

**A STUDY ON POLICY PROPRIETY AND ECONOMIC FEASIBILITY OF NEW  
BUSINESS OF A STATE-OWNED ENTERPRISE;  
A CASE STUDY OF KOREA ELECTRIC POWER CORPORATION**

**By**  
**Choi, Myung Hee**

**THESIS**

Submitted to  
KDI School of Public Policy and Management  
in partial fulfillment of the requirements  
for the degree of  
**MASTER OF PUBLIC POLICY AND MANAGEMENT**

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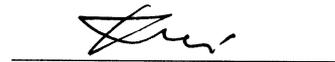
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## **ABSTRACT**

### **A STUDY ON POLICY PROPRIETY AND ECONOMIC FEASIBILITY OF NEW BUSINESS OF A STATE-OWNED ENTERPRISE; A CASE STUDY OF KOREA ELECTRIC POWER CORPORATION**

**By**

**Choi, Myung Hee**

A state-owned enterprise (SOE) is a legal entity set up by a government to undertake commercial activities on behalf of an owner government. In Korea, most SOEs are established by the relevant laws and the laws stipulate their establishment purpose, business, etc. Accordingly, to create their new business, it is essential to amend their relevant laws and to consult with the Government and the National Assembly in the legislative progress. However, although there are often revisions of the laws in relation to SOEs' new business, there is little research to study policy propriety and economic feasibility of SOEs' new business in Korea until now. It is important to review new business of SOEs in the perspective of management efficiency and establishment purpose of SOEs and it is also critical to examine business value and economic feasibility of new business. Lately, the Korea Electric Power Corporation Act (KEPCO Act) and Enforcement Decree of the Korea Electric Power Corporation Act (Enforcement Decree) were revised and went in effect as of October 13, 2010. The major revised content is to allow Korea Electric Power Corporation

(KEPCO) to do real estate business. This paper examines the policy propriety through reviewing various policy aspects with regards to KEPCO's new business and reviews commercial viability through the study on marketability and financial analysis of KEPCO's new business. As a generalized result of this study, there needs to be more governmental effort and consideration for autonomous and responsible management of SOEs in the legislative progress for more speedy and profitable business and it is needed for SOEs to develop new business by value-based strategy through thorough due diligence considering economic and environmental factors. It could be the great advantage to the public that economically feasible new business of SOEs contributes to lowering or holding down utility rates by additional revenue from the new business.

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**Dedicated to my beloved family**

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## I. INTRODUCTION

### A. Background and Purpose of Study

In Korea, according to the Act on the Management of Public Institutions, an institution established by other laws and invested by the government or an institution where the government either holds 50/100 or more of its equity, or holds 30/100 or more of its equity and exercises de-facto control over its policy decisions by designating its executive officers, etc. is designated as a Public Institution. Public Institutions are also classified as three categories; Government-invested Enterprise (GIE), Quasi-governmental Institution, Other Public Institution. Among those categories, GIE may be the most similar concept to a SOE in view of the notion that a SOE is a legal entity set up by a government to undertake commercial activities on behalf of an owner government while the legal status of GIEs varies from being a part of government to stock companies with a state as a regular stockholder. All GIEs are established by the relevant laws and the laws stipulate their purpose, business, etc. Accordingly, to create their new business, it is essential to amend their relevant laws after consulting with the Government and the National Assembly in the legislative progress. In this context, lately, KEPCO Act and Enforcement Decree were revised and went in effect as of October 13, 2010. The major revised content is to allow KEPCO, which is one of the largest GIEs in Korea to be established to enhance stabilization of supply of electric power by promoting development of power resources and ensuring the reasonable operation of electricity business, to do real estate business. Before the amendment of KEPCO Act, the Business of KEPCO stipulated in KEPCO Act had six categories; 1. Development of electric

power resources, 2.Generation, transmission, transformation and distribution of electricity and other related business activities, 3.Research & development of technology related to the business mentioned in item 1 and 2, 4.Overseas business related to the business mentioned in item 1 through 3, 5.Investment or contribution related to the business mentioned in item 1 through 4, 6.Business incidental to item 1 through 5, 7.Other activities entrusted by the government. Through this revision of KEPCO Act, utilization business of owning real estate is added to the Business of KEPCO.

In the perspective of management efficiency and establishment purpose of GIEs, it is important to study policy propriety and economic feasibility of GIEs' new business because GIEs play an important role in the national economy and have a profound effect on life of the people in Korea. The new business of GIEs should also contribute to the public interest by lowering or holding down utility rates by additional revenue from new business for its own justification. In this regard, this paper examines the policy propriety through reviewing various policy aspects of KEPCO's new business and reviews commercial viability through the study on marketability and financial analysis of KEPCO's new business to find proper direction of new business of SOEs in the perspective of policy procedures and economic feasibility.

## **B. Methodology and Thesis Structure**

### **a. Methodology of Study**

The literature on the relevant areas is referred to and compared with to review the policy and economic aspects. To study economic feasibility, a time series method is used to estimate

future outcomes of real estate investment. A time series method based on long-term data is useful to forecast business value and future trend of real estate market. This thesis uses housing market data from 1986 to 2010 of Seoul and 6 large cities in Korea and uses commercial building market data from 2002 to 2010 of Seoul and 6 large cities in Korea.

In addition to a time series, a comparison method is also used in this thesis. It is important to compare real estate business value with business value of other assets to weigh up its relative position in the asset investment market.

This study applies a discounted cash flow (DCF) valuation method to analyze micro-level real estate investment. Especially, DCF valuation method based on scenario analysis reflecting various situations in future is conducted.

Pro Forma analysis method is used to calculate return and cash flow of real estate business in the real cases. The scenario analysis based on Pro Forma analysis is also used to reflect various situations in future.

To study policy propriety, various reports and relevant laws from the Government, KEPCO and other organizations are referred to utilize available information.

## **b. Thesis Structure**

This thesis is comprised of five chapters. The chapter I mentions general background and purpose of this thesis. The chapter II reviews the literature on the relevant areas of this thesis. This chapter handles the background of KEPCO's new business and contents of revised relevant laws. This chapter also covers the precedent real estate utilization cases and precedent studies and theories. The chapter III reviews policy propriety. This chapter studies the government role in legislative progress, the matter of accordance with establishment purpose of KEPCO, the matter of confrontation with the Advance Plan of Public Institutions

of the present regime and matter of ripple effect to other GIEs with regard to KEPCO's new business. The chapter IV studies economic feasibility. In this chapter, marketability and business value of 4 types based on the long-term time series data are covered with various figures and tables. The financial case studies for KEPCO's real estate development are also analyzed in the chapter IV. Lastly, the chapter V draws the conclusion of the thesis and proposes recommendations for SOEs' new business.

## II. LITERATURE REVIEW

### A. Background of KEPCO Case

KEPCO has had continuous and inevitable idle properties because its transformer substations are being internalized and made underground continuously and its many electricity-supply sites are being incorporated in town planning and zoning. As shown in Table 1, the available utilization sites are up to 2,974 m<sup>2</sup> as of 2009. However, there was no stipulation to utilize idle properties in KEPCO Act.

<Table 1> Available Utilization Sites from Idle Properties of KEPCO (2009)

Classification	Area (Unit: thousand m <sup>2</sup> )
Immediate Utilization Sites	1,586
Conditional Utilization Sites	1,388

Source: KEPCO

KEPCO also has the conceptual logic which KEPCO's utilization and development of owning real estate are the faithful roles for public interest as a GIE by using profit from development of owning real estate for financial resources of electric power business, whereas, in terms of the simple disposal of idle properties to private sector, profit from development of real estate by private enterprises belongs to the private developers. Furthermore, there have been civil complaints and demonstrations against construction of electric power utilities as unpleasant facilities as shown in Table 2. In this regard, KEPCO anticipates that it is inevitable to construct eco-friendly electric power utilities in spite of high construction cost

seen in Table 3. It means that idle properties will be formed in accordance with construction of internalized or underground electric power facilities and more financial resources are needed.

<Table 2> Civil Complaints in relation with Transformer Substations (2005~2009)

Construction Opposition	Relocation	Internalization
24	25	7

Source: KEPCO

<Table 3> Construction Cost & Period according to Type of Transformer Substations

Type	Construction cost (billion KRW)	Construction period (month)
Internalization	10.8	84
Undergrounding	16.6	78
Complex	27.0	78

Source: KEPCO

## **B. Revised KEPCO Act & Enforcement Decree**

### **a. KEPCO Act**

The revised KEPCO Act passed in the Assembly plenary session on March 18, 2010 and is promulgated on April 12, 2010. The reason for revision of this Act is to prepare grounds to support legal basis for KEPCO to utilize its owning real estate effectively; to set up procedural regulations for real estate business to be done in optimal range in relation with

electricity business through stipulations of prior consent of the Ministry of Knowledge Economy (MKE) and development by trust or commission agencies; to limit use of profit from real estate business only for construction of eco-friendly electricity facilities. The revision details of KEPCO Act are to add utilization business of owning real estate to the Business; to develop owning real estate by trust or commission agencies; to use profit from development of owning real estate for financial resources for construction of eco-friendly electricity facilities such as internalization of transformation facilities and undergrounding of transmission • transformation • distribution facilities.

#### **b. Enforcement Decree**

The revised Enforcement Decree went in effect on October 13, 2010. The reason for revision of this Enforcement Decree is to provide matters delegated by KEPCO Act and those necessary for the enforcement. The revision details of Enforcement Decree is to limit range of utilization business of owning real estate through developing owning real estate only when exogenous factors occur, e.g. movement or internalization of transformer substations or office buildings, making transmission • transformation • distribution facilities underground and developing only when owning real estate is incorporated in town planning and zoning.

The revision details of Enforcement Decree is also to provide exceptional reason for KEPCO's direct development of its owning real estate without trust or commission agencies by enabling KEPCO to develop its owning real estate when trust or commission agencies do not file for public offering of the business.

#### **C. Precedent Real Estate Utilization Case of Public Institution**

There are several cases of owning real estate utilization by public institutions in Korea and most cases are the national-land development by the Ministry of Strategy and Finance (MOSF) and Korea Asset Management Corporation (KAMCO). Developed buildings were recently completed (2007~2010) and it is, therefore, difficult to analyze economic feasibility. However, reviewing the case of Namdaemun Tax Office building, it is estimated that the value of developed buildings greatly increases after development. Initially, Namdaemun Tax Office was a building with one story below and three above the ground only for the tax office use. The building was developed into the building with four stories below and fifteen above the ground for the tax office and other renters in 2008. The total building floor area upsized from 2,496 m<sup>2</sup> to 26,937 m<sup>2</sup> and the floor space index increases from 57% to 600%. The present price of the building is estimated to be worth about eighty billion KRW. This price has reached four times its initial price. In addition, the building makes big profit through rental charges.

Gasam-dong site development is the case of idle site utilization. A commercial building was built in the idle nation-land and the rental charge increases from 13million KRW per year of simple land rent to 159million KRW per year of building rental charges.

Although current real estate utilization cases are actually rare, it seems to be on the threshold of general trend to utilize owning properties aggressively in the Korean Government since the Board of Audit and Inspection urged the Government to develop the legal and systematic ground for utilization of national-land apposite to its features in 2004.

## **D. Precedent Study and Theory**

### **a. Management Policy of SOEs**

In fact, there has been little research papers to study policy direction of SOEs' new business in the perspective of management efficiency and establishment purpose. In terms of the management efficiency and the performance improvement of SOEs, most studies covered privatization of SOEs as their subject. There are, however, very few of research papers to deal with the very management policy of SOEs and regulatory procedures of their businesses. According to Song (1991), the inefficiency of SOEs is caused by SOEs' tendency which SOEs do not closely analyze the investment efficiency when deciding the new business (p.3). In this regard, Song asserted that it is necessary for SOEs to be empowered to do responsibility management. Song also claimed that one of the causes which make SOEs inefficient is the excessive regulation by the government (p.5) and that the autonomous management of SOEs, accordingly, should be reinforced for more efficient management of SOEs (p.10). World Bank (2004), meanwhile, said that one of the most critical tasks for policymakers in network utilities is designing and implementing stable, effective regulation in its policy research report (p.17). For credible regulation, World Bank asserted that regulatory procedures should be predictable, accountable. From this point of view, it was adduced that regulatory bodies should have competent, nonpolitical, professional staff and be familiar with good regulatory practices, and regulatory institutions must operate in a statutory framework that fosters competition and market-like regulatory policies and practices, and regulatory bodies should be subject to substantive and procedural requirements that ensure integrity, independence, transparency and accountability (p.18).

## **b. Financial Analysis of Real Estate Business**

Generally, to analyze real estate business feasibility, the present value of real estate and the future cash flow are very crucial factors for the investment. One of the useful tools to determine the present value is the Gordon Growth Model named after Myron J. Gordon

(1959). Originally, the Gordon Growth Model is a kind of variant of the discount cash flow model for stocks. Although this model assumes that the earnings growth is constant for perpetuity and it is rare to find a growing perpetual annuity with fixed rates of growth and true perpetual cash flow generation, it is known as a useful method for difficult-to-resolve valuations of real estate, equities and other assets. In terms of financial analysis for real estate, Gentler and Miller (2007) applied various financial analysis tools to commercial real estate business at the micro-level. Gentler and Miller introduced useful methods such as 'relation between return expectations and property values in the asset market', 'discounted cash flow valuation procedure', 'blended IRR', 'relationship of the cap rate to the total return', and 'pro forma and cash flow projection'.

### III. ANALYSIS OF POLICY PROPRIETY

#### A. Government Role in Legislative Progress

Usually, GIEs in Korea have a prior consultation with the Government to amend relevant laws. In terms of KEPCO, it was necessary to consult with MKE to revise KEPCO Act and Enforcement Decree for the new business because MKE has responsibility to instruct and supervise the business of KEPCO to the extent necessary for accomplishment of purpose of KEPCO according to article 18 of KEPCO Act. MOSF has not only responsibility for the management and monitoring of public institutions' operation but also role of planning and management of policies for treasury, government properties, government accounting and the national debt. In this regard, it was also necessary for KEPCO to consult with MOSF for the new business. In fact, KEPCO had consulted with MKE and MOSF for the new business in the legislative progress. Basically, both government agencies agreed to KEPCO's new business because not only was KEPCO's logic reasonable but there was also a general consensus to develop owning properties and to use profit from development of owning properties for financial resources of electric power business. However, there was a little different opinion in detail. At first, KEPCO's proposal for the new business was a little extensive and more commercial. In terms of the range of utilization business of owning real estate, KEPCO's draft was four necessary cases; 1.Undergrounding or reconstruction of transformer substations or office buildings by deterioration, 2.Movement or consolidation of electric power resources facilities, 3.Incorporation in town planning and zoning, 4.Civil complaints sites acknowledged by the minister of MKE. In consultation with MKE, the range

was reduced and trimmed into three necessary cases; 1.Exogenous-factor occurrence such as movement or internalization of transformer substations or office buildings, undergrounding of transmission • transformation • distribution facilities, 3.Incorporation in town planning and zoning. This adjustment by MKE is thought to be reasonable because the concept of civil complaints sites is too extensive and vague. However, in consultation between KEPCO and MKE, it was decided that KEPCO's utilization business of its owning real estate should be approved by the minister of MKE in advance. For better safety of the business, it is necessary to have more reviewers, but a complicated approval procedure can lead to business delay and harm autonomous and responsible management of KEPCO guaranteed by the Act on the Management of Public Institutions.

In terms of the use ranges of profit from utilization business of owning real estate, firstly, KEPCO wanted to use profit for financial resources of electric power business extensively, but it was limited to the financial resources for construction of eco-friendly electricity facilities such as internalization of transformation facilities and undergrounding of transmission • transformation • distribution facilities in consultation with MKE. This limitation by MKE on profit is thought to be reasonable because ensuring transparency can be more guaranteed by the limitation and it can be positive about tackling civil complaints in relation with construction of transmission • transformation • distribution facilities but negatively, it can make KEPCO's more efficient fund management difficult.

In consultation with MOSF, it was agreed to develop owning real estate by trust or commission agencies in accordance with the National Property Act, the Public Property and Commodity Management Act, the Enforcement Decree of the Financial Investment Services and the Capital Markets Act. This development way was considered from the viewpoint of securing real estate business expertise and avoiding business risk because development funds are raised by trust or commission agencies and development projects are performed with the

name of trust or commission agencies. However, when it comes to the business loss, it totally belongs to the consignor (KEPCO). Furthermore, there are almost 40% consignment fees or commission in business profit. Considering continuous occurrence of KEPCO's development sites, it would be tremendous profit decrease to KEPCO. All conditions considered, it would be better for KEPCO to perform the development project directly and to raise business competitiveness because KEPCO already has enough experience and employees in construction areas due to the nature of the electric power enterprises. In position of MOSF which is responsibility for the management and monitoring of public institutions' operation and carries out the Advancing Plan of Public Institutions, MOSF would feel burdened allowing KEPCO to do the direct development business because it can give an impression that KEPCO branches out into non-establishment-purpose business in semblance and it could result in the negative public opinion or misunderstanding.

