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Sentić, Leona

Undergraduate thesis / Završni rad

2024

Degree Grantor / Ustanova koja je dodijelila akademski / stručni stupanj: **RIT Croatia / RIT Croatia**

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**The Role of Private Accommodation in Transforming
to High-end Tourism in Dubrovnik: Attractiveness of Renting and Selling Villas in
Dubrovnik**

Student: Leona Sentić

Mentor: Joseph Kevin Walker, MBA

Dubrovnik, 2024.

Abstract

The research is focused on examining the luxury private accommodation units in Dubrovnik, Croatia. Through the analysis of Dubrovnik rental and real estate market, especially focusing on high-end accommodation, the research aims to investigate the contribution of high-end accommodation to Dubrovnik's aspiration to transition from mass to luxury tourism model. The study focuses on the financial attractiveness of renting and investing in luxury villas in the region. Despite past failed large-scale projects and constant challenges raised from the extensive mass tourism that Dubrovnik is experiencing, there is an increased demand for luxury properties. The research involves analyzing data obtained through OTA and Real estate online platforms, particularly connected to the night rates and listings available. Ultimately the financial attractiveness and viability is evaluated in relation to current market conditions and certain assumptions and limitations to the study. The methodology included gathering night rates from OTA platforms combined with real estate agencies listings and calculating the traditional financial performance metrics using the obtained data from the sources. At the end, eight high-end villas were examined from a financial attractiveness standpoint and only two villas, considering current market situation, stood out as financially attractive.

Key words: rental property, luxury villas, private accommodation, high-end tourism, investment vehicle, luxury real estate, OTAs

The Role of Private Accommodation in Transforming to High-end Tourism in Dubrovnik: Attractiveness of Renting and Selling Villas in Dubrovnik

This research focuses on examining private accommodation's role in supporting high-end tourism in the case of Dubrovnik. The research is conducted by analyzing Dubrovnik's rental housing market primarily focusing on high-end accommodation. The purpose is to investigate how high-end rental accommodation contributes to Dubrovnik's transition to high-end tourism and to evaluate the financial attractiveness of purchasing and renting luxury villas in Dubrovnik. Thus, the research questions that will be addressed in this study are:

RQ 1: How financially attractive is the investing and renting model of luxury villas in Dubrovnik?

RQ 2: Does this model support Dubrovnik's aspirations to transition to high-end tourism?

Tourism Transformation

In local media and among Dubrovnik public there have been examples of aiming for Dubrovnik to transition to high-end tourism. A good example is the effort to attract Aman Resorts, Swiss luxury hospitality company, that has not yet yielded any results. Since the big announcement of the construction of the Aman Resort eight years ago, most locals welcome any news about a fresh start with skepticism (Dubrovnik Net, 2021). In addition, the well-known Golf resort project on Srđ, a hill overlooking Dubrovnik, that was announced in 2007, and that was supposed to bring millions in terms of investment and revenue to Dubrovnik and Croatia is not going to be realized (Telegram & Hina, 2024). Moreover, in 2022 Dubrovnik has been voted among the most wanted luxury tourism destinations at Cannes International Luxury Travel Market fair (Dubrovnik Net,

2022). This clearly shows the demand and continuous aspirations for Dubrovnik's tourism transition.

Mass Tourism Effect

In order to understand the research objectives, a few terms have to be defined. Mass tourism is a term used to describe the organized traveling of huge numbers of people to famous and well-liked vacation destinations for leisure purposes. Its marketing targets a wide population, often offering undifferentiated and standardized tours (Poon 1993). One of the key issues in the case of Dubrovnik and many other European destinations is the occurrence of a mass tourism model which negatively affects destinations. Among many, the negative impacts that characterize mass tourism are; increase in waste and pollution within the destination, extensive unjustified use of natural resources, lack of authenticity in offerings, economic dependency on activities tied to tourism, seasonality causing uneven economic inflow, and unsustainable development of destination. (Sábio, 2023). Connected to that, Dubrovnik is on the top of the list of the most over-touristed cities in the world in 2019, having a ratio of 36 per one citizen of Dubrovnik. It is followed by Venice, Bruges, and Rhodes, all having 21 tourists per inhabitant (Statista, 2022).

High-end Tourism as a Solution

High-end tourism can serve as a possible solution for the negative impacts of mass tourism in European tourist destinations. Furthermore, its benefits can provide a tool for combating the issues

created by mass tourism and for the result initiate the transformation of tourism within a destination. (CBI, 2023).

