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## THE ECONOMIC PERSPECTIVE OF THE CHANGES IN COST OF CAPITAL ON THE BEHAVIOUR OF REAL ESTATE PRICES

Abstract. The paper deals with the impact of the interest rate policy of the European Central Bank on the cost of houses in Germany. The European Central Bank's interest rate policy has a significant influence on the cost of capital for consumers in connection with the banking system in Germany. Consumers obtain their foreign capital directly at the European Central Bank, consumers go for loans to their local bank. The banks borrow money from the European Central Bank or Park surpluses with her. The cost of lending by the European Central Bank on the banks is described in the base rate of the European Central Bank. The development of the federal funds' interest rate has thus the significant indirect influence on consumer credit interest rates and on the cost of capital for consumers with larger investments. This article describes the effect of the low capital cost (interest) of the European Central Bank on the impact of the price of the residential property. The report analyses the cost of capital, income, and the development of real estate prices. She will prove that of in Germany despite low-interest rates by the European Central Bank with regard to rising incomes, are not significant in the real estate price increases market. Despite low-interest rates of the European Central Bank, one can speak of a real estate bubble in Germany. Real estate has so far not led to capital flight in the form of investments. The investigations relate to statistical evaluations of the year 2008 (2010) until the end of 2017 and take account of to take into account the average price development in whole Germany. In some urban centres such as Frankfurt am Main, Berlin, Hamburg or Munich prices differ from the statistics here political missteps but are the reason for the price increases and are not included in the analysis. The investigation is very important for the planning of real and well-formulated marketing activities for all staff and decision makers in the marketing. Only if the marketing can assess the mechanisms of monetary policy, the effect of increasing or decreasing the cost of capital and the development of real estate prices, the right incentives in marketing can be used. The analysis also provides an insight into the statistical calculation of key figures. Finally, the analysis provides an Outlook for the demand for future research on the effects of borrowing costs on human behaviour. As a result, the study is also interesting for other players in the real estate market and the State institutions.

**Keywords:** lifecycle of financialization, debt-deflation theory, key interest rate, residential property, income growth.

**Introduction.** European Central Bank, skyrocketing real estate prices, income development, zero interest rate policy, banking crisis, debt – all are general keywords (flashing lights) which we encounter every day in radio, television and all other media. Mono-causal considered all these reports are correct. Dependencies between the individual facts arise in the whole complex of a complex economic system and a complex society. The article presents the European Central Bank's interest rate policy, income growth and the evolution of real estate prices in Germany in a causal relationship. The dependencies between the individual facts are quantitatively analysed and processed. The article explains the interrelationships and dependencies of the complex economic system in Germany. In 2006, a sudden price collapse begins after a long rise in real estate prices in the United States. Bankruptcies of homeowners and loan losses of banks are the result of price burglary. Up to 2008 the equity many banks will be reduced because of the credit considerably, the Bank Lehman Brothers is a well-known victim in insolvency. Only massive interventions of the U.S. National Bank (the FED) can prevent a collapse of the entire financial system. The current financial crisis he and 90 ´ finished a long-sustained prosperity of the world economic system, caused by some massive deregulation and liberalization in the 80´ the years.

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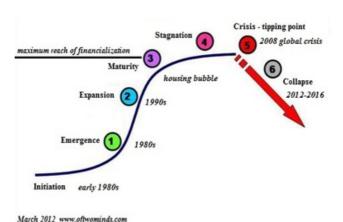


Figure 1 – Lifecycle of Financialization

Sources: Hugh-Smith, C. (2012)