## **B. Matter of Accordance with Establishment Purpose**

The establishment purpose of KEPCO is to enhance stabilization of supply of electric power by promoting development of power resources and ensuring the reasonable operation of electricity business. Therefore, the utilization business of owning real estate does not seem to accord with establishment purpose. However, the idle properties to be developed are generated from KEPCO's existing or new electric power facilities and if profit from development of owning real estate by enhancement of effective value is used for financial resources of electric power business, it is not out of line of the reasonable operation of electricity business. Provided that electricity charge reduction rate is profit from development divided by sales of electricity, profit from development of owning real estate can be a

reduction factor of electricity charges. It is not in reason for KEPCO to be a real estate developer with utilization business of owning real estate digressing from establishment purpose.

### **C. Matter of Confrontation with Advancing Plan of Public Institutions**

The Korean government is in the progress of carrying out the Advancing Plan of Public Institutions to improve management efficiency by improving management efficiency and preventing management overlap, removing nonessential functions and reducing excessively large budgets and assets. As a part of 6<sup>th</sup> Advancing Plan of Public Institutions (2009) by MOSF, the Korean Government pursues sales of the useless properties of public institutions for the financial health. In case of KEPCO, the target properties for sales are the non-electric-power-business properties by land use transition. The properties for KEPCO's new business are in use for the operation of electricity business and formed with the reason being that transformer substations are internalized or made underground, or electricity-supply sites are incorporated in town planning and zoning. In this regard, it is possible that utilization business of owning real estate of KEPCO is not confronted with the Advancing Plan of Public Institutions.

### **D. Matter of Ripple Effect to Other GIEs**

It is thinkable that KEPCO's participation in real estate development business has the possibility to affect other GIEs' business and other GIEs imprudently pursue real estate

business following the precedent of KEPCO. But the range of real estate development business of KEPCO is limited according to the relevant laws and many other GIEs already have legal grounds for real estate development business. Table 4 shows those legal grounds. Most of them stipulate for development of adjacent areas of the relevant GIEs' facilities. Therefore, the influence of KEPCO's new business on other GIEs is expected to be very slight.

<Table 4> Law Making Example of GIEs in Korea for Real Estate Development

Name of GIEs	Legal grounds
Korea Railroad Corporation	The Korea Railroad Corporation Act (art.9, sec. 1, cl. 5)
Inchon International Airport Corporation	The Incheon International Airport Corporation Act (art.10, sec. 1, cl. 3)
Korea Rural Community Corporation	The Korea Rural Community Corporation and Agricultural Land Management Fund Framework Act (art.10, sec. 1, cl. 12)
Korea Water Resource Corporation	The Korea Water Resource Corporation Act (art.9, sec. 1, cl. 8)
Korea Expressway Corporation	The Korea Expressway Corporation Act (art.10, sec. 1, cl. 12)

Source: Ministry of Government Legislation (<http://www.law.go.kr/main.html>)

## IV. ANALYSIS OF ECONOMIC FEASIBILITY

### A. Marketability & Business Value

Generally, the development of KEPCO's owning properties can be categorized into four types; new housing construction and sale, new housing construction and rental, new office building construction and rental, new store building construction and rental. The time series data of each type was reviewed in order to examine and forecast the business value. Given business value of location, statistics of Seoul and Six large cities are used.

#### a. New Housing Construction and Sales

Provided that KEPCO constructs housing building, considering better use of sites, the construction of apartment buildings will be most profitable way in comparison with other forms of housing. As appears by Table 5 and 7 and Figure 1 and 3, apartments purchase price has increased steadily. Especially, the growth rate of Seoul is remarkable. The average annual growth rate over the end of previous year from 1986 to Dec. of 2010 is 7.9% in Seoul and 6.1% in 6 large cities. These numbers show surprising growth in apartments purchase price. By the base price index of December 2008 as 100.0, the Apartments Purchase Price Index of Seoul has doubled from 2002 to 2008. However, the growth rate and fluctuation of apartments purchase price over the end of previous year have been slowing down since 2007 in Seoul and 2004 in 6 large cities as seen in Table 6 and 8 and Figure 2 and 4. The Apartments Purchase Price Index of Seoul in 2010 is almost the same as that of 2008. Therefore, it is hard to make as huge profits as those of the past through the new construction of apartment

buildings and sales. Housing markets have so many variables such as transportation, amenities, school districts, etc. and are very unpredictable. Therefore, it is needed to develop by value-based analysis considering economic and environmental factors including locations.

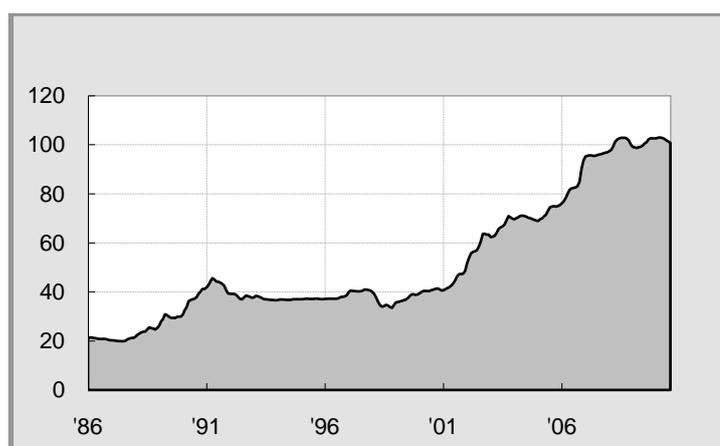
<Table 5> Apartments Purchase Price Index: Seoul

(Unit: %, 2008.12=100.0%)

Mon. Yr.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>1986</b>	21.4	21.4	21.4	21.2	21.1	20.9	20.8	20.8	20.8	20.8	20.5	20.3
<b>1987</b>	20.3	20.2	20.1	20.0	20.0	19.9	19.9	20.1	20.7	21.0	21.2	21.2
<b>1988</b>	21.7	22.5	23.0	23.5	23.7	23.8	24.7	25.5	25.2	25.1	24.7	25.2
<b>1989</b>	26.1	27.9	28.9	30.9	30.5	29.9	29.4	29.4	29.3	29.8	29.9	29.9
<b>1990</b>	30.6	32.5	33.8	36.2	36.7	37.0	37.2	37.8	39.2	40.1	41.2	41.2
<b>1991</b>	41.8	42.7	44.2	45.6	45.1	44.3	44.1	43.8	43.2	42.5	40.7	39.3
<b>1992</b>	39.2	39.2	39.2	38.9	38.0	37.1	36.9	37.7	38.5	38.3	38.0	37.6
<b>1993</b>	37.8	38.3	38.2	37.9	37.5	37.1	37.0	36.9	36.8	36.7	36.7	36.6
<b>1994</b>	36.6	36.9	36.9	36.9	36.8	36.8	36.8	36.8	37.0	37.0	37.0	37.0
<b>1995</b>	37.0	37.1	37.1	37.3	37.1	37.1	37.1	37.2	37.3	37.1	37.1	37.0
<b>1996</b>	37.1	37.2	37.2	37.2	37.2	37.2	37.2	37.4	37.9	38.0	38.2	38.6
<b>1997</b>	39.8	40.5	40.4	40.3	40.2	40.2	40.2	40.5	40.9	40.9	40.8	40.6
<b>1998</b>	40.0	39.1	37.6	35.9	34.5	33.9	34.2	34.7	34.4	33.8	33.5	34.6
<b>1999</b>	35.7	35.9	36.1	36.3	36.6	36.9	37.5	38.3	39.0	39.0	38.8	39.0
<b>2000</b>	39.4	40.0	40.4	40.4	40.3	40.3	40.7	40.9	41.2	41.4	41.1	40.6
<b>2001</b>	40.6	41.1	41.5	41.9	42.6	43.5	44.7	46.4	47.2	47.3	47.4	48.5
<b>2002</b>	51.6	53.9	55.7	56.3	56.6	57.0	58.5	60.7	63.7	63.7	63.3	63.4
<b>2003</b>	62.3	62.5	62.9	64.1	65.7	66.3	66.7	67.5	69.2	70.9	70.4	69.8
<b>2004</b>	69.6	70.1	70.5	71.0	71.1	70.9	70.7	70.3	70.0	69.7	69.4	69.1
<b>2005</b>	68.9	69.6	70.0	70.8	71.5	73.0	74.5	74.8	74.9	74.8	75.0	75.4
<b>2006</b>	76.1	76.9	78.3	80.1	81.7	82.2	82.4	82.6	83.1	85.0	90.3	93.6
<b>2007</b>	95.2	95.5	95.7	95.7	95.5	95.5	95.8	96.0	96.2	96.5	96.8	96.9
<b>2008</b>	97.4	97.9	99.2	101.2	102.1	102.6	102.8	102.8	102.8	102.5	101.7	100.0
<b>2009</b>	99.1	98.9	98.7	99.0	99.2	99.7	100.6	101.1	102.3	102.6	102.6	102.6
<b>2010</b>	102.7	102.9	102.9	102.7	102.4	101.8	101.3	100.8	100.5	100.4		

(Source: KB)

<Figure 1> Apartments Purchase Price Index: Seoul



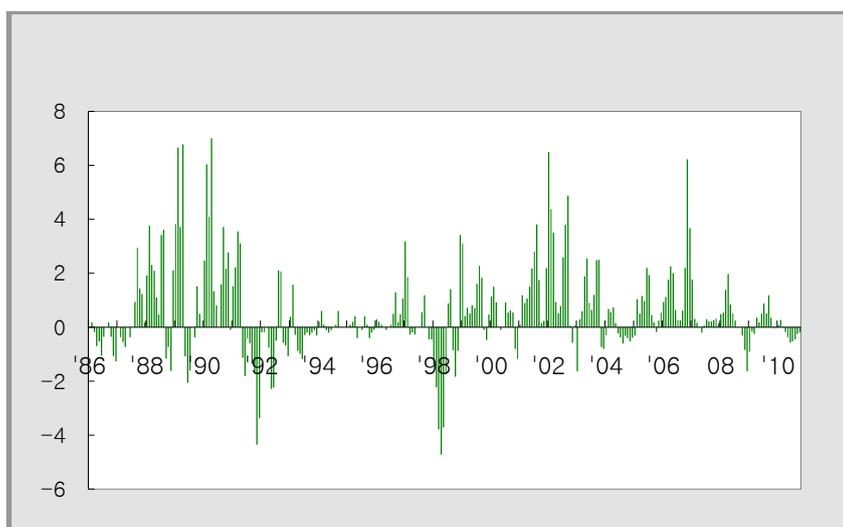
<Table 6> Fluctuation of Apartments Purchase Price: Seoul

(Unit: %)

Yr	Over the previous month												Over the end of last year
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
<b>1986</b>		0.2	-0.2	-0.7	-0.5	-1.1	-0.4	0.0	0.2	-0.4	-1.1	-1.3	
<b>1987</b>	0.0	-0.4	-0.5	-0.7	0.0	-0.4	0.0	0.9	3.0	1.4	1.2	0.2	<b>4.7</b>
<b>1988</b>	1.9	3.8	2.3	2.1	1.1	0.5	3.4	3.6	-1.2	-0.7	-1.6	2.1	<b>18.5</b>
<b>1989</b>	3.8	6.7	3.7	6.8	-1.1	-2.1	-1.6	0.0	-0.4	1.5	0.5	0.0	<b>18.8</b>
<b>1990</b>	2.5	6.0	4.1	7.0	1.3	0.8	0.7	1.6	3.7	2.2	2.8	-0.1	<b>37.6</b>
<b>1991</b>	1.5	2.2	3.6	3.1	-1.1	-1.8	-0.4	-0.6	-1.4	-1.6	-4.4	-3.4	<b>-4.5</b>
<b>1992</b>	-0.2	-0.2	0.0	-0.8	-2.3	-2.2	-0.5	2.1	2.1	-0.6	-0.7	-1.1	<b>-4.3</b>
<b>1993</b>	0.4	1.6	-0.3	-0.9	-1.0	-1.2	-0.3	-0.2	-0.3	-0.2	-0.1	-0.3	<b>-2.8</b>
<b>1994</b>	0.2	0.6	0.1	-0.1	-0.2	-0.1	0.0	0.1	0.6	0.0	0.0	0.0	<b>1.2</b>
<b>1995</b>	0.0	0.1	0.2	0.4	-0.4	0.0	-0.1	0.4	0.1	-0.4	-0.2	-0.1	<b>0.0</b>
<b>1996</b>	0.3	0.2	0.1	0.0	-0.1	0.0	0.1	0.5	1.3	0.2	0.5	1.1	<b>4.2</b>
<b>1997</b>	3.2	1.9	-0.3	-0.2	-0.3	0.0	0.0	0.6	1.2	0.0	-0.5	-0.5	<b>5.2</b>
<b>1998</b>	-1.4	-2.2	-3.8	-4.7	-3.7	-1.7	0.9	1.4	-0.9	-1.8	-0.9	3.4	<b>-14.6</b>
<b>1999</b>	3.1	0.4	0.7	0.5	0.8	0.7	1.6	2.3	1.8	-0.1	-0.5	0.5	<b>12.5</b>
<b>2000</b>	1.1	1.5	0.9	0.0	-0.1	0.0	0.9	0.5	0.6	0.5	-0.8	-1.2	<b>4.2</b>
<b>2001</b>	0.1	1.2	0.9	1.1	1.5	2.2	2.8	3.8	1.8	0.2	0.2	2.2	<b>19.3</b>
<b>2002</b>	6.5	4.4	3.5	0.9	0.5	0.8	2.6	3.8	4.9	0.1	-0.6	0.1	<b>30.8</b>
<b>2003</b>	-1.6	0.3	0.6	1.9	2.5	0.9	0.6	1.2	2.5	2.5	-0.7	-0.8	<b>10.2</b>
<b>2004</b>	-0.3	0.7	0.6	0.7	0.2	-0.2	-0.4	-0.6	-0.3	-0.4	-0.5	-0.4	<b>-1.0</b>
<b>2005</b>	-0.3	1.0	0.5	1.2	1.0	2.2	1.9	0.4	0.2	-0.2	0.2	0.5	<b>9.1</b>
<b>2006</b>	0.9	1.1	1.8	2.3	2.0	0.6	0.3	0.3	0.6	2.2	6.2	3.7	<b>24.1</b>
<b>2007</b>	1.8	0.3	0.2	0.0	-0.2	0.1	0.3	0.2	0.2	0.3	0.3	0.1	<b>3.6</b>
<b>2008</b>	0.5	0.5	1.4	2.0	0.8	0.5	0.2	0.0	0.0	-0.3	-0.8	-1.6	<b>3.2</b>
<b>2009</b>	-0.9	-0.2	-0.3	0.4	0.2	0.5	0.9	0.5	1.2	0.3	0.0	0.0	<b>2.6</b>
<b>2010</b>	0.1	0.3	0.0	-0.2	-0.4	-0.6	-0.5	-0.5	-0.3	-0.2			<b>-2.2</b>

(Source: KB)

<Figure 2> Apartments Purchase Price over Previous Month (%): Seoul



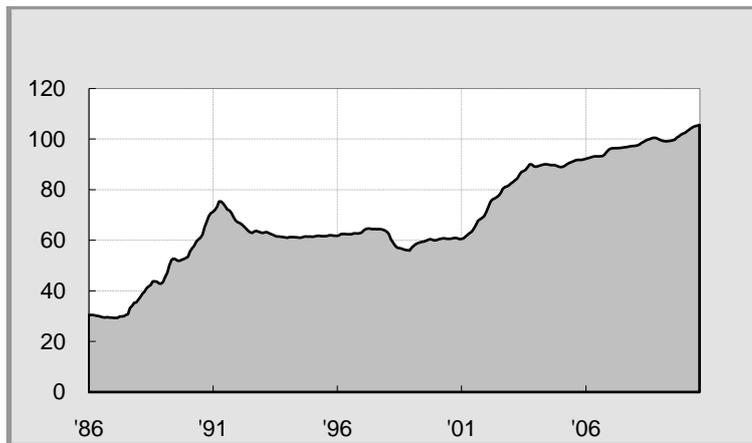
<Table 7> Apartments Purchase Price Index: 6 Large Cities

