EFFECTIVENESS OF INVESTMENTS IN REAL ESTATE IN THE BALTIC STATES

Rima TAMOŠIŪNIENĖ

Mykolas Romeris University, Faculty of Economics and Financial Management, Ateities st. 20, LT–08303, Vilnius, Lithuania; e-mail: rimtam@mruni.lt

Nomeda DOBROVOLSKIENĖ

Vilnius Gediminas Technical University, Faculty of Business Management, Sauletekio ave. 11, LT–10223, Vilnius, Lithuania; e-mail: nomeda.dobrovolskiene@gmail.com

Abstract. Real estate, real estate rent, investment into real estate are broadly considered topics, however, real estate (residential dwelling) acquired by natural persons as a means to invest in order to earn passive income from rent is not emphasised. The present article covers the analysis of methods of assessment of efficiency of investment into real estate, research of today's Baltic States real estate market, three options of real estate investment projects, and the assessment of efficiency as well as risk of such investment projects, based on which the decision to invest or not to invest is made.

Keywords: real estate, real estate rent, residential dwelling, assessment of efficiency of investments.
JEL classification: R30, G11, M21

Introduction

Due to the importance of real estate investment for the economy, the topics related to real estate market and its dynamics are relevant and broadly analysed. The Baltic real estate market and residential dwelling of the Baltic States also benefit from wide coverage. Real estate agencies provide price indexes, apartment rental prices, market development tendencies. The Lithuanian authors (Tupėnaitė and Kanapeckienė, 2009) have analysed the problems of creation of the real estate price bubble in the Baltic States. The research model developed by those authors was used for conducting a practical survey of the Baltic real estate market and for determining the development trends of housing prices. Other authors (Galinienė *et al.*, 2006) analysed the cycles of the Baltic real estate market and the specifics of residential dwelling and market in the Baltic States and affordability indices of apartments and residential houses. The Lithuanian author

Mačernytė (2011) conducted an overview of the real estate market of the Baltic States and created a Vector Autoregression Model that allowed forecasting the real estate market of the Baltic States.

The Baltic real estate market deserves greater attention, but investments into real estate in the Baltic States, especially into residential dwelling, are far from being a frequently elaborated theme. Meanwhile the collapse of Snoras Bank in Lithuania and Parex bank in Latvia once again reminded that investing into real estate is substantial. With a view to protect personal savings, residents cannot rely on commercial banks only. The best protection of savings is comprehensive diversification of the investment portfolio, including both financial instruments and investment into real estate.

Many Lithuanian authors (Bikas and Laurinavičius, 2009; Laurinavičius, 2011; Bivainis and Volodzkienė, 2008; Kvedaravičienė, 2008; Tamošiūnienė, 2009; Galinienė et al., 2006), analysing the investing problem that is an extremely relevant issue for residents, suggest investing into real estate in Lithuania through the formation of an investment portfolio from the Lithuanian securities and real estate in Vilnius. However, real estate (residential dwelling) acquired by natural persons as investing means to earn passive income from rent is not emphasised. Investing into residential dwelling by natural persons is analysed more seldom than investing into securities or own business. Investing into residential dwelling is often seen as investing into construction business and earning profit from new apartments sold. Income earned from rent is commonly related to commercial real estate. Therefore, there is a need to make a comparison and efficiency assessment of investment into residential dwelling with a view to rent it and earn income as well as to determine whether it is efficient to invest into real estate in the Baltic States.

The object of this paper is the investments in real estate (residential dwelling) in the Baltic States.

The aim of this article is to determine whether investing into real estate (residential dwelling) in the Baltic States is efficient when income is earned from renting a dwelling.

The objectives of this article are as follows: (1) to reveal the key theoretical and practical aspects of the assessment of efficiency of investing into real estate; (2) to review the Baltic real estate market; (3) to assess efficiency of real estate investment projects in the Baltic States.

Methods of research: comparative analysis of scientific literature, other sources of information, logical analysis, statistical analysis.

