Do Hotels and Mixed-Use Projects Benefit Each Other? Evidence from China

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Abstract

Purpose: In China, many mixed-use projects included a luxury hotel on the property. The present study aims to answer two questions: Do mixed-use projects benefit from including a hotel? Do hotels benefit from being located in a project?

Design/Methodology/Approach: The present study collected a sample of 76 mixed-use projects from *Sina Commercial Real Estate database* (Sydc.sina.com.cn). Hotel performance data are provided by STR. A hedonic model was used to test hotels' effect on office rents and residential unit prices in mixed-projects. A matched-subjects designed was used to analyze the effect of mixed-use projects on hotel performance.

Key Findings: The analysis indicate that mixed-use projects with hotels have higher residence price, but not office rent, compared to projects without a hotel. Hotels located in a mixed-use project have higher RevPAR and ADR than their stand-alone counterparts, but there is no difference in occupancy rate.

Implications for Practice: Mixed-use project developers could consider increasing the number of units in the service apartment to take advantage of the residential unit price premium. Hotels located in a mixed-use project could command a premium ADR without losing occupancy to their stand-alone counterparts. They could aim to preserve their price premium and expand the market with service or product instead of discounts.

Originality/Value: This study empirically tested the effects of a common practice adopted by Chinese mixed-use developers. The results could help mix-use developers and hotel operators by pointing out the specific channels that deliver the benefits of including a hotel in mixed-use projects.

Relevance of the Topic: In China, some local governments may request mixed-use projects to include a luxury hotel as a condition for investment incentives. However, it may not be easy for those hotels to reach breakeven quickly in saturated markets. As a result, some developers may hope to leverage the hotel brand to enhance the value of other components in the project (Rapoza, 2012). The present study tested the economic implications of this phenomenon from

the project's and the hotel's perspectives.

Introduction

A mixed-use project is "a real estate development with planned integration of retail, office, residential, hotel, recreation or other functions" (Niemira, 2007). In China, local governments are one of the key drivers of mixed-use projects (Jing, 2012) for three reasons. First, all city lands are state owned (Lou & Wang, 2013). This makes governments a default stakeholder in real estate projects. Second, the tax reform in 1994 re-allocated most of the tax revenues to the central government, forcing local governments to use real estate as a financing source (Lou & Wang, 2013). Third, in an effort to rein in soaring housing prices, Chinese central government placed strict limits on housing projects. This policy pushed local governments to rely on commercial projects as an income source (Chen, 2013).

There are two unique features of mixed-use projects in China. They tend to be large-scaled (Cheng, Xu, Shi, & Gu, 2010; Lau, Giridharan, & Ganesan, 2003) and include luxury hotels. Some local governments may stipulate that a luxury hotel operated by international brands be a part of the project as a condition for tax credits, incentives, and low land acquisition cost (Chen, 2013). Local governments expect that luxury hotels can enhance the city image and create tax revenue and jobs (Rapoza, 2012). However, due to market saturation, it could take 8 to 12 years for a five-star hotel to break even in certain Chinese markets (Chen, 2013). Developers would be motivated to find alternative sources to cove this short fall. One possible strategy is leveraging the hotel to enhance the value of office buildings and residences in the project (Rapoza, 2012). Despite indirect and anecdotal evidences, there has been no systematic analysis to support this conjecture. There is also no analysis on the performance of hotels that are included in mixed-use projects. This study aims to answer two questions. Does the inclusion of a hotel increase the office rent and residence price of a mixed-use project? Does the hotel that is included in a mixed-use project (project hotel hereafter) command higher ADR, occupancy rate, and RevPar than their stand-alone counterparts?

Background

Witherspoon, Abbett and Gladstone (1976) defined that a mixed-use project must have (1) three or more significant revenue producing uses, such as office, retail, hotel, residential and entertainment; (2) significant functional and physical integration of project components; and (3) been developed in accord with a coherent plan.

Mixed-use development is commonly referred to as HOPSCA (hotels, offices, parks, shopping malls, convention centers and apartments) in China. Mixed-use development first started in Beijing and Shanghai in the early 1990s, spread to other first-tier cities in early 2000s, and was finally mass replicated in second- and third-tier cities in 2008 (CRIC, 2011). Cheng, Xu, Shi, and Gu (2010) suggested that the immergence of HOPSCA could be a result of rapid urbanization in China. Under growing population and limited lands, mixed-use projects become a solution to offer multi-functional uses within a limited space. Major players in China's mixed-use projects are real estate titans such as Wanda Group, Huarun Group, Zhongliang Group, and Powerlong Group (Zheng, 2011). Some financial institutions and retail chains have also entered the game.