(Unit: %, 2008.12=100.0%)

Mon. Yr.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>1986</b>	30.4	30.4	30.4	30.3	30.1	30.0	29.7	29.5	29.5	29.6	29.5	29.4
<b>1987</b>	29.3	29.3	29.3	29.8	29.9	30.0	30.4	30.8	33.2	34.0	35.3	35.4
<b>1988</b>	36.4	37.5	38.8	39.6	41.0	41.7	42.3	43.7	43.7	43.6	42.9	42.8
<b>1989</b>	43.5	45.5	47.1	50.1	52.1	52.7	52.4	51.9	51.9	52.2	52.6	53.0
<b>1990</b>	53.4	55.6	56.8	57.8	59.4	60.3	61.0	62.2	65.1	67.2	69.4	70.7
<b>1991</b>	71.1	71.9	73.1	75.3	75.3	74.5	73.4	72.1	71.8	70.7	69.1	67.7
<b>1992</b>	67.1	66.8	66.2	65.4	64.6	63.7	63.1	62.9	63.4	63.7	63.4	63.1
<b>1993</b>	62.9	63.1	63.2	62.8	62.4	62.1	61.7	61.5	61.5	61.3	61.2	61.1
<b>1994</b>	61.0	61.2	61.2	61.2	61.1	61.1	61.0	61.1	61.4	61.5	61.4	61.5
<b>1995</b>	61.3	61.5	61.6	61.8	61.6	61.6	61.6	61.6	61.9	61.9	61.8	61.8
<b>1996</b>	61.7	61.9	62.4	62.4	62.4	62.3	62.4	62.3	62.7	62.7	62.6	62.7
<b>1997</b>	63.1	64.0	64.4	64.6	64.5	64.4	64.4	64.4	64.4	64.4	64.2	63.9
<b>1998</b>	63.4	62.4	60.3	59.1	57.9	57.1	56.9	56.7	56.4	56.1	56.0	55.9
<b>1999</b>	57.0	57.8	58.4	58.9	59.1	59.4	59.5	59.8	60.2	60.4	60.2	59.9
<b>2000</b>	60.0	60.3	60.5	60.7	60.7	60.5	60.5	60.6	60.8	60.9	60.8	60.5
<b>2001</b>	60.5	60.7	61.4	62.1	62.8	63.4	64.5	66.0	67.6	68.2	68.8	69.5
<b>2002</b>	71.1	73.1	75.1	76.1	76.5	77.0	77.6	78.6	80.3	81.0	81.2	81.7
<b>2003</b>	82.4	83.0	83.7	84.4	85.8	87.0	87.3	87.8	88.8	90.0	89.9	89.2
<b>2004</b>	89.0	89.2	89.5	89.8	89.9	90.0	89.9	89.7	89.6	89.7	89.4	89.0
<b>2005</b>	88.9	89.0	89.4	90.0	90.5	90.8	91.1	91.5	91.7	91.7	91.7	91.9
<b>2006</b>	92.1	92.3	92.6	92.9	93.1	93.1	93.1	93.1	93.2	93.7	94.7	95.6
<b>2007</b>	96.1	96.3	96.3	96.4	96.4	96.5	96.6	96.7	96.8	97.0	97.1	97.2
<b>2008</b>	97.3	97.4	97.8	98.4	98.9	99.3	99.7	99.9	100.3	100.4	100.4	100.0
<b>2009</b>	99.6	99.3	99.1	99.0	99.1	99.3	99.4	99.7	100.5	101.0	101.7	102.1
<b>2010</b>	102.4	103.0	103.6	104.3	104.7	105.1	105.2	105.5	106.0	106.7		

(Source: KB)

<Figure 3> Apartments Purchase Price Index (%): 6 Large Cities



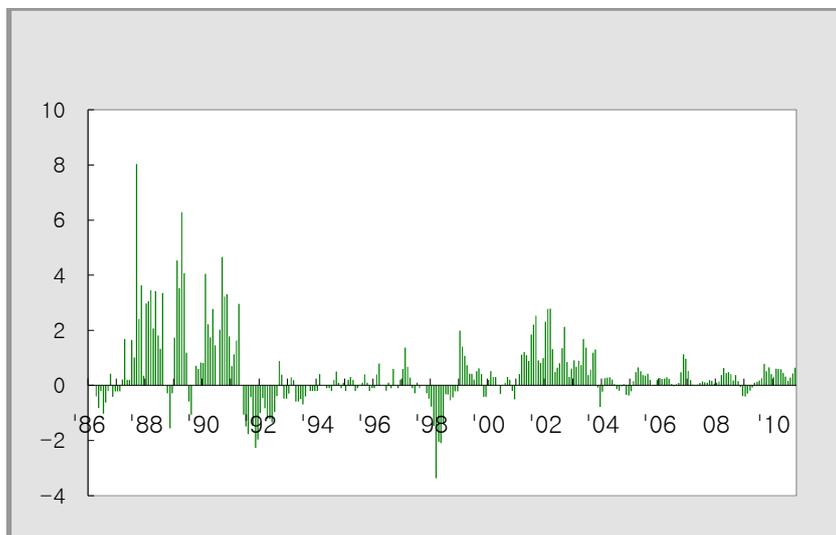
<Table 8> Fluctuation of Apartments Purchase Price: 6 Large Cities

(Unit: %)

Yr	Over the previous month												Over the end of last year
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
<b>1986</b>		0.0	0.0	-0.4	-0.8	-0.2	-1.0	-0.6	-0.2	0.4	-0.4	-0.2	
<b>1987</b>	-0.2	-0.2	0.2	1.7	0.2	0.2	1.6	1.0	8.0	2.4	3.6	0.4	<b>20.4</b>
<b>1988</b>	3.0	3.1	3.5	2.1	3.4	1.8	1.3	3.4	0.0	-0.3	-1.6	-0.3	<b>20.9</b>
<b>1989</b>	1.7	4.5	3.5	6.3	4.1	1.2	-0.6	-1.1	0.0	0.7	0.6	0.8	<b>23.8</b>
<b>1990</b>	0.8	4.0	2.2	1.7	2.8	1.5	1.1	2.0	4.7	3.2	3.3	1.8	<b>33.3</b>
<b>1991</b>	0.7	1.1	1.6	3.0	0.0	-1.1	-1.5	-1.8	-0.4	-1.5	-2.3	-2.0	<b>-4.1</b>
<b>1992</b>	-1.0	-0.5	-0.8	-1.2	-1.2	-1.3	-1.0	-0.4	0.9	0.4	-0.5	-0.5	<b>-6.9</b>
<b>1993</b>	-0.3	0.3	0.2	-0.6	-0.6	-0.5	-0.7	-0.4	0.0	-0.2	-0.2	-0.2	<b>-3.1</b>
<b>1994</b>	-0.2	0.4	0.0	0.0	-0.1	-0.1	-0.2	0.2	0.5	0.1	-0.1	0.1	<b>0.6</b>
<b>1995</b>	-0.2	0.2	0.3	0.2	-0.2	-0.1	0.0	0.1	0.4	0.1	-0.2	-0.1	<b>0.5</b>
<b>1996</b>	-0.1	0.4	0.8	0.0	0.0	-0.2	0.1	-0.1	0.6	0.0	-0.1	0.2	<b>1.6</b>
<b>1997</b>	0.6	1.4	0.7	0.3	-0.1	-0.3	0.1	-0.1	0.0	0.0	-0.3	-0.5	<b>1.8</b>
<b>1998</b>	-0.8	-1.5	-3.4	-2.0	-2.1	-1.4	-0.3	-0.3	-0.5	-0.4	-0.2	-0.2	<b>-12.5</b>
<b>1999</b>	2.0	1.4	1.1	0.7	0.4	0.4	0.2	0.5	0.6	0.4	-0.4	-0.4	<b>7.2</b>
<b>2000</b>	0.2	0.5	0.3	0.3	0.0	-0.3	0.0	0.1	0.3	0.2	-0.2	-0.5	<b>0.9</b>
<b>2001</b>	0.0	0.4	1.1	1.2	1.1	0.9	1.9	2.2	2.5	0.9	0.8	1.0	<b>14.9</b>
<b>2002</b>	2.3	2.8	2.8	1.3	0.5	0.6	0.8	1.4	2.1	0.8	0.3	0.6	<b>17.6</b>
<b>2003</b>	0.9	0.7	0.9	0.7	1.7	1.4	0.4	0.6	1.2	1.3	-0.1	-0.8	<b>9.2</b>
<b>2004</b>	-0.2	0.3	0.3	0.3	0.2	0.0	-0.1	-0.2	0.0	0.0	-0.3	-0.4	<b>-0.2</b>
<b>2005</b>	-0.2	0.2	0.5	0.7	0.5	0.4	0.4	0.4	0.2	0.0	0.0	0.2	<b>3.2</b>
<b>2006</b>	0.3	0.2	0.3	0.3	0.2	0.1	0.0	0.0	0.1	0.5	1.1	1.0	<b>4.1</b>
<b>2007</b>	0.5	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	<b>1.6</b>
<b>2008</b>	0.1	0.1	0.4	0.6	0.4	0.5	0.4	0.2	0.4	0.2	-0.1	-0.4	<b>2.9</b>
<b>2009</b>	-0.4	-0.3	-0.2	-0.1	0.1	0.1	0.2	0.3	0.8	0.5	0.7	0.4	<b>2.1</b>
<b>2010</b>	0.3	0.6	0.6	0.6	0.5	0.3	0.2	0.3	0.4	0.6			<b>4.5</b>

(Source: KB)

<Figure 4 > Apartments Purchase Price over Previous Month (%): 6 Large Cities



#### **b. New Housing Construction and Rental**

In housing rental market in Korea, there is peculiar rental system called as Jeonse. Instead of paying monthly rent, a renter should put down a lump-sum deposit usually amounting to 50~90% of market value of real estate for a 1~3-year tenancy. If KEPCO constructs apartment buildings and performs rental business, the rent type will not be Jeonse. It will be monthly rent. But to forecast the business value of housing rent, time series data of Jeonse will be useful because there are not enough monthly rent data to analyze in Korea yet . As shown in Figure 5 and 7, apartments Jeonse price has increased more sharply than apartments purchase price except for the period of the East Asia Financial Crisis. The average growth rate over the end of previous year from 1986 to Dec. of 2010 is 8.6% in Seoul and 7.4% in 6 large cities as shown in Table 10 and 12. These numbers show higher growth rates than those of apartments purchase price. By the base price index of December 2008 as 100.0, the Apartments Jeonse Price Index of Seoul has doubled from 1998 to 2008. Furthermore, in

spite of slowdown of the apartments purchase price in 2009 and 2010, Jeonse price has been continuing its growth in both Seoul and 6 large cities. However, the growth rates of apartments Jeonse price over the end of previous year fluctuate wildly as influenced by various factors. Therefore, it could be thought to analyze the Ratio of Jeonse to Purchase

Price for Apartment by application of Gordon Growth Model;  $PV = \frac{CF}{r - g}$  (PV = Present

Value, CF = Cash Flow, r = Rate of Return, g = constant growth rate over time, that is, with g where  $g < r$ )

In terms of apartments Jeonse, Gordon Growth Model can be converted to as: (1)

$$\text{ApartmentsPrice} = \frac{\text{ApartmentsPrices} * \text{RatioOfJeonseToPurchasePrice} * \text{InterestRate}}{\text{InterestRate} - \text{ExpectedGrowthRateOfRent}}$$

And Expected Growth Rate of Jeonse can be derived from Equation (2) as:

$$\text{Expected Growth Rate of Jeonse} = \text{Interest Rate} * (1 - \text{Ratio of Jeonse to Purchase Price})$$

According to this assumed equation, the more ratio of Jeonse to Purchase Price of apartments rises, the less Expected Growth Rate of Jeonse of apartments drops. Figure 9 shows the ratio of Jeonse to Purchase Price of apartments of Southern Seoul, Northern Seoul and 6 large cities from 1999 to December 2010. In these table and figure, Southern Seoul has had the lowest Ratio of Jeonse to Purchase Price and the Ratio of Jeonse to Purchase Price of Northern Seoul continues its downward trend after 2002 while the Ratio of Jeonse to Purchase Price of 6 large cities remains steady level. In this regard, Table 13 shows that the Expected Growth Rate of Rent of Southern Seoul has been the highest. The average Expected Growth Rate of Rent of Southern Seoul is 2.8% although there are different rates in its sub-areas and at its time period.

With regards to Apartments Jeonse Price Index by Size, as appears by Figure 10 and Table 14, Jeonse Price Index of medium (more than 62.8m<sup>2</sup> and less than 95.9 m<sup>2</sup>) and small size

(less than 62.8 m<sup>2</sup>) apartments has surpassed that of large size (more than 95.9 m<sup>2</sup>) apartments since 2009.

Synthetically, although housing rent markets are unstable and have so many variables, business value of housing rent markets in Seoul and 6 large cities seems not bad and housing rental market will continue their growth for the time being. Rental service of small and medium size apartments will likely be more profitable than that of large size. KEPCO needs to consider above points when constructing apartment buildings and performs rental business.

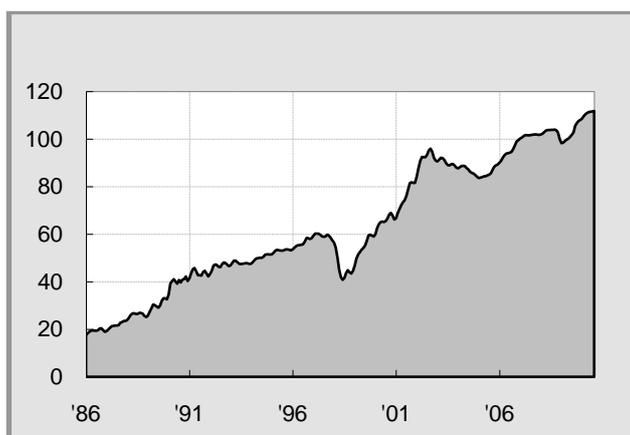
<Table 9> Apartments Jeonse Price Index: Seoul

(Unit: %, 2008.12=100.0%)

Mon. Yr.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>1986</b>	17.6	18.3	19.0	19.4	19.6	19.4	19.4	19.6	20.4	20.4	19.6	18.9
<b>1987</b>	19.3	19.9	20.7	21.3	21.4	21.6	21.6	21.8	22.8	23.0	23.5	23.5
<b>1988</b>	23.9	24.9	26.1	26.6	26.8	26.4	26.5	26.9	26.9	26.5	25.6	25.2
<b>1989</b>	25.8	27.4	28.8	30.4	30.2	29.6	29.1	29.9	32.0	33.1	33.0	32.6
<b>1990</b>	34.6	39.3	40.3	41.1	40.0	39.2	40.7	39.7	40.9	41.1	42.2	40.3
<b>1991</b>	41.3	43.5	45.3	45.8	44.4	42.8	42.7	42.6	44.1	44.6	43.5	42.2
<b>1992</b>	43.2	44.6	46.8	47.3	47.1	46.3	46.2	47.4	48.1	47.9	47.2	46.5
<b>1993</b>	47.0	48.0	48.9	48.8	48.1	47.5	47.4	47.6	47.7	47.9	47.7	47.5
<b>1994</b>	47.7	48.4	49.3	49.8	49.9	50.2	50.0	50.5	51.4	51.5	51.5	51.4
<b>1995</b>	51.6	52.3	53.1	53.5	53.2	53.1	53.1	53.3	53.6	53.6	53.5	53.2
<b>1996</b>	53.6	54.4	55.0	55.4	55.4	55.6	56.9	56.9	58.4	58.3	58.0	58.3
<b>1997</b>	59.4	60.3	60.3	60.2	59.8	59.1	58.9	59.0	59.8	59.4	58.6	57.4
<b>1998</b>	56.5	54.4	50.3	45.0	42.0	40.8	41.6	43.7	44.9	44.0	43.5	44.6
<b>1999</b>	46.8	49.8	51.4	52.5	53.5	54.2	55.2	57.2	59.5	59.8	59.4	59.0
<b>2000</b>	59.9	62.5	64.2	65.1	65.3	65.2	65.5	66.6	68.2	69.0	67.8	66.2
<b>2001</b>	66.7	68.9	70.6	72.2	73.5	74.3	76.2	78.9	81.5	81.9	81.6	81.6
<b>2002</b>	84.3	87.8	90.8	92.5	92.4	92.4	93.4	95.3	96.0	94.6	92.1	91.0
<b>2003</b>	90.6	91.4	92.2	92.0	91.3	89.9	89.1	89.0	89.5	89.6	88.9	88.0
<b>2004</b>	87.7	88.2	88.7	88.8	88.6	87.8	87.2	86.2	85.8	85.5	84.9	84.2
<b>2005</b>	83.6	83.8	84.1	84.3	84.4	84.8	85.1	85.6	87.1	88.4	89.0	89.3
<b>2006</b>	90.1	90.9	92.3	93.3	93.9	94.1	94.3	94.7	95.8	97.4	99.1	99.6
<b>2007</b>	100.3	100.7	101.3	101.7	101.7	101.6	101.7	101.9	101.9	102.0	101.9	101.8
<b>2008</b>	102.0	102.3	103.0	103.6	103.8	103.9	103.9	103.9	104.0	103.8	102.8	100.0
<b>2009</b>	98.3	98.5	99.2	99.8	100.2	100.9	101.8	102.8	105.7	106.8	107.7	108.1
<b>2010</b>	108.7	109.8	110.5	111.1	111.4	111.6	111.6	111.9	112.6	113.9		

