



# **The Effect of Net Buying Pressure on Implied Volatility: Empirical Study on Taiwan's Options Market**

Chang-Wen Duan<sup>a</sup>, Ken Hung<sup>b</sup>

a. Department of Banking and Finance, Tamkang University, Taiwan

b. Sanchez School of Business, Texas A&M International University,  
Laredo Texas

---

**Abstract:** We examine the implied volatility of TAIEX options with the net buying pressure hypothesis. Empirical results find that the implied volatility of TAIEX options exhibits negative skewness, which is caused by the net buying pressure and is dependent on the time-to-maturity of the options contract. The effect of net buying pressure is most significant in options with longer maturity. After controlling the information flow and leverage effect, our empirical results show that net buying pressure is attributed to limits to arbitrage in the Taiwan options market. As institutional investors have greater hedging demand for out-of-the-money puts, we also conclude that net buying pressure has the biggest influence on the implied volatility of out-of-the-money puts. The trading simulation results support the net buying pressure hypothesis. Finally, we also show that Taiwan's option investors are volatility traders.

---

## **1. Introduction**

**B**ased on the Black-Scholes (BS) model, options with the same underlying asset and the same expiration date should have the same implied volatility function (IVF), meaning that the IVF is constant. However Merton (1979) and Rubinstein (1985) provide persuasive evidence that rejects such an assumption. However, There is no doubt about the high correlation between implied volatility (IV) and moneyness in the options market. Many prior many literatures find that the IV and moneyness of options show a smile or smirk pattern. Since the 1987 market crash, the shape of index options IV across different