Czech University of Life Sciences Prague

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Diploma Thesis

Spanish Real Estate Market Analysis

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DIPLOMA THESIS ASSIGNMENT

Yulia Melnikova

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Thesis title

Spanish Real Estate Market Analysis

Objectives of thesis

The main aim of the work is to evaluate real estate market in Spain using a proper methodology and provide an investment analysis. The work includes market review, evaluation of the major impacts which have essential influence in this field and determination of the main prospects of the real estate market in Spain.

Methodology

The work consists of two parts. The first part is a theoretical section which is based on literature review. The main types of the methodology which are essential for this part are methods of deduction, induction and extraction.

The second part of the work is a practical and analytical part. The major types of the methodology which are used for this part of the work are methods of correlation, regression analysis, statistical analysis and numerical methods.

The proposed extent of the thesis

60 pages

Keywords

real estate, property market, tourism economy, incoming tourism, recreational properties

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Recommended information sources

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Declaration

I declare that I have worked on my diploma thesis titled "Spanish Real Estate Market Analysis" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any their person.

Prague, 29th March, 2016 _____

Yulia Melnikova

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Analýza Španělského trhu nemovitostmí

Souhrn
Na začátku 21 století, realitní trh rezidenčních nemovitostí ve Španělsku považován za jeden z nejoblíbenějších a rychle rostoucích trhů s nemovitostmi v Evropě, který přilákal velké množství investic do země, a výrazně přispěl k rozvoji národního hospodářství Španělska. Nicméně, vzhledem k hospodářské krize v zemi, kolaps rezidenčních nemovitostí byl významný. V současné době, španělský trh s nemovitostmi na trhu rezidenčních nemovitostí se zotavuje z recese na předkrizovou úroveň, protože ceny rezidenčních nemovitostí začali zvyšovat vzhledem k vysoké poptávce po něm. Všechny tyto faktory pozitivně ovlivňují národní hospodářství Španělska.
Za účelem získání hlavního cíle této práce je nutné provést retrospektivní přehled o trhu rezidenčních nemovitostí ve Španělsku před krizí a zajistit příznivou analýzu aktuální situace na trhu rezidenčních nemovitostí.

Klíčová slova:
Nemovitost, trh s nemovitostmi, rekreační objekty, tržní segment, ocenění nemovitosti, analýza, rezidenční nemovitosti, Španělsko, trh s bydlením, krize, hypoteční úvěry.

Spanish Real Estate Market Analysis

Summary

At the beginning of 2000-ies the real estate market of residential property in Spain considered to be one the most popular and fast-growing real estate market in Europe, which attracted a great number of investment into the country and thus contributed greatly to the development of the national economy of Spain. However, because of the economic crisis in the country, residential real estate market collapsed significantly. At the present time, the Spanish real estate market of residential property market is recovering from the recession to the pre-crisis level as the prices for residential real estate property has started increasing due to the high demand for it. All this factors positively affect the national economy of Spain.

In order to obtain the major aim of the thesis, it is crucial to conduct a retrospective overview of the residential real estate market of Spain before the crisis and provide a beneficial real estate market analysis of the current situation on the market of residential property.

Keywords:

Real estate, property market, recreational property, market segment, property valuation, analysis, residential property, Spain, housing market, crisis, mortgage credits.

Table of content

1 Introduction

At the present time real estate sector is one of the most important sector which contributes greatly to both world economy and national economies of the countries. What is more, total share of this crucial sector in the national economies of some countries is very significant and currently it is even keeps on increasing and dominating taking over shares of other sectors of the economy. Real estate market has much in common with other types of economic markets, but at the time it has its own crucial characteristics which are very important for its further analysis. In addition, real markets of many counties also differ each other, and what is acceptable for one particular real estate market segment cannot be applied to another one.

The second aspect which is worth mentioning for real estate analysis is to determine the type of real estate market according to the type of real estate property: residential, commercial, recreational, etc. And each of them has also its particular features

Real estate sector is a very dynamic field of the economy, and in order to promote its growth in the future, it is important to take into account a great number of factors which have a considerable impact on it and provide the further proper real estate analysis with the best results.

It goes without saying that currently Spanish real estate market is considered to be one of the most popular and fast growing real estate market among other both World and European markets of real estate property. Spanish real estate is very attractive for foreign buyers who want to invest their money to property in other counties. *The most fast growing and popular segment of real estate property in S*pain is the real estate market of residential property. Its part in the total foreign investment flowing to Spain is very considerable.

The Spaniards understood that the territory of the country, its warm climate and numerous tourist attractions can bring can bring income to the national economy. And it was the beginning of the so-called "Spanish property boom".

In places with the most favorable climate conditions for living and recreation, such as Barcelona, Valencia, Cadiz began to build more new hotels and residential property, which were largely intended for sale to foreign buyers.

The global financial and economic crisis of 2008-2009 severely impacted the economy of Spain and caused a significant impact on economic growth, unemployment and a state budget deficit also increased greatly.

It goes without saying, that until 2008 the Spanish economy was one of the most dynamic among European Union and had the ability to attract significant foreign investment in a potentially lucrative domestic market. GDP per capita was closer to the levels of France and Germany, accounting for almost 35 thousand USD per capita. The service sector dominated in the structure of the economy. In addition, international tourism came in second place in the world (after the U.S). The level of construction increased considerably. Spain received an influx of immigrants from other EU countries who were attracted by lower prices for food and housing and favorable mortgage terms in comparison with other states. Immigrants from developing countries became the source of a cheap labour. This fact contributed greatly to construction of a great number of housing, mainly residential real estate property.

The problem was that, in fact, before the global financial crisis, the population of Spain had been living for the last decade mainly by means of domestic and external loans. With the beginning of the crisis, a massive issuance of mortgages caused the situation when the so-called "housing bubble" on the real estate market of residential property busted: supply of residential real estate property considerably exceeded the demand. Bankruptcy of construction companies and a sharp decline of consumer crediting followed.

It goes without saying that the economic crisis in Spain has affected real estate market of residential property significantly. In order find the solution to this problem, the Spanish government took measures due to which real estate market of the country started recovering. The process of overcoming the crisis has become very complicated, but still the situation has changed for the best. And at the present time the real estate market of residential property in Spain keeps on recovering and shows a stable growth. Some real estate market segments have reached the pre-crisis level. A great number of specialists consider that the growth trend on the real estate market of residential property will be continuing in the future.

In order to provide a proper real estate analysis of residential property in Spain, it is necessary to complete the following goals:

• To provide a retrospective overview of the real estate market of residential property in Spain before the crisis;

• To determine the causes of housing bubble on the real estate market of residential property in Spain;

• To determine the major causes of the crisis on the real estate market of residential property in Spain;

• To evaluate the main consequences of the of the crisis on the real estate market of residential property in Spain;

• To provide an analysis of the current situation on the selected real estate market segments of residential property in Spain;

• To determine future perspectives of the residential real estate market in Spain.

2 Objectives and Methodology

2.1 Objectives

The main aim of the diploma thesis is to evaluate real estate market of residential property in Spain using a proper methodology. It is important to conduct a retrospective overview of the Spanish real estate market of residential property before the world financial crisis and provide a beneficial real estate market analysis of the current situation in Spain. The final objective of the diploma thesis is to determine major prospects of the selected real estate market segments in Spain in order to evaluate the factor influencing these market segments the most.

2.2 Hypothesis of the research

The main hypotheses of the diploma thesis are the following:

1) Real estate market of residential property in Spain has been affected by the economic crisis;
2) Real estate prices for residential property differ among the selected real estate market segments of Spain significantly;
3) Spanish real estate market of residential property has recovered to the pre-crisis level.

2.3 Methodology

The major tool used for the theoretical part of the thesis is the qualitative research which is based on the literature review using methods of synthesis and analysis. Primary information is collected from books, publications, official statistical data of Spain, real estate reports. For the analytical part of the research comparison analysis was used for identification and comparison of largest real estate market segments in Spain. Sector analysis is used for evaluation of the distinctive features of the Spanish residential property market, its development, current situation and main impacts influencing this market the most. Regression analysis is used to evaluate the largest real estate market segments of residential property in Spain and determine the factors which have the significant impact on the residential property market through the construction of regression models and its estimation.

3 Real estate and real estate market

3.1 Real estate market: concept, market actors, legislative framework

Market is a set of subjects of relations and the exchange of goods and services (sellers, buyers, brokers) and socio-economic relations between them; set of current and potential buyers of the goods; the scope of the exchange of goods of a particular type in a particular area. Real estate is a special commodity, because its characteristics are not typical of other commodities (such as a well-defined location). The real estate market is a set of relations around operations with real estate (sales, purchase, valuation, rent, mortgage, etc.). (Gromkov, 2011)

The main features of the real estate market are: the local character of the real estate market (reducing the number of possible transactions for a specific location); the uniqueness of land (implies a difference in prices); low liquidity of real estate as compared to other products (due to the need to involve legal institutions in transactions); mismatch high prices and the financial capacity of buyers, which requires the availability of credit in most cases; variation in prices due to incomplete knowledge of buyers and sellers. (Ivanova, 2011)

By functional purpose of objects of the real estate market is divided into four main components: the land market (land), the housing market, the market for non-residential premises, industrial real estate market. It is also possible to define market of outstanding facilities and hotel services. (Maksimov, 2008)

The main subjects of the real estate market along with the owners and users of real estate (which can be both physical and legal persons) are: investors, banks, construction companies (contractors), firms realtors, law firms, advertising agencies, insurance companies, management committees property, the arbitral tribunal, notary offices, tax inspections. (Gromkov, 2011)

Because of the development of the real estate market there was a need for valuation activities. Valuation is a subject to licensing activities of the person (evaluator), is to set them in relation to the estimated object using special rules and techniques of market or other property value.

The division of the real estate market takes place on the four main components: land market, housing market, the market for non-residential premises, industrial real estate market. (Gromkov, 2011)

Each segment develops independently, regardless of the other three, relying on its own institutional and legal framework. Each of the segments includes two components: the primary market, which is connected with the realization of the rights to the newly created real estate, and the secondary market, which is the scope of the market circulation of real estate which has been in operation. Secondary real estate market is characterized by a wide variety of transactions with real estate that it offers a more developed institutional environment. (Floyd, 2008)

The processes taking place in both markets - primary and secondary - are interrelated: the prices of the secondary market are the benchmark, reflecting the profitability of the new building and its investment attractiveness. Decisions about the obtaining property must necessarily take into account the following factors in determining the features of its economic turnover (Ivanova, 2011):

1). Dynamics derived from its use of cash flows;

2). The value of the transaction costs associated with the registration of the transaction;

3). The investment attractiveness of the object of the transaction;

4). The degree of liquidity of the acquired real estate (availability of alternative uses of the property and the degree of ease of extraction of additional revenue);

5). Method of taxation;

6). The need for direct real estate management and control procedures;

7). The risks of economic and non-economic nature.

3.2 Functions of the real estate

The real estate market has a great impact on all aspects of life and activities of people, performing a series of general and special functions.

One of the main functions of the real estate market is to establish the equilibrium price at which the purchasing power corresponds to the volume of proposals. In the situation when price is below the equilibrium there is excess demand, and there is oversupply in the case when the price exceeds the equilibrium price. While analyzing price level it is

possible to get a large amount of information about the saturation of the market, customer preferences, the cost of construction, economic and social policy of the state in areas such as housing, etc. (Asaul, 2013)

The regulatory function determines that the market is functioning autonomously. According to Adam Smith's theory of the "market invisible hand", there is the reallocation of resources between areas of business and directs its members to the goal which was not part of their intention - to the formation of an efficient economic structure and satisfaction the public interest. In today's world the shortcomings of market regulation is increasingly offset by the state management of the economy, especially in terms of environmental protection, support of competition, redistribution of income, creating a legal environment for business, solving social problems etc. (Asaul, 2013)

The commercial function is to realize the property value and use-value of the property and make a profit on the invested capital. (Asaul, 2013)

The information function is a unique way of gathering and dissemination of objective information concerning the real estate market that allows buyers and sellers make a decision in their favor. (Asaul, 2013)

The intermediary function is expressed in the fact that the market is acting as an intermediary aggregate. Moreover, the real estate market is a meeting place of many independent buyers and sellers, which also establishes a connection between them. There are real estate and professional intermediaries: realtors, brokers, insurers, mortgage lenders, and other persons providing services to stakeholders. (Asaul, 2013)

The stimulating function is that competition forces market participants to maintain high business activity and the search for new opportunities for effective management of a capital property. (Ivanova, 2011)

Investment function of the real estate market is an attractive way to maintain and increase the cost of capital, which facilitates the transfer of savings from a passive form of stocks in the real productive capital, bringing revenue to owner of the real estate. In this case the real estate is an insurance guarantee of investment risks. (Maksimov, 2008)

The social function is reflected in the growth of labor activity of the entire population, to increase the intensity of labor of citizens who want to become owners of different kind of the real estate property, which is in the result of redistribution of the market transferred to strategic investors, providing high-performance use. (Maksimov, 2008)

3.3. Property valuation

Evaluation is a systematically informed expert opinion on the value of the property and the process of its determination. (Ivanova, 2016)

Evaluation of real estate is an initial stage of the global real estate market. There are several approaches to assess this property. It is also worth mentioning that while evaluating some kind of property by several types of housing assessment, the results can differ from each other. (Murzin, 2012)

In order to evaluate property, it is important to determine the stages of the operation. At the initial stage it is necessary to gather information, to verify its authenticity. This information must be provided by reliable sources. (Ivanova, 2016)

Then it is necessary to choose a proper methodology for evaluating real estate property. Each object has its own particular calculation, because many factors must be considered in the final assessment of housing. (Ivanova, 2016)

3.4.1. Types of real estate values, the concept of cost of housing

There are several types of real estate values, which depend on the needs of the subjects of the real estate market (assessment purposes). (Millington, 2010)

It is important to determine the major types of real estate values:

1) Market value is the most probable selling price of the property on the open market. It is considered to be the most common way to determine the value of real estate;

2) Cost of operation reflects the importance of the object for a particular subject, which may be no intent to put the object up for sale. Value in use is based on profitability, convenience and utility of the object to the property owner;

3) The cost for tax purposes is generally based on the cost (to reproduce);

4) Insurance cost is based on the cost of reproduction (replacement) of the elements of the real estate at risk of destruction. Insurance cost is used for insurance purposes. Typically, this value is the replacement cost or replacement cost excluding land;

5) Collateral value is the value of property that the lender expects to receive from sale of the property on the market in case of loan default. The collateral value is taken into account in determining the amount to lend;

6) Investment cost - the cost of capital investment for a particular investor of its investment requirements;

7) Liquidation value is determined upon liquidation of the enterprise by the owner or legal authority. (Millington, 2010)

To crown it all, it is crucial to say that the choice of the value of the property depends on the goals of the evaluation. At the present time the market value of a property is the most common method of determining the value of real estate. (Starinsky, 2016)

3.4.2 Factors influencing the formation of the real estate market

There are major factors which significantly influence the real estate market:

1). Political factors – a great influence on the real estate market has a level of political instability. In a politically unstable country, property buyers may doubt the choice and look for alternative in other countries, which in turn could have a negative impact on the demand; (Ivanova, 2016)

2). Legal factors - such goods as the property, have a high level of cost, and can be a reliable way to save a lot of money. Therefore, it is very important to have effective legal protection from the state. Otherwise there will a favorable environment for fraud, which will lead to a drop in demand in the most dangerous regions; (Ivanova, 2016)

3). Market factors are expressed in the presence of the land market, privatization of housing, the development and establishment of the rental market and commercial real estate. The availability of various types of market determines the pricing policy in the sale, which is inversely proportional to the number of the sold property. Economic factors have a great influence on the formation of prices, and the real estate market on the one hand, and show by their condition the level of development of the market; (Mackmin, 2010)

4). Factors such as inflation, poverty and unemployment, the interest rate on the loan for housing can have a significant impact on property values upward. For this situation, characterized by the reduction in the price for finished flats, which can lead to bulk purchases, cheap dilapidated housing and construction materials to rebuild. (Asaul, 2013)

3.4.3 The process of formation of property prices

The real estate market and price indicators reflect the level of economic development of the country. Real estate is officially only one type of property, which is recognized

through legislative order as a property. Real estate can be any objects that are closely connected with the earth, and all that cannot be moved without damaging their purposes. (Banfield, 2010)

The selling price of property may be formed under the influence of the three generally accepted approaches.

1) Cost approach is a valuation method for housing based on the cost of reproduction or replacement of an object taking into account the wear of housing. The versatility of this method allows using costs of construction and its sale as the measure of value that can be summarized by the concept of the cost. This method works well for individual objects of the order. For example, the valuation of the apartment can occur in accordance with the cost of its production, if it was made at a special affordable housing program; (Kahr, 2005)

2) The market approach based on transactions of real estate objects which are similar with sold objects, i.e. the market value of the apartment may not be different from the value of another flat in the same area of the city. Assessment of the cost of housing by market method based on the principle of substitution, which implies the analysis of the usefulness of the apartment by the purchaser, in comparison with the same property. The average cost of apartments in this method is computed by objects with the same indicators in the quality of housing and its location; (Kahr, 2005)

3) The income method of valuation is based on the principle expectations of a typical investor with the purpose of generating income from the purchased property, residential property for rent or resale. (Mackmin, 2010)

3.5 Mortgage credits and World mortgage market

3.5.1 The meaning of mortgage crediting and its role in the economy

The mortgage is an estate collateral for securing a monetary claim of the creditor (the pledgee) to the debtor (the pledger). (Razumova, 2006)

There are also other definitions of "mortgage":

1). A mortgage is a loan secured with the help of real estate.

2). A mortgage is the encumbrance of property rights to the ownership of the property.

3). A mortgage is a type of estate collateral of immovable property (land, enterprises, structures, buildings, other facilities directly related to the land) for the purpose of obtaining cash loans. (Razumova, 2006)

A broad interpretation of the concept of a mortgage considers it as a way of obtaining loan secured by real estate, and as a way of obtaining credit for the purchase of property. The term "mortgage" ("net mortgage") should be seen as a way of securing obligations when the collateral is immovable property. If the credit stands out on housing acquisition, uses the term "mortgage (residential) loans." (Myers, 2011)

For some cases specialists of real estate use the term "mixed mortgage loans" where a borrower takes out a Bank loan under the pledge of existing housing for purchase new. Thus, housing loans and mixed mortgage are forms of lending with the only difference that in the first case as security for such mortgage loan can act as collateral and guarantees, and in the second case - only mortgages. (Myers, 2011)

Mortgage loan is monetary funds provided by the Bank to the customer of a loan secured by real estate. In order to get a mortgage credit, the borrower must pay interest for using loan and make monthly loan repayment within the deadlines according to the loan agreement. A mortgage loan usually issued for long term.

The major purposes of mortgage loan are financing the acquisition, construction and redevelopment of residential and industrial premises and land developing. Feature of mortgage is that the collateral for its provision may be the property to be purchased it is taken. Moreover, purchasing property may also be considered as collateral for getting mortgage credit. (Razumova, 2006)

Legal and the economic prerequisite of a mortgage loan is the presence of a developed system of private property rights on real estate and land. Without private ownership of land and institutional support for its sales, development of the mortgage loan is impossible. (Gromkov, 2011)

Mortgage lending is seen as a tool for the implementation of the following functions:

1). The implementation of the constitutional rights of citizens to housing;

2). Contributions to the economic development and economic growth;

3). "Overflow" of capital and investments attraction in the sphere of material production;

4). Insurance of risks and the provision of guarantees of returning the borrowed funds;

5). Sales promotion (sales) of real property, when other methods (purchase and sale, etc.) are economically unfeasible or legally impossible;

6). The formation of fictitious capital in the form of mortgages and derivative securities.

7). Features of mortgage lending:

8). A mortgage is a pledge of property directly connected with land;

10). The long-term nature of the mortgage loan (20-30 years);

11). The mortgage remains with the debtor remains the owner of the mortgage property during all the period of the loan;

12) The mortgaged only the property which belongs to the pledger on the property right or right of economic management;

13). The legal framework for mortgage lending is on the basis of which a contract of mortgage and sale can be signed;

14). The development of mortgage lending imply the availability of the real estate market and developing of its institutions. (Razumova, 2006)

3.5.2 Objects and subjects of mortgage lending

Mortgage lending is a special kind of relationship between the loan recipient and the provider of credit. That is why it is crucial to determine objects and mortgage of such relationships.

Objects of mortgage lending are:

- Land;

- Property for living, i.e. flats, houses, cottages, villas, buildings and facilities of enterprises engaged in the social sphere;

- Office space, shopping malls, individual stores and other facilities servicing commercial activities;

- Production areas – warehouses, factory buildings and research institutes, energy facilities, garages and other premises for production purposes. (Razumova, 2006)

Subjects of mortgage are:

- Mortgage lender;

- The borrower (property owner);
- Investor, specialized intermediaries;
- Government;
- Credit and financial organizations;
- Insurance companies;
- Pension funds;
- Individuals. (Razumova, 2006)

Each participant of the mortgage market has its own purpose and the system of mortgage lending reaches its best development only with the concurrence of the interests of all participants. (Geschwender, 2009)

3.5.3 Mortgage lending as a way of overcoming of crisis phenomena in the economy

Mortgage lending is an essential factor for social and economic development of the country. Its role becomes particularly noticeable for the country in the period of economic crisis. (Razumova, 2006)

Mortgage is considered not only as an important mechanism for solving the housing problem, but also it is a crucial mechanism for improving the investment climate, regulating of money supply and socio-economic progress in general. (Asaul, 2013)

Industrial mortgage lending gives the opportunity to modernize production, which leads to improving the quality and competitiveness of products - all this leads to the increase of the economic potential of the country. (Maksimov, 2008)

The system of mortgage landing influences significantly the level of stability and efficiency of functioning of the banking system of the country. Secured loans are safer for the banks because of the reason that in case of non-payment of loan, banks have an opportunity to sell the collateral and return money. (Masimov, 2008)

Real estate transactions are often less risky in comparison with other credit operations of commercial banks. That is why currently mortgage lending is one the most crucial areas of the bank sphere. (Razumova, 2006)

The mortgage landing is significantly important for the economy of the country because of the following reasons:

- Inclusion of capital in the form of property in the economic turnover through the means of collaterals and secondary market of mortgage securities is highly important factor for economic recovery; (Nagaev, 2010)

- The real estate market occupies a significant portion of funds and thus is considered to be an important anti-inflationary factor; (Nagaev, 2010)

- Funds of the population to be included in the real estate sector, in fact, are involved in the development of villages, towns, local construction industry, in the creation and maintenance of jobs, and not going sideways (for example, not funded by foreign producers through the purchase of imported consumer goods); (Razumova, 2006)

3.6 Mortgage market

The mortgage market is the market of mortgage loans provided by banks and other institutions to households to purchase housing under a pledge of housing, and financial assets placed on the market to acquire resources in mortgage lending. Mortgage market is formed by mortgage segments of the stock market and banking services which provide and service mortgage loans. (Murzin, 2012)

The mortgage market is divided into:

1). primary market;

2). secondary market.