(Source: KB)

<Figure 5> Apartments Jeonse Price Index: Seoul



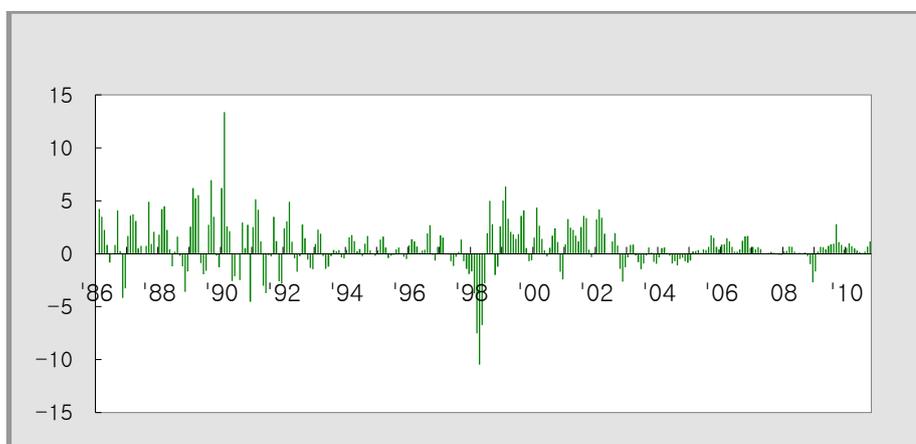
<Table 10> Fluctuation of Apartments Jeonse Price: Seoul

(Unit: %)

Yr	Over the previous month												Over the end of last year
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
<b>1986</b>		4.2	3.5	2.2	0.8	-0.8	0.0	0.8	4.1	0.3	-4.2	-3.3	
<b>1987</b>	1.7	3.6	3.7	3.1	0.5	0.7	0.0	0.7	4.9	0.9	2.1	0.0	<b>24.2</b>
<b>1988</b>	1.8	4.2	4.5	2.2	0.4	-1.2	0.2	1.6	-0.2	-1.2	-3.6	-1.7	<b>7.0</b>
<b>1989</b>	2.5	6.2	5.2	5.5	-0.9	-1.9	-1.6	2.7	6.9	3.5	-0.2	-1.3	<b>29.6</b>
<b>1990</b>	6.2	13.4	2.6	2.1	-2.6	-2.1	3.9	-2.5	2.9	0.5	2.7	-4.5	<b>23.7</b>
<b>1991</b>	2.5	5.1	4.2	1.2	-3.0	-3.7	-0.1	-0.2	3.5	1.2	-2.6	-2.8	<b>4.7</b>
<b>1992</b>	2.4	3.1	4.9	1.1	-0.4	-1.7	-0.2	2.8	1.5	-0.6	-1.3	-1.5	<b>10.2</b>
<b>1993</b>	0.9	2.3	1.9	-0.2	-1.4	-1.2	-0.2	0.3	0.2	0.3	-0.3	-0.4	<b>2.1</b>
<b>1994</b>	0.3	1.6	1.8	1.2	0.2	0.4	-0.2	1.0	1.7	0.3	0.0	-0.2	<b>8.3</b>
<b>1995</b>	0.3	1.3	1.6	0.6	-0.4	-0.2	-0.1	0.4	0.6	0.0	-0.3	-0.5	<b>3.4</b>
<b>1996</b>	0.8	1.4	1.2	0.7	0.1	0.3	2.3	0.0	2.7	-0.1	-0.6	0.6	<b>9.7</b>
<b>1997</b>	1.7	1.5	0.0	-0.1	-0.7	-1.2	-0.3	0.2	1.4	-0.7	-1.4	-1.9	<b>-1.5</b>
<b>1998</b>	-1.7	-3.8	-7.5	-10.5	-6.7	-2.8	2.0	5.0	2.8	-2.0	-1.2	2.6	<b>-22.4</b>
<b>1999</b>	5.0	6.4	3.3	2.1	1.8	1.4	1.9	3.6	4.1	0.5	-0.7	-0.6	<b>32.5</b>
<b>2000</b>	1.5	4.3	2.6	1.4	0.3	-0.2	0.6	1.7	2.4	1.1	-1.7	-2.4	<b>12.1</b>
<b>2001</b>	0.9	3.3	2.5	2.3	1.7	1.2	2.5	3.6	3.4	0.4	-0.3	0.1	<b>23.4</b>
<b>2002</b>	3.3	4.2	3.4	1.9	-0.1	-0.1	1.2	1.9	0.8	-1.4	-2.6	-1.3	<b>11.4</b>
<b>2003</b>	-0.4	0.8	0.9	-0.2	-0.8	-1.5	-0.9	-0.2	0.6	0.1	-0.8	-0.9	<b>-3.2</b>
<b>2004</b>	-0.3	0.5	0.6	0.1	-0.2	-0.9	-0.7	-1.1	-0.5	-0.4	-0.7	-0.9	<b>-4.4</b>
<b>2005</b>	-0.6	0.2	0.3	0.4	0.1	0.4	0.3	0.7	1.7	1.5	0.6	0.4	<b>6.2</b>
<b>2006</b>	0.9	0.9	1.5	1.1	0.6	0.2	0.2	0.4	1.2	1.7	1.7	0.6	<b>11.5</b>
<b>2007</b>	0.7	0.4	0.6	0.4	-0.1	0.0	0.1	0.2	0.1	0.1	-0.1	-0.1	<b>2.2</b>
<b>2008</b>	0.2	0.3	0.7	0.6	0.2	0.0	0.1	0.0	0.1	-0.2	-1.0	-2.7	<b>-1.8</b>
<b>2009</b>	-1.7	0.2	0.7	0.6	0.4	0.7	0.9	1.0	2.8	1.1	0.8	0.4	<b>8.1</b>
<b>2010</b>	0.6	1.0	0.7	0.5	0.3	0.2	0.1	0.2	0.7	1.2			<b>5.4</b>

(Source: KB)

<Figure 6> > Apartments Jeonse Price over Previous Month (%): Seoul



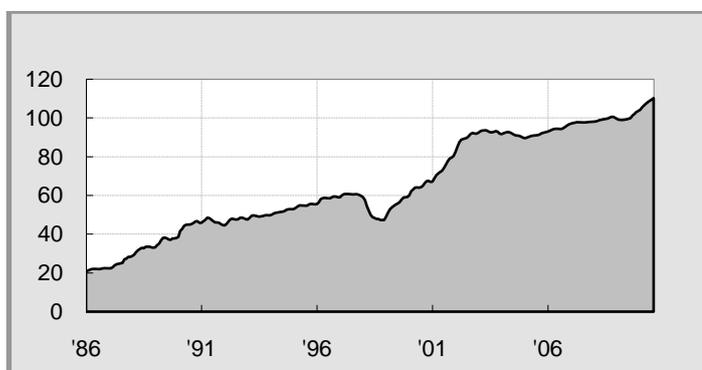
<Table 11> Apartments Jeonse Price Index: 6 Large Cities

(Unit: %, 2008.12=100.0%)

Mon. Yr.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<b>1986</b>	21.0	21.2	21.6	22.0	22.0	22.0	22.0	21.9	22.2	22.4	22.4	22.4
<b>1987</b>	22.4	22.4	23.0	24.0	24.5	24.7	24.9	25.1	27.0	27.4	28.2	28.2
<b>1988</b>	28.7	29.4	30.6	31.6	32.3	32.9	32.7	33.5	33.5	33.5	33.2	33.0
<b>1989</b>	33.2	34.3	35.1	36.7	38.1	38.2	37.9	37.2	37.1	37.8	37.8	38.1
<b>1990</b>	38.5	41.7	42.7	44.3	44.8	44.9	44.9	45.3	45.9	46.6	46.6	45.8
<b>1991</b>	45.9	46.6	47.4	48.5	48.3	47.6	46.8	46.1	46.0	45.9	45.3	44.7
<b>1992</b>	44.5	45.2	46.5	47.6	48.0	47.7	47.5	47.6	48.4	48.5	48.2	47.7
<b>1993</b>	47.5	48.4	49.4	49.7	49.5	49.2	49.0	49.2	49.4	49.7	49.8	49.7
<b>1994</b>	49.8	50.3	50.8	51.1	51.2	51.4	51.6	51.8	52.5	52.8	52.9	52.8
<b>1995</b>	53.0	53.6	54.3	54.8	54.8	54.7	54.7	54.7	55.4	55.6	55.5	55.4
<b>1996</b>	55.5	56.4	58.1	58.5	58.7	58.6	58.5	58.5	59.1	59.4	59.3	59.0
<b>1997</b>	59.0	60.0	60.6	60.7	60.7	60.7	60.5	60.5	60.6	60.5	60.2	59.7
<b>1998</b>	59.0	57.6	54.5	52.1	49.9	48.7	48.3	47.9	47.8	47.3	47.2	47.3
<b>1999</b>	49.1	51.1	52.8	53.8	54.6	55.3	55.8	56.5	57.8	58.9	59.0	59.2
<b>2000</b>	60.0	62.1	63.0	64.0	64.1	64.0	64.1	64.9	66.2	67.3	67.5	67.0
<b>2001</b>	67.0	68.7	70.3	71.2	72.0	72.7	74.1	75.8	77.6	79.0	79.5	80.3
<b>2002</b>	82.3	85.0	87.4	88.7	89.1	89.3	89.7	90.7	91.8	92.2	91.9	91.8
<b>2003</b>	92.3	93.1	93.4	93.5	93.6	93.1	92.5	92.5	92.8	93.1	92.8	91.8
<b>2004</b>	91.6	92.0	92.4	92.6	92.6	92.1	91.5	91.0	90.8	90.8	90.3	89.8
<b>2005</b>	89.5	89.7	90.1	90.5	90.8	90.9	91.0	91.1	91.5	92.1	92.4	92.6
<b>2006</b>	92.9	93.3	93.8	94.2	94.3	94.3	94.3	94.2	94.6	95.3	96.0	96.6
<b>2007</b>	97.0	97.3	97.5	97.7	97.7	97.7	97.6	97.6	97.7	97.8	97.9	97.9
<b>2008</b>	98.0	98.1	98.5	98.8	99.0	99.2	99.4	99.6	100.0	100.4	100.5	100.0
<b>2009</b>	99.4	99.0	98.9	98.9	99.1	99.2	99.5	99.9	101.2	102.0	103.0	103.5
<b>2010</b>	104.1	105.4	106.4	107.3	108.1	108.8	109.4	110.2	110.9	111.9		

(Source: KB)

<Figure 7> Apartments Jeonse Price Index (%): 6 Large Cities



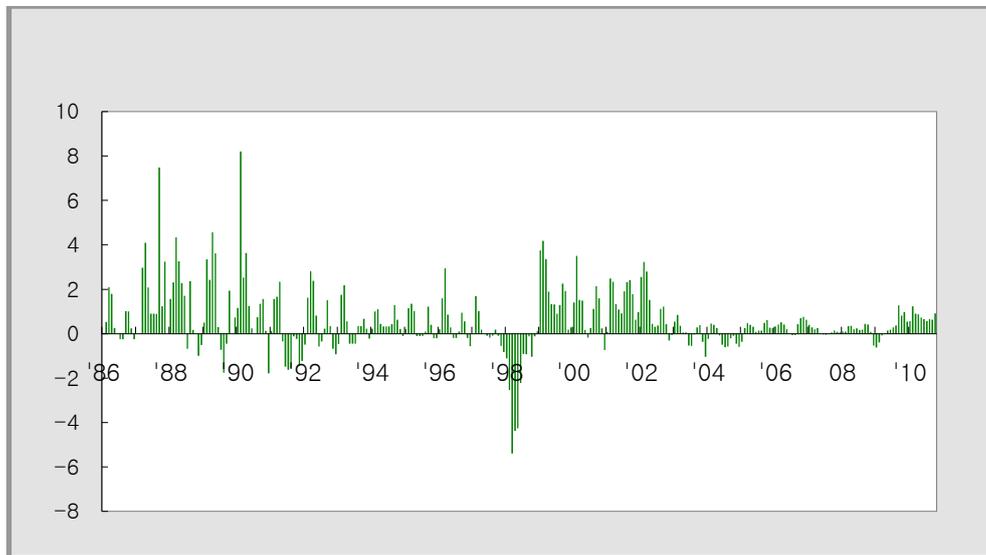
<Table 12> Fluctuation of Apartments Jeonse Price: 6 Large Cities

(Unit: %)

Yr	Over the previous month												Over the end of last year
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
<b>1986</b>		0.5	2.1	1.8	0.3	0.0	-0.3	-0.3	1.0	1.0	0.2	-0.2	
<b>1987</b>	0.0	0.0	3.0	4.1	2.1	0.9	0.9	0.9	7.5	1.2	3.2	0.0	<b>26.2</b>
<b>1988</b>	1.6	2.3	4.3	3.3	2.3	1.7	-0.7	2.4	0.2	0.0	-1.0	-0.5	<b>16.9</b>
<b>1989</b>	0.5	3.3	2.4	4.6	3.6	0.3	-0.7	-1.8	-0.4	1.9	0.0	0.7	<b>15.3</b>
<b>1990</b>	1.2	8.2	2.5	3.6	1.3	0.2	0.0	0.7	1.3	1.6	0.1	-1.8	<b>20.4</b>
<b>1991</b>	0.1	1.6	1.7	2.3	-0.3	-1.5	-1.6	-1.5	-0.1	-0.2	-1.4	-1.2	<b>-2.4</b>
<b>1992</b>	-0.5	1.6	2.8	2.4	0.8	-0.6	-0.3	0.2	1.5	0.3	-0.7	-0.9	<b>6.8</b>
<b>1993</b>	-0.5	1.7	2.2	0.6	-0.4	-0.4	-0.4	0.3	0.3	0.7	0.2	-0.2	<b>4.1</b>
<b>1994</b>	0.2	1.0	1.1	0.4	0.3	0.3	0.3	0.4	1.3	0.6	0.2	-0.1	<b>6.4</b>
<b>1995</b>	0.2	1.2	1.3	1.0	-0.1	-0.1	-0.1	0.1	1.2	0.4	-0.2	-0.2	<b>4.8</b>
<b>1996</b>	0.2	1.6	2.9	0.9	0.3	-0.2	-0.1	0.0	0.9	0.6	-0.2	-0.6	<b>6.5</b>
<b>1997</b>	0.0	1.7	1.0	0.2	0.0	-0.1	-0.2	-0.1	0.2	-0.1	-0.5	-0.8	<b>1.2</b>
<b>1998</b>	-1.1	-2.5	-5.4	-4.4	-4.3	-2.2	-0.9	-0.9	-0.1	-1.0	-0.1	0.1	<b>-20.8</b>
<b>1999</b>	3.7	4.2	3.4	1.9	1.3	1.3	0.9	1.3	2.3	1.9	0.2	0.3	<b>25.1</b>
<b>2000</b>	1.4	3.5	1.5	1.5	0.2	-0.2	0.3	1.1	2.1	1.6	0.2	-0.7	<b>13.2</b>
<b>2001</b>	0.1	2.5	2.3	1.3	1.1	0.9	1.9	2.3	2.4	1.8	0.6	1.0	<b>19.9</b>
<b>2002</b>	2.6	3.2	2.8	1.5	0.4	0.3	0.4	1.1	1.2	0.4	-0.3	-0.1	<b>14.4</b>
<b>2003</b>	0.5	0.8	0.4	0.1	0.1	-0.5	-0.6	0.0	0.3	0.4	-0.4	-1.0	<b>0.0</b>
<b>2004</b>	-0.2	0.5	0.4	0.3	-0.1	-0.5	-0.6	-0.6	-0.2	-0.1	-0.4	-0.6	<b>-2.2</b>
<b>2005</b>	-0.4	0.3	0.5	0.4	0.3	0.1	0.1	0.1	0.5	0.6	0.3	0.3	<b>3.1</b>
<b>2006</b>	0.3	0.4	0.5	0.4	0.2	0.0	-0.1	-0.1	0.4	0.7	0.8	0.6	<b>4.3</b>
<b>2007</b>	0.4	0.3	0.2	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	<b>1.4</b>
<b>2008</b>	0.1	0.1	0.3	0.4	0.2	0.2	0.2	0.2	0.4	0.4	0.1	-0.5	<b>2.1</b>
<b>2009</b>	-0.6	-0.4	-0.1	0.0	0.1	0.2	0.3	0.4	1.3	0.8	1.0	0.5	<b>3.5</b>
<b>2010</b>	0.6	1.2	0.9	0.9	0.7	0.7	0.6	0.7	0.6	0.9			<b>8.1</b>

