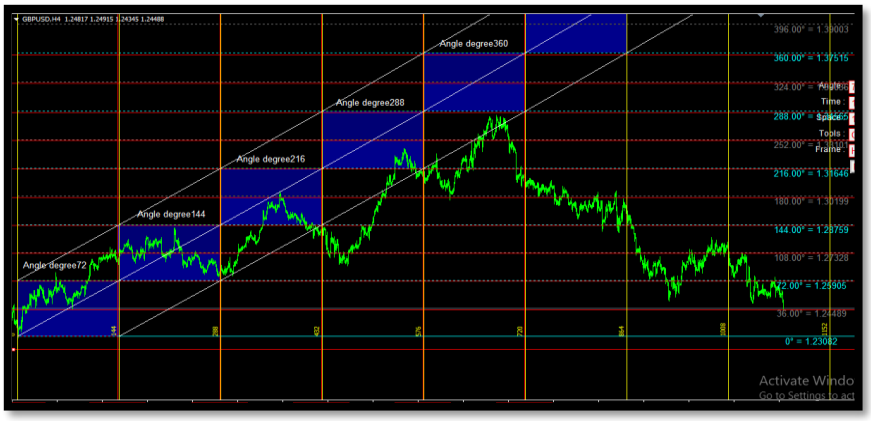
In the above figure, we note that the numerical box consists of five sides and each side represents an angle, which in turn represents support or resistance in the price chart. It can be said that the geometric shape is a periodic and repetitive representation of the market movement, that is, the price rotates in a certain pattern and repeats at its angles. From the above figure, we identify the angles of the research sample in the figure below:



Figure(10-1) Applying the pentagram

Source: MetaTrader 4

After identifying the angles in the prices, we note that each angle represents support and resistance, and the squares of the angles can be fully identified through the figure below:



Figure(1-2) The geometric and temporal pentagram of the price of (GPB\USD)

Source: MetaTrader 4

We note that the geometric shape did not complete its full cycle, but it can be traded at angles within the price cycle and through the integration of technical indicators to determine the possibility of price transition from one angle to another or failure of the angle transition within the price cycle. Through the three forms above, we employ the price data for the price pair (GPB\USD) and at different intervals according to the gannzilla in the table below.

Table (1-1) Results of the figure Pentagon

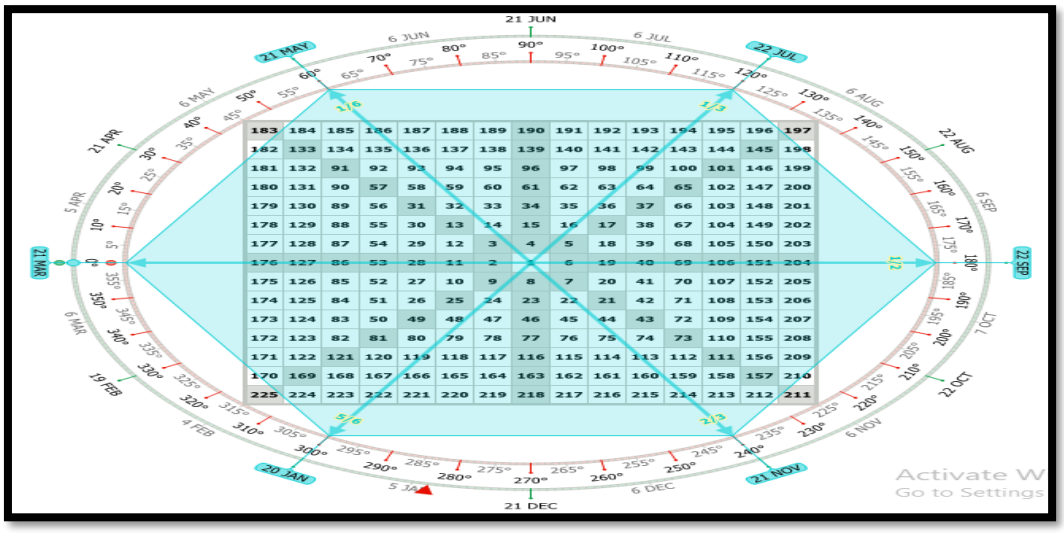
Shape type (Pentagon)				(Uptrend) General trend			Time Frame	
Rotation Angle	price	date	Decline	Cluster price	cluster	Expected target	Expected time for price angle	Condition
72	1.25918	5-03.	50%	1.25918	5/25	1.287587	From 2024-5-03 to2024-5-24	Complete
144	1.28594	6 December	50%	1.28759	6- 27	1.31654	From12-6-2024 To27-6-2024	Complete
216	Achieved	Achieved	Achieved	1.31654	7-31	1.34555	From To31-7-2024	incomplete
288	Achieved	Achieved	Achieved	1.34555	8.03	1.37518	From To03-08-2024	incomplete
360	Achieved	Achieved	Achieved	1.37518	2024-10-07	1.34555	From To07-10-2024	incomplete

