Konya Novada And M1 Shoppıng Mall Precedent Study And Comparıson On The Impacts of Bad Envıronment On Real Estate Values

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ABSTRACT: A number of elements positively or negatively affect the value of the real estates. As it is known, real estates consist of the land and the plants and annexes built on the land. The plants on the land are exposed to physical, functional and environmental attrition.

Physical attrition occurs over time in relation to building quality and material quality of the structure. Functional attrition is the loss of convenience of the building as to usage and daily fashion.

Environmental attrition, which is distinct from all of these, is the impairment caused by negative environmental conditions.

In this study, the subject of real estate valuation is explained briefly and the impacts of environmental conditions on real estate values is examined.

For the application, regions which have equal proximity to the Konya Intercity Bus Terminal and have similar attraction centers has been chosen albeit, one of the regions is an industry-dominated zone. Data related to the precedents in the study region have been collected. The land capitalization ratios were calculated and compared in the light of these data. As a result of the comparison, it has been concluded that the surrounding environment has low levels of impact on the real estate in the NOVADA and M1 Shopping Mall regions.

KEYWORDS: Depreciation, Precedent, Capitalization, Bad Environment, Net Income, Real Estate Valuation

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I.   INTRODUCTİON

Real estate valuation is the calculation of the daily rated value of a real asset, project of a real asset, the rights, liabilities and limitations related to the real asset based on independent, neutral and objective criteria (Açlar and Çağdaş, 2008). The most important factor in valuing a real estate is the "Market Value". Market value is the estimated amount for which a property should be transferred on the date of valuation within the framework of an agreement between a willing buyer and a willing seller who are independent from each other without any compulsion and under the conditions where the parties would not be affected by any relationships wherein the parties act in a manner that is knowledgeable, prudent and in good faith (URL 1).

The concept of Market Value does not depend on an actual transaction that takes place at the date of valuation. Market Value is rather an estimate of the price at which a sale would occur on the valuation date within the framework of conditions that make up the definition of Market Value. Market Value is the representation of a price within the frame of the definition of the market value that is not influenced by the fact that the buyer and seller have enough time to investigate other opportunities and alternatives in the marketplace, and that it will take time to prepare official contracts and sales documents.

In order to for the valuation to be able to be conducted in the real meaning, it is necessary to know well about the definitions related to the real estates and set forth these. In addition, valuation should be conducted by people who are field experts (Köktürk E, Köktürk E 2016).

II.   REAL ESTATE VALUATİON METHODS

There exist a number of methods that are defined for calculating the Real estate values. Yet, there are three main methods on the basis of these methods. These three methods, that also are generally used in our country, are: precedent comparison, revenue and cost methods.

Which method to use in real estate valuation is determined based on the location and features of the real estates and conventional behavior. The precedent comparison method is used in the valuation of a constructed or unconstructed land. The real price of lands is determined closest to the real price by the price of their precedents on that date. The price of a land, for which valuation is conducted, can be determined by comparing the price with those of sufficient number of similar precedents with approximately same features.

If considered to be a revenue generating asset such as housing or work place, determination of the market value of these real estates is only possible with the valuation to be conducted through the revenue method. The current market rates of structures the revenues of which cannot be detected such as factories, housing, business center, are calculated by the revenue method as a rule (Açlar and Çağdaş, 2008).

2.1 The Precedent Comparison Method

The main condition of this method is that there should be precedents of comparison we can trust in the current market rates for estimating the price of the real estate. In addition to the reliable market value, the location and features of the real estates selected for comparison should be similar to those of the real estate to be valued.

The attributes and features of the precedents can be briefly enumerated as:

a)   Parcel features,
b)   Urban location,
c)   Transportation,
d)   Type of the building,
e)   Zone,
f)   Proximity to the public and socio-cultural facilities,
g)   Age,
h)   and the criteria for usage

designated by the zoning plan etc. As the number of precedents to be used for comparison increases up to a certain interval, the estimation of the real estate value as close as possible to its real value can be done more conveniently. However, due to the scarce number of similar real estates on the market, at least 3 precedents is considered sufficient for valuation.

If the cluster of precedents selected for the real estates to be valued has different qualities than the real estates to be valued, these differences should be determined as price. That is to say, these should be eliminated from the comparison price. According to article 4/3 of the Germany Value Determination Regulation (URL 2), sales prices that do not occur under usual conditions but occur by being affected by personal relationships, may also be benefited for the comparison. In addition, prices including state of compulsion, tax avoidance, and individual situations can be used in the comparison. However, since it is not known how much the prices are affected by such circumstances, a reliable comparison price may not occur. Only the prices whose degree of being influenced are known and freed from these effects can be used in comparison.

In the valuation through the comparison method, the factors important for land valuation are its location, function in the region and the zoning data it has. While the precedents are being chosen, it is necessary that these features are the same or similar as much as possible. When the cluster of precedents with similar features is formed, the market price of the land to be valued is the average price of the real estates in the cluster (Karakuş H H., 2011).

The precedent unit square meter prices determined by experts committees can also be used in the determination of the value of the land. The "Normal Trading Price Tables" that are used in our country can be taken as basis for comparison. In the preparation of the tables, the prices determined are expected to be similar to each other and occurred in the same region and in the same date. These are reliable prices because prepared by experts.

Given all these reasons, the value of the precedent real estate should be similar in terms of location and features to the real estate to be valued in the valuation through comparison method.