The financial crisis in the United States raises a financial crisis due to a high degree of complexity, interdependence, and economic inequality in Europe. In the capitalist economy, different innovation processes and cyclical fluctuations lead to short-term fluctuations in demand in the market and in the labour market. According to J.M. Keynes (Keynes, 1937) has the Central Bank operate an expansionary monetary policy and the State increase spending, to prevent the emergence of a mass unemployment. For Krugmann (Krugman, 2012), these State measures should certainly lead to success, the economists I. Fischer (1933) and H. Minsky join (1986) thus, stating that a looming foreign-financed spending reduced demand on the market and the labour market can counteract. The historical contexts are described in the so-called Keynes Minsky momentum (Minsky, 1986). Baecker describes that again the capital market has passed by in the past two decades on companies have become too powerful and the capital market rushes to help companies where there is capital in abundance (Baecker, 2006). The situation flips suddenly after an expansionary phase in many households on credit at low but short-term interest rates, have invested in real estate. Houses prices are falling, interest rates for loans rise sharply. The banks give the homeowners no follow-up funding, so that stops the flow of money into the market.

There are other cases out of the loans. The real estate prices commute negatively and positively to the value of the real property. The following image illustrates this situation. Fisher (Fisher, 1933) describes in his essay Dept-Deflation theory (figure 2), that in deflation and debt continues to rise.

The set of Karl Marx: "the money is the value of all things General, itself constructed for themselves. It has robbed therefore the whole world, humanity as nature, its peculiar value. "The money is being his work and his being, alienated the people and these alien beings dominated him, and he prays it's." makes it clear that uncontrolled price fluctuations dramatic implications for the stability of economic systems and people can have (Marx, 1887).

Analysis of recent research and publications. In the current news, the current media and accessible publications are often relatively one-sided and polemic about the policy of the European Central Bank, which reported the development of interest rates. Are just so one-sided reports on the development of the supposedly rising real estate prices in Germany.

It does appear as interest groups initiated the reporting on both topics. But a closer look and embarks on the search for background information and further reading opened up this (incomplete) list of publications on these two topics. The history of international payments is specifically in the article by Bollen and examines its current role and scope (Bollen, 2007). More recent publications can be found at Eck

(Eck, 2018), at Gröbel (Gröbel & Hiller, 2017), at Ruščáková (Ruščáková & Semančíková, 2016) and at Sobolewski (Sobolewski, 2016).

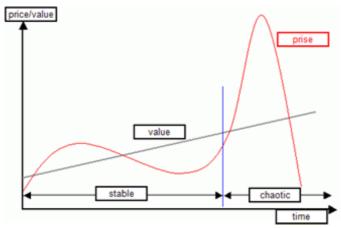


Figure 2 - Dept-Deflation theory

Sources: Singer, K. G. (2013).

Research method – Quantitative. For this analysis, a quantitative research process is applied. Already, theories, models, or data series must be at the beginning of the investigations. The Federal Statistical Office of the Federal Republic of Germany provides these data series for the public on its website. Based on this data, the hypothesis is deductively derived. The hypothesis is validated in the research process. To test the hypothesis, an operationalization occurs means that the measurement results and the hypothesis are observed and compared. No separate data series are collected to the evidence, there is recourse to existing data of the Federal Statistical Office of the Federal Republic of Germany. The data are evaluated by comparing the percentage of the respective development of the data series. Finally, will tower over the secured information on the model and interpreted.

Hypothesis. The ECB aimed their activities with low-interest rates only on stabilizing the financial market. Their current actions that aimed to protect endangered assets and is trying to counter a reduction in the profits of the companies, to stimulate investment. Because of these activities remain the prices of consumer goods at a low level, but at the same time, also a depreciation of the assets of savers is made. While the ECB goes further than the market interventions described scientifically by Keynes. Due to massive purchase programs and drastic cuts in interest rates, the competition of the market is overridden. Through government subsidies and intervention in fiscal policy, a free market economy is converted into a State economy (Pauly, 2015).

Because of these massive interventions, especially the non-financial assets (such as real estate) are affected, I set up the hypothesis, that of in a row of cheap money in the real estate market in the period from 2010 to the end of 2017 to demand-driven Price increases have occurred.

