

The Impact of the COVID-19 Pandemic on Investment Management in the Housing Market in Turkey

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Abstract: COVID-19 significantly impacted the management of investments in the residential property market. Changes in property demand, shifts in market volatility, financing challenges, changes in property management and changes in local regulations and policies are presented. The pandemic created a more challenging and unpredictable investment management (IM) environment in the residential property market. However, with proper knowledge management (KM) and investment strategies, investors may have opportunities to thrive in this changing market. Investment KM refers to identifying, capturing, organising and sharing information and expertise related to investment activities within an organisation. KM in residential investment involves developing a system for gathering, organising and using information and expertise related to buying, owning, and selling a property. COVID-19 significantly affected the property market. Effective KM in residential investment can help individuals make informed decisions, identify potential risks, and maximise the value of their investment. Like many others worldwide, the Turkish residential market was hit by COVID-19. The Turkish residential market has a few key points: financing, shifts in buyer preferences, and regulation changes. The pandemic hit Turkey's residential property market, leading to property price changes. The Turkish government implemented several residential policies to support the residential market and help individuals and families facing financial challenges due to the pandemic. Those policies did not eliminate the challenges but mitigated some of the negative effects of the pandemic on the market and helped individual investors. This article discusses house price changes in Turkey during the COVID-19 period, the factors affecting price changes, and the property policies that affect property price changes. This article analyses IM challenges and explores how KM can help individual property investors.

Keywords: COVID-19, Residential property, Investment, Management, Methodology, Pandemic

1. Introduction

Residential property prices (RPP) in Turkey began to fall in April 2017 and began to rise gradually after January 2020. The first COVID-19 cases in Turkey were reported in March 2020. The residential market recorded the lowest sales in April and May due to full and partial lockdowns. On 3rd June 2020, the Turkish government launched a series of mortgage campaigns to take advantage of the accelerating effect of the residential market on the economy. From that date, RPP in Turkey rose inexorably until September 2022. In May 2021, measures were taken to prevent the rise of property prices and rents, leading to great societal discomfort. The concept of KM must be adopted in organisations to transform them into entities with a competitive advantage in this borderless world (Najib Razali and Juanil, 2011).

The object of the research is IM in the housing market during the COVID-19 pandemic period. The subject of the research is the analysis of the IM in the housing market in Turkey, the impact of the COVID-19 pandemic, and the KM solutions of its problems. The objective of the research is to study the integration process of the COVID-19 pandemic and IM in housing market problems, to elucidate the factors influencing it, and to develop housing IM mechanism with KM.

2. Literature Review

Global crises affect all aspects of life, including the business sector, and significantly impact society at large (Jacob, 2012; OECD, 2020). The importance of KM is particularly felt in times of crisis, such as COVID-19, when investors have difficulty making investment decisions. Property investors can make better investment decisions by using KM applications in their investment processes, whether professional or private. The speed of data flow required by KM applications is directly related to the statistical infrastructure of countries. Reducing the time, it takes to obtain, process, share, and disseminate the data collected by the public is important for investors to make the right decisions. The scientific literature on the relationship between KM and crisis management shows that the effective use of KM is helpful during crises (Ram Raj Thumiki and Jurcic, 2021). Every crisis is an important source of knowledge (Mikušová and Horváthová, 2019).

COVID-19 increased inequality between owners and renters in the residential market (Furceri, Loungani and Ostry, 2020) and wealth inequality between households (Balemi, Füss and Weigand, 2021). It reduced regular

household incomes, led to the shutdown of businesses, reduced incomes and caused mass unemployment. During the pandemic, instead of supporting those who were struggling to pay their rent, support was given to landlords (Blakeley, 2021). Although different policies were implemented in different countries, no special support was provided to those most affected by the pandemic in the residential market in Turkey (Aksoy Khurami and Özdemir Sarı, 2022).

Government policies during COVID-19 had mixed results. Residential property is important in the national economy (McCord et al., 2022). Government policies play an essential role in the Turkish residential property market. The plans and interventions presented during COVID-19 in Turkey were designed to alleviate the difficulties. As a result of the mortgage loan campaign, one-year repayment plans with a total maturity of 15 years were offered.