2.2 The Revenue Method

If the price of the real estate is determined only by the revenue it will earn, the revenue method is used to find the current price. Income-generating structures such as houses or business places can be valued through the revenue method. The most important criterion in determining the value of a constructed real estate is the

determination of net revenue. The revenues of a constructed real estate consists of the structure, the structural facilities and the land on which it is located. For this reason, the share of land and building is calculated and specified separately in the calculation of net revenue. The revenue method is used a rule in the valuation of leased real estates.

The net revenue described here is obtained by subtracting the annual gross expenditure of a real estate from the financial losses incurred when the immovable is left empty and operating expenses. Tax and insurance charges and management costs can be counted as operating expenses. Since net revenue is the most important criterion in determining the value of the real estate by the revenue method, the revenues and expenses of the real estate to be valued must not be ignored. The net revenue should be found in the most accurate way by determining these data in an objective, rather than subjective, independent and unbiased manner.

If the revenue method is to be used for the current value on constructed lands, the shares of land and building become different. Here, the land will bring revenue proportional to the capitalization in the region. Capitalization rates belonging to the region of the land is utilized if these exist. However, since these ratios are not specified in our country and they are not recorded, the market value of a land is found by analyzing qualitatively similar lands through the precedent comparison method as a result of these analyses.

If the net revenue is bigger than the revenue share of the land, the revenue of the building is calculated. This calculation is done by multiplying the building value by the V coefficient. V coefficient is calculated with remaining life span of the building, interest base and depreciation value. The V coefficient to be found is important for the reliability of the method. Correlations related to the V coefficient has been established by Rössler and Langer (1975). These correlations has been made by taking into process the current value of the building, net revenue and factors affecting the coefficient (Açlar and Çağdaş, 2008).

$$G_{ny} = Y_a + F_y \qquad\qquad\qquad 2.1$$

$$D_y = G_{ny} \cfrac{1}{\cfrac{q+1}{q^n - 1} + \cfrac{p}{100}} \qquad\qquad\qquad 2.2$$

$$V = \cfrac{1}{\cfrac{q+1}{q^n - 1} + \cfrac{p}{100}} \qquad\qquad\qquad 2.3$$

$$D_y = G_{ny}.V \qquad\qquad\qquad 2.4$$

The value that is found out of the land value and building revenue value is not the market value. In general it is necessary to adopt the revenue value into the current value market. Unless the expected revenue value is sufficient given the other relations in the parcel market, the cost method may also be used for control and support purposes.

2.2.1 Depreciation

It is one of the important concepts in the cost method. Depreciation is the gap between the current value of the building and its reconstruction value at the day of valuation. In valuation it is described as loss of value due to such reasons as breakdown, aging or attrition. The major components of depreciation are physical attrition, functional attrition and attrition in environmental conditions.

$$Amortization\ Rate = \frac{Effective\ Age}{Total\ Economic\ Life} \qquad\qquad 2.5$$

Methods that are used to determine depreciation are as follows:

a. Deduction From The Market Method

The method is based on the sales from which depreciation can be deduced. It makes direct matchups to market sales. It is primarily used for calculating total depreciation, creating a total economic life expectation and making and estimate of external aging (Köktürk and Köktürk, 2016).

b. The Age Lifetime Method

In this method, total depreciation is estimated by calculating the ratio of the effective age of a real estate to its expected economic life expectancy and applying this ratio to the total cost of the real estate. The age and lifetime concepts can be enumerated as follows:

Economic Life: The period in which the building carries on adding utility to the value of the real estate. Economic life starts when the building is constructed and ends when it stops contributing to the value of the land on which the building is located.

Real Age and Effective Age: The number of years elapsed starting from the date the building was constructed is called the real age. Effective age is the age determined by the usefulness and condition of the building. It depends on how the valuation expert thinks and interprets the market.

$$Amortization = \frac{Effective\ Age}{Total\ Economic\ LIfe} * Total\ Cost \qquad\qquad 2.6$$

c. The Decomposition Method

IT is the most detailed way used in the calculation of depreciation. The calculation can be done by getting in every component of the of depreciation.

2.2.2   Certain Ratios Used İn Valuation
a.   CAPİTALİZATİON RATE

Capitalization rate is the rate of net operation revenue of the income generating real estate to its current value. The capitalization rate of a region's real estate market can be determined with the sales prices and net revenues of recently sold buildings that have the same usage, age, qualifications and location within a certain area.

Capitalization rate is calculated with the following equation:

$$k = \frac{G_n}{D_t} \qquad\qquad 2.7$$

$$k = \frac{q}{(q+1)^n - 1} + p \qquad\qquad 2.8$$

(Açlar ve Çağdaş, 2008). In this equation k, refers to capitalization rate; G_n, refers to the net revenue of the real estate and D_t, refers to the market value of the real estate.

The sum of land and building capitalization is called integrated capitaliation.

$$k_{büt} = k_a \frac{D_a}{D_{taş}} + k_y \frac{D_y}{D_{taş}} \qquad\qquad 2.9$$

b. Gross Rent-Revenue Multiplier

It is used to calculate the value of real estates with rental revenues. It is obtained by dividing the sales prices by the annual gross rent or income. It is calculated with the

$$BKÇ = \frac{D_t}{G_b} \qquad\qquad 2.10\ equation.$$

2.3 The Cost Method

This method is generally used in the valuation of constructed real estates which have structures such as single or multi-storey buildings, commercial buildings, industrial buildings, hotels, and official buildings on them and rental values are unknown.