Do Hotels Benefit Mixed-Use Projects?

In general, there are four forces that drive property value: social, economic, physical/environmental, and governmental (Carr, Lawson, Lawson, & Schultz, 2003). For mixed-use project value, Minadeo (2009) identified a list of value drivers and categorize them into market-specific drivers and project-specific drivers. For market-specific drivers, local governments play a big role in China. According to Chen (2013), local governments normally provide tax incentives, special zoning districts, and funding assistance to promote mixed-use projects. In some cases, local governments offered land parcels at a value lower than the market price to well-known developers, such as Wanda Group and Greenland, as incentives (Jing, 2012).

Among project-specific characteristics, Rowley (1996) argued that location is the key to the success of mixed-use projects. Traffic patterns also affect the success of mixed-use projects (Minadeo, 2009). Because mixed-use projects have many different uses in one project, it is

necessary to maintain the flow of business traffic and ensure the accessibility of customers and residents. Project size was also shown to have a positive relationship with price premiums (Minadeo, 2009). The present study's target, projects with hotels, could be considered as a project-specific characteristic.

In China, luxury hotels could be used as a leverage to sell other components in a mixed-use project (Chen, 2013). The rationale is that luxury hotels could help bring in high profile out-of-town tenants to pay for a premium rent for the office space and wealthy locals to retail shops. Luxury hotels' brand recognition also helps the residence component to command a premium price. For example, according to Xiaodong Zhu, the general manager of Yintai Property, the introduction of Park Hyatt to Beijing Yintai Center significantly increased the residence price, making the project's residential component the most expensive apartments in Beijing in 2006.

Do Mix-use Projects Benefit Hotels?

Hotels could benefit from being a part of a mixed-use project for two reasons. First, the nature of mixed-use development is to create congregated city-centers that cater to the public's business and leisure needs. In other words, a mixed-use project is a prime location in itself. Since location is an important component for real estate properties' long-term success (Yang, Tang, Luo, & Law, 2015), a project hotel has location advantage over a stand-alone hotel. Second, mixed-use properties often involve multiple service outlets, such as cafes, spas, retail spaces and entertainment facilities (Grant & Perrott, 2010). These services collectively induce high demand by allowing patrons to satisfy multiple needs at one stop. Consequently, project hotels can expect higher ADR and occupancy than stand-alone hotels due to their enhanced service offerings and exposure to customer traffic (Adam & Amuquandoh, 2013).

Research Methodology

The sample of mixed-use projects and project characteristics were collected from *Sina Commercial Real Estate database* (Sydc.sina.com.cn*)* in December 2014. This database is considered the most authoritative database of real estate projects because it is maintained by the largest real estate organization in China, Business Alliance. The database categorizes real

estate projects in term of city, commercial type, opening time, and size. Commercial type is categorized as "mixed-use project", "shopping center", "office building" and "community commercial". Based on the definition of DeLisle and Grissom (2013) and the common practice in China, only projects with more than three property functions were kept. After deleting projects without complete data, seventy-six projects were used for analysis and twenty-nine of them include a hotel in the project.

The data for residence price and office rent were obtained from *fang.com*, which is the world's largest real estate network platform and has cooperation with the National Bureau of Statistics of China. Hotel performance data (ADR, RevPAR and occupancy) used in the second analysis were provided by STR.

The first stage analysis utilized a hedonic model to examine the effect of including a hotel in the project on office rent and residence price. The two dependent variables are monthly office rent per square-meter and residential unit selling price per square-meter collected in December 2014. The dependent variables were regressed on a hotel dummy (1 = projects with a hotel, 0 = projects without a hotel), two categorical variables (city and main use), and two continuous variables (project age and size). The City variable is where the mixed-use project was located and is used to control for local economic level (Leung, Chow, & Han, 2008), government policies, and infrastructure quality (Haider & Miller, 2000). To control for project-specific characteristics, age (in years) and main use of the project are entered as a continuous and a categorical variable. Based on Rabianski and Clements (2007), main use is determined by what takes up the most space in the project.

