

Window Theory for Forex

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Abstract

Window Theory for Forex is a statistically-based financial theory for success in foreign exchange investing. The stalwart parameters set forth in the theory are based on the historical highs and lows of currency pairs. Successful application of the theory lies in the behaviors of the investor towards risk tolerance, practiced disciplined investing, and managing short-term losses for long-term gains, which are learned processes for each investor. This paper begins with the basics of foreign exchange for beginners and is presented in layman's terms. The methodologies presented in the application of Window Theory for Forex were based on four years' research experience. The outcomes suggest a doubling of account balances about once every six months from disciplined trading behaviors that include increasing the amount of trades to sustain the doubling momentum. Foreign exchange investing is a volatile and risky venture that should only be entered with disposable capital. It is possible to lose more than the original investment from rapid price fluctuations.

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1 Introduction

Every day, individuals and businesses, either directly or indirectly, need to exchange currencies in order to conduct foreign trade and business. The differences in currency values are always changing. For these self-evident reasons, exchanging currency is the largest, most liquid market on a global scale. The exchange worth of a country's currency always is changing based on many factors, so the value of one currency against that of another is always fluctuating. There is

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no central global market for foreign currency exchange. Foreign currencies are paired with the value of one currency quoted against another, designated at X/Y. “X” is the base currency and is expressed in value of “Y” the dominant or quote currency. X/Y is expressed as how much of “Y” currency is needed to purchase one unit of “X” currency. In the U.S., transactions are acknowledged at the moment of the closing bell at the Chicago Mercantile Exchange (CME Group) when “closing prices” are declared for foreign currencies, determining their value in U.S. dollars against the previous day’s closing price. Any differences are designated as rollover fees by forex brokerages and are paid into or out of trading accounts that are holding open positions in a currency pair. If a closing price value is higher than that of the day before, a rollover fee is paid into the accounts holding the currency based on “buy” positions from the previous day’s closing. If a closing price is lower a rollover fee is taken out of accounts holding a “buy” position in that currency. If the position is a “sell” the process works in reverse. In forex trading, one is not actually buying or selling currencies. Forex trading is identified as opening a “buy” or “sell” position to buy or sell a currency pair at a certain price. “Buy” positions increase in value as the value of a currency pair goes up and vice versa. “Sell” positions increase in value when a currency pair goes down in value and vice versa.

1.1 Important Preparation

It takes money to make money. There are forex brokerages that allow investors to start with as little as \$50 and trade \$1 at a time. This implies that trades can be opened for a dollar. A standard lot is 100,000 units (1.0 lot). Brokerages can differ greatly. Most brokerages require a minimum of 10,000 units (also shown as 0.1 lots) of a currency to be traded. Mini-lots allow trades with fewer units. Investors should research and compare brokerage requirements. Most brokerages allow demo accounts, which are for practicing with virtual money, usually \$50,000. If all the money is lost, one can start again with \$50,000 in such play money. It is recommended that the Window Theory for Forex principles be practiced to master application. This is also a safe way to determine one’s tolerance for risk and to practice risk management. There are dozens of currency pairs that can be traded, depending on the forex brokerage. There are major currencies and there are exotic currencies. Stay with the major currencies, for they will have lower pip (price interest point) differences. A pip is the smallest price move – 0.0001 – that a given exchange rate makes according to market moves. In forex trading accounts, currency pairs are shown at a SELL price and a BUY price. The difference is in pips and is what a brokerage charges per unit of transaction. A pip is usually 0.0001% of the dominant currency’s value (1/1000th). This is one way brokerages make their money, even though they claim to be commission-free. It is the same concept when one purchases the actual currency at a currency exchange or bank. If one buys currency the bank will charge the higher “BUY” price. If one sells a currency to the bank, the bank will buy it at the lower “SELL” price. The difference is in pips, which is how currency exchangers make their

money. When one opens and closes a position, the pip difference will be taken out of the transaction each way (which can fluctuate). Pip differences can be higher or lower depending on the time of day, among other factors.

Exotic currency pairs will have larger pip differences, which will cost more to trade. With Window Trading for Forex applications, the following currencies are recommended for consideration. Any one currency may be paired with another. Note how the forex market presents them, such as EUR/USD and not USD/EUR. The currency designators are in accordance with the International Organization for Standardization (ISO) parameters.

