**Paper: *Volatility Dispersion Trading***

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[**https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=1156620**](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1156620)

**Notes:**

**What is Dispersion Trading?**

* There is empirical evidence that index options, especially index puts, appear to be more expensive than their theoretical Black-Scholes prices, while individual stock options do not experience the same phenomenon.
  + **Dispersion trading is designed to capitalize on the overpricing of index options relative to individual options** 
    - **The strategy is achieved by selling options on an index and buying options on individual stocks that comprise the index**
* Dispersion trading is essentially a hedged strategy designed to take advantage of relative value differences in implied volatilities between an index and a basket of component stocks. Common to see a short position of a straddle or near-ATM strangle on the index and long positions of straddles or strangles on 30%-40% of stocks that make up the index
* The exposure to volatility risk from the long leg of the strategy on individual stock options tends to be canceled by that of the short leg in index options.

**Why does dispersion trading make money?**

* This paper analyzes where profits from dispersion trading comes from. Most arguments are that profits are attributed to the correlation risk premium embedded in index options; however, the alternative argues that the profitability results from option market inefficiency.
  + There were institutional changes to the options market in late 1999 and 2000 that provide evidence supporting the market inefficiency hypothesis and against the risk-based hypothesis since a fundamental market risk premium should not change as the market structure changes
* **Risk-based hypothesis:** argues that index options are more expensive relative to individual stock options because they bear some risk premium that is absent from individual stock options
* **Market Inefficiency Hypothesis:** Argues options market demand and supply drive option premiums to deviate from their theoretical values

**How the paper tests dispersion trading?**

* Initially examine dispersion trading strategy that writes the ATM straddles of the S&P 500 and buys the ATM straddles of S&P 500 components.
  + This strategy loses profitability after year 2000
* Refined strategies which include analyzing implied correlation, delta hedging, and finding the cheapest components does do better over time
  + **Not delta hedging the initial is stupid**
* **They only use 85% to 115% strikes**