

The liquidity of structured derivatives in Switzerland

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Prof. Dr. Alexander Wagner

Author: Alexander E. Wenzel
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EXECUTIVE SUMMARY

Problem description and situation

For market participants liquidity is one of the most important aspects when investing in structured products. High liquidity enables market participants to trade an asset with minimal transaction cost, no price impact and desired volume at any time. It is generally accepted that liquidity has three dimensions: Tightness, Depth and Resiliency as suggested by Kyle (1985). So far there is no single measure that captures all these dimensions. Usually measures of liquidity focus on one dimension such as measures of spread (Tightness), volume (Depth) or elasticity (Resiliency). But measures exist that incorporate multiple one-dimensional measures that therefore also quantify multiple dimensions of liquidity. Generally liquidity measures rely on a detailed set of trading data. In Switzerland quotes of market making have only been available since the fifth calendar week of 2009. As a result data sources are sometimes incomplete and the overall time-frame of the investigation is relatively short comprising 30 weeks and 142 trading days.

In 2008 market participants complained about the illiquidity of their structured products on the secondary market. Complaints included irregular quote availability, high spreads, low volumes and sometimes missing bid quotes. The market for structured products in Switzerland is quote-driven. Hence liquidity is dependent on the market maker. Also the market is quite diverse in terms of issuers, product categories, underlying asset class and composition type of underlying. In total there are almost 30'000 products issued by roughly 30 banks, in four product categories and underlying asset classes, and five possible composition types of underlying. A thorough investigation of liquidity shall determine variations in liquidity with regard to these categories. The results shall also highlight different qualities of market making in terms of liquidity and explain why such differences occur.

To date there have been many empirical investigations of liquidity. Mostly American stock markets are investigated with changing sets of liquidity measures. Hence levels of liquidity are usually not comparable among different studies and direct reference values of Composite Liquidity on derivative markets are therefore missing. To the knowledge of the author this is the first study exploring the liquidity of the Swiss market of structured products.

Procedure and structure of thesis

In the first part of the thesis the current literature on liquidity of financial markets and products is reviewed. There is vast literature available in general thus literature is filtered. Reviewed literature must use liquidity measures empirically and find determinants of liquidity. Based on theoretical research of literature and own considerations the hypotheses for the empirical part of the thesis are derived.

Next definitions and dimensions of liquidity are explored in depth. Several liquidity measures used in literature are discussed with reference to dimensions of liquidity, classification, applicability and expressiveness. The liquidity measures are introduced by focus on either one or multiple dimensions of liquidity. In the third section an adequate measure for the liquidity of structured products is derived: Composite Liquidity. The measure Composite Liquidity is set together by the Relative Spread in the numerator and Dollar Depth in the denominator. Composite Liquidity is derived in consideration of data availability, applicability and of course, expressiveness. Using Composite Liquidity the two important dimensions of liquidity Tightness and Depth are measured. Due to lack of data the dimension of Resiliency is not investigated in this thesis.

The core part of the thesis describes in detail variations of liquidity using the measure Composite Liquidity with regard to issuer, product category, asset class and composition type of underlying. The investigation of liquidity explores mean levels of liquidity and

variation of liquidity over time. In addition the author tries to find explanations for the variation in liquidity.

Lastly the determinants of liquidity are examined using an ordinary-least-squares regression. Control variables have been selected in accordance to literature and own intuition.

Results and Conclusion

Considering the mean level of liquidity great differences in liquidity can be observed among the selected categories. Product Category: Capital Protected are the most liquid, Leverage Products the least liquid products observable. In between but close to Capital Protected Products in terms of liquidity are Yield Enhancement and Participation Products. Underlying Asset Class: Interest Rate show highest, Stock as underlying the lowest liquidity. Liquidity of underlying Currency and Commodity is comparable to underlying Interest Rate. Composition type of underlying: products whose underlying are composed of multiple assets are more liquid than product with a single underlying. In fact Basket and Multi-Asset products are grouped very tightly in terms of liquidity, whereas products with underlying composition type Single and Index show much worse liquidity. Composition type Single shows the worst liquidity of all composition types.

Exploring the determinants of liquidity one finds that expected volatility and liquidity are positively correlated. That means that with increasing levels of volatility liquidity improves. In contrast to that there is a negative relation between interest rates, CDS premiums and liquidity. Thus increasing interest rates and deteriorating credit rating of issuer lead to worse liquidity. There is a positive correlation between stock market return and liquidity. On average increasing stock values lead to improving liquidity.