Quantitative investigation of the wealth effects on the real estate market in Germany. The ECB's monetary policy has inevitably helped to increase the value of assets such as stocks and especially real estate. This, however, does not automatically lead to a greater inequality of income and wealth. Subsequently the historical development of the federal funds' interest rate attempts, the development construction interest rates of the banks for the end customer, the price indexes for auto-use residential property and income growth (gross earnings of all industries) to make (Gröbel & Hiller, 2017). McLeay

descript how the majority of money in the modern economy is created by commercial banks making loans. Money creation in practice differs from some popular misconceptions-banks do not act simply as intermediaries, lending out deposits that savers place with them, and nor do they "multiply up" central bank money to create new loans and deposits. The amount of money created in the economy ultimately depends on the monetary policy of the central bank. In normal times, this is carried out by setting interest rates. The central bank can also affect the amount of money directly by purchasing assets or "quantitative easing" (McLeay, Radia, & Thomas, 2014).

Data analysis techniques. The observation of mass phenomena, such as statistical surveys, a wealth of data is always, that must be summarized inappropriate way to facilitate their presentation and analysis or to make possible. The prerequisite for this is the existence of binding divisions of observed economic, social or other facts. Such mandatory subdivisions are called classifications or also nomenclatures or classifications. Different classifications are being developed for various questions. In part, different classifications exist for the outline of some kind of facts, for example, of goods, designed according to the respective survey purpose. So, the combined nomenclature, as well as the freight for production statistics, capture in essentially physical products, due to different usage and analysis purposes but in other divisions. In the interest of a deployment of internationally comparable statistical data classifications used in national statistical surveys now frequently, which are binding on international or EU-wide guidelines build or it even directly international classifications used. (Eul, 2014)

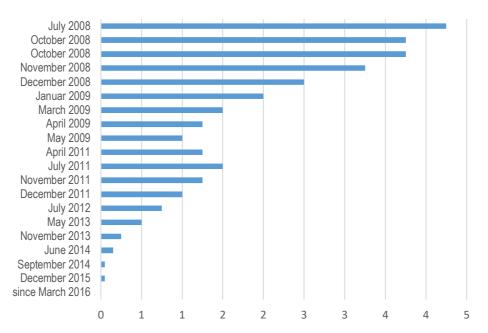


Figure 3 – The historical development of the ECB interest rate of the main refinancing operation until 2016, %

Sources: EZB, 2018.

The historical development of the key interest rate. This statistic shows a time series to the development of the interest rate of the European Central Bank (ECB) (figure 3) for the main refinancing

operation from 1999 till 2018 (Status: January 2018). The listed data refer to the day of validity of the interest rate. Since 16 March 2016, an interest rate fixed by the ECB applies the main refinancing operation from 0 per cent.

The instrument of main refinancing commercial banks in the form of Weekly Standard bidding and award process (standard tenders) provides a way to short-term liquidity (run-time: 1 week). The main refinancing operations are the most important monetary policy instrument of the ECB, with whom she controls the money supply interest rates and the liquidity in the money market and signals are about their monetary policy stance. Because of its importance, the minimum interest rate set at these open market operations bid (also main refinancing rate) is often also called base rate of the ECB. The base rate of the ECB reduced 2010 viewing year from 1.25% to approximately 0.0% in 2017.

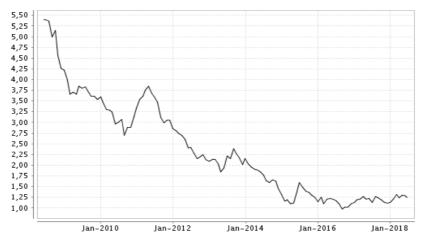


Figure 4 – The development of the lease of the banks for the end customer

Sources: Utecht, J., Mohr, M., & Peeters, T. (2018).