The primary mortgage market covers the scope of activities of the lender and the borrower and the obligations between them. Participants in the primary market are citizens and mortgage banks, mortgage companies and other institutions that provide citizens with loans secured by real estate. (Murzin, 2012)

In case, when bank is considered as a creditor, the possibility of a resumption of credit resources for the issuance of new long-term mortgage loans to other borrowers is very important. Secondary mortgage is the solution to this question.

The secondary mortgage market is a set of relations between participants of the mortgage market, ensuring the formation of the total loan portfolio of mortgage system through the transformation of mortgages into mortgage-backed securities among investors. (Murzin, 2012)

The major product of the mortgage market is the loan provided for financing the purchase of residential property. The deposit for housing is supposed to be returned to the lender of the loan. (Gromkov, 2011)

Mortgage credit has the main characteristics any other loan. They are the loan term, interest rate (amount and type), the schedule of repayment of the credit, requirements for the initial payment. The capacity of the mortgage market is determined by effective demand for mortgage loans from households. (Gromkov, 2011)

Different kinds of banks, savings and loan organizations, credit unions and also insurance companies are the major sources of supply in the mortgage market. The shares of individual financial institutions on the mortgage market is largely dependent on the historical experience of building the national system of mortgage lending, including the mechanism of financing of housing mortgages and current market trends. For example, in Denmark there are special mortgage banks which are specialized only in providing population with mortgage lending. In Germany, along with ordinary mortgage banks the so-called Bausoarkassen are also crucial subjects of the mortgage market of the country. (Asaul, 2013)

The implementation of long-term crediting is possible due to the organized system of mortgage lending. The system of mortgage lending is a model of the interaction between the mortgage market, the real estate market and financial market. During the formation of the national system of mortgage lending, the government and mortgage lenders because of the long term investments in mortgage assets have to decide how to refinance the funds used for mortgage lending for the purpose of issuing new loans. (Asaul, 2013)

There are two main mortgages systems. The first one is an open system, where a source of funds is borrowings from the market on current market conditions. The second one is a closed system, which is based on the mutual consent of the participants to receive interest income on savings accounts which are less in comparison with average market interest rate only in case of obtaining the opportunity to use the preferential loan. Attraction of resources on the market of capital is usually done by establishing the institution of the secondary market. Its purpose is to purchase mortgages issued by banks or refinance these loans. (Goremykin, 2015)

The basis of a closed system of attracting credit resources is the creation of a vicious cycle in which money of the citizens is accumulated on the deposit accounts of spe-

cialized savings institutions which are meant for property acquisition in the future, can be used for financing of mortgage loans to borrowers who are ready to purchase property in the current period of time. A vicious cycle is based on the system of self-financing. It means that funds of depositors can only be used for mortgage lending. This scheme of contracts for housing savings is widely used in Germany and Austria. The offers of mortgage loans, which are financed with resources of the open market, are very sensitive to the conditions on financial markets. The deterioration in the terms of borrowing affects greatly the interest rates on mortgage loans. Closed system (vicious cycle) is much less dependent on the markets conditions. (Goremykin, 2015)

Mortgage lending has a significant impact on the real estate market. The development of mortgage lending, the increases in the supply of mortgage loans, lower interest rates greatly expand the demand for real estate. This can lead to increase of property values. The rising cost of real estate leads to a reduction in demand for housing, however, the expansion of supply for mortgage loans can adjust this tendency. (Razumova, 2006)

On the other hand, deteriorating terms of borrowing, the reduction in mortgage loans reduces the purchasing power and demand in the property market, which leads to lower housing prices and reduce demand for mortgage loans. It should be emphasized that this interaction depends on the ratio of the sizes of the two markets and the share of transactions in the real estate market financed with the participation of a mortgage. (Razumova, 2006)

To crown it all, it is important to say that scale of real estate transactions, which include mortgage credit depend on the system of mortgage lending and the level of its development.

3.6.1 Models of organization of the mortgage lending market and features of their applications

At the present time there are four major models of fundraising. The following classification of the models of financing of mortgage credits does not mean that in specific countries only one of the models mentioned above can be applied. (Myers, 2011)

As a rule, models of financing of mortgage loans combined with each other, their main financial instruments and mechanisms develop and change, changing their role and proportion in the framework of individual national mortgage markets. However, it is advis-

able to identify the main types of finance mortgage loans for a number of parameters characterizing the sources and methods of attracting the market of residential mortgages. (Myers, 2011)

First of all, it is crucial to determine financing models that differ in the sources of resources involved: models in which resources are contracted through various contributions and deposits, as well as models in which resources are attracted from the capital market through the issuance of mortgage-backed securities. They are:

1). The universal model of commercial banks;

2). The model of housing savings;

3). The model of specialized mortgage banks;

4). Model of secondary market of mortgage loans. (Sternik, 2009)

The universal model of commercial banks is the most common implemented. In this model the funds of individuals and legal entities placed on accounts and deposits are used for providing long-term housing mortgage loans. This model plays a significant role on mortgage markets of such countries as Great Britain, Germany, Spain and several other European countries as well as Australia, South Africa. The resource base of mortgage lending consists mainly of funds on deposit accounts of various urgency - from current accounts and on-demand accounts to a longer maturity of deposits of individuals and legal entities. (Sternik, 2009)

Commercial banks provide a wide range of banking operations — from loans to legal entities and individuals to the investments in various financial instruments, real estate, investment projects. Resources which are attracted by commercial banks, are also vary widely among sources used — from credit resources in the interbank market to deposit funds of individuals and legal entities, issues of various debt securities, bank bills and the like.

The main advantage of universal banks is their ability to use a great number of financial and credit instruments to hedge banking risks and ensure its ongoing financial stability and reliability. (Razumova, 2006)

As a rule, large commercial banks are characterized by the implementation of a sufficiently large volume of transactions with the desire to work with corporate clients or wealthy borrowers. Small retail operations with relatively small amounts of loans and charges are considered to be disadvantageous to such a kind of banks. (Razumova, 2006)

Currently in most countries where mortgage market is highly developed, the system of long-term housing mortgage credits to the population is quite stable and reliable part of the financial services sector. Moreover, the majority of commercial banks also allocate some of its credit resources into long-term housing mortgage loans for individuals. (Razumova, 2006)

The main problem arising in the framework of this model is the need to maintain the current liquidity of universal commercial banks, as well as the harmonization of short-term liabilities and long term assets, which become an especially acute problem in case of increasing of share in residential mortgage loans in the loan portfolio of the banks. In this case, controlling of current liquidity becomes more complicated and difficult to solve, because commercial banks have to rely only on own resources. (Myers, 2011)

Quite often major commercial banks also form its specific branches or subsidiaries which are specialized only in mortgage lending. Besides all, the system where large commercial banks provide the loans through banks with the help of extensive territorial network, which they use as their mortgage brokers or agents, is also widespread. The tendency of specialization of banking transactions and their allocation to specialized credit institutions can be traced throughout the development of housing mortgage in the last century. It should be noted that the periods of strict specialization were followed by periods, which were characterized by the tendency of expanding the range of permitted banking operations. (Schmitz, 2001)

Universal commercial banks have a significant financial independence and stability, with the opportunity to diversify their portfolio across a broader range of active operations, which differ from each other in risk and return. At the present time the analysis of the role of different institutions in the mortgage market of the European Union shows that the share of housing mortgage loans provided by universal commercial banks in terms of volume exceeds the volumes issued by other lenders. (Schmitz, 2001)

The model of housing savings involves the funding of housing loans through the long-term housing deposits of the population. (Gromkov, 2011)

Construction savings Banks or savings and credit organizations attract targeted longer-term savings deposits of the population, carried out on a long term contract basis. They can have completely closed type in which the deposits are the only source of resources (as, for example, building savings banks — in Germany, Bausparkasse), a relative-

ly closed type (building society — Building societies in the UK), and fully open type (loan and savings associations in the USA - Saving and Loans) in which the source of resources are both deposits and funds raised in the financial market. (Gromkov, 2011)

Savings and credit organizations are based on the involvement of long-term the housing deposits as the main source of funding. Such organizations operate in many countries and differ in the following main characteristics:

1). *The terms of long-term contract (agreement) on the basis of which cumulative savings participants, members or shareholders of these organizations are made.* Thus, in Germany, the home savings agreement in advance sets the conditions and amount of credit granted, which may be obtained by a depositor in the performance of the contract in the amounts and timing of accumulation. In case of a closed system of home savings, interest rates on deposits and on loans are below market and fixed for the entire term of the savings contract. Similar programs are applied also in Austria and France; they differ mainly in terms of credit and a more flexible policy of interest rates. In some other countries, the order of accumulation and the loan is not so rigidly fixed by law and depends on the specific financial conditions loan and savings organization and the status of the financial market (UK, USA). (Razumova, 2006)

2) *The degree of closeness or openness of the financial market.* The system of housing savings vary according to the degree of closeness of financial flows — from the most closed, which is practically independent from external financial market system like in Germany to a fully open system loan and savings associations in the United States. The ability to raise additional funds from the financial market (in addition to funds from investors) significantly expands the credit capacity of the organizations. At the same time risks and dependency from external sources increases simultaneously. Thus, because of the gradual evolution of building societies in the UK, close-end mutual partnerships have turned into quite open financial organizations. This required greater supervision over their activities, the complications of reporting, i.e. to bring it into line with the universal statements of commercial banks. Such activities led to increased administrative costs, but at the same time contributed to the universalization of active and passive operations, increasing the flexibility and stability of building societies in the financial market. (Razumova, 2006)

3) *The presence or absence of special legislation, which regulate the activities of these organizations, supervision and control over operations, reporting and reservation of*

guarantees on deposits. In this case German legislative system is considered to be the most restrictive. In addition, there is the same situation concerning law system in a number of countries, which are automatically copying the German system of home savings (for example, the Czech Republic, Slovakia). These organizations are governed by separate laws that clearly define the scope of their activities and measures of supervision in order to ensure the reliability and safety of deposits, sustainable development of the whole system. (Goremykin, 2015)

4) *The influence and support from the government.* This type support is carried out most strongly and directly in Germany (and also in the Czech Republic and Slovakia), where local governments annually allocate budget funds for the payment of premiums to the accounts of depositors, encouraging citizens to participate in the long-term target of housing savings "below-market" rates on deposits. The main problem is the need for continued budgetary support of this system, which is aimed to inflation compensation and improving the reliability and attractiveness of long term housing deposits for depositors. Government encouragement of long-term savings of the population for housing purposes is a form of budget subsidies. (Goremykin, 2015)

5) *Restrictions on active operations.* The possibility of the savings organizations to allocate loan funds in other assets, in addition to provide residential mortgage loans to individuals — depends on the rigidity of legal regulation, degree of "independence" from the financial market, the impact of government and supervisory authorities, forms of interaction with the parent or "affiliate" of the universal banks. (Goremykin, 2015)

Speaking about the peculiarities of the housing savings models, it is important to mention such models are considered to be an addition to the existing credit institutions of the mortgage market and hardly can be considered as independent. For example, in case of Germany, building-savings banks work in close cooperation with specialized mortgage banks, universal commercial banks, as well as the so-called land and national banks, which have a wide territorial branch network. This collaboration allows all market participants to work most effectively with clients, providing a variety of services - both in the accumulation of deposits on the initial deposit by providing loans on different conditions. Thus, credit and savings institutions are rather the addition to universal commercial banks or specialized mortgage banks that allows mobilizing funds of depositors on the basis of long-

term contracts and allocating those funds directly into the mortgage market. (Razumova, 2006)

The construction savings banks usually specialize in working with clients with average incomes and applying for small loans. If savings and loan systems work in a closed system, the major problem of these organizations is to support liquidity, ensuring constant inflow of depositors whose funds are the main source for lending. The most successful construction savings organizations operate in countries where there is the government support for these systems through additional budgetary grants ("awards", such as in Germany) to the accounts of depositors. In case, when state support is not provided, closed systems become uncompetitive in comparison with other financial institutions, which carry out a wider range of both active and passive operations. (Gromkov, 2011)

The model of specialized mortgage banks describes the model of refinancing, focused on attracting resources from the capital market from private investors through the issuance of various mortgage-backed securities, it is necessary to allocate two basic forms: the model of specialized mortgage banks, often called single-level model and the model of the secondary mortgage market, called the two-level model. (Razumova, 2006)

Specialized mortgage banks are established mainly in European countries, especially in Germany, Denmark, Sweden, Poland and in several other countries where appropriate legislation has been adopted. As a rule, mortgage banks are specialized credit institutions that provide long-term loans to the population on the basis of funds, which are contracted through the issue of mortgage-backed bonds issued by mortgage loans. (Murzin, 2012)

Specialized mortgage banks provide long-term housing mortgage loans using funds raised with the help of mortgage bonds directly from the capital market from various investors, including large institutional investors (pension funds, insurance companies, investment companies and other organizations, and individual private investors) and small companies and individuals. (Murzin, 2006)

Mortgage banks have the exclusive right to issue mortgage bonds, which have a high ranking and are recognized by investors as reliable and highly liquid financial instruments and therefore have a relatively low price. (Murzin, 2006)

The reliability of securities is ensured by a strict legislative framework, which imposes quite strict limitations concerning both active and passive operations of banks, as well as regulating the conditions for granting mortgage loans and issuing bonds. High rat-

ing, the liquidity and reliability of the mortgage bonds ensure attractiveness to investors, and the amounts of obligations under such bonds in a number of countries exceed the amount of government borrowing. For example, the principle of specialization of German mortgage banks is one of the major basic principles, ensuring reliability, quality of loans and issued mortgage bonds with minimization of possible credit risks. The main part of their assets is secured by mortgages or state or municipal guarantees for loans provided in the market of the public sector (urban infrastructure, etc.). (Razumova, 2006)

In case of bankruptcy of the issuer collateral for mortgage bonds is derived from the competitive weight, thus the interests of the holders of mortgage bonds will be satisfied out of the lineup. (Razumova, 2006)

The trust of participants of the market of mortgage bonds is also enhanced by:

- Limiting the scope of banking operations, the prohibition on performance of general banking operations, including attracting deposits from individuals and legal entities;

- Due to the rigorous regulatory actions of mortgage banks according to the so-called allowed transactions to ensure minimization of potential risks;

- Through the establishment of precautionary measures to prevent violations of the two aforementioned regulations through state supervision;

- Due to the restrictions on granting loans not secured by primary mortgages or state (municipal) guarantee;

- Due to the introduction of legislative restrictions on the percentage of loan to estimated value of the collateral at a level not exceeding 60%;

- Through the use of methods of appraising real estate based on an extremely conservative approach. (Ivanova, 2011)

At the same time, it is important to mention that strict limits in activities permitted by the law are getting narrower for German mortgage banks. What is more, there is a growing trend towards broadening the range of these operations through consumer loans, financing commercial real estate, lending and business development. (Razumova, 2006)

European States strictly regulate the activities of specialized mortgage credit institutions. In the countries, where has spread the model of mortgage banks is widely applied (Germany, Scandinavian countries), the government also create favorable conditions for the placement of mortgage bonds in pension funds and insurance companies. For example, at the stage of formation of the mortgage system in France (till 1988), the government pro-

vided budget guarantees on securities, attracting resources for the purpose of mortgage lending. (Murzin, 2010)

At the present most of the European countries have adopted laws concerning mortgage banks that specialize in issuing securities (mortgage bonds) backed by mortgage assets of these banks. This system works most effectively in Germany, Denmark and Sweden.

The model of secondary market of mortgage loans (securitization of mortgage assets) has been mostly developed in the USA, Australia and UK. (Razumova, 2006)

According to this model, the primary lender can refinance loans with the help of either direct sale to the investor or specialized institutions of the secondary market (the operator of the secondary mortgage market), or through the sharing of collected pools of loans for mortgage-backed securities issued by the authorized Issuer. The most important precondition for formation of this kind of model is the requirements for procedures for issuing and servicing loans. (Razumova, 2006)

Historically, the form of refinancing of long-term mortgage obligations started its developing in the form of sale of long-term assets by one credit institute to another financial institution or investor. Thus, sale of loans has separated the functions of providing and servicing long term residential mortgage loans from the funding and financial risk management. Specialized mortgage companies were established in the USA, Australia and in the UK. These organizations started the attraction of resources for long-term housing loans on the basis of sale-purchase of loans or its securitization into mortgage-backed securities. (Asaul, 2013)

For example, specialized mortgage company providing residential mortgage loans to borrowers and selling or exchanging their mortgage assets for mortgage-backed securities became widespread in the U.S. As a rule, they are not engaged in attracting of funds on deposits, specializing exclusively in the selecting and underwriting of borrowers, loans and servicing them after the refinancing.

The main difference from the European mortgage banks is that mortgage companies and other mortgage lenders of the secondary mortgage market model, do not leave these loans on their balance sheets and do not issue their own mortgage-backed securities. These functions are performed by specialized operators of the secondary market. (Asaul, 2013)

Such specialization has determined the need to establish the so-called specialized operators of the secondary market, which are responsible for searching for resources (mainly due to the production of various kinds of securities) for the purchase of rights of requirements on mortgage loans. (Asaul, 2013)

Until the early 1980s, the deposit scheme in the form of attracting funds of individuals and legal entities to the accounts and the deposits served as the primary source of funds for mortgage loans. Still in most countries it is the most developed form of attraction resources on the market for long-term housing loans. It functions mainly through the system of universal commercial banks, entitled to the whole range of basic banking transactions. (Razumova, 2006)

Deposits of commercial banks and other savings institutions are considered as one of the main sources of mortgage credit. There are different kinds of deposits which are put on various conditions. The model of specialized organizations that attract contractual (contract) long-term housing savings and provide investors with mortgage loans is one of the examples of this scheme. Not only commercial and savings worked banks in terms of the deposit scheme, but also non-bank financial institutions such as Building societies in the UK and Saving and Loans in the United States. (Razumova, 2006)

In case, when there are common approaches to procedures and technologies of issuing and servicing of mortgage loans there are a great number of features associated with the specifics of the legislation development, organization of credit and financial systems, ways for attracting resources into home mortgages, national traditions and history of the development of this sector of the economy. (Asaul, 2013)

The role and extent of government involvement in the development of housing crediting in each country depends on the characteristics of the mortgage model. For example, in the USA at the stage of formation of the modern mortgage system the government not only formed the legislative basis of the functioning of the system, but also created specialized institutions of the secondary mortgage market such as Fannie Mae. (Goremykin, 2015)

In Canada, there is the Canadian mortgage housing Corporation, which was created by the government. It provides credit risk insurance and guarantees securities mortgage-backed securities for different landing organizations. (Goremykin, 2015)

The system of providing budget guarantees for securities issued for purpose of mortgage lending is a common practice at the forming stage of the mortgage system (for example, in France until 1988). (Goremykin, 2015)

In order to boost a field of mortgage lending, states tried to create a system for providing sufficient inflow of private capital on the mortgage market and to minimize expenditures of budgetary resources. In developing countries where the government actively participated in establishing of the mortgage system, lending companies were created either as a company with mixed capital (Cagamas in Malaysia, CIBRASEC in Brazil) or established by the state, but later on were partially privatized (Hipocario Banco S. A. in Argentina).

Summarizing the international experience of both the countries with developed mortgage system and the emerging mortgage market, it is possible to determine a tendency mainly towards the development of mechanisms for attracting funds from the capital market through securities backed by mortgage loans.

3.7 The world mortgage crisis

There was an unprecedented boom in the US housing market in 2006, when real estate prices were growing very rapidly because of the incredibly high demand. The reason for the increased demand for housing was not in a significant increasing in the incomes of Americans, the availability of mortgages for almost anyone. This phenomena is also called "housing bubble". (Goremykin, 2015)

Speaking about mortgage crises, it is important to mention about subprime mortgage, which is described as the process of issuing mortgage loans to borrowers who can not obtain standard mortgage loans, i.e. loans issued by the standards of Federal National Mortgage Association (FNMA) or simply Fannie Mae and other agencies, supported by the U.S. Government. In 2006, nonprime loans accounted for twenty percent of the total volume of loans, while in 2002 only for six percent. Nonprime loans with a floating interest rate, adjusted each year beginning with the third, were the most popular in the United States. (Goremykin, 2015)

According to statistics, the volume of risky mortgage loans in the United States in 2006 exceeded 600 billion USD, which was about 20 % of the entire American mortgage market. In general the volume of outstanding risky mortgages reaches 1, 3 trillion USD

Defaults on loans had reached its peak over the past seven years. In February 2007, HSBC reported that in 2006 the volume of outstanding risky loans of its American division was about 11 billion USD.

It is also crucial to mention, that almost all the amount of such loans was sold not only to American investors, but also to international ones. The increase in the share of problem loans, which led to the bankruptcy of the primary creditors, also affected customer's loans, thus they were unable to assign all defaulted loans to their initial lender and were forced to announce the expected loss. (Asaul, 2013)

The crisis became noticeable and started spreading in international scales in the spring of 2007, when New Century Financial Corporation, the largest mortgage company in the U.S., granting loans to unreliable borrowers, left the New York Stock Exchange (NYSE). During the following a great number of companies were suffering losses. Dozens of companies had been bankrupt. After that the crisis has affected the investment funds of major financial companies which had invested in mortgage bonds: Bear Stearns, Goldman Sachs, BNP Paribas. Also international markets started suffering from liquidity crisis. Central banks around the world invested a huge amount of money into their financial system. (Goremykin, 2015)

Why this crisis is called "mortgage crisis"? A mortgage is a loan for property acquisition secured by housing. If a client cannot repay the loan or refuses to repay it, a Bank has the right to sell the property and compensate its losses. But in the United States, banks had given loans more than the market value of housing – approximately 120-130% of value. Thus, sales of property could not cover the indebtedness of the borrower. What is more, in case of mass sales of real estate because of unpaid loans, the cost of housing in the real estate market decreased by fifty percent. (Goremykin, 2015)

The mortgage crisis had impact on banking system. Firstly, because of the non-payment of issued credits, banks practically were not able to provide new credits. Secondly, nobody wanted to buy property used as collateral for a loan. As a result of the reasons mentioned above, banks suffered greatly from multi-billion dollar of losses. Quotes credit derivatives of the leading investment banks, such as Goldman Sachs, Morgan Stanley, Merrill Lynch, Lehman Brothers and Bear Stearns fell below the potential level.

