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THE UNIVERSITY OF HONG KONG

SHOPPING CENTRE PERFORMANCE

UNDER THE MANAGEMENT OF THE LINK REIT

AFTER PRIVATIZATION

A DISSERTATION SUBMITTED TO

THE FACULTY OF ARCHITECTURE

IN CANDIDACY FOR THE DEGREE OF

BACHELOR OF SCIENCE IN SURVEYING

DEPARTMENT OF REAL ESTATE AND CONSTRUCTION

BY

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HONG KONG

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Declaration

I declare that this dissertation represents my own work, except where due acknowledgment is made, and that it has not been previously included in a thesis, dissertation or report submitted to this University or to any other institution for a degree, diploma or other qualification.

Signed: _____

Name: _____Li Shuk Ting Shirley_____

Date: _____

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Abstract

Whether privatization can lead to efficiency gain under the constraints imposed by various political environments and established institutions has been a long debated issue. This study attempts to shed light on this issue by examining how privatization of government owned properties in Hong Kong has affected the financial performance of these properties. The Link REIT was listed on the Hong Kong Stock Exchange with a portfolio of 180 retail properties and carpark facilities. The privatization is a divestment exercise of the Hong Kong Housing Authority (HKHA). After five years, there are sufficient data accumulated for an empirical analysis on how these properties have performed in relation to the overall private retail property market after privatization. Since there has been political pressure on The Link REIT management to increase rent after privatization, it provides a useful and convenient case for the purpose of this study.

Detailed data on the largest 40 shopping centres of The Link REIT are obtained from its annual reports and IPO document for empirical analysis. The results of the empirical analysis show that despite political pressure for The Link REIT to increase rent, privatization has a positive effect on the real rental growth. However such

efficiency gain was not realized until 2008, three years after privatization. That means

it took 3 years to realize the potentials of improvement in performance due to the time

needed to let old contracts expire and to implement new strategies and procedures.

Political pressure could have slowed down the realization of the potentials, but it has

not prevented it from realizing the potentials of the shopping centres after

privatization.

The findings also suggest that higher growth in real rent after privatization is found in

shopping centres with higher average value per floor area in real terms (higher quality)

and larger internal floor area. However the effect of internal floor areas is not linear

but increases at a decreasing rate. The results also show that older shopping centre

achieved a lower real rental growth after privatization. The effect of renovation,

however, has no significant impact on real rental growth.

In addition to contributing to our understanding of the effect in privatization on

efficiency gain, this study also provides practical implications for shopping centre

management and for investors, in terms of pricing of The Link REIT etc., especially

when The Link REIT will purchase more shopping centres from the HKHA in the

future.

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Chapter 1 - Introduction

"It must be kept in mind that architects do not design malls for architects; they design them for developers and retailers that are interested in creating malls and other shopping centres to attract consumers and keep them coming back." (Richards, 1990)

"Shopping paradise" is once the image of Hong Kong. In this tiny city, there are around a thousand of shopping centres in any types and scales. It is hard to survive in such a competitive environment.

Besides, the development of shopping centres represents the transformation of retail shops on the streets. Shopping centres occupy a large part of the retailing industry nowadays. Yet retail markets are complicated. Apart from shopping centres, retail Real Estate Investment Trust (REIT) is invented in recent decades.

1.1 Background

Real Estate Investment Trust (REIT) is a collective investment scheme that aims to deliver a source of recurrent income to investors through focused investment in a portfolio of income generating real estate, e.g. shopping mall, offices and hotels, etc. by means of securitization.

REIT tends to offer better liquidity and allows investors to participate in large scale and high quality properties. Benefit of diversification arises from investor's holding of a portfolio of properties with different tenancy terms and tenant types. Dividend payout ratio of a REIT has to be at least 90%.

However, the total return of REIT is subject to the performance of the property market. The unit price of a REIT may go down if its underlying properties drop in value. Dividends may not be paid if the REIT reports an operating loss. Therefore, in order to attract investors, REIT may enhance the performance of its properties by property management like renovation.

In Hong Kong, The Link REIT (Hong Kong stock code: 823) is the first and the

largest Hong Kong's REIT which invests in a portfolio of 180 retail and carpark

facilities serving 40% of Hong Kong population daily needs. As a divestment exercise

of the Hong Kong Housing Authority (HKHA), The Link REIT was listed on the

Hong Kong Stock Exchange (HKEx) on 25 November 2005. The 180 retail and

carpark facilities (approximately 11 million square feet of retail space and 80,000

carpark spaces) are therefore the facilities in the public housing estates under the

HKHA. Dividends distribution of the Link REIT is 100% of Total Distributable

Income for each financial year.[1]

Starting from 2005, The Link REIT carries out asset enhancement projects in around

30 shopping centres. Asset enhancement aims at maximizing the properties potential

so as to improve returns to unitholders. At the same time, service to customers and

tenants is upgraded. The work covers physical structures, tenant mix, customer

services and promotional activities, etc. Through the renovation, additional retail

space is generally created, so the lettable internal floor area is maximized. All these

outputs in turn significantly enhance the property values of these shopping centres.

The transfer of ownership of shopping centres from the HKHA (public sector) to The

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[1] The Link REIT (2005) Global Offering Prospectuses, p.58.

Link REIT (private sector) is called privatization. Many arguments and conflicts were induced during the process. Before the successful listing of The Link REIT, the Lo Siu-Lan's case caused a great sensation in the society and made the listing date defer. A group of elderly stood for opposing the government to privatize the public assets. Since there were public voices on The Link REIT about the drastic increase in rent and parking fee, compulsory removal of tenants and broken promises, the elderly Lo Siu-Lan went to courts for appeals and fought for a stable life, not only for her, but also other tenants. Numerous protests were staged before and even after the privatization.

Yet those famous shopping centres in Hong Kong like Times Square and Harbour City are all owned by private developers. Does it mean the private sector is more efficient and able to create more business opportunities than the public sector? Would the land use be wasted under the public sector management, especially when taking the consideration of limited land in Hong Kong?

Today, five years after the privatization, it is the time to review the performance of The Link REIT. To determine the performance of a shopping centre, the real income growth is an objective indicator for analysis since the main function of a shopping

centre is an achievement of profit in trade and the real income growth can reflect the

shoppers' satisfaction.

1.2 Aims and Objectives

This research aims to provide privatization implications to the retail market in Hong

Kong.

Based on the aim, here are three main objectives in this dissertation:

1. To examine the privatization effect on the shopping centres managed by The Link

    REIT;

2. To overview and analysis the attributes in shopping centre performance; and

3. To identify the practical implications on privatizing shopping centres in the future.

1.3 Scope of Study

In this dissertation, a literature review on privatization and the efficiency and

shopping centre performance will be firstly carried out in Chapter 2. Chapter 3 and 4

will have an overview on the commercial properties of the Hong Kong Housing

Authority and The Link REIT respectively. The retail property market in Hong Kong will then be analyzed in Chapter 5.

The chapters onwards will be the empirical studies for the privatization effect on the real income growth of the largest 40 shopping centres managed by The Link REIT. Chapter 6 will propose the hypotheses in this study. The methodology for the empirical test will be introduced in Chapter 7 and the data source and processing will be explained in Chapter 8. The empirical results of the regression model will be analyzed and discussed in both quantitative and qualitative manners. The practical implications of shopping centre privatization will also be given in Chapter 9.

Finally, Chapter 10 will cover the summary of findings, limitations in this study and suggestions for further study.

Chapter 2 - Literature Review

2.1 Privatization and the Efficiency

The Tragedy of the Commons (Hardin, 1968) was eminent for its metaphor of common property resources management although the paper paid the attention on overpopulation as the explanation. It refers to the commons dilemma that individuals would act rationally to maximize their own interest while the eventual overexploitation and degradation of the shared limited resources is not the long term interest for anyone. Even though some researchers had criticized Hardin's work for failing to distinguish between open access resources and common property, Hardin suggested privatization of resources – a management solution to commons problems.

The clearly defined property right advocated by Hardin is always used as the argument for privatization. The opposite situation to the tragedy of the commons is known as the tragedy of the anti-commons (Heller, 1998), i.e. a situation that individuals waste a resource due to under-utilization.

2.1.1 Definition of Privatization

There are numerous definitions on the term "privatization". Savas (2000) listed 9

definitions from all over the world in his article and he offered a general definition:

"Privatization is the act of reducing the role of government or increasing the role of

the private institutions of society in satisfying people's needs; it means relying more

on the private sector and less on government."

Simply speaking, privatization is the process of transferring the ownership of a

business, enterprise or public service from the public sector (government) to the

private sector (business).

The role of both the public and private sectors are important in privatization.

Advocacy of privatization does not mean the denying of the need from the public

sector, so "public-private partnerships" arises.

2.1.2 Comparisons on Public and Private Management

Objectives

The values of the public sector aim at consensus while the values of the private sector aim at profits. The managerial relationship is not important in the means, but the ends (the decision context). As the ends are different, the values are different. (Herbert, 1949)

Profits and Politics

Michael (1975) argues the common concept that the private sector only aims at profits while the public sector ignores profits is somehow misleading. In fact, profits is an essential requirement for existence.

Profits is not the single objective for the private sector. The private sector also looks at products, services, employment or community and social contribution which are advantageous to the business activities. Benefits and costs do not always lend to a monetary judgment of effectiveness since profits is a handy measure. Even some private firms emphasize social corporate responsibility, the objectives of the private sector is primarily on efficiency, rationality and profit maximization.

On the other hand, the public sector would conduct cost benefit analysis. Profits is

taken into the account. However, all must be incorporated with its political reasons

(objectives of compromise and consensus).