High-end tourism, mentioned also as luxury tourism, encompasses experiences distinguished by premium services, amenities and personalized exclusive offering to affluent travelers. As part of this tourism type, travelers require and expect exceptional and unique experiences in destinations known for their rich cultural heritage or beauty (CBI, 2023). Luxury travelers spend \$5,365 on average per trip, while non-luxury travelers spend around \$1,600. On a yearly basis luxury travelers outspend non-luxury travelers by more than 500%, as their average yearly spending exceeds \$30,000 (Reuters Events, 2017). The former data is, however, not the latest as it is from 2017, but the other sources mention that gap between the two has even increased more. According to CBI (2023) average spending by a luxury tourist is eight times higher than that of an average non-luxury traveler.

In high-end tourism destinations infrastructure, out of which accommodation, plays a pivotal role in attracting and retaining luxury travelers. Those travelers expect luxury villas, rental houses or apartments to accommodate their stay at the destination. Those accommodation units often include exceptional amenities such as outside and inside pools, hot tubs, private gym, sauna, and more which provide comfort and privacy for luxury travelers. With the recent trend of numerous new luxury rental agencies entering the market, luxury rental market is forecasted to grow by 13.1% in until 2031 and reach a record of \$82 billion in value on a global market (Chauhan et al, 2022 as cited in Kalyanaraman, 2023).

For example, in popular luxury destinations, according to Villanovo.com, a large luxury rental agency operating in the French Riviera, the average overnight rate for a luxury villa ranges from

€312 to even €38,333 or more, depending on the size, exact location, and amenities included. (Villanova.com, 2023). The French Riviera is renowned for its luxury service, resorts and private accommodation. This region possesses an array of high-end villas, penthouses, and other luxury private accommodation properties providing exclusivity and luxury to its guests. These accommodation units are in high demand among affluent travelers searching for an unparalleled luxury lifestyle. Saint-Tropez, Nice, or Cannes are well recognized for their high-end properties, traditional architecture and old town beauty, and vibrant atmosphere (Hedley, 2023).

Case Studies: Overcrowding in European Destinations

The issues caused by mass tourism did not avoid Dubrovnik as overcrowded streets, lack of authentic touristic offerings, pollution from touristic activity, unstable economic development, dependance on tourism sector as the main profit and employment source, are all highly relevant when discussing the case of Dubrovnik. Thus, It is not surprising that Dubrovnik feels the burden of overcrowding and mass tourism on the city (Dnevnik.Hr, 2024).

Venice Case

To illustrate the problems Dubrovnik is facing, Venice can serve as an example of the negative impacts of overtourism. Annually, about 20 million tourists visit Venice, a city with just 55,000 residents in its historical city area which used to have more than 120,000 residents a few decades ago. Venice's major issues are related to infrastructure constraints and damage caused by touristic

activity to the old historic buildings. Additionally, the quality of life of the local population is affected by the overcrowding and thus, they experience lower quality of life (Simmons, n.d.).

The increased inflow of visitors, especially day trippers or cruise ship travelers who contribute minimally to the local economy, is associated with the affordability of low-cost flight options, the increased popularity of cruise ships, and the rise of short-term rental platforms and OTAs. Consequently, the local real estate market is impacted, with prices surging as many residential properties are transformed into rental spaces, resulting in unaffordable prices for local residents who seek housing (Simmons, n.d.). Furthermore, Simmons (n.d.) discusses that economic dynamics within the city are affected, as touristic activity is prioritized over local needs for traditional industry and its products. Tourism industry in the area is the main job creator, resulting in limited employment opportunities outside the sector. Scarce employment opportunities in other industries contribute additionally to demographic shifts of local residents that leave Venice. Thus, it is predicted that by 2030 the full-time residents inside the historic area will be a matter of history (Ross, 2015). UNESCO has been monitoring the situation of overtourism in Venice, leading to increased concern about the city's future and threatening to list Venice as an endangered site unless sustainable management strategies are implemented. (Simmons, n.d.)

Barcelona Case

Barcelona is another European city that can serve as an example of the overtourism rising issues. Due to rising rental properties demand many residential units are converted to tourist rental purposes, creating a “rent bubble” in Barcelona's housing market. City's rent prices increased rapidly by 17.2% during 2017, which in comparison to other Spanish regions, such as Madrid or

Canarias represented the highest average increase. As a result, the real estate and housing market in Barcelona is highly competitive as 30% of all properties are rental properties. Less than 1% of all rentals in Barcelona cost less than 600€ per month, and only 5% are below 800€ per month. When compared to other European cities like Madrid, Berlin, Munich, or Prague, rental costs of Barcelona exceed the costs of the mentioned ones, indicating that the purchasing power and the cost of living across cities significantly vary (Blanco-Romero et al., 2018).