The financing interest is a decisive factor for the housing markets. Same income, a household with low-interest rates will be able to finance a larger or better, flat as high financing interest rate. This extra demand can be either existing properties or new buildings. Both are possible both for their own use or as an investment, residential real estate is not only consumer goods, but also capital goods (Just, 2017). Of interest rate changes based on the interest rates of the condition deals of INTERHYP AG were offered during the selected time period within the framework of a negotiation of a loan contract. Despite selected care, no liability can be assumed for the representation, as depend on interest rates for consumers by further criteria and the personal circumstances of the person concerned.

Compared to the previous chapter base rate of the ECB presented is clear that interest rate cuts for consumers are very delayed and non-linear passed on to the end customer. However, it is clear that the cost of foreign-funded real estate acquisition of the examination year 2010 has fallen by approximately 3.5% to 1.25% in 2017.

The price indexes for self-use residential property. Residential real estate is a one-time purchase for many people in your life. Apartments satisfy the urge for self-fulfilment. Real estate also is very durable and wise at the same time consumption as well as investment properties. These characteristics are reflected in the factors determining housing demand. After just evidence that real estate is an economically normal income-elastic performance speaks (Just, 2017). It first examines the price developments itself

used real estate. The homes price index reflects the price development of residential real estate, where the building including the land as a "Total package" is sold. For this purpose, all typical market transactions are included of condominium and semi-detached houses. This includes both the acquisition of newly created as also the purchase of existing residential real estate, regardless of the type of the acquiring or the selling, regardless of the intended use (internal use or rental). The data used for calculating transmitted in secure online communication channels by the expert committees for land values, which in turn get knowledge about buying cases by the notaries, to the Federal Statistical Office. The four sub-indices for condominiums, new and used as well as new and used one – or two-family homes are determined by means of a procedure, where the inner and outer values of the property assessed (hedonic), missing data are used in the Data matrix completes (imputation).

The self-use residential property price index measures the average prices for new, used by the owner himself residential buildings (one – and two-family homes) and apartments, as well as the expenses incurred with the acquisition or ownership of residential property. The acquisition of residential property includes direct acquisition as the ancillary purchase costs (such as brokers, real estate transfer tax). The direct acquisition of residential property is divided into the sub-indices in turn turnkey on the one hand and equity building, precast construction and reconstruction on the other hand. Ownership of residential property, the components are considered maintenance, insurance and property management.

As the base year, the year 2015 with 100% was applied in figure 5. The price index for auto-use residential property has grown in the period c. 87% in 2010 to about 106%. The values shown are averaged over all of Germany. Different considerations in urban centres and prestigious residential areas were not included in this statistic, because mostly the political decision-makers spot in consequence of misguided and not demand building policy as causing exorbitant price increases are to be. Overheating of the prices for real estate, a bubble cannot be derived from the available data (Destatis, 2015, 2016, 2017, 2018).

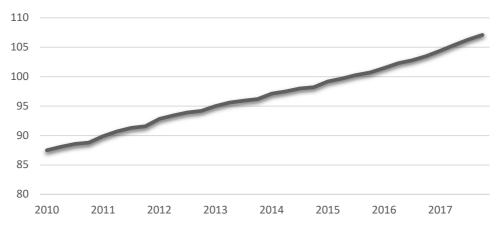


Figure 5 - Price indexes for auto-use residential property, 2015=100

Sources: Destatis, S. B. (2018).

**Income growth (gross earnings of all industries).** Looking at alone all additional services which own real estate of brings the owner with it, is evidence that it is a normal economic, income-elastic power. rising incomes are typically qualitatively and/or quantitatively higher demand (Just, 2017). Income growth in Germany is therefore statistically regarded as another step. The income and consumption sample (ICS)

is an important official statistic on the living conditions of private households in Germany. It provides statistical information about the equipment with household goods, income, assets and debts, as well as the final consumption expenditure of households. Included are the households of all social groups, so that the ICS almost draws a representative picture of the situation of the total population in Germany. The results of the ICS form an important data basis for the poverty and wealth reporting the Federal Government, as well as for the assessment of the rule set relevant consumption within the framework of the basic allowance. Used the results of the EVS on the final consumption expenditure of households for the realignment of the weighing scheme of consumer price statistics in the system of official statistics and serve as a database for the using statement National accounts. The ICS is carried out in close coordination and cooperation between the Federal Statistical Office and the statistical offices. The organizational and technical preparation is the Federal Statistical Office, while the recruitment of households and their survey is the responsibility of the country offices. The survey processing and Central results analysis, in turn, is carried out by the Federal Statistical Office.