(Source: KB)

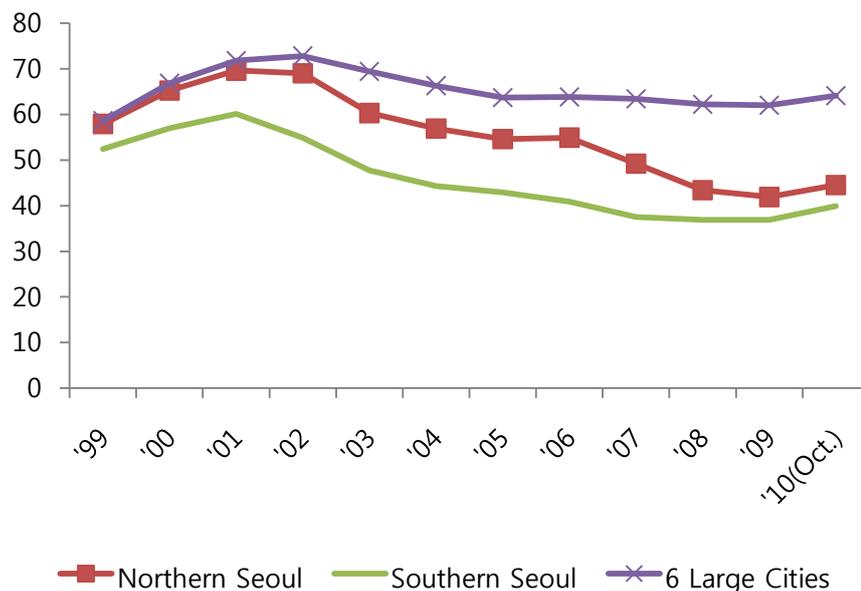
<Figure 8> > Apartments Jeonse Price over Previous Month (%): 6 Large Cities



<Table 13> Apartments Jeonse to Purchase Price and Expected Growth Rate

	Jeonse to Purchase Price (%) (A)			Interest Rate (%) (B)	Expected Growth Rate(%): (B)*[1-(A)]		
	Northern Seoul	Southern Seoul	6 Large Cities		Northern Seoul	Southern Seoul	6 Large Cities
'99	57.9	52.4	58.6	7.7	3.2	3.7	3.2
'00	65.2	57.0	66.8	8.3	2.9	3.6	2.8
'01	69.6	60.1	71.8	5.7	1.7	2.3	1.6
'02	69.0	54.9	72.8	5.8	1.8	2.6	1.6
'03	60.3	47.7	69.4	4.6	1.8	2.4	1.4
'04	56.9	44.3	66.3	4.1	1.8	2.3	1.4
'05	54.6	42.9	63.7	4.3	1.9	2.4	1.6
'06	54.9	40.9	63.8	4.8	2.2	2.9	1.7
'07	49.2	37.5	63.4	5.2	2.7	3.3	1.9
'08	43.4	36.9	62.2	5.3	3.0	3.3	2.0
'09	41.9	36.9	62.0	4.0	2.3	2.5	1.5
'10(Oct.)	44.5	39.9	64.1	3.8	2.1	2.3	1.4
Average	55.6	46.0	65.4	5.3	2.3	2.8	1.8

<Figure 9> Ratio (%) of Jeonse to Purchase Price for Apartments



(Source: KB)

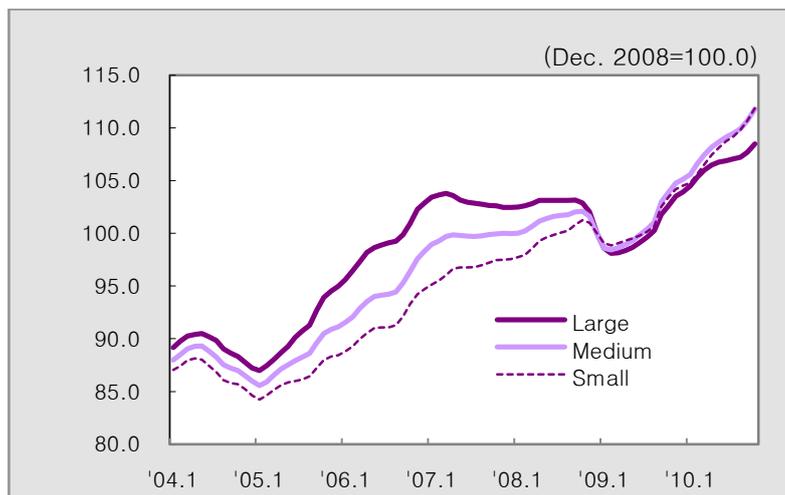
<Table 14> Apartments Jeonse Price Index by Size

Yr.	Month	Northern Seoul			Southern Seoul			6 Large Cities		
		Large	medium	small	Large	medium	small	Large	medium	small
2008	Jan.	102.3	101.5	97.2	107.1	105.2	100.2	99.5	98.3	97.4
	Feb.	102.3	102.0	97.6	107.3	105.3	100.4	99.6	98.4	97.5
	Mar.	102.5	102.7	99.1	107.5	105.8	101.1	99.9	98.7	97.9
	Apr.	103.4	103.5	100.4	107.8	106.1	101.7	100.0	99.1	98.3
	May.	103.6	103.7	100.6	107.7	106.2	102.1	100.0	99.3	98.6
	Jun.	103.6	103.7	100.7	107.6	106.2	102.3	100.0	99.5	98.8
	Jul.	103.6	103.7	100.9	107.5	106.2	102.5	100.0	99.6	99.1
	Aug.	103.5	103.8	101.0	107.3	106.1	102.4	100.1	99.8	99.3
	Sep.	103.6	104.0	101.8	106.8	105.8	102.7	100.5	100.2	99.7
	Oct.	103.5	103.9	102.4	106.0	104.8	102.7	100.5	100.6	100.3
	Nov.	102.9	102.9	102.0	104.3	103.1	102.0	100.4	100.7	100.4
	Dec.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2009	Jan.	98.7	98.4	98.6	98.1	98.0	98.3	99.3	99.3	99.5
	Feb.	98.0	98.2	98.2	98.4	99.4	98.8	98.9	98.8	99.2
	Mar.	97.8	98.4	98.7	99.1	101.0	99.4	98.5	98.7	99.3
	Apr.	98.0	98.6	99.0	100.1	102.1	100.2	98.2	98.6	99.5
	May.	98.1	99.1	99.0	100.6	102.8	100.6	98.1	98.7	99.7
	Jun.	98.4	99.7	99.4	101.7	103.9	101.3	98.1	98.9	99.9
	Jul.	99.1	100.5	100.0	102.9	105.1	102.2	98.2	99.3	100.1
	Aug.	99.7	101.4	100.7	103.9	106.4	103.1	98.4	99.7	100.5
	Sep.	101.3	104.2	103.8	106.1	109.7	106.8	99.1	101.1	101.8

	Oct.	102.0	105.4	105.2	107.2	110.9	108.0	99.7	102.0	102.6
	Nov.	102.6	106.1	105.7	108.6	112.0	109.0	100.6	103.0	103.6
	Dec.	102.8	106.2	106.0	109.3	112.7	109.3	101.3	103.7	104.1
2010	Jan.	102.9	106.4	106.1	110.6	113.7	109.9	102.1	104.4	104.5
	Feb.	103.3	107.1	107.1	111.9	115.2	111.0	103.5	106.0	105.4
	Mar.	104.1	108.1	108.1	112.4	115.8	111.6	104.2	107.0	106.4
	Apr.	104.4	108.4	108.9	112.8	116.2	112.6	104.8	108.1	107.3
	May.	104.4	108.7	109.3	113.0	116.6	113.3	105.3	108.8	108.3
	Jun.	104.2	108.7	109.3	113.0	117.0	113.8	105.9	109.5	109.0
	Jul.	104.3	108.6	109.2	113.2	117.3	113.8	106.3	110.2	109.7
	Aug.	104.3	108.6	109.6	113.3	117.6	114.1	106.7	110.9	110.5
	Sep.	104.5	109.1	110.6	113.9	118.6	115.0	107.2	111.6	111.3
	Oct.	105.1	110.1	112.3	114.9	119.9	117.0	108.1	112.6	112.4

(Source: KB)

<Figure 10> Apartments Jeonse Price Index by Net Floor Area



(Source: KB)

### c. New Office Building Construction and Rental

New commercial building construction and rental is more likely to be the main utilization business of owning real estate of KEPCO than housing construction and rental because KEPCO can develop its real estate only when the movement or internalization of transformer substations or office buildings, making transmission • transformation • distribution facilities underground or when owning real estate is incorporated in town planning and zoning by

Enforcement Decree and most developable sites of transformer substations and office buildings are located in the commercial zone.

Generally, vacancy rate, income rate, capital rate and investment return rate are used to examine and forecast the business value of commercial real estate. The statistics of the Office & Store building Rent Survey and Investment Estimation Reports up to the first quarter of 2010 by the Ministry of Land, Transport and Maritime Affairs (MLTMA) are referred to analyze the business value of commercial real estate. In these reports, the property's net operating income (NOI) over the period being calculated is divided by its price of the beginning of the term to arrive at the income rate. The capital rate is calculated by the property's capital gain (the difference of the property's price between the beginning and end of the term) divided by its price of the beginning of the term. The investment return rate is the sum of the income rate and the capital gain over the period being computed.

The vacancy rate is an important factor to NOI. As appears by Table 15, Figure 11 and 12, the vacancy rate of Seoul is quite lower than that of 6 large cities; on the average, it is less than 5% over 9 years. It means, *ceteris paribus*, NOI of office buildings in Seoul is higher than that of 6 large cities. However, the vacancy rate of Seoul has continued upward since 2008 in comparison with relatively stable vacancy rate of 6 large cities. Especially, the vacancy rate of Central Business District (CBD) in Seoul has escalated sharply. In 6 large cities, Daegu and Busan have shown settled and low vacancy rate, whereas the vacancy rate of Ulsan and Daejeon has fluctuated. In terms of the monthly rent level, as shown in Table 16, Figure 13 and 14, the monthly rent of Seoul is usually almost three times higher than that of 6 large cities and its annual growth rate is averagely 2.1%. The average monthly rent in Seoul over 6 years is up to 18 thousand Korean Won (KRW) per 1 m<sup>2</sup>. There is a big deviation in the rent by region even in Seoul: The monthly rent of CBD in Seoul is the highest level and that of Yoido & Mapo is the lowest. The growth rate of the monthly rent of 6 large cities,

meanwhile, is almost stagnant and unvaried. Even in Incheon, the monthly rent of 2010 is less than that of 2005 by 6.1%. With regard to the investment return rate, as shown in Table 17 and Figure 15, the investment return rate of Seoul is showing interesting trend. The investment return rates of the whole regions of Seoul are very similar over 9-year period in spite of the different vacancy rates and rent among them. Although the investment return rate of Seoul dropped drastically in 2009 due to the Global Financial Crisis, it is being quickly recovered. The average investment return rate of Seoul is up to 11.1% and it is very high level in comparison with the return rate of other financial assets appeared in Table 18 and Figure 17. On the other hand, there is a big deviation in the investment return rate of 6 large cities over 9-year period except for the downward trend in 2009 by the effect of the Global Financial Crisis as seen in Table 17 and Figure 16. In 6 large cities, Incheon and Daegu have shown relatively high investment return rate but the investment return rate of Gwangju remains very low level (average 1.7%).

Synthetically, although the vacancy rate of office buildings continues upward, by and large, the investment return rate of them is showing upward trend after 2009. Furthermore, the average investment return rate of office buildings remains stable and high in comparison with other financial asset. It is up to 9.36% from 2002 to 2010 but its standard deviation during that time is 3.26%, whereas the standard deviation of Korea Composite Stock Price Index (KOSPI) is 19.03% although the average return rate of KOSPI is up to 13.38% during the same period. However, there is a big deviation in the investment return rate in 6 large cities. Compared to Seoul, the vacancy rate in 6 large cities is also high level. Therefore, it requires a more prudent approach to develop office buildings in 6 large cities

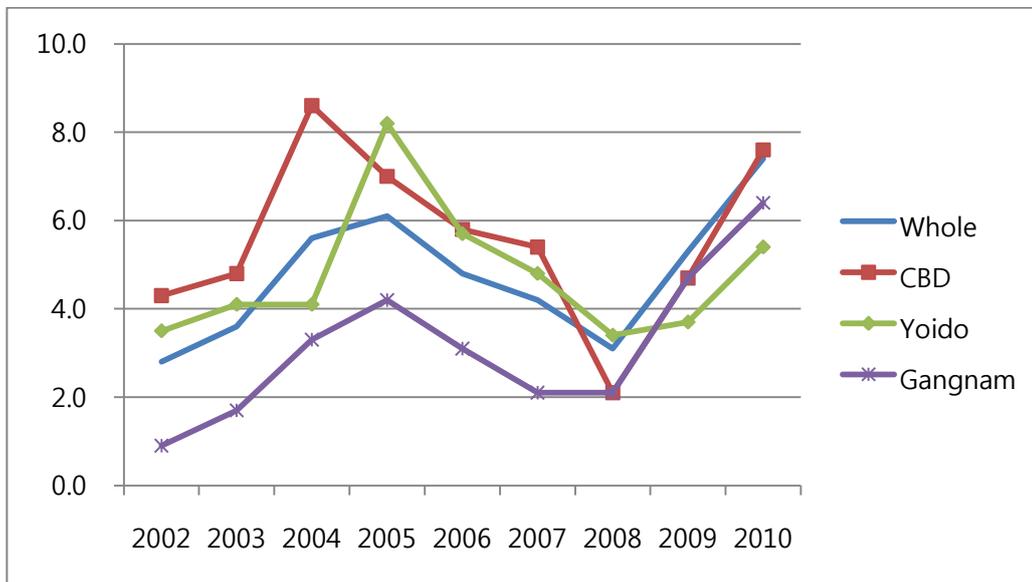
< Table 15> Vacancy Rate of Office Buildings

(Unit: %)

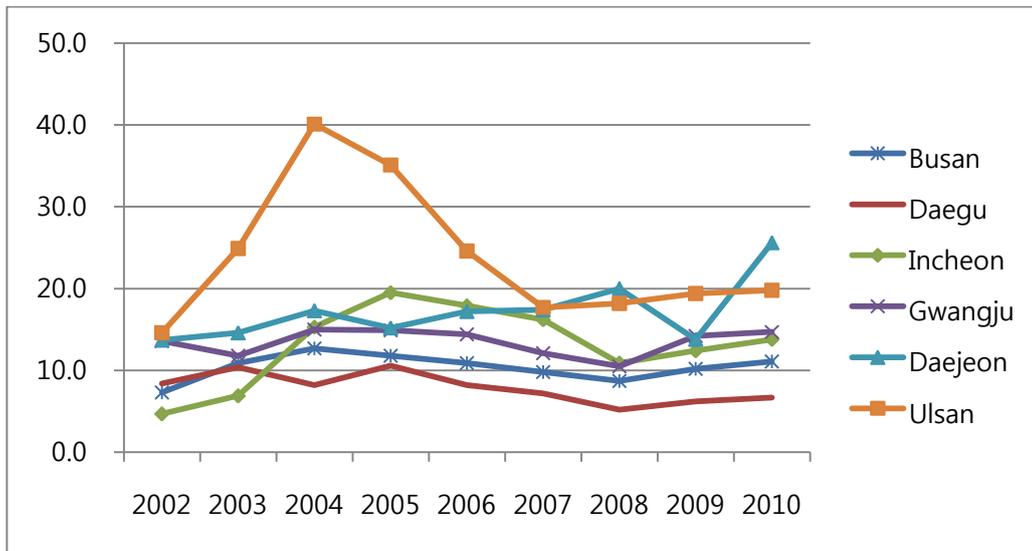
Year	Seoul				6 large cities					
	Whole	CBD	Yoido	Gangnam	Busan	Daegu	Incheon	Gwangju	Daejeon	Ulsan
2002	2.8	4.3	3.5	0.9	7.3	8.4	4.7	13.6	13.7	14.6
2003	3.6	4.8	4.1	1.7	10.9	10.4	6.9	11.8	14.6	24.9
2004	5.6	8.6	4.1	3.3	12.7	8.2	15.3	15.0	17.3	40.1
2005	6.1	7.0	8.2	4.2	11.8	10.6	19.5	14.9	15.2	35.1
2006	4.8	5.8	5.7	3.1	10.9	8.2	17.9	14.4	17.2	24.6
2007	4.2	5.4	4.8	2.1	9.8	7.2	16.2	12.1	17.4	17.7
2008	3.1	2.1	3.4	2.1	8.7	5.2	10.9	10.5	20.0	18.2
2009	5.3	4.7	3.7	4.7	10.2	6.2	12.4	14.2	13.8	19.4
2010	7.4	7.6	5.4	6.4	11.1	6.7	13.8	14.7	25.6	19.8
Average	4.8	5.6	4.8	3.2	10.4	7.9	13.1	13.5	17.2	23.8