According to Turisme de Barcelona, a public-private consortium, the importance of balancing tourism development and preserving the city's character and local residents' needs is crucial for a destination. The strategic objectives the organization advocates include attracting high high-spending visitors, promotion of the city's unique historical and cultural identity, and fair distribution of tourism economic benefits. Furthermore, Barcelona's former mayor Ada Colau, emphasized the importance of urban planning that prioritizes residents' needs over tourism and commercial purposes. Barcelona's approach to managing overtourism includes engaging local community and stakeholders in developing sustainable tourism practices. Blanco-Romero (2018) also argues that this multi-stakeholder approach is crucial for combating the challenges of overtourism. This strategy involves integrating visitors in sustainable practices and ensuring that tourism supports and respects local quality of life. In relation to OTAs such as Airbnb, or Booking.com and its business model the strategy proposes regulatory measures to protect the integrity and identity of the destination. Thus, emphasis is on cooperation between the stakeholders to understand the common challenges of Barcelona as a destination and also on transparency and open communication between the destination's management and its locals. (Blanco-Romero et al., 2018).

Dubrovnik's Private Accommodation

Back in 2016 private accommodation in Dubrovnik was dominating with 57% of all accommodation (Pavlić et al, 2017). Moreover, it constitutes a significant part of a total number of overnight stays with 36.5% in 2022 representing an increase of 65% from 2021. In comparison, hotel overnight stays accounted for 51.2% in Dubrovnik in 2022. The rest represents the following segments: camps/camping, sanatoriums/spas or non-commercial accommodation. (Dubrovnik Tourist Board, 2023).

From 2022 to 2023 the number of private accommodation units increased by 6.7%. In the same period the amount of hotel accommodation decreased by 0.85% (Rudinović, 2023). This data can serve the purpose to explain the rising trend among the private sector especially in high end villas supply and demand in Dubrovnik. Consequently, new luxury properties and short-rental platforms have emerged to satisfy the demand for such accommodation. My Luxoria is a one of the largest Croatian rental agencies specialized in luxury villas rental and has added 400 new listings in their portfolio during 2022. The company's CEO Ankica Čaleta, states that the biggest increase in reservations in 2023 they had in the Dubrovnik area where their most expensive villas are situated. (Journal.hr, 2023).

Dubrovnik Tourism Model

The majority of Dubrovnik residents are highly dependent on the tourism industry as a main source of income. Even though the official data for Dubrovnik are not available, the city along with its surrounding contributes substantially to the Croatian GDP. In terms of Croatia, the county's GDP

generated by tourism-related activities is by far the largest in comparison to the entire European Union zone. With more than 19,6% of Croatian GDP being tied to tourism activity, the question about the stability of the Croatian economy is pertinent and relevant (HNB, 2024). For comparison, during the covid-19 pandemic the GDP tied to the tourism industry dropped by more than 10%, representing a risk for the stability of the economy (Lider, 2022). The seasonality and overcrowded summer months led to infrastructural challenges. Finding alternative routes to overcome the infrastructural constraints remained an issue for the region. Furthermore, seasonal price increases, especially within the Old Town, pose an additional challenge for the local population to provide for a high cost of living. Similar to the case of Venice and Barcelona, Dubrovnik residents are “forced” into the tourism industry as it presents the major employment source in the region. Previously discussed trend of converting residential into rental properties, has intensified the housing problem as local residents are unable to find or afford housing in Dubrovnik. Despite the raised concerns and challenges, the tourism industry remains essential to Dubrovnik’s economy, further requesting a balance between the long term sustainability and economic benefits (Glavočić, 2023).

Consequently, due to the mentioned city management model and overcrowding issue, in 2016, UNESCO threatened to remove Dubrovnik from the World Heritage list and warned that the daily tourist attendance of the Old Town must be limited to eight thousand tourists (Chan, 2021).

Accommodation Units

As mentioned, a potential solution to combat the mass tourism challenges is the model of high-end tourism which is characterized by having fewer people visiting, but on average spending more.

Having less visitors decreases the demand for extensive number accommodation units with the possibility to repurpose it to housing stock for locals (Coll & Kallen, 2023). In the Croatian system high end accommodation is classified by a 5-star ranking of rental properties.