The second stage analysis utilized a matched-subjects design to infer the impact of mixed-use projects on hotel performance. A matched-subjects design aims to "select subsets of the treated and control groups with similar observed covariate distributions, thereby increasing robustness in observational studies by reducing reliance on modeling assumptions" (Stuart & Rubin, 2008). The present study matched each of the project hotels with a stand-alone hotel of the same scale, size, and located closest to the project hotel. This approach controls the factors, other than locating within a project, that could also influence hotel performance. The matched-

subjects design also lends itself for studies with a relatively small sample size by improving the balance in the covariate distributions, which reduces the variance of estimators (Snedecor & Cochran, 1980).

Findings and Solutions

Descriptive statistics of the sample are presented in Table 1. More than 90% of the sample projects were opened after 2006. Projects with a hotel have higher residence price (t = 2.05) and larger size (t = 1.72) than projects without a hotel. There is no difference in office rent and project age. Projects with a hotel are more likely to be developed by a top 10 developer, retail oriented, and located in Beijing and Shanghai than projects without a hotel.

Table 1

Comparison of projects with and without hotels

Variables	Project w/ hotels (N = 31)	Project w/o hotels (N = 47)
Office rent (RMB)	38,856	28,737
Residential unit price (RMB)	40,453	16,720
Age (years)	6.7	6.7
Project size (m^2)	554,282	287,287
Developer		
Top 10	12 (39%)	6 (13%)
Non-Top 10	19 (61%)	41 (87%)
Main use		
Hotel	5 (16%)	0 (0%)
Office	11 (35%)	26 (55%)
Residential	6 (19%)	15 (32%)
Retail	9 (30%)	6 (13%)
City		
Shanghai	6 (19%)	4 (9%)
Beijing	10 (32%)	6 (13%)
Shenzhen	1 (3%)	5 (11%)
Guangzhou	4 (13%)	5 (11%)
Nanjing	3 (10%)	6 (13%)
Chongqing	2 (6%)	5 (11%)
Shenyang	3 (10%)	5 (11%)
Chengdu	2 (7%)	11 (23%)

Note: Developer ranking by 2014 revenue. Sub-sample percentages appear in parentheses below frequencies.

Regression analysis shows that projects with a hotel have higher residence prices, but not office rent, than those without a hotel (Table 2). The authors posited two possible explanations. First, the residence component in projects with a hotel could include branded service apartments. This could help those residence units to command a higher price than regular, non-branded residence. Projects with a hotel has a higher percentage (58%) than projects without a hotel (32%) located in the four first-tier cities. As real estate prices are generally higher in first-tier cities than in other cities. The residence component of mixed-use projects located in first-tier cities might benefit from that.

Both office rent and residence price are higher in first-tier cities than in second tier cities. Office rent is also affected by the project's main use and age while residence price is not. It suggests that both market demand and project characteristics are important to office rent while residence price is mostly determined by market demand.

Table 2
Hotel's Effect on Office Rent and Residence Price

Dependent variable:	Office rent (n = 62)	Residential Price (n = 46)
Hotel Dummy	2,554 (4,130)	14,408** (5,872)
Main use		
Hotel	21,440** (7,045)	16,065 (14,008)
Office	10,269* (4,495)	11,939 (7,177)
Residential	6,371 (5,879)	11,132 (7,977)
City		
Shanghai	44,718*** (7,751)	39,796* (20,476)
Beijing	34,845*** (6,259)	31,394*** (9,028)
Shenzhen	33,484*** (6,542)	26,451** (12,338)
Guangzhou	17,891* (6,870)	13,624 (8,743)
Nanjing	6,233 (686)	4,624 (8,550)
Chongqing	3,365 (7,837)	-8,457 (1-276)
Shenyang	430 (7,798)	-2,143 (10,082)
Age	6.48** (759)	-132 (1,367)
Project Size	0.0037 (0.003)	-0.002 (0.004)
Constant	3151 (7,008)	2,560 (10,986)
F-value	11.06***	5.43***
Adjusted R-squared	0.6819	0.5785

Note: The reference groups are projects without a hotel for the hotel dummy, retail for main use, and Chengdu for city.
Standard errors appear in parentheses below coefficient.
Significant level: *$p < 0.05$, **$p < 0.01$, *** $p < 0.001$

The match-subject analysis shows that project hotels have higher ADR and RevPAR, but not occupancy, than their stand-alone counterparts (Table 3). It suggests that even though project hotels' ADR is higher than their stand-alone counterparts; they can still maintain a similar occupancy rate. This leads to a higher RevPAR in project hotels. It means that the benefit of being in a mixed-use project comes in the form of pricing power, not customer volume.