COVID-19 affected RPP and total residential property sales (TRPS) in China, with a larger impact on TRPS than on prices (Blakeley, 2021). After COVID-19, RPP recovered and rose rapidly (Li and Zhang, 2021). The level of RPP after COVID-19 raises concerns about a residential market recession similar to 2007-2009, but with the major difference of the Great Recession: regulatory changes and supply and demand (Afxentiou, Harris and Kutasovic, 2022). D'Lima, Lopez and Pradhan (2022) found that during COVID-19, there were large declines in TRPS during periods of closure and reopening. Following country lockdowns, RPP fell in densely populated areas and rose in sparsely populated areas. Similarly, a research study by McCord et al. (2022) shows that the pandemic increased prices in rural areas.

COVID-19 was significantly effective on rents, financing costs and deposit interest rates on RPP in Turkey. However, macroeconomic variables did not affect RPP (Kartal, Kılıç Depren and Depren, 2021). Compared to the rest of the world, Turkey experienced an increase in demand for residential property during COVID-19; demand reached record highs, and RPP and inflation rates increased (Aksoy Khurami and Özdemir Sarı, 2022). Akgündüz et al. (2021) indicate that a 1% (annual) decrease in MIR in Turkey leads to a 2.1% increase in the unit price per square metre of residential property. Residential property prices increased by 10.59% in real terms in June 2020, driven by the government's mortgage rate cut. The real growth peaked at 24.14% in November 2021. In real terms, Turkey's residential property cost increased by 2.85% in March 2020 (Erdogdu and Spica, 2022).

In their study, Jennex et al. (2022) presented findings to analyse and identify threats to information risk and to change information risk strategy in light of the COVID-19 pandemic. Information systems support people in making decisions, learning and other activities (Nissen, 2002). In this study, we analysed the impact of COVID-19 on the property market and presented findings on overcoming similar crises with KM. Sharing knowledge (Gore & Gore, 1999), looking at things from different perspectives, and redefining problems can lead to creative solutions (Sternberg, O'Hara and Lubart, 1997).

3. Methodology

We conducted a linear regression analysis to examine which economic variables affect cash residential property sales (CRPS) and mortgage residential property sales (MRPS) in the time interval between January 2013 and December 2021, with the dummy variable for COVID-19. To address heteroscedasticity in our data, we logarithmically transformed it and achieved a balanced dispersion. Evaluating both CRPS and MRPS in the same linear regression analysis could have led to multicollinearity problems and an undesirable increase in the variance inflation factor (VIF) value to 5 and above. To avoid such issues, we conducted linear regression analysis in two phases: the first phase analysed CRPS and the second phase analysed MRPS. We analysed the effect of COVID-19 and the effect of other economic variables in both phases.

We analysed which variables affect the dependent variables of MRPS and CRPS in Turkey. We used the following independent variables: non-residential property sales (NRPS), mortgage interest rate (MIR), employment, consumer confidence index (CCI) and new building permits (NBP), and the COVID-19 dummy variable. We found that the R^2 of the linear regression for CRPS was 0.88, and the R^2 for MRPS was 0.85.

4. Results

We analysed the independent variables that affect MRPS through regression analysis. The adjusted R-squared value shows that the change in the independent variables in the regression model explains the change in MRPS by 88.7%. The ANOVA analysis indicates that the established model is statistically significant at the 99% confidence level (sig.<0.01). Table 1 of coefficients indicates that all the independent variables, except NBP and COVID-19 periods, are statistically significant at the 99% confidence level (sig.<0.01).

Table 1: MRPS Linear Regression

Coefficients							Collinearity Statistics	
Model		Unstandardized	Standard Error	Standardized	t	p	Tolerance ^a	VIF ^a
H ₀	(Intercept)	3.407	0.052		66.077	< .001		
H ₁	(Intercept)	-0.362	2.852		-0.127	0.899		
	non-residential property sales	0.681	0.087	0.316	7.835	< .001	0.719	1.391
	mortgage interest rate	-2.151	0.092	-1.065	-23.460	< .001	0.544	1.838
	employment rate	3.873	0.599	0.288	6.464	< .001	0.731	1.367
	consumer confidence index	-1.891	0.415	-0.262	-4.556	< .001	0.463	2.161
	new building permits	-0.023	0.046	-0.024	-0.495	0.622	0.528	1.895
	COVID-19 (1)	0.064	0.066		0.968	0.335		

^a Standardized coefficients and collinearity statistics can only be computed for continuous predictors.