Organizational Structure

Numerous empirical studies have conducted comparisons on the structural

characteristics of the public and private sectors. One of the most concerned issues is

formalization (the extensiveness of rules and formal procedures and the enforcement)

and red tape. It is an a-priori stereotype that the public sector has specific high levels

of formalization and red tape due to the hierarchical organization system (Warwick,

1975; Goodsell, 1994), especially in personnel and purchasing processes (Bozeman

and Bretschneider, 1994; Bozeman, 2000). Formal rules and procedure manuals have

been set up in the public sector. Allison (1983) commented this policy ambiguity was

not for efficiency, but for prevention of the arbitrary exercise of power.

Procedures

In the sense of procedural issues, management can be defined as the means, e.g.

activities or behaviours, to be carried out in order to achieve the prescribed ends.

The term "management" is used for describing the private sector, but it is usually substituted by the term "administration" when referring to the public sector. This implies a general acceptance of the private sector superior to the public sector.

Besides, the private sector is only responsible to those directly involved in the transaction. It operates in autonomy relatively. However, the public sector is responsible to the public scrutiny and outcry as well as the press, so it needs to be controlled by regulations. (Michael, 1975)

Decision Making

Although the steps in making a decision are technically the same for both private and public sector, the criteria for decision making varies and affects the final decision. The private sector's criteria are efficiency, rationality and economy. It is different from that of the public sector which is based on consensus and social good. Therefore, the mode, the logic and the movement of thinking may be in opposite ways. (Michael, 1975)

Evaluation Techniques

The private sector is easy to determine the success level of reaching the organizational goal by measuring the profits and losses. For public sector applying cost benefit analysis, intangible items like the social good or psychological reflections are hard to measure in monetary terms. (Michael, 1975)

2.1.3 Efficiency

"Privatization can improve efficiency" leads a considerable amount of researchers to get into this game. According to Villalonga (2000), firm efficiency can be examined by theoretical approaches and empirical approaches. Besides, some other studies explain firm efficiency by economics.

Theoretical Approaches

Agency/Property Rights Theory, *Public Choice* and *organization theories* are the three distinct streams to deal with:

(i)   The *Agency Theory* brings different agency problems and their corresponding solutions with ownership in any forms for the explanation of firm efficiency.

The assumption is that agents (managers) in both the public and private sectors

would maximize their own utility rather than the firm's utility. However, the

private sector's owner can simply prevent this act by replacing the agents who

fail to perform well. This is relatively not probable in the public sector.

Besides, the owner-agent relationship in the public sector is divided into two

forms: owner(the public)-politician and politician-agent. (Alchian, 1965;

Martin and Parker, 1997; Schmidt, 1996)

(ii)   The *Public Choice* states that politicians maximize their own utility rather than

the public interest. They perform well in order to gain votes. Yet efficiency is

not guaranteed. The benefits of the public (actual owners of the public sector)

may be offset by the monitoring costs on this public sector behaviour.

(Zeckhauser and Horn, 1989; Haskel and Szymanski, 1992a; Boycko and

Vishny, 1996)

(iii)   *Organizational theories* explain the differences of organizational

characteristics between the public and private sectors by terms of objectives,

organization structure, culture, communication systems, incentives and control

mechanisms, management, etc. which are mentioned some in the previous

section. (Martin and Parker, 1997; Walker and Vasconcellos, 1997)

Empirical Approaches

There are two types: *cross sectional studies of public-private ownership effects*, and *longitudinal studies of privatization effects*.

(i)   *Cross sectional studies of public-private ownership effects*: Most empirical studies for the public and private sector efficiency are in the form of cross-sectional comparisons on both sectors. The majority used traditional methods like regression. They covered a wide range of industry: electricity, airlines, refuse collection, water supply, railways, urban transportation, construction, telecom, financial, insurance, health care, cleaning services and timber, etc. (Muth, 1973 as an example of the construction industry) Several researches like Oum and Yu (1991) used other method which is to calculate the relative inefficiency of both public and private sectors in terms of estimated profit, cost or production frontier. Despite using different methodologies, it is obvious that more than 100 studies support "the private sector is more efficient than the public sector" while less than 20 are against and more than 30 are neutral (see Table 2 in Villalonga, 2000).

(ii)　*Longitudinal studies of privatization effects*: The amount or variety in this category is limited. Only some studies in the UK are quantitative while others are qualitative in nature (see Martin and Parker, 1997, pp. 85-86). When comparing to cross-sectional studies, longitudinal studies on the efficiency of privatization are not conclusive enough.

Economics Approaches

In economics, supply and demand are distinct concepts and determine the price in a market. With numerous firms in a market, competition exists. Competition between firms may provide a stimulus to firms to meet consumer demand and a constraint on their behaviour by exerting pressure on their profits. Several scholars argued that competition has more significant effect on firm efficiency, but not the ownership. For example, Borcherding et al. (1982) mentioned "given sufficient competition between public and private producers (and no discriminatory regulations and subsidies), the differences in unit costs turn out to be insignificant". Boardman and Vining (1990) disagreed the overwhelming of competition effect. The paper showed ownership took a major effect. Although competition can really induce efficiency improvements, the political market is a non-price competition.

Besides, Boardman and Vining (1990) commented that private firms concern more

technical efficiency on the market for corporate control. This leads to an upward shift

of the production possibility frontier (PPF). In Fig. 2.1, it can be seen the upward shift

of the PPF can increase the production, in other words, efficiency improvement.

Fig. 2.1 Shifting the Production Possibility Frontier due to Technology Advancement

On the other hand, deadweight loss associated with rent-seeking is generated in public

firms. Constitutional rules in the political market can be one of the reasons.

(Boardman and Vining, 1989) In Fig. 2.2, it demonstrates a situation that the

government imposes some control on the price of a commodity. The controlled price

is not the market efficient price. The triangle area bounded by the controlled price and

the market equilibrium point is the deadweight loss generated.

Fig. 2.2 Deadweight Loss Generated by Public Sector

2.1.4 Implications of Privatization

Villalonga (2000) also proposed three implications of privatization: *political*,

organizational and *dynamic*. Political and organizational implications can impose

either positive or negative effect on the firm efficiency while dynamic implications

are about the timing for the effect to take place.

Political implications of privatization are the political reasons for the government to

privatize a firm. If the government intends to privatize a firm which its industry will

have potential to grow optimistically, in order to increase the revenue, the

privatization will have positive effects on the efficiency. However, negative effects

will occur if the government intends to privatize a firm due to other political reasons

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other than efficiency, and these political reasons involve a trade-off with efficiency.

Organizational implications of privatization mean the decisions made by the new owner or managerial staff after privatization. Positive effects will take place if the new firm is more specialized in that business and is willing to invest synergies and savings on it. However, if the new firm treats the acquired business as a separate business unit and prioritizes other conflicting objectives at a higher position, negative effects may take place. Besides, the inability of the new managers to turn around a low-performing business can also be one example for the negative effects.

Dynamic implications of privatization may affect the timing of the effect of privatization on efficiency. The argument of Pelikan (1989, 1993) implies an efficiency improvement may not be shown immediately after privatization. An increasing trend may be evolved in the evolution of its post-privatization efficiency. It is very important to notice that some cases of privatization may show negative effects at the beginning of time, but these effects will diminish over time. The reasons for this phenomenon can be due to privatization of the business in recession, initial resistance to change, or time to adapt the new organizational management, etc. That period can be called as transition. Therefore, the political and organizational factors can also

affect the timing for the positive or negative effects to take place due to this dynamic

effect.

2.2 Shopping Centre Management

Shopping centres are very unique when compared with other types of property. Their phenomenon cannot be explained by residential, commercial nor industrial studies. This industry develops its own theories. The development and management of shopping centres require a certain amount of specialist knowledge and experience. Behavioural economics takes a role in this industry too and human behaviours in shopping habits change time by time. In this section, the development of shopping centres and the attributes for shopping centre performance would be reviewed, so to know the rent determinants of shopping centres which contribute to the quantitative analysis in this paper.

2.2.1 Development of Shopping Centres

Shopping centres are market places mainly for retailing and are believed to be centres of social and cultural activities. They are also the most profitable locations which contain a variety of chain stores and other features inducing customers within reasonable distances.

A planned shopping centre provides "the needed place and opportunity for participation in modern community life that the ancient Greek *agora*, the medieval market place and town squares provided in the past. That the shopping centre can fulfill this urgent need of suburbanites for the amenities of urban living is convincingly proved in a large number of centres. In such centres, pedestrian areas are filled with teeming life not only in normal shopping hours, but on Sundays and holidays when people windowshop, promenade, relax in the garden courts, view exhibits and patronize the restaurants." (Gruen, 1960) Indeed, "shopping centres have more than financial significance; they are becoming a way of life." (Kowinski, 1985)

The concept of shopping centres is also compatible with the Central Place Theory (Christaller 1966) that a central place is a settlement which provides one or more services for the population living around it. High order goods are sold in a central place while low order goods are sold in several tributary places surrounding the central place.

On the other hand, rational consumers would search for lowest product price when buying. The agglomeration of retail shops in a shopping centre can allow easy price comparison and more competition within alternate sellers. The searching cost for

price comparison is therefore reduced, so does the transaction cost. (Holton, 1958;

Eaton and Lipsey, 1979)

2.2.2 Attributes for Shopping Centre Performance

Many previous studies suggested the critical success factors of shopping centres or

retailing, below is three examples.

Typically, location, location and location is the rule for retailing. (Jones 1990)

Underhill (1999) defined 3 distinct aspects for retailing: design (the premises);

merchandising (what products to put); and operations (what employees do).

The British Council of Shopping Centre proposed 5Cs of a successful shopping mall:

competition nearby, catchment of pedestrian flow, character of centre, choices of

goods and convenient location. (College of Estate, 1993)

There are unlimited points of views from different authors. In this study, four major

attributes will be explained for shopping centre performance: location, characteristics,

tenant mix and renovation.