3.7.1 The causes of the mortgage crisis

Economist determined the major causes of the world mortgage crisis of 2008, which started in the United States and after rapidly spreading was considered as the world mortgage crisis.

There are major following causes of mortgage crisis:

1) *The "explosion" of the housing bubble in the Unites States*

During the period of 2001-2005 there was a tendency of a rapid growth in property prices caused by low interest rates on loans, loyal approaches of creditors to estimate the creditworthiness of borrowers and the high propensity of households to purchase housing. During this period the volume of construction of houses had doubled in comparison with the period from 1990 till 1995. The total amount of issued credit, where the existing housing was as collateral for getting new loans, were equal to 750 million dollars USD (in 2005). (Murzin, 2012)

In the second half of 2005 the decline in housing prices and increase in terms of exhibition of objects were fixed on the real estate market. The fall in the value of real estate was a significant reason for borrowers not to repay loans. Especially taking into account the fact, that subprime credits were also available for people who had had solvency problems in the past.

Increase in supply on the real estate market and the tightening of conditions for issuing new loans along with increased interest rates caused further fall in housing prices.

A number of economists consider that falling prices on the housing market was the beginning of a recession in the US economy. According to the estimates of Standard & Poor's company, decrease of housing bust caused by the mortgage crisis, had led to a slowdown in GDP growth by one percentage point. (S&P)

2) *The decrease in profitability of the mortgage business and increase the risks of mortgage operations*

At the end of 2005 creditors changed their strategies. Thus, from price competition (lowering interest rates) creditors have moved to the competition on the credit conditions (simplification of lending standards). During 2005 lenders, operating in the market of non-standard loans, were competing with each other by lowering interest rates. This war led to an increase in the quality of their loan portfolios, as low interest rates on loans attracted people with good credit history who could get standard loans. But the problem was that

these loans did not bring enough profit (by the end of 2005 the difference between the interest rate on loans and the cost of borrowed funds decreased to three percentage points compared to six percentage points in 2003). (Murzin, 2012)

In order to increase profits, lenders of subprime credits started increasing interest rates level, which led to a decrease in the number of new clients and volume of loans. A number of economists consider that non-standard lenders were focused mostly on the preserving and increasing of loans volume, by which investors assess the potential growth of the company. To reach it, creditors started making exceptions to lending standards, contributed by the lack of state control over the sector of subprime loans. (Nagaev, 2010)

In terms of increasing competitive on the market of non-standard loans, some credit organizations which did not have sufficient experience in estimation of credit risks. They brought to market brand new products allowing borrower to get credit without documentation on housing, low initial payment, bad credit history and unconfirmed income. (Nagaev, 2010)

According to estimations made by Standard & Poor's company, the segment of subprime mortgage market showed the worst results in comparison with other segments of the mortgage market. And even this fact did not stop chasing volume in the beginning of the housing market recession.

1). Lack of own funds among lenders to cover losses

In comparison with traditional banks, credit institutions which operate on the market of subprime loans cannot use the deposits for loans. Instead of it, creditors use bank credit lines. On the other hand, the lender sells loans to the investor, which in case of delay in payment of the loan has the right to return it back to the original creditor. In this case repurchase of overdue loans is realized with the help of credit lines. It is worth mentioning, that interest for using the credit line is charged while the overdue loan is on the balance of the creditor. That is why the creditor has to record its losses and get back the overdue loan in order not to wait until the end of the foreclosure on the mortgaged property. (Nagaev, 2010)

In the situation of market growth, the attractiveness of non-standard loans was supported with the help of higher interest rates on loans. As a result of it, creditors had an opportunity for opening bank credit line to finance its activities. In conditions of the stagnating market, the attractiveness of this segment of lending disappeared. Therefore it started

complicated for creditors to get credits lines. The current profit from operations turned out to be insufficient to cover losses arising from increased levels of defaults and delinquencies payments. (Nagaev, 2010)

2). The deterioration of the creditworthiness of households

In 2007, according to some experts, the U.S. experienced a slowdown in consumer spending. Before 2006, the growth in consumer demand had been maintained due to the cheap and increasingly available credit and permanent growth of prices for all assets, including housing. Only for 2005 the market value of assets of the population increased by 3, 2 trillion USD.

Since 2006 positive factors for consumers practically disappeared: the cost of money increased and housing prices decreased, while debt and financial obligations remained on the same level as before. The share of direct servicing costs of mortgages and consumer credit in income of households achieved its historic maximum on the level of 14, 5 %. Moreover, these payments were about the level of 20 % if taking into account the payment obligations of rent, insurance and the taxation of housing and car rental. According to the statistics of American Center for housing policy, the percentage of households tends to spend the majority of income on housing, increased by 88 % (from 2, 4 million to 4, 5 million USD) during the period 1997-2005. Increasing of unemployment rate also exacerbated the problem of creditworthiness of the entire economic system as a result of lower incomes. (IMF)

3.7.2 The consequences of the world mortgage crisis

At the present time the global economy keeps on recovering from the previous international mortgage crisis. One of its causes of the uncontrolled granting of low-quality loans in the USA. An important aspect is to study the impact of mortgage lending on the country's economy, study existing problems, prospects of development in the recovery period after the present global financial and economic crisis, which started from the subprime mortgage crisis. In this regard, it is very important to determine the origins of the mortgage crisis in the USA and its subsequent impact on the national economy of other countries.

After the last international mortgage crisis, a great number of researches are focused on the real estate market, where there is the trend of galloping rising prices. This

trend of increasing prices in the property market, as shown by the last crisis, entails a collapse of the market. For elimination of such crises, the urgent task is to examine distressed real estate markets. At the moment the main task is to compare the background to the international subprime mortgage crisis with lending prerequisites for distressed markets.

Subprime mortgage loans became the new and rapidly developing segments of the mortgage market. Initially, a significant part of the growth and success of the subprime market was primarily due to growth in property prices and easing of standards, also through innovation in the financial market. However, the demand for low-quality mortgages in the US triggered a considerable inflow of foreign capital into the country. Rise and fall of low-quality loans is a typical scenario of boom situation, when an invalid growth leads to the destruction of the market. Significant price reduction was the major reason of increasing number of non-paid loans and eventually led to global financial crisis. (Nagaev, 2010)

Speaking about the consequences of the crisis for American real estate market, it is crucial to say that more than 25 lenders working in the market of non-standard loans, stopped there activity and were in a state of bankruptcy. A great number remaining non-standard lenders announced reduction in expected profits and the possibility of net losses.

On the 19th of July of 2007 the Dow Jones index was recorded at the level of 14000 points, and in August of 2008 fell below the level of 13000 points. The fall of the index reflected in the stock markets in other countries, mainly in Brazil and South Korea. Because of this fact The International Monetary Fund announced that it had to revise the previous forecast concerning economic growth in the United States.

Investment banks and other financial institutions were also severely affected by the crisis: hedge and investment funds of the world's largest banks suffered greatly as a result of the mortgage crisis. Thus, the market value of their assets, such as mortgage securities, secured non mortgage loans, decreased dramatically and in many cases simply could not be determined. Mortgage Guaranty Insurance Corporation, which was considered to be the largest American company in the field of insurance of mortgage credit risks, announced billions in losses. The largest mortgage lender Countrywide Financial, actively working on the market of non-standard loans, also declared bankruptcy. (Sternik, 2009)

By the end of 2007 leading companies of retail trade in the USA announced about a significant reduction with a forecast concerning future losses. However, according to ex-

perts from Standard & Poor's, there was not a significant decline in consumptions in the result of mortgage crises.

The crisis of subprime mortgage had a highly negative impact on some countries of the European Union. In 2008, confidence among borrowers in the EU decreased and the conditions for getting of mortgage loans were tightened. All these events deteriorated the common economic situation as the result of financial crisis. The supply in the mortgage market declined due to the financial crisis and the tightening of criteria for granting loans. The demand for mortgage loans decreased greatly because of the unpredictable expectation concerning the economic stability. Decrease in demand for mortgage loans and low demand in the housing market caused a significant falling of prices in the housing market. There was a decrease of total mortgage loans volumes in 2011 all around the EU, what reflected expectations about macroeconomic deterioration. The negative impact of the crisis had the greatest impact on the countries which are heavily dependent on limited resources for economic growth. During the last global crisis, the countries of the EU have suffered less in comparison with United States, but still the decline in lending was very significant. (Goremykin, 2015)

Speaking about European countries, the international mortgage crisis caused the most negative consequences for real estate markets of Italy, Spain, Greece and Hungary. The greatest amount of overdue loans was fixed in Spain (663 billion Euro), Italy (352 billion Euro) and Greece (80 billion Euro). The growth of mortgage lending in these countries was due to rapid income growth, easy-to get credits, lack of control of the market, confidence in the future growth of this market. In the post-crisis period, the Polish government keeps the stability control on mortgages and lower interest rates. The main problem for the country also remains a lack of liquidity and traditional reliance on floating exchange rate on loans. In Hungary, it was the problem of discrepancies in the value of the mortgaged property before the crisis and after the crisis cost. The tax base of this country is flawed and requires revision of the legislation concerning collateral. Due to the devaluation of the national currency and a sharp collapse of prices on the real estate market, at this point, the remaining amount owed on the loans exceeds the amount of the collateral. In such a situation in the real estate market, it is expected the growth of overdue loans in the coming years. Due to the devaluation of the national currency and a sharp collapse of prices on the real estate market the remaining amount owed on the loans exceeds the amount of

the collateral. In such a situation in the real estate market, the growth of overdue loans in the coming years is expected.

After the mortgage crisis in the USA, experts are concerned about possible crisis in the real estate market of China. The Chinese economy is the second largest after the American one, and 19% percent of global economic growth accounted on this country in 2010. The stability of China's economy is important both for U.S. and for the EU. Because of the collapse of the real estate market the consequences would be global. If Chinese real estate market explodes, as in the situation with the US market, there will be a significant decrease in the level of world trade and increased level of unemployment. (Goremykin, 2015)

In the modern economic model of China's development, despite significant success in achieving growth in the past decade, there were structural problems, including the surplus of the balance of current operations, unequal income distribution, and high levels of corruption. Many existing problems have worsened during the global financial crisis as a result of the implementation of aggressive fiscal and monetary expansion policies, which major aim was to improve the country's economy. Many experts consider that the housing crisis in China is inevitable.

Taking into considering the situation on the lending market in 2011, only 13% of the total loan debt accounted on mortgage loans, which constituted less than 20% of GDP. According to the National Bureau of Statistics of China, housing prices increase by 10% each year. Many analysts compare the situation on real estate market in China with the prerequisites of the subprime mortgage crisis in the United States. However the Chinese housing bubble differs from the American one. In contrast to the situation in the USA, when the Federal Reserve Fund started lowering interest rates when housing prices were rising, the Central bank of China began to raise interest rates thus making loans more expensive. Currently there four constraints in the growth of real estate prices: high income growth, urbanization, demographic changes and the lack of alternatives of investment. A limiting factor in the development of the "housing bubble" is to maintain a high level of income, high savings, and scarcity of investment opportunities. The Chinese government actively monitors and sometimes intervenes in the housing market. Such intervention reduces the risk of default in a short-term period of time.

The consequences of the international subprime mortgage crisis also can provoke the crisis on the real estate market in Canada. According to economist David Rosenberg,

prices for housing in Canada increased by nearly 100% since 2000. The ratio of price-to-rent reached peak in 2011 in many regions of the country. Robert Shiller, who predicted a housing boom in the USA, considers that the development of a similar housing bubble in Canada is also possible. The majority of factors point to difficulties in the housing market. Since 1990, the debt for housing payment has risen from 75% to 150%. The greatest concern is that the increased debt will soon exceed revenue growth. The growth of housing prices is not supported by income growth, GDP per capita and inflation. (S&P)

The relation of housing prices and rent at the moment is the highest in Canada compared with other developed countries. Housing prices exceed income by twelve times, indicating that debt of households, as a percentage of income rose to 153%. Thus, the index reached the level of U.S. debt before the crisis. Also it is worth mentioning, that the housing market in characterized by excessive supply. Housing finance as a percentage of GDP reached its maximum level in 2012. The growth of the economy decreased in 2012 in comparison with the period of 2010-2011. (S&P)

Experts from Standard & Poor's company consider that the recent crisis has led to a broad reassessment of the approaches used by investors to determine allowances for credit risk. The crisis resulted in a loss of credibility and sector of the refinance loans in General, as investors began to prefer less risky investments such as cash and government securities, which caused liquidity problems for many companies.

To crown it all, it is important to say that nowadays international mortgage crisis, which started in the United States in 2007 as subprime mortgage crisis and later on spread around the world, has affected greatly real estate markets of great number of countries, especially in the EU. What is more, though the crisis has been overcome, but the negative consequences of it still keep on affecting real estate markets in some European countries.

4. Analysis of the real estate market of residential property in Spain

4. 1 The real estate crisis in Spain: causes and consequences

The Spaniards understood that the territory of the country, its warm climate and numerous tourist attractions can bring income to the national economy. Thus, in the 90-ies. the so-called "Spanish property boom" began.

In places with the most favorable climate conditions for living and recreation, such as Barcelona, Valencia, Cadiz began to build more new hotels and residential buildings, which were largely intended for sale to foreign buyers.

The demand for housing among Europeans grew daily, causing an increase in the supply and significant price spikes. Spanish construction companies and sellers of real estate began to receive an incredible income from the "economy of bricks". Developers often used the low-wage labor of immigrants who streamed into the country.

Being confident in the economic growth of the country, Spanish authorities began to reduce the pressure on the banking sector, bringing the situation of "overheating of the economy".

The global financial crisis of 2008 - 2009 aggravated the internal economic imbalances and emphasized the weaknesses of the Spanish economy. During that time construction companies go bankrupt and declare insolvency, unable to continue to repay loans from banks. The debt of developers to Spanish banks was very considerable, that it was obvious that a significant proportion of loans would not be repaid. It is interesting to note that the stock prices of construction companies in the beginning of 2007 began to fall, that was ahead of the falling real estate prices for a few months. Construction materials industry is suffered huge losses and real estate agencies started to close. Moreover, there were massive layoffs of workers, mostly immigrants. The inflow of foreign investment decreased significantly to 28, 4 billion Euro in 2008 in comparison with 220, 3 billion Euro in 2006. Just at that moment the so-called times of "skinny cows" began.

It is interesting to note that there were those who denied that the country was going through the phenomenon of "real estate bubble". To answer this question, it is crucial to compare real estate prices in recent years with real value.

As can be seen from in the Table 1, based on the Spanish Society of real estate valuation, the price per square meter of real estate had increased in the period from 2000 to 2009 by almost two times.

Table 1: The average price per one square meter of residential property in Spain (1985-2009), Euro

Year	€/sq.m.	Year	€/sq.m.	Year	€/sq.m.	Year	€/sq.m.	Year	€/sq.m.
1985	326	**1990**	933	**1995**	989	**2000**	1335	**2005**	2516
1986	413	**1991**	931	**1996**	1002	**2001**	1453	**2006**	2763
1987	535	**1992**	919	**1997**	1036	**2002**	1667	**2007**	2905
1988	682	**1993**	917	**1998**	1089	**2003**	1931	**2008**	2712
1989	858	**1994**	954	**1999**	1187	**2004**	2286	**2009**	2558

Source: ST Sociedad de Tasación, author's computation

According to Table 2, which depicts the change in percentage of cost of sq. m of housing, it is possible to say that during the pre-crisis period, from 1986 to 1989 and from 2000 to 2004, prices were rising in the range of 25-29% and 10-18% respectively, which is reasonably high.

Table 2: The change in prices for residential real estate property in Spain (1986-2009)

Year	%	Year	%	Year	%	Year	%	Year	%
1986	26, 7	**1991**	-0, 2	**1996**	1, 3	**2001**	8, 8	**2006**	9, 8
1987	29, 5	**1992**	-1, 3	**1997**	3, 4	**2002**	14, 7	**2007**	5, 1
1988	27, 5	**1993**	-0, 2	**1998**	5, 1	**2003**	15, 8	**2008**	-6, 6
1989	25, 8	**1994**	4, 0	**1999**	9, 0	**2004**	18, 4	**2009**	-5, 7
1900	9, 7	**1995**	3, 7	**2000**	12, 5	**2005**	10, 1		

Source: ST Sociedad de Tasación, author's computation

Also these data should be compared to the CPI – Consumer Price Index, which gives an idea of the price changes on goods from the consumer basket. After analysis of the Table 3 it becomes clear that commodity prices were increasing, but not at such a rapid pace, as real estate.

Table 3: The percentage change in CPI (1986-2009)

Year	%	Year	%	Year	%	Year	%	Year	%
1986	8, 6	1991	5, 5	**1996**	3, 2	**2001**	2, 7	**2006**	2, 7
1987	4, 6	1992	5, 3	**1997**	2, 0	**2002**	4, 0	**2007**	4, 2
1988	5, 8	1993	4, 9	**1998**	1, 4	**2003**	2, 6	**2008**	1, 4
1989	6, 9	1994	4, 3	**1999**	2, 9	**2004**	3, 2	**2009**	0, 8
1900	6, 5	1995	4, 3	**2000**	4, 0	**2005**	3, 7		

Source: Spanish Statistical Office, author's computation

Table 4 depicts real estate prices adjusted to CPI. Data were calculated as follows: for example, in 1985 the cost of housing was 326 €/sqm in 1986, CPI is 8, 6%, the price of housing 413. However, in accordance with the CPI: 326*108, 6/100 = 354 €/sqm

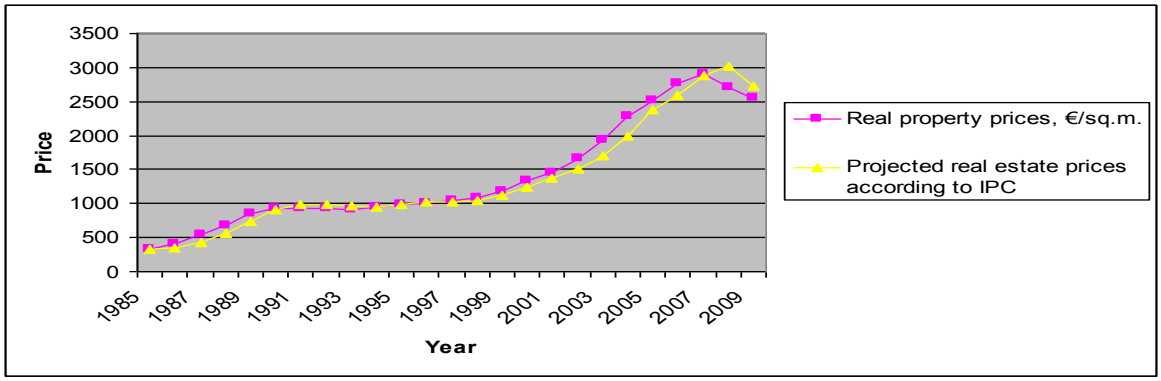
Table 4: The projected cost of residential real estate property in Spain (1985-2009), CPI adjusted

Year	€/sq.m	Year	€/sq.m	Year	€/sq.m	Year	€/sq.m	Year	€/sq.m
1985	326	**1990**	914	**1995**	995	**2000**	1234	**2005**	2371
1986	354	**1991**	984	**1996**	1021	**2001**	1371	**2006**	2584
1987	432	**1992**	980	**1997**	1022	**2002**	1511	**2007**	2879
1988	566	**1993**	964	**1998**	1051	**2003**	1710	**2008**	3021
1989	729	**1994**	956	**1999**	1121	**2004**	1993	**2009**	2734

Source: ST Sociedad de Tasación, author's computation

Analyzing the data from Table 1, Table 2, Table 3 and Table 4, it can be concluded that the housing bubble in the Spanish real estate market really existed, as housing prices rose substantially compared with the prices of consumer goods. According to Table 4, it possible to distinguish two periods, when there was a "real estate bubble": from 1985 to 1990 and from 1998 to 2007.

Figure 1: Comparison in prices for residential real estate property in Spain (1986-2009)



Source: ST Sociedad de Tasación, author's computation

From the point of view of economic theory, there are some possible causes of "property bubbles" such as speculation, social and psychological factors, favorable laws. However, some "bubbles" may appear even when without speculative attacks.

It is important to determine the stages of emergence of "property bubbles" in Spain.

Eurozone entrance, low interest rates and the crisis of the economies of France and Germany (2002-2003) led to higher prices on the real estate market in Spain. With demand for housing speculative demand emerged – buying a property with the purpose of selling it

later for considerably high price. In connection with the mass purchase of housing developers did not have time to build as many houses as you citizens wanted to buy, what caused price rising. The construction costs of the average home were equal approximately to 60 thousand Euro, what was significantly lower than the average sales price. It means that developers got big profit from such transactions. This fact provoked the situation when construction companies grew in size and expanded its scope, because kept on growing. For these purposes cheap low-skilled workforce in the face of millions of immigrants was involved. According to the Table 5 it is possible to assume, that in 1996 demand for real estate started increasing because of the rise in housing prices during this period.

Construction companies had begun massive buildings and by 2000 the number of houses built had increased by 1, 5 times compared to 1996 (from 415 800 to 248 600). At the peak of the construction boom during the period from 2000 to 2007, according to the Spanish Society of real estate valuation, 400000-600000 houses per year were built on average – more than has been built in the UK, Italy and Germany together (Table 5). At the same time, according to some experts, the demand for housing in Spain was much lower.

