



A trading strategy based on Callable Bull/Bear Contracts

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ARTICLE INFO

Article history:

Received 15 February 2008

Accepted 23 November 2009

Available online 4 December 2009

JEL classification:

G11

C53

Keywords:

Barrier options

Trading returns

Daily highs and lows

VECM

ABSTRACT

The Callable Bull/Bear Contract is a barrier options contract recently introduced to the Hong Kong market. In this study, we propose a trading strategy that defines the entry point and exit point using information on the contract's call price and mandatory call event. Using data on contracts based on the Hong Kong Hang Seng Index, it is shown that the proposed trading strategy, on average, yields some decent trading returns that vary quite substantially across individual trades. Exploratory analyses indicate that trading returns are associated with volatility observed during a contract's lifespan and, to a lesser extent, with volatility in the pre-issuance period. Further, an issuer's relative issuing frequency may bear some implications for the trading strategy's performance.

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1. Introduction

Derivatives play an important role in modern financial markets. Besides plain vanilla options, there are various types of exotic options contracts. The price and transaction information on exotic options contracts, especially of those traded over-the-counter, are not readily available. Recently, Hong Kong introduced an exchange-traded exotic options product named the Callable Bull/Bear Contract (CBBC). The CBBC is a type of barrier options contract. Its defining property is that the contract becomes worthless once a pre-determined trigger price, the call price of the contract, is touched. An empirical study based on this exchange-traded exotic options product is viable given its price and transaction transparency.

The current study devises a trading strategy that exploits the unique property of CBBCs and explores some determinants of the reported trading return.

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Specifically, the trading strategy is derived from signals that exploit the condition that the contract becomes worthless when the trigger price is reached. Because the early expiration of a CBBC is mandatory once the trigger price is touched, trading signals are based on the high and low, rather than, for example, the opening or closing, of the price of the underlying asset. If a trading signal is observed, the underlying asset is bought or sold, depending on whether a bull or a bear contract is under consideration. To this end, we use a vector error correction model to estimate the joint dynamics of highs and lows and to generate their predictions.

The empirical relevancy of the proposed trading strategy is evaluated by assessing its profitability using data on 1702 CBBCs traded in the cash market of the Hong Kong Exchange and Clearing Ltd. To anticipate results, the proposed trading strategy performs quite well – it generates an annualized average trading return in the range of 24% to 75%, net of transaction and interest costs. Nonetheless, returns from individual trades are quite variable.

In examining the possible factors affecting the trading performance, it is found that the reported trading returns are associated with volatility observed during a contract's lifespan. The result is in accordance with the design of the trading strategy. On the other hand, the volatility in the pre-issuance period displays a small and variable effect and, thus, indicates that its ability to forecast trading returns is weak. There is some evidence that an issuer's relative issuing frequency may bear some implications for the trading strategy's performance.

The remainder of this paper is organized as follows. Section 2 briefly describes the CBBC and states the trading strategy. The model used to generate the trading signal is introduced in Section 3. Section 4 reports the performance of the proposed trading strategy. Section 5 considers a few possible determinants of the reported trading returns. Section 6 concludes.

2. CBBCs and a trading strategy

The CBBC traded in Hong Kong is a single-barrier options contract. For a callable bull contract, the call price, which is the trigger price, is set either at or above the strike price. The Mandatory Call Event (MCE) occurs when the price of the underlying asset reaches the call price. When that happens, trading of the contract is terminated, the contract itself is called, and the holder of the contract is compensated according to pre-assigned terms. In the case of a callable bear contract, the call price is set either at or below the strike price. A detailed description of these contracts including information on issuers is available on <http://www.hkex.com.hk/cbbc>; the website of the Hong Kong Exchange and Clearing Ltd.¹

Based on the contract's characteristics, we devise a trading strategy that can be broken down as follows:

- Step 1 Construct forecasts of daily highs and lows for the underlying asset.
- Step 2 A buy signal is generated when the forecasted daily high is no less than the call price of a callable bear contract.
- Step 3 Buy the underlying asset when the buy signal is observed for m consecutive days.
- Step 4 Cover the long position when either the buy signal disappears for m consecutive days, the MCE occurs, or the CBBC expires.
- Step 5 If the position is closed before the MCE and contract maturity, then repeat Steps 2 to 4.

In essence, the strategy uses the call price and the MCE to define the entry and the exit points. A few remarks on the proposed trading strategy are in order. First, a sell signal is generated when the forecasted daily low is no larger than the call price of a callable bull contract. Steps 3 and 4 can be modified to accommodate a short-sell of the underlying asset.

Second, the method used to generate high and low forecasts and the way to identify a trading signal are discussed in the next section.

¹ On pricing barrier options, Merton (1973) provides an analytical formula for a down and out call option. Rubinstein and Reiner (1991) consider a variety of barrier options. Some recent studies include Ritchken (1995), Hui (1997) and Forsyth et al. (2002), among others.

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