Technical indicators included with the figure (Pentagon)							
Index	Type	Dotted note		Levels		Rotation Angle	Index value
RSI	momentum indicator	26		(20-30-50-60-70-80)		72	Positive
						144	Positive
						216	Depositor
						288	Depositor
						360	Depositor
MACD	momentum indicator	Line		Signal	Histogram	72	Positive
						144	Positive
		26	12	9	V	216	Positive
		The default settings of the indicator can be changed according to the nature of the analysis and the time series on which it is based, starting from the minute and ending in the month.				288	Depositor
						360	Depositor
MA	General trend	Dotted note		MA method	Apply to	72	Positive
						144	Positive
		(14)		Simple	Close		
		The default settings of the indicator can be changed according to the nature of the analysis and the time series on which it is based, starting from the minute and ending in the month.				216	Positive
						288	Depositor
						360	Depositor
						72	Positive

The above table shows that each corner has achieved points for the exchange rate and what time is supposed to move the price from one angle to another, as we note that angle 72 has achieved its full cycle and the price has moved from it to angle 144, and this indicates that each corner has a specific time date, so we find that the time axis of angle 72 was between the date of 2024-5-03 to the date of 2024-5-24, meaning that prices assume that they exceed the limits of the time cycle and that the cycle and the entire geometric shape may fail. As for the angles that failed to achieve their full cycle, they are the angles (216-288-360). This failure is the result of the time failure that occurred on 27-6-2024, and it is assumed that the price has moved to it even with a difference of hours or a day as the maximum time period. This failure can be expected by the appearance of opposite signals in the technical indicators that indicate the lack of momentum that supports prices to move from angle 144 to angle 216 during the time cycle. This proves our fourth hypothesis, which states that time first and then price.

