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# Fibonacci Series, Arcs & Golden Ratio in Foreign Exchange Charts

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**ABSTRACT: Fibonacci Arcs:**This article will explain Fibonacci Arcs are concentrically circles plotted at the end point of the trend line their radii are based on Fibonacci Ratios. Fibonacci Ratio& Fibonacci Arcs are used to project support and resistance. After the uptrend, these circles might signify support zones, while after the downtrend, they might indicate the resistance zones.

**KEYWORD:** Fibonacci series, Golden Ratio, Fibonacci Arcs, Foreign Exchange Charts.

### I. INTRODUCTION

Fibonacci Arcs are half circles that extend out from a trend line. The first and third arcs are based on the Fibonacci Ratios .382 (38.2%) and .618 (61.8%), respectively. These numbers are oftenrounded to 38% and 62%. The middle arc is set at .50 or 50%. After an advance, Fibonacci Arcs are measured using a Base Linethat extends from through to peak. Arcs are drawn along this line with radii that measure .382, .50 and .618 of the Base Line. These arcs mark potential support or reversal zones to watch as prices pullback after the advance. Fibonacci Arcs are used to anticipate resistance or reversal zones for the counter-trend bounce.

### II. FIBONACCI STUDIES (Arcs, Fans, Retracements & Time)

Leonardo Fibonacci (1170-1250) was an Italian mathematician credited with the discovery of a series of numbers now known as Fibonacci numbers. Fibonacci numbers are a set of integers where each number is the sum of the two preceding numbers (1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144,). They have a couple of additional intriguing characteristics: each number is about 1.618 times greater than the one before it (such as 5/3) and approximately 0.618 times smaller than the following number (such as 5/8). The ratio 0.618 is one of three important Fibonacci ratios that play significant roles in technical analysis. The others are the ratio between the second set of two numbers, 1/2 or 0.5. And, the third is the ratio of every alternate number or 0.382 (such as 5/13). When you look at these ratios in the form of percentages, the three most important Fibonacci levels become 38.2%, which is commonly rounded down to 38%, 50% and 61.8%, which is commonly rounded up to 62%. Fibonacci numbers form the foundation for a number of technical indicators, including Fibonacci Retracements, Fibonacci Arcs and Fibonacci Time Zones.



(a)



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(b)

Fig.1. (a) Golden Ratio (b) Fibonacci Fan & Fibonacci Arc





(a)



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(b)

Fig.2. (a) Golden Ratio  $\boldsymbol{\varphi}$  (b) Golden Ratio  $\boldsymbol{\varphi}$ = 1.618



Base Line: A line from point A to point B

(a)

Fig.3. (a) Fibonacci Arcs Retracement Levels



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### **III. CALCULATION**

First Arc: Radius = .382 of Base Line

Second Arc: Radius = .500 of Base Line

Third Arc: Radius = .618 of Base Line

#### **IV. FIBONACCI ARCS**

Fibonacci Arcs help anticipate support and resistance levels and establish price targets. Fibonacci Arcs are created on a price chart by placing the centre of each arc on the last peak or through of a trend line to show potential support and resistance lines. Each arc intersects the original trend line at each of the Fibonacci levels drawn as horizontal lines at 38%, 50% and 62%, just as with Fibonacci Retracements. Fibonacci Arcs are typically charted on the same price chart as Fibonacci Retracements.



(a)



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(b)

Fig.4. (a) Fibonacci Arcs Retracement Levels with Support (b) Fibonacci Arcs Support & Resistance





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Fig.5. (a) Fibonacci Arcs Chart Range (b) Fibonacci Arcs Range





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(b)

Fig.6. (a) Fibonacci Arcs Classic form (b) Fibonacci Arcs up & down



(a)

Fig.7. (a) Fibonacci Arcs in Foreign Exchange Charts

#### **V. CONCLUSION**

Fibonacci Arcs are very interesting instrument, because they can predict future objectives. They serve as spatial expansions and corrections, work as resistance and support, and one more time prove mathematical nature of the market. Besides, combination of Fibonacci Arcs with other technical and graphical instruments allows forecasting not only about price objectives, but about time objectives as well. Fibonacci Arcs are used to identify potential support, resistance or reversal points. As with the Fibonacci Retracements, these reversal points assume that the move is corrective in nature. A pullback after an advance is deemed a correction that will find support above the beginning of the advance. Fibonacci Arcs allow users to anticipate the ending points for these counter-trend moves. Like all annotation tools.

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