Hotel Accommodation

According to the 2024 statistics of the Ministry of Tourism and Sport of the Republic of Croatia, Dubrovnik Neretva County is ahead of the other Croatian counties in terms of the number of 5-star hotels, with a number of 19 hotels classified as 5-star. For comparison, in second place is Split-Dalmatia County with 13 such properties. Out of a total of 55 5-star hotels in Croatia, 34.5% are located in Dubrovnik-Neretva County, of which 14 are within the City of Dubrovnik. Furthermore, out of 7 tourist resorts with 5 stars in Croatia, one is located in Dubrovnik County, while Istria is the first with 5 of them in the category, reasonably as the Dubrovnik area is focusing on standalone hotels or small hotel groups (Ministry of Tourism and Sport, 2024).

Private Accommodation

Taking private accommodation in Dubrovnik into account, on the other hand, the number is on the rise. According to the report that DuList received from the Dubrovnik Tourist Board for 2022, there was an increase of as much as 9.19% of accommodation units in private accommodation compared to the previous year (Dulist, 2022). Data for 2023 and 2024 were not available for processing, so they were omitted. Among private accommodation the segment of private luxury villas is particularly striking. There is an obvious trend of increasing demand and overnight stays for luxury villas, as well as the number of those offered on the market. Thus, according to data

from 2022, three OTAs specialized in renting luxury accommodation achieved 900,000 overnight stays in a total of more than 2,600 properties in Croatia (Milinković, 2023).

Having all the previous discussed, this research is aimed to analyze the role of luxury private accommodation properties that serve the purpose of transformation to high-end tourism in Dubrovnik. Despite the failed large-scale projects within the region, and the continuous negative influences and effects of mass tourism, the aspirations towards transition are still present and increasing. Evidence of that is in the increase of the demand for the luxury properties, new market entrants in the form of luxury villas renting specialized platforms and companies and finally the increasing offer of such properties along the coast. Consequently, local investors undertake projects that will offer new luxury villas to the market for the purpose of selling and renting them.

Methodology

Purpose

The research purpose is to use standard, traditional financial performance metrics to evaluate the current luxury villa market in Dubrovnik in regards to using villas as investment vehicles. New luxury villas are providing high-end accommodation options to tourists and the question remains as to whether or not these luxury villas are financially attractive. In summary, the question is will these new villas serve as a route for Dubrovnik to move toward high-end tourism regarding accommodation.

Data Analysis Benefits

The research used data gathering from online platforms such as OTAs and real estate listings for the reliable representation of the situation. As this method does not target human participants and their answers, bias and subjectivity is avoided that is often influenced by current emotional perception towards the certain question of the research.

Data Source

The data sources for the analysis are primarily directed at obtaining rates information from the OTAs used in the region to advertise the luxury villas for rentals, and also listings prices of the real estate agencies that sell those identical properties. For the objective of examining the availability and profitability of the property, filters that differentiate luxury villa properties from the rest of the offer had to be applied.

The applied filters for the data analysis ensured a focused and relevant dataset. The first filter used was a 5-star property rating indicating the category and high standard quality of the property and its amenities. Furthermore, the second filter included entire space properties, as opposed to apartments within the house or similar, ensuring the complete exclusivity of the rental accommodations. Additionally, properties with a minimum of 3 bedrooms and 3 bathrooms were included. As discussed, amenities are a crucial part of the luxury properties as their exclusivity differentiates high-end properties from the rest. For that reason, the pool was selected as a minimum of required amenities. Finally, properties located within a 15-kilometer radius from Dubrovnik Old Town were selected, offering proximity to the historic center and main attractions.

These filters set a base for further data analysis as they separated high-end properties from the other ones available on the market.

The selection process has filtered out eight villas that satisfy the criteria, particularly the filters applied and are available on OTAs for renting and Real estate platforms for selling at the time of conducting this research. Consequently, the sample of eight villas will be used in financial performance analysis.

Instrument

Assumptions

The research itself contains certain assumptions essential to performing the financial analysis and they provide a framework for the successful analysis. The first assumption is connected to the sales and transfer costs which include realtor fees, notary and legal fees associated with the transaction process of the property. Such data vary and is often confidential to realtor and client, so the average was taken. Additionally, the monthly utilities costs such as water or electricity had to be estimated as they represent a significant part of the villa's operational expenses. Personal experience in the combination of online available data played a crucial role in establishing the utilities costs assumption.

Furthermore, monthly occupancy levels for the villas significantly differ within a year but account for a major part of the profitability of a rental property. Assuming full normal occupancy during the first year was a base of analysis the income inflow for the property. However, it is necessary to understand that occupancy levels vary due to numerous factors such as seasonality, market situation, number of competitors and more.