The basis of the cost method is reaching the final value, that is, the cost value on the value determination day. Cost value consists of the values of land value, building value, and the values of external facilities and accessories. Land value is determined by the precedent comparison method as a rule. Building value on the other hand, is the sum of the building's own value, its special accessories' value and its facilities' value calculated on the date of valuation. The cost value is found by eliminating the physical, functional, and environmental attritions of the building from these values.

The cost method can be considered to be two different concepts. These are the cost of regeneration and replacement. These methods have to be taken into account in determining the appropriate rates and values in order to find the cost value of the building and building annexes. Attention should be paid to what method to choose when making valuation with the rates at hand with these methods. Selecting the wrong method may give wrong valuation results.

The cost of reproduction is the production of the building in the same way with the same materials, same workmanship and design at the time of production. This method is usually used for the renovation of historical monuments and touristic buildings because own production materials of the building taken as basis.

The replacement cost is the reproduction of the building with brand new construction materials and modern workmanship techniques according to the conditions of the day. In this method, attrition as to functionality is eliminated since construction materials, workmanship and design features are ignored. Such valuation is used in the valuation of structures such as housing, factories, business blocks, and industrial buildings that do not have a special purpose.

Value determination with the cost method, can be conducted through price analysis and average cost price methods. In the price analysis method, the construction cost is found by calculating the total cost of excavation, filling, concrete, iron, paint, workmanship services that are used in the production of the building. In the average cost method, on the other hand, the cost value can be found through multiplying the m² and m³ unit prices determined based on the features of the construction by the total amount of the building. Since the prices are average values determined in normal conditions in the valuation with average cost prices, the value enhancements and deductions that should be made due to the features of the building should be taken into consideration.

The unit prices specified here are calculated taking into account all costs determined by the chambers such as plans, projects, licenses and residence permits, participation rates in public services, construction material prices, etc. Possible building values peculiar to the region could be used in the determination of building production prices (Açlar and Çağdaş, 2008).

2.3.1   Attritions İn Buildings
a.   Physical Attritions

These are attritions that form in the process of the building's technically completing its lifetime. A building is considered to have entered in the attrtion process by the time its construction is completed. In this process, if the physical maintenance and repair works of the building is done regularly and on time, it completes its determined economic life efficiently. Nevertheless, physical attrition will happen in any way, good or bad. These can be examined as attritions that occur in repairable parts such as paint, exterior wears and tears, roof leakages, etc. And those that occur on the carrier system or the base of the buildings and are non-repairable.

b.   Functional Attritions

It occurs when the building loses its convenience it used to have in the days of construction over time. The interest and demand for the building begins to diminish. Functional Attritions,

- Situations such as non-conformance of the construction features of the building (floor height, internal design, external look etc) to the needs of the time,
- Building design built in the direction of personal requests
- And failure to respond to usage in modern conditions can be considered functional losses of the building.

Functional Attritions generally cannot be corrected. The features to be corrected are scarce. For instance, the kitchens and bathrooms of apartments can be changed according to the modern conditions as far as the conditions allow. However, external equipment and architectural design are features that cannot be changed.

c.   Attritions That Occur Due To Environmental Conditions

These are attritions that occur due to external effects in the region where the building is located. Such attritions can be attributed to a number of external environmental features such as air, water, noise and heavy traffic, unplanned use of the environment, generally unwanted groups of people who get in the region, and economic conditions. In the calculation of external environmental attrition, the extent of each external factor's impact on the building is determined and taken into account in the valuation. The correction of such attrition is rather difficult and it entails a long time when this is attempted.

In order to be able to calculate the effects of the bad environment on the value of the real estate located in a bad environment, it is necessary to find sample or samples which are in the vicinity and under similar usage conditions, but not affected by the negative environmental factors.

III.   PRECEDENT SURVEY AND RESULT ANALYSIS

In our study, the Konya Selçuklu district M1 and Novada shopping Malls were selected as pilot regions and the land capitalization values in the region were approximately obtained by making comparisons between the houses and lands in their surrounding areas. The study was conducted mainly for comparison purposes by determining the impairment of the real estates due to environmental conditions. The precedents used in the calculations were chosen by taking into consideration similar characteristics as far as possible. It is aimed to determine the effects of cement plant, concrete plants and airport that are located in the Novada shopping center area on the land capitalization rates of the building usage permits specified in the zoning plan of the region according to the results obtained.

For the calculations, values such as lease and sales prices of the precedents, technical features, interest on housing loans and interest rate on government bonds were used. While land capitalization existed, housing capitalization was utilized and the land share (housing / building ratio) in M1 area was determined and used as 40% and this value was determined and used as 30% in Novada region.

3.1 M1 Shopping Mall Region

The intercity bus terminal in the study area, the metropolitan stadium and the hobby gardens, which are fairly close to the area, have added value to the region and real estates and have enhanced its status of being an attractive living space.

The region's zoning plan generally has a high value in residential usage measures. While the permitted building height H_{max} is open, the value of the precedents is around 2 in average.