Table 5: Total number of residential real estate property built in Spain (1985-2009)

Year	Number of houses	Year	Number of houses	Year	Number of houses	Year	Number of houses	Year	Number of houses
1985	191 400	**1990**	281 100	**1995**	208 100	**2000**	415 800	**2005**	522 600
1986	195 200	**1991**	271 600	**1996**	248 600	**2001**	498 700	**2006**	584 500
1987	202 600	**1992**	219 600	**1997**	286 000	**2002**	426 700	**2007**	637 400
1988	239 500	**1993**	217 500	**1998**	297 900	**2003**	448 000	**2008**	631 400
1989	236 600	**1994**	223 500	**1999**	356 100	**2004**	488 700	**2009**	307 900

Source: ST Sociedad de Tasación, author's computation

Unfortunately, the Spanish statistical databases do not provide information concerning the number of houses sold in the period from 1985 to 2003. Ministry of Development of Spain has data available only since 2004. Thus, according to table 6, the number of unsold homes in the period from 2004 to 2009 amounted to 1 670 143 units.

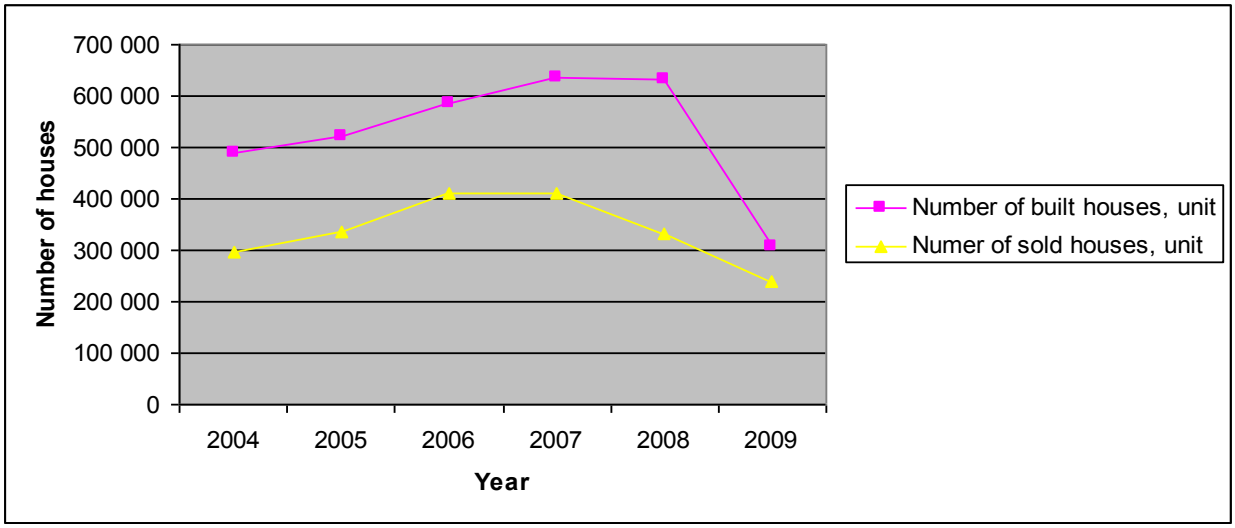
Table 6: Total number of residential property in Spain (2004-2009)

Year	2004	2005	2006	2007	2008	2009
Number of sold houses	295 242	336 478	410 192	412 439	333 426	241 053
Number of unsold houses	193 458	186 122	174 308	224 961	297 974	66 847

Source: Spanish Ministry of Development, author's computation

Graph 2 depicts that from 2004 to 2008 property supply significantly exceed demand by approximately 1, 5 times. However, in 2009 the number of houses built has decreased almost in two times in comparison with 2008. The demand had decreased since 2007.

Figure 2: The difference between built and sold residential property in Spain (2004-2009)



Source: Spanish Ministry of Development, author's computation

Another important indicator in addition to number of built and unsold houses is the number of unfinished housing, i.e. the difference between the planned construction of homes and built ones. In assumption that it takes approximately two years in order to build a house, thus, it is necessary to deduct the number of houses sold in 2003 from the number of houses started to be built in 2001.

Table 7: Total number of unfinished residential real estate property in Spain (2009-2009)

Year	2001	2002	2003	2004	2005	2006	2007	Total amount
Number of houses to be built	564 300	520 100	609 300	647600	667 500	820 100	667 300	4 536200
Year	*2003*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*Total*
Number of built houses	448 000	448 700	522 600	584 500	637 400	631 400	307 900	3 620500
Number of unfinished houses	116 300	71 400	86 700	63 100	30 100	188 700	359 400	915 700

Source: ST Sociedad de Tasación, author's computation

According to the calculation based on the data from the table 8, the number of unfinished houses for a period of seven years amounted to 915 700. However, if we add to this the number houses to be built during the period from 2008 to 2009 and unsold properties, it would be a huge number equal to 2 428 670 houses, what depicts table 8.

Table 8: Total number of unsold, unfinished residential property and number of residential real estate at the stage of constructin during the crisis in Spain

Number of unsold property	1 143 670
Number of unfinished property	915 700
Number of property at the stage of construction during the period 2008-2009	369 300
Total amount	2 428 670

Source: ST Sociedad de Tasación, author's computation

According to data of Bank of Spain, in 2010 the total number of houses in the country amounted to 26 839 236, while the number of families amounted 17 115 400. It turns out that in Spain there is at least 9 723 836 vacant homes, because there are some houses inhabited by 2 or 3 families.

In order to evaluate how new houses would be unsold, it is important to analyze the demand for them. First of all, it depends on the price. Another important factor is the number of population at the age of about 30 years, when people buy their own property and leave the house where they were growing up. An interesting fact is that in 1977 the birth rate dropped significantly and began growing only in 1985. Thus, during the crisis in 2008, the population at the age of thirty was insufficient and the demand was low. In fact, about four millions of immigrants have come to Spain over the last ten years in Spain, who also required generated additional supply for housing. Still it did not have significant impact on real estate market in Spain.

According to forecasts of some experts, the population will increase by only two million people in the next forty years and the decline in real estate prices due to the demographic factor by 2050 may reach 75% (average 2% per year).

Employment rate is another indicator which influences demand for housing greatly. Analysis of the post-crisis period helps to understand the possibility to restore the demand for real estate. And according to the National Institute of Statistics, unemployment rate was one of the highest in the world and accounted 18, 01% in 2010.

The level wages is another important factor for real estate market, which in that period was about 10 554 Euro per year for population under the age of 20, 13 041 Euro for

persons at the age from 20 to 24 years and 16 681 Euro for persons at the age from 25 to 29. In comparison with average salary in Spain, which was 22 189 Euro per year, the salary of the young population was almost two times less.

Another important indicator for determining the demand for real estate is the number of issued mortgage loans. It is worth noticing that during the period from 2007 to 2010, the number of provided mortgages to the population decreased more than twice: from 124 826 to 53 898 respectively. In general, during the period from 2003 to 2010, 7 585 509 mortgages were issued on, when the number of registered households was twice less.

According to the National Institute of Statistics, the number of years needed to save for housing in 2007 was equal to 11, 4 years. In 2009, the figure decreased to the level of 9, 5 years. For example, in 1996 it required 5, 34 years.

Many people consider that in Spain, unlike other European countries, people tend to buy property instead of rent it. This tendency might be explained by the fact that Spanish government initially encouraged people to buy real estate properties. Thus, interests on mortgage loans were considerably low in comparison with prices for rent. In fact, mortgage loans were almost equal to the cost of rental housing, which encouraged people to buy property through mortgage lending.

To more bought than starred in rent, you need to mortgages were low, and the prices for rent were high. In fact, mortgage loans were almost equal to the cost of rental housing, which encouraged people to buy property through mortgages. The taxation of the purchase of housing was also reduced from 45 % to 18 %. Thus, in the second period of a "property boom" in Spain it was possible to purchase real estate property a sell it the next day, making a profit and paying only 18 % of tax.

However, taking into account such factors as birth rate, unemployment rate among youth and their wages, it is possible to conclude that in the coming years the recovery of demand among this segment of the population seems to be almost an impossible task.

4.2 Overview of major Spanish residential market segments

There are several major real estate market segments in Spain. Brief overview of each residential market segment is given below.

Catalonia is a historic region of Spain located on the Mediterranean coast, which is famous for its culture and history. The capital of the region is Barcelona. Capital takes its status and that is why prices for real estate property here are the highest. Prices vary depending on the distance of the object from the center. The real estate market in Barcelona has a lot of options, - from the apartments in the old city center to the new luxury projects. Property here has the highest liquidity in comparison with other region of Spain.

Real Estate in Catalonia is considered a prestigious acquisition, primarily due to the geographical proximity to the French Côte d'Azur. Villas on the Costa Brava and Costa Dorada are traditionally the "hallmark" of buyers who can afford the expensive real estate - from 1500 to 3000 Euro per square meter. Costa Dorada and Costa Brava are two most popular regions for people preferring to buy property at the seaside. The coastline here is wide and beautiful; the sea is clean and warm. Coast comfortably equipped with modern infrastructure.

Madrid is the capital of Spain and the largest city of the country. As in any European capital, prices for real estate property in Madrid in 2015 were higher than in other regions. Cheap properties are located in residential areas of the city, while the most expensive apartments are sold in the city center.

Valencia and Murcia, as well as other areas of Spain, famous for the sun and sea. At the same time they are popular because of their greater democratic prices for housing. Costa Blanca, Alicante, Benidorm, Costa Azahar and Costa Calida are the major regions for buying residential property.

Andalucia is unique in that it simultaneously washed by the waters of the Mediterranean Sea and the Atlantic Ocean. The Costa del Sol, Marbella, Estepona has long deserved recognition of tourists from around the world. Such an active interest shown in real estate in Costa Tropical, Almeria. On the coast it is offered both elite and inexpensive apartments and villas. The convenient location and beautiful nature are reasons for the purchase of housing here. Malaga is located on the Costa del Sol and considered to be the most popular city of the region. Here there are also prestigious and luxurious resorts such as Marbella and Puerto Banus.

Balearic Islands are located in the Mediterranean Sea and include four islands which are Mallorca, Menorca, Ibiza and Formentera. Mallorca is the largest island and Formentera is the smallest one. In comparison other region of Spain, residential property of

Balearic Islands is the most expensive. Nevertheless, apartments and villas in the Balearic Islands are bought very actively.

Canary Islands are very popular due to its mild and comfortable climate. The quality of construction and level of service are at a high level, while the property prices of primary and secondary market more acceptable in comparison with prestigious Balearic Islands or Costa Brava. Residential property here is one of the cheapest in Spain.

4.3 Current situation on the real estate market of Spain

The growth of prices and number of transactions point to a continued recovery of the Spanish real estate market. At the same time, the recovery process is uneven: 70 % of all transactions account for only five regions, and 75 % of sales are made on the secondary real estate market. Experts agree that, in general, the situation on the Spanish market has changed for the better, but there are still many difficulties that must be overcome. Regional disparities, the low percentage of new buildings in the total volume of sales and the activity of foreign buyers and other factors will determine the situation on the real estate market in the coming year.

In December 2015 the average price per square meter of Spanish real estate was 1 619 Euro, according to the portal Fotocasa.es. At the same time, according to the Association of inspectors on real estate registration (Colegio de Registradores), from the third quarter of 2014 prices rose to 6, 62 % in comparison with third quarter of 2015.

Experts from Eurostat also see positive trends on the market of houses and apartments in Spain. According to Eurostat data, in annual terms, the prices of real estate grew by 4, 0% by the end of the third quarter of 2015 (for comparison: on the average on EU this indicator amounted to 3, 1 % for the same period). At the same time, in the third quarter of 2015 compared to the previous quarter, prices in Spain rose by only 0 7 %, while in the EU real estate has risen in price by 1, 3 %.

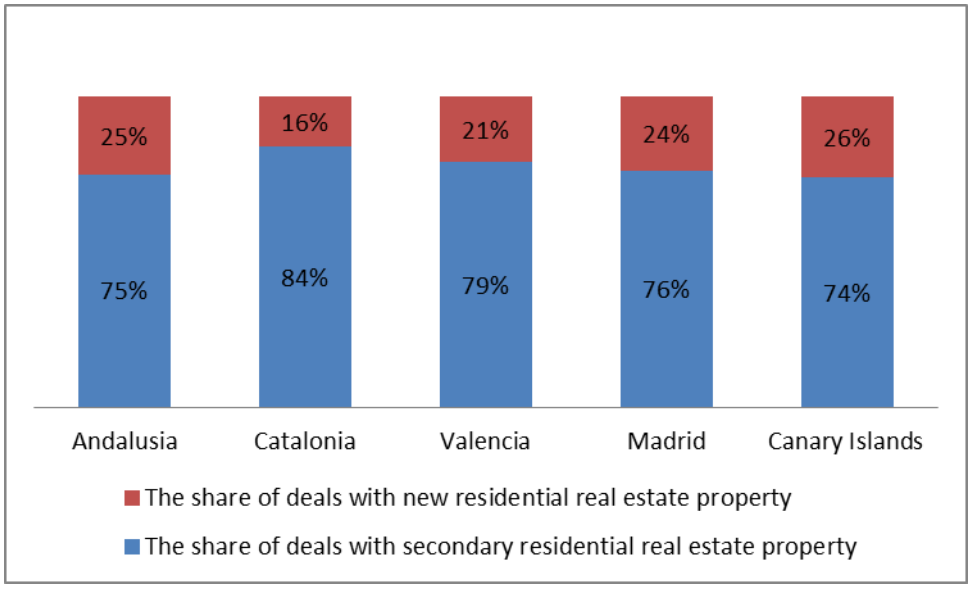
Although experts differ in their projections for 2016, the common opinion is that the Spanish real estate market of residential property has entered the growth phase, and this is a positive sign for owners and buyers of real estate.

Great expectations of market participants related to the apartment sector. According to General Council of Spanish Notaries (Consejo General del Notariado), prices for new

buildings increased by 5, 9% in the year to November 2015, reaching, in real terms, 1 666 Euro per square meter in average in the country. The growth of prices for new buildings due to the shortage of such facilities in the regional markets of Spain. For example, in Catalonia the share of sales of new buildings in the total volume of real estate transactions in 2015 amounted to only 12, 5 %.

The increase in sales, as already noted, was mainly provided by increase in the number of transactions in the secondary market. According to the Association of inspectors, the share of sales of secondary homes in the total amount of transactions was the largest in recent years. In turn, proportionally decreased the share of deals with new residential property, and in early 2016 reduction in the number of transactions with new buildings keeps on continuing. According to the site about Spanish property Kyero.com, in 2015, the lowest level in sales of new objects of residential real estate property was recorded in the entire history of observations (i.e. since 2007) – 77 865, which is 32 % less than in 2014. For comparison: in 2007 it sold 326 380 objects of residential property.

Figure 3: The total number of deal for the sale of residential real estate property in major real estate market segments in Spain (III quater 2014 - III quater 2015)



Source: Colegio de Registradores, author's computation

Home sales in the secondary market amounted to 76, 39 % of the total number of transactions, while for new buildings only had 21, 17 % of sales.

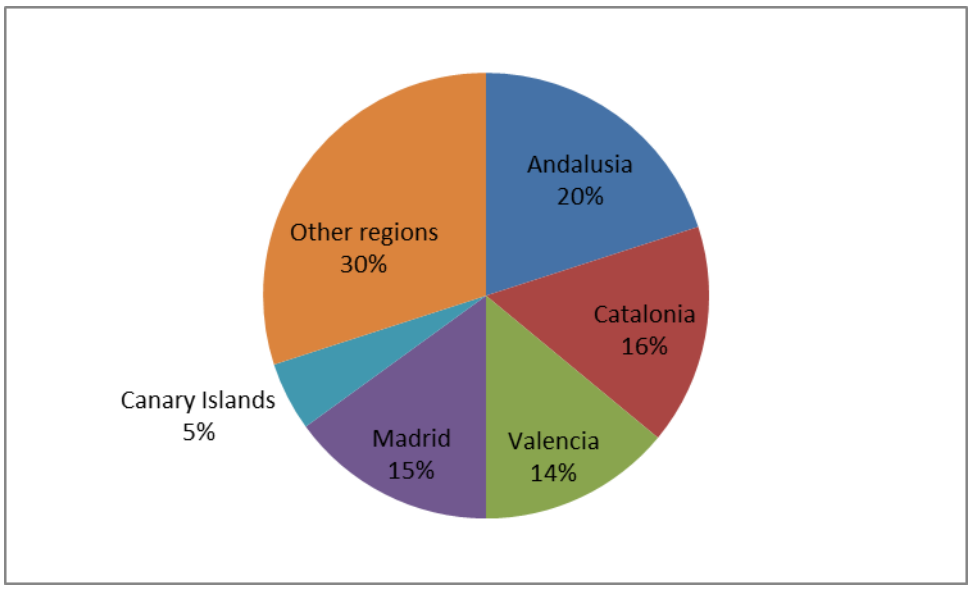
The number of transactions with apartments increased by 6, 2 %, while home sales increased by 12, 2 % (such data results in the High notary Council of Spain).

It is very important to notice, that Spanish real estate market of residential property is geographically heterogeneous: some local markets are very successful, and there is clearly visible growth of prices and quantities of transactions, other markets are still stagnating.

The most successful local real estate markets in 2015 were Andalusia, Catalonia, the Autonomous community of Valencia, Madrid and the Canary Islands. In these locations 70 % of the total transactions in Spain for the year (from third quarter 2014 till third quarter of 2015) were concluded.

Moreover, the situation even within some real estate market segments may vary. For example, in the Autonomous community of Andalusia in 2015 was concluded most transactions (19, 99 %). However, 35, 01 % of transactions in Andalucia were in Málaga and 16, 75 % - Sevilla. The weakest markets were the provinces of Jaén and Córdoba - there was concluded only 4, 58 and 6, 07 % of transactions respectively.

Figure 4: The share of major real estate market segments in the total amount of transactions with residential property in Spain (2015), %



Source: Colegio de Registradores, author's computation

The table presented below depicts Spanish real estate market segments which are the most popular among buyers of residential property.

Table 9: The most popular marker real estate segments of residential property in Spain (2015)

	Region	Number of deals	The average price per square meter, Euro
1	Madrid	50 635	2 198
2	Barcelona	36 368	2 335
3	Alicante	26 155	1 284
4	Malaga	24 432	1 663
5	Valencia	18 488	1 300
6	Sevilla	11 544	1 522
7	Murcia	10 660	1 146
8	Balearic Islands	10 222	1 853
9	Las Palmas (Canary Islands)	10 184	1 319
10	Cadiz	8 788	1 292
Spain		92 768	1 619

Source: Colegio de Registradores, author's computation

The distribution of sales by regions shows that only a few locations are booming, while others are still not out of the crisis.

All of the above points to one obvious fact: the General recovery of the Spanish property market became possible thanks to higher prices in several regions with the most expensive hous-ing. Only in four regions the real estate prices higher than the average in Spain: Madrid, Barce-lona, Malaga and the Balearic Islands

All of the above points to one obvious fact: the General recovery of the Spanish property market became possible thanks to higher prices in several regions with the most expensive housing. Only in four regions the real estate prices higher than the average in Spain: Madrid, Barcelona, Malaga and the Balearic Islands.

Excepting landlocked Madrid and Seville, a large part of the growing real estate markets of residential property is located on Mediterranean and Atlantic coast of Spain. From the point of view of number of sales and rising in prices for residential property, Madrid and Barcelona remain the main real estate market segments in Spain. In conditions of still high unemployment (about 20 %) and economic growth, far from pre-crisis growth rates, these cities are becoming crucial for both Spanish business and the working population and foreign people.

Barcelona can be called the pioneer of post-crisis growth. What is more, 2015 is considered to be the best for luxurious real estate property market of Barcelona in the last seven years. Over the past twelve months of 2015 prices have stabilized. What is more, there is an increasing demand on the part of both local and foreign buyers. However, analysts predict that due to the fall of the ruble, the share of Russian customers will decrease. At the end of 2015, the average sale price of residential real estate property in Barcelona was 3 188 Euro per square meter. In prestigious districts of L'Eixample and the Area Alta average prices amounted to 3 640 and 4 119 Euro per square meter respectively. The average purchase price of elite property in the city reached 4 268 Euro per square meter.

The number of transactions compared to 2014 in Barcelona has increased. Especially increased demand for the property which costs more than one million Euro. The peak sales were in the first month of 2007, when there were more than eight thousand transactions. In 2014 it was recorded on average 2 246 deals a month.

The demand for primary property in the Catalan capital exceeds supply; therefore discounts for residential property in this segment are almost not practiced. At the present there is a situation in Barcelona, when taking into account strict criteria of the buyers, offer and options to buy are quite limited. Key changes in 2016 will be the emergence of new quality projects, which has not been in the market for several years.

In 2010, the share of foreign investment into new objects of residential property in Barcelona was 3, 35 %, in 2014 - 12 %. The proportion of Russians in this market in 2014 was 6.9 % of the total share of foreign buyers of real estate residential property. The same number of British buyers (7 %), ahead of the Germans (8, 3 %), the French and the Spaniards (11, 1 %) and citizens of countries in the Middle East (12, 5 %).

The share of purchase of real estate objects for the purpose of investment was 42, 4 %. The majority of clients were lifestyle-investors who still buy for themselves, but in the future consider real estate property as a generator of income. In addition, 19,4 % of customers bought the property as a principal residence, 16, 7 % - for second homes, 13.9 % - for recreation purposes, and 0, 7 % in order to obtain a residence permit.

Sitges is a municipality located in Catalonia, near Barcelona. Prices for residential real estate property in 2015 have remained stable as sellers have adjusted prices in line with the expectations of buyers. The greatest demand was fixed for real estate property with sea views or close to the city center. In addition, demand exceeds supply. The Rus-

sians are not even among the top five most active foreign buyers in Sitges. In the first place are the British (44, 4 %), followed by the Singaporeans (22, 2 %). This is followed by the Belgians, the Poles and French (11, 1 % each). In 2014 the average sales prices of real estate in Sitges was 3 296 Euro per square meter. In the last quarter of 2014 they rose by 108 Euro per square meter compared to the prices in Barcelona. At the elite real estate market during 2015 the activity has grown. The majority of transactions were concluded before the summer, because buyers purchase the object of residential property mainly for recreational purposes.

Speaking about Madrid, sales of residential real estate property has grown in 2015. Total sales of new properties in Madrid increased from 496, 5 million Euros in 2013 to 787, 1 million Euros in 2014. For the first three quarters of 2015, foreigners bought a property in Madrid for a total amount of 419 million Euros. Average price in Central Madrid at the end of 2015 amounted to 3 285 Euro per square meter, in areas Chamberí and Salamanca - 3 260 Euro per square meter and 4 138 Euro per square meter respectively.

