Leveraging with Futures, FX and Binaries

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Experienced traders who want to increase their returns often use leverage. This enables them to use small amounts of cash to control a large amount of assets. However, leverage has its dangers too and one would be well advised to understand what those dangers are before actively participating in instruments which employ leverage.

Futures traders do it. They post a small amount of margin and move 5000 oz. of silver or 1000 barrels of oil. FX traders do it. Most FX shops offer 100:1 leverage on large accounts or even 200:1 on smaller accounts. Options traders do it too. Or at least binary options traders. When they buy a binary for $2 and sell minutes later for $8, while the underlying asset barely moved, they use leverage.

Let us look at three leveraging alternatives: futures, spot FX and binaries. In each we put up some cash upfront in the form of a margin or an option premium, and then we speculate on the movement in the price of the underlying asset. Leverage magnifies the impact of the price movements on our profit and loss, so that a small movement in the underlying price causes a large change to our cash position.

Futures and FX

When trading futures, we are required to post an initial margin and stay above a maintenance margin as specified by the exchange. For example, as of September 20, 2006, NYMEX non-member traders were subject to the following margin requirements:

Contract	Amount	Recent Price	Total Value	Margin			
				Initial $	Initial %	Maintain$	Maintain%
Gold	100 oz.	$585	$ 58,500	$ 3,375	5.77%	$ 3,375	5.77%
Silver	5000 oz.	$11.50	$ 55,000	$ 5,400	9.82%	$ 5,400	9.82%
Oil	1000 bbl	$62	$ 62,000	$ 4,050	6.53%	$ 3,000	4.84%

If you deposited $5,400 in the margin account to buy 1 futures contract on silver, your money controlled 5000 oz. of silver or a total value of $55,000. If silver went

up by $1, you gained $5000, and your cash position increased to $10,400. For a $1/11.50 or 8.7% increase in silver price, your profit was 5000/5400 or 92.6%.

When trading spot FX, we post a 1% (100:1) or 0.5% (200:1) margin. If, when the USD/EUR rate is 1.2700, you deposit $1270 into your margin account to buy euros/sell dollars, you control €100,000. If the USD/EUR rate moves from 1.2700 to 1.2750, you gain $0.005 per €1 for a total of $500. For a 0.005/1.2700 or 0.39% move in the currency rate, you gain 500/1270 or 39.37% on your money.

So, the real question is, how do the margin requirements compare to the potential movements in gold, silver or $/€ rates that we observe? I took gold prices and $/€ rates over the period from August 2, 2006, to February 2, 2006, and computed the absolute daily price movements (not percent returns) and the following summary statistics:

Asset	Daily absolute move		
	Average	St. Dev.	Maximum
USD/EUR	0.0035	0.0039	0.022
Gold	3.96	3.5	14.00

On average, the USD/EUR rate moves by 3.5 pips per day and gold moves by $3.96 per day. The maximum FX rate change observed over the period is 22 pips; the maximum gold price change is $14.00. Let us assume that we face an average day.

If we post $3,375 on a 100 troy oz. gold contract trading at $585, and the price moves by $3.96, our gain will be $396. For a price move of 3.96/585=0.7% we make 396/3375=11.7%.

If we post $1270 on a €100,000 spot FX buy-€ position, and the rate moves up by 0.0035, our gain will be $350. For a rate move of 0.0035/1.2700=0.28%, we make 27.6%.

In both cases, if the price moved against us, our losses would have been magnified by the same leverage factor. So the leverage game is not for people with weak hearts.

Binaries

Option leverage is not symmetrical. It magnifies both gains and losses, but not by the same factor. Let us illustrate on the example of HedgeStreet binaries which offer more leverage at-the-money than standard calls and puts.

A binary is an all-or-nothing option with a fixed payout. If the underlying crosses the strike into the money, you get a fixed dollar amount, not the difference between the underlying price and the strike, like with standard calls. HedgeStreet trades binaries with $10 or $100 payouts.

If gold is at $578 and you buy a $10 binary on gold struck at $580, your payout will be $0 if gold stays below $580, but $10 if gold ends up above $580, even if just by a penny! With gold at $581 a standard call pays $1, a binary call pays $10. Prior to expiry, the price of a binary reflects the probability of ending up in the money, so with gold at $578, a 580 binary is likely to trade at $2-$3.

The source of leverage in a binary is twofold. First, just like with futures or FX, a $2 investment controls $578 worth of an asset (in the parlance of FX trading this would imply 289:1 leverage). Second, because of its all-or-nothing nature, the payout of a binary jumps by more than the price (delta > 1). With futures or FX, the payout moves one-for-one (delta = 1); with standard options, the payout often moves by less than one-for-one (delta ≤ 1). If gold moves by $3.96, from $578 to $581.96, and the time to expiry runs out, the 3.96/578 = 0.63% move in the price of gold will produce a $8/$2 = 400% return on the binary investment. Not bad.

Of course, just like with futures and FX, if the price goes down, the loss will be leveraged. In the case of futures and FX, the loss leverage is the same as the profit leverage, but not so with binaries. A 0.63% move down in the price of gold will produce a 100% loss (the entire $2 premium will be lost).

One last point is that the binary leverage depends on the entry point. If you buy the option for $3, the potential trade-off is between a 233% gain ($7) and 100% loss ($3); at $4 it is 150% vs. 100%.

Which is better?

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