(Source: MLTMA)

<Figure 11> Vacancy Rate of Office Buildings: Seoul



< Figure 12> Vacancy Rate of Office Buildings: 6 Large Cities



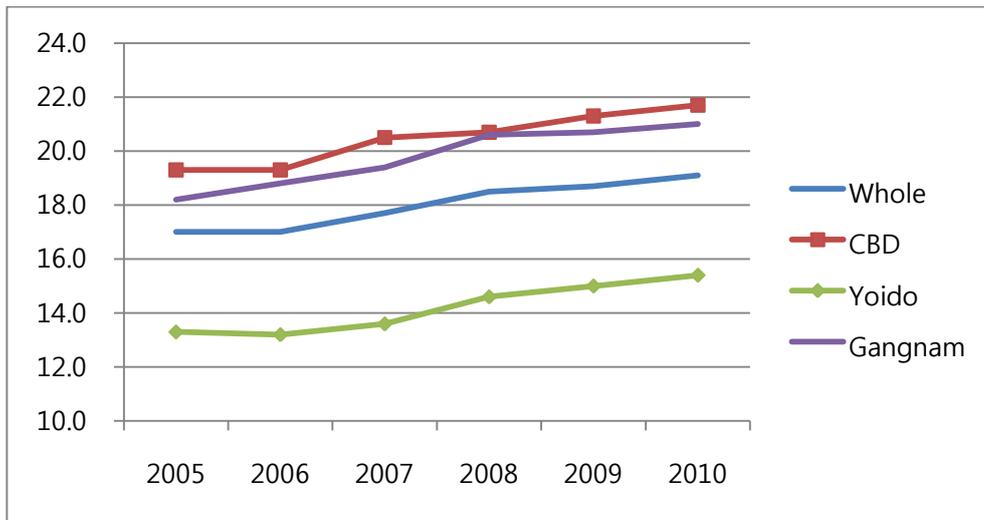
< Table 16> Monthly Rent of Office Buildings

(Unit: 1,000 KRW)

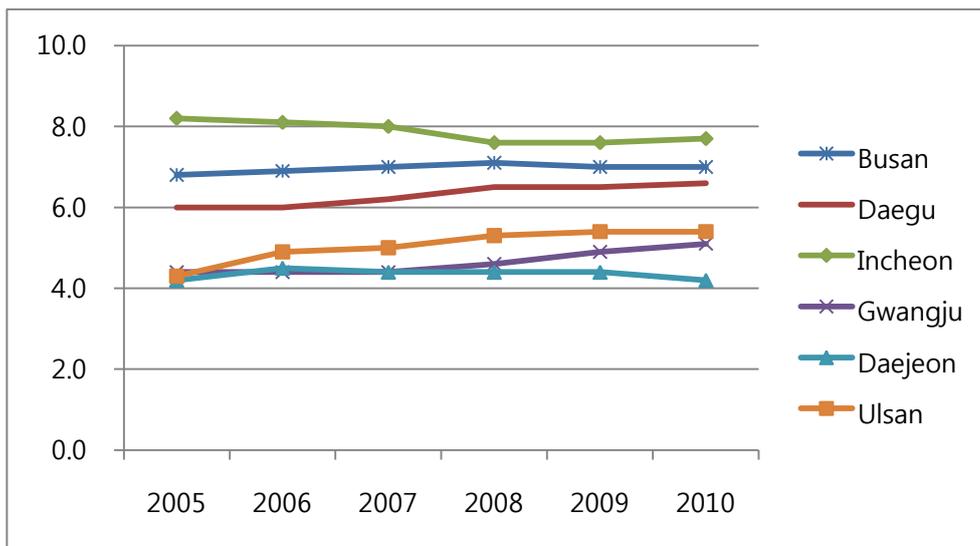
Year	Seoul				6 large cities					
	Whole	CBD	Yoido	Gangnam	Busan	Daegu	Incheon	Gwangju	Daejeon	Ulsan
2005	17.0	19.3	13.3	18.2	6.8	6.0	8.2	4.4	4.2	4.3
2006	17.0	19.3	13.2	18.8	6.9	6.0	8.1	4.4	4.5	4.9
2007	17.7	20.5	13.6	19.4	7.0	6.2	8.0	4.4	4.4	5.0
2008	18.5	20.7	14.6	20.6	7.1	6.5	7.6	4.6	4.4	5.3
2009	18.7	21.3	15.0	20.7	7.0	6.5	7.6	4.9	4.4	5.4
2010	19.1	21.7	15.4	21.0	7.0	6.6	7.7	5.1	4.2	5.4
Average	18.0	20.5	14.2	19.8	7.0	6.3	7.9	4.6	4.4	5.1
Annual growth rate	2.1%	2.1%	2.6%	2.6%	0.5%	1.7%	-1.0%	2.7%	0.0%	4.3%

(Source: MLTMA)

<Figure 13> Monthly Rent of Office Buildings: Seoul



<Figure 14> Monthly Rent of Office Buildings: 6 Large Cities



< Table 17> Investment Return Rate of Office Buildings

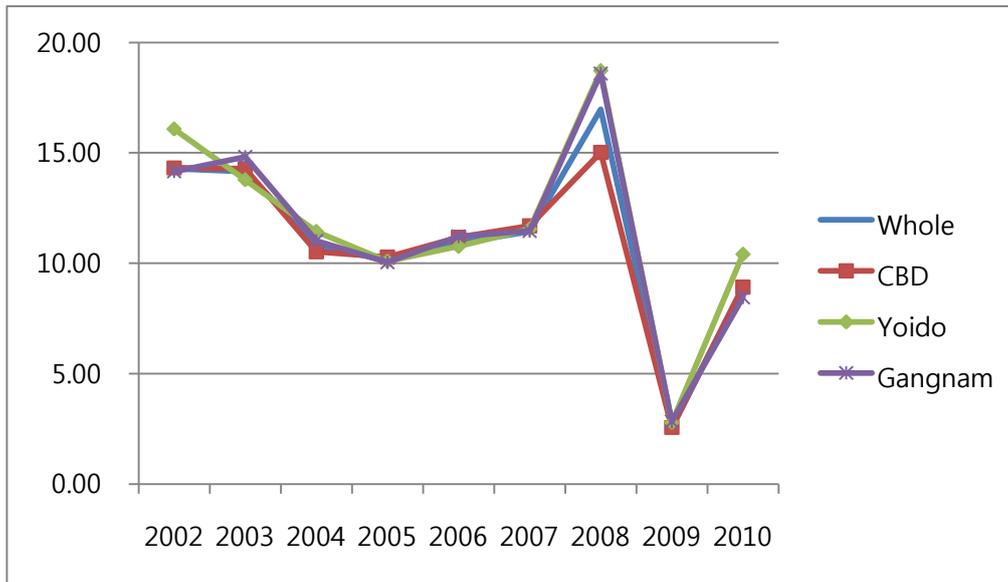
(Unit: %)

Year	Seoul				6 large cities					
	Whole	CBD	Yoido	Gangnam	Busan	Daegu	Incheon	Gwangju	Daejeon	Ulsan
2002	14.29	14.32	16.08	14.16	7.15	8.09	9.90	3.03	5.90	6.92
2003	14.15	14.29	13.78	14.82	6.38	6.99	9.52	2.55	5.40	4.59
2004	10.84	10.52	11.44	11.02	6.49	6.70	8.03	2.95	6.01	4.07
2005	10.10	10.28	10.09	10.04	4.91	5.55	7.35	0.46	5.93	2.53
2006	10.92	11.18	10.76	11.22	4.63	7.42	4.89	0.48	7.19	4.26

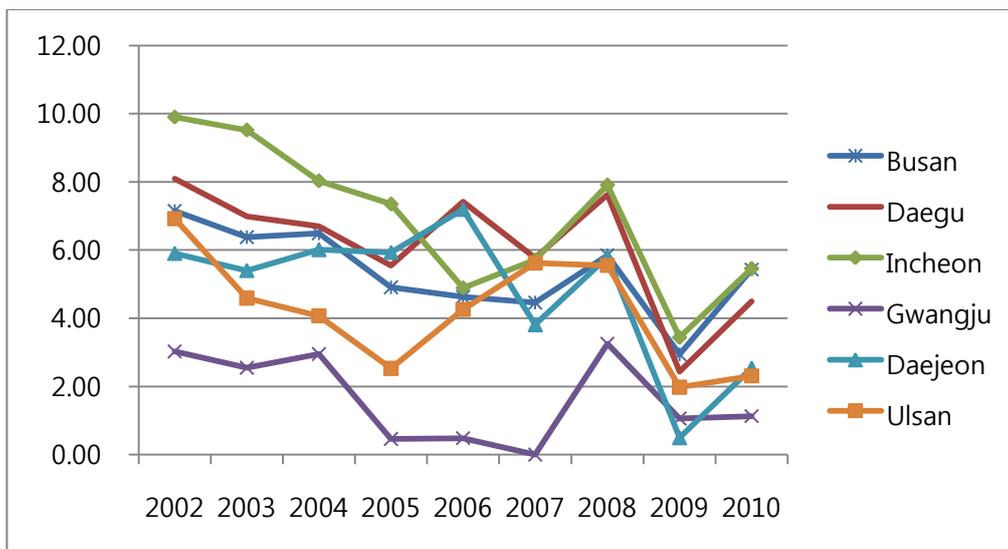
2007	11.43	11.69	11.55	11.46	4.46	5.77	5.71	0.00	3.81	5.62
2008	16.97	15.02	18.72	18.59	5.85	7.62	7.91	3.25	5.80	5.55
2009	2.54	2.56	2.79	2.83	2.94	2.44	3.44	1.06	0.50	1.98
2010	8.93	8.92	10.41	8.46	5.43	4.50	5.46	1.13	2.54	2.31
Average	11.1	11.0	11.7	11.4	5.4	6.1	6.9	1.7	4.8	4.2

(Source: MLTMA)

<Figure 15> Investment Return Rate of Office Buildings: Seoul



<Figure 16> Investment Return Rate of Office Buildings: 6 Large Cities



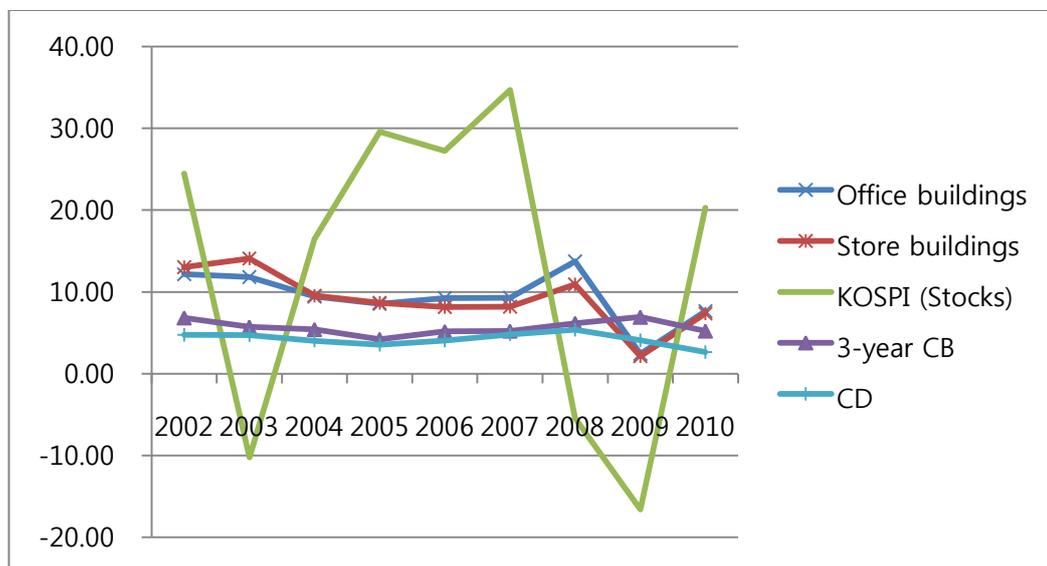
<Table 18> Return Rate of Commercial Real Estate and Financial Assets

(Unit: %)

Year	Office buildings	Store buildings	KOSPI (Stocks)	3-year CB	CD
2002	12.15	13.02	24.46	6.84	4.76
2003	11.81	14.09	-10.22	5.73	4.71
2004	9.42	9.54	16.46	5.42	4.03
2005	8.53	8.66	29.58	4.22	3.55
2006	9.23	8.14	27.22	5.17	4.04
2007	9.28	8.20	34.68	5.23	4.81
2008	13.74	10.91	-5.44	6.17	5.38
2009	2.41	2.15	-16.59	6.92	4.08
2010	7.64	7.35	20.30	5.23	2.66
Mean	9.36	9.12	13.38	5.66	4.23
S.D.	3.26	3.48	19.03	0.86	0.81

(Source: MLTMA)

<Figure 17> Return Rate of Commercial Real Estate and Financial Assets



#### **d. New Store Building Construction and Rental**

As stated previously, as likely as office buildings, store buildings are expected to be the main utilization business of owning real estate of KEPCO as commercial buildings. The statistics and equation of the Office & Store building Rent Survey and Investment Estimation Reports up to the first quarter of 2010 by MLTMA are also referred to analyze the business value of store buildings like office buildings. The vacancy rate of Seoul is lower than that of 6 large cities as shown in Table 19, Figure 18 and 19, which means, *ceteris paribus*, NOI of office buildings in Seoul is higher than that of 6 large cities like the case of office buildings previous analyzed but interestingly, the vacancy rate of CBD continue upward since it escalated sharply in 2005 and is relatively high level; average rate is up to 9.0% over 9 years in comparison with the other regions which have downward trend of the vacancy rate after 2009. In terms of 6 large cities, the vacancy rate, by and large, continued upward until 2009 and it is being improved little by little after 2009 except for Incheon. Nevertheless, the vacancy rate level is still high; it can negatively affect NOI.

In terms of the rent level, as shown in Table 20, Figure 20 and 21, the monthly rent of Seoul is much higher than that of 6 large cities. Especially, the monthly rent of CBD in Seoul is quite high (139.2 thousand KRW 1 m<sup>2</sup>); it is almost three times higher than the rest region of Seoul and it is almost 5~9 times than that of 6 large cities. Furthermore, the monthly rent of store buildings is quite higher than that of office buildings; the average monthly rent of store buildings in CBD is almost 7 times higher than that of office buildings. Interestingly, the monthly rent of Gangnam is almost the same as the average monthly rent of Seoul unlike the case of office buildings. The annual growth rate of monthly rent in Seoul over 6 years is 2.1%. There is a big deviation in the monthly rent of 6 large cities. The monthly rent level of Busan is the highest while that of Ulsan is the lowest. The difference between them is more than

double. The growth rate of the monthly rent of 6 large cities over 6 years has also shown a big difference. The growth rate of the monthly rent of Daegu records 3.8% whereas that of Ulsan is -2.5%. With regard to the investment return rate, as shown in Table 21 and Figure 22, the investment return rate of Seoul shows a little deviation until 2008 but after 2009, it is showing similar and upward trend in whole region despite the big different vacancy rates and rent among them. Although the investment return rate of store buildings in Seoul dropped drastically in 2009 due to the Global Financial Crisis, it is being quickly recovering like the case of office buildings. The average investment return rate of Seoul is up to 11.1% and it is very high level in comparison with the return rate of other financial assets appeared in Table 18 and Figure 17. On the other hand, there is a big deviation in the investment return rate of 6 large cities over 9-year period except for the downward trend in 2009 by the effect of the Global Financial Crisis and the upward trend after 2009 as seen in Table 21 and Figure 23. The investment return rate of 6 large cities of office buildings and store buildings shows very similar trend. In 6 large cities, Incheon and Daegu have shown relatively high investment return rate of store buildings but the investment return rate of store buildings in Gwangju remains low level like the case of office buildings.