Another important segment of residential property in Spain is Valencia. In 2015 prices for objects of residential real estate property in Valencia have remained stable. It is expected that this trend will continue in 2016. In areas with the highest demand, the property prices might rise by 1-3 %. At the end of 2015, the average price in the Old town amounted to 2 158 Euro per square meter. Sales in Valencia have increased by 31 % in 2015 in comparison with 2012.

The coast of Costa Brava is one of the most attractive real estate market segments in Spain. In recent years, foreign investments in residential real estate property of Costa Brava have grown significantly. For example, in 2010 the share of foreign investors amounted to 9 %, and in 2014 this number increased to 26 %. In recent the total number of Russian buyers of elite real estate property on the Costa Brava has also increased. In 2014 the share of Russians among foreign buyers of premium-class amounted to 26, 7 %, after British buyers - 33, 3 %.

However, now the situation tends to change. Taking into account the deteriorating of economic situation in Russia and the continued fall of the ruble to Euro, experts predict that the number of Russian buyers will fall. During the period of 2011 -2014 Russian investments were the main engine of the residential real estate market of this segment. What is more, increasing number of Russian buyers must have an influence on prices in the pres-

tigious coastal areas. Nevertheless, experts consider that the strengthening of the pound sterling and the Swiss franc will increase the demand from the British and the Swiss. According to forecasts for 2016, prices for residential property in Costa Brava will not change significantly. However, sales will grow.

Average sales prices for Costa Brava range from 1 248 Euro per square meter in Cadaqués in the North of the region up to 2 474 Euro per square meter in Platja d'Aro region. In General, prices tend to decrease. The residential real estate property in Costa Brava is mainly bought for recreational purposes during holiday period. (26, 7% of all the buyers).

4.3 Customer analysis of residential real estate market of Spain

Tourism is an important component of economic growth in Spain. In the period from January to October 2015 Spain visited 60.8 million people. A quarter of them were from Great Britain. International airports, receiving more tourists, are located in the most popular real estate market of residential property. According to a leading Spanish airport operator AENA (Aeropuertos Españoles y Navegación Aérea), 14 major airports received 95, 1 millions of passengers.

Table 10: Foreign buyers of Spanish real estate residential property in 2015

	Country of origin	Share in the total number of deals with foreigners, %	Share in the total number of deals, %
1	United Kingdom	20, 02	2, 61
2	France	9, 05	1, 18
3	Germany	7, 20	0, 94
4	Belgium	6, 57	0, 86
5	Sweden	5,82	0, 76

Source: CBRE, author's computation

From January to May of 2015 the number of tourists from Russia to Spain fell by almost 30% compared to the same period last year. For comparison, from 2009 to 2013, the number of visitors from Russia increased by 30% or more annually.

Deals with the British are very important for the dynamics of prices, not only because buyers from the United Kingdom are the most active buyers in comparison with other foreigners, but also due to their high income. The difference in exchange rates of Pound

and Euro, and strong growth in property prices in the UK force buyers from this country finding alternatives at reasonable prices abroad.

In the period from third quarter 2014 to third quarter 2015 one in every five objects of residential real estate property sold to foreigners in Spain, was acquired by a buyer from the UK.

One of the most expensive real estate market, Madrid is particularly popular with Chinese investors — they are attracted to Spain by the program obtaining residence permit in exchange for investments, the so-called "Golden visa". The Russians and Chinese are the key applicants for the "Golden visa" in Spain, a residence permit through the purchase of a property worth 500 000 Euro and more. Since the law came into force in 2013, this possibility was used by about 850 people.

The number of deals with buyers of residential real estate property from Russia declined. In 2015 customer group of Russian people was on the sixth place in the ranking of the most active foreign buyers, Ukrainian buyers were on the thirteenth place. In 2013-2014, the Russians were among the top three of major foreign buyers of Spanish residential real estate property.

Because of the recession in Russian economy, the total share of Russian buyers of residential real estate property has decreased significantly (by 15 %) in comparison previous periods. At the present time customers from Russia tend to invest in commercial real estate in Spain in order to save their capital from the economic crisis at home. In 2015 Russian-speaking buyers spent on purchasing of this kind of property 40 % more than other investors spent on it.

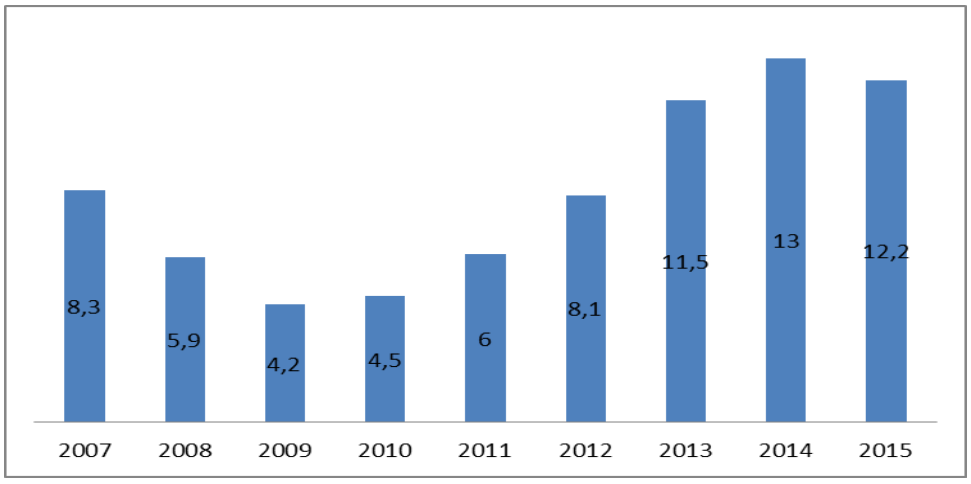
Predictions about the fact that Spanish real estate market of residential property had reached the bottom and prices would soon begin to grow increased demand from foreign funds and private investors. At the beginning of 2014, large investment funds from the United States and other countries considered that the Spanish real estate market of residential property was at a minimum and started to invest in the expectation concerning its further growth. This fact stopped the decline and contributed greatly to a rise in demand and prices, which had started rising in the spring of 2014. Meanwhile, due to the cheap mortgages demand for residential real estate property among local buyers has also increased. Now real estate specialists expect a continuous growth on the real estate segments of resi-

dential property during 2016-2018. And consider this period as the most favorable time in order to invest in Spanish property.

According to the Service registration, the share of foreign buyers in the Spanish real estate market of residential property in 2014 reached a historical peak — 13, 01 %. In 2009 it amounted to 8, 97 % and each year declined until 2010, when started rising again.

In 2014 the share of foreign buyers was the most significant in the Balearic Islands (32, 63 %), Canary Islands (27, 42 %), Valencia (27, 16 %), Murcia (15, 88 %), Andalusia (15, 24 %) and Catalonia (13, 23 %). The leader among provinces of Spain is Alicante (43, 88 %).

Figure 5: The average monthly share of transactions with residential real estate property by foreighners (2007-2015), %



Source: Registradores de España, author's computation

In the first quarter of 2015, the proportion of foreigners had dropped to 12, 22 % as well as significantly increased domestic demand. However, the number of deals involving foreign buyers increased from an average of 3 500 per month in 2014 to 3 700 in 2015.

4.4 Future prognosis about Spanish real estate market of residential property

The Spanish real estate market of residential property has showed first signs of recovery amid the overall recovery in the economy in 2015. However, despite the fact that experts agree with expected growth to the end of 2016, opinions about further developments were divided.

Spanish real estate agency Servihabitat predicts a growing number of deals with houses and apartments in Spain in 2016 by 14, 5 % and the increase in prices by 6, 0 %. Such data contains in the agency report “Residential Market in Spain: Current situation and prospects”, which was prepared in collaboration with the Institute of business practices (Instituto de Práctica Empresarial) and published in October 2015. The analysts ' conclusions are based on analysis of market indicators in 2015 that reflects "normalization of the situation on the residential real estate market".

According to Servihabitat, in 2015 the number of transactions in the real estate market of residential property in natural expression amounted to 403 thousand units, which is 26, 6% more than in 2014. The growth in the number of transactions is primarily due to the growth of sales in the secondary market. While in Spain registration authorities consider as "secondary" even those properties that have never been occupied by tenants, but were owned by investors, so the operations in the segment of new buildings amount only 12, 9% in total sales of residential property.

Among major real estate market segments of residential property the leaders in 2015 were the Canary Islands (49, 2 %), Madrid (43, 3 %), Catalonia (32, 9 %), Valencia (19 %) and Andalusia (15, 4 %).

Specialist from Servihabitat noted about a considerable revival of demand which has led to higher prices around the country by 2, 6 % in comparison with 2014. In 2015 prices for residential real estate property in Andalusia and Catalonia prices rose by 3, 1 %, by 1, 5 % in Madrid and by 3, 4 % in Valencia and in the Canary Islands.

According to the Association of inspectors on real estate registration (Colegio de Registradores de España), in 2015 growth in prices for residential real estate property amounted to 2, 8 % compared with 2014, and in 2016 is expected to increase to 5, 0 %. Also, there is a "defrosting" of construction projects started before the crisis and previously unclaimed buildings are being bought up gradually. The main reason for the growth is available credit and the improvement in the labor market.

According to the forecast of Servihabitat, in 2016 the growth in home sales in Spain at an annual rate will be approximately 14, 5 % (or more than 462 thousand units of residential real estate property) and the average value of the objects is expected to be about 6, 3 %.

Table 11: Forecast of customer activity in Spanish real estate market segmnets of residential property in 2016 (compared to 2015)

Region	Expected growth in number of deals with residential real estate property, %	Expected growth in average cost of residential real estate property, %
Canary Islands	27,5	6,6
Madrid	21,7	7,2
Catalonia	16,8	6,4
Valencia	9,5	6,9
Andalusia	7,9	6,4

Source: Servihabitat, author's computation

According to Standard & Poor', in 2015 growth in prices for Spanish residential real estate was on average 2, 5 %, the same pace will continue in 2016. A considerable increase in prices, according to analysts S&P, will only be in 2017, when the average price will grow by 4, 0 %.

Less optimistic forecast gives commercial bank Bankinter: in the opinion of its experts, the prices for 2015 have grown by only 2, 0 %, and in 2016 predict growth in prices for residential real estate property on average 4, 0 %. Bankinter estimated the increase in the number of property transactions on an annual basis at 15, 0 % (380 000 units), while in 2016 this figure should reach 420 000 units.

Thus, analysts agree that the Spanish property market has entered the recovery phase. While there is no consensus about further developments, as the overall situation in the Spanish economy will influence greatly real estate market of residential property in the short term.

It is worth mentioning that that real estate market of residential property in Spain keeps on growing along with the economy.

Observed revival of demand on the Spanish real estate residential property market followed by improvement in the labor market and increasing mortgage lending. What is more, the unemployment rate in the country decreased from 26, 1% in 2013 to 22, 2 % in 2015. According to the Bank BNP Paribas, in 2017 this figure will be approximately 19, 3 %.

At the same time in the second quarter of 2015, the number of issued mortgage loans increased by 11, 1% in comparison with the same period in 2014. Average mortgage

rate in Spain today is 2, 86 %, which is 0, 20% lower than in the first quarter of 2015. The total mortgage debt in relation to GDP decreased from 104, 9 % in 2010 to 68, 6 % in 2015, i.e. the Spaniards gradually return the debts accumulated before the crisis.

The price index of housing affordability has fallen 9, 0 in 2007 to 6, 3 levels in comparison with early 2000-ies. This means that in the context of improvement of economic situation more buyers will be able to afford the purchase of residential real estate property in Spain.

In 2014 the GDP of Spain for the first time in four years showed an increase (1, 4 % annualized), and in 2015 the figure reached 3, 0 %. According to the forecast of the research center of Oxford Economics, in 2016 GDP growth will remain positive, but growth adjusted to 2, 6 %, which means that the recovery in the real estate market of residential property will be in line with the common trend for EU markets.

Therefore, in the future prices for residential real estate property in Spain will continue to rise owing to two main factors:

1) Strengthening of domestic demand:

On the one hand, real estate residential property prices have fallen for recent years and on the other hand the economy of the country and, consequently, incomes of population keep on growing as well. As a result, housing has become more affordable for the local population. For example, if in 2007 the average family needed about twelve years to buy a real estate property; in 2015 the figure was 7, 8 years. However, there is a risk in the situation, when historically low mortgage rates could cause lending, and some borrowers will not be able to pay its debts after the rates increase.

2) High demand for residential real estate property from foreign buyers:

Further price dynamics will also depend on the state of the economy and employment. According to Bloomberg, in the first quarter of 2015, the Spanish economy grew at its quickest pace in seven years. The growth of GDP was 0, 9 % compared to the fourth quarter of 2014 and 2, 6% in the first quarter of 2014. For the entire year of 2015 growth amounted to 2, 9 %, and in 2017 and 2018 is expected to accelerate to 3 %. According to prognoses of Harvard University, by 2023 Spain will become a country with the fastest growing economy in the EU: GDP will annually grow on average by 3, 7 %. The unemployment rate is also expected to decrease to 15.6 % in 2018. These factors will create

suitable conditions for the growth of investor confidence. As a result, the real estate market of residential property in Spain tends to grow.

5 Regression analysis of residential real estate property in the selected real estate market segments of Spain

5.1 Regression analysis of residential real estate property in Barcelona

Firstly it is crucial to analyze source data for Barcelona.

Since the selected factors are manifold, it is necessary to conduct a preliminary analysis on the existence of a linear relationship using pairwise correlation coefficients. The values of coefficients are as presented in Appendix 6.

It is possible to determine the presence of a sufficiently close direct linear relationship between the prices, which in our case will act as an effective sign of y, the size is x1, number of bathrooms x3, the presence of a linear relationship between price and number of bedrooms x2, and the presence of terrace x5. With other factors (floor, furnishings, renovation, parking and type of housing) a linear relationship is weak. It is possible that these factors are not necessary to include in the final regression model.

Construct a preliminary regression model including all factors.

Table 12: Regression statistics (Barcelona)

Indicator	Value
Multiple R	0,950883
R – squared	0,904178
Normalized R – squared	0,882618
Standard Error	249418,5
Number of observations	50

The coefficient of determination R^2 = 0, 904, which quite close to 1. This fact indicates a good accordance of the model. And it shows that 90, 4 % of the variation in prices explained by change of the selected variables.

Table 13: Dispersion analysis (Barcelona)

Variance analysis	df	SS	MS	F-test	F - significance
Regression	9	2,34804E+13	2,609E+12	41,93784	1,357E-17
Balance	40	2,48838E+12	6,221E+10		
Total	49	2,59688E+13			

The calculated value of Fisher's criterion test F = 41, 94 proves the statistical significance of the constructed regression equations. Analyzing the column P-Value it is possible to determine that coefficients of the variables x1 (size) and x5 (terrace) are statistical-

ly significant. Factor x2 (number of rooms) should be deleted, as it is linearly dependent with factors x1 (footage) and x3 (number of bathrooms). Factor x3 also has a considerable close linear relationship with the factor x1 (size), therefore its inclusion is also not appropriate. (Appendix 7)

Table 14: Coefficients of linear regression with the selected factors (Barcelona)

	Coefficients	Standard Error	t-statistics	P-Value
Y-intersection	-201860,7229	66299,83	-3,04466	0,003809
Size, sq. m.	6826,247891	502,9807	13,57159	7,11E-18
Terrace	2617,503901	961,298	2,722885	0,009053

The regression model with selected factors x1 and x5 is the following:

$y = -201860,72 + 6826,25x_1 + 2617,5x_5$

Therefore, with the increase of the size of apartment by one square meter and in the absence of terrace, the price of an apartment increases on average by 6826, 25 Euro. And the presence of terraces at a constant total size of housing increases the price of apartments on average by 2617, 5 Euro.

All the coefficients of the model are statistically significant. The regression equation overall is statistically significant (the calculated value of Fisher test is 154, 56). The coefficient of determination R^2 = 0,868, i.e. 86, 8% of the variation in prices is explained by change in the total size of the apartment and the presence or absence of terraces.

Table 15: Coefficients of linear regression with the added factor ''Furniture

	Coefficients	Standard Error	t - statistics	P - Value
Y – intersection	-222577	69124,06	-3,21997	0,002354
Size, sq. m.	6703,226	516,0202	12,99024	5,34E-17
Terrace	2550,863	962,4211	2,650465	0,010985
Furniture	84435,3	80640,47	1,047059	0,300543

Adding to the model the factor "Furniture", it is possible to conclude that it remains statistically insignificant as in the case when the model contains all the factors.

The average price for an apartment in Barcelona is 687 686 Euro. Half of the apartments have a price below 450 000 Euro and half above 450 000 Euro. Most common price is 900 000 Euro. (Appendix 8)

According to the Appendix 9, it is possible to determine that there are four apartments in the source data, which can be classified as elite (apartments 24, 31, 32 and 35). It

is crucial to eliminate them and conduct a new regression analysis with the selected factors. The elimination of luxury apartments leads to the fact that the terrace becomes a statistically insignificant factor, and taking into account only total size of the apartment and the presence of a terrace is not enough, because in this case the determination coefficient will be equal to 0, 63.

After analysis of the coefficients of the Appendix 10, it is possible to determine that such factors as "Terrace", "Number of bathrooms" and "Parking" are statistically important.

The linear model in the selected cluster of apartments with such factors as "Terrace", "Number of bathrooms" and "Parking" is the following:

$$y = -34083,8 + 2286,0\, x_2 + 264389,3\, x_3 + 87237,48\, x_9$$

Table 16: Coefficients of linear regression with the selected factors (Barcelona)

Factor	Coefficient	Standard Error	t - statistics	P - Value
Y – intersection	-34083,8	60681,54	-0,56168	0,577317
Terrace	2286,002	1170,67	1,952729	0,057537
Number of bathrooms	264389,3	32500,5	8,13493	3,63E-10
Parking	87237,48	47986,56	1,817957	0,076208

Statistically significant in this set of factors is the factor x3.

Besides all, it is possible to conduct the clustering of the selected apartments on the basis of the total size and to consider each cluster separately. Alternatively, it is possible to analyze a cluster of three apartments, price of which is defined by intervals: from 57 000 to 425 000 Euro, from 425 000 to 1 000 000 Euro and from 1 000 000 to 3 500 000 Euro.

In clusters of more expensive apartments such factors as total size of the apartment, the presence of a terrace and the number of toilets are significant. In clusters with low prices for apartments such factor as total size of the apartment is insignificant and the factor number of bathrooms significant. But it is worth mentioning that the coefficient of determination in a cluster of low-cost apartments is equal to 0, 35. Therefore, the presented factors in the source data are not enough for complete analysis of the cluster with cheap apartments. The attractiveness of these apartments is influenced by other factors which are not included in the analysis.

To crown it all, the formation of the average price of an apartment in Barcelona (which is equal to 687 686 Euro) is significantly influenced by such factors as "Size, sq.

m.", "Terrace" and its size and "Number of bathrooms". The total share of elite residential real estate property in the selected sample amounts 8%. The exclusion of this type of housing from consideration leads to changes in the composition of the relevant factors. After adding the factor "Parking" to the set of such factors as "Number of bathrooms", "Terrace" and "Parking", it is possible to say that this factor is not statistically significant.

5.2 Regression analysis of residential real estate property in Madrid

Firstly it is crucial to analyze source data for Madrid.

Since the selected factors are manifold, it is necessary to conduct a preliminary analysis on the existence of a linear relationship using pairwise correlation coefficients. The values of coefficients are presented in Appendix 11.

It is possible to determine the presence of a sufficiently close direct linear relationship be-tween the prices, which in our case will act as an effective sign of y, the size is x1, number of bathrooms x3, the presence of a linear relationship between price and number of bathrooms x3, and the presence of terrace x5, floor x4 and availability of parking x9, an inverse relationship between the price and the availability of furniture x6. With other factors (renovation and type of housing) a linear relationship is weak. Therefore it is possible that these factors are not necessary to include in the final regression model.

Construct a preliminary regression model including all factors.

Table 17: Regression statistics (Madrid)

Indicator	Value
Multiple R	0,935221
R – squared	0,874638
Normalized R – squared	0,846432
Standard Error	177765,4
Number of observations	50

The coefficient of determination R^2 = 0, 874, which quite close to 1. This fact indicates a good accordance of the model. And it shows that 87, 4 % of the variation in prices explained by change of the selected variables.

Table 18: Dispersion analysis (Madrid)

Variance analysis	*df*	*SS*	*MS*	*F-test*	*F - significance*
Regression	9	8,81897E+12	9,79886E+11	31,00851969	2,62233E-15
Balance	40	1,26402E+12	31600526607		
Total	49	1,0083E+13			

The calculated value of Fisher's criterion test F = 31, 01 proves the statistical significance of the constructed regression equations. Analyzing the column P-Value it is possible to determine that coefficients of the variables x1 (size) and x2 (number of rooms) are statistically significant. Other factors have statistically insignificant coefficients. (Appendix 12)

Table 19: Coefficients of linear regression with the selected factors (Madrid)

	Coefficients	Standard Error	t-statistics	P-Value
Y-intersection	-73382,82	57645,98	-1,27299	0,209282
Size, sq. m.	8113,4645	565,037	14,35917	8,31E-19
Number of rooms	-130627,49	26284,87	-4,96968	9,32E-06

The regression model with selected factors x1 and x2 is the following:

$y = -73382, 82 + 8113, 46x_1 – 130627, 49x_2$

Therefore, with the increase of the size of apartment by one square meter at a fixed number of rooms, the price of an apartment increases on average by 8113, 46 Euro. An increase in the number of rooms at a constant total area reduces the price of an apartment on average by 130 627, 49 Euro.

All the coefficients of the model are statistically significant. The regression equation overall is statistically significant (the calculated value of Fisher test 136, 69). The coefficient of determination $R^2 = 0, 853$, i.e. 85, 3% of the variation in prices is explained by change in the total size of the apartment and the number of rooms.