Methods of assessment of efficiency of investing into real estate

The main criterion in choosing real estate investment project is P/E (Price/Earnings) ratio of return on investment into real estate, which shows the number of years after which the investment into real estate will start paying dividends in case of leasing it. It is considered that when P/E exceeds 15 – the object of investment is overrated (Brown and Matysiak, 2000; Cappoza et al., 2004; Ginevičius et al., 2009).

Contemporary science of economics offers a rather large number of investment efficiency assessment methods. Methods to assess financial and economic efficiency of

the project, often not integrating risk assessment indicators and not taking qualitative factors into consideration, are commonly applied in practice. The analysis of scientific literature demonstrated that the efficiency of investment projects was assessed by the following project assessment methods: total capital, equity capital, expert, complex, and synergy (Brueggeman and Fisher, 2005; Hall and Tomkins, 2001; Ginevičius *et al.*, 2009).

The analysis of scientific literature showed that in order to assess project efficiency, most authors apply the following indicators: payback period (PB), accounting rate of return (ARR), net present value (NPV), internal rate of return (IRR), profitability index (PI), modified internal rate of return (MIRR).

NPV and IRR are the rates commonly applied in practice. In most cases, the results of NPV and IRR analysis are the same. The situation where the results of the analysis are opposing is referred to as conflict between IRR and NPV methods. This problem has been researched by many foreign (Damodara, 2002; Brueggeman and Fisher, 2005) and Lithuanian (Rutkauskas, 2006; Rutkauskas *et al.*, 2008; Tamošiūnienė and Angelov, 2011) authors, but insufficiently. The Lithuanian authors Mackevičius and Tomaševič (2010) developed the investment project assessment technique, with reference to which conflicts are solved on NPV and MIRR basis, ignoring the IRR value.

The assessment of appeal to invest into real estate project requires a detailed analysis of many indicators; however, in order to make up one's mind, it is necessary to perform market analysis. It is necessary to consider uncertainty and chances of dynamics of the environment and project characteristics. Risk analysis is divided into two complementary groups: qualitative and quantitative. Qualitative analysis is performed based on various experimental methods. Any and all risk and uncertainty factors as well as their importance for the project are identified during the qualitative analysis. The task of the quantitative analysis is to assess the effect of variations of risk factors on project efficiency in a quantitative manner. The following risk analysis and assessment methods of investment projects are commonly applied in global practice: estimated profit, sensitivity analysis, expert risk assessment, scenario analysis, decision tree analysis, Monte Carlo method.

Since every investment assessment method has both advantages and disadvantages, the Lithuanian authors (Ginevičius *et al.*, 2009) suggest developing an integrated complex system of investment efficiency assessment indicators and structure the same by hierarchy principle.

Also, while making the assessment of investments to the real estate, it is very important to pay attention to the consumers' expectations (Rudzkienė and Azbainis, 2012).

Overview of residential dwelling in the Baltic States

In recent years real estate prices in Lithuania, Latvia and Estonia kept changing. Their growth rates exceeded forecasts of the great majority of analysts. Residential dwelling prices that have considerably dropped during recession are far from recovering. According to the data of the Real Estate Company Ober-Haus, from the peak reached in 2007 the prices of apartments in Vilnius fell by 39.7%, in Riga – by 57.5%,

and in Tallinn – by 35.5%. Such a considerable change in Riga can be explained by the fact that prices in Riga were almost twice as high as in Vilnius and Tallinn and economic problems hit the sentiment of people and foreign investors very seriously.

In 2011, the prices of apartments in Vilnius increased by 0.7%, in Riga – by 5.8% and in Tallinn – by 15.8%. The company providing real estate services Ober-Haus Real Estate Advisors estimated that the value of price index of apartments in June 2012 showed that the prices of apartments increased in Riga, they remained stable in Vilnius and slightly dropped in Tallinn. In Riga, the prices went up by 0.3 % and this was the fourth month in a row when positive changes of apartment prices were observed in the capital city. Tallinn saw a slight drop of 0.4%.

Ober-Haus statistics shows that the largest annual changes in apartment prices are registered in the capital city of Estonia. Compared to June 2011, the prices of apartments in Tallinn were higher by 6.9%, their annual growth in Riga was 4.9%, and in Vilnius prices fell by 1%.