On the rental side, the impact of online travel agencies' commission rates was taken into account as it represents a cost deducted from the property's revenue. Assuming that property uses OTA services to advertise and come in contact with the customers, it introduced additional costs that were considered in evaluation of financial performance of a villa. Besides traditional and most popular OTA platforms such as Airbnb or Booking.com, this research investigated commission rates of luxury rental specialized agencies such as My Luxoria and based on the average of all, calculated the commission rates used for analysis.

Another assumption is connected to the distinction between investment and financing decisions. As per definition investment decision focuses on where and how to allocate the capital for value maximization. Also, it concerns which specific investments should be pursued as there is no guarantee for many investments, but the expected return has to be determined by investor, company, group or etc. (Saylor academy, n.d.) Splitting the financing from the investment decision is critical for the analysis. Financing decision, on the other hand, is associated with determining the most appropriate way of funding the property investment by considering various financing options such as cash payments, mortgages, short-term debt or similar.

Furthermore, it is assumed observing the current market situation and trends in Croatia that the property prices will not experience any major correction in value, but rather continue with a trend of increase.

Finally, the assumption about the discount rate is vital as it highly influences the financial attractiveness of a villa investment. At a minimum the cost of capital is associated with the mortgage rate, especially in the case of jumbo loans which are designed to finance luxury properties in competitive markets and typically carry higher interest rates (Investopedia, 2023).

Calculations

In order to further explain the research objectives and the process of analyzing the previously obtained data, rates and listing price of one villa will be used to showcase the detailed calculations:

Villa 1 monthly rates are below in the table with all amounts expressed in euros.

Table 1.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Days	31	28	30	31	31	30	31	31	30	31	30	31
Occupancy	0	0	0	15	21	27	29	29	27	16	0	0
Ave rate	1,500	1,500	1,500	1,500	2,250	2,600	3,050	3,325	2,500	1,750	1,235	1,100
Monthly rev	0	0	0	22,500	47,250	70,200	88,450	96,425	67,500	28,000	0	0
OTA commission property mgmt. fee	0	0	0	6750	14175	21060	26535	28927.5	20250	8400	0	0
Net revenue	0	0	0	15,750	33,075	49,140	61,915	67,498	47,250	19,600	0	0

Source: author's research and calculations

The upper table shows the days of each month and then the occupancy in days. Note that some months have the occupancy of 0 indicating that the villas do not operate in that time of the year, or that the average occupancy and interest in renting the villas during off season month is non-existent. Average rate row data is obtained from OTA platforms simply selecting the month of interest for the stay. The next row represents a monthly revenue which is calculated by multiplying

the occupancy days by average nightly rates. As OTA and property commission accounts for 30% combined, according to the research, that was the percentage used to calculate the part of revenue that will be lost due to commissions. Finally, the Net revenue shows revenue earned for each month of renting the property.

Furthermore, 10-year revenue analysis is performed, with the important note of rates and inflows remaining unchanged and constant for the whole period. Thus for all 10 years the annual revenue table is simplified and looks as following:

Table 2.

	Year 1=Year 2=....=Year 10
$\Sigma(\text{days})$	365
$\Sigma(\text{Occupancy})$	164
$\Sigma(\text{Average rate})$	23,810
$\Sigma(\text{Monthly revenue})$	420,325
$\Sigma(\text{OTA + prop mgmt commissions})$	126,098
$\Sigma(\text{Net monthly revenue})$	294,228

Σ - represents summation symbol

Source: author's research and calculations

After calculating the revenue, monthly and yearly operating expenses are calculated:

Table 3.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Utilities	325	325	325	1,100	1,400	1,700	1,700	1,700	1,700	1,100	325	325
Cleaning	0	0	0	600	900	1,200	1,200	1,200	1,200	600	0	0
Linens	0	0	0	100	150	200	200	200	200	100	0	0
Total	325	325	325	1,800	2,450	3,100	3,100	3,100	3,100	1,800	325	325

Source: author's research and calculations

The costs were established using the following table representing 4 different parts of the year:

High season includes months of June, July, August, September, shoulder season in Dubrovnik is typically May while low season months are April and October, and off season months are January, February, March, November and December.

Table 4.