3.1.1　M1 Shopping Mall

It has come into service in February 2003. It is constructed with prefabricated columns and beams and it has an old architecture as of today. It is a shopping mall situated at the 12 km north of the Konya city center with 58 500 m^2 closed area, 7 meter height, consisting of a first floor only, without any shops on the exterior facet, all shops only face the interior, with 38 500 m^2 of open auto park and situated on a total of 165 000 m^2.

Starting from the bus terminal junction, a decent environment, nice scene and clean air along the transportation route attracts attention. Since natural gas is used for heating, the ratio of SO_2 in the region is rather low, yet, due to the lacking of forest or prairies in the vicinity, PM_{10} ratios are high [URL 1]. It's located at the intersection of three neighborhoods and is in the midst of intense building clusters. It addresses to about 40 000 inhabitants living in a 270 ha area. Population density is 148 person/ha. The Mall does not have a free transportation service for their customers.

There are dispensary and roadside workplaces on its east, 42,000 people-capacity stadium and Olympic swimming pool on its south-east,

a) 3 X 3 750 m^2 area KP,

b) 2X4 200 m^2 area KK,

c) 2X1 450 m^2 area MKR,

d) business centers on its south, Selcuklu Municipality Building on its southwest, and the MST, the ground floors of the apartments of which are business offices with a total of 7 500 m^2 area and the Konya Intercity Bus terminal is located on its west; and it is surrounded by 7 to 13 storey apartment buildings.

There are 3 supermarkets, 5 educational institutions and a hospital in its immediate vicinity. The total number of workplaces in it is 84 and the total leasable area is 41 000 m^2. The shops in the mall consist of local, national and global brands (Map 1).

Map 1: M1 Mall and Vicinity

Table 1.1: M1 Mall Region Precedents and Capitalization Calculation

Item No	Name of Building	Address	Building Age (Year)	Structure Area (M²)	Building Cost (TL)	Building Value (TL)	Building Market Value (TL)	Credit Interest Rate (p)	Economic Life (Year)	Remaining Economic Life (n) (Year)
1	Yonca Park Sit.	Şht.Yusuf Ceren Str.	7	200	295710	266139	330000	0.106	50	43
2	Yonca Park Sit.	Şht.Yusuf Ceren Str.	7	200	295710	266139	290000	0.106	50	43
3	Yonca Park Sit	Şht.Yusuf Ceren Str	7	200	295710	266139	320000	0.106	50	43
4	Yonca Park Sit.	Şht.Yusuf Ceren Str.	7	200	295710	266139	325000	0.106	50	43
5	Yonca Park Sit.	Şht.Yusuf Ceren Str.	7	200	295710	266139	280000	0.106	50	43
6	Menekşe Sit.	Akkonak Str.	8	155	229175.25	206257.725	260000	0.106	50	42
7	Menekşe Sit.	Akkonak Str.	8	155	229175.25	206257.725	255000	0.106	50	42
8	Menekşe Sit.	Akkonak Str.	8	155	229175.25	206257.725	265000	0.106	50	42
9	Menekşe Sit	Akkonak Str	8	155	229175.25	206257.725	255000	0.106	50	42
10	Menekşe Sit	Akkonak Str	8	155	229175.25	206257.725	245000	0.106	50	42
11	Menekşe Sit.	Akkonak Str.	8	155	229175.25	206257.725	235000	0.106	50	42
12	Gesa Park	Saray Bosna	8	200	295710	266139	460000	0.106	50	42
13	Gesa Gold	Şenocak Str.	7	160	236568	212911.2	295000	0.106	50	43
14	Gesa Land	Şenocak Str.	7	215	317888.25	286099.425	425000	0.106	50	43
15	Gesa Land	Şenocak Str.	7	215	317888.25	286099.425	410000	0.106	50	43
16	Gesa Land	Şenocak Str.	7	215	317888.25	286099.425	480000	0.106	50	43
17	Gesa Land	Şenocak Str.	7	215	317888.25	286099.425	465000	0.106	50	43
18	Gesa Land	Şenocak Str.	7	215	317888.25	286099.425	470000	0.106	50	43
19	Gesa Land	Şenocak Str.	7	215	317888.25	286099.425	465000	0.106	50	43
20	Lalepark Sit.	Kaletaş Ave.	6	220	325281	292752.9	460000	0.106	50	44
21	Lalepark Sit	Kaletaş Ave	6	220	325281	292752.9	520000	0.106	50	44
22	Lalepark Sit	Kaletaş Ave	6	220	325281	292752.9	440000	0.106	50	44
23	Lalepark Sit.	Kaletaş Ave.	6	220	325281	292752.9	455000	0.106	50	44
24	Kardelen Houses	Eylül Str.	9	175	258746.25	232871.625	285000	0.106	50	41
25	Kardelen Houses	Eylül Str.	9	175	258746.25	232871.625	270000	0.106	50	41
26	Kardelen Houses	Eylül Str.	9	175	258746.25	232871.625	300000	0.106	50	41
27	Elitkent Sit.	Eylül Str.	8	190	280924.5	252832.05	290000	0.106	50	42
28	Elitkent Sit	Eylül Str.	8	190	280924.5	252832.05	275000	0.106	50	42
29		Akkonak Str.	3		0		305000	0.106	50	47
30		Beyhekim Ave.	10		0		310000	0.106	50	40

