Executive Summary

Background

In 2011 the total amount of directly held real estate by Swiss individuals accounted for CHF 1'547 bn. A decrease in real estate prices of only 10 per cent would therefore destroy national wealth of CHF 155 bn. It is therefore indispensable to get an in depth inside of price determinates and market dynamics.

Previous literature on the Swiss real estate market analysed the effect of various determinants on property prices (Din, Bender and Hoesli (2001); Jud and Winkler (2002); Degen and Fischer (2009); Morger (2012)) or on the very low owner ship rate (Bourassa and Hoesli (2008); Nguyen and Shlomo (2009)). Further research adressed the rent control systems (Borowiecki (2011); Werczberger (1997)). However, no previous research has so far addressed the disproportional rental growth in different Swiss submarkets.

This analysis tries to fill this research gap. Identifying determinates causing disproportional growth can help to get a better understanding of the functioning of rental markets and to identify markets where the disproportional growth can be explained by market fundamentals.

Methodology

Based on previous research, market reports and observed price developments the research thesis was derived. The main objective of the paper is to investigate the following hypothesis:

> *There is a disproportional rental growth which can be distinguished in the submarkets of the Swiss real estate market.*

To answer the hypothesis a combination of methodology found in existing literature was applied. As the dataset included 72'000 observations of offered residential property prices spread from the beginning of 2009 to the end of 2012 across Switzerland a simple form of real option pricing was applied to project the prices to the end of 2012. With the concept of an individual binominal tree observation the price development from the observation date to the end of 2012 was modelled. Since the Swiss rental market is much more prominent compared to the ownership market, it was decided to conduct the analysis on the rental

market. By applying Poterba's (1984) concept of user costs rents could be calculated based on the time uniform property prices from above. UC represent the owner's cost for supplying a defined unit housing services which equals, the rental price of the housing service, while assuming an efficient market.

In a last step these rents were used in a cross regional regression model. The explanatory variables included in the model are published by the SNB and the Swiss Federal Statistical Office and are raised on a communal level. These variables are monitored for disproportional growth and cover the areas of demand, supply, available income, location and macroeconomics. Additionally regional and temporal dummy variables were included to account for disproportional rental growth which could not be explained by the above explanation.

Results

With the methodology from above a disproportional growth between submarkets could be identified. Demand variables yielded the highest contribution to differences in rental growth in different submarkets. The largest effect is therefore accounted to a 1 per cent increase in international migration which is associated with a rental growth of approx. CHF 30 / sqm p.a. whereas a 1 per cent growth of the permanent residential population increases the rental level by CHF 0.2 / sqm p.a. Supply variables show the second largest effect on cross regional growth rates, of which a difference in the vacancy rate has the largest effect. An increase in vacant apartments from 1 per cent to 1.5 per cent is associated with a rental decrease of CHF 6.8 / sqm p.a. Following demand and supply variables financial variables, captured through disposable income, yielded an effect size of 3.81 if the income increased by 1 per cent. On the other hand variables which reflect the attractiveness of the local labour market or the location resulted in very low and partly no significant elasticity. An increased mobility and the separation of workplace and residential community can partly explain these low results.

With the introduction of cantonal dummy variables the overall share of explained variance (R^2) was additionally be improved. These variables were checked for differences among submarkets that could not be explained by the fundamentals included in the model. Dummy variables for the canton of Geneva, Vaud, Solothurn, Basel Land and Bern yielded a

significant difference. Therefore the rental level in Geneva is on average CHF 280 / sqm p.a. higher compared to the base line group. These areas are often referred to as overheated real estate markets (Holzhey and Saputelli (2013)).

Concluding remarks

The model yields an overall comprehensible result. However, results have to be interpreted carefully and further research has to be conducted to increase the reliability.

By applying the first order condition of Poterba's UC concept real estate markets are assumed to be efficient and any distortions or any market interventions are absent. With rent control systems elaborated by cantonal authorities the assumption of efficient markets is not met. Since these control systems prevent a rent adjustment caused by market forces these distortions need to be quantified and included in further analysis.

Another factor which has to be considered in future research is the price level of building plots. With a constant plot ratio the rental level will be increased if building plots are above average. However no land price database is available and variables like the ratio of building plots compared to the overall community area can server as an approximation. Additionally the number of regional dummies can be increased to reduce SE in the clustered model and to identify the areas with disproportional growth more precisely.