The Informational Content of Indirect Real Estate Options: Evidence from Hong Kong

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Abstract:
There has been ample of research on the relationship between implied volatility of financial options and the realized volatility of the underlying stock. Empirical results on whether implied volatility contains information on future realized volatility are mixed. This study contributes to this area of research by analyzing the informational content of derivative warrants (financial options) of property companies (indirect real estate) in Hong Kong. Previous studies suggest there is a strong linkage between prices of indirect real estate and those of direct real estate. Therefore we have also included realized volatility of direct real estate in our analysis, which is a unique feature of this study.

Using a sample of listed companies with a relative long history of warrants listed on the Hong Kong Stock Exchange, we found that there is no obvious relationship between implied volatility and realized volatility of the underlying stock. This is consistent with results in previous studies. However, with regard to direct real estate, the informational content of implied volatility is different for the two broad category of indirect real estate, namely investment companies and development companies. Investment companies hold properties for investment purposes. Their major source of revenue is rental income. We found that implied volatility of warrant of investment companies contain future information of volatility of direct real estate. This result is expected since the financial market is more liquid and therefore changes in economic and political environment (such interest rate movements, changes fiscal and economic policies in Hong Kong and Mainland China) that are likely to affect the volatility of rental income will first be reflected in the warrant market.
The results are, however, different for development companies. We found that the implied volatility of development companies contains information about historical volatility of direct real estate. That is, the warrants of property development companies are priced based on historical volatility in the direct real estate market which is a less liquid market. This apparently counter-intuitive result can be explained by (1) the unique nature of property development risk and (2) developer’s pre-sale strategies.

The property developer has to bear development risk in addition to fluctuation in property prices. The sources of development risks come mainly from the uncertainty in obtaining approvals from various government departments. Furthermore, in many cases, there is also uncertainty involved in negotiating with different stakeholders and pressure groups. Development risk varies according to the nature and timing of the development project. In essence, development risks are unique and therefore historical events has little prediction power. Changes in the social and political environment in Hong Kong have further enhanced the uniqueness of development risk.

Part of the realized volatility of the development companies reflects development risk that may not be replicated in the future; therefore there is very weak relationship between implied volatility and the realized volatility of the underlying development company.

Another risk facing the developer is that of the risk of pricing their product in the first hand market. When developers sell their units in the presale market, they often face the problem of setting the right presale price that optimizes total profit. In the price searching process, the developers have to make reference to the current and historical prices in the second hand market. Therefore volatility in the first hand market often follows that of the second hand market. Since a developer's presales prices have a direct impact on its revenue, implied volatility of its options will therefore contain information on historical volatility of direct real estate.