



University of Zurich

Swiss Banking Institute | Derivative Partners

Master Thesis

The liquidity of structured derivatives in Switzerland and its costs for investors

Claudio D'Amico

Zurich, 27.09.2010

Prof. Alexander F. Wagner, Ph.D.

Marc Arnold

Major Field of Studies: Banking & Finance

Executive Summary

Problem

Holders of structured derivatives frequently complain about the absent liquidity of their products on the secondary market. Under certain circumstances, investors are not able to step back from their financial engagements. Especially during hectic times, it appears to be complicated to trade these investments at appropriate prices. These days, there is a prevalent argument going on of how to measure, compare and quantify the liquidity of these products. Thereby, the vast repertory of liquidity proxies suggested by academic literature, the complex assembly of the investigated derivatives and their proper trading attributes demonstrate a real challenge for researchers. Next to the accurate measurement, another hurdle is given by the quantification of liquidity costs. While most of the known liquidity measures allow for a qualitative comparison among securities, only a few qualify themselves for the estimation of monetary costs with respect to liquidity. A measurement tool of this kind would be of great use by improving transparency and therefore restoring the tattered reputation of structured derivatives' markets.

Research objective

The present thesis is tracking various research objectives. On the one hand, efforts are focused on finding adequate liquidity measures that can be applied in the area of Swiss structured derivatives. Thereby, current academic approaches which vary in design and orientation are tested to assess the liquidity of the examined securities. Moreover, the analysis answers the question whether specific attributes of these products' underlying as their liquidity and their trading location have an impact on the liquidity of the proper derivative. Both investigations center on the Derivative Partners liquidity rating. Insights gained are used to express some basic contributions to its further development. On the other hand, the available text aims at quantifying the expected costs of immediate trading triggered by the different categories of Swiss structured derivatives. In this vein, the observed levels of liquidity are translated into monetary terms in order to demonstrate how liquidity affects investment value. Therefore, a practicable valuation approach is searched and implemented in the analysis. Subsequently, the estimated cost items are commented with respect to their absolute and relative magnitude.

Proceeding

At first, after a brief discussion on the basic principles of liquidity, both, a selection of diverse measures recommended by academic literature and the Derivative Partners liquidity figure, are applied on Swiss structured derivatives. With respect to different attributes as product category, underlying class and underlying composite, the securities are ranked by their pretended liquidity levels. In a next step, the effect of underlying liquidity and underlying trading location on single stock based structured products liquidity is estimated by multiple ordinary least squares regressions. Thereby, location and segment dummies, as well as trade-based liquidity measures, are implemented to gauge the presumed relationship with the Derivative Partners' liquidity figure. Finally, relative spreads are used to calculate the expected cost of liquidity in a trivial valuation setting in order to compare them with other empirical findings.

Results

The liquidity analysis and ranking demonstrates that an overarching liquidity measure does not exist. Due to the multi-dimensional conception of liquidity, an entire assessment requires the fitting of several, diverse oriented proxies. In the empirical analysis, strong evidence for the underlying trading location effect is found, suggesting higher liquidity for structured derivatives which comprise foreign underlying stocks compared to structured derivatives based on domestic stocks. Furthermore, statistical evidence for the existence of an indirect underlying liquidity effect is collected. Apparently, liquidity of structured products is negatively affected by an increase of the proper underlying's volatility. The occurrence of a direct underlying liquidity effect expressed through trade-based attributes of the underlying can only be observed at weak statistical significance. The expected additional costs of liquidity due to differences in product category estimated in this thesis amount to 12.8% of the initially invested capital.

By the majority, the Derivative Partners liquidity rating delivers persistent outcomes. Recommendations of improvement are given by the implementation of a trade-based subcomponent to encounter the possible lopsidedness. Further, the assumption describing a relation between the underlying's liquidity and the liquidity of the proper derivative should be clarified and tightened by more empirical reference. The use of bid-ask and volatility based indicators for underlyings, as well as other liquidity proxies for derivatives, is suggested. Finally, the observed sensitivity of the figure towards foreign underlyings should be considered since it could stand for an unwanted side effect of the figure's design.