Like before, the highest price per 1 square metre of a dwelling in June 2012 was registered in Vilnius and exceeded the comparable prices in Riga and Tallinn by 21% and 8.5% respectively (review of RE Company Ober-Haus, 2012 online).

Table 1. Changes of the apartment prices in capital cities of the Baltic States

City	Change in the last 12 months	Change compared with the highest price	Average price EUR/ sq.m.
Vilnius	-1.00%	-39.70%	1.196
Riga	4.90%	-57.50%	988
Tallinn	-6.90%	-35.50%	1.102

Source: reviews of RE Company Ober-Haus (2012) online

According to the data of Ober-Haus, in 2011 737 apartments were constructed in Vilnius. This is 30% more than in 2010 (564 apartments). In Riga, only 500 apartments were constructed in 2011 (14% less than in 2010). In Tallinn, as many as 900 new apartments were constructed in 2011 (review of RE Company Ober-Haus, 2012 online).

According to the data of the Real Estate Company Ober-Haus, in 2011 dwelling rental prices kept growing. In Vilnius they went up by 10-15%, depending upon the rented property and its location. A monthly rental price of a standard 2-room apartment of old construction varied between EUR 130 and EUR 200. A monthly rental price of the same size dwelling of new construction started from EUR 230. In the centre of Vilnius, dwelling rental prices are considerably higher. In 2011, a monthly rental price of a fully furnished 2-room apartment was between EUR 170 and EUR 400.

In 2011, dwelling rental prices increased by 15% in Riga. The greatest demand was for 50 – 60 sq. m. fully furnished 2-room apartments rented for a monthly price of up to EUR 350. A rental price of 50 – 100 sq. m. dwelling in the centre of Riga varied between EUR 550 and EUR 1 000 per month.

In 2011, the most rapid 20% growth of dwelling rental prices was observed in Tallinn. Small apartments were the most demanded ones. In the centre of Tallinn, the

prices of one-room or two-room apartments varied between EUR 250 and EUR 400 per month (Review of RE Company Ober-Haus, 2012 online).

Despite previous continuing growth of dwelling prices, the market rule that the cheapest apartments are sold first remains true. Residents can hardly afford more expensive apartments. SEB housing affordability indicator calculated by SEB banks in Lithuania, Latvia and Estonia shows that a Vilnius resident earning average income could afford buying a dwelling of 34.9 sq. m. in an old construction bedroom community. This is the smallest affordable dwelling area, compared to the possibilities of residents of other capital cities of the Baltic States. Average income residents of the capital cities of Latvia and Estonia could afford buying standard dwellings of 43.5 and 50.5 sq. m. in old construction bedroom communities. Compared to the respective period of the previous year, dwelling purchasing possibilities in Vilnius and Riga have improved. This year, a Vilnius resident could afford a dwelling that is 3.4 sq. m. larger and a Riga resident could afford a dwelling that is 0.8 sq. m. larger. This year, the inhabitants of Tallinn could buy a dwelling that was 3 sq. m. smaller than last year. Because of the increase in dwelling prices, Tallin residents have fewer possibilities to buy a dwelling despite growing wages and lower interest rates (JSC SEB bank, 2012 online)

Nevertheless, real estate price-to-earnings ratio remains the worst in Vilnius. Real estate prices are still too high for an individual with average earnings to afford an average-sized apartment (about 60 sq. m.). Income necessary to afford buying a dwelling in Vilnius is 6% higher than in Tallinn; however, compared to Tallinn, income in Vilnius is lower by 28% (Šečkutė, 2012) (see Figure 1).
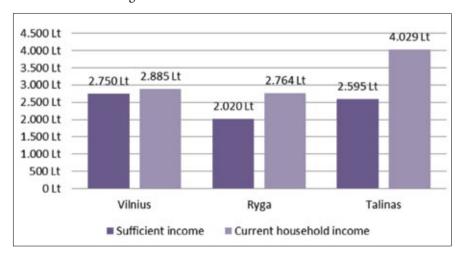
Figure 1. Household earnings

Source: Šečkutė V. Dwelling affordability index in capital cities of the Baltic States and towns of Lithuania (2012) online

Almost 57.7% of all residents of Latvia, 49% of the Lithuanian residents and 41.2% of the Estonian residents live in apartments that are too small – which also shows that

residents of the Baltic States cannot afford buying a dwelling of sufficient size. While in Ireland this indicator is only 3.7% and in Germany – 7%. Rather large numbers of people live tightly-packed in Romania (55.3%), Poland (49.1%), Bulgaria (47%), Italy (23.3%) and Greece (25%) (Admidinš and Zvanitajs, 2012).