	High season	Shoulder season	Low season	Off season
minimum stay (days)	7	5	5	0
cleanings per month	4	3	2	0

charge per cleaning	300	300	300	300
cleaning (month)	1200	900	600	0
linens per cleaning	50	50	50	50
total linens	200	150	100	0
electricity (month)	1000	800	600	100
water (month)	500	400	300	25
trash (month)	200	200	200	200
total utilities	1700	1400	1100	325

Source: author's research and calculations

Summarizing the table containing monthly operating expenses, the following table is conducted:

Table 5.

	Year 1=Year 2=...=Year 10
Σ (Utilities)	12,025
Σ (Cleaning)	6,900
Σ (Linens)	1,150
Σ (Monthly total)	20,075

Source: author's research and calculations

** For simplified calculation for the 10-year period the operating costs prices were predicted to be unchanged.*

Finally combining the Table 1 (revenue) and Table 3 (operating expenses) the Net cash per month table is calculated:

Table 6.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Net Cash	-325	-325	-325	13,950	30,625	46,040	58,815	64,398	44,150	17,800	-325	-325

Source: author's research and calculations

Summarizing the Table 6 Net cash per month amounts, the yearly net cash of €247,153 is obtained.

This villa is selling for 6 million euros at the current real estate market. Taking that into account the following table represents the total amount paid by investor for the purchase of the villa:

Table 7.

List price	6,000,000
Transfer tax (5%)	300,000

Total	6,300,000
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Source: author's research and calculations

The assumption of annual increase of 4% was accounted and year 10 sale price taking initial current 6 million euros price would be as following:

Year 10 sale price= current list price*(1+annual increase of 4%)¹⁰. The annual increase of 4% is aligned with the data gathered from the different sources across the web. This 4% represents the conservative estimate as different sources online vary. For instance, according to Global Property Guide (n.d.) the increase of 71.56% is characteristic for 10-year period for Croatia. Thus, this research's estimate in annual increase represents a conservative forecast of annual increase for house price change in Croatia.

Calculating with the numbers provided previously year 10 sale price is equal to €8,881,466.

In order to calculate NPV in 10 years, first the NPV of revenue minus expenses is needed. In the case of this villa discount rate is 8%, annual cash flow for all 10 years is 274,153. Afterwards, the present value of the year 10 sale is calculated by using the year 10 sale price of €8,881,466 and discounting it for the period of ten years. Thus, the formula used is as following;

PV of year 10=year 10 sale price/(1+discount rate)¹⁰, resulting in a PV of €4,113,837. Finally, combining the total initial investment of €6.3 million with NPV of revenue-expenses and PV of year 10 sale equals to the NPV=-346,577. The table below summarizes the calculations:

Source: author's research and calculations

Using the standard IRR formula combined with the data provided above the internal rate of return for this villa 7.279%.

Payback Period Calculation

Payback period is a financial metric used to calculate the time needed for an investment property to repay the initial investment price, or in other words, to reach the breakeven point (Kagan, 2024). Payback period calculation was obtained dividing the total initial investment of 6.3 million euros and annual net cash flow of 274,153 €. Thus, the payback period is equal to 22.98 years or almost 23 years if rounded to the nearest.

Return on Investment Calculation

Return on investment is performed dividing the annual cash flow of 274,153 € by total initial investment of 6,300,000 euros, and it equals to 4.352%. It is a financial metric used to benchmark the initial cost against the cash flow generated by renting out. (Investopedia, n.d.)

Applying the same calculation process to the other villas eventually creates the next table, the first one from 'Results and Discussion section'.

Results and Discussion

Traditional financial metrics results summary using discount rate of 8% :

	Payback (years)	IRR	NPV (€)	ROI
Villa 1	22.98	7.28%	-346,577	4.35%
Villa 2	19.96	7.86%	-56,548	5.01%
Villa 3	13.13	10.17%	387,499	7.62%
Villa 4	14.53	9.51%	361,402	6.88%
Villa 5	33.74	6.06%	-264,440	2.96%
Villa 6	33.00	6.12%	-82,836	3.03%
Villa 7	32.10	6.20%	-376,676	3.12%
Villa 8	26.63	6.76%	-219,489	3.76%

Source: author's research and calculations

Using the current discount rate of 8% has proven to generate negative Net present values for the 75% of all analyzed villas confirming that the current interest rate on the market is not as favorable for the investment in luxury villas in Dubrovnik. Furthermore, 75% of all villas experience low internal rates of return and return on investment, and consequently the payback period for the same 75% of the villas is much higher than the payback period of Villas 3 & 4. Thus, villas 3 and 4 have financially outperformed the other villas raising a question why is that the case. The possible explanation behind the results is that those villas hit the “sweet spot” in terms of property valuation being justified avoiding overblown prices. Unfortunately, only 25% of the analyzed properties are in that category while the remaining ones experience the significant steep increase in real estate

prices in Dubrovnik region. Consequently, 75% of villas are not attractive to potential investors using this model of buying-renting the villa as they are not able to simply charge higher prices and justify it by high listing prices they had to pay. Setting over the roof night rates for villas would ultimately result in significantly lower demand and occupancy and thus, generate negative returns for the owner. In other words, overpriced night rates for villas that potentially do not offer such luxury amenities will be negatively perceived by guests and result in them choosing other accommodation alternatives.