AUD – Australian Dollar
CAD – Canadian Dollar
CHF – Swiss Franc
DKK – Danish Krone
EUR – European Commonwealth Euro
GBP – British Pound
JPY – Japanese Yen
NOK – Norwegian Krone
NZD – New Zealand Dollar
SEK – Swedish Krona
USD – US Dollar

The foreign currency exchange market has an average daily trading volume of over \$5 trillion compared to the \$169 billion traded daily in the stock markets (Ploysuwan & Chairicharoen, 2017). How does forex trading work? One is not buying or selling foreign currency, one is trading the opening or closing of positions – or rights - to buy or sell a currency pair at a certain price such as EUR/USD.

A pair is the value of one currency against the value of another. For example, EUR/USD means the value of €1 in dollars. The inverse would be USD/EUR, the value of \$1 in euros. In forex markets, the pair is traded as EUR/USD. The first currency is the base currency and the second determines the value. So, EUR/USD is expressed in U.S. dollars and USD/EUR is expressed in euros.

How are profits generated? When a buy or sell position is opened, the right to buy or sell a certain currency pair at a certain price is obtained. What is generated is a premium, the difference between the current and last traded prices. That premium goes up or down in value as the currency pair fluctuates in value. Unlike stock options, there is no expiration date. Once a position is opened, it remains open until closed or the system closes it when the margin levels can no longer be supported.

What is a margin? For U.S. based brokerages, the margin rate is set at 50:1. This means for every dollar put up for collateral, \$50 of a currency pair can be controlled. For every dollar put up for collateral, there has to be another dollar in the trading account to back up the position. If the value of the position goes below

a dollar, then the system will “cash out” the position and the loss can be more than what was invested.

One can lose more than the amount invested when the value of the currency pair moves so fast that by the time the system reacts to the loss, the loss may exceed the cost of opening the position. Sometimes currency pairs will “spike” in value so quickly that the system cannot respond fast enough. If currency pair values are decreasing in value, it is reasonable and prudent to take action.

If additional funds cannot be added quickly to shore up the losses, one can just close the position or part of the position to offset the margin requirement. If funds are available, one may add to the position at the new value. This is risk management.

In the U.S. foreign currencies are traded as commodities during Central Time. Foreign currencies also may be traded during business hours globally, but American holidays can affect when trades can occur. At 4 p.m. Central Time, the CME Group posts the closing prices. With a Monday’s closing prices, rollover fees will be charged for three days (Saturday, Sunday, and Monday). If a position is opened and closed between 4 p.m. and 4 p.m. the next business day, no interest is charged because none was accrued. It works the other way, too. If a position has more value than the day before, the system will pay interest and sweep it into the trading account. The interest rate depends on the currency pair and the interest rate can fluctuate. One more note of preparation before discussing the Window Theory for Forex and its application. There are choices among the types of trading accounts available: a personal account, a business account (for capital generation), or a self-directed Individual Retirement Account (IRA). Each type will have different tax implications which only the investor can discern perhaps with the assistance of financial and tax experts.

To determine a course of action, decide on how much money to invest. Invest only money that can be expendable to lose. There are many ways to lose principal by (1) Becoming emotionally attached to losing trades, (2) Becoming greedy with success, (3) Not practicing patience or discipline in making trading decisions, (4) Poor risk management, (5) Not having more funds to add.

2 Window Theory for Forex

This is a fundamental education theory based on the statistical probability of success (which translates into profits). The successful application of this theory lies in the preparation of the investor’s mindset, appetite for risk, and financial savvy. This theory provides the basic statistical principles. Risk management as suggested by this author will help investors make prudent decisions in the volatile world of forex trading. The risk management suggestions are presented in layman’s terms. Before forging into forex trading, it is important to understand its basics, which also may be a good review for those who are in the 95% of forex traders who consistently lose their principal (DraKohn, 2008).

The theory is presented with common-sense suggestions of how each principle works to be manipulated to one's advantage. For beginners, it would be wise to practice with the demo forex trading accounts that most brokerages offer. Confidence is about building faith into one's decisions and practicing with virtual demo trading accounts is a safe way to develop such a skill.

2.1 The Basis of Window Theory for Forex.

Window Theory for Forex is based on the standard deviation formula: $SD^2 = \sum |x-\mu|^2/N$. Where SD is the Standard Deviation squared equal to the sum of the absolute value of the mean (x) minus the set of data points (μ) squared divided by N. SD then is equal to the square root of the sum of the absolute value of the mean minus the set of data points squared divided by N. N is the number of data points in the population. SD is also identified by the Greek symbol Sigma (σ). The mean (x) is the average of all the data sets. One standard deviation from the mean is the distribution of the data points around the mean (plus or minus). In a normal distribution of a population of data points, one standard deviation is about 33% of all the data points around the mean or about 68% of all the data points. Two standard deviations of a normal distribution would be about 95% of all the data points from or toward the mean. Three standard deviations would be about 99.7% of all the data points in the population. Technology is in place where the calculations are already done and presented in graphs and text. The methodologies for Window Theory for Forex were based on the technological analysis of standard deviations.