Location

"The immobility of houses means that their location affects their values. This explains

the common belief that three things determine the price of a house: location, location,

and location." (Kiel & Zable, 2008)

Location, as same as other types of properties, must be one of the most important

attributes towards success. Undoubtedly, many studies such as Nelson (1959),

Dawson (1983) and Jones (1990) stated that a good location is a critical success

factors for shopping centres.

In fact, the underlying meaning of location generally implies: 1) population of that

area (catchment of pedestrian flow, income of the population, demand/shopping habits

of the population), 2) accessibility (convenient location and catchment of pedestrian

flow) and 3) competition nearby.

Population

The surrounding population of a shopping centre must be its target customers. In

principle, a location with more people living should lead more pedestrian flow to the

shopping mall located in this area, and vice versa. However, the definition or the area

for this surrounding population may vary from locality to locality. In foreign countries

like the United States or United Kingdom, the houses are not so densely built in rural

areas and the population is therefore widely diverse. The trade area[2] of a shopping

centre may be extended to 15 miles. Contrarily, in urban areas like Hong Kong, the

trade area is hard to determine clearly because the population density is

extraordinarily high and the city is too small.

According to Chapter 6 Retail Facilities of the Hong Kong Planning Standards &

Guidelines[3] published by the Planning Department, shopping centres can be divided

into three types: territorial shopping centres, district shopping centres and

neighbourhood shopping centres[4]. It also provides the target population of each type

of shopping centre. Basically, most shopping centres in Hong Kong would target the

residents within its district[5]. Only territorial shopping centres would pay a lot of focus

on the tourists. On the other hand, The Link REIT defines its own retail properties

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[2] A trade area is the geographic sector from which the sustaining patronage for steady support of a shopping centre is obtained.
[3] http://www.pland.gov.hk/pland_en/tech_doc/hkpsg/full/ch6/ch6_text.htm, retrieved on March 2010
[4] The examples of these in Hong Kong are Times Square, Apm and Shek Lei Shopping Centre respectively.
[5] Hong Kong is divided into 18 districts.

hierarchy as district centres, local centres, estate centres and shops[6]. It also stated the

corresponding target catchment of pedestrian flow for each type of shopping centre. A

larger catchment of pedestrian flow will get a larger probability of more shoppers

consuming in the shopping centre.

Apart from the number of pedestrian flow, income of the target population is a factor

for the retail sales. Ken and Jim (1990) showed a fundamental retailing function:

$$Retail\ Sales = f\ (Market\ Income)$$

The market income (independent variable) positively affects the amount of retail sales

(independent variable). It means that a population with a higher income will

contribute to higher retail sales since they will have more disposable income. Besides,

the rich likes to consume high brand products while the poor can only afford low

brand products. Therefore, to determine a good location for a shopping centre, a

higher household income level in that district should be taken into the account.

The demand or shopping habits of the target population will also affect the retail sales

due to a fact that the retail industry is a supply and demand market. The demographics

of the area should be analyzed in this case. For example, the age range and its

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[6] Link REIT (2005) Global Offering Prospectuses

proportion can reveal their shopping preference. It is easy to imagine the shopping

needs of teenagers and that of the elderly having a great difference. If the demand for

a particular type of shops is high, a shopping centre in this style will get the market

shares; otherwise, the shopping centre will fail and cannot survive. Those shops who

sell in this shopping centre need to pay a higher rent as they will gain a large profit

due to the demand of the target population.

Accessibility

Ian Northern (1984) listed the following situations for the success of a shopping

centre:

"The location of the population within the catchment area; the nearer they are to the

centre the more likely they are to visit it.

The relative affluence of shoppers living within the catchment area.

The existence of a good road system. Motorways can extend the size of the catchment

area by many miles.

The efficiency and extent of bus services serving the centre.

The existence of convenient rail services.

The availability of adequate car-parking."

An improved transportation system can bring more people from remote areas through

it is heavily related to the location. It in turns increases the pedestrian flow. As

mentioned, more pedestrian flow can lead to higher retail sales.

A comprehensive accessibility includes both public transport and private transport.

Public transport would be mass railway transits, buses, public light buses, trams,

ferries, the road system and bridges. Private transport would mean the number of

car-parks inside the shopping centre or nearby which allow motorists to drive their

cars there and shop. Shoppers who come to the shopping centres on foot can be

treated as a kind of private transport as well, so the nearer the shopping centre they

more likely to visit it. That is why the location is so important.

In Hong Kong, a good accessibility usually requires a connection to the Mass Transit

Railways (MTR). Besides, a footbridge network like the one in Central increases the

value of the linked buildings and the pedestrian flow. Some shopping centres like

Mega Box even provide free shuttle buses to attract pedestrian flow.

Competition

Due to the nature of immobility of a building, competition nearby is also a

determinant for the success of a shopping centre. In a common sense, competitors

would share some shoppers in the trade area. The number, type and location of the

competitors would be a question for each other.

Reilly (1929) suggested Law of Retail Gravitation:

$$\begin{array}{l} \text{Number of miles} \\ \text{from shopping centre A} \\ \text{to the outer limits of its} \\ \text{trading area in the direction} \\ \text{of shopping centre B} \end{array} = \dfrac{\text{Miles to shopping centre B}}{1 + (\dfrac{\text{Floor area of B}}{\text{Floor area of A}})^{\frac{1}{2}}}$$

This model gives a simple concept on the trade area boundary of each shopping centre

under competition. In Hong Kong, this model may not be able to apply because many

shopping centres are so closely located.

However, competition sometimes dose not mean negative effect. Yet it can motivate

the shopping centre to improve just like a Chinese quote "when there is competition,

there is improvement". Then, characteristics and tenant mix of a shopping centre

would be the key to make it unique for shoppers.

Characteristics

Characteristics of a shopping centre include its theme and style, architectural design,

features and facilities, etc. These items lead to the image and also the attractiveness of

the shopping centre, so they must be designed carefully at the design stage.

Finn and Louviere (1996) mentioned "shopping centre image is the consequence of deliberate as well as unintentional actions taken by shopping centre management, environmental conditions, and differences in perception and decision-making by consumers." Their study demonstrated that physical characteristics have impact on the consumers' image for shopping centres. Some previous studies also suggested that the physical environment of shopping centres is a determinant of patronage behaviour (Bellenger et al., McGoldrick, and Thompson, 1992). The reason behind was that the physical environment can influence consumers' emotions, e.g. excitement. (Wakefield & Baker, 1998)

Physical characteristics like the size (gross floor area) and the number of storeys will determine the shopping centre practice in horizontal circulation or vertical circulation. Horizontal circulation is more preferred since shoppers less tend to travel upstairs. The size of shops is also a concern for those shoppers who like to shop in a spacious area. However, shops are usually small in prime locations due to the high land price in Hong Kong. Architectural design can be the spirit of the physical environment. It can represent the shopping centre as its symbolization or dominate the style of the

shopping centre. Typically, as mentioned, it can induce consumers' excitement.

Apart from the physical characteristics, spiritual characteristics like the theme can sometimes be the most powerful weapon in promoting the shopping centre. Hong Kong has some successful examples: amp in Kwun Tong which has a slogan "Play More Sleep Less" with its long opening hours targets the young generation successfully; Citygate Outlets in Tung Chung which contain 80 international brand outlets can attract shoppers from all Hong Kong areas. These examples show that a shopping centre can still succeed by its unique characteristics even the shopping centre is not very well located.

Tenant Mix

Tenant mix is hard to define; in turn it can be simply understood as "choices of goods". Tenant mix is a combination of arts and science to optimize the trade of a shopping mall. The location of shops within the shopping centre can affect the pedestrian flow. Hence, it must be planned carefully in order to enhance the cooperation between shops as well as the competition.

Tenant mix planning must be a long term approach to maintain and improve the

shopping centre. It should be reviewed and made improvements regularly; even renovation needs to be carried out. A good tenant mix can retain its quality with the periodic changes such as the change of human shopping habits. Besides, individual tenants may not always be able to pay the highest rent. An overall view is necessary to take. Generally, a shopping centre which can attract the most trade should be able to generate the best rental performance since it can capture all types of shoppers. (Ian, 1984) At the same time, rental levels need to set and adjust for different types of tenants to get a win-win situation.

Nowadays, anchor tenants are always considered in the tenant mix planning. Since they have good reputation for the quality, people enjoy shopping there and the pedestrian flow in the shopping centre is therefore increased. Anchor tenants are sometimes placed at the ends of the shopping centre so that shoppers are induced to pass the greatest number of shops. For example, Hau Tak Shopping Centre was renovated after managed by The Link REIT. More numbers and variety of shops were introduced. Anchor tenants like Starbucks was one of the shoppers favorites. It can be concluded that a comprehensive tenant mix and strong anchor tenants can definitely increase the value and enhance the potential of the shopping centre.

Renovation

The quality of space of a shopping centre would decline with its age. The demand of

the retailers for the facilities in the centre would also change by years. The vacancy

and absorption rates can reflect these changes. Renovation and renewal must take

place, especially in the older centres, to cope with the current needs and to sustain the

profitability. The tenant mix may be rearranged simultaneously to be a right one to fit

the demographic composition change such as aging. (Dawson 1983)

To upgrade a shopping centre periodically can improve its physical condition and

enhance its competitiveness which results a significant increase in operating income.

(Koltz, 1973; Lion, 1976) An example of average sales per square meter doubling

after renovation was the Panorama Mall in the north of Los Angeles in 1979. (Warner,

1981) Similar conclusions are resulted in other financial feasibility studies by

Applebaum and Kaylin (1974) and Chase (1979).

2.2.3 Rent Determinants of Shopping Centres

There is less literature examining the rent determinants of shopping centres by

quantitative analysis. Most of the literature carries out qualitative analysis like the

above. Location (population, accessibility and competition nearby) and quality of the

shopping centre (such as characteristics, tenant mix, developer and property

management), etc. can determine the rental level of a shopping centre.

