

The Study for Evaluation of Equity Options In Taiwan

翁敏蕙、唐啟發；施能仁

E-mail: 9416105@mail.dyu.edu.tw

ABSTRACT

After joining WTO, the financial market and new financial commodities in Taiwan are open step by step. There are plenty diverse investment options in securities market nowadays. For participants in securities market, the right investment policy is what they most concern about. Furthermore, the options market overseas has been very popular and the options are also one of investors' favorite derivatives. To response to this tendency, Taiwan Stock Exchange Corporation (TSEC) and Taiwan Future Exchange (TAIFEX) are positively planning various options contracts for the trade market. After the index option, equity option has been traded on January 20, 2003. For domestic financial market, it represents that not only more derivatives could be operated but also the securities market is more internationalized. These financial commodities would offer hedge for the companies, and make financial tools more diverse. However, how to evaluate these financial commodities is the first problem we have to deal with. Owing to the mentioned reasons, we would try to find out the optimal investment policy to maximize the investment value in this paper by means of Black-Scholes model(1973). And the study would give advice to securities firms and investors about stock option, especially on publishing goal, time of stock option and options' evaluation.

Keywords : Investment Policy ; Stock Option ; Derivatives ; B-S model

Table of Contents

第一章 緒論 1 第一節 研究背景與動機 1 第二節 研究目的 3 第三節 研究方法 4 第四節 研究流程 4 第二章 文獻探討 7 第一節 選擇權內涵 8 第二節 選擇權評價模式回顧 19 第三節 相關文獻探討 27 第四節 小結 35 第三章 研究方法 36 第一節 二項式模型推至Black-Scholes模型的推導過程 38 第二節 Black-Scholes選擇權定價模式之理論內涵 53 第三節 研究設計 56 第四章 實證分析 59 第一節 買權之分析 59 第二節 賣權之分析 66 第三節 實證結果 74 第四節 模擬分析交易策略 76 第五章 結論與建議 80 第一節 研究結論 80 第二節 對後續研究者的建議 81 參考文獻 83 附錄 88

REFERENCES

- 一、中文部份 1.王瑞誠，1998年，「台股認購權定價理論模式之實證研究」，東吳大學企業管理學系碩士論文。 2.朱浩民著，1999年，「期貨與選擇權」初版，華泰文化事業股份有限公司。 3.李麗著，1999年，「衍生性金融商品」，三民書局股份有限公司。 4.林炳堯著，1990年，「財務管理:理論與實務」，華泰文化事業股份有限公司。 5.施能仁著，2002年，「期貨與選擇權:學理與實務」三版，華立圖書股份有限公司。 6.徐崇禮，2001年，「模擬股票選擇權避險策略最佳化系統」，私立元智大學資訊管理學系碩士論文。 7.陳松南著，2002年，金融工程學:「金融商品創新選擇權理論」初版，華泰文化事業股份有限公司。 8.陳松男著，1993年，「全球化投資動態分析」上冊初版，台北金融研究發展基金會系列叢書。 9.陳威光著，2001年，「衍生性金融商品:選擇權、期貨與交換」初版，智勝文化事業有限公司。 10.陳威光著，2001年，「選擇權:理論、實務與應用」初版，智勝文化事業有限公司。 11.許昱寰，1997年，「台灣認購權證評價之實證研究」，私立輔仁大學管理學研究所碩士論文。 12.陳隆麒著，1993年，「現代財務管理:理論與應用」，華泰文化事業股份有限公司。 13.董夢雲著，1997年，「金融選擇權」，新陸書局股份有限公司。 14.滑明曙著，1999年，「選擇權估價理論」，華泰文化事業公司。 15.詹章佐，1998年，「台灣選擇權計價:理論與實際」，台灣大學資訊工程學系碩士論文。 16.趙念中，2001年，「Black-Scholes評價模式在台灣認購權證市場錯價之實證」，碩士論文，朝陽大學管理學研究所。 17.賴國梁，2003年，「實質選擇權應用於投資開發案之研究」，朝陽科技大學財務金融系碩士論文。 18.蔣炤坪，李進生，盧陽正，吳壽山，1997年，「指數期貨與選擇權」，新陸書局股份有限公司。 19.謝劍平著，2002年，「財務管理:新觀念與本土化」三版，智勝文化事業有限公司。 20.謝劍平著，2003年，「期貨與選擇權:財務工程的入門捷徑」智勝文化事業有限公司。
- 二、英文部份 1.Bachelier, L.(1900), " Theory of Speculation " (English translation) in Cootner, Pall, 1964, " The Random Character of Stock Market Prices," MIT press, Cambridge, Mass: 17-78. 2.Bar -Ilan, A., and W. Strange (1998), " A Model of Sequential Investment " , Journal of Economic Dynamics and Control 22, pp.437-465. 3.Bhattacharya, M., (1980), " Empirical Properties of the Black-Scholes Formula Under Ideal Conditions " , Journal of Financial and Quantitative Analysis, Vol. 15, pp.1081-1095. 4.Black, F. and M. Scholes, (1973), " The Price of Option and Corporate Liabilities " , Journal of Political Economy 81, pp.637-659. 5.Black, F., (1975), " Fact and Fantasy in the Use of Options " , Financial Analysis Journal, Vol.31, pp.36-72. 6.Black, F. and P. Karasinski, (1991) " Bond and Option Pricing When Short Rates are Lognormal " Financial Analysis Journal, July-August, pp.52-59. 7.Boness, A. J.,(1964), " Elements of A Theory of Stock-Option Value " , Journal of Political Economy, 72, pp.163-175. 8.Cox, J. and S. Ross, (1975), " The