3 Methodologies

Research began with establishing four separate forex trading accounts with \$300 each. Four accounts were created to maintain diversity in open positions, minimize losses, and to exploit opportunities. The author decided to invest in \$1,000 increment lots. The margin percentage was capped at 30%, the amount of capital committed to leverage the trades. At 30%, the author would take profits or add funds to keep the margin balance below 30%. The incremental adding to a position helped to control risk. With U.S. forex accounts, it is first in, first out.

First in, first out means that the oldest open trade for that currency pair will be closed first. The author would take advantage of this when all the trades in a currency pair were profitable by closing out some of the older ones and leaving the newer ones to keep generating favorable rollover fees. Accounts were benchmarked once a week to establish a reference for return on investment and gain or loss for the week. Successful progress was not linear.

Accounts would be down during times of gaining and managing open positions. The overall slope was positive for the long term. During the four years of investing, no account was ever closed out for any reason. Margin percentages sometimes did hit 50% during times of extreme volatility. Funds had to be added

or losing positions closed to avoid the system from closing the accounts. Funds were added in \$100 increments.

3.1 99.99% Success

Window Theory for Forex is based on the statistical probability of success. Based on statistical history, observing a 30-year trading chart of any currency pair will show an extreme high and an extreme low. Success of 99.99% would have happened if one opened a sell position at the extreme high or have opened a buy position at the extreme low (or close to them). Whatever the current price is, it will be in between. Imagine if a position to sell was opened its highest 30-year peak or a position to buy at its lowest 30-year peak. Such a position would be “golden” as interest is paid (from rollovers) over the years. Conduct research on the internet to find a suitable representation of a 30-year historical chart for the currency pair of interest. Odds are the 30-year extreme highs and lows are very unlikely to happen again, but possible to happen again. Forex brokerages can allow limit orders to be placed without charge or expiration. Unless the currency pair is approaching the 30-year highs or lows, it is unlikely the orders will be executed, but why not put them in place? Even if there is a breakthrough and the orders execute with losing values, take control of the opportunity by managing the risk. Managing risk can be accomplished in different ways. Can funds be added to hold the position? Can some positions be closed or partially closed to maintain the positions? Can new positions be opened if funds allow? When 30-year extremes are in effect, chances are they cannot hold that high or low for long and the window of opportunity will close. The usual scenario is it may be generations before those highs or lows become opportunities again. A smaller window may offer better chances for opportunity, but also increased risk.

3.2. 85% Success

Opportunities at this rate hover around the 15-year trading histories. Notice that the extreme highs and lows are less than the 30-year trading histories. The 15-year extreme high and low represents a percentage of the 30-year extremes that varies with currency pairs. As a rule of thumb, to have opened a position at either extreme would result in about an 85% chance of being profitable. It depends on how well the risk is managed.

A potential investor can conduct research on the internet to find a suitable representation of a 15-year historical chart. Unless the current highs and lows are close to the 15-year limits, it is not likely limit orders will be executed. Why not place limit orders on the extreme highs and lows anyway? It should not cost anything. Expiration dates can be added if one does not feel comfortable with an indefinite status.

Again, in the off-chance that the orders are executed, maintain risk management by adding funds, closing all or partial positions, opening new positions, or adding limit orders at higher (or lower) levels if funds allow. These risk management techniques can be practiced with demo accounts and should be mastered before

engaging with real money. When practicing with demo trading accounts, be realistic. Even though there may be \$50,000 in virtual money, practice as if it were real money. If the intention is to open a trading account with \$50 and trade a dollar at a time, then practice that strategy with the demo account. What can be frustrating is when the currency-pair values get close to the extreme high or low and then reverse. Limit orders can be stepped to create a buffer zone for trading. See Fig 1. EUR/USD Historical Chart.