Quantitative analysis like Hui, Yiu & Yau (2007) investigated the impact of some

attributes, including physical characteristics, location and market positions, on the

rental income of shopping centres in Hong Kong. The sample data was the shopping

centres under The Link REIT. A regression analysis was conducted by using the

equation:

$$\text{In } R = f(X, P, L)$$

where R is the annualized per-area net rental income; X is the physical characteristics

(age, total floor area, no. of shops, occupancy rate and efficiency ratio); P represents

the market positions (district centre, local centre, estate centre or shop); L is the

location of the shopping centre. The study found that a larger shopping centre

commanded a higher rental levels. The age and the efficiency ratio have a negative

impact on rental levels while the size and the amount of shops have a positive impact.

Chapter 3 - Overview of Commercial Properties of the Hong Kong Housing Authority

The Hong Kong Housing Authority (HKHA) is a statutory body established in April 1973 under the Housing Ordinance. It aims to provide public housing for the people who cannot afford private rental housing. In order to fulfill the daily needs of the residents, commercial facilities are provided in each public housing estate generally. On the other hand, these facilities should be an ideal place for the general retailers to operate their business due to the high population density and stable source of consumers in public housing estates.

In November 2005, the HKHA divested 180 retail and carpark facilities to The Link REIT. Its resources can then be focused on its core business to provide subsidized rental housing to people in need.

3.1 Corporate Vision

The vision of HKHA is to help all families in need gain access to adequate and affordable housing. Its core values include caring, customer-focused, creative and

committed.

3.2 Organization Structure

Aside from Chairman and Vice-chairman, the HKHA has two official members and 26 non-official members. Appointments are made by the Chief Executive. Non-official members are appointed ad personam. With the reorganization of the policy bureau of the Government Secretariat from 1 July 2007, the Secretary for Transport and Housing was appointed as the Chairman of the HKHA. The Director of Housing continues to be the Vice-chairman.

HKHA has formed six standing committees, including Building Committee, Commercial Properties Committee, Finance Committee, Strategic Planning Committee, Subsidized Housing Committee and Tender Committee, to formulate, administer and oversee policies in specified areas. Sub-committees and ad hoc committees are formed on a need basis. The Housing Department, which consists of 5 divisions, acts as the HKHA's executive arm and is headed by the Permanent Secretary for Transport and Housing (Housing), who also assumes the office of the Director of Housing.

3.3 Commercial Properties Managed by the HKHA before Privatization

Before the listing of The Link REIT in November 2005, retail and carpark facilities are under the management of the Commercial Properties Committee of the HKHA. The Committee was responsible for providing desired commercial facilities to public housing tenants and for ensuring a source of income which would be channeled back into subsidized public housing.

Characteristics of Commercial Properties Managed by the HKHA

Some characteristics of HKHA commercial properties are observed:

1. The majority of the people flow and consumers are the residents in the public housing estate.

2. Competition inside each HKHA shopping centre is balanced due to the tenant mix or proportion of shop variety fixed by the HKHA. However, competition will become fierce when there is a private shopping centre built nearby. On the other hand, for those isolated public housing estates, no private shopping centre would be willing to invest there and the HKHA shopping centre would become the monopoly, so nearly no market competition exists.

3. Some commercial properties have incorporated welfare centres or kindergartens to suit the social and educational needs of the residents.

4. There is not sufficient promotion for the shopping centre because HKHA is a public body. Shopping centre in public housing estate is a kind of service rather than a business.

5. Performance of the property management is below average in the tenants' view, but the opposite in the HKHA's view.

6. Although the tenants often complain about the shopping centre, most of them would renew the tenancy contract due to the low rents when compared to private shopping centres.

Leasing and Rental

HKHA would fix a suitable tenant mix for a shopping centre before the open tender. There are two main letting methods to determine the rental: by tender and by negotiation.

For letting by tender, the tenancy will normally be granted to the highest bid, provided that the rent set in the tender needs to exceed the lowest acceptable rent of the shop which is assessed by the General Practice Surveyor of the HKHA. Otherwise, the

HKHA will negotiate with this highest bidder for the lowest acceptable rent. The shop

will put into open tender again if the negotiation fails.

Letting by negotiation is for those targeted potential tenants, e.g. restaurants. Shops

with large floor space, failed to attract suitable bidders in at least one open tender, or

designed to be an attraction, or existing tenants with capability for expansion of

business can exercise letting by negotiation.

Apart from the above two methods, some shops are designed to be clinics and the

tenants are assigned by the Estates Doctors Association. A raffle would be drawn from

the list of doctors who applied to operate clinics in public housing estates.

However, HKHA cannot negotiate rent or trade with its commercial tenants as free as

a private owner since it is a government body. Yet all rents in HKHA shopping centres

are set to be under the market rent. The average monthly rent was about $15 per

square feet during 2004 to 2006[7].

Generally, fixed-term leasing (three years) or short-term letting (12 months) is granted

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[7] HKHA, Memorandum for the Commercial Properties Committee, Paper No. CPC 6/2004

for the tenancy term. The HKHA has the power on the decision of renewal of tenancy,

yet the tenancy is always renewed unless the tenant chooses to end.

In order to reflect and get in line with the latest market trend, the rents would be

reviewed on two or three-year basis, depending on the terms and conditions in the

tenancy. Meanwhile, the tenants have the right to negotiate with the HKHA if they

disagree with the reviewed rents.

Operating Results

The surplus generated by commercial properties played an important role in the

HKHA. Deficits were resulting in rental housing during 2001 to 2004 and in Home

Ownership Assistance and in consolidated items in the year 2003/04. These deficits

could be partly offset by the surplus derived from the commercial properties. (See

Table 3.1 for the operating results for years ended 2002 to 2006) Hence, commercial

properties in public housing estates contributed positively in the cash flow of the

HKHA.

Year	Operating Surplus / (Deficit) ($M)			
	Rental Housing	Commercial	Home Ownership Assistance	Consolidated
2001/02	(2,446)	1,752	3,226	2,532
2002/03	(828)	1,427	792	1,391
2003/04	(85)	1,207	(1,402)	(280)
2004/05	606	1,369	177	2,152
2005/06	460	1,200	2,192	3,852

Table 3.1 Operating Results for Years Ended 2002 to 2006 of the HKHA[8]

Vacancy Rate

Referring to Table 3.2, the vacancy rate of commercial properties remained at the

level of 6-7% during 2001 to 2005, which is quite high throughout the history of

HKHA. A rise to 7.56% in the year 2005/06 was partly due to the handover from the

HKHA to The Link REIT that some tenants could not afford the high rents offered by

The Link REIT.

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[8] HKHA Annual Report 2005/06, p.76

Year	2001/02	2002/03	2003/04	2004/05	2005/06
Vacancy Rate (%)	6.7	6.18	6.3	6.8	7.56

Table 3.2 Vacancy Rate of Commercial Properties

for Years Ended 2002 to 2006 of the HKHA[9]

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[9] HKHA Corporate Plan from Year 2003/04 to Year 2007/08

Chapter 4 - Overview of The Link REIT

The Link REIT (Hong Kong stock code: 823) is the first and the largest Hong Kong's REIT which invests in a portfolio of 180 retail and carpark facilities serving 40% of Hong Kong population daily needs.

As a divestment exercise of the Hong Kong Housing Authority (HKHA), these 180 retail and carpark facilities are privatized and managed by The Link REIT now. The Link REIT was listed on the Hong Kong Stock Exchange (HKEx) on 25 November 2005. Dividends distribution of the Link REIT is 100% of Total Distributable Income for each financial year.[10]

4.1 Corporate Vision

The Link REIT as a market-driven and value-creating asset manager aims to offer inviting shopping experiences to customers, prosperous business opportunities to tenants and rewarding financial returns to investors. Its core values have four: 1) integrity, professionalism and innovation, 2) customer-focused, people-oriented, 3)

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[10] The Link REIT (2005) Global Offering Prospectuses, p.58.

continuous development, pursuit of excellence, and 4) teamwork, commitment to

quality.

4.2 Organization Structure

The Board of The Link REIT comprises 12 members, nine of whom are independent

non-executive directors (including the Chairman), two executive directors and one

non-executive director. The Board is principally responsible for the management, the

conduct of its business and the overall governance.

The Board's function is largely separate from, and independent of, the executive

management function. Day-to day management functions are the responsibility of the

executive directors. Certain supervisory functions have been delegated to relevant

committees[11] of the Board.

Its Asset Management Team consists of 6 divisions: Asset Management (1)[12], Asset

Management (2)[13], Mall Merchandizing, Project Leasing, Facilities Management and

Research & Planning.

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[11] Audit Committee, Finance and Investment Committee, Human Resources and Compensation Committee, Nomination Committee and Remuneration Committee
[12] New Territories East, Yuen Long & Tuen Mun
[13] Kowloon East & Hong Kong, Kowloon Central, Wong Tai Sin, Kwai Tsing and Tsuen Wan

4.3 Portfolio Information

The 180 retail and carpark facilities (approximately 11 million square feet of retail space and 80,000 carpark spaces) are therefore the facilities in the public housing estates under the HKHA. The portfolio accounts for around 9.1 percent of total retail space in Hong Kong. According to The Link (2005), the retail facilities located in the New Territories, Kowloon and on the Hong Kong Island estimated for 59.4 percent, 33.2 percent and 7.4 percent respectively of the total internal floor area of the retail facilities; and 59.0 percent, 33.8 percent and 7.2 percent respectively of the total annualized rental income of the retail facilities.

The Link REIT has its own retail properties hierarchy: district centres, local centres, estate centres and shops. They are generally differentiated by size, catchment of people, variety of shops and facilities (see Appendix II for the description of each type of centre).

Leasing and Rental

Since the 180 retail and carpark facilities were handed over from the HKHA, existing

tenants could continue their business until the tenancies expired or The Link REIT

needed to carry out asset enhancement works, i.e. renovation. The tenancy renewal

was subject to their negotiation.