Second : Square 144- hexagonal geometry

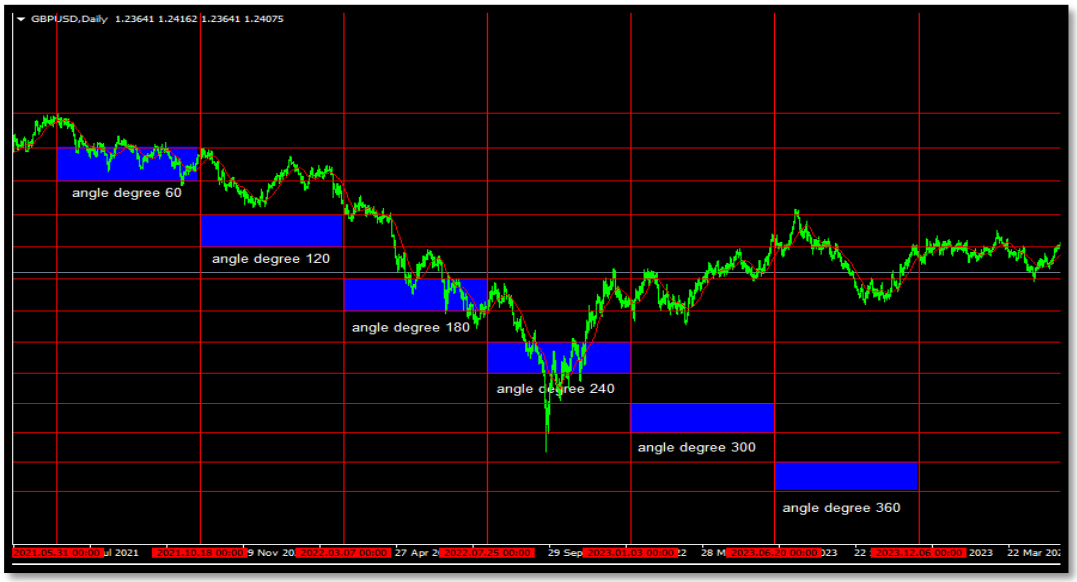
This figure consists of 6 angles and 6 sides, and each angle is equal to 120. The angles are dealt with through a full turn (360 degrees), and when the figure is divided into 6 sides, the angles appear (60-120-180-240-300-360). This figure is considered one of the most prominent shapes in prices and is characterized by periodic consistency in its angles. The figure below shows the geometry of the angles of the figure



FIGURE(2-2) HEXAGONAL GEOMETRY

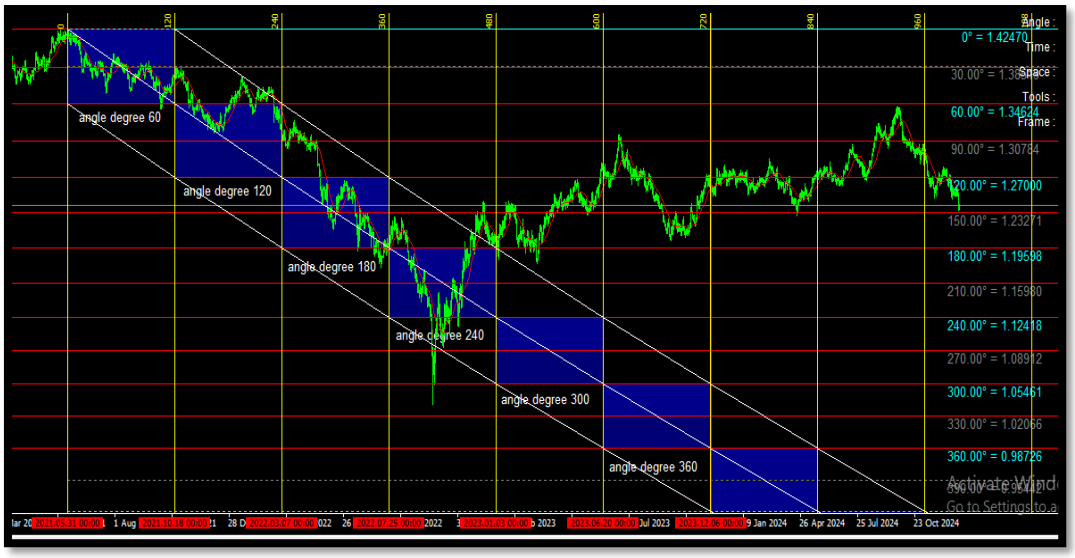
Source: Gannzilla

The above figure shows the angles of the hexagon and the sides can be selected to find the digital and temporal levels of the shape and through the Ganzila platform we extract the angles and determine them in the MetaTrader platform in the figure below



Figure(3-2) Applying the hexagonal figure for the price of (GPB\USD)

Source: MetaTrader 4



Figure(4-2) Geometric and temporal pentagram of the price of (GPB\USD)
Source: MetaTrader 4

When applying the angles to the pound against the dollar, we find that the figure did not complete a full cycle, so through the three forms above, we employ the price data for the price pair (GPB\USD) and depending on the time period (one day) according to gannzilla in the table below.