All variables are held constant: a 1% increase in NRPS increases MRPS by 0.68%. A 1% increase in the MIR reduces MRPS by 2.1%. A 1% increase in the employment rate (ER) increases MRPS by 3.8%. An increase of 1% in the number of NBP reduces MRPS by 0.02%. COVID-19, holding all variables constant, increases MRPS by 6.6%. Based on these results, the model for MRPS is as follows:

$$\ln(\text{MRPS}) = -0,362 + 0,681 * \ln(\text{NRPS}) - 2,151 * \ln(\text{MIR}) + 3,873 * \ln(\text{ER}) - 1,891 * \ln(\text{CCI}) - 0,023 * \ln(\text{NBP}) + 0,064 * \text{COVID-19} \quad (1)$$

We used regression analysis to analyse the independent variables affecting CRPS. The adjusted R-squared value indicates that the change in the independent variables in the regression model explains the change in CRPS by 87.8%. The ANOVA analysis indicates that the established model is statistically significant at the 99% confidence level (sig.<0.01). Table 2 of coefficients indicates that all independent variables except NBP are statistically significant at the 99% confidence level (sig.<0.01).

Table 2: CRPS Linear Regression

Coefficients							Collinearity Statistics	
Model		Unstandardized	Standard Error	Standardized	t	p	Tolerance ^a	VIF ^a
H ₀	(Intercept)	4.313	0.027		158.082	< .001		
H ₁	(Intercept)	3.343	1.572		2.126	0.036		
	non-residential property sales	0.788	0.048	0.691	16.465	< .001	0.719	1.391
	mortgage interest rate	0.201	0.051	0.188	3.981	< .001	0.544	1.838
	employment rate	1.196	0.330	0.168	3.622	< .001	0.731	1.367
	consumer confidence index	-1.791	0.229	-0.469	-7.828	< .001	0.463	2.161
	new building permits	0.068	0.025	0.133	2.675	0.009	0.528	1.895
	COVID-19 (1)	-0.125	0.036		-3.452	< .001		

^a Standardized coefficients and collinearity statistics can only be computed for continuous predictors.

Assuming all variables are constant: NRPS increase by 1%, and CRPS increase by 0.78%. A 1% increase in MIR increases CRPS by 0.2%. A %1 increase in ER increases CRPS by %1.1. A %1 increase in the number of NBP increases CRPS by %0.06. A %1 increase in c CCI increases CRPS by %1.7. COVID-19 reduces CRPS by 11.8%, holding all variables constant. Based on these results, the CRPS model is as follows:

$$\begin{aligned} \text{Ln}(\text{CRPS}) = & 3,343 + 0,788 * \text{Ln}(\text{NRPS}) + 0,201 * \text{Ln}(\text{MIR}) + 1,196 * \text{Ln}(\text{employment}) - \\ & -1,791 * \text{Ln}(\text{CCI}) + 0,068 * \text{Ln}(\text{NBP}) - 0,125 * \text{COVID-19} \end{aligned} \quad (2)$$

After the announcement of the first COVID-19 case on 11th March 2020, Turkey suffered the pandemic until December 2021, after partial lockdown, lockdown by occupation, lockdown on weekends, curfew for people over 65, and full lockdown (AA, 2023). The curfew directly impacted the residential sector in many areas, from residential construction to TRPS. The monthly average of TRPS was 100 thousand units, and the number of TRPS fell to 42 thousand units in April 2020 and 62 thousand units in May 2020. Over the 22 months between March 2020 and December 2021, TRPS fell in 8 periods and increased in 14 relatives to the monthly average. MRPS fell in 16 periods and rose in 6 periods. CRPS fell in five periods, were unchanged in one period and rose in 16 periods.

After the recession in the residential market in March and April of COVID-19, the Turkish government launched a special campaign on mortgage loans. As the data indicates, these attractive campaign terms increased the sales of mortgaged residential properties and, subsequently, the CRPS (Table 1). We compared the real change in RPP with the prices before the COVID-19 outbreak. In the first stage, we obtained the average annual real change in RPP for 110 months in the period 01/2011-02/2020. In the second stage, we obtained the average annual real change RPP for 22 months in the period 03/2020-12/2021. Comparing the differences in the average real RPP changes in the two periods, we can see the effect of COVID-19 on RPP in Turkey. In the analysis of price changes, there is a detail in the source authors use. The Turkish RPP index is compiled by the Central Bank of the Republic of Turkey (CBRT, 2023a) by aggregating RPP changes in 81 provinces into 26 regions at 12 levels. Accordingly, the price change in a city makes it appear as if the RPP in the region where that city is located has also changed.