As a follow-up analysis, we also regressed project hotels' ADR, RevPAR, and occupancy rate on project and hotel characteristics. None of the project or hotel characteristics affects occupancy rate. ADR and RevPAR are positively related to hotel scale and the GDP of the home city. Project hotels in a residence-focused project have higher ADR and RevPAR than in projects of other types of main uses.

Table 3

Mixed-use Membership's Effect on Hotel Performance

Variables:	Mixed-use project hotels (n = 31)	Stand-alone Hotels (n = 31)	Paired test
ADR ($)	191.91 (20.38)	167.82 (17.27)	z = 1.98**
RevPAR ($)	133.43 (15.04)	108.25 (10.62)	z = 2.99***
Occupancy (%)	69.60 (2.05)	65.31 (2.46)	t = 1.60

Note. Standard deviations appear in parentheses below the means. Significant level: * p<0.1, ** p<0.05, *** p<0.01. ADR and RevPAR are not normally distributed based on the Shapiro-Wilk W test so the paired test between mixed-use project hotels and stand-alone hotels are based on the nonparametric Wilcoxon signed rank test. Occupancy is normally distributed so the paired t-test is used.

Implications for Practice or Policy

The analysis shows that mixed-use projects with a hotel have higher residence prices, but not office rent, than those without a hotel. It suggests that if there is space allocation flexibility in the planning stage, it would be beneficial for projects with a hotel to include residence space given other factors remaining the same. If allocating more residential space is difficult, an alternative may be including service apartments in the hotel component. This

approach may be feasible because hotels and service apartments are under the same commercial zoning (B14) in China (Ministry of Housing and Urban-Rural Development of the People's Republic of China, 2012). Papadimitriou and Verykios (2015) showed that branded residences can command an up to 30% price premium compared to equivalent non-branded residences.

DiPasquale and Wheaton (1992) and Leung et al. (2008) argued that a productive economy can positively influence real estate value. This line of thought outlined the importance of market-specific factors in real estate value (Malpezzi, Chun, & Green, 1998). For example, big cities have well-developed public transportation system to connect mixed-use projects with local residents and travelers. The sample data of Chinese mixed-projects is consistent with the above theoretical argument in showing both office rent and residence price to be higher in first-tier cities than in other cities. The suggests that in less developed cities, building mixed-use projects alone probably will not bring expected economic benefits without infrastructures in place.

Project hotels are able to command a higher ADR without losing occupancy rate when compared to their stand-alone counterparts, thus a higher RevPAR. This could be an indication that project hotels' demand is relatively inelastic. This suggests that it may not be necessary for project hotels to sacrifice their ADR for gaining market shares. They could aim to preserve the price premium and expand the market share by providing value to customers in service and/or projects instead of through discounts.

Future Research

With mixed-use projects gradually shifting to second- and third-tier cities, future studies can benefit from including more second- and third-tier cities. Future studies can also examine whether the benefit of including a hotel accrue to the retail component because hotels and retail shops may share similar types of customers. When examining the project hotels, the present study focused only on the room division. Future studies that include food and beverage and convention business may produce a more comprehensive picture of the benefit of being included in a mixed-use project.

The findings of mutual benefits between hotels and mixed-use projects in the present study are based on the data from a relatively stable and prosperous real estate market. One potential market risk, particularly in China, that cannot be ignored is the over-supply of luxury hotels (Timmons, 2013). Because of the pressure on local governments to expedite urbanization and to promote a positive city image (Zhang, 2005), government officials have encouraged mixed-use developers to include luxury hotels, especially international brands, despite over supply. The competition among the mixed-use project hotels themselves might have eroded their advantage over their stand-alone counterparts. The situation was exacerbated after the start of the Chinese government's anti-corruption campaign ("Less Party Time", 2014). A study that incorporates market risks in the analysis can help prepare the practitioners for a potential market downturn.

One limitation of the present study is small sample size. The number of mixed-use projects in China was estimated to be close to 800 (Yang, 2014) while the present study included only 76 projects due to the limited availability of residence price and office rent information. Most of the sample projects with hotels are from first-tier cities. Extrapolating the hotel comparison results for smaller markets should be done with caution.

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