

# **Executive Summary**

## **Background**

The absence of a market for residential real estate price risk which is accessible to households is a widely discussed topic. Suggested approaches in the academic literature are an individual insurance for households and a house price index based method with derivatives. The first method has the advantage of capturing all idiosyncratic risk, but has the disadvantage of being exposed to moral hazard and adverse selection. The second method circumvents these problems but the efficiency of the hedge depends heavily on the characteristics of the index.

## **Topic and Aim of the Thesis**

This thesis is concerned with the pricing of instruments for house price risks and the effects of residential real estate on portfolio characteristics. A special focus lies on mortgage financed households. Several authors mention that renters and wealthy investors could participate in a market for house price risk. A primary aim of this thesis is thus to analyse what effect the wealth of the counterparty to a homeowner has on the price of a hedging instrument for house prices. Considering the index approach, this thesis compares two valuation models for house price index based options and discusses the issues and implications of this method. Furthermore, the effects of owner-occupied housing on household portfolios is assessed with data from Switzerland. The thesis is structured as follows: The first three parts assess the relevance and history of the topic. In the fourth part, an equilibrium financial market model is used to price a security which resembles a put option on the house value. The fifth part is concerned with issues in the implementation of the index method and optimal portfolios in the presence of housing in Switzerland.

## **Methodology and Results**

To make housing comparable with other investments, most authors use a mean-variance framework. This thesis applies the same methodology. The results of the analysis in the market model are that the wealth of the market participants relative to the homeowners has strong effects on equilibrium security prices. If the counterparty to the homeowner is much wealthier, then the premium of the put option on the house price will be lower than if the counterparty has nearly the same endowments. The results of the mean-variance analysis are that renters would participate in a market for house price risk and act as counterparty for the homeowners. However, due to the consumption motive of housing, the portfolio of home-owning households is very risky. This thesis thus confirms the findings of previous research on this topic.