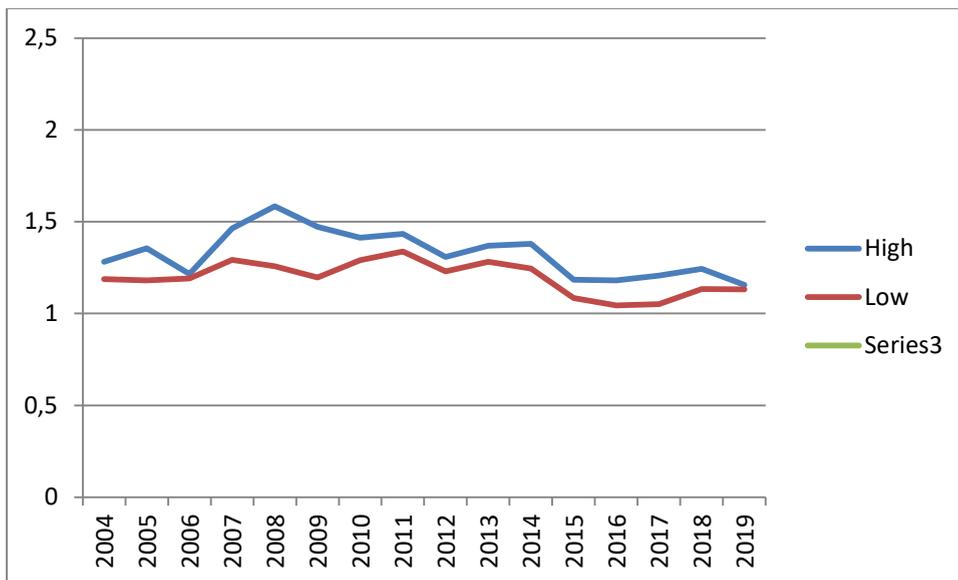


Figure 1: EUR/USD Simplified Historical Chart 2004 – 19.

The above graph is based on the following Table 1. EUR/USD Simplified Historical Table 2004 – 2019 showing the highs and lows for years 2004 to time of writing this manuscript in 2019 (Macrotrends, 2019).

Table 1. EUR/USD Simplified Historical Table (Macrotrends, 2019).

Year	High	Low	Year	High	Low
2004	1.2815	1.1877	2012	1.3072	1.229
2005	1.3552	1.1811	2013	1.4339	1.3376
2006	1.215	1.1914	2014	1.3072	1.229
2007	1.4628	1.2924	2015	1.1839	1.0843
2008	1.5846	1.2574	2016	1.1804	1.0451
2009	1.4718	1.1969	2017	1.2063	1.0517
2010	1.4131	1.2911	2018	1.2427	1.1337
2011	1.4339	1.3376	2019	1.15666	1.13129

3.3. Next Window for 70% Success

Most forex brokerages will show the monthly time frame within their websites for a few years back. Forex traders will find the highs and lows still will be far and few in that time span. Nevertheless, one should place limit orders on the extreme high and low. Manage the risk for when the orders execute.

When to take profits? Some investors use trading signals. They come with a caveat: When looking at a trading signal, one must observe the time frame. For example, if the trading signal is based on a 15-min time frame, at what time was the trading signal issued? If it was more than 15 min ago, the trading signal is no longer viable. Automatic trading programs or trading bots cannot replace human intuition. Scientific algorithms, artificial neural networks, and other hybrid neural networks have been developed with some measure of success. Pathberiya, Tilakaratne, and Hansen (2017) developed an intelligent system for forex trading based on a hybrid artificial neural network combined with a generalized autoregressive conditional heteroskedastic (GARCH) approach that yielded a 57% success rate. GARCH is an algorithm based on a time series for estimating volatility in financial markets (Engle, 2001). The outcomes of these algorithms result in buy, hold, or sell decisions. Risk management requires more than buying, holding, or selling a position. The only thing predictable in trading forex is it is a volatile and unpredictable venture. The primary objective is capital preservation. Profit comes to those wait for the market to come to them. When the patience wears thin, one can go to the next and last window for a 50-50 chance of being profitable.

3.4. The 50% Success Window

A 50% chance for success translates to a 50% chance of losing in trades. At this level, set limit orders for the lowest amount. The lowest amount is the base trade rate one has established for his/her trading account. Depending on the brokerage and trading account parameters, this can be \$1, \$10, \$100, \$1,000, and so on. Most forex brokerages will show the day and time frame which usually will go back less than a year. With an extreme high and low, there is a 50-50 chance of going past the limits which show the lowest unit of trade you can tolerate. Odds are the high or low eventually will be passed and limit-orders will have been executed, becoming a risk management endeavor. Risk management is making sure funds are available to absorb the losing rollover fees. A rule of thumb is to add to the position (if funds allow) for the first 50 pip loss as the currency pair passes or else close the position and reopen at the new level (if funds allow). When doing so, the loss will be recovered when the position eventually reverses. If the position's loss is more than 50 pips, there may be a losing trend. Close the position and check the weekly time frame to determine what may be going on. Set the limit orders on the weekly high or low to allow the market to play out. The market may come close to the high or low and reverse itself. This is where human intuition enters and can only come with practicing with demo trading forex accounts.