The average price for an apartment in Madrid is 501 016 Euro. (Appendix 13). Half of the apartments have a price below 382 500 Euro and half above 382 500 Euro. Most common price is 330 000 Euro. According to the Appendix 14, it is possible to determine that there are four apartments in the source data, which can be classified as elite. It is possible to determine the interval $\bar{x} \pm 2\sigma$. In accordance with the so-called rule of three sigma (3σ), approximately 80 - 90% of the apartments are in this range. Apartments which are not in this interval are classified as elite (apartments 9, 11, and 27). Therefore it is im-

portant to eliminate these apartments from consideration and conduct a new regression analysis with the selected factors. The elimination of luxury apartments leads to the fact that the terrace becomes a statistically insignificant factor, and taking into account only total size of the apartment and the presence of a terrace is not enough, because in this case the determination coefficient will be equal to 0, 63.

After analysis of the coefficients it is possible to determine that such factors as "Size, sq. m." and "Number of rooms are statistically" are statistically important. (Appendix 15)

The linear model in the selected cluster of apartments with such factors as "Floor", "Renovation" and "Primary/Secondary" is the following:

$y = -155679 + 161261,3\ x_7 + 166488,4\ x_8 + 45946,53\ x_4$.

Table 20: Coefficients of linear regression with the selected factors (Madrid)

Factor	Coefficient	Standard Error	t - statistics	P - Value
Y – intersection	-155679	250710,8	-0,62095	0,53791
Renovation	161261,3	84192,16	1,915396	0,062108
Primary/ Secondary	166488,4	117164,9	1,420974	0,162536
Floor	45943,53	14677,59	3,130182	0,003136

Statistically significant in this set of factors is the factor x4.

To crown it all, the formation of the average price of an apartment in Madrid (which is equal to 501 016 Euro) is significantly influences by such factors as "Size, sq. m." and "Number of bathrooms". The total share of elite residential real estate property in the selected sample amounts 6%. The exclusion of this type of housing from consideration does not lead to changes in the composition of the relevant factors. It is also worth mentioning that the factor «Floor» is considered to be an important factor as well and has a significant impact on pricing for apartments in Madrid.

5. 3 Regression analysis of residential real estate property in Valencia

Firstly it is crucial to analyze source data for Valencia.

Since the selected factors are manifold, it is necessary to conduct a preliminary analysis on the existence of a linear relationship using pairwise correlation coefficients. The values of coefficients are presented in Appendix 16.

It is possible to determine the presence of a sufficiently close direct linear relationship between the prices, which in our case will act as an effective sign of y, the size (x1), number of bathrooms (x3). With other factors (number of rooms, floor, terrace, furniture, renovation, primary or secondary type of housing and parking) a linear relationship is weak, as the correlation coefficients for the module are in the range from 0, 3 to 0, 5.

Construct a preliminary regression model including all factors.

Table 21: Regression statistics (Valencia)

Indicator	Value
Multiple R	0,925444
R – squared	0,856447
Normalized R – squared	0,824148
Standard Error	127837,8
Number of observations	50

The coefficient of determination R^2 = 0, 856, which quite close to 1. This fact indicates a good accordance of the model. And it shows that 85, 6 % of the variation in prices explained by change of the selected variables.

Table 22: Dispersion analysis (Valencia)

Variance analysis	df	SS	MS	F-test	F - significance
Regression	9	3,90002E+12	4,33336E+11	26,51586	3,68E-14
Balance	40	6,53701E+11	16342515075		
Total	49	4,55372E+12			

The calculated value of Fisher's criterion test F = 26, 52 proves the statistical significance of the constructed regression equations.

Analyzing the column P-Value it is possible to determine that coefficients of the variables x1 (size) are statistically significant. While lowering the significance level to 0, 15, the factor "Primary/secondary" (x8) can be considered as statistically significant. Since the factor "Number of bathrooms" (the correlation coefficient is equal to 0,617) has a considerably large correlation coefficients with the factors "Number of rooms" (x2) and "Size, sq. m." (x1), and the factor "Number of rooms" (x2) with the factor "Size, sq. m." (x1), then it is possible to assume that the factor "Size, sq. m." (x1) displays all the influences of these three factors. Other variables have a weak linear relationship with the characteristic of y, therefore, such factors as "Size, sq. m." (x1) and "Primary/secondary" (x8) should be included in the model. (Appendix 17)

Table 23: Coefficients of linear regression with the selected factors (Valencia)

	Coefficients	Standard Error	t-statistics	P-Value
Y-intersection	32546,80889	99797,9189	0,326127	0,745776
Size, sq. m.	3495,706012	243,63648	14,34804	8,56E-19
Primary/Secondary	-117030,5295	47212,0832	-2,47883	0,016827

The regression model with selected factors x1 and x8 is the following:

$y = 32546, 81 + 3495, 71x_1 – 117030, 53x_8$

Therefore, with the increase of the size of apartment by one square meter and in the absence of terrace, the price of an apartment increases on average by 3495, 71 Euro. And the presence of terrace at a constant total size of housing decreases the price of apartments on average by - 117030, 53 Euro.

All the coefficients of the model are statistically significant. The regression equation overall is statistically significant (the calculated value of Fisher test 130, 34). The coefficient of determination $R^2 = 0,847$, i.e. 84, 7% of the variation in prices is explained by change in the total size of the apartment and the presence or absence of terraces.

The average price for an apartment in Valencia is 217 712, 16 Euro (Appendix 18). Half of the apartments have a price below 119 500 Euro and half above 119 500 Euro. Most common price is 65 000 Euro. According to Appendix 19, it is possible to determine that there are some apartments in the source data, which can be classified as elite. In accordance with the so-called rule of three sigma (3σ), it is possible to determine the interval $\bar{x} \pm 2\sigma$: (0; 827410, 8). Apartments which are not in this interval are classified as elite (apartments 32 and 48). Therefore it is important to eliminate these apartments from consideration and conduct a new regression analysis with the selected factors.

In this combination of statistically significant such factors as "Size, sq. m." at the significance level which is equal to 0, 1, "Number of rooms". In case of reducing the significance level, then it is impossible to add such factors as "Floor" and "Furniture". (Appendix 20)

The linear regression with the selected factors is the following:

$y = -168619 + 1795, 72\ x_1 + 29879, 03\ x_2 + 8803, 6\ x_4 + 53791, 76x_7$.

Table 24: Coefficients of linear regression with the selected factors (Valencia)

Factor	Coefficient	Standard Error	t - statistics	P - Value
Y – intersection	-168619	40232,54	-4,19112	0,000136
Size, sq. m.	1795,717	299,409	5,99754	3,69E-07
Number of rooms	29879,03	14923,31	2,002172	0,051599
Floor	8803,601	4953,408	1,777282	0,082596
Furniture	53791,76	23361,25	2,302606	0,026204

Factors x1 and x7 are statistically significant in this set of factors.

To crown it all, the formation of the average price of an apartment in Valencia (which is equal to 217 712 Euro) is significantly influenced by such factors as "Size, sq. m." and "Primary/Secondary". The total share of elite residential real estate property in the selected sample amounts 4%. The exclusion of this type of housing from consideration leads to changes in the composition of the relevant factors. Also it is possible to add the factor "Furniture", in the set of such factors as "Number of rooms", "Floor", "Furniture" and "Size, sq. m.", and the factors "Number of rooms" and "Floor" are considered as not statistically significant factors.

5.4 Regression analysis of residential real estate property in Costa Brava

Firstly it is crucial to analyze source data for the region of Costa Brava.

Since the selected factors are manifold, it is necessary to conduct a preliminary analysis on the existence of a linear relationship using pairwise correlation coefficients. The values of coefficients are as follows are presented in Appendix 21.

It is possible to determine the presence of a sufficiently close direct linear relationship be-tween the prices, which in our case will act as an effective sign of y and the size (x1), number of bathrooms (x3), the presence of a linear relationship between price and number of rooms (x2). With other factors (floor, terrace, furniture, parking and primary/secondary) a linear relationship is rather weak. Also the factor the number of rooms (x2) has a relatively strong correlation with such factors as size (x1) and number of bathrooms (x3).

Construct a preliminary regression model including all factors.

Table 25: Regression statistics (Costa Brava)

Indicator	Value
Multiple R	0,86245858
R – squared	0,7438348
Normalized R – squared	0,68619763
Standard Error	89459,5059
Number of observations	50

The coefficient of determination R^2 = 0, 743, which quite close to 1. This fact indicates a good accordance of the model. And it shows that 74, 3 % of the variation in prices explained by change of the selected variables

Table 26: Dispersion analysis (Costa Brava)

Variance analysis	df	SS	MS	F-test	F - significance
Regression	9	9,3E+11	1,03E+11	12,90547	2,48E-09
Balance	40	3,2E+11	8E+09		
Total	49	1,25E+12			

The calculated value of Fisher's criterion test F = 12, 91 proves the statistical significance of the constructed regression equations.

Analyzing the column P-Value it is possible to determine that at the significant level which equal to 0, 15, coefficients of such variables as x1 (size) and x2 (number of rooms) and number of bathrooms are statistically significant, which should be included in the model. (Appendix 22)

Table 27: Coefficients of linear regression with the selected factors (Costa Brava)

	Coefficients	Standard Error	t - statistics	P - Value
Y – intersection	-88075,6	41387,16	-2,12809	0,038719
Size, sq. m.	4242,002	618,6486	6,856885	1,49E-08
Number of bathrooms	59219,8	27316,1	2,167945	0,035373
Number of rooms	-47663,5	21798,45	-2,18655	0,033899

The regression model with selected factors x1, x2 and x3 is the following:

$y = -88075, 6 + 4242, 0\ x_1 + 59219, 8\ x_2 – 47663, 5\ x_3$

Therefore, with the increase of the size of apartment by one square meter at a fixed number of bathrooms, the price of an apartment increases on average by 4242 Euro. An

increase in the number of bathrooms at a constant size of an apartment and number of rooms increases the price of an apartment on average by 59 219, 8 Euro. An increase in the number of rooms at a constant size of an apartment and number of bathrooms decreases the price of an apartment on average by 47 663, 5 Euro.

All the coefficients of the model are statistically significant at the significant level which equal to 0, 8. The regression equation overall is statistically significant (the calculated value of Fisher test is 39, 57). The coefficient of determination R^2 = 0, 72, i.e. 72% of the variation in prices is explained by change in the total size of the apartment, number of rooms and number of bathrooms.

The average price for an apartment in the region of Costa Brava is 250 727 Euro. (Appendix 23) Half of the apartments have a price below 201 200 Euro and half above 201 200 Euro. Most common price is 140 000 Euro.

According to Appendix 24, it is possible to determine that there are four apartments in the source data, which can be classified as elite. It is possible to determine the interval $\bar{x} \pm 2\sigma$. In accordance with the so-called rule of three sigma (3σ), approximately 80 - 90% of the apartments are in this range. Apartments which are not in this interval are classified as elite (apartments 9, 11, and 27). Therefore it is important to eliminate these apartments from consideration and conduct a new regression analysis with the selected factors.

It is crucial to check the homogeneity of the data graphically. In order to do it, firstly it is necessary to determine the interval in accordance with the so-called rule of three sigma (3σ), which is equal to (0; 570122,2). Then it is important to eliminate apartments that do not fall in this interval (42, 27) and provide a regression without these apartments.

The omission of the elite apartments leads to the situation when such factors as size of an apartment (x1) and number of bathrooms(x3) become statistically significant. The equation is statistically significant and its quality is sufficient (R^2 = 0, 7).

The linear model in the selected cluster of apartments with such factors as "Size", "Number of bathrooms" with the excluded apartments is the following (Appendix 25):

$y = -70607, 13 + 2098, 82\ x_1 + 78929, 57\ x_2$

Table 28: Coefficients of linear regression with the selected factors (Costa Brava)

	Coefficients	Standard Error	t-statistics	P-Value
Y-intersection	-70607,12873	35717,89	-1,9768	0,054211
Size, sq. m.	2098,824671	563,7028	3,723283	0,000545
Number of bathrooms	78929,57315	24723,07	3,192547	0,002574

Factors x1 and x2 are statistically significant in this set of factors.

To crown it all, the formation of the average price of an apartment in the region of Costa Brava (which is equal to 250 727 Euro) is significantly influenced by such factors as "Size, sq. m.", "Number of rooms" and "Number of bathrooms". The total share of elite residential real estate property in the selected sample amounts 4%. The exclusion of this type of housing from consideration leads to changes in the composition of the relevant factors. Such factors as "Number of rooms" and "Number of bathrooms" and "Floor" are considered as statistically significant factors.

5.5 Regression analysis of residential real estate property in Mallorca

Firstly it is crucial to analyze source data for Mallorca.

Since the selected factors are manifold, it is necessary to conduct a preliminary analysis on the existence of a linear relationship using pairwise correlation coefficients. The values of coefficients are presented in Appendix 26.

It is possible to determine the presence of a sufficiently close direct linear relationship be-tween the prices, which in our case will act as an effective sign of y and the size (x1), terrace (x5), the presence of a linear relationship between price and number of rooms (x2), number of bathrooms (x3) and the paring (x9). With other factors (floor, furniture, renovation and primary/secondary) a linear relationship is rather weak. Therefore, it is possible that these factors are not necessary to include in the final regression model.

Construct a preliminary regression model including all factors.

Table 29: Regression statistics (Mallorca)

Indicator	Value
Multiple R	0,862261
R – squared	0,743495
Normalized R – squared	0,685781
Standard Error	260608,8
Number of observations	50

The coefficient of determination R^2 = 0, 743, which quite close to 1. This fact indicates a good accordance of the model. And it shows that 74, 3 % of the variation in prices explained by change of the selected variables.

Table 30: Dispersion analysis (Mallorca)

Variance analysis	df	SS	MS	F-test	F - significance
Regression	9	7,87E+12	8,75E+11	12,88247	2,54E-09
Balance	40	2,72E+12	6,79E+10		
Total	49	1,06E+13			

The calculated value of Fisher's criterion test F = 12, 88 proves the statistical significance of the constructed regression equations.

Analyzing the column P-value it is possible to determine that coefficients of the variables x1 (size) and x5 (terrace) are statistically significant. Factor x2 (number of rooms) should be deleted, as it is linearly dependent with factors x1 (size) and x3 (number of bathrooms). Factor x3 also has a considerable close linear relationship with the factor x1 (size), therefore its inclusion is also not appropriate. (Appendix 27)

Table 31: Coefficients of linear regression with the selected factors (Mallorca)

	Coefficients	Standard Error	t-statistics	P-Value
Y-intersection	-134643	87758,03	-1,53425	0,131672
Size, sq. m.	4181,563	837,4878	4,992984	8,61E-06
Terrace	7477,098	1333,825	5,605755	1,06E-06

The regression model with selected factors x1 and x5 is the following:

$y = -134643 + 4181, 56\ x_1 + 7477, 1\ x_5$

Therefore, with the increase of the size of apartment by one square meter and in the absence of terrace, the price of an apartment increases on average by 4181, 56 Euro. And the presence of terraces at a constant total size of an apartment increases the price of apartments on average by 7477, 1 Euro.

All the coefficients of the model are statistically significant. The regression equation overall is statistically significant (the calculated value of Fisher test is 51, 27). The coefficient of determination R^2 = 0,685, i.e. 68, 5% of the variation in prices is explained by change in the total size of the apartment and the presence or absence of terraces. However, it is not enough for a further proper analysis. That is why it is important to add the consideration of the factor x2 (number of rooms). It is also not sufficient and the determination coefficient will increase to 0, 71). Besides all, the coefficient in the regression equation will be statistically insignificant.

The inclusion of the remaining factors also does not lead to a significant increase in the coefficient of determination. Therefore, it is possible to assume that these factors are sufficient for providing the further analysis.

The average price for an apartment in Mallorca is 506 869, 6 Euro (Appendix 28). Half of the apartments have a price below 262 500 Euro and half above 262 500 Euro. Most common price is 725 000 Euro.

The Appendix 29 depicts the fact that the original data is significantly heterogeneous, and it is proved by the coefficient of variation, which is considerably higher than 33% and is equal to 108, 6%. Besides all, it is possible to conduct the clustering of the selected apartments on the basis of the price for apartments, which are defined by the following intervals: from 98 000 to 400 000 Euro, from 400 000 to 1 000 000 Euro and from 1 000 000 to 2 200 000 Euro.

In the second and third clusters such factors as "Size, sq. m." and "Terrace" influence significantly. In the cluster of cheap apartments all the regression coefficients are statistically insignificant. Therefore, price attractiveness of such apartments is influenced by other factors.

5.6 Discussion of the results

In order to provide a proper comparative analysis of the selected real estate market segments of residential property in Spain, the regression analysis of the following real estate market segments was conducted:

1) Barcelona;
2) Madrid;
3) Valencia;
4) Costa Brava;
5) Mallorca (the Balearic Islands).

For the constructing of a linear regression model of each real estate segment of residential property a random sample, consisting of 50 objects of residential property (apartments), was used.

The independent variable Y (price of an apartment in Euro) is explained by 9 dependent variables, which are the following: X_1 (size, sq. m), X_2 (number of rooms), X_3

(number of bathrooms), X_4 (floor), X_5 (availability of a terrace), X_6 (availability of furniture), X_7 (availability of renovation), X_8 (primary/secondary type of property), X_9 (availability of parking).

The table below shows the obtained results of the regression analysis of each real estate market segment and the major factors influencing the price of apartments in each real estate segment the most.

Table 32: Comparative analysis of the selected real estate market segments of residential property in Spain

Indicator	Barcelona	Mallorca	Madrid	Valencia	Costa Brava
Average price, Euro	687 686	506 869, 6	501 016	217 712, 2	250 727
Median	450 000	262 500	382 500	119 500	201 200
Mode	900 000	725 000	330 000	65 000	140 000
Average size, Sq. m.	112, 36	105, 8	116, 52	113, 9	87, 42
Factors	Size, sq.m., terrace, furniture	Size, sq.m. terrace,	Size, sq.m. Number of rooms	Size, sq.m. Primary/ Secondary	Size, sq.m. Number of bathrooms

According to the results from the table above, it is possible to conclude that the highest average price for apartment is fixed in Barcelona and is equal to 678 686 Euro. And the lowest price for apartment is fixed in Valencia and is equal to 217 712, 2 Euro.

The factors which have the most significant impact on the price of an apartment are different for each real estate market segment. The common factor for all the market segment is the size of an apartment. For example, such factors as the availability of terrace and the availability of furniture influence the price of apartments in Barcelona.

The most significant factors which have an impact on the price of apartment in Mallorca are the size of an apartment and the availability of terrace.

The most significant factors which have an impact on the price of apartment in Madrid are the size of an apartment and number of rooms.

The most significant factors which have an impact on the price of apartment in Valencia are the size of an apartment and type of the property (primary or secondary).

The most significant factors which have an impact on the price of apartment in Costa Brava are the size of an apartment and type of the number of bathrooms.

According to experts, the most profitable investment will be apartments in Spain, located in the resort areas and at the seaside. Barcelona is considered to be the most popular real estate market segment for buying residential property in Spain. What is more, based on the customer analysis, it is possible to say that the demand for residential property in Barcelona keeps on growing by both local and foreign buyers. At the present time Barcelona is both commercial and cultural center of Spain and the most intensively developing region, which exceeds the rate of economic growth of Madrid.

5.6 Recommendations

Based on the analysis of the current situation of Spanish real estate market of residential property, it can be concluded that at the present time it is recovering from the crisis. Prices for residential real estate property in Spain have started increasing. In addition, number of real estate transactions in Spain has also increased considerably. It is worth mentioning that a significant share of deals with residential property has been made with foreign buyers. And at the present this proportion keeps on increasing.

The Spanish residential property market is among the five most attractive for foreign investors, and Spain has all the chances to become the leader in this ranking due to the economic policies of the Spanish government aimed at attracting foreign investments in the real estate market of residential property.

There many advantages of buying residential real estate property. Firstly, one of the most attractive benefits is the possibility to obtain residence permit in Spain. And this fact cannot help attracting foreign buyers. Secondly, a flexible system of mortgage lending also contributes greatly to the development of the residential real estate market in the country. According to the most pessimistic forecasts, the average price level will remain unchanged, but an increase in sales volumes and the growth of residential real estate transactions with participation of foreign buyers suggests that the stagnation has been left behind, and in the coming years, the Spanish real estate market of residential property will reach the pre-crisis price level. The Balearic Islands and the Canary Island are considered to be the most stable real estate market segments in order to buy residential property in Spain, where the fall in residential real estate property prices because of the crisis was minimal and at the present time the prices, demand and profitability of residential property are growing rapidly. Along

with the Canary Islands the Balearic Island are the so-called "islands of stability" of the residential real estate market of Spain. For example, if in 2013 the average decline in prices of real estate residential property in Spain amounted to 8%; in the Balearic Islands it was equal to 6%.

The Balearic Islands have experienced several periods of popularity and property prices growth, and residential real estate property here is in much more stable demand in comparison with the real estate in mainland Spain. This fact can be explained by the large share of foreign buyers in this market segment. Investors from all over the world want to get the profit from intense constant flow of tourists to the Balearic Islands. The demand for short-term rent in Ibiza and Mallorca is much above average in Spain, for example, rental income may reach 5-6 % per year and even higher (on average in Spain it is equal to 4%).

To crown it all, residential real estate property of the Balearic Islands is always in a high demand and is not considerably affected by fluctuations in prices of property unlike other real estate market segments of Spain. That is why the Balearic Islands are considered as the best real estate market segment for buying residential property in Spain.

Speaking about other Spanish real estate market segments of residential property in order to invest in real estate, it is recommended to buy property of high quality in good locations that are in demand in any conditions of real estate market. In this case it is possible to take into account residential real estate property both in luxury and medium price segments, which is situated in good areas and new housing complexes with modern infrastructure and a convenient location.

6 Conclusion

After evaluating the current situation on the real estate market of residential property in Spain and providing comparative analysis of the major real estate market segments of residential property, it is possible to say that this market has overcame the stagnation and at the present time shows the evident signs of stable growth.

To sum it up, it is possible to determine the major reasons for the recovery of the residential real estate property market of Spain, which are the following:

1) *The growth in prices and sales for residential real estate property:*

Prices of residential real estate property and sales volumes are the most considerable indicators of the market. The year 2015 turned out to be more than positive for Spanish real estate market of residential property. In the first quarter of 2015 the average cost of Spanish residential real estate property increased by 2, 65% on an annual basis and amounted to about 1 450 Euro per one square meter. Thus, it has showed annual growth for the first time since 2008. It is worth mentioning, that since the beginning of the crisis residential real estate property in Spain has lost in value about 40%.