Some studies adopted the four KM processes commonly used in the literature and defined in the European guide for good practice in KM (Chedid, 2019): Knowledge creation (Nonaka, Toyama and Konno, 2000), knowledge capture (Nielsen, 2006), knowledge sharing (Sun, 2010), knowledge application (Paliszkievicz, 2011). Bratianu and Bejinaru (2017) created main knowledge strategies: knowledge creation, knowledge sharing, knowledge acquisition and knowledge exchange in networks. Silva et al. (2017) state that research on strategic management focuses on the relationship between strategy and KM. Many authors consider KM to be a process involving different activities: knowledge creation, capture, sharing and application (Alavi and Leidner, 2001). Following the ideals of the concept of KM allows for better management practices and the improvement of their well-being, in addition to generating more profits in the property sector through more creative and inventive techniques (Najib Razali and Juanil, 2011).

In property markets, KM applications are important for decision-makers and property investors to analyse the market accurately and predict the possible consequences of decisions. Although the effects of residential policy on property sales and prices were relatively small in the early periods of policy implementation, they became more pronounced later. The measures taken to mitigate these effects began to impact the property market after a long period, accelerating the trend towards price increases. Property investors can use KM applications in their investment processes to make investment decisions under five main activities (Figure 1): market analysis, decision-making, collaboration, continuous learning and performance monitoring. The connection between KM and housing IM is simply described in Figure 1.

5. Discussion

The effects of COVID-19 in Turkey overlap with the effects of the Turkish government's residential policy. TRPS in Turkey fell to the lowest level due to COVID-19. However, the subsequent mortgage loan campaign pushed MRPS to three times the general average. As soon as the campaign ended, the MRPS number returned to normal. The number of MRPS in three months was even higher than the number of MRPS in Turkey in a year. The increase in the MRPS increased the demand for residential property, and CRPS increased by up to 18%. If the mortgage loan were gradual and extended over time instead of a sudden reduction in MIR, the demand could have been stabilised, and sudden price increases could have been prevented (Akgündüz et al., 2021). The increased demand for property encouraged existing property owners to put their properties up for sale.

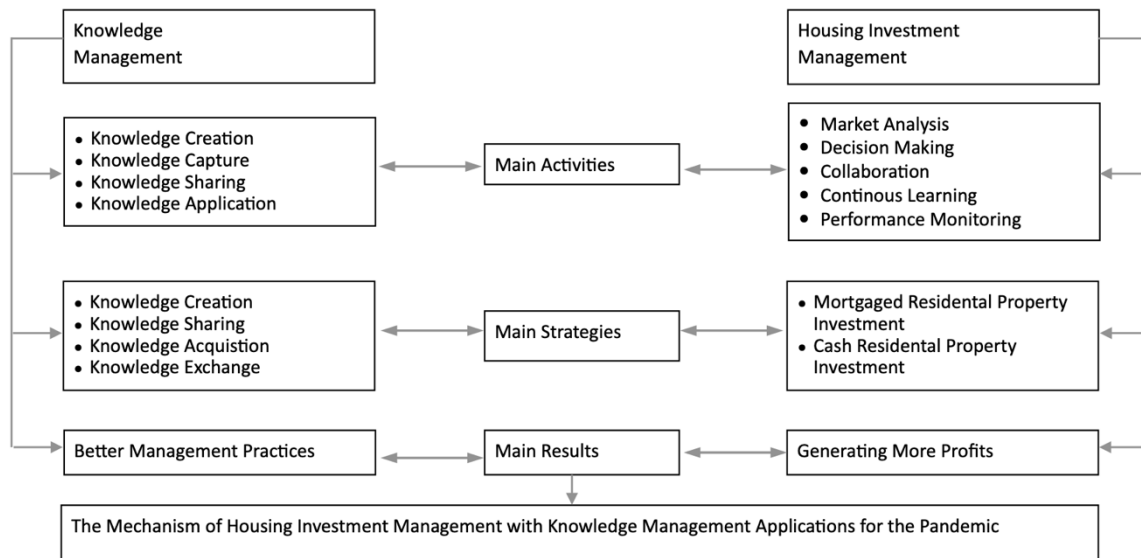


Figure 1: The Connection Between KM and Housing IM

The three-month campaign boosted demand for residential property, pushing up real RPP increases. The annual real price increase was 5.1% in April 2020, 10.7% in May and as high as 13.7% in September, when the campaign ended. However, this effect was not limited to this point, and real RPP continued to rise until September 2022. The level of annual real price increases in September 2022 was 57.5%. COVID-19 also led to a spatial differentiation of RPP changes and sales.

