Inžinerinė ekonomika
Engineering Economics

Home / Archives / Vol. 24 No. 1 (2013) / ECONOMICS OF ENGINEERING DECISIONS

Hedging Against a Price Drop Using the Inverse Vertical Ratio Put Spread Strategy Formed by Barrier Options

Vincent Soltes
Technical University of Košice

Martina Rusnakova
Technical University of Košice

DOI: https://doi.org/10.5755/j01.ee.24.1.3505

Keywords: hedging, Inverse Vertical Ratio Put Spread strategy, barrier options, vanilla option, SPDR Gold Shares

Abstract

This paper investigates hedging of a portfolio consisting of a risky underlying asset using the Inverse Vertical Ratio Put Spread (further IVRPS) strategy formed by single barrier options (category exotic options; subcategory path-dependent options) to study the difference between hedging using barrier and vanilla options. This strategy is useful for hedging against a price drop assuming the given underlying asset will be sold in the future. Barrier options were created to provide risk managers with cheaper means to hedge their exposures without paying for the price changes they believed unlikely to occur. They are options with second strike price, called barrier or trigger. Crossing of the barrier (in the form of frontier underlying asset price) during the life of an option implies activation or deactivation of particular barrier option. In general, they are more flexible and cheaper in comparison to plain vanilla options. In our analysis we use an interesting approach based on finding of the income functions from secured position in analytical form, which can simplify hedging process. These theoretical results are robust to different underlying assets and are useful for financial and also non-financial institutions. Many authors use this approach of analyzing for example Amaitiek, Balint and Resovsky (2010), Soltes M. (2010), Soltes V. (2001), Soltes V. and Amaitiek (2010a), Soltes V. and Amaitiek (2010b). A key difference between the previous studies is that in this paper we are concentrated on barrier options. Furthermore, we focus on the application to SPDR Gold Shares (GLD). SPDR Gold Shares offer investors an innovative, relatively cost efficient and secure way to access the gold market without being necessary to take care of delivery and safekeeping. GLD are an appropriate tool for those who want " to play" in the gold market, not for those who want to buy real gold. It is possible to use them for hedging, forming of option strategies etc. For these reasons they are very popular and SPDR Gold Trust is currently one of the largest holder of the gold in the world. We use vanilla and barrier option on these shares in our analysis. Due to the lack of real-traded barrier option data we calculate the barrier option premiums using an analytical model of Haug, who applied the Black-Scholes-Merton formula for all kinds of barrier options. We realize all calculations in the statistical program R because of simplification. The comparative comparison of proposed variants has shown the best results. We also find the best variants for the investor who speculates, and at the same time hedges against a slight or significant price drop. Our study confirms that this strategy formation using barrier options gives end-users greater flexibility to express a precise view. The results show that IVRPS strategy formation using barrier options is better than this option strategy formation using vanilla option in specific future price situations, but not in every practical situation.
DOI: http://dx.doi.org/10.5755/j01.ee.24.1.3505

PDF

Published

2013-02-12

Issue

Vol. 24 No. 1 (2013)

Section

ECONOMICS OF ENGINEERING DECISIONS

Social Sciences Citation Index (SSCI)

Journal Citation Reports (JCR)

IF – 2,5 (2023); Q2(Economics)

Clarivate Analytics

CiteScore – 5,2 (2023)

SCImago Journal Rank – 0,424 (2023)

SNIP – 0,756 (2023)

Scopus

INSTRUCTIONS FOR AUTHORS

Author's Guarantee Form

Instructions for Authors

Paper Template









Print ISSN: 1392-2785
Online ISSN: 2029-5839

Platform &
workflow by
OJS / PKP