Table 1.2: M1 Mall Region Precedents and Capitalization Calculation

Item No	Building Name	Government Bonds Interest Rate (q)	Leasing (TL)	Net Revenue (year/TL)	Capitalization Rate (k_y)	$k_{büt}$ (3.10)	Land Value (TL)	Total Real Asset Value (TL)	k_a (3.11)
1	Yonca Park Sit.	0.104	1350	15714	0.107498218	0.047618182	27280000	68200000	0.042999
2	Yonca Park Sit.	0.104	1200	13968	0.107498218	0.048165517	27280000	68200000	0.042999
3	Yonca Park Sit.	0.104	1300	15132	0.107498218	0.0472875	27280000	68200000	0.042999
4	Yonca Park Sit.	0.104	1300	15132	0.107498218	0.04656	27280000	68200000	0.042999
5	Yonca Park Sit.	0.104	1200	13968	0.107498218	0.049885714	27280000	68200000	0.042999
6	Menekşe Sit.	0.104	950	11058	0.107656514	0.042530769	59136000	147840000	0.043063
7	Menekşe Sit.	0.104	950	11058	0.107656514	0.043364706	59136000	147840000	0.043063
8	Menekşe Sit.	0.104	1050	12222	0.107656514	0.046120755	59136000	147840000	0.043063
9	Menekşe Sit.	0.104	1,000	11640	0.107656514	0.045647059	59136000	147840000	0.043063
10	Menekşe Sit.	0.104	950	11058	0.107656514	0.045134694	59136000	147840000	0.043063
11	Menekşe Sit.	0.104	950	11058	0.107656514	0.047055319	59136000	147840000	0.043063
12	Gesa Park	0.104	1700	19788	0.107656514	0.043017391	20520000	51300000	0.043063
13	Gesa Gold	0.104	1200	13968	0.107498218	0.047349153	8352000	20880000	0.042999
14	Gesa Land	0.104	1500	17460	0.107498218	0.041082353	17664000	44160000	0.042999
15	Gesa Land	0.104	1500	17460	0.107498218	0.042585366	17664000	44160000	0.042999
16	Gesa Land	0.104	1650	19206	0.107498218	0.0400125	17664000	44160000	0.042999
17	Gesa Land	0.104	1600	18624	0.107498218	0.040051613	17664000	44160000	0.042999
18	Gesa Land	0.104	1600	18624	0.107498218	0.039625532	17664000	44160000	0.042999
19	Gesa Land	0.104	1600	18624	0.107498218	0.040051613	17664000	44160000	0.042999
20	Lalepark Sit.	0.104	1600	18624	0.107355242	0.040486957	47040000	117600000	0.042942
21	Lalepark Sit.	0.104	1650	19206	0.107355242	0.036934615	47040000	117600000	0.042942
22	Lalepark Sit.	0.104	1550	18042	0.107355242	0.041004545	47040000	117600000	0.042942
23	Lalepark Sit.	0.104	1550	18042	0.107355242	0.039652747	47040000	117600000	0.042942
24	Kardelen Houses	0.104	1050	12222	0.107831826	0.042884211	72384000	180960000	0.043133
25	Kardelen Houses	0.104	1,000	11640	0.107831826	0.043111111	72384000	180960000	0.043133
26	Kardelen Houses	0.104	1100	12804	0.107831826	0.04268	72384000	180960000	0.043133
27	Elitkent Sit.	0.104	1150	13386	0.107656514	0.046158621	75240000	188100000	0.043063
28	Elitkent Sit.	0.104	1100	12804	0.107656514	0.04656	75240000	188100000	0.043063
29		0.104			0.107003827				
30		0.104			0.108026048				
					0.107561119	**0.043664948**			**0.043025**

3.2. Novada Shopping Mall Region

The study area contains several value depreciative businesses around it. It is a region where there are problems such as cement factory, concrete plants, alcoholic night clubs, industrial enterprises and constant noise, air pollution, and late hour security problems. Along with these, the number of residents in the region has increased recently and it is rapidly transforming into the status of a residential area. These negative situations, which the people of the region also complain about, have led to protests from time to time and published as news in various local newspapers.

The region's zoning plan generally has a lower value when compared with the M1 region. H_{max} is in general 24,5 m, precedent is in the range of 1.20 and 1.50.

3.2.1. Novada Mall

It has come into service in June 2015. It is made of reinforced concrete steel columns and beams and reflects today's modern shopping mall architecture. It is a shopping mall situated at 12 km northeast of Konya city center with 3 X 15 000 m^2 + 4 000 m^2 of closed area consisting of 3 floors, with shops that face the front facade on the ground floor, other shops face the inner mall, with 10 000 m^2 open and, 8 000 m^2 closed auto park, situated on a total of 48 000 m^2 area.

Since natural gas is used for heating, the ratio of SO_2 in the region is rather low, yet, due to the lack of forest or prairies in the vicinity, PM_{10} ratios are high [URL 3]. The population of the neighborhood it is located in is 27 200 people and the population density is 49 people / ha (Map 2). The shopping center has free transportation service for its customers.

On its north and north east there are 13-storey apartments, public institutions and Health Center, on its east there are car dealers and petrol station and airport boundary 2 km ahead, on its south east there are concrete plants and 2 km ahead is the organized industrial zone boundary, on its south there is the material pit of the cement factory (since it is filled with ground water it looks like a pond) and the cement factory, in the south-west there are pubs that face the road and there is industrial zone behind them, on its west there are 13-storey apartments and Konya Intercity bus terminal. There are ground floor workplaces on both sides of the road passing through the western facet of the Mall.