Comparison between 8% discount rate (current) and 5% discount rate (pre-inflationary):

	NPV using 8% discount rate	NPV using 5% discount rate (pre-inflation spiral)
Villa 1	-346,577	1,269,382
Villa 2	-56,548	1,325,103
Villa 3	387,499	1,071,500
Villa 4	361,402	1,249,995
Villa 5	-264,440	168,351
Villa 6	-82,836	57,317
Villa 7	-376,676	289,426

Villa 8	-219,489	359,097
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Source: author's research and calculations

If compared to pre-inflationary times when lower financing was available, and many of the villas were built and started operating, the villas financial metrics become more attractive from the investors standpoint. As per table above, it is evident that by applying a 5% pre-inflationary discount rate the net present value of all eight villas is significantly improved. The biggest positive change is experienced by Villa 1 and Villa 2, which also had the highest initial listing price. For that reason, the general conclusion, benchmarking the net present values of 5% and 8% discount rates, is that current high inflation times have resulted in unattractiveness of investment in villas as rental properties.

Mean and standard deviation for 8 villas

	Payback (years)	IRR	NPV (€)	ROI
Σ (8 villas)	196.07 years	59.95%	-597,665	36.724%
Mean=total/8 (μ)	24.5 years	7.49%	-74,708.13	4.591%
Standard deviation (σ)	7.67	1.48%	279,794.63	1.68%

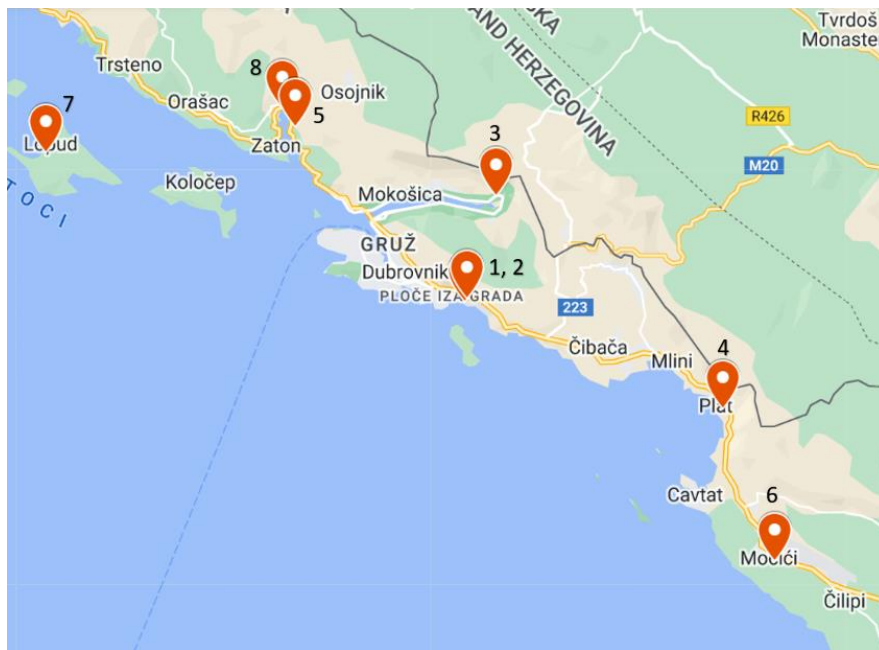
Source: author's research and calculations

Further discussion of average and standard deviation of eight villas provides a more complete picture of the relationship between different properties and trends defining the market. The average payback period for eight villas is 24.5 indicating long-term investment horizon and relatively slow pace of repaying the initial investment. This can deter potential investors from pursuing the investment. High standard deviation of more than 7 years indicates high variability between the payback periods of the villas which can be connected to very diverse listing prices and monthly rent cash flows. Furthermore, the average negative net present value exceeding 74 thousand euros addresses the issue of villas that generally do not create additional value using the 8% discount rate, and its standard deviation suggests relatively high differences between the net present values of villas. This can be attributed to some of the villas having positive and others negative net present values. On the other hand, standard deviation values for internal rate of return and return on investment indicate relatively low differences comparing the values of all eight villas. The annual ROI is also not high, and even though properties can be observed as financially attractive from NPV standpoint as it is assumed the increase in the value of them over 10-year time period, another financial performance metrics, including ROI, are not as satisfying or attractive. Additionally, as mentioned in the assumption section of this research, it is assumed that Croatian real estate market will continue experiencing the rise in property values without any major correction in the future values or prices of the Croatian properties.

