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“The Impact of Loss Aversion and Market
Sentiment on Implied Volatility Skews”

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Abstract

The thesis “The Impact of Loss Aversion and Investor Sentiment on Implied Volatility Skews” examines how market participants’ behaviour influences the pricing of equity options. Option Pricing has historically been a purely neoclassical topic, however, articles which link option pricing to behavioural finance are becoming increasingly popular. More specifically implied volatility skews, representing a pricing anomaly with regards to the theoretical, neoclassical assumptions of most option pricing models, are in the center of the research. A first relation to behavioural aspects can be concluded by the fact that implied volatility skews have been observed as a standard pattern since the 1987 US stock market crash.

The standard argumentation to explain this anomaly is mainly based on shortfalls of the neoclassical assumptions within the standard option pricing models. Non-normal distribution functions, leverage effects and non-continuous trading markets which follow a jump diffusion process, can all result in distortions in the implied volatility surface. Furthermore, a limitation of arbitrage due to herding and the positioning of market participants also contribute to this inconsistency. The empirical study of the thesis is based on a deep knowledge of option pricing, option sensitivities and derivatives trading strategies. It applies behavioural finance theories to gather evidence on psychological impacts on options implied volatilities. The Prospect Theory, as one of the cornerstones of behavioural finance, lays the foundation for the argumentation about loss aversion and potential positioning of market participants in the option markets. Market Sentiment indicators are used as a proxy for potential loss apprehension.

The present thesis focuses on the European option market, whilst the limited research already conducted in this field focused on the US market. It reveals evidence of a relationship between market sentiment and changes in implied volatility skews. It hence supports findings that have been made in previous studies on the US market. Changes in market sentiments can therefore help to understand the mechanism that leads to changes in the slope of implied volatility skews. However, compared to previous studies which mainly focussed on the correlation between skew and sentiment, the empirical study of this thesis analysed the relationship not only in a general way. Due to the 10 year dataset it was possible to also analyse different market environments and leading/delayed dependencies. The thesis therefore contributes to the theoretical understanding of

derivatives markets but also adds a practical value in analysing the impacts of sentiment and market participants' positioning.

Keywords:

Behavioural Finance

Loss Aversion

Market Sentiment

Option Pricing

Option Implied Volatility Skew