There are 3 hypermarkets, 5 educational institutions, public institutions and a health center in its immediate vicinity. The shops in the mall consist of local, national and global brands.
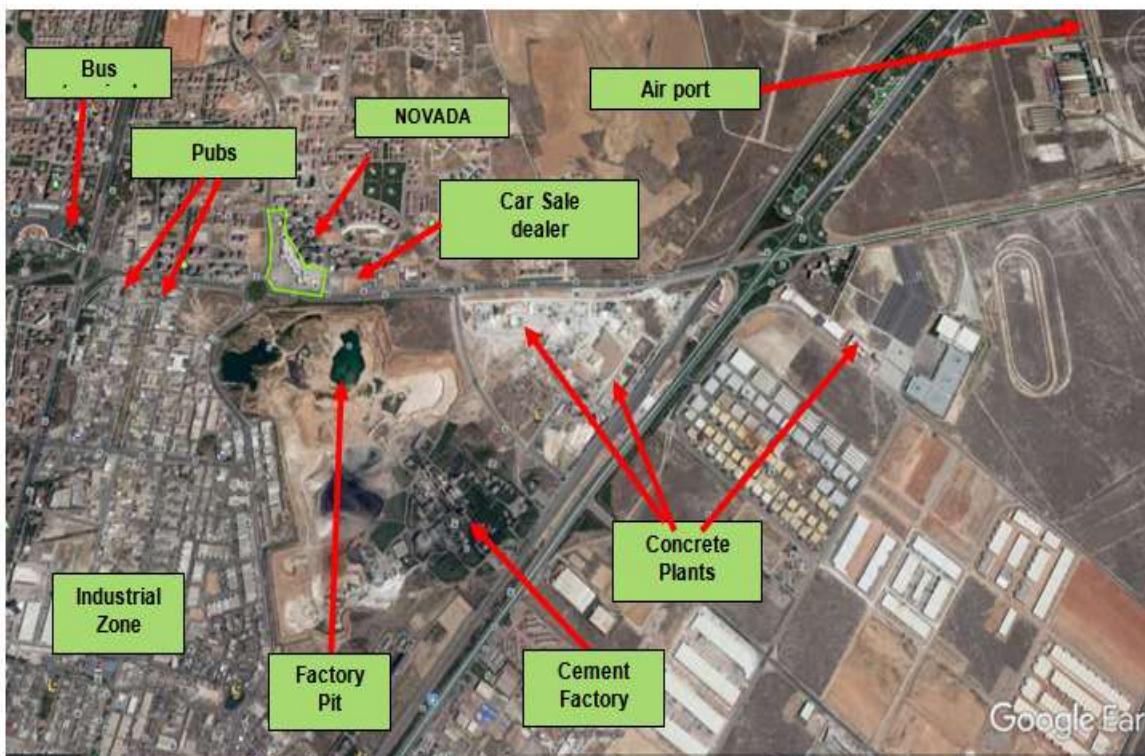
Map 2: Novada Shopping Mall and Vicinity

Table 2.1: Novada Mall Region Precedents and Capitalization Calculation

Item No	Name of Building	ADDRESS	Buldıng Age (Year)	Structu re Area (M²)	Building Cost (TL)	Building Value (TL)	Building Market Value (Year)	Credit Intrest Rate (p)	Econ omic Life (Year)	Remaini ng Economi c Life (n) (Year)
1	Sancakt epe	Serincan Str.	2	170	251353.5	241299.36	310000	0.106	50	48
2	Sancakt epe	Serincan Str.	2	170	251353.5	241299.36	250000	0.106	50	48
3	Sancakt epe	Serincan Str.	2	170	251353.5	241299.36	290000	0.106	50	48
4	Sancakt	Serincan	2	170	251353.5	241299.36	320000	0.106	50	48
5	Sancakt	Serincan	2	170	251353.5	241299.36	290000	0.106	50	48
6	Ataşehir Housing	Güzelkent Str.	2	200	295710	283881.6	325000	0.106	50	48
7	Ataşehir	Güzelkent	2	175	258746.25	248396.4	280000	0.106	50	48
8	Ataşehir	Güzelkent	2	200	295710	283881.6	328000	0.106	50	48
9	Ataşehir	Güzelkent	2	200	295710	283881.6	340000	0.106	50	48
10	Asude	Güzelkent	6	180	266139	239525.1	285000	0.106	50	44
11	Asude	Güzelkent	6	180	266139	239525.1	310000	0.106	50	44
12	Asude	Güzelkent	6	180	266139	239525.1	295000	0.106	50	44
13	Yaşamk ent Sit.	Serincan Str.	3	160	236568	227105.28	230000	0.106	50	47
14	Yaşamk	Serincan	3	160	236568	227105.28	232 000	0.106	50	47
15	Yaşamk	Serincan	3	160	236568	227105.28	235000	0.106	50	47
16	Ihlamur Çiçeği	Güzelkent Str.	4	160	236568	222373.92	250000	0.106	50	46
17	Ihlamur Çiçeği	Güzelkent Str.	4	160	236568	222373.92	235000	0.106	50	46
18		Tacmahal	4	190	280924.5	264069.03	245000	0.106	50	46
19	Ihlamur Çiçeği	Güzelkent Str.	4	160	236568	212911.2	210000	0.106	50	46
20		Serincan	3	135	199604.25	191620.08	205000	0.106	50	47
21		Serincan	3	135	199604.25	191620.08	210000	0.106	50	47
22	Ataşehir	Güzelkent	2	180	266139	255493.44	320000	0.106	50	48
23	Asude	Güzelkent	6	180	266139	255493.44	280000	0.106	50	44
24	Ataşehir	Güzelkent	2	200	295710	283881.6	300000	0.106	50	48
25	Asude	Güzelkent	6	180	266139	239525.1	275000	0.106	50	44
26	Asude	Güzelkent	6	180	266139	239525.1	300000	0.106	50	44
27	Ataşehir	Güzelkent	2	200	295710	283881.6	310000	0.106	50	48
28	Ataşehir	Güzelkent	2	200	295710	283881.6	350000	0.106	50	48
29	Ataşehir	Güzelkent	2	200	295710	283881.6	335000	0.106	50	48
30	Ataşehir	Güzelkent	2	200	295710	283881.6	300000	0.106	50	48