The total number of sales of residential real estate property in Spain also increased considerably in 2015. In 2015 the total number of transactions with residential real estate property was equal to 90 534, and it is 9% more than in the same period of the year 2014.

According to the forecast of real estate agencies, the increase in sales is a sure indication that the Spanish property market will not fall in the future and price will tend to increase. This is also confirmed by the fact that the sector of construction has started rising. What is more, the demand in the segment of luxury residential property and seaside regions is very high.

The sales increase was achieved largely due to the growth of transactions with secondary real estate residential property. While the volume of construction and commissioning of new property is small, secondary housing remains the main engine of the Spanish real estate market of residential property. In the first quarter 2015 the total number of transaction with the secondary residential property amounted to 67 864, what is about 70% of total sales of residential real estate property. In 2015, secondary

housing prices rose in 15 regions. A year earlier, growth was recorded only in five regions.

To conclude, it is possible to say that the prices of residential property in Spain have stabilized. The most significant growth in prices for residential real estate property was recorded in the following regions of Spain: Madrid, Catalonia (mainly Barcelona), the Balearic Islands (Mallorca and Ibiza).

2) High demand from foreign buyers:

The customer analysis has showed the increasing demand for Spanish residential real estate property by foreign investors. In 2015 the total share of buyers from abroad amounted to 12, 22 % of the total number of transactions with residential property. And in comparison with 2014 the number of acquisitions made by foreigners by 8, 95 %.

The leaders among foreign buyers are still British. They account for 20, 02 % of total transactions with residential real estate property in Spain. French and German buyers were on the second and third places in the ranking – 9, 05 % and 7, 20 % respectively. Russian buyers are on the sixth place (5, 03%), but still remain important participants on the real estate market of Spain.

Because of the crisis in Russia the number of Russian customers decreased, but at the same time the number of transactions with customers from European countries (UK, Belgium, the Netherlands, and France) increased significantly. There is also an increasing demand from Spanish buyers of residential real estate property. Therefore, there is the tendency of a progressive activity on the real estate market on residential property in Spain, and forecasts concerning the growth in price increase are approved.

In addition, according to the forecasts of the Bank of Spain, the average rate of growth of investment in Spanish real estate market of residential property in 2016 is expected to be about 7 %. Therefore, real estate market of residential property in Spain has reached the bottom and at the present time it keeps on stabilizing as the demand is supported by both foreigners and locals buyers.

3) Stabilization of construction on the market of residential real estate property

For the further development of residential real estate market it is necessary to obtain the supply of new quality housing. During the boom period in Spain a great number of residential property was built, but its quality not always was satisfactory. Despite this fact, there was no lack of investment to this market segment. However, after the collapse in the

real estate a great amount of new housing of different quality were unsold, even the price was reduced to the minimum. The demand stopped increasing and the construction industry of Spain has been in stagnation for several years.

In 2015 the construction sector of Spain showed the signs of recovery. For example, the number of permits for the construction of new residential property increased by almost 39 % on an annual basis and amounted to 3 466 documents. Therefore, it can be concluded that the development activity in Spain has revived. Of course, this number is far from the pre-crisis statistic, like it was in January of 2007, when 59 268 permits for the construction of new housing were registered. Many real estate market analysts consider that the recovery of the construction industry in Spain as a positive sign for the residential property market. Moreover, it is expected to a permanent trend, as the constructing of new objects of residential real estate property and the demand for it keep on growing.

To crown it all, it is possible to say that the recovery of the Spanish real estate market of residential property is not a distant prospect. In fact, it is the current trend for this kind of market with possibilities for the further stable development.

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Appendices

Appendix 1: Source data for Barcelona

	Price, Euro	Size, sq. m.	Number of rooms	Number of bathrooms	Floor	Terrace	Fur-ni-ture	Renova-tion	Primary /secondary	Parking
1	900000	220	6	3	5	-	-	+	Secondary	-
2	57500	85	3	1	9	8	+	+	Secondary	-
3	545000	105	2	2	4	40	+	+	Secondary	+
4	995000	170	4	4	4	10	-	+	Secondary	+
5	550000	86	3	2	5	7	-	+	Secondary	-
6	420000	90	3	2	7	12	+	-	Secondary	-
7	415000	70	2	1	5	10	+	+	Primary	+
8	700000	122	2	2	5	4	-	+	Primary	-
9	380000	98	2	2	4	3	+	+	Secondary	-
10	373000	87	3	2	7	-	-	+	Primary	+
11	890000	127	3	2	5	40	+	+	Secondary	+
12	250000	41	1	1	2	-	-	+	Primary	-
13	425000	82	3	2	2	4	-	+	Primary	-
14	626800	121	3	2	4	10	+	+	Primary	-
15	450000	134	3	1	4	2	-	-	Secondary	-
16	1300000	280	6	4	4	15	+	+	Secondary	+
17	900000	111	3	2	7	30	+	+	Secondary	+
18	325000	104	1	1	2	20	-	-	Secondary	-
19	580000	75	2	2	8	-	-	+	Primary	+
20	290000	47	1	1	2	-	-	+	Primary	+
21	340000	45	1	1	1	-	-	+	Primary	+
22	540000	75	2	2	3	-	-	+	Primary	+
23	315000	48	1	1	7	-	+	+	Primary	+
24	3500000	349	5	5	5	40	+	+	Secondary	+
25	1050000	200	5	3	4	10	-	+	Secondary	+
26	430000	90	3	2	3	-	+	+	Secondary	+
27	725000	86	2	2	7	105	-	+	Secondary	-
28	490000	122	4	2	2	14	-	-	Secondary	-
29	800000	135	5	2	6	30	+	-	Secondary	-
30	695000	150	3	2	4	-	+	-	Secondary	+
31	2800000	320	5	4	9	300	+	+	Secondary	-
32	2050000	305	5	3	5	20	+	+	Secondary	-

Continuation of the table (Appendix 1)

33	476000	70	2	1	2	11	-	+	Primary	+
34	752000	105	4	2	2	18	-	+	Primary	+
35	3300000	500	6	5	5	100	+	+	Secondary	+
36	497000	72	3	1	2	-	-	+	Primary	-
37	239000	136	3	2	6	-	-	+	Primary	-
38	373000	87	3	2	12	-	-	+	Primary	+
39	192000	53	1	1	8	23	-	-	Secondary	-
40	280000	71	2	1	2	11	+	-	Secondary	+
41	625000	115	3	2	5	12	+	-	Secondary	-
42	400000	140	3	2	1	80	-	+	Secondary	-
43	450000	65	3	1	3	10	+	+	Secondary	-
44	394000	101	3	2	7	5	-	+	Secondary	+
45	175000	50	2	1	3	-	+	+	Secondary	-
46	344000	86	4	1	5	23	-	+	Primary	-
47	256000	87	3	2	4	10	-	+	Primary	-
48	150000	47	1	1	2	-	-	+	Primary	-
49	158000	55	2	1	3	-	+	+	Secondary	-
50	216000	98	2	1	2	-	-	+	Secondary	+

Source: https://www.kyero.com

Appendix 2: Source data for Madrid

	Price, Euro	Size, sq. m.	Number of rooms	Number of bathrooms	Floor	Ter-race	Fur-ni-ture	Reno-vation	Primary /secondary	Parking
1	145000	45	1	1	1	10	+	+	Secondary	-
2	330000	111	3	2	5	-	-	+	Secondary	+
3	650000	153	3	2	1	15	+	+	Secondary	+
4	97000	44	1	1	7	9	+	+	Primary	-
5	580000	120	3	2	1	17	+	+	Secondary	+
6	390000	75	2	2	2	-	+	+	Secondary	+
7	635000	160	4	3	1	-	+	-	Secondary	+
8	350000	94	2	1	2	7	+	+	Secondary	+
9	1950000	290	5	4	5	60	-	-	Secondary	+
10	90000	120	4	2	6	-	+	-	Secondary	-
11	2150000	300	4	3	6	12	-	+	Primary	+
12	430000	96	3	2	5	-	-	+	Primary	+
13	245000	110	4	2	5	20	+	-	Secondary	-
14	690000	175	4	3	3	25	-	-	Secondary	-
15	850000	192	4	1	7	-	-	-	Secondary	-
16	79000	50	2	2	1	-	+	-	Secondary	-
17	285000	65	1	1	3	-	+	+	Secondary	-
18	460000	83	2	1	5	-	-	+	Primary	-
19	193000	140	4	2	2	5	+	+	Secondary	-
20	125000	93	3	2	2	10	+	-	Secondary	-
21	400000	113	4	2	3	6	+	-	Secondary	+
22	375000	92	2	1	1	18	-	+	Secondary	+
23	68000	53	2	1	4	4	-	-	Secondary	-
24	250000	63	2	1	1	-	+	+	Secondary	-
25	930000	146	2	2	5	-	-	+	Secondary	-
26	795000	130	4	2	9	10	-	+	Secondary	+
27	1435000	346	9	4	1	-	-	-	Secondary	+
28	470000	105	4	2	4	-	+	-	Secondary	-
29	170000	104	3	2	2	9	+	-	Secondary	-
30	525000	165	3	3	7	-	+	-	Secondary	+
31	99000	54	3	1	1	-	+	-	Secondary	-
32	605000	84	2	2	2	-	+	+	Secondary	+
33	150000	85	3	2	2	11	+	-	Secondary	-
34	260000	115	3	1	2	-	+	-	Secondary	+
35	1200000	175	2	1	4	24	+	-	Secondary	-

Continuation of the table (Appendix 2)

36	580000	118	5	2	1	-	-	+	Secondary	-
37	450000	76	1	2	1	20	+	+	Secondary	+
38	998000	199	3	2	5	-	+	+	Secondary	-
39	555000	161	3	2	2	25	-	+	Primary	-
40	140000	87	2	2	2	-	-	+	Primary	+
41	205800	80	3	2	4	10	-	+	Primary	+
42	250000	98	4	3	6	15	+	+	Secondary	+
43	330000	80	2	1	3	-	+	-	Secondary	-
44	180000	53	3	1	6	9	+	-	Secondary	-
45	90000	54	1	1	3	-	+	-	Secondary	+
46	695000	85	1	2	5	15	-	+	Primary	+
47	320000	65	1	1	4	-	+	+	Secondary	-
48	445000	101	2	2	7	20	+	+	Secondary	-
49	106000	23	1	1	4	-	+	-	Secondary	-
50	1250000	200	3	1	15	-	-	+	Secondary	+

Source: https://www.kyero.com

Appendix 3: Source data for Valencia

	Price, Euro	Size, sq. m.	Number of rooms	Number of bathrooms	Floor	Terrace	Fur-ni-ture	Renova-tion	Primary /secondary	Parking
1	57800	68	3	1	6	-	-	-	Secondary	-
2	56700	85	3	1	2	-	-	-	Secondary	-
3	60000	90	3	1	8	-	-	-	Secondary	-
4	73000	80	2	1	5	-	+	+	Secondary	-
5	85000	64	2	2	7	-	-	+	Primary	+
6	110000	65	2	1	3	10	-	+	Primary	-
7	128000	75	2	2	1	15	+	+	Secondary	-
8	65000	94	3	2	3	-	-	+	Secondary	-
9	99900	185	1	1	2	80	+	+	Primary	+
10	658000	210	4	3	9	22	+	+	Secondary	+
11	50000	50	1	1	5	2	+	+	Secondary	-
12	300000	170	3	2	3	-	+	+	Secondary	+
13	142000	70	3	2	4	40	+	-	Secondary	+
14	102000	82	3	1	1	17	+	+	Secondary	-
15	350000	110	4	2	4	20	+	+	Primary	+
16	150000	117	3	2	5	-	+	+	Secondary	-
17	105000	55	2	1	2	-	+	+	Secondary	-
18	84000	84	3	1	5	-	+	-	Secondary	-
19	399000	200	5	4	7	40	-	+	Secondary	+
20	225000	115	3	2	1	32	-	+	Secondary	-
21	119000	65	2	1	6	30	+	+	Secondary	-
22	120000	98	2	2	2	15	-	+	Secondary	-
23	215000	143	4	2	6	-	-	-	Secondary	-
24	65000	71	3	1	2	12	+	-	Secondary	-
25	32500	60	2	1	5	-	-	-	Secondary	-
26	67000	90	3	1	4	-	-	+	Secondary	-
27	150000	84	2	1	1	10	+	+	Secondary	+
28	175000	113	3	2	3	33	+	+	Secondary	+
29	69000	78	3	1	4	-	-	-	Secondary	-
30	71050	67	1	1	8	-	-	-	Secondary	-
31	160258	100	4	2	1	40	-	-	Secondary	-
32	52800	58	2	1	1	25	-	-	Secondary	-
33	80000	66	2	1	7	-	-	+	Secondary	-
34	241000	112	3	2	2	30	+	+	Primary	+
35	41300	87	3	2	1	-	-	-	Secondary	-

Continuation of the table (Appendix 3)

36	275000	83	2	2	3	14	+	+	Primary	-
37	591500	210	5	2	6	-	+	-	Secondary	-
38	1570000	441	4	3	16	55	+	+	Primary	+
39	66500	85	3	1	1	-	+	-	Secondary	-
40	77000	80	4	2	5	18	+	-	Secondary	-
41	148600	110	3	2	2	35	+	-	Secondary	-
42	1500000	330	4	3	1	50	+	+	Primary	+
43	515000	300	5	3	2	-	+	-	Secondary	-
44	65500	69	2	1	7	-	-	-	Secondary	-
45	175400	88	3	2	1	26	-	+	Primary	+
46	125800	78	2	1	6	21	+	+	Secondary	-
47	220000	160	4	3	4	-	+	-	Secondary	-
48	275000	135	2	1	3	32	+	+	Secondary	-
49	54000	62	2	1	5	-	-	-	Secondary	-
50	267000	103	3	2	2	40	+	+	Secondary	-

Source: https://www.kyero.com

Appendix 4: Source data for Costa Brava

	Price, Euro	Size, sq. m.	Number of rooms	Number of bathrooms	Floor	Terrace	Fur-ni-ture	Reno-vation	Primary /secondary	Parking
1	140000	70	2	1	3	15	+	+	Secondary	-
2	170000	75	3	1	4	22	+	+	Secondary	+
3	264000	80	2	2	6	4	-	+	Primary	+
4	407000	88	3	2	2	-	+	+	Secondary	+
5	450000	120	4	3	1	34	-	+	Secondary	+
6	139000	105	3	1	5	30	-	+	Secondary	-
7	162000	78	3	1	3	11	+	+	Secondary	+
8	191000	110	4	2	3	17	+	-	Secondary	+
9	255000	100	3	2	2	12	+	+	Secondary	+
10	440000	107	3	2	4	14	+	+	Secondary	-
11	385000	85	2	2	1	18	-	+	Primary	+
12	110000	53	3	1	3	-	-	+	Primary	+
13	285000	98	2	2	7	-	+	+	Primary	+
14	180000	108	3	2	5	-	+	+	Secondary	+
15	143400	65	1	1	3	-	+	+	Primary	+
16	155000	84	3	2	4	21	+	+	Secondary	-
17	68000	66	3	1	1	3	+	-	Secondary	-
18	350000	103	3	2	3	52	+	+	Secondary	+
19	198000	60	2	1	2	15	+	+	Secondary	-
20	130000	55	2	1	4	10	-	-	Secondary	-
21	275000	72	3	2	3	73	+	+	Secondary	-
22	60000	20	1	1	6	-	+	-	Secondary	-
23	135000	59	2	1	1	14	+	-	Secondary	-
24	385500	104	3	2	3	35	+	+	Secondary	+
25	80000	67	2	1	5	12	+	-	Secondary	-
26	145800	90	3	2	1	20	+	+	Secondary	-
27	585000	140	3	2	3	24	-	+	Primary	-
28	205000	61	2	1	2	10	+	+	Secondary	-
29	99900	65	2	2	1	10	+	-	Secondary	+
30	137000	84	2	1	4	14	-	+	Primary	-
31	570000	117	3	3	1	30	-	+	Primary	+
32	294000	95	4	2	6	17	+	-	Secondary	-
33	135000	85	3	1	5	14	+	-	Secondary	-
34	114000	76	2	1	2	9	-	+	Primary	+
35	250500	75	2	1	1	-	-	+	Primary	-

Continuation of the table (Appendix 4)

36	500000	160	4	3	4	40	+	-	Secondary	+
37	210100	78	3	1	5	15	+	+	Secondary	-
38	120650	70	2	1	2	12	+	+	Secondary	-
39	315000	90	3	2	2	20	-	-	Secondary	+
40	204400	98	4	2	4	-	-	+	Secondary	+
41	139400	40	1	1	7	-	+	+	Secondary	-
42	850000	185	4	2	3	20	+	+	Secondary	+
43	360600	100	3	2	1	-	-	+	Primary	+
44	214000	77	4	2	2	15	+	+	Secondary	+
45	370000	130	3	2	6	-	+	+	Secondary	+
46	140000	55	2	1	3	25	+	+	Secondary	-
47	450100	139	3	1	1	-	+	+	Secondary	+
48	100000	49	1	1	5	-	-	+	Primary	+
49	120000	33	1	1	6	2	-	+	Primary	-
50	348000	147	4	3	4	32	-	+	Primary	+

Source: https://www.kyero.com

Appendix 5: Source data for Mallorca

	Price, Euro	Size, sq. m.	Number of rooms	Number of bath-rooms	Floor	Ter-race	Fur-ni-ture	Renova-tion	Primary /secondary	Parking
1	315000	74	2	1	5	20	+	+	Secondary	+
2	285000	90	2	2	1	16	-	+	Secondary	-
3	2125000	102	2	2	3	132	-	+	Primary	+
4	112000	75	2	1	6	15	+	-	Secondary	-
5	130000	70	3	2	2	10	-	+	Secondary	-
6	185000	90	2	2	3	-	+	-	Secondary	-
7	260000	78	2	1	5	6	+	-	Secondary	-
8	245000	94	2	2	4	20	+	+	Secondary	-
9	725000	145	4	2	3	12	-	+	Primary	+
10	485000	135	3	2	5	15	+	+	Secondary	+
11	390000	85	2	2	3	8	+	+	Secondary	-
12	120000	160	3	2	1	17	-	+	Secondary	+
13	235000	84	2	2	1	15	-	+	Primary	+
14	1400000	202	5	3	4	125	+	+	Secondary	+
15	200000	43	1	1	4	15	+	+	Secondary	-
16	190000	46	1	1	2	8	+	+	Secondary	-
17	175000	45	1	1	3	6	+	+	Secondary	-
18	181000	43	1	1	1	6	-	+	Secondary	-
19	247000	135	4	3	4	45	-	+	Secondary	-
20	1557000	148	2	3	3	31	-	+	Primary	+
21	920000	170	4	3	1	108	+	+	Primary	+
22	850000	144	3	3	1	50	-	+	Primary	+
23	515000	93	2	2	3	43	+	+	Primary	+
24	1240000	152	3	2	1	110	+	+	Secondary	+
25	1150000	220	4	4	5	-	+	+	Secondary	+
26	180000	20	2	2	3	20	-	-	Secondary	-
27	182000	75	3	1	6	5	+	+	Secondary	-
28	195000	80	2	2	2	42	+	+	Secondary	+
29	215000	86	2	1	4	7	+	-	Secondary	+
30	220000	135	3	2	3	10	+	-	Secondary	-
31	224000	83	3	2	1	16	-	-	Secondary	-
32	225000	74	2	1	2	10	-	+	Secondary	-
33	230000	90	3	1	5	-	+	-	Secondary	-
34	320000	85	2	2	1	15	-	+	Secondary	+
35	860000	220	4	4	6	24	+	+	Secondary	+

Continuation of the table (Appendix 5)

36	725000	145	4	2	3	12	-	+	Secondary	+
37	1350000	165	3	2	2	60	+	+	Secondary	+
38	265000	100	4	2	3	9	+	-	Secondary	+
39	1250000	229	4	3	4	47	-	+	Secondary	+
40	370000	88	3	2	5	-	+	-	Secondary	+
41	820000	171	4	3	1	23	+	+	Primary	+
42	216000	50	1	1	4	-	+	+	Secondary	-
43	360000	66	2	2	3	-	+	+	Secondary	-
44	485000	94	3	2	1	14	+	-	Secondary	+
45	238000	75	2	2	5	12	+	+	Primary	+
46	149000	89	2	2	3	53	+	+	Primary	+
47	98000	42	1	1	2	5	-	+	Primary	-
48	153000	52	1	1	1	-	-	+	Primary	+
49	235000	83	2	1	3	13	-	+	Primary	+
50	1157000	170	4	3	4	50	-	+	Primary	+

Source: https://www.kyero.com

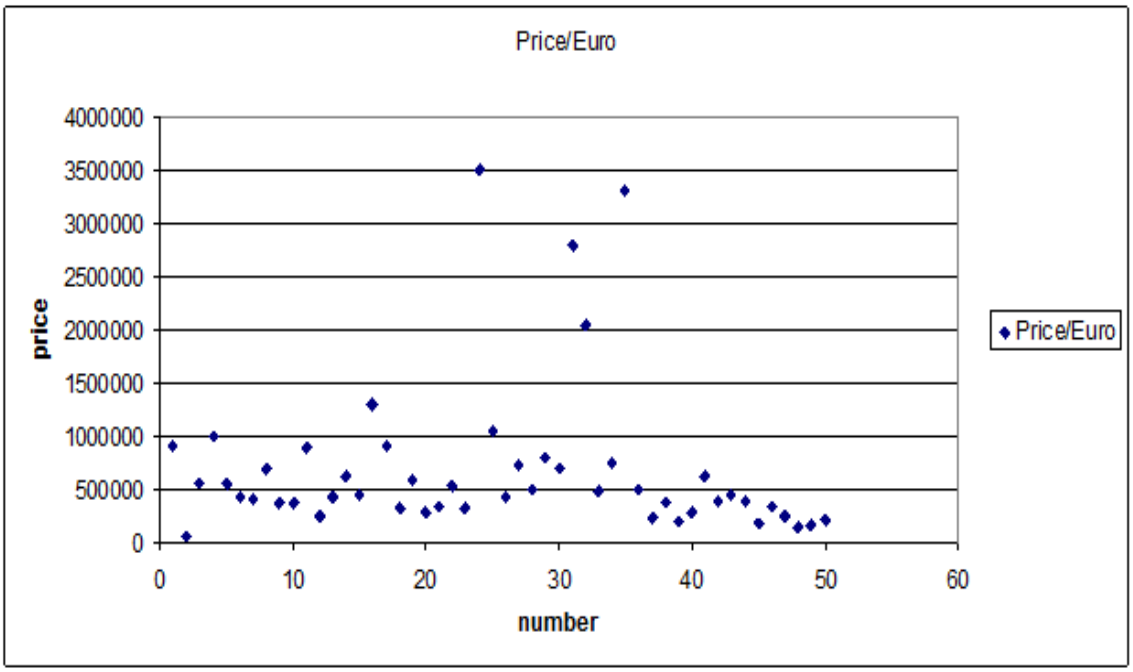
Appendix 6: Matrix of pair correlation coefficients (Barcelona)