Synthetically, the investment return rate of store buildings is distinctly showing upward trend after 2009 and has been recovering to the level before the Global Financial Crisis. The vacancy rate of office buildings, by and large, continues downward little by little except for CBD of Seoul. In addition, as seen in Table 18 and Figure 17, the average investment return rate of store buildings remains stable and high in comparison with other financial asset. It is up to 9.12% from 2002 to 2010 but its standard deviation during that time is just 3.48%, whereas the standard deviation of KOSPI is 19.03% although the average return rate of KOSPI is up to 13.38% during the same period. However, although the investment return rate of store buildings in Seoul and 6 large cities are recovering after 2009, it is still lower than

the average investment return rate over 9-year period and the vacancy rate of CBD in Seoul continues upward since its dramatic rise in 2005. In case of the investment return rate of 6 large cities, it has fluctuated from city to city. Therefore, it generally requires a more prudent approach to develop office buildings in CBD in Seoul and 6 large cities considering various factors.

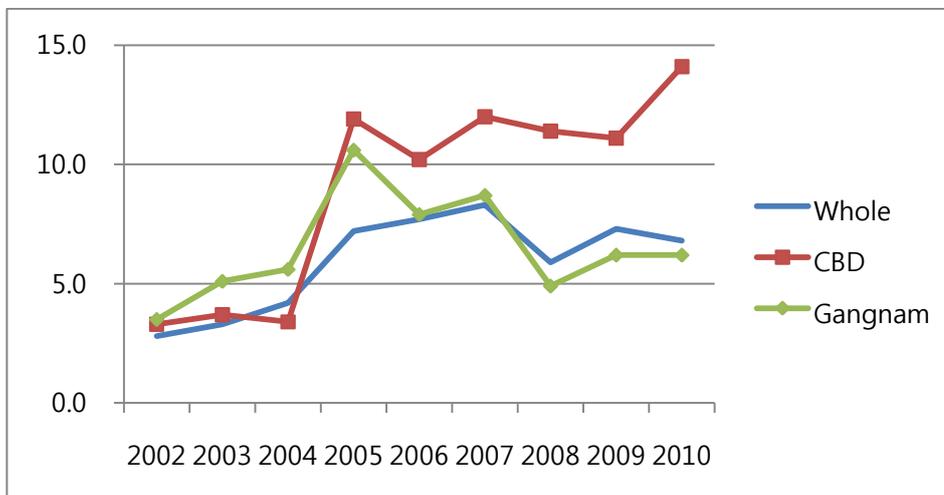
< Table 19> Vacancy Rate of Store Buildings

(Unit: %)

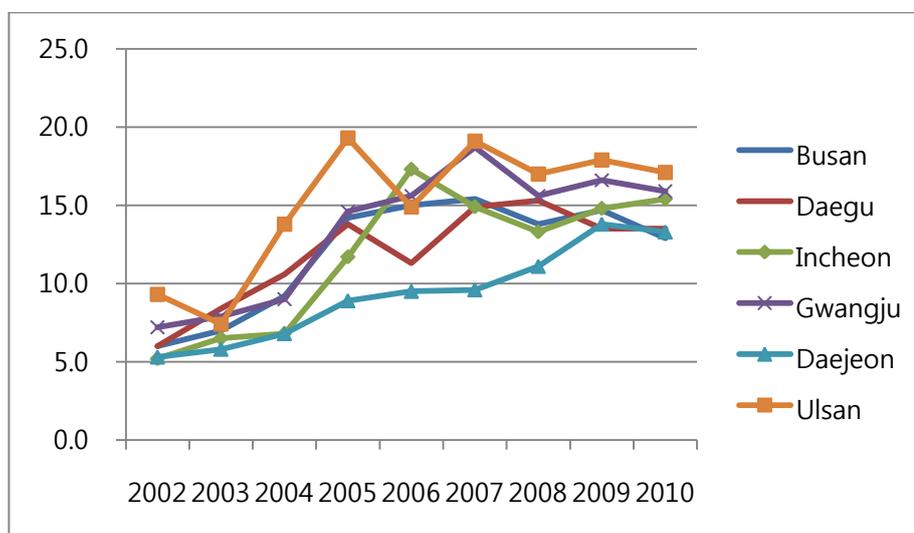
Year	Seoul			6 large cities					
	Whole	CBD	Gangnam	Busan	Daegu	Incheon	Gwangju	Daejeon	Ulsan
2002	2.8	3.3	3.5	6.0	6.0	5.2	7.2	5.3	9.3
2003	3.3	3.7	5.1	7.0	8.4	6.5	7.9	5.8	7.4
2004	4.2	3.4	5.6	9.2	10.6	6.8	9.0	6.8	13.8
2005	7.2	11.9	10.6	14.2	13.8	11.7	14.6	8.9	19.3
2006	7.7	10.2	7.9	15.0	11.3	17.3	15.6	9.5	14.9
2007	8.3	12.0	8.7	15.4	14.9	14.9	18.7	9.6	19.1
2008	5.9	11.4	4.9	13.8	15.3	13.3	15.6	11.1	17.0
2009	7.3	11.1	6.2	14.7	13.5	14.8	16.6	13.8	17.9
2010	6.8	14.1	6.2	12.9	13.5	15.4	15.9	13.3	17.1
Average	5.9	9.0	6.5	12.0	11.9	11.8	13.5	9.3	15.1

(Source: MLTMA)

<Figure 18> Vacancy Rate of Store Buildings: Seoul



< Figure 19> Vacancy Rate of Store Buildings: 6 Large Cities



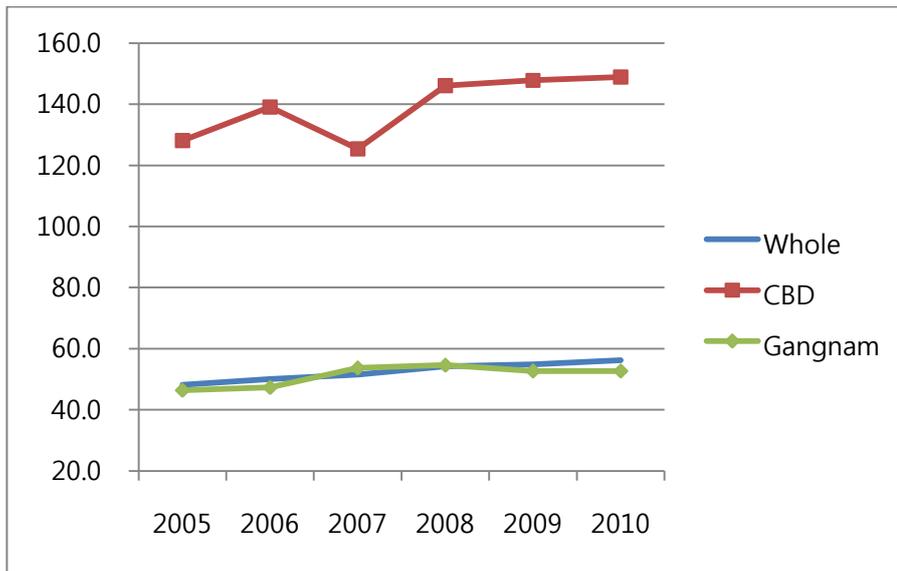
< Table 20> Monthly Rent of Store Buildings

(Unit: 1,000 KRW)

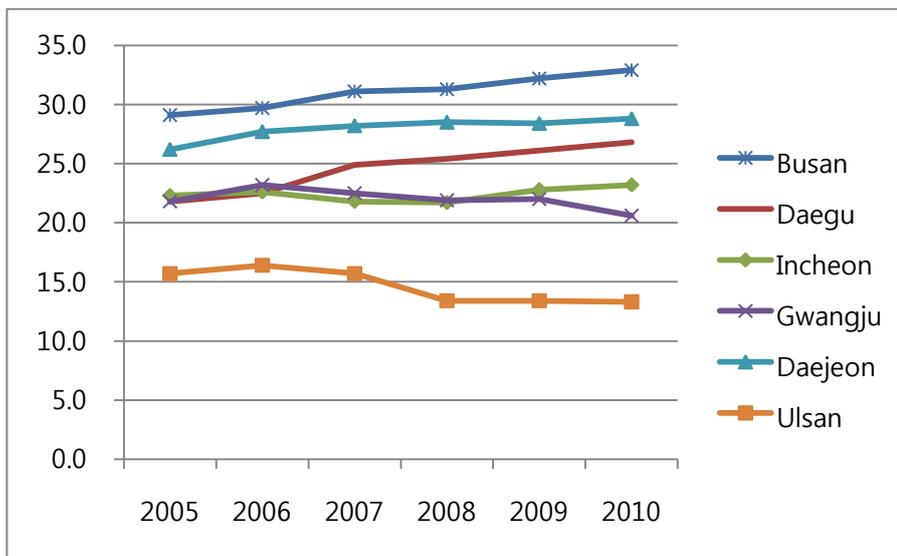
Year	Seoul			6 large cities					
	Whole	CBD	Gangnam	Busan	Daegu	Incheon	Gwangju	Daejeon	Ulsan
2005	48.2	128.1	46.4	29.1	21.8	22.3	21.8	26.2	15.7
2006	50.1	139.1	47.3	29.7	22.5	22.6	23.2	27.7	16.4
2007	51.5	125.4	53.7	31.1	24.9	21.8	22.5	28.2	15.7
2008	54.2	146.1	54.6	31.3	25.4	21.7	21.9	28.5	13.4
2009	54.9	147.8	52.7	32.2	26.1	22.8	22.0	28.4	13.4
2010	56.2	148.9	52.7	32.9	26.8	23.2	20.6	28.8	13.3
Average	52.5	139.2	51.2	31.1	24.6	22.4	22.0	28.0	14.7
Annual growth rate	2.8%	2.7%	2.3%	2.2%	3.8%	0.7%	-0.9%	1.7%	-2.5%

(Source: MLTMA)

<Figure 20> Monthly Rent of Store Buildings: Seoul



<Figure 21> Monthly Rent of Store Buildings: 6 Large Cities



< Table 21> Investment Return Rate of Store Buildings

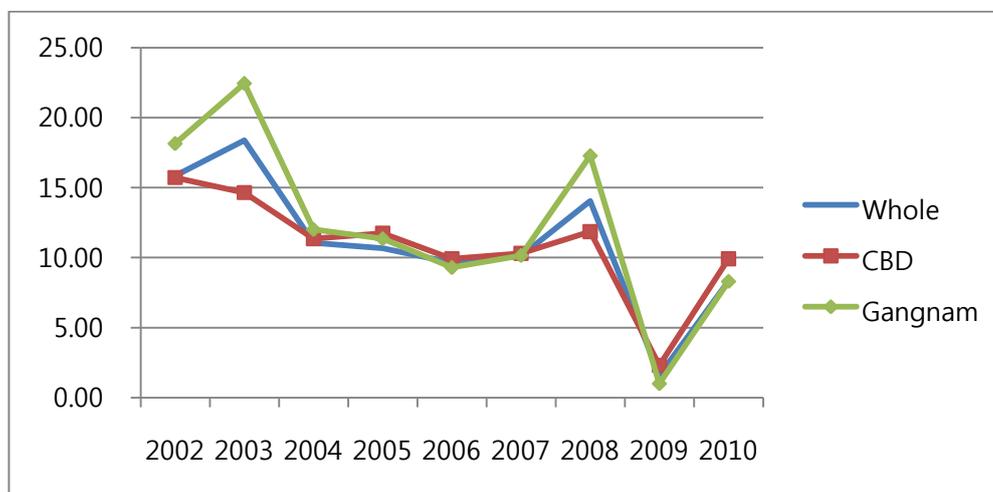
(Unit: %)

Year	Seoul			6 large cities					
	Whole	CBD	Gangnam	Busan	Daegu	Incheon	Gwangju	Daejeon	Ulsan
2002	15.84	15.72	18.15	8.36	11.10	15.44	8.33	6.91	11.03
2003	18.39	14.65	22.45	8.42	9.43	13.81	9.32	9.32	9.06

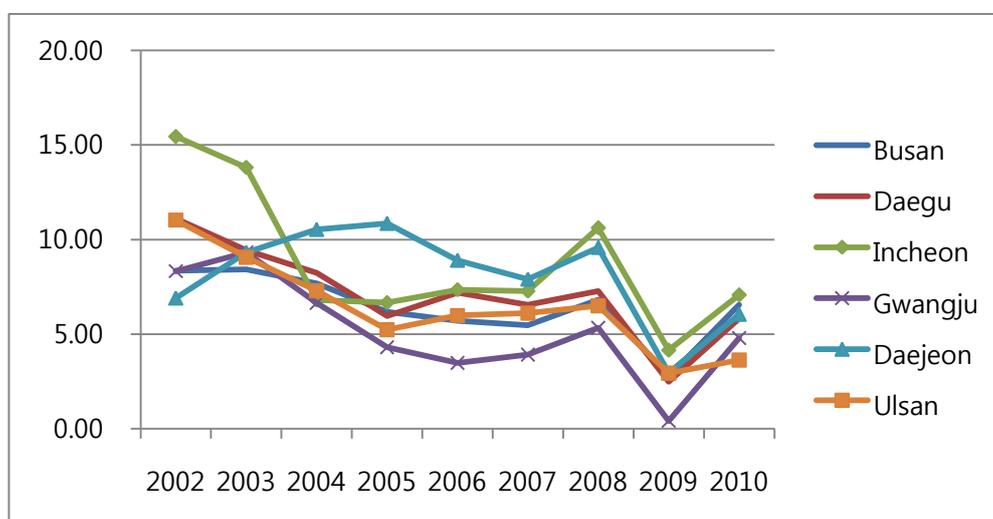
2004	11.06	11.36	12.01	7.68	8.24	6.80	6.65	10.53	7.30
2005	10.67	11.75	11.35	6.18	5.96	6.67	4.31	10.85	5.24
2006	9.65	9.93	9.29	5.70	7.19	7.35	3.48	8.90	5.99
2007	10.13	10.31	10.15	5.47	6.56	7.28	3.92	7.91	6.11
2008	14.05	11.85	17.28	6.83	7.27	10.62	5.34	9.58	6.50
2009	1.59	2.31	1.00	2.77	2.48	4.16	0.42	2.96	2.94
2010	8.33	9.92	8.30	6.55	5.82	7.08	4.80	6.05	3.63
Average	11.1	10.9	12.2	6.4	7.1	8.8	5.2	8.1	6.4

(Source: MLTMA)

<Figure 22> Investment Return Rate of Store Buildings: Seoul



<Figure 23> Investment Return Rate of Store Buildings: 6 Large Cities



## **B. Case Analysis and Result**

The present value of properties and the future cash flow are very important for an investor to decide to invest in real estate. Usually, it is required to examine the three determinants of value: i.e. (1) expected rental growth, determined by the demand-supply factors in the real estate space market; (2) opportunity cost of capital; and, (3) risk premium involved with a particular project. In this paper, all three determinants are found in empirical data in the marketplace. As Gentler and Miller (2008) mentioned, more commonly nowadays, even appraisers simply observe capitalization rate (cap rate) empirically in the marketplace by observing property NOIs and transaction prices and then opportunity cost of capital and risk premium are reflected in the cap rate. The empirical data from the Office & Store building Rent Survey and Investment Estimation Report by MLTMA are used to determine the parameters of this analysis. The Gordon Growth Model is used as a shortcut to estimate the property value and the scenario analysis based on the Gordon Growth Model is also used to reflect various situations in future:

The reason why the Gordon Growth Model is used is that commercial buildings are expected to be the main utilization business of owning real estate of KEPCO and business type will be the property rental owning the property without sales of buildings.

For the sake of the decision-making for investment, the present value computed is compared with the development cost. In addition, the Pro Forma analysis is used to calculate the equity after-tax cash flow (EATCF) and Net Present Value (NPV) and Internal Return Rate (IRR) are computed and based on EATCF for of the decision-making for investment. The scenario analysis based on the Pro Forma Analysis is also used to reflect various situations in future.

This paper analyzes the real cases for a store building of CBD in Seoul and that of Gwangju respectively among the planned sites of KEPCO as the best case and the worst case for general economic feasibility of KEPCO's new business on the basis of the data of Office & Store building Rent Survey and Investment Estimation Report by MLTMA. The best case is the site of Seoul Headquarter (SH) located in near Myung-dong in CBD of Seoul and the worst case is the site of Kyerim Transformer Station (KTS) near the Chonnam National University in Gwangju.