Table 2.2: Novada Mall Region Precedents and Capitalization Calculation

Item No	Name of Building	Government Bonds Interest Rate (q)	Leasing (TL)	Net Revene (year/TL)	Capitalization Rate (k$_y$)	k$_{büt}$ (3.10)	Land Value (TL)	Total Real Asset Value (TL)	k$_a$ (3.11)
1	Sancaktepe Housing	0.104	1050	12222	0.106908437	0.039425806	7840000	22400000	0.0320725
2	Sancaktepe Housing	0.104	950	11058	0.106908437	0.044232	7840000	22400000	0.0320725
3	Sancaktepe Housing	0.104	950	11058	0.106908437	0.038131034	7840000	22400000	0.0320725
4	Sancaktepe Housing	0.104	1050	12222	0.106908437	0.03819375	7840000	22400000	0.0320725
5	Sancaktepe Housing	0.104	1,000	11640	0.106908437	0.040137931	7840000	22400000	0.0320725
6	Ataşehir Housing	0.104	1200	13968	0.106908437	0.042978462	65100000	186000000	0.0320725
7	Ataşehir Housing	0.104	1150	13386	0.106908437	0.047807143	65100000	186000000	0.0320725
8	Ataşehir Housing	0.104	1200	13968	0.106908437	0.042585366	65100000	186000000	0.0320725
9	Ataşehir Housing	0.104	1250	14550	0.106908437	0.042794118	65100000	186000000	0.0320725
10	Asude Housing	0.104	1050	12222	0.107355242	0.042884211	34496000	98560000	0.0322066
11	Asude Housing	0.104	1200	13968	0.107355242	0.045058065	34496000	98560000	0.0322066
12	Asude Housing	0.104	1100	12804	0.107355242	0.04340339	34496000	98560000	0.0322066
13	Yaşamkent Sit.	0.104	900	10476	0.107003827	0.045547826	5084800	14528000	0.0321011
14	Yaşamkent Sit.	0.104	880	10243.2	0.107003827	0.044151724	5084800	14528000	0.0321011
15	Yaşamkent Sit.	0.104	900	10476	0.107003827	0.044578723	5084800	14528000	0.0321011
16	Ihlamur Çiçeği Sit.	0.104	875	10185	0.107109338	0.04074	7728000	22080000	0.0321328
17	Ihlamur Çiçeği Sit.	0.104	875	10185	0.107109338	0.043340426	7728000	22080000	0.0321328
18		0.104			0.107109338				
19	Ihlamur Çiçeği Sit.	0.104	850	9894	0.107109338	0.047114286	7728000	22080000	0.0321328
20		0.104			0.107003827				
21		0.104			0.107003827				
22	Ataşehir Housing	0.104	975	11349	0.106908437	0.035465625	65100000	186000000	0.0320725
23	Asude Housing	0.104	1050	12222	0.107355242	0.04365	34496000	98560000	0.0322066
24	Ataşehir Housing	0.104	1050	12222	0.106908437	0.04074	65100000	186000000	0.0320725
25	Asude Housing	0.104	950	11058	0.107355242	0.040210909	34496000	98560000	0.0322066
26	Asude Housing	0.104	975	11349	0.107355242	0.03783	34496000	98560000	0.0322066
27	Ataşehir Housing	0.104	1200	13968	0.106908437	0.045058065	65100000	186000000	0.0320725
28	Ataşehir Housing	0.104	1200	13968	0.106908437	0.039908571	65100000	186000000	0.0320725
29	Ataşehir Housing	0.104	1150	13386	0.106908437	0.039958209	65100000	186000000	0.0320725
30	Ataşehir Housing	0.104	1100	12804	0.106908437	0.04268	65100000	186000000	0.0320725
					0.107040483	0.042170579			0.0321122

3.3. Comparison of the Malls

The M1 Mall management has adopted the rental method only instead of selling the ownership of the shops in the Mall. The Mall consists of only ground floor and interior facade. Because of this reason, there is no gap of contribution due to floor difference and external facade attractiveness among the shops. There are four main entrances for customers, and since the shops are located along the line facades and in the middle square, it is a structure in the form of a perfect rectangle with formed corners in the architectural project. A total of 26 corners are formed, and because the middle square facades are kept short, there is no big differences as to location; however, the workplace sizes are rather different from each other (from 22 to 10 000 m^2). Therefore the shops that need large areas and appeal to a large population are located at the blind corners.