The ICS is carried out every five years. A legal obligation to participate in does not exist, that is to say, on a voluntary basis, all households participate in the ICS. Around 60 000 households in Germany within the framework of ICS are interviewed, including approximately 14 000 households in the new federal provinces and Berlin. The ICS is the largest survey of its kind within the European Union. The ICS is a quota sample, that is to say, all households are selected according to a predetermined rate schedule and questioned. The population of households is thereby divided into groups on the basis of certain characteristics of the quota. The rate as the number of households to interviewee is given for each group. Due to a large number of households and the variety of plausibility checks performed during the treatment, the results obtained from the ICS exhibit a high degree of accuracy and reliability. Ensure representative results for almost all households obtained by taking account of all social groups given by rate plan and the extrapolation of the results obtained on the current micro-census. Only for persons in community shelters and institutions, no information can be obtained from the ICS, since they are not accounted for in accordance with the used household term. Also, the ICS provides no information for households with a monthly household income of EUR 18 000 or more, since they usually not so sufficient number in the survey participants, that secured statements be made about their living conditions can. As the base year, the year 2015 with 100% was applied in figure 6. The index of gross earnings in Germany of all sectors of the economy has grown in the period from c. in 2010 up to 107% to 88%.

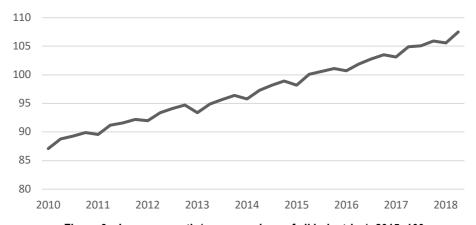


Figure 6 – Income growth (gross earnings of all industries), 2015=100

Sources: Destatis, S. B. (2018); Preise. Baupreise und Baukosten 2017.

The values shown are averaged over all of Germany. Therefore, the statistical income development runs in the period almost parallel to the increase in the price index for residential property. This has resulted in an absolute price increase for real estate is that relatively more to the real estate but not increased. (Destatis, 2018; Gröbel & Hiller, 2017)

**Conclusion.** Germany has a very low rate of home ownership with 45 per cent. Especially the 40 per cent of people who have no savings – so neither a home nor financial assets, have here no wealth effects can benefit from. On the contrary: the real estate values have resulted in increases, what strain then especially the tenants and tenants, so usually people with no or low asset and income and reduced their standard of living. The ECB's monetary policy expropriating the savers and depositors, and she thus increase inequality. Given the fact that you get hardly any interest on his savings account because the ECB policy, this claim at first glance seems plausible.

The present analysis shows that has the inequality in wealth and income in Germany does not increase the monetary policy of the ECB but reduced. The policy makes the ECB vice versa a scapegoat for their own mistakes and shortcomings. A detailed analysis would be important to show not only the costs and risks, but she thoroughly weighs against the benefits of the expansionary monetary policy. However, a detailed analysis would exceed the scope of this assignment many times.

An honest analysis must distinguish between the financial effects, so the effect on the interest income and assets, and the macroeconomic effects, so the impact on employment and labour income. The low-interest-rate policy, the ECB's bond purchases have reduced the interest income through lower interest rates on safe assets, such as savings accounts and Government bonds. At the same time, they have increased yields but relatively riskier assets such as stocks and real estate. On the findings, many more research projects can be derived, in the framework of this work only on the input-based hypothesis reference is made (Arnold & Hertweck, 2017).