The real increase in TRPS and RPP started in June 2020 and continued intensively for three months. The Turkish Residential Property Price Index (CBRT, 2023b) is published monthly. However, although the frequency of data release is monthly, the data refer to the previous two months (CBRT, 2023a). The difference between the publication of the final results and the end of the reference period is 75 days. Only one of the real estate websites publishes data on the residential market, but not regularly and sometimes not for several months in a row. Bricongne, Meunier and Pouget (2021) argue that the publication period of statistical data published by public institutions makes it difficult to understand market changes.

Existing sources do not provide real-time information during periods such as COVID-19 or campaigns. This leaves consumers to fend for themselves and leads to a consensus among consumers when trends are strong (Case, Shiller, Thompson, 2012). Family, friends and the media influence residential investors who do not have access to adequate information in their decision-making process (De Bondt, 1998; Katz, 2006). However, property advertising websites are one of the most important data sources. As owners of big data, these sources, which are of direct interest to the public, share as much as they want and when they want with the public. When property advertisements were published in newspapers, users could easily create their database. With the data collected from property websites, it may be possible to monitor the market much faster than the statistics provided by public institutions (Bricongne, Meunier, Pouget, 2021). In the property market, digital channels will help increase market transparency and efficiency (Balemi, Füss and Weigand, 2021).

The main problem in the Turkish residential property market is the lack of data. The property price index in Turkey is based on values in property valuation reports prepared for financial institutions. Values estimated by real estate valuers are not sales price data. Actual sales data are not made available to the public. Erdogan and Arslanli (2023) found that only 71 of Turkey's 3 million yearly property sales were disclosed to the public. The second problem is data inaccuracy. COVID-19 may now be a thing of the past, but the remote working practice may continue to significantly impact the residential market and the wider economy (Allen-Coghlan, McQuinn and O'Toole, 2020).

6. Conclusion

Using KM techniques, individuals can access and analyse key market information such as trends, property valuations, rental rates, and investment opportunities. KM techniques support risk assessment and management in residential investment. Residential investors benefit from KM strategies that encourage

networking and collaboration. Connecting with experienced investors, sharing experiences and working on investment opportunities can help individuals tap into the collective wisdom and gain valuable insights. In residential investment, KM techniques encourage continuous learning and adaptation. Individuals can adjust their investment plans and respond to changing market conditions by actively seeking new knowledge, keeping abreast of market trends, and reflecting on past investment experiences. Individuals can use KM techniques to track and analyse the performance of their investments. Investors can examine the profitability and effectiveness of their investment decisions by maintaining a knowledge base of investment data, financial measurements and market feedback.

The findings of this study can be used to develop strategies for two types of investors. Investors in mortgaged residential property should consider the increase in MRPS following increases in the following indicators: NRPS, employment rate, and new building permits. On the other hand, a rise in mortgage rates leads to a fall in MRPS. Investors should be particularly careful about the impact of changes in the employment rate and mortgage rates on MRPS. Cash residential property investors should consider an increase in CRPS following increases in the following indicators: increases in NRPS, mortgage rate, new building permit, and consumer confidence index lead to an increase in CRPS. Investors who pay cash to purchase a residential property should be particularly careful about the impact of changes in the consumer confidence index on CRPS.

The COVID-19 pandemic had two different impacts on sales of mortgaged residential property and cash sales of residential property. The findings of this study indicate that the COVID-19 pandemic led to a 6.6% increase in MRPS and an 11.8% increase in CRPS. Impact of the COVID-19 pandemic on residential property sales: TRPS remained at the average level for 14 months and above the average level for eight months. MRPS fell in 16 periods and rose in 6 periods. CRPS were unchanged in 1 period, rose in 16 periods and fell in 5 periods. These findings suggest that the crisis had a greater impact on the MRPS.

To ensure good KM and strategies in property investment, the relevant parties must play an active role, especially in times of crisis: rapid creation of knowledge, rapid dissemination of knowledge, sharing of knowledge and cooperation between all stakeholders. For further research, authors can highlight focus on the KM practices that influence the decision-making processes of people who want to invest in a residential property.

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