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Tiivistelmä-Referat-Abstract <p>In this thesis we study the information content of the market's volatility expectations derived from options or implied volatility. The key idea of the thesis is that if markets are efficient and the pricing model used is correct, implied volatility should be an unbiased forecast of future volatility and contain the information in alternative volatility forecasts. Similarly deviations from unbiasedness or informational efficiency give possible indications on market efficiency and the correctness of the pricing framework used.</p> <p>The thesis consists of a theoretical and empirical part. The theoretical part introduces options pricing theory and explains how implied volatility can be calculated from the prices of traded options as well as reviews related empirical findings. We focus on the classic Black-Scholes model, which assumes a strict parametric structure for the stock price, as well as on the VIX index which is a practical implementation of the more flexible model-free implied volatility concept. Both Black-Scholes implied volatilities calculated from call and put options with different strikes and the VIX index are then used in the empirical part.</p> <p>The empirical part focuses on the actual information content of implied volatility calculated from Standard & Poor's 500 index options. First we study the explanatory power and possible biasness of implied volatility using a common in-sample regression specification. Then we move on to consider the actual forecasting power of implied volatility and whether this can be improved with forecasts created with a GARCH model. During the empirical part we focus especially on the differences in results when using implied volatilities calculated differently.</p> <p>We find that Black-Scholes implied volatilities calculated from out-of-the-money calls are unbiased forecasts of future volatility and also have a higher information content than especially at-the-money implied volatilities that have been preferred in the previous literature. Moreover the information content of the VIX index is also high, though not clearly higher than that of the best Black-Scholes implied volatilities. Finally, using GARCH forecasts with implied volatility seems to reduce forecast errors in all cases, though the reduction is not significant with the best implied volatility series including the VIX index.</p>			
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