Many other writers have grappled with the effects of the interest rate policy of the European Central Bank (Roman & Bilan, 2012), (Ruščáková & Semančíková, 2016), (Sobolewski, 2016). For Germany can well demonstrate a significant correlation between the level of disposable income in a region and the respective amount of the House – and apartment prices (Just, 2017).

A comparison of the evaluation of itself used residential property prices and the statistical income shows graphically the almost same increase. Both graphs start in 2010 with a rating of about 87 and end in 2018 at an index of approximately 107. The graphs are therefore almost parallel. In other words, with a statistical probability of relative income and building a constant increase in prices rise index. Effects of low-interest rates must be on side of real estate prices, nor on the income side. On the hypothesis that it came in consequence of cheap money in the real estate market in the period from 2010 to the end of 2017 to demand-driven price increases, cannot be confirmed on the basis of the available data.

Selection of outstanding issues. The present study provides results from the influence of borrowing costs on the development of real estate prices in Germany, the income will be used as a reference over the studied period. Future research could examine the influence of lower cost of capital on the development of rent in Germany. Here, parts of this study, the income developments, as a reference to the social wealth can be used.

Further research could examine whether low borrowing costs are an appropriate incentive system for the creation of housing for rent or be ineffective. Finally, should be explored, constitute what long-term consequence low borrowing costs for the social assets of private households. This study provides thus making a contribution and an impetus for further research on the economic impacts of changes in the cost of capital on human behaviour.

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## *Д. Зверенч,* компанія Doka Schalungstechnik GmbH (Німеччина), Університет Капошвар (Угорщина). **Економічний вплив зміни вартості капіталу на ціноутворення на ринку нерухомості**

У статті досліджується вплив політики Європейського центрального банку на коливання відсоткової ставки на ринку житлової нерухомості Німеччини. Відсоткова політика Європейського центрального банку має значний вплив на вартість капіталу для споживачів, що пояснюється особливостями банківської системи Німеччини. Так, споживачі отримують іноземний капітал безпосередньо від Європейського центрального банку, оскільки беруть кредити у місцевих банках, які запозичують гроші з Європейського центрального банку. Вартість кредитування Європейського центрального банку визначається його політикою щодо базових процентних ставок. Тому політика щодо розміру процентних ставок федеральних

фондів має непрямий вплив на ставки споживчого кредитування та вартість капіталу інвесторів. У рамках даного дослідження автор аналізує взаємозв'язок між низьким рівнем відсоткових ставок Європейського центрального банку та цінами на ринку нерухомості. У якості змінних автор розглядає: вартість капіталу, рівень доходів та цін на ринку нерухомості. Результати розрахунків свідчать, що незважаючи на низькі відсоткові ставки Європейського центрального банку та зростання доходів населення, зростання ціни на ринку нерухомості є несуттєвими. Незважаючи на низькі процентні ставки Європейського центрального банку, отримані результати свідчать про наявність ефекту «бульбашок» на ринку нерухомості Німеччини. Автор зазначає, що поточний стан ринку нерухомості поки що не провокує збільшення відтоку інвестицій з даного сектору. У статті аналізується період з 2008 по 2017 роки, при цьому враховується середній рівень цін у Німеччині. Автор зазначає, що у деяких містах (Франкфурт-на-Майні, Берпіні, Гамбург або Мюнхен) середній рівень цін суттєво відрізняється від середніх по країні, тому дані міста були вилучені з аналізу. Результати даного дослідження можуть бути корисними та використані при формуванні маркетингової політики на ринку нерухомості. Так, необхідною є оцінка ефективногі механізму поведінку на ринку нерухомості з метою визначення ефективного набору стимулів з точки зору маркетингової політики. Результати доспідження можуть бути використані як основа для прогнозування рівня попиту та поведінки споживачів на ринку нерухомості.

Ключові слова: життєвий цикл фінансування, теорія дефляції, процентна ставка, житлова нерухомість, зростання доходів.

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