Location Discussed

The map below shows eight villas that are being analyzed. As already mentioned, villas number 3 and 4 have turned out to be the most financially attractive to the potential investors under the

current market situation. As visible from the map Villa 3 and Villa 4 are not located in the exact city center but also not as far as other analyzed villas. Thus, the location and spatial analysis can suggest that those villas situated in middle distance to the historical and tourist city center are the ones that are the most attractive in the current market as the ratio between the cost of purchasing and rental night rates is the most favorable for the owner-investor for those two villas.



(Source: Google maps and author's own work)

The other discussion points that have not been directly addressed in the research but can represent the possible buying decision for the new investors are connected with personal use, prestige and status and capital gain from reselling. Namely, personal satisfaction and utility by using the villa for private and personal purposes is the possible answer to the question why these villas despite current financial unattractiveness are being purchased. Additionally, owning such a luxury villa can present a certain status or prestige in the eyes of the community. Those two reasons are non-monetary and thus they are hard to measure or represent numerically. Also, they represent the

situation in which the villa was not bought as investment rental property. However, the possibility that can be numerically presented is capital gain from the immediate resale. In this case an investor can experience capital gain if the price of reselling exceeds the price that the villa was initially bought for.

Limitations and Further Research

Limitations to the study include the number of assumptions discussed previously such as: sales and realtor fees, utility costs, monthly occupancy levels, OTA commission rates, property management fees, discount rates, jumbo mortgage rates, nominal house prices change for 10 years in Croatia, and the possibility of current property owners accepting the lower price than the one listed for sale through real estate agency platform.

Further research can investigate the effect and results focused on a longer time period and compare the findings across the time period. Thus, tracking the same financial performance metrics longitudinally would provide detailed insight into the trends and market situation to observe how the financial attractiveness of luxury villas behaves over time. Furthermore, further detailed research can include the possibility of arranging interviews with local realtors and luxury villa owners to try to obtain specific and relevant data that is not available to the general public. Calculating with the first-hand data would possibly impact the overall financial attractiveness of the villas and cause changes to the results and calculations performed and investigated in this research paper.

To conclude, this research has examined a vital part of infrastructure needed for transition to high-end tourism, luxury private accommodation. The current market conditions and set of assumptions provide an unfavorable situation for the investors aiming to invest in a luxury villa as rental property. On the other hand, the existence of such accommodation units and the trend of increased demand and popularity for luxury accommodation units provides a support to the desired transformation of tourism in Dubrovnik. The trend is evident as many luxury rentals specialized agencies have entered the market in the recent period. One of them, also the largest Croatian agency specialized in luxury villa rental, has added 400 new listings in 2022 (Journal.hr, 2023). The increasing number of luxury properties being supplied to the market initiates positive change and positively contributes to Dubrovnik's aspirations for high-end tourism. Luxury rental properties have the potential to attract high-spending travelers and in that manner, enhance Dubrovnik's reputation as a luxury destination. Finally, this research has examined the financial attractiveness of eight high-end villas with the conclusion that 75% of them are unattractive under the current market conditions and interest rates. On the contrary applying the pre-inflationary discount rates significantly improves the financial attractiveness of all villas, completely changing the situation for all potential investors.

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Appendix

Villa	5-star rating	Number of bathrooms	Number of bedrooms	Location	Distance from city (air distance)	Pool
Villa 1	Yes	7	6	Dubrovnik	0.85 km	Yes
Villa 2	Yes	8	6	Dubrovnik	0.78 km	Yes
Villa 3	Yes	3	3	Rožat	4.15 km	Yes
Villa 4	Yes	5	5	Plat	10.29 km	Yes
Villa 5	Yes	5	4	Zaton	8.05 km	Yes
Villa 6	Yes	3	3	Konavle	14.42 km	Yes
Villa 7	Yes	5	6	Lopud	14.70 km	Yes
Villa 8	Yes	7	6	Zaton	8.73 km	Yes