Chapter 17
The Effect of Index Warrant Trading on the Underlying Volatility in the Post–Crisis Period

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ABSTRACT

The global financial crisis of 2007-2008 led to a sharp decrease in asset prices and increased volatility in financial markets. Before the crisis, warrant trading was often justified by assuming a more stabilised complete market and lower volatility. The Istanbul Stock Exchange introduced a warrant market and trading of ISE-30 index-based warrants in 2010. The chapter examines the impact of index-based warrant trading on the volatility of underlying ISE-30 index during post-crisis period of 2009-2011. The study employed a Generalized Autoregressive Conditional Heteroskedasticity (GARCH) approach. In order to scrutinize the influence of index warrant trading on the volatility of underlying, two GARCH (1,1) models were specified; one included the volume of index warrants in the conditional mean equation and the other included a dummy variable in the conditional variance equation. The results show that index warrant trading did not lead to lower underlying volatility over the post-crisis period.

INTRODUCTION

The global financial turmoil of 2007-2008 led to a meltdown and high volatility in asset prices. High volatility implies high risk and increased probability of high loss or gain in a short period (De Beer, 2008). In the aftermath of the global financial crisis, increased derivatives trading and leveraged risk taking have been considered as one of the main causes of the financial meltdown. As such, more regulation was proposed to end lax financial regulation of derivatives trading as a response to the financial crisis (Mason, 2010).

On the other hand, before the crisis, derivatives trading were often justified with complete market hypothesis and informational efficiency. Complete
markets refer to a system of markets which offer numerous products and the most flexibility in allocating funds and planning future contingencies (Flood, 1991). In this respect, introduction of a warrant market or other derivatives markets such as futures and options provide investors with an opportunity to allocate their portfolios in a more flexible way thereby making the markets less incomplete. Moreover, diversification of investments leads to a more efficient price discovery. Thus, prices reflect the information available to investors better in a complete market than in an incomplete market. In such a market informed investors act as rational arbitrageurs who trade with uninformed or irrational investors and by doing so they help prices move towards their fundamental values (Friedman, 1953). Moreover, irrational or uninformed investors would disappear from the market in the long run as they would lose money to rational and informed arbitrageurs. As such, more efficient price formation and a lower volatility are expected in a less incomplete market where both underlying and derivatives trading is possible (Clarke, 2007). Yet, in the literature there are mixed findings about whether derivatives and warrant trading result in a lower underlying volatility (Gahlot, Datta & Kabil, 2010). On the one hand, some researchers found evidence for higher post-warrant underlying volatility (Aitken & Segara, 2005). Ma and Rao (1988) illustrated higher volatility after derivatives listing because of the increased speculation in the derivatives market. In sharp contrast, Detemple and Selden (1991) argued in favour of efficient risk allocation, resulting in a decline in the spot price volatility post derivatives trading.

Warrant trading on the Istanbul Stock Exchange (ISE) markets was introduced with the expectation that the ISE markets would be more complete resulting in a more stable and less volatile spot market. Within this framework, the present chapter examines the influence of index warrant trading on the volatility of underlying ISE-30 index at Istanbul Stock Exchange. To do this, the study employs Generalized Autoregressive Conditional Heteroskedasticity (GARCH) methodology. The chapter is structured as follows: First, basic features of derivatives, options and warrants are introduced. Second, introduces the background for warrant trading on ISE markets. Section 2 includes the methodology and specifications of two separate GARCH models in order to capture the time varying volatility post-warrant trading. Section 3 presents the results. To anticipate, in the last section, it is inferred that volatility of the underlying 30 index does not decline post warrant trading.

BACKGROUND

Derivatives: Options and Warrants

A derivative is by definition a derived instrument based on an underlying. More specifically it is a contract between two parties whose conditions such as the dates, notional amounts, payments and pay-offs are specified based on the underlying of the derivative (Rubinstein, 1999; Hull, 2006). Forwards, futures, options and swaps are broad categories of derivatives whose underlyings can be but not limited to equities, foreign exchange, commodities, interest rate and indexes. Derivatives can be traded in exchanges or over-the-counter.

The focus of this chapter is warrants. A warrant is similar to an option in many ways. An option is a contract between two parties, which gives the right to the holder to buy or sell the underlying at a pre-determined price (strike or exercise price) on or before an expiration date (Pascucci, 2011). In this contract, the seller has the obligation to fulfill the transaction at the strike price. On the other hand, the buyer of the option gains the right to buy or sell the underlying at the strike price by paying the option premium to the seller. An option which entitles the right to buy is called a