The letting of vacant shops is then by tender. The Link REIT will invite tenders for

commonly the 3-year tenancy of the premises stated in the Tender Notice. Tenderers

must state the monthly suggested rent they are prepared to offer. Tendered rent will be

final and not subject to negotiation[14].

Apart from tender, potential tenants can also submit an application form stating their

proposed trade and shop size in which shopping centre. The Link REIT would

consider the possibilities and any suitable shops, yet the validity of the application is 3

months only[15].

At the same time, The Link REIT introduced many anchor tenants, e.g. Starbucks,

McDonald's, Maxims, JUSCO, etc., into their shopping centres in order to enhance

their value and competitiveness.

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[14] The Link (2006), Conditions of Tender
[15] The Link (2009), Leasing Application Form

Besides, the common space within the shopping centres can be let for any business promotion or social activities in short term basis. The attractiveness of the shopping centres is therefore improved.

Table 4.1 shows the average monthly base rent for Years Ended 2006 to 2009 which is at the level of $20-30 per square feet. From year 2005/06 to year 2008/09, the average monthly base rent is increased from $23.0 per square feet to $28.4 per square feet, i.e. 23.5% increase. Some tenants, especially those large retail tenants, agreed to pay turnover rent (same approach as the private retail market). Therefore, the rent under The Link REIT may become 3 times more than that under the management of HKHA.

Year	2005/06	2006/07	2007/08	2008/09
Average Monthly Base Rent ($ per sq. ft.)	23.0	23.6	25.4	28.4

Table 4.1 Average Monthly Base Rent

for Years Ended 2006 to 2009 of The Link REIT

Operating Results

The Link REIT continues to deliver earnings growth. For year 2005/06, the net property income (i.e. surplus) only got $813 million because The Link REIT started

their management on 25 November 2005, so only 4 months (till 31 March 2006) were

in the record. Neglecting the year 2005/06, the operating results are positively

growing from year 2006/07 to year 2008/09 (see Table 4.2). The net property income

increases from $2,361 million to $2,805 million, i.e. 18.8% increase. The net property

income under the management of The Link REIT is 2 times greater than that of the

HKHA which only got around $1,000-1,500 million. This result is partly due to the

increase in rent by The Link REIT.

Year	2005/06	2006/07	2007/08	2008/09
Revenues ($M)	1,354	3,954	4,199	4,503
Net Property Income ($M)	813	2,361	2,537	2,805

Table 4.2 Operating Results for Years Ended 2006 to 2009 of The Link REIT[16]

Vacancy Rate

However, the vacancy rate of shopping centres rose to 8.8% immediately after the

handover to The Link REIT. Recently, it even rises to 12.6%. (See Table 4.3) The

increase in vacancy rate should be due to two reasons: 1) the increase in rent makes

some tenants no longer afford and choose to surrender the tenancies; 2) more and

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[16] The Link, Annual Report 2009, p.12

more asset enhancement works are carried out in the chosen shopping centres, so part

of the shopping centre is closed for renovation. In fact, the vacancy rate here is about

the same as the market vacancy rate for other private shopping centres (see Chapter 5

for the market vacancy rate). Hence the rise in vacancy rate does not mean The Link

REIT not performing well.

Year	2005/06	2006/07	2007/08	2008/09
Vacancy Rate (%)	8.8	9.7	10.7	12.6

Table 4.3 Vacancy Rate of Retail Facilities

for Years Ended 2006 to 2009 of The Link REIT[17]

4.4 Asset Enhancement Programme

After privatization, The Link REIT carries out asset enhancement projects in around

30 shopping centres (see Appendix III for the schedule) in these years. Asset

enhancement aims at maximizing the properties potential so as to improve returns to

unitholders. At the same time, service to customers and tenants is upgraded. The work

covers physical structures, tenant mix, customer services and promotional activities,

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[17] The Link, Annual Report 2009, p.14

etc. Through the renovation, additional retail space is generally created, so the lettable

internal floor area is maximized. All these outputs in turn significantly enhance the

property values of these shopping centres.

Chapter 5 - Retail Property Market in Hong Kong

The retail property sector constitutes a large part in Hong Kong. This sector comprises retail premises and other premises designed or adapted for commercial use, with the exception of purpose-built office space (Rating and Valuation Department, 2009, p.47). At the end of 2004, the stock in this sector was 9,407,800 m^2. On top of this, 32 percent of the total space was on the Hong Kong Island, 41 percent in Kowloon and 27 percent in the New Territories.

The declining trend of commercial completions in 2003 had been improved by large developments like Langham Place in Mong Kok and Millennium City 5 in Kwun Tong completed in 2004. Completions were at 91,300 m^2, reducing 23 percent from previous year.

In the same year, there was a positive take-up of 66,100 m^2. Vacancy stood at 1,019,400 m^2 or 10.8 percent of the stock. More than 40 percent of the vacant space was located in three districts: Central and Western, Yau Tsim Mong and Kwun Tong, due to the new completions in these areas (leasing in progress).

The overall prices of retail properties in 2004 were increased by 40 percent when compared to the last quarter of 2003. Meanwhile, the provisional rental index registered a 9 percent year-on-year increase over the same period in 2003.

Referring to Fig. 5.1 and 5.2, both price index and rental index of the retail sector captured a general increase from 2005 to 2008 although a decline starting from mid-2008 due to the financial tsunami.

At the end of 2008, the retail property stock was 10,587,800 m^2. Of these, 30 percent of the total space was on the Hong Kong Island, 41 percent in Kowloon and 29 percent in the New Territories.

Completions in 2008 were 49,300 m^2, with around 40 percent in Kowloon like Sham Shui Po, Kwun Tong and Yau Tsim Mong. It was forecasted that completions would be at 94,000 m^2 in 2009 and at 90,300 m^2 in 2010.

A negative take-up of 39,200 m^2 was recorded in the same year. Vacancy stood at 920,100 m^2 or 8.7 percent of the stock. Arcade shops and upper floor commercial space vacancy increased to 55 percent.

Retail prices leaped in the first six months of 2008 but then declined rapidly. The

price index registered a 9 percent year-on-year decrease over the same period in 2007.

Meanwhile, rents increased in the first three quarters but declined in the last quarter.

The rental index for the last quarter of 2008 showed a decrease of 1 percent when

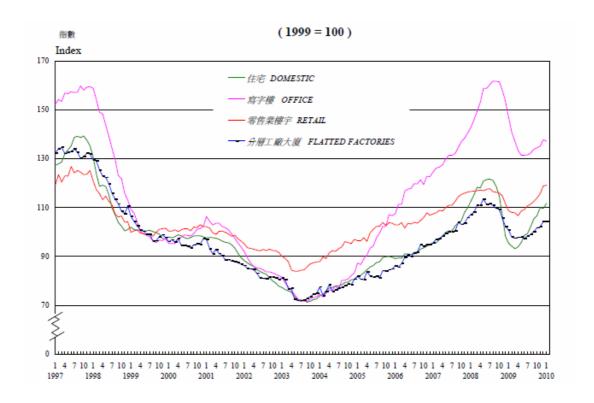compared to the same period in the previous year.

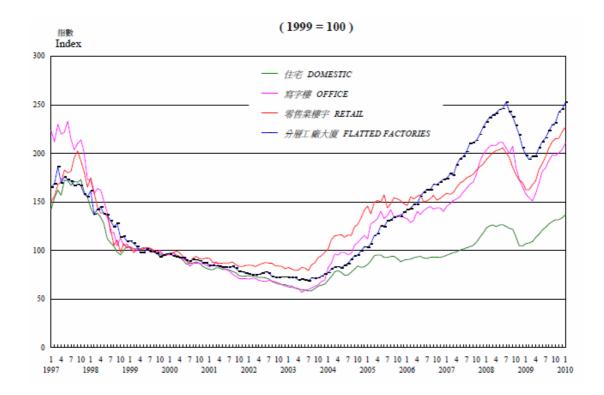Fig. 5.1 Rental Indices for Hong Kong Property Market

Fig. 5.2 Price Indices for Hong Kong Property Market[18]

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[18] Fig. 5.1 & Fig. 5.2 are sourced from Rating and Valuation Department (2010)

Chapter 6 - Development of Hypothesis

This study is to examine the privatization effect on the shopping centres managed by The Link REIT and the practical implications on privatizing shopping centres in the future. As reviewed in the previous chapters, over 100 empirical studies support that private firms are more efficient than public firms while only less than 20 are against and more than 30 are neutral (see Table 2 in Villalonga, 2000). Qualitative studies using Agency/Property Rights Theory, Public Choice and organization theories also show their preference to the private sector. The overview of the management and results of the Hong Kong Housing Authority and The Link REIT gives evidence that The Link REIT can generate a better income. Due to the real income growth as an indicator to measure the efficiency, below is the first hypothesis.

Hypothesis 1: The privatization by The Link REIT has positive effect on its shopping centres.

For the *political and organizational implications of privatization* in this case, the privatization of shopping centres is a divestment exercise of the HKHA and The Link REIT is designed to be specializing in shopping centre management. The Link REIT also aims to rewarding financial returns to investors. With the intention of efficiency

and profits and the fact of the increase in rental and net property income, the

Hypothesis 1 is proposed.

Then, in the view of shopping centre management, the major attributes for shopping

centre performance is the location, characteristics, tenant mix and renovation. Hui *et*

al. (2007) found that a larger shopping centre commands a higher rental level. Tenant

mix, renovation and some characteristics depend on the property management. The

real income growth can also be an indicator for shopping centre performance. Hence

the second hypothesis is proposed as:

Hypothesis 2: The location, size of shopping centre and quality of property

management greatly affect the growth of income.

This hypothesis can in turn imply what types of shopping centres can benefit most

from privatization. This has practical implications for shopping centre management

and also for investors, in terms of pricing of The Link REIT etc., especially when The

Link REIT will purchase more shopping centres from the HKHA in the future.