Table (2-1) Hexagon results

Shape type (Hexagon)				(Down) General trend				Time Frame
Rotation Angle	price	date	Decline	Cluster price	cluster	Expected target	Expected time for price angle	Condition
60	1.34640	2021-9-29	50%	1.34640	2021-10-18	1.27017	From2021-9-29 To 18-10-2021	Complete
120	1.27017	Achieved	Achieved	1.27017	07-03-2022	1.19649	From To07/03/2022	Complete
180	1.19649	2022-6-14	30%	1.19649	25/07/2022	1.12382	From2022-6-14 To25-7-2022	Complete
240	1.12382	2022-9-21	100%	1.12382	Source:	1.05498	From2022-9-21 To2023-1-03	Proactive
300	Achieved	Achieved	Achieved	1.05498	2023-6-20	0.98750	From To 20-6-2023	Proactive
360	Achieved	Achieved	Achieved	0.98750	06-12-2023	1.05498	Who |||UNTRANSLATED_CONTENT_START|||إلى 2023-12-06|||UNTRANSLATED_CONTENT_END|||	incomplete

Technical indicators included with the figure (Pentagon)							
Index	Type	Dotted note	Levels			Rotation Angle	Index value
RSI	momentum indicator	26	(20-30-50-60-70-80)			60	Positive
						120	Positive
						180	Positive
						240	Positive
						300	Depositor
						360	Depositor
MACD	momentum indicator	Line		Signal	Histogram	60	Positive
		26	12	9	v	120	Positive
						180	Positive
						240	Depositor
						300	Depositor
						360	Depositor
MA	General trend	Dotted note	MA method	Apply to		60	Positive
		(14)	Simple	Close		120	Positive
						240	Positive
						300	Positive
						240	Depositor
						360	Depositor

We note that the angles of the figure (60-120-180)have completed a full time cycle. The angle (240-300) has been achieved proactively, which is a rare case that occurs when the price reaches before time and not time before price. In other words, the angle of 300 is required to start on (2023-1-03). If we follow the price and time together, we find that the angle was achieved at the previous one with the angle (240). This does not indicate the failure of the price to complete a full cycle, but rather the completion of a cycle in less than the period it is supposed to achieve. This preemption in two angles (240-300)led to the failure of the price to achieve the last angle cycle, which is 350 due to the large retracement. This situation can

generate a signal of a strong movement in the price cycle as shown in Figure(4-2) dated 2023-1-03

The third axis: Conclusions and recommendations

First: - Conclusions

1. The study showed that square 9 is most commonly used in short-to-medium time analysis, providing accurate time cycles based on specific angles (such as 45° and 90°).
2. Square 144 is best suited for longer and wider time cycles, and is often used for markets with long trends or deep cyclical structure.
3. The study confirmed that both squares are based on mathematical and angular concepts, but square 9 is simply distinguished in representation and repetition of chronologically important angles (90°, 180°, 270°, 360°).
4. Square 144 derives its importance from the number 144 (which is square 12), and is closely related to the idea of the Fibonacci sequence, giving it a different periodic chronology.
5. Box 9 is easier to use and apply to charts, and is favored by many analysts for its flexibility with time indicators. Square 144 requires deeper knowledge, and is often used with other time tools such as lunar cycles or historical time events.

Second: Recommendations

1. The researcher recommends using square 9 for daily and weekly analysis, while square 144 is used for monthly and annual analysis or to identify historical highs and lows.
2. For more accurate results, the time analysis of the squares should be combined with price levels drawn from the same angles or Fibonacci levels.
3. Future researchers are advised to use machine learning techniques to improve prediction models using time price angles By training the models on historical data, the accuracy of predictions can be greatly improved by combining many variables and characteristics.
4. It is advisable to take into account certain astronomical events (to which Jean was attaching importance), when using square 144 in particular, because it is associated with the idea of "cosmic time."
5. It is preferable for the analyst to practice building squares manually to understand their mathematical logic, and then using them later via technical analysis software such as TradingView or MetaTrader.