#### **a. Site of SH in CBD of Seoul (Myung-dong)**

The assumption of the site of SH is listed in Table 22. The base PV of the site of SH is 30,143 thousand KRW per 1 m<sup>2</sup> by the Gordon Growth Model and the expected weighted average PV based on scenario analysis reflecting the cases of the best and the worst situation is 34,949 thousand KRW per 1 m<sup>2</sup>, whereas the standard deviation of the weighted average PV is 18,782 thousand KRW per 1 m<sup>2</sup> as shown in Table 23. It suggests that the variability of the expected PV is low and the level of the expected PV is relatively stable. In comparison with simplified acquisition price (6,223 thousand KRW per 1 m<sup>2</sup>), it is certain that this site is very profitable. According to the more detailed Pro Forma analysis shown in Table 24 and Table 25, the base NPV and IRR of this site are up to 12,545 thousand KRW per 1 m<sup>2</sup> and 28.1% respectively and the weighted average NPV and IRR based on scenario analysis are expected to be 15,906 thousand KRW per 1 m<sup>2</sup> and 28.1% on the supposition of 25-year rental and liquidation considering opportunity cost of capital of KEPCO's owning land. The standard deviations of the weighted average NPV and IRR are respectively 13,042 thousand KRW per 1 m<sup>2</sup> and 1.3%. It means the variability of the weighted average NPV and IRR is not high and it also indicates that the investment in this site is not greatly risky. Although

NPV and IRR of the SH site are greatly affected by the initial investment such as land cost and construction cost, it is clear that the development of this site will bring very high return and excellent cash flow.

<Table 22> Assumption of SH Site

Rent	2,538	1,000KRW/m <sup>2</sup> & year in Myung-dong in the end of July, 2010
Vacancy Rate	5.0%	by the average Vacancy Rate in Myung-dong from 2002 to 2010
Operating Exp	253.8	1,000KRW/m <sup>2</sup> & year
CapEx.	10%	of NOI
Going-in cap rate	11.22%	by the average Investment Return Rate in Myung-dong from 2002 to 2010
Going-out cap rate	11.22%	by the average Investment Return Rate in Myung-dong from 2002 to 2010
Rental growth	2.8%	per year
Corp. income tax rate	22%	
Capital gains tax rate	25%	
Depreciation rate	4%	of Acquisition Price (Book Value)
Acquisition Price	6,223	1,000KRW/m <sup>2</sup> & year

<Table 23> PV by Scenario Analysis of Gordon Growth Model of SH Site

Scenario	Probability	Rental growth rate	Going-in cap rate	PV
Best Case	10%	3.9%	6.73%	90,256
Base Case	80%	2.8%	11.22%	30,143
Worst Case	10%	1.7%	15.71%	18,092
			Expected PV	34,949
			Standard Deviation	18,782

<Table 24> NPV and IRR by Pro Forma Scenario Analysis of SH Site

Scenario	Probability	Rental growth rate	Going-in cap rate	Operating expense	NPV	IRR
Best Case	10%	3.9%	6.73%	152.3	54,341	31.1%
Base Case	80%	2.8%	11.22%	253.8	12,545	28.1%
Worst Case	10%	1.7%	15.71%	355.3	4,359	25.5%
Expected NPV & IRR					15,906	28.1%
Standard Deviation					13,042	1.3%

<Table 25> Pro Forma Analysis of SH Site

NOI Computation

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	Year21	Year22	Year23	Year24	Year25	Year26
PGI	2,609	2,682	2,757	2,834	2,914	2,995	3,079	3,165	3,254	3,345	3,439	3,535	3,634	3,736	3,841	3,948	4,059	4,172	4,289	4,409	4,533	4,660	4,790	4,924	5,062	5,204
VA	130	134	138	142	146	150	154	158	163	167	172	177	182	187	192	197	203	209	214	220	227	233	239	246	253	260
EGI	2,479	2,548	2,619	2,693	2,768	2,846	2,925	3,007	3,091	3,178	3,267	3,358	3,452	3,549	3,648	3,751	3,856	3,964	4,075	4,189	4,306	4,427	4,550	4,678	4,809	4,944
OE	261	268	276	283	291	300	308	317	325	335	344	354	363	374	384	395	406	417	429	441	453	466	479	492	506	506
NOI	2,218	2,280	2,344	2,409	2,477	2,546	2,617	2,691	2,766	2,843	2,923	3,005	3,089	3,176	3,264	3,356	3,450	3,546	3,646	3,748	3,853	3,961	4,071	4,185	4,303	4,437

EATCF, Operation

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	Year21	Year22	Year23	Year24	Year25
NOI	2,218	2,280	2,344	2,409	2,477	2,546	2,617	2,691	2,766	2,843	2,923	3,005	3,089	3,176	3,264	3,356	3,450	3,546	3,646	3,748	3,853	3,961	4,071	4,185	4,303
CapEx	222	228	234	241	248	255	262	269	277	284	292	300	309	318	326	336	345	355	365	375	385	396	407	419	430
PBTCF	1,996	2,052	2,109	2,168	2,229	2,291	2,356	2,422	2,489	2,559	2,631	2,704	2,780	2,858	2,938	3,020	3,105	3,192	3,281	3,373	3,467	3,565	3,664	3,767	3,872
Debt Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Tax	433	447	461	475	490	505	521	537	554	571	588	606	625	644	663	684	704	725	747	770	793	817	841	866	892
EATCF, Operation	1,563	1,605	1,648	1,693	1,739	1,786	1,835	1,884	1,936	1,988	2,042	2,098	2,155	2,214	2,275	2,337	2,401	2,466	2,534	2,603	2,675	2,748	2,823	2,901	2,981

Combined CF

	Year0	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	Year21	Year22	Year23	Year24	Year25
EATCF	6,223	1,563	1,605	1,648	1,693	1,739	1,786	1,835	1,884	1,936	1,988	2,042	2,098	2,155	2,214	2,275	2,337	2,401	2,466	2,534	2,603	2,675	2,748	2,823	2,901	44,475

NPV (GI cap rate)

12,545

IRR

28.1%

Income Tax Computation

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	Year21	Year22	Year23	Year24	Year25
NOI	2,218	2,280	2,344	2,409	2,477	2,546	2,617	2,691	2,766	2,843	2,923	3,005	3,089	3,176	3,264	3,356	3,450	3,546	3,646	3,748	3,853	3,961	4,071	4,185	4,303
Interest Payment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	249	249	249	249	249	249	249	249	249	249	249	249	249	249	249	249	249	249	249	249	249	249	249	249	249
Taxable Income	1,969	2,031	2,095	2,160	2,228	2,297	2,368	2,442	2,517	2,594	2,674	2,756	2,840	2,927	3,015	3,107	3,201	3,297	3,397	3,499	3,604	3,712	3,823	3,937	4,054
Income Tax	433	447	461	475	490	505	521	537	554	571	588	606	625	644	663	684	704	725	747	770	793	817	841	866	892
After-Tax Income	1,536	1,584	1,634	1,685	1,738	1,792	1,847	1,905	1,963	2,024	2,086	2,150	2,215	2,283	2,352	2,423	2,497	2,572	2,649	2,729	2,811	2,895	2,982	3,071	3,162

EATCF, Reversion

	Year25
Sale Price	52,700
Book Value	7,877
Book Gain	44,823
AT Capital Gain	33,617
Outstanding Loan	-
EATCF, Reversion	41,494

## **b. Site of KTS near the Chonnam National University in Gwangju**

The assumption of the site of KTS is listed in Table 26. The base PV of the site of KTS is 3,442 thousand KRW per 1 m<sup>2</sup> by the Gordon Growth Model while the acquisition price is expected to be 2,047 thousand KRW per 1 m<sup>2</sup>. It means that the return of this site investment would not be great in the long term. The weighted average PV based on scenario analysis reflecting the cases of the best and the worst situation is 3,574 thousand KRW per 1 m<sup>2</sup> and the standard deviation of the expected PV is 778 thousand KRW per 1 m<sup>2</sup> as shown in Table 27. It suggests that the variability of the expected PV is low and the expected PV is relatively reliable. According to the more detailed Pro Forma Analysis shown in Table 28 and Table 29, the weighted average NPV and IRR based on scenario analysis are expected to be 94 thousand KRW per 1 m<sup>2</sup> and 5.7% on the supposition of 25-year rental and liquidation. However, the standard deviations of the weighted average NPV and IRR are respectively 519 thousand KRW per 1 m<sup>2</sup> and 0.8%. It indicates that the variability of the weighted average NPV is very high while the variability of the weighted average IRR is in low level. Therefore, the investment in this site could be risky. Considering these NPV, IRR and the variability, the real estate development in this site won't be lucrative business but the possibility to make a loss in this investment does not seem to be high. However, with this financial analysis result, it is better to reconsider investment in this site for real estate business because this site is uncertain of being profitable property in the long term.

<Table 26> Assumption of KTS Site

Rent	254	1,000KRW/m <sup>2</sup> & year in Chonmam N. University in the end of July, 2010
Vacancy Rate	13.4%	by the average Vacancy Rate in Chonmam N. University from 2002 to 2010
Operating Exp	25.4	1,000KRW/m <sup>2</sup> & year
CapEx.	10%	of NOI
Going-in cap rate	5.69%	by the average Investment Return Rate in Chonmam N. University from 2002 to 2010
Going-out cap rate	5.69%	by the average Investment Return Rate in Chonmam N. University from 2002 to 2010
Rental growth	-1.7%	per year
Corp. income tax rate	22%	
Capital gains tax rate	25%	
Depreciation rate	4%	of Acquisition Price (Book Value)
Acquisition Price	2,0	1,000KRW/m <sup>2</sup> & year

<Table 27> PV by Scenario Analysis of Gordon Growth Model of KTS Site

Scenario	Probability	Rental growth rate	Going-in cap rate	PV
Best Case	10%	-1.0%	3.41%	5,737
Base Case	80%	-1.7%	5.69%	3,442
Worst Case	10%	-2.4%	7.97%	2,459
Expected PV				3,574
Standard Deviation				778

<Table 28> NPV and IRR by Pro Forma Scenario Analysis of KTS Site

Scenario	Probability	Rental growth rate	Going-in cap rate	Operating expense	NPV	IRR
Best Case	10%	-1.0%	3.41%	15.3	1,539	7.6%
Base Case	80%	-1.7%	5.69%	25.4	6	5.7%
Worst Case	10%	-2.4%	7.97%	35.6	-650	4.2%
Expected NPV & IRR					94	5.7%
Standard Deviation					519	0.8%

< Table 29> Pro Forma Analysis of KTS Site

NOI Computation

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	Year21	Year22	Year23	Year24	Year25	Year26
PGI	250	246	242	238	233	230	226	222	218	214	211	207	204	200	197	193	190	187	184	181	177	174	171	169	166	163
VA	34	33	32	32	31	31	30	30	29	29	28	28	27	27	26	26	25	25	25	24	24	23	23	23	22	22
EGI	217	213	209	206	202	199	195	192	189	186	182	179	176	173	170	167	165	162	159	156	154	151	149	146	144	141
OE	25	25	24	24	23	23	23	22	22	21	21	21	20	20	20	19	19	19	18	18	17	17	17	17	17	17
NOI	192	188	185	182	179	176	173	170	167	164	161	159	156	153	151	148	146	143	141	138	136	134	131	129	127	124

EATCF, Operation

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	Year21	Year22	Year23	Year24	Year25
NOI	192	188	185	182	179	176	173	170	167	164	161	159	156	153	151	148	146	143	141	138	136	134	131	129	127
CapEx	19	19	19	18	18	18	17	17	17	16	16	16	16	15	15	15	15	14	14	14	14	13	13	13	13
PBTCF	172	169	167	164	161	158	156	153	150	148	145	143	140	138	136	133	131	129	127	124	122	120	118	116	114
Debt Service	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Tax	24	23	23	22	21	21	20	19	19	18	17	17	16	16	15	15	14	13	13	12	12	11	11	10	10
EATCF, Operation	148	146	144	142	140	138	136	134	132	130	128	126	124	122	120	119	117	115	114	112	110	109	107	106	104

Combined CF

	Year0	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	Year21	Year22	Year23	Year24	Year25
EATCF	2,047	148	146	144	142	140	138	136	134	132	130	128	126	124	122	120	119	117	115	114	112	110	109	107	106	1,466

NPV (GI cap rate)

6

IRR

5.7%

Income Tax Computation

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Year11	Year12	Year13	Year14	Year15	Year16	Year17	Year18	Year19	Year20	Year21	Year22	Year23	Year24	Year25
NOI	192	188	185	182	179	176	173	170	167	164	161	159	156	153	151	148	146	143	141	138	136	134	131	129	127
Interest Payment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82	82
Taxable Income	110	106	103	100	97	94	91	88	85	82	79	77	74	71	69	66	64	61	59	56	54	52	49	47	45
Income Tax	24	23	23	22	21	21	20	19	19	18	17	17	16	16	15	15	14	13	13	12	12	11	11	10	10
After-Tax Income	86	83	81	78	76	73	71	69	66	64	62	60	58	56	54	52	50	48	46	44	42	40	39	37	35

EATCF, Reversion

	Year25
Sale Price	1,685
Book Value	393
Book Gain	1,292
AT Capital Gain	969
Outstanding Loan	-
EATCF, Reversion	1,362

## V. CONCLUSION AND RECOMMENDATION

### A. Conclusion

This paper has examined the policy propriety through reviewing four policy aspects with regards to KEPCO's new business and has reviewed commercial viability through the study on marketability and financial analysis of KEPCO's real estate business as a case study to review new business of SOEs in the perspective of policy propriety and economic feasibility.

Basically, the new business of SOEs should contribute to the public interest by lowering or holding down utility rates by additional revenue from the new business. For example, if the lowering rate of electricity charges with the real estate business can be KEPCO's total sales divided by the revenue from the real estate business, accordingly, the more revenue from real estate business, the more contribution to the public interest can be realized.

In this regard, the economic feasibility of the new business and the policy to back up the economic feasibility are very important. With regards to the new business of SOEs, there would be various cases and areas but this paper only covered the case of real estate business.

This is a limitation of this paper to generalize the policy propriety and economic feasibility of the new business of all SOEs. Nevertheless, this study suggests that it is necessary for SOEs to conduct due diligence on the basis of business value for the new business of SOEs and this study also arrives at the conclusion that the autonomous and responsible management of SOEs should be reviewed on the preferential basis in policy aspects for the sake of more efficient business and more profitable performance.

### B. Recommendation

In terms of policy propriety of KEPCO's new business, considering the use of business profit only for financial resources of reinvestment in electricity facilities, KEPCO's utilization business of owning real estate can be thought to accord with the reasonable operation of electricity business and to be suitable for KEPCO's establishment purpose. KEPCO's new business creation can be also the smart case for improvement of financial soundness without harming GIEs' own establishment purpose. In regard of the role of the Government in the legislative progress, the Government committed itself to its duty to instruct and supervise the business of KEPCO for accomplishment of its establishment purpose. Positively, the Government regulated the range of KEPCO's new business and use of business profit to the extent of the distinct and limited areas for electricity business and flexibility of civil complaints. However, negatively, the Government tended to exert its influence excessively through prior consent of the business and to limit development way of the business for the sake of business stability. KEPCO may give up a huge profit from its real estate business and miss the timing of the business due to the regulation by the Government.

Generally, GIEs have their own independent audit department and all important decisions of GIEs are made by the board of directors which consists of inside and outside directors. Furthermore, GIEs should be regularly audited by the Government and the National Assembly. For these reasons, it is systematically difficult for GIEs to have reckless management. In this regard, there needs to be more governmental effort and consideration for autonomous and responsible management of SOEs in the legislative progress in order to make new business of SOEs more speedy and profitable.

In terms of economic feasibility, by and large, according to the time series data from reputable organizations, marketability and business value of real estate market in Korea are expected to be high. Especially, commercial buildings rental business, the main utilization business of owning real estate of KEPCO, shows stable and high level of the investment

return rate in comparison with other investment asset. Therefore, KEPCO's new business certainly has the high economic feasibility. However, there is a big deviation by region group in business value and real estate business can be affected by many variables, so it requires more prudent approach and analysis to develop real estate business on a case-by-case basis. In this context, it is needed for SOEs to develop new business by value-based strategy and analysis as actively as possible through the prior thorough due diligence considering economic and environmental factors for their management efficiency because the new business of SOEs should be profitable in the real business to gain the justification for the public interest by lowering or holding down utility rates by additional revenue from the new business.

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