Chapter 7 - Methodology

7.1 Hedonic Pricing Model

Hedonic Pricing Model is effective to demonstrate the relativity and the implied

importance of each price determinants (independent variables) to the price (dependent

variable), so it is chosen to analysis the privatization effect on the real income growth

of The Link REIT shopping centres, which in turn implies the shopping centre

performance.

Rosen (1974) introduced the Hedonic Pricing Model. It is used to show that consumer

utility for goods or services is based on the possessed attributes. There is an implicit

price for each attribute in assumption. The sum of all the attributes will contribute to

the price of the goods or services.

It is a kind of regression model that the unknown variable, e.g. the market price (P) to

forecast, is expressed as a function of some known and measurable variables, e.g.

design variables or measurable attributes of the property (A_i):

$$P = a_0 + \sum_i a_i A_{ij} + \varepsilon_j$$

where a_0 is the constant term;

a_i is the coefficient of the attribute variable A_i; and

ε_j is the stochastic or error term.

7.1.1 Ordinary Least Squares Technique

Ordinary Least Squares (OLS) technique is the most common and simplest method of estimating the parameters of the regression model. It can estimate the true but unobservable function by:

$$P = b_0 + \sum_i b_i A_{ij} + r_j$$

where P is the dependent variable or the regressand;

A_i are the independent variables or the regressors;

r_j is the residual;

b_i is the OLS estimator of β_i (true unobservable coefficient of A_i).

This regression equation can minimize the residual sum of squares (sum of squares of the differences between the actual and the forecast values of P).

7.1.2 Assumptions of Classical Normal Linear Regression Model

Hill (2001) stated a collection of assumptions that describe the data in the simple regression model in econometrics.

1. The true unobservable relationship between the dependent (y) and independent (x) variable is linear of the form:

$$y = \beta_1 + \beta_2 x + e$$

2. The independent variables are non-stochastic and are linearly independent of each other, i.e. no linear relationship exists between any of the independent variables.

3. The expected average value of the random/error term is zero for all observations, i.e. $E(e) = 0$ since we assume that $E(y) = \beta_1 + \beta_2 x$. It is meant that the average effect of the left out factors is zero or constant (i.e. the average effect is absorbed into the constant term β_1). No bias (systematic error) is allowed in the measurement of the independent variables or the bias must be the same for all observations if bias exists. Both assumptions 2 and 3 implicitly imply that there is no correlation between the independent variables and the error term.

4. The variance of the error term is constant for all observations.

$$\text{var}(e) = \sigma^2 = \text{var}(y)$$

Since *y* and *e* differ only by a constant, the variance would not be changed, i.e. all

the factors generating the error term do not change over the set of observations

(the concept of Homoscedasticity). If the variance of the error term is not constant

(Heteroscedastic), some data may be measured more accurately (smaller variance)

than the others.

5. Error terms of different observations are uncorrelated. The covariance between

any pair of random errors, e_i and e_j is:

$$cov(e_i, e_j) = cov(y_i, y_j) = 0$$

If the values of *y* are *statistically independent*, then so are the random errors *e*,

and vice versa.

6. (optional) The values of *e* are *normally distributed* about their mean

$$e \sim N(0, \sigma^2)$$

if the values of *y* are normally distributed, and vice versa. This assumption is

required to perform the t-test.

7.1.3 Test Statistics

Test statistics are used to test the significance of the estimated coefficients. Before presenting the t-statistics (or p-value), the coefficient of determination (R^2 or adjusted R^2) and the F-statistics, it should be noted that the coefficient b_i in the regression model represents the changes in P associated with a unit change in A_i holding all other factors constant.

$$P = b_0 + \sum_i b_i A_{ij} + r_j$$

$$\frac{\partial P}{\partial A_i} = b_i$$

It is meant that one unit change in A_i will cause P to change by b_i units when other things being equal. (Note that b_i depends on the unit of measurement of P and A_i.) Besides, the sign (+/-) of the estimated coefficient represents the independent variable positively or negatively affects the dependent variable. If the attribute is favourable, the sign of the estimated coefficient will be positive (+), and vice versa.

T-statistics (or P-value)

T-statistics (t_i) is used to test the significance of the effect of the independent variable A_i on the dependent variable P. The value of t depends on the coefficient b_i and the

standard error of coefficient[19] Sb_i:

$$t_i = \left| \frac{b_i}{Sb_i} \right|$$

The larger the t_i value, the more accurate the estimate is and the more significant the

variable is. In other words, $b_i = 0$ is less likely to happen.

P-value is the probability that the estimated coefficient is equal to zero. It is derived

from the t-statistics associating with the degree of freedom[20] (d.f.). The d.f. under

t-statistics is calculated by the no. of observations (N) minus the no. of independent

variables excluding the constant (k) minus one.

$$d.f. = N - k - 1$$

If the calculated t_i is higher than the critical t (t_c) (from t-table) for the d.f. at the

significance level x%, say 5%, p-value is 0.05, i.e. the chance of $b_i = 0$ is only 5%.

Then the coefficient b_i is said to be "significant at the 5% level" or "significant at the

95% (1-5%) confidence level". Therefore, the smaller the p-value, the more

significant the estimated coefficient is.

Statistical significance is a quantitative approach to represent that by how much extent

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[19] Standard error of coefficient is the sample estimates of the standard deviation associated with the regression coefficient b_i. In other words, it measures the accuracy of b_i (the lower the value in relation to the estimate, the more accurate the coefficient).
[20] Degree of freedom is the number of available observations minus the number of constraints placed on the data by the calculation procedure.

the statement "P is affected by Ai" is true. In fact, 'significance' shows nothing with

the magnitude of the effect of A_i on P, i.e. b_i can be very significant (high t_i), but the

effect of A_i on P can be very small.

The p-value will be presented in this study for analyzing the level of significance

more directly.

Coefficient of Determination (R^2 or Adjusted R^2)

The coefficient of determination (R^2) is the proportion of variation in the dependent

variable explained by the variation in the independent variables in the regression

model. The remaining ($1-R^2$) proportion is not explained and should be affected by

some other attributes.

The closer R^2 is to 1, the better job is done in explaining the variation in the

dependent variable; and the greater is the predictive ability (accuracy of forecast) of

the model over all the sample observations. If $R^2 = 1$, all the sample data fall exactly

on the fitted least squares line and the model fits the date "perfectly". (Hill, 2001) If

there is no correlation between the dependent variable and the independent variables,

$R^2 = 0$.

R^2 increases when more independent variables are added to the regression model

irrespective of whether these variables are significant. Therefore, R^2 is a descriptive

measure only. It does not measure the quality of the regression model. The more

important, it is not the objective of regression analysis to find the model with the

highest R^2. (Hill, 2001)

Adjusted R^2 ($\overline{R^2}$) measures the proportion of variance (variation divided by d.f.) of

the dependent variable explained by the variance of the independent variables.

$$\overline{R^2} = 1 - (1 - R^2)\frac{N-1}{N-k}$$

The R^2 should be adjusted downward for small d.f. The rationale for this is that, if the

number of independent variables k is large relative to the sample size N, the

unadjusted R^2 value may be unrealistically high, but there may be no linear

relationship. (Keller, 2003)

F-statistics

F-statistics is used to test the significance of the R^2. The null hypothesis is none of the

independent variables help to explain the variation of the dependent variable about its

mean. When the p-value of the F-statistics is smaller then the given significance level,

then the null hypothesis is rejected.

The p-value will be presented in this study for analyzing the level of significance
more directly.

7.2 Model in This Study

The hypotheses will be tested by estimating the hedonic pricing model using the

financial data of the shopping centers owned by The Link REIT as reported in its

annual reports starting from the year of privatization (2005) to the latest year (2009)

by the following equation:

$IN\_MG\_R = a_0 + a_1 MV\_R\_A/IFA + a_2 IFA + a_3 IFA^2 + a_4 AGE + a_5 YIELD\_A +$

$a_6 YEAR=2007 + a_7 YEAR=2008 + a_8 YEAR=2009 + a_9 RENOVATION$

where IN_MG_R is the real mean growth in rental income, MV_R_A/IFA is the real

market value per square meter, IFA is internal floor area, AGE is age, YIELD_A is the

achieved yield for each retail. YEAR=2007, YEAR=2008 and YEAR=2009 are the

dummy variables that equal one if the income is generated in that year, otherwise zero.

RENOVATION is a dummy variable that equals one if the shopping centre is under

renovation in that year, otherwise zero. A square term IFA^2 is added to capture any

potential non-linear effects that increase at an increasing or decreasing rate.

7.2.1 Choices of Variables

The real mean growth of income is obtained by deflating growth in rental income by the Rating and Valuation Department's rental index for retail properties. This is chosen to be the dependent variable because it is an objective indicator for performance since the main function of a shopping centre is an achievement of profit in trade and it can reflect the shoppers' satisfaction. A positive growth in the dependent variable indicated the rental growth of the shopping centre outperforms the market.

For the independent variables, real market value per square meter is an indicator of the quality of the shopping centre in relation to each other. It is obtained by deflating the appraised value as reported in the annual reports per internal floor area by the Rating and Valuation Department's price index for retail properties. The variable reflects the location, physical attributes, quality of property management and market positions, etc. of the shopping center. It is possible that higher quality shopping centres can achieve a higher real rental growth after privatization.

The most common physical attributes are the internal floor area and age. With larger

internal floor area, more shops should be built and in turn generate more income.

More importantly, larger internal area gives more flexibility in terms of adapting to

new positioning and marketing approaches therefore more potential for improvements

after privatization. Rental income of older shopping centres may grow at a slower rate

after privatization since it is more difficult to make changes to older shopping centres.

Shoppers of older shopping centres may also have a stronger inertia, which makes it

less effective to implement new changes to improve its performance.

The achieved yield is the relationship between rental income and market value. A

higher achieved yield indicates that rental income having growth relatively faster than

market value which could be a result of better management and improved efficiency.

