

Pricing U.S. Dollar Index Futures Options: An Empirical Investigation

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Abstract

This paper develops a pricing model and empirically tests the pricing efficiency of options on the U.S. Dollar Index (USD_X) futures contract. Empirical tests of the model indicate that the market consistently overprices these options relative to the derived model. This overpricing is more pronounced for out-of-the-money options than for in-the-money options and more pronounced for put options than for call options. To validate the above results, delta neutral portfolios are created for one- and two-day holding periods and consistently generate positive arbitrage profits, indicating that on average the market overprices the options on the USD_X futures contracts.

References

Ball, C. and W. Torous, 1986. Futures options and the volatility of futures prices, *Journal of Finance* **41**, 857 – 870.

[Web of Science®](#) | [Google Scholar](#)

Barrett, B. and T. Sanders, 2002. The drift factor in biased futures index pricing models: A new look, *Journal of Futures Markets* **22**, 579 – 598.

[Web of Science®](#) | [Google Scholar](#)

Black, F., 1976. The pricing of commodity contracts, *Journal of Financial Economics* **3**, 167 – 179.

[Web of Science®](#) | [Google Scholar](#)

Bodurtha, J. and G. Courtadon, 1987. Tests of an American option pricing model on the foreign currency options market, *Journal of Financial and Quantitative Analysis* **22**, 153 – 167.

[Web of Science®](#) | [Google Scholar](#)

Brenner, M., G. Courtadon, and M. Subrahmanyam, 1985. Options on the spot and options on futures, *Journal of Finance* **40**, 1303 – 17.

[Web of Science®](#) | [Google Scholar](#)

Clyman, D., C. Allen, and R. Jaycobs, 1997. Liquidity without volume: The case of FINNEX, Dublin, *Journal of Futures Markets* 17, 247 – 277.

 | [Web of Science®](#) | [Google Scholar](#) |

Eytan, T. and G. Harpaz, 1986. The pricing of futures and options contracts on the value line index, *Journal of Finance* 41, 843 – 855.

 | [Web of Science®](#) | [Google Scholar](#) |

Eytan, T., G. Harpaz, and S. Krull, 1988. The pricing of dollar index futures contracts, *Journal of Futures Markets* 8, 127 – 40.

 | [Web of Science®](#) | [Google Scholar](#) |

Harpaz, G., S. Krull, and J. Yagil, 1990. The efficiency of the U.S. dollar index futures market, *Journal of Futures Markets* 10, 469 – 480.

 | [Web of Science®](#) | [Google Scholar](#) |

Hilliard, J. and J. Reis, 1998. Valuation of commodity futures and options under stochastic convenience yields, interest rates, and jump diffusions in the spot, *Journal of Financial and Quantitative Analysis* 33, 61 – 86.

 | [Web of Science®](#) | [Google Scholar](#) |

Hull, J.C., 2000. *Options, Futures, & Other Derivatives* (Prentice Hall, Upper Saddle River , NJ).

 | [Google Scholar](#) |

Krull, S. and A. Rai, 1992. Optimal weights and international portfolio hedging with U.S. dollar index futures: An empirical investigation, *The Journal of Futures Markets* 12, 549 – 563.

 | [Web of Science®](#) | [Google Scholar](#) |

Ramaswamy, K. and S. Sundaresan, 1985. The valuation of options on futures contracts, *Journal of Finance* 40, 1319 – 1340.

 | [Web of Science®](#) | [Google Scholar](#) |

Redfield, C., 1986. A theoretical analysis of the volatility premium in the dollar index contract, *Journal of Futures Markets* 6, 619 – 628.

 | [Web of Science®](#) | [Google Scholar](#) |

Schap, K., 1991. USDx versatility covers multiple-currency hedges, *Futures* 20, 32 – 35.

[Google Scholar](#)

Shastri, K. and K. Tandon, 1986. Valuation of foreign currency options: Some empirical tests, *Journal of Financial and Quantitative Analysis*, 21, 145 – 160.

[Web of Science®](#) | [Google Scholar](#)

Thachuk, R., 1992. How to price USDX futures, *Futures* 21, 40 – 42.

[Google Scholar](#)

Whaley, R, 1986. Valuation of American futures options: Theory and empirical tests, *Journal of Finance* 41, 127 – 150.

[Web of Science®](#) | [Google Scholar](#)

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