References

1. Mt Helen: A Joint Review of Technical and Quantitative Analysis of Financial Markets Towards A Unified Science of Intel(2003)
2. Jeff Greenblatt: Breakthrough Strategies for Predicting Any Market: Charting Elliott Wave, Lucas, Fibonacci, Gann, and Time for Profit, John Wiley & Sons, Inc, 2edition, (2013).
3. Kenneth L. Fisher:100 Minds That Made the Market(2007).
4. Young Ho Seo: Predicting Forex and Stock Market with Fractal Pattern: Science of Price and Time by Young Ho Seo | (Apr 9, 2020)
5. by Raymond Hon-fu Chan (Author: Alan Wing-keung Wong (Author), & 3 more)Technical Analysis And Financial Asset Forecasting: From Simple Tools To

Advanced Techniques Kindle Edition by Raymond Hon-fu Chan (Author), Alan Wing-keung Wong (Author), & 3 more.(2014)

6. Chelsea Reid: Give Your Trading the Edge A Guide to Success on the Financial Markets ,Publisher:Wiley,(2007)
7. Leigh Stevens: Essential Technical Analysis Tools and Techniques to Spot Market Trends(2002).
8. Ross Beck: The Gartley Trading Method: New Techniques To Profit from the Markets Most Powerful Formation First Edition(2010).
9. George MacLean: Fibonacci and Gann Applications in Financial Markets Practical Applications of Natural and Synthetic Ratios in Technical Analysis (2005).
10. Tianbao Zhou 1, Xinghao Li 2 and Peng Wang 1: Statistics and Practice on the Trend's Reversal and Turning Points of Chinese Stock Indices Based on Gann's Time Theory and Solar Terms Effect(2021).
11. Mark Andrew Lim: The Handbook of Technical Analysis + Test Bank: The Practitioner's Comprehensive Guide to Technical Analysis (Wiley Trading) 1st Edition(2015)
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17. John L. Person: A Complete Guide to Technical Trading Tactics: How to Profit Using Pivot Points, Candlesticks & Other Indicators Hardcover (April 21, 2004).
18. John L. Person: Candlestick and Pivot Point Trading Triggers: Setups for Stock, Forex, and Futures, John Wiley & Sons, Inc, 1 editio,(2011).
19. Julie R. Dahlquist,Charles D. Kirkpatrick II: Technical Analysis: The Complete Resource for Financial Market Technicians 2nd ed. edition).
20. Perry J. Kaufman:Trading Systems and Methods (Wiley Trading) 6th Edition(2019).
21. Finn Samxon :Mastering W.D. Gann's Angles: Predicting Market Prices with Timeless Techniques Kindle Edition(2024)
22. Cornelius Luca: Trading in the Global Currency Markets, 3rd Edition Updated Edition(2007).
23. Chelsea Reid: Give Your Trading the Edge A Guide to Success on the Financial Markets ,Publisher:Wiley,(2007)
24. Barry Gumm: Market Triangulation: Increase your targeting accuracy to over 95% Kindle Edition(2015).
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Shape type (Hexagon)	(Down) General trend	Time Frame

Rotation Angle	price	date	Decline	Clusterprice	cluster	Expectedtarget	Expectedtimeforpriceangle
60	1.34640	2021-9-29	50%	**1.34640**	2021-10-18	1.27017	**From2021-9-29 To2018-10-2021**
120	**1.27017**	Achieved	Ac	**1.**	07	1.	**Fr**

			hieved	**2701****7**	-03-2022	1949	**om To07/03/2022**
180	**1.19649**	**2022**-6-14	30%	**1.19649**	25/07/2022	1.12382	**From2022-6-14 To25-7-2022**
240	**1.12382**	2022-9-21	100%	**1.12382**	Source:	1.05498	**From2022-9-21**