The "year" dummy variables capture the real growth on rental income after

privatization.

The renovation dummy variable is added to reflect the decrease in income due to the

renovation works carried out in a shopping centre in a particular year.

7.2.2 Expected Results

It is expected the coefficients of MV_R_A/IFA and IFA to be positive and significant, while that of AGE to be negative and significant. It is also expect the sign of RENOVATION to be negative. The sign or significance of other variables cannot be deducted logically.

Chapter 8 - Data Source and Processing

The top 40 shopping centres of The Link REIT (based on the year of 2005, see Appendix I) are put into regression analysis. In order to investigate the shopping centre performance under the Link REIT after the handover from the Hong Kong Housing Authority, the data from 2005 to 2009 is used to perform the test.

8.1 Data Source

Total Income/Net Income

The total income of the 40 shopping centres in 2005 and the net income from 2006 to 2009 are obtained from the *Global Offering Prospectuses* and the annual reports of The Link REIT respectively which can be found in the Hong Kong Stock Exchange website[21]. The unit is HK$ in million per annum.

Market Value

The market value of each centre from 2005 to 2009 is obtained from the *Global Offering Prospectuses* and the annual reports of The Link REIT.

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[21] Hong Kong Stock Exchange, http://www.hkex.com.hk/index.htm

Internal Floor Area

The internal floor area of each centre from 2005 to 2009 is obtained from the annual

reports of The Link REIT. The data of each year may change a bit due to different

valuation firms or renovation in the centres. The unit is square meter. For the data in

the 2009 annual report, it is in square feet, so it is converted to square meter by

dividing 10.764.

Age

The age of each centre from 2005 to 2009 is obtained from the annual reports of The

Link REIT. For some centres with two or more phases/blocks with different ages, an

average is taken.

Renovation

The renovation status is obtained from the annual reports of The Link REIT. It is a

dummy variable in the model of this study. The income is affected when there is

renovation carried out. If there is renovation in any year, this dummy variable is equal

to 1; otherwise equal to 0.

8.2 Data Processing

Total Income and Net Income

Since the income in 2005 obtained from *Global Offering Prospectuses* is total income and the income in 2006 to 2009 obtained from the annual report is net income. From the profit and loss statement, it is known that the property operating expenses occupy around 40% of the total income. Therefore, all the net income is divided by 0.6 to obtain the estimated total income. The total income is used for the empirical test.

Deflated Income and Market Value

The real income is obtained by deflating the corresponding income by the rental index for retail market. The real market value is obtained by deflating the corresponding market value by the price index for retail market. These indices are constant quality indices from the Rating and Valuation Department, which can reflect the change in the rental or price levels of all retail facilities, but may not be in line with the trend in the sample for this study.

Yield

The yield is calculated by (income / market value X 100%).

8.3 Descriptive Statistics of the Variables

	Mean	Standard Deviation	Max.	Min.	Number of Records
IN_MG_R	0.042	0.084	0.510	-0.197	
MV_R_A	342.6	188.5	1112.4	165.4	
IFA	12965.08	5834.47	39816	6193	
AGE	15.78	8.38	34	3	
YIELD_A	0.111	0.012	0.129	0.076	
YEAR=2007					40
YEAR=2008					40
YEAR=2009					40
RENOVATION					62

Table 8.1 Descriptive Statistics of the Variables

Chapter 9 - Empirical Results and Analysis

9.1 Empirical Results and Quantitative Analysis

Table 9.1 reports the results of the linear regression model for this study, on the

sample of the top 40 shopping centres under The Link REIT. The regression is carried

out by the least square method with the use of software, EViews Version 3.0.

Dependent Variable: IN_MG_R
Method: Least Squares
Sample: 200
Included observations: 160
Excluded observations: 39 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C*	-0.535882	0.122823	-4.363064	0.0000
MV_R_A/IFA*	3.317600	1.016768	3.262889	0.0014
IFA*	2.02×10^{-5}	3.44×10^{-6}	5.886799	0.0000
IFA^{2*}	-3.21×10^{-10}	7.59×10^{-11}	-4.223602	0.0000
AGE*	-0.004361	0.001037	-4.203067	0.0000
YIELD_A*	3.190582	0.821347	3.884573	0.0002
YEAR=2007	-0.017303	0.015374	-1.125502	0.2622
YEAR=2008	0.021225	0.015451	1.373675	0.1716
YEAR=2009*	0.045082	0.015411	2.925274	0.0040
RENOVATION	-0.011997	0.012551	-0.955839	0.3407

R-squared	0.390347	Mean dependent var	0.042109
Adjusted R-squared	0.353768	S.D. dependent var	0.084196
S.E. of regression	0.067684	Akaike info criterion	-2.487468
Sum squared resid	0.687172	Schwarz criterion	-2.295269
Log likelihood	208.9974	F-statistic	10.67131
Durbin-Watson stat	0.946441	Prob(F-statistic)	0.000000

*Significant at the 1% level.

Table 9.1 Regression Results on the Linear Model

First of all, the coefficient of determination (adjusted R^2) is 35.4% which is quite encouraging and the p-value is 0%. It means the null hypothesis of F-statistics is rejected and all the independent variables in the linear regression model can help to explain the variation of the dependent variable about its mean by 35.4%.

The real average market value per square meter (MV_R_A/IFA) has an expected positive and significant impact on the real mean growth of income. A market value reflects the performance of a shopping centre. In other words, the market value implies the quality of the attributes for shopping centre performance. Typically, the attributes include location, physical characteristics, tenant mix, etc. in the view of a surveyor. Apart from inherent factors like location and some physical characteristics which are fixed at the beginning, some factors can be man-made by the management company during the future operation and some fixed physical characteristics can be restructured in the long run, e.g. by renovation or by alternation and addition. That means the location and the property management constitute a main part in the market value. A good location and good quality of property management credit to a high market value. Then these in turn directly affect the income growth of the shopping centre.

The size of a shopping centre (IFA) also shows an expected positive and significant impact on the real mean growth of income. The effect is about 0.002% per square meter. If it is assumed there is linear effect, so the real mean growth of income difference between the largest (39816 square meter) and the smallest (6193 square meter) shopping centre amounts to 67.9%. It can be deduced that a big shopping centre can generate better income than a small shopping centre by a great extent.

The square term IFA^2 is significant and of the opposite sign to the un-squared term IFA. This result suggests the non-linear and diminishing effects of the variable.

The age of a shopping centre (AGE) obtains an expected negative and significant impact on the real mean growth of income. The effect is about -0.4% per one year older of the shopping center. It matches with the concept that shoppers usually prefer shopping in a new shopping centre. The competitiveness of a shopping centre hence may decline slightly with it age.

The achieved yield (YIELD_A) has a positive and significant impact on the real mean growth of income. The yield is derived by "annual income divided by market value".

The annual income is a fact while the market value is the valuation by a surveyor. Therefore, a high yield here means that the market value of a shopping centre is under-valued. It also implies that the potential of the shopping centres of The Link REIT are not yet fully realized.

For the three "year" dummy variables, the coefficient of YEAR=2007 is negative yet insignificant; the coefficient of YEAR=2008 is positive yet insignificant; and the coefficient of YEAR=2009 is positive and significant. The negative impact of YEAR=2007 means the privatization by The Link REIT still had not improved the overall performance of its shopping centres, i.e. the overall real income mean growth of its shopping centres was not increased much when compared to the year 2005. Then, YEAR=2008 and YEAR=2009 shows a positive impact on the real mean growth of income by 2% and 4% respectively when compared to the year 2005. It proves the privatization by The Link REIT has a positive impact on its shopping centres, but it takes 3 years time, i.e. the common tenancy term, for the privatization effect to take place in this case. The result suits the *dynamic implications of privatization* proposed by Pelikan (1989, 1993) and Villalonga (2000). An efficiency improvement may not be shown immediately after privatization. Privatization by The Link REIT shows negative effects at the beginning 3 years, but these effects diminish

after that. An increasing trend is evolved in the evolution of its post-privatization

efficiency. It is because the old contracts need 3 years time the most to expire, but

most importantly, it takes time to implement new strategies and procedures. This

period can be called as transition.

The last one, the renovation dummy variable results a negative coefficient yet

insignificant. Sine The Link REIT carries asset enhancement programme on some of

its shopping centres, it is reasonable that the income would decrease due to the

renovation works that a part of the shopping centre is closed. Yet this independent

variable can be neglected for its insignificance.

Based on the analysis of the quantitative results above, both the hypotheses are in

positive result.

Hypothesis 1: The privatization by The Link REIT has positive effect on its

shopping centres.

The hypothesis 1 is confirmed. It is supported by the 3 "year" dummies which show

the positive impact on the real income mean growth after 2007 and the negative effect

before can be explained by the *dynamic implications of privatization*.

Hypothesis 2: The location, size of shopping centre and quality of property management greatly affect the growth of income.

The hypothesis 2 is confirmed. It is supported by the results of independent variables "MV_R_A/IFA" and "IFA" which show significant positive impact on the real income mean growth.

9.2 Qualitative Analysis

Apart from the quantitative analysis, a brief qualitative analysis is below:

The corporate vision of both the Hong Kong Housing Authority and The Link REIT is very different. The HKHA aims to provide public housing to the people in need while The Link REIT to offer inviting shopping experiences to customers, prosperous business opportunities to tenants and rewarding financial returns to investors. Hence the core business of The Link REIT is to manage shopping centres, but that of the HKHA is to provide public housing. For this reason, fewer resources from the HKHA were given to the shopping centres before privatization as the priority of the HKHA is put on the public housing. Besides, the duty of the HKHA is civil service, but the

target of The Link REIT is profits. The management in both sectors is in opposite directions. The HKHA only targeted to serve the daily needs of the residents in the public housing estates. The Link REIT is more aggressive that it implements the asset enhancement programme to upgrade the potentials of its shopping centres.