4 Outcomes

The account balances have doubled about every six months. The progress was non-linear. Losing trades were risk-controlled by adding funds, adding and/or subtracting positions, and taking profits wisely. When multiple trades of a currency pair were all profitable, the earliest ones would be closed out to take advantage of the Fibonacci Retracement. Fibonacci was an Italian mathematician during the Middle Ages. He determined a formula which has become known as the Fibonacci Sequence. The Fibonacci Sequence is found in all aspects of nature, is used to determine biometric characteristics, and in trading it is a technical analysis tool for determining resistance and support levels, known as the Fibonacci Retracement. In the Fibonacci Retracement, resistance levels are three tiers of price levels that a position's value may increase to from a set price, noted as R1, R2, and R3. Support levels are three tiers of price levels that a position may fall below a set price, noted as S1, S2, and S3. The overriding caveat is that forex prices are not always linear, and discontinuous price fluctuations can breakthrough resistance or support levels as if they were meaningless. As with any other technical analysis tool, one must take the application time frame used to help determine the feasibility of the information.

The author continues to trade the four forex accounts. To maintain the doubling momentum, positions are opened at about 10% of the account balance in \$1,000 increments. The 30% cap on margin levels remains in effect.

5 Conclusions and Recommendations for Practice

5.1 Greed and Overconfidence

As the successful forex trader becomes proficient and profitable, it is easy to overestimate success and lose everything very quickly. A disciplined trading strategy can be developed and followed to maintain success. As one's balance grows, one must adjust trades to maintain the momentum of profiting. A spreadsheet is suggested to manage the success. Pick a day and update the account's progress on a weekly basis. Formulas can measure weekly return on investment (ROI). The weekly sequence can be extended to the year-end. A formula can be placed that will show the annual average ROI as it changes weekly. It is suggested to add a row for showing the week to week difference of gain or loss. The progression is not linear. Why? Because when positions are being opened, the tendency is for the trade to be a losing position. Through astute risk management by adding funds to the account, opening additional positions, and closing losing positions, the window eventually closes, and trades become profitable. The majority of trades for the author have been at the monthly (70%) and daily (50%) levels. As long as the positions remain profitable, interest (rollover fees) is earned and posted on a daily basis. When all the trades are profitable, a good technique for risk management is to cash out all but the most

profitable position. Any other limit-orders will be beyond the boundary of the position (lower for buy orders, higher for sell orders). If there is a breakthrough of one's holding position, these risk-management techniques may be applied to establish a stronger position when the window of opportunity closes again. The author's experience has been to double the trading account balance every six months or so for the past four years. The last risk management technique to practice and develop (as funds allow) is to increase the initial limit-orders. As the available trading funds increase, so should the initial limit-orders by 10% of the available funds to trade. Invest for the long term.

5.2. Forex Trading Risks

Trading in foreign currencies can be a challenging and potentially profitable opportunity for investors. However, before deciding to participate in the forex market, consider your investment objectives, level of experience, and risk tolerance. Most importantly, do not invest money you cannot afford to lose. Practice with demo accounts to gain experience and confidence. There is considerable exposure to risk in any forex transaction. Any transaction involving currencies involves risks including, but not limited to, the potential for changing political, institutional, and/or economic conditions that may affect the price or liquidity of a currency substantially. Forex speculation investments also may be susceptible to sharp rises and falls as the relevant market values fluctuate. The leveraged nature of forex trading means any market movement will have an equally proportional effect on a trading account. This may have positive or negative effects on a trading account. Not only may investors get back less than they put, but with higher risk strategies, investors may lose all they put in or more. It is for this reason that when speculating in such markets, only use risk capital.

5.3. Risk Disclaimer for Forex Trading

Investing on margin carries a high level of risk and may not be suitable for all investors. Past performance is not a promise of future results. The high degree of leverage can work against a trading account (loss) as well as for it (profit). Before deciding to invest in forex, a potential investor should carefully consider his/her investment objectives, level of experience, and risk tolerance. One could sustain a loss of some, all, or more than the initial investment. A potential trader should not invest money he/she cannot afford to lose. Potential investors should be aware of all the risks associated with forex trading and seek advice from an independent financial advisor and/or tax expert.

5.4. Benefits and Risks of Leverage

Leveraged trading provides traders the opportunity to enter into a position worth many times the account value with a relatively small amount of money. This leverage can work with a trading account profit as well as against a loss. Even though the forex market offers traders the ability to use a high degree of leverage,

trading with high leverage may increase losses. Use caution when using leverage in trading or investing. Invest long or short and prosper!

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