							To 2023-1-03
300	Achieved	Achieved	Achieved	**1.05498**	2023-6-20	0.98750	**From To 20-6-2023**
360	Achieved	Achieved	Achieved	**0.98750**	06-12-2023	**1.05498**	**Who ||| UNTRANSLATED_CONTENT**

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Technical indicators included with the figure (Pentagon)

Index	Type	Dotted note	Levels	RotationAngle	Indexvalue
RSI	momentum indicator	26	(20-30-50-60-70-80)	60	Positive
				120	Positive
				180	Positive
				240	Positive
				300	Depositor
				360	Depositor

<table>
<tr><td>MACD</td><td>momentum indicator</td><td>Line</td><td></td><td>Histogram</td><td>60</td><td>Positive</td></tr>
<tr><td rowspan="6"></td><td rowspan="6"></td><td rowspan="3"></td><td rowspan="3"></td><td rowspan="3"></td><td>120</td><td>Positive</td></tr>
<tr><td rowspan="2">26</td><td rowspan="2">12</td><td rowspan="2">9</td><td rowspan="2">V</td><td rowspan="2">Positive</td></tr>
<tr><td>180</td><td>Positive</td></tr>
<tr><td rowspan="3"></td><td>240</td><td>Depositor</td><td></td><td></td></tr>
<tr><td>300</td><td>Depositor</td><td></td><td></td></tr>
<tr><td>360</td><td>Deposit</td><td></td><td></td></tr>
</table>

				or
MA	General trend	**Dotted note**		**Apply to**
		(14)	**Simple**	**Close**
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				180	Positive
				240	Depositor
				300	Depositor
				360	Depositor
MA	General trend	**Dotted note**	MA method / **Apply to**	60	Positive
		(14)	**Simple** / **Close**	120	Positive
				240	Positive
				300	Positive
				240	Depositor

			36 0	Depositor

Table (2-1) Hexagon results

We note that the angles of the figure (60-120-180)have completed a full time cycle. The angle (240-300) has been achieved proactively, which is a rare case that occurs when the price reaches before time and not time before price. In other words, the angle of 300 is required to start on (2023-1-03). If we follow the price and time together, we find that the angle was achieved at the previous one with the angle (240). This does not indicate the failure of the price to complete a full cycle, but rather the completion of a cycle in less than the period it is supposed to achieve. This preemption in two angles (240-300)led to the failure of the price to achieve the last angle cycle, which is 350 due to the large retracement. This situation can generate a signal of a strong movement in the price cycle as shown in Figure(4-2) dated 2023-1-03

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Sources

26. Mt Helen: A Joint Review of Technical and Quantitative Analysis of Financial Markets Towards A Unified Science of Intel(2003)
27. Jeff Greenblatt: Breakthrough Strategies for Predicting Any Market: Charting Elliott Wave, Lucas, Fibonacci, Gann, and Time for Profit, John Wiley & Sons, Inc, 2edition, (2013).
28. Kenneth L. Fisher:100 Minds That Made the Market(2007).
29. Young Ho Seo: Predicting Forex and Stock Market with Fractal Pattern: Science of Price and Time by Young Ho Seo | (Apr 9, 2020)
30. by Raymond Hon-fu Chan (Author: Alan Wing-keung Wong (Author), & 3 more)Technical Analysis And Financial Asset Forecasting: From Simple Tools To Advanced Techniques Kindle Edition by Raymond Hon-fu Chan (Author), Alan Wing-keung Wong (Author), & 3 more.(2014)
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34. George MacLean: Fibonacci and Gann Applications in Financial Markets Practical Applications of Natural and Synthetic Ratios in Technical Analysis (2005).
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