Pricing of Options for Jump Process ” , Working Paper No.2-75, Rodney L. White Center for Financial Research, University of Pennsylvania.

9.Cox, John C. and Stephen A. Ross, (1976), “ The Valuation of Options for Alternative Stochastic Process ” , Journal of Financial Economics 3, Jan-Mar, pp.145-166. 10.Cox, J., Ross S., & Rubinstein M. (1979), “ Option Pricing: A Simplified Approach ” , Journal of Financial Economics, (3): pp.229-263. 11.Damodaran, Aswath (1997), Corporate Finance: Theory and Practice, New York: John Wiley & Sons, pp.728-775. 12.Dixit, A. and Pindyck, R.S. (May-June 1995), “ The options approach to capital investment ” , Harvard Business Review. 13.Geske, R., (March 1979), “ The Valuation Compound Options ” , Journal of Financial Economics, Vol.1, pp. 63-82. 14.Garman, M. B., and M. J. Klass, (1980), “ On the Estimation of Security Price Volatilities from Historical Data ” , Journal of Business, Vol. 53, No.1, pp.67-78. 15.Hull, J.C. (2000). Option, futures, and other derivatives, fourth edition, Prentice Hall, U.S. 16.Lognormal option pricing for arbitrary underlying assets:a synthesis, The Quarterly Review of Economics and Finance 42, (2002), pp.577-586. 17.Merton, R.C. (1973), “ Theory of Rational Option Pricing. ” , Bell Journal of Economics and Management Science, Vol.4, No.1, pp.141-183. 18.Merton, R.C. (1976), “ Option Pricing when Underlying Stock Returns Are Discontinuous ” , Journal of Financial Economics, Vol.3, pp.125-144. 19.Roll, R. (1977), “ An Analytic Valuation Formula for Unprotected American Call Options on Stocks with Known Dividends ” , Journal of Financial Economics, Vol. 5, November, pp.251-258. 20.Rendleman, Richard J.; Bartter, Brit J.(1979), “ Two-State Option Pricing ” , The Journal of Finance, Vol. 34, No. 5, pp.1093-1110. 21.Samuelson, P. A.,(1965), “ Rational Theory of Warrant Pricing ” , Industrial Management Review, 6, pp.13-31. 22.Sprenkle, C. M.(1964), “ Warrant Prices As Indicators of Expectations and Preference ” , in P. Cootner, ed.,1964, The Random Character of Stock Market Prices (MIT Press, Cambridge, Mass.) pp.412-474. 23.Stoll, Hans R., “ The Relationship between Put and Call Option Prices. ” , Journal of Finance,24(May 1969),pp 319-332. 24.The Quarterly Review of Economics and Finance, 42 (2002), pp.577-586. “ Lognormal option pricing for arbitrary underlying assets:a synthesis ” . 25.Whaley, R., (October 1979), “ A Note on an Analytic Formula for Unprotected American Call Options on Stocks with Known Dividends ” , Journal of Financial Economics, Vol. 7, pp.375-380. 26.Zvi Bodie, Robert C. Merton, “ Finance ” (1997), pp.383~414.