Novada Mall administration offers both estate sales and customer guaranteed leasing of the shops in the Mall. The Mall is projected as 1 ground floor, 3 full floors and a quasi inverse floor due to narrow space of the parcel it is located on. The building is shaped like an arc directed to the south-west and has two main entrances. Of the shops located at the ground floor facing the auto park, the pastry shops and cafes have both interior and exterior facades, other shops on the ground floor and on the mezzanine floors only face the interior facade. The centers of attraction are formed in the corners of the crescent where the stairs are located. When the fact that there are single facade obscure shops on the top floor and there are those on the ground floor with double-facades as both the garden and the inside of the Mall is considered, the difference of location advantage is rather high. However, the difference between the workplace sizes is not overstated as in the case of M1 Mall, (70-2,500 m^2).

Since the M1 Mall is composed of only the ground floor and all shops face interior of the Mall, only the data of the ground floor and interior facing shops of Novada will be used. Both Malls have adopted corporate rental system and get an additional 20% charge for the common expenses of the Malls (security, cleaning, maintenance, repair, raffle, service, car parking, ...).

M1 Mall holds the ownership of shops and leases the shops themselves. For this reason, for workplace sales values in the Mall, the sales values of the shops right opposite of the Mall with a total of up to 22 550 m^2 area and the real estate agencies in the region were benefited from. Novada, on the other hand, does not make any restriction as to estate sales and leasing. Yet they institutionally manage the Mall.

3.4. CONCLUSIONS

Environmental attrition is the impairment stemming form external factors. These effects can be temporary or permanent. The existence of noise, air and water pollution, high crime rates, lack of parking in the commercial zones, heavy traffic, etc. can be given as examples of these effects. These cannot be corrected since they arise from external factors. The effects of environmental attrition mostly cannot be removed because they occur out of the impact of the real estate.

Environmental attrition affects the values of building and land. Therefore, the effects of environmental attrition on the values of land and building should be decomposed. To do this, the share of the values of building and land within the value of the real estate is identified. The effect is in this share ratio. Environmental attrition can be identified with the comparison and revenue methods by benefiting from market data. In the implementation of the revenue method, the loss of revenue due to environmental attrition is capitalized. Environmental attrition can also happen in a real estate located on a natural disaster zone sometimes [URL 2].

In this study which has been conducted for M1 and Novada Malls, the effects of these shopping malls on their locations have been examined along with their effects on the real estate values of the other facilities located in the region. For this reason, the zoning plans of the regions, satellite images, site names and features within the study area have been investigated, calculations have been made with the values obtained and capitalization rates for the regions have been identified.

As a result of the calculations, while the bus terminal, the stadium, hobby gardens, albeit a few, that are located in the M1 Mall area make positive impacts on the state of being attraction center with their real estate values, the negative impacts of the cement factory, concrete plants, alcoholic entertainment venues and the presence of the nearby industrial zone located around the Novada Mall and its location on the airport route on real estate values has been found.

While the population density in M1 region is 148 person/ha, this rate is 49 person/ha in the Novada region. Although there is a 3 times (300 %) difference between these densities, its reflection on the value increase occurred by only 26 %. That is to say, despite all negative environmental conditions, Novada region is more valuable than the M1 region.

If we compare the capitalization rates to densities, we will find

$$\frac{k_{real}}{NY_{real}} = \frac{0,043}{148} = 0,000291$$

$$\frac{k_{novada}}{NY_{novada}} = \frac{0,032}{49} = 0,000653$$

ratios. It is apparent that the ratio found in Novada is 2,25 larger than that of M1.

Another issue is that although the unit rental price is 6,72 TL/m^2, unit building value is 1809,04 TL/m^2 in M1 Mall region, these rates are 5,79 TL/m^2 and 1603,72 TL/m^2 for the Novada Mall. So, the real difference occurs between unit rental and unit sales prices.

$$\frac{kira_{real}}{kira_{novada}} = \frac{6,72}{5,79} = 1,16$$

$$\frac{satış_{real}}{satış_{novada}} = \frac{1809,04}{1603,72} = 1,13$$

In other words, given the unit rental and unit sales prices between both regions, M1 region is more advantageous with 16% and 13% differences respectively.

According to the results of these examined impacts under numerical data, while the land capitalization of M1 region was found to be 0,043, it was around 0,032 for the Novada region. When the differences of these values are examined, a value gap of around 26 % has been calculated. According to this calculation, the Novada Mall might seem more valuable by 0.26 % although being located in a bad environment in comparison to M1 Mall which is located in a better environment.

The following characteristic comes to the front in this calculation. The return of the real estates in the Novada region is more than that of the M1 region. In other words, this region is more advantageous to invest although being in a bad environment.

As a result, as well as the negative impacts that should be created by the pollution rate of the air breathed, noise pollution, industrial plants and security problems from time to time on the real estate values of the Novada region, the positive effects of the M1 region, which has high population density and includes the bus terminal, stadium and the M1 Mall that are located far from these facilities, on the Novada region are not reflected materially.

The negative elements such as:
a) Visual pollution,
b) Pubs,
c) Concrete plants,
d) proximity to the industrial zone

that are not wanted to exist in residential areas has not make a negative impact on rental or sales prices of real estates.

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