The HKHA has 30 members in its "board" and The Link REIT only has 12 members in the Board. The whole structure of The Link REIT is working on shopping centre matters, but only the Commercial Properties Committee of the HKHA is responsible for the commercial facilities. It can be said that The Link REIT is designed to be specialized on shopping centre management. These *organizational implications of privatization* show the reason for the positive effects taken place. Meanwhile, if there is any major decision, it must be passed by the board. Much red tape and formalization must exist in the organization structure of the HKHA with such a large board, also due to its political framework. The efficiency on shopping centre management is therefore reduced in the public sector.

On the other hand, before privatization, the rent offered by the HKHA was set to be under the market value. Now, the rent offered by The Link REIT is approaching the market value and the calculation method is the base rent plus the turnover rent. The

annual net property income in turn increases sharply (see Chapter 4). The increase in

annual income is a measurement for the increase in efficiency.

Back to the *political implications of privatization*, the privatization of shopping

centres is the divestment exercise of the HKHA, so its resources can fully exercise on

its core service – the public housing. It may also realize the potentials of its shopping

centres are not utilized well and the potential growth of the retail market in Hong

Kong is always optimistic. Through privatization, the use of land will not be wasted

with the private firm efficiency. Besides, the portfolio is listed as a real estate

investment trust, so the general public can invest in it with the advantage of

securitization and get the dividends. It in turn pushes the private firm to perform well

for a good financial base and higher revenue in order to attract investors. Positive

effect is therefore taken place after privatization.

With the above few comparisons, it can be seen that The Link REIT is more efficient

than the HKHA on shopping centre management. The privatization by The Link REIT

has a positive effect on its shopping centre.

9.3 Implications on Shopping Centre Privatization

From the empirical results, it can be concluded that a shopping centre with a higher market value (implying good location and good quality of property management) and a larger size can generate a better real mean growth of income. If The Link REIT purchases more shopping centres from the HKHA in the future, a shopping centre with the following characters can benefit most from privatization and should be chosen:

1. Good location which has more population flow, higher disposable income, convenient transportation and less competition nearby;

2. Large internal floor area, i.e. district centre (in the retail hierarchy of The Link REIT, see Appendix II); and

3. Age of building as young as possible.

Together with its specialization on shopping centre management and keeping good in property management and maintenance, the revenue would be expected to be optimal.

Chapter 10 - Conclusion

This study aims to provide privatization implications to the retail market in Hong Kong. It is to examine the privatization effect on the shopping centres managed by The Link REIT and the practical implications on privatizing shopping centres. A review on privatization and efficiency, shopping centre management, the Hong Kong Housing Authority, The Link REIT and the retail market in Hong Kong are covered. Then, a regression analysis is carried out on the real rental income growth of the largest 40 shopping centres under The Link REIT.

10.1 Summary of Findings

The privatization by The Link REIT has a positive effect on its shopping centre, i.e. efficiency gain. The empirical results support there is positive effect on the real rental income growth starting from 2008. The insignificant result of 2007 suggests that it takes 3 years (from 2005 to 2008) to show real improve in performance. This is called *dynamic implications of privatization*. It is because it takes old contracts to expire, but more importantly, it also takes time to implement new strategies and procedures. Political pressure would also slow down the realization of full potentials

of the shopping centres after privatization.

With the *political and organizational implications of privatization*, it also supports

The Link REIT can realize the full potentials of the shopping centres with its vision,

core values, specialization expertise and the government intentions. A positive effect

on efficiency is created.

The findings also suggest choosing a shopping centre with good location, large

internal floor area (i.e. District Centre) and young building age for privatization.

10.2 Limitations of This Study

Although the findings show significance on the shopping centre privatization, there

are some limitations in this study. Firstly, the location factor cannot be fully

investigated or reflected in the study. If the shopping centres are classified into 18

districts, 18 dummy variables will be too many for a linear regression model which

might make it inaccurate. If they are only divided into Hong Kong Island, Kowloon

and the New Territories, it will not be significant enough. Hence, it can only be

implied in the market value as a quantitative approach.

Secondly, the renovation factor is not accurate enough. In this study, a dummy variable is added to reflect the renovation status of a shopping centre in a particular year. It is known that some shopping centres carry out renovation works for several years. It means renovation in a shopping centre is divided into different stages. The dummy variable is not sharp enough to reflect how many shops in the shopping centre are affected or closed.

Thirdly, the sample data only covers the largest 40 shopping centres of The Link REIT due to the lack of available information on the remaining shopping centres for the year 2005.

10.3 Suggestions for Further Study

For the second limitation in this study, vacancy rate of each shopping centre in a particular year is suggested to replace the renovation dummy variable in order to provide a more accurate and significant result. Yet no available data is provided in the market. It can be counted manually if time allowed and it must be observed for several years.

To deal with the third limitation, if the 2005 data of all shopping centres of The Link

REIT can be searched or obtained, it should be put into the test again in order to gain

a more accurate and full picture of the privatization effect.

This study only covers 2005 to 2009 which is a short period. It can be reviewed five

years later to obtain a ten-year result. A long term effect of the privatization will then

be known and it is more significant to tell the privatization effect.

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Appendices

Appendix I

List of the Top 40 Shopping Centres under The Link REIT

The following top 40 shopping centres under this study are based on the *Global Offering Prospectuses* of The Link REIT in 2005:

1. Lok Fu

2. Sheung Tak

3. Sau Mau Ping

4. Tsz Lok (Tsz Wan Shan Shopping Centre)

5. Tin Chung (Chung Fu Shopping Centre)

6. Kai Tin

7. Hau Tak II

8. Lower Wong Tai Sin II (Wong Tai Sin Shopping Centre)

9. Upper Wong Tai Sin (Lung Cheung Mall)

10. Tin Chak

11. Cheung Fat

12. Leung King

13. Tai Wo

14. Butterfly

15. Choi Ming

16. Chuk Yuen (South)

17. Wo Che

18. Oi Man

19. Ma Hang (Stanley Plaza)

20. Tin Yiu I

21. Siu Sai Wan

22. Tak Tin

23. Tin Shing

24. Choi Wan I

25. Choi Yuen

26. Ho Man Tin (Ho Man Tin Plaza)

27. Yat Tung

28. Chung On

29. Heng On

30. Tin Shui II

31. Sha Kok

32. Po Tat

33. Oi Tung

34. Shun Lee

35. Kwong Yuen

36. Cheung Hong

37. Fu Tung

38. Fu Shin

39. Hin Keng

40. Fung Tak

Appendix II

Retail Hierarchy of The Link REIT

Type of centre	Size	Description
District centres	Typically more than 10,000 sq.m., although certain smaller centres may also exhibit the characteristics of District Centres	• Typically larger and newer; part of larger Housing Estates • Catchments draw from the Adjacent Housing Estates, and more broadly from within the district (over 50,000 people) • May include some branded and popular retailers, including fashion, jewelry and gift vendors • Typically anchored by one or two supermarket chains, market stalls, branded/chain fast food outlets and/or large Chinese restaurants
Local centres	Typically between 5,000 and 10,000 sq.m.	• Typically smaller in size than District Centres; purpose-built and designed to cater to the requirements of the Adjacent Housing Estates' residents • Catchments consist of approximately 25,000 to 50,000 people • Typically contain trades that cater to the daily needs of the residents, such as supermarkets, market stalls, local restaurants and convenience stores
Estate centres	Typically less than 5,000 sq.m.	• Typically comprise a collection of shops on the ground floors and podiums of domestic residential buildings • Designed to meet the basic shopping needs of the particular estate • May not have traditional enclosed shopping centre layouts
Shops	Typically less than 1,000 sq.m.	• Collection of ancillary shops serving the residents and users of the Carpark Facilities

Source: The Link (2005, p. 120)

Appendix III

Master Programme for Asset Enhancement Projects

of The Link REIT

Project		Commencement	Target Completion
Tsz Wan Shan	Phases 1 & 2	Aug 2005	Completed
	Phase 3	Aug 2006	Completed
Hau Tak	Phases 1 & 2	Oct 2005	Completed
	Phase 3	Dec 2006	Completed
	Phase 4	Mar 2008	1st Quarter 2009
Lung Cheung	Phase 1	Nov 2005	Completed
	Phase 2	Nov 2006	Completed
Lok Fu	Phase 1	Aug 2006	Completed
	Phases 2-4	Jun 2007	4th Quarter 2010
Choi Ming		Apr 2007	Completed
Tai Wo		Jan 2007	4th Quarter 2008
Stanley	Phase 1	Aug 2006	2nd Quarter 2009
Chung On	Phases 1 & 2	Oct 2006	Completed
Chung Fu		Sep 2008	4th Quarter 2009

Wong Tai Sin	Phase 1	Aug 2006	Completed
	Phase 2	Apr 2008	1st Quarter 2009
Butterfly	Phase 1	Oct 2007	1st Quarter 2009
Cheung Fat	Phase 1	Oct 2006	3rd Quarter 2008
Wo Che		May 2007	2nd Quarter 2009
Lek Yuen		Mar 2007	4th Quarter 2008
Ming Tak		Sep 2006	Completed
Leung King		Sep 2006	3rd Quarter 2009
Siu Sai Wan		Oct 2007	4th Quarter 2009
Oi Man		Oct 2007	4th Quarter 2009
Kwai Fong		Mar 2008	1st Quarter 2009
Fu Tung	Phase 1	Nov 2007	4th Quarter 2008
Kai Tin		Deferred	Deferred
Tin Yiu		Mar 2007	4th Quarter 2008
Choi Yuen	Phase 1	Apr 2008	3rd Quarter 2009
Tak Tin		1st Quarter 2009	3rd Quarter 2010
Hing Wah		Apr 2009	1st Quarter 2010
Wan Tsui		Aug 2008	4th Quarter 2009

Source: The Link (2008, p. 47)