	Price, Euro	Size, sq. m.	Number of rooms	Number of bathrooms	Floor	Terrace	Furniture	Renovation	Primary/ Secondary	Parking
Price, Euro	1									
Size, sq. m.	0,920	1								
Number of rooms	0,672	0,795	1							
Number of bathrooms	0,861	0,886	0,777	1						
Floor	0,186	0,161	0,194	0,234	1					
Terrace	0,592	0,509	0,322	0,449	0,275	1				
Furniture	0,335	0,296	0,219	0,213	0,173	0,205	1			
Renovation	0,138	0,075	0,056	0,179	0,011	0,071	-0,109	1		
Primary/ Secondary	0,293	0,384	0,363	0,321	0,079	0,272	0,445	-0,367	1	
Parking	0,174	0,112	0,011	0,214	0,026	-0,119	0,071	0,224	-0,104	1

Appendix 7: Coefficients of the linear regression equation and its significance (Barcelona)

Factor	Coefficients	Standard Error	t-statistics	P-Value
Y-intersection	-32351,1	200864,0201	-0,16106	0,872857
Size, sq. m.	5875,197	1023,667586	5,73936	1,1E-06
Number of rooms	-76268,8	47332,36426	-1,611347	0,114968
Number of bathrooms	190475,6	86275,20035	2,207768	0,033057
Floor	-7116,75	16413,56225	-0,433589	0,666916
Terrace	2676,904	971,7919135	2,7546057	0,0088
Furniture	159054,1	82808,8133	1,9207388	0,061913
Renovation	-7535,58	107048,7518	-0,070394	0,944231
Primary/Secondary	-159766	95756,46023	-1,668466	0,103034
Parking	59519,65	79684,84505	0,7469381	0,459469

Appendix 8: The source data for the analysis for Barcelona



Appendix 9: Descriptive statistics for Barcelona (adjusted to the factor "Price")

Parameter	Value
Mean	687686
Standard Error	102953,9
Median	450000
Mode	900000
Standard deviation	727994,1
Sample variance	5,3E+11
Excess	7,76746
Asymmetry	2,787955
Interval	3442500
Minimum	57500
Maximum	3500000
Sum	34384300
Score	50
Reliability level (95, 0%)	206893,6

Appendix 10: Coefficients of linear regression for the adjusted data (Barcelona)

Factor	Coefficient	Standard Error	t - statistics	P - Value
Y- intersection	59288,0762	116289	0,509834	0,613279
Size, sq. m.	1744,65022	1034,685	1,686166	0,100413
Terrace	2909,66531	1144,744	2,54176	0,015478
Number of bathrooms	147748,177	55127,26	2,680129	0,01103
Number of rooms	37044,66	31732,65	1,167399	0,250724
Floor	-9824,6073	9495,537	-1,03466	0,307731
Furniture	64781,3715	49192,65	1,316891	0,196197
Renovation	-50251,832	62760,87	-0,80069	0,428565
Primary/Secondary	-81461,822	59427,38	-1,37078	0,17893
Parking	112059,371	46793,19	2,394779	0,021959

Appendix 11: Matrix of pair correlation coefficients (Madrid)

	Price, Euro	Size, sq. m.	Number of rooms	Number of bath-rooms	Floor	Terrace	Furni-ture	Renova-tion	Prima-ry/ Sec-ondary	Park ing
Price, Euro	1,000									
Size, sq. m.	0,881	1,000								
Number of rooms	0,458	0,734	1,000							
Number of bath-rooms	0,512	0,666	0,679	1,000						
Floor	0,311	0,216	0,026	-0,045	1,000					
Terrace	0,396	0,324	0,122	0,383	0,005	1,000				
Furni-ture	-0,452	-0,413	-0,293	-0,230	-0,286	-0,153	1,000			
Renova-tion	0,079	-0,093	-0,302	-0,103	0,089	-0,030	-0,245	1,000		
Prima-ry/ Second-ary	-0,088	-0,003	0,144	-0,031	-0,129	-0,046	0,468	-0,387	1,000	
Parking	0,305	0,273	0,162	0,374	0,052	0,101	-0,227	0,252	-0,144	1,000

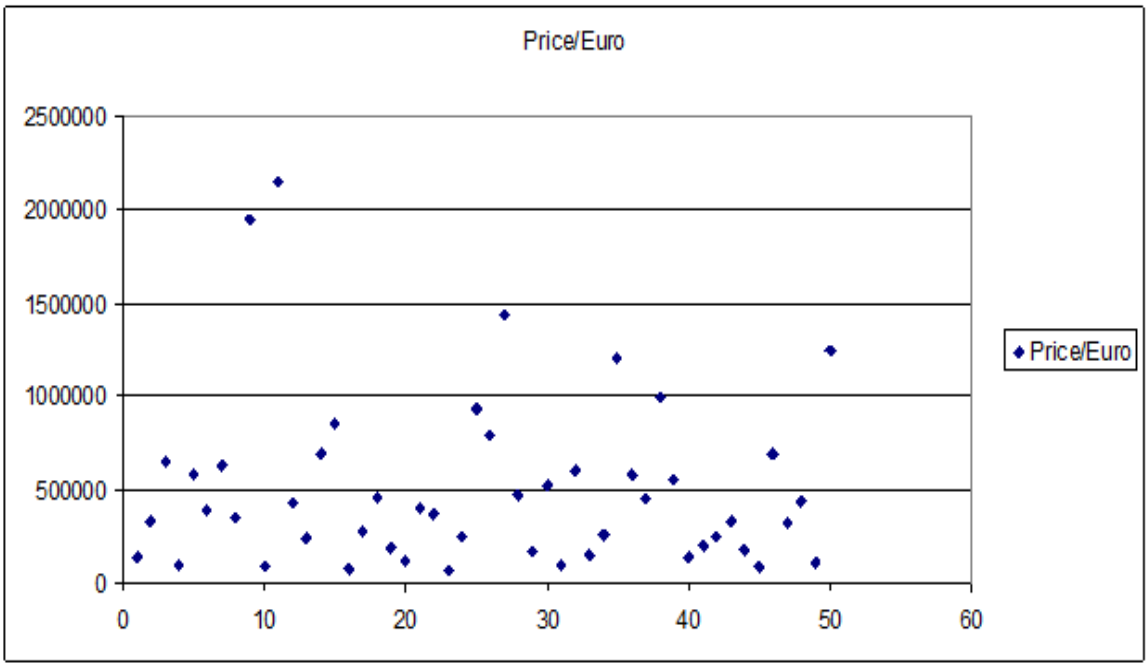
Appendix 12: Coefficients of the linear regression equation and its significance (Madrid)

Factor	Coefficients	Standard Error	t-statistics	P-Value
Y-intersection	-175359	179656,3506	-0,976	0,334891966
Size, sq. m.	7306,376	679,9479103	10,746	2,3323E-13
Number of rooms	-107929	33574,53935	-3,215	0,002584431
Number of bathrooms	-14845,8	55450,74914	-0,268	0,790282719
Floor	10782,19	10460,25765	1,031	0,308838366
Terrace	3654,018	2666,261429	1,370	0,178184209
Furniture	-77337,3	71312,83264	-1,085	0,284645462
Renovation	50813,27	60868,44141	0,835	0,408785964
Primary/Secondary	51354,41	85748,9036	0,599	0,55262117
Parking	36528,21	57975,97862	0,630	0,532239801

Appendix 13: Descriptive statistics for Madrid (adjusted to the factor "Price")

Parameter	Value
Mean	501016
Standard Error	64152,21
Median	382500
Mode	330000
Standard deviation	453624,7
Sample variance	2,06E+11
Excess	4,198325
Asymmetry	1,934986
Interval	2082000
Minimum	68000
Maximum	2150000
Sum	25050800
Score	50
Reliability level (95, 0%)	128918,7

Appendix 14: The source data for the analysis for Madrid



Appendix 15: Coefficients of linear regression for the adjusted data (Madrid)

Factor	Coefficient	Standard Error	t - statistics	P - Value
Y- intersection	-199985	164112,1	-1,21859	0,230713
Size, sq. m.	5968,598	731,2222	8,162495	8,52E-10
Terrace	-85950,9	31714,81	-2,71012	0,010134
Number of bathrooms	-32875,2	49441,86	-0,66493	0,510221
Number of rooms	12869,73	9724,686	1,323408	0,19382
Floor	1258,26	2999,192	0,419533	0,677253
Furniture	-84617,1	64296,23	-1,31605	0,196253
Renovation	79293,09	54984,48	1,4421	0,157686
Primary/Secondary	120204,7	81534,84	1,474274	0,148866
Parking	24559,54	51494,05	0,476939	0,63621

Appendix 16: Matrix of pair correlation coefficients (Valencia)

	Price, Euro	Size, sq. m.	Number of rooms	Number of bathrooms	Floor	Terrace	Furniture	Renovation	Primary/ Secondary	Parking
Price, Euro	1,000									
Size, sq. m.	0,910	1,000								
Number of rooms	0,494	0,585	1,000							
Number of bathrooms	0,617	0,679	0,709	1,000						
Floor	0,354	0,345	0,103	0,144	1,000					
Terrace	0,444	0,430	0,080	0,334	-0,056	1,000				
Furniture	0,310	0,297	0,111	0,157	-0,072	0,292	1,000			
Renovation	0,232	0,139	-0,225	0,157	-0,014	0,331	0,261	1,000		
Primary/ Secondary	-0,422	-0,317	0,030	-0,216	-0,055	-0,416	-0,082	-0,399	1,000	
Parking	0,456	0,426	0,192	0,459	0,130	0,512	0,227	0,412	-0,553	1,000

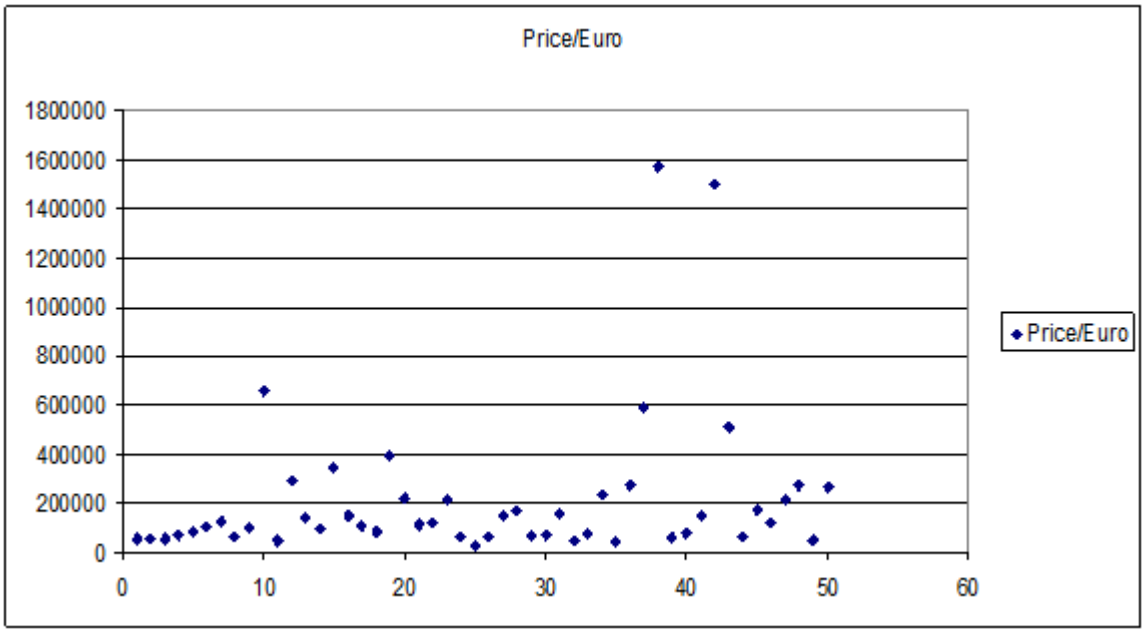
Appendix 17: Coefficients of the linear regression equation and its significance (Valencia)

Factor	Coefficients	Standard Error	t-statistics	P-Value
Y-intersection	-53525,21037	135981,1503	-0,39362228	0,69595
Size, sq. m.	3227,974369	422,1772034	7,646017699	2,4E-09
Number of rooms	15462,14661	32797,78225	0,471438785	0,639889
Number of bathrooms	-5912,053287	43938,36839	-0,13455332	0,89364
Floor	8317,166432	7388,772154	1,125649331	0,267023
Terrace	405,7707209	1288,775834	0,314849728	0,754512
Furniture	27771,15082	41280,3939	0,672744327	0,504978
Renovation	42885,79877	46963,10103	0,913180728	0,366619
Primary/Secondary	-113112,2034	61016,46081	-1,85379817	0,071153
Parking	-19665,62012	58927,17554	-0,33372752	0,740328

Appendix 18: Descriptive statistics for Valencia (adjusted to the factor "Price")

Parameter	Value
Mean	217712,16
Standard Error	43112,21
Median	119500
Mode	65000
Standard deviation	304849,33
Sample variance	92933112826
Excess	13,172
Asymmetry	3,503
Interval	1537500
Minimum	32500
Maximum	1570000
Sum	10885608
Score	50
Reliability level (95, 0%)	86637,22

Appendix 19: The source data for the analysis for Valencia



Appendix 20: Coefficients of linear regression for the adjusted data (Valencia)

Factor	Coefficient	Standard Error	t - statistics	P - Value
Y- intersection	-161943	77326,91	-2,09426	0,04296
Size, sq. m.	1526,096	314,6687	4,84985	2,12E-05
Terrace	-33623	35561,81	-0,94548	0,350387
Number of bathrooms	38319,54	18577,42	2,062694	0,046025
Number of rooms	19927,73	25029,54	0,796168	0,43088
Floor	10109,69	5031,206	2,009396	0,051636
Furniture	-32,9432	738,0969	-0,04463	0,964634
Renovation	46493,73	23240,34	2,000562	0,052622
Primary/Secondary	50054,51	26357,17	1,899085	0,065165
Parking	-3418,88	33443,97	-0,10223	0,919114

Appendix 21: Matrix of pair correlation coefficients (Costa Brava)

	Price, Euro	Size, sq. m.	Number of rooms	Number of bathrooms	Floor	Terrace	Furniture	Renovation	Primary/ Secondary	Parking
Price, Euro	1,000									
Size, sq. m.	0,822	1,000								
Number of rooms	0,514	0,732	1,000							
Number of bathrooms	0,645	0,670	0,630	1,000						
Floor	-0,190	-0,124	-0,198	-0,127	1,000					
Terrace	0,320	0,323	0,403	0,430	-0,164	1,000				
Furniture	-0,085	-0,028	0,060	-0,120	0,075	0,072	1,000			
Renovation	0,229	0,136	-0,041	0,046	-0,047	0,020	-0,177	1,000		
Primary/ Secondary	-0,074	0,031	0,322	-0,042	-0,020	0,226	0,681	-0,331	1,000	
Parking	0,372	0,429	0,334	0,495	-0,163	-0,052	-0,154	0,188	-0,218	1,000

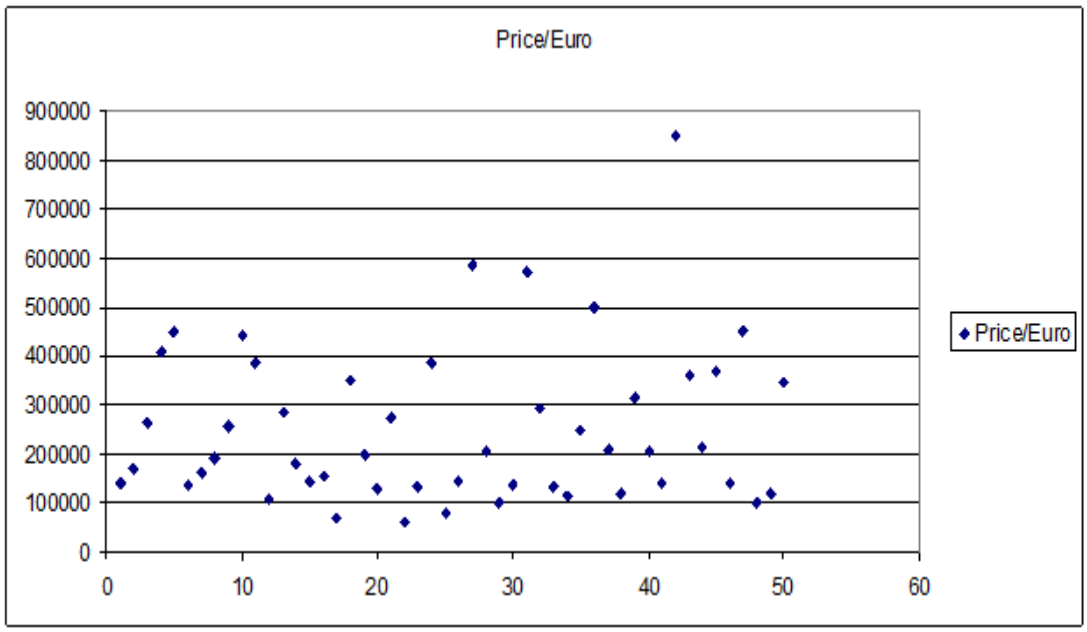
Appendix 22: Coefficients of the linear regression equation and its significance (Costa Brava)

Factor	Coefficients	Standard Error	t-statistics	P-Value
Y-intersection	-86473,3928	85706,64	-1,00895	0,319065
Size, sq. m.	4194,35172	671,1411	6,249583	2,11E-07
Number of rooms	-51178,2854	26888,34	-1,90336	0,064207
Number of bathrooms	63141,4664	32646,14	1,934117	0,060195
Floor	-9656,41709	7562,855	-1,27682	0,209028
Terrace	257,477462	1071,343	0,240332	0,811301
Furniture	-5888,07147	38377,09	-0,15343	0,878833
Renovation	38794,6161	33496,83	1,158158	0,253668
Primary/Secondary	9601,79251	48024,48	0,199935	0,842544
Parking	-17037,6625	32893,64	-0,51796	0,607338

Appendix 23: Descriptive statistics for Costa Brava (adjusted to the factor "Price")

Parameter	Value
Mean	250727
Standard Error	22584,65
Median	201200
Mode	140000
Standard deviation	159697,6
Sample variance	2,55E+10
Excess	2,816892
Asymmetry	1,488857
Interval	790000
Minimum	60000
Maximum	850000
Sum	12536350
Score	50
Reliability level (95, 0%)	45385,55

Appendix 24: The source data for the analysis for the region of Costa Brava



Appendix 25: Coefficients of linear regression for the adjusted data (Costa Brava)

Factor	Coefficient	Standard Error	t - statistics	P - Value
Y- intersection	-51712,5	75351,06	-0,68629	0,496698
Size, sq. m.	2647,986	695,025	3,809915	0,000494
Terrace	88508,05	28803,67	3,072805	0,00391
Number of bathrooms	-38879,1	23295,12	-1,66898	0,103341
Number of rooms	-9003,01	6504,404	-1,38414	0,174391
Floor	271,6675	920,1912	0,295229	0,769426
Furniture	-7083,77	32996,52	-0,21468	0,831163
Renovation	38711	28776,02	1,345252	0,186517
Primary/Secondary	13729,1	42048,42	0,326507	0,745833
Parking	-2348,7	29990,19	-0,07832	0,937988

Appendix 26: Matrix of pair correlation coefficients (Mallorca)

	Price, Euro	Size, sq. m.	Number of rooms	Number of bath-rooms	Floor	Ter-race	Fur-ni-ture	Reno-vation	Pri-mary / Sec-onda ry	Par king
Price, Euro	1,000									
Size, sq. m.	0,690	1,000								
Number of rooms	0,473	0,824	1,000							
Number of bath-rooms	0,594	0,814	0,714	1,000						
Floor	0,004	0,104	0,146	0,001	1,000					
Terrace	0,720	0,452	0,362	0,393	-0,163	1,000				
Furniture	-0,092	0,010	0,008	-0,062	0,438	-0,013	1,000			
Renova-tion	0,288	0,215	-0,040	0,205	-0,182	0,282	-0,237	1,000		
Primary/ Second-ary	-0,270	-0,077	0,037	-0,161	0,241	-0,266	0,309	-0,331	1,000	
Parking	0,524	0,557	0,426	0,451	-0,095	0,406	-0,033	0,233	-0,440	1,000

Appendix 27: Coefficients of the linear regression equation and its significance (Mallorca)

Factor	Coefficients	Standard Error	t-statistics	P-Value
Y-intersection	4838,086	247465,4	0,019551	0,984499
Size, sq. m.	5492,532	1804,611	3,04361	0,004119
Number of rooms	-157283	71761,46	-2,19175	0,03428
Number of bathrooms	61615,11	84548,29	0,728756	0,470396
Floor	44418,69	28523,38	1,557273	0,127283
Terrace	7748,447	1417,712	5,46546	2,66E-06
Furniture	-142037	90154,1	-1,57549	0,123019
Renovation	-71419,7	107075,9	-0,667	0,508601
Primary/Secondary	-24763	105914	-0,2338	0,816331
Parking	81657,39	105255,3	0,775803	0,442428

Appendix 28: Descriptive statistics for Mallorca (adjusted to the factor "Price")

Parameter	Value
Mean	506869,6
Standard Error	68824,12
Median	262500
Mode	725000
Standard deviation	466787,9
Sample variance	2,18E+11
Excess	2,294127
Asymmetry	1,65022
Interval	2013000
Minimum	112000
Maximum	2125000
Sum	23316000
Score	46
Reliability level (95, 0%)	138618,9

Appendix 29 - The source data for the analysis for Mallorca