Efficiency assessment of real estate investment projects in capital cities of the Baltic States

Given that renting real estate is one of the main types of real estate services, investment of a natural person's own funds into real estate (dwelling) for the purpose of renting has been chosen as an object of research. The efficiency evaluation of investments will facilitate determining the capital city of the Baltic States where investments are most efficient.

Investments are evaluated on the basis of the situation existing in real estate market in Q2 in 2012, i.e. real estate sales price and real estate rental price (Statistical Summary of State Enterprise Centre of Registers, 2012; Real Estate Price Statistics, 2012). An apartment of 50 sq. m. is purchased in the capital cities of the Baltic States – Vilnius, Riga and Tallinn. The planned investment period is 30 years. In Vilnius, the apartment is acquired for LTL 206 500, in Riga – for LTL 170 500 and in Tallinn – for LTL 190 250. The planned monthly rental price in Vilnius is LTL 1 050, in Riga – LTL 1 200 and in Tallinn – LTL 1 100.

The research is conducted assuming that 8% of time, i.e. approximately 1 month in a year the apartment will not be rented. Costs make up 5% of real income (real income is obtained by reducing annual income by risk of not renting an apartment for a certain period of time during the year). In Vilnius, it is necessary to acquire a business certificate for the annual price of LTL 1 440. In Riga and Tallinn income tax of 25% and 21% is paid respectively. It is further assumed that working capital (related to repairs) accounts for 5% of real income. In Vilnius and Tallinn, no real estate tax applies, while in Riga real estate tax of 0.2% is paid. Generated cash flow is discounted at a 4.4% discount rate. According to the selected scenario, the rental price will grow by 4% annually.

The research results are presented in Table 2 below.

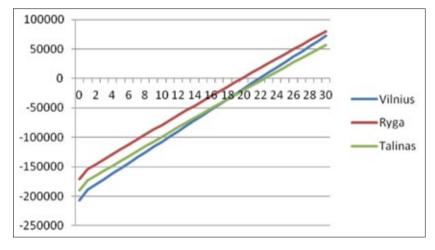**Table 2.** Efficiency indicators of investment projects

Vilnius			Riga			Tallinn		
NPV	IRR	PB	NPV	IRR	PB	NPV	IRR	PB
72350	6.82%	22.96	80350	7.56%	20.89	57308	6.56%	23,81

Source: Prepared by authors

The analysis of obtained results shows that all of the three projects are acceptable. However, the best results are generated by the investment project in Riga. Net present value exceeds the NVP of the investment project in Vilnius by 11% and the NPV of the investment project in Tallinn even by 40%.

As we can see from net present value developments of all projects during the period of 30 years, NPV of the investment project in Vilnius becomes positive after 22.96 years, in Riga – after 20.89 years and in Tallinn – after 23.81 years (see Figure 2).

Figure 2. NPV change in a 30-year period

Source: Prepared by authors

The investment project in Riga also has the highest internal rate of return, exceeding the IRR of Vilnius and Tallinn investment projects by one percentage point. This means that a natural person would benefit from highest efficiency by investing into a dwelling situated in Riga.

Stage two of the research involves the assessment of risks of investment projects. Sensitivity analysis is the selected risk assessment method. The main indicators used to determine project sensitivity are NPV, IRR and PB. The factors selected as predetermining the value of key indicators in one or another way are 20% reduction of planned earnings and increase of costs from 10% to 15%.

The results of the sensitivity analysis are given in Table 3 below.

Table 3. Results of the sensitivity analysis

	Vilnius			Riga			Tallinn		
	NPV	IRR	PB	NPV	IRR	PB	NPV	IRR	PB
Base project	72350	6.82%	22.96	80350	7.56%	20.89	57308	6.56%	23.81
Reduction of earnings	11545	4.99%	29.81	29286	5.75%	26.76	7796	4.89%	29.92
Increase of costs	38405	5.82%	26.71	51255	6.55%	23.84	29215	5.64%	26.89

Source: Prepared by authors

According to the data obtained during the sensitivity analysis, the efficiency indicators of all the three projects are mostly sensitive to the reduction of income.

Reduction of income by 20% considerably reduced the figures of net present value. The largest reduction of 86% was observed in NPV of the investment project in Tallinn and the smallest reduction, i.e. of 63% - in Riga. The payback period and internal rate of return of the investment project in Vilnius was most sensitive to income reduction. Considering high sensitivity of efficiency indicators to income reduction, keeping real estate unoccupied should be avoided.

Increase of costs also negatively affected the efficiency indicators (see Figures 3 and 4).
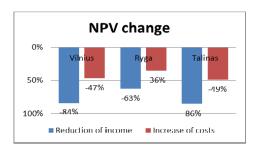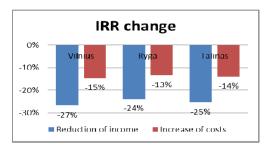
Figure 3. NPV change

Figure 4. IRR change

Source: Prepared by authors

Source: Prepared by authors

Conclusions

The analysis of scientific literature has demonstrated that there are quite many investment efficiency assessment methods. Most of the authors apply classic economic and financial indicators.

Based on the review of the Baltic real estate market, it can be stated that there are positive developments in the real estate market, however the prices are not going to reach the pre-crisis level soon. The greatest annual changes in the prices of apartments are observed in the capital city of Estonia. Compared to June 2011, the prices of apartments in Tallinn are 6.9% higher, their annual growth in Riga is 4.9%, while in Vilnius their drop by 1% is observed. Likewise, as of June 2012, the highest price of a one-room apartment is in Vilnius, exceeding the comparable prices in Riga and Tallinn by 21% and 8.5% respectively. However, Vilnius still has the worst real estate price-to-earnings ratio: real estate prices are too high for an individual with average income to afford buying an average size apartment (about 60 sq. m.) in Vilnius.

The main conclusion of this article is that investment into real estate (residential dwelling) in the capital cities of the Baltic States is one of the efficient investment instruments. It is one of the possibilities to provide for reasonable protection of accumulated savings. The efficiency evaluation of investment projects has shown that all projects are acceptable. However, the best efficiency indicators are those of the investment project in Riga. This means that a natural person would benefit from the highest efficiency of investments into residential property in Riga. Sensitivity analysis revealed that efficiency indicators are most sensitive to the reduction of income.

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INVESTICIJŲ Į NEKILNOJAMĄJĮ TURTĄ BALTIJOS ŠALYSE EFEKTYVUMAS

Rima TAMOŠIŪNIENĖ

Mykolo Romerio universitetas

Nomeda DOBROVOLSKIENĖ

Vilniaus Gedimino technikos universitetas

Santrauka. Nekilnojamasis turtas, nekilnojamojo turto nuoma, investicijos į nekilnojamąjį turtą yra plačiai išnagrinėtos temos, tačiau fizinių asmenų įsigytas nekilnojamasis turtas (gyvenamasis būstas), kaip investicinė priemonė pasyvioms pajamoms iš nuomos gauti, nėra akcentuojamas. Šiame straipsnyje analizuojami investicijų į nekilnojamąjį turtą efektyvumo vertinimo metodai, tiriama šiandieninė Baltijos šalių nekilnojamojo turto rinka, pasirenkami trys nekilnojamojo turto investiciniai projektai ir atliekamas šių investicinių projektų efektyvumo ir rizikos vertinimas.

Reikšminiai žodžiai: nekilnojamasis turtas, nekilnojamojo turto nuoma, gyvenamasis būstas, investicijų efektyvumo vertinimas.