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An Empirical Investigation on the Relative Performance of Real Estate Investment Trust and Real Estate Fund: Focusing on Korean Case

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DISSERTATION

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Abstract

The objective of this thesis is to empirically investigate the determinants of the returns to holding Real Estate Investment Trust (REIT) and Real Estate Investment Fund (REF) by using firm-level panel data covering 129 REIT and REF from Korea for the period of 2001 through 2018. Through the panel regression analyses, the following results are obtained. It is shown that the company status as REIT or REF is not statistically significant factor for Return on Asset (ROA) and that there is no statistically significant difference between stock exchange listed REIT and REF and non-listed REIT and REF in return earnings. Nonetheless, the indicator of scale economy is shown to positively affect returns: one percent increase in asset raises ROA by 0.014 percent; and, the effect of the firm size is shown to be non-linear, i.e., increasing with decreasing rate indicating diminishing marginal returns that is consistent with the conventional microeconomic theory. The results also show that capital structure has a negative impact on the return: one percent increase in the liability to assets ratio decrease 0.314 percent in ROA. REIT is shown to be more responsive than REF in terms of the leverage effect on the return. Finally, it is shown that, ceteris paribus, highly levered firms are inflicted with a larger negative shock inflicted by that recent global financial crisis (GFC).

Regarding policy implication of REIT and REF in Developing Bangladesh, solving supply side constraint of housing in populated Bangladesh, real estate investment through REIT and REF may be a good alternative and by legal and institutional framework setting the country may introduce these indirect investment vehicles in the country.

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Acronyms

Acronym	Definition
AMCs	Asset Management Companies
ABS	Asset-backed Securitization
APREA	Asia Pacific Real Estate Association
APT	Arbitrage Pricing Theory
BC	beneficiary certificate
CAPM	Capital Asset Pricing Model
CBD	Central Business District
CSFCs	Credit Specialized Financial Companies
CPI	Consumer Price Index
CR	Corporate Restructuring
CRE	Commercial Real Estate
DEA	Data Envelopment Analysis
DISD	Division for Social Inclusive Social Development
EM-REIT	Entrusted Management REIT
EPRA	European Public Real Estate Association
ET	Entrusted
FCs	Futures Companies
FISCMA	Financial Investment Services and Capital Markets Act
FSC	Financial Services Commission
FSS	Financial Supervisory Service
GAAP	Generally Accepted Accounting Principles
GDP	Gross Domestic Product
GFC	Global Financial Crisis
GPV	Government Posted Value

Acronym	Definition
HK-REITs	Hong Kong REITS
IBT	Income Before Tax
IFLR	International Financial Law Review
IIAMBA	Indirect Investment Asset Management Business Act
IRS	Internal Revenue Service
J-REITs	Japan REITs
KAREIT	Korea Association of Real Estate Investment Trust
KDI	Korea Development Institute
KOCREF	Korea Corporate Restructuring Real Estate Fund
KOFIA	Korea Financial Investment Association
KONEX	Korea New Exchange
KORAMCO	Korea Real Asset Management Company
KOSDAQ	Korea Securities Dealers Association
KOSPI	Korea Composite Stock Price Index
K-REIT	Korean REIT
KRX	Korea Stock Exchange
KSD	Korea Securities Depository
KSFC	Korea Securities Finance Corporation
MBS	Mortgage-backed securities
MOLIT	Ministry of Land, Infrastructure and Transport
MOSF	Ministry of Strategy and Finance
M-REIT	Mortgage-REIT
NAREIT	National Association of Real Estate Investment Trusts
NAV	Net Asset Value
NI	Net Income
NYSE	New York Stock Exchange
OECD	Organization for Economic Co-operation and Development

Acronym	Definition
OSC	The Ontario Securities Commission, Canada
PEF	Private equity fund
REDBA	Real Estate Development Business
REF	Real Estate Investment Fund
REICA	Real Estate Investment Company Act
REIT	Real Estate Investment Trust
RELP	Real Estate Limited Partnership
REPEF	Real Estate Private Equity Funds
ROA	Return on Assets
ROE	Return on Equity
ROK	Republic of Korea
SC	Securities Companies
SDGs	Sustainable Development Goals
SEquity	Share Holder Equity
SEC	Securities and Exchange Commission
SEICA	Securities Investment Company Act
S-REITs	Singapore REITs
S-REITs	Self-Managed REITs
UNDESA	United Nations Department of Economic and Social Affairs
UNEP	The United Nations Environment Programme
VC	Venture capital
VCCs	Venture Capital Companies

1. Introduction

1.1. Motivation, Research Objective, Summary of Findings, My contribution, and the organization of thesis

Asian real estate market is prospering specially at indirect financing/investment in real estate like Real Estate Investment Trust (REIT) and Real Estate Fund (REF) with the expansion of its economy. Among the major economies in the world, Korean real estate comprises more than 50% of households' total assets. The national wealth of Korea is amounted to 1.3078 quadrillion won, 86.44% or 1.1305 quadrillion won of which are represented by land (6,981.2 trillion won) and buildings (4,323.8 trillion won) (Statistics Korea, 2016). Again, according to the 2016 Household Finance & Welfare Survey by Statistics Korea, domestic households had average 342.46 million won of assets, 68.2% or 233.45 million won of which were held in real estate. In the case of the share of real estate wealth of USA is 35% only of national wealth (Shyn, Yong Sang, 2018). Homes owning for investment rate is much higher in Korea compared to major global economies like US, UK, Australia and the Netherlands' (Mirae Assets Retirement Institute, 2018).

On the other hand, considering indirect investment in real estate assets, US and Australia are the first two countries that introduced REITs at the foremost and market capitalization of publicly traded REITs each represent 5.75% (227 REITs worth 1,259.9 trillion won) and 7.83% (56 REITs worth 120.1 trillion won) of nominal GDP as of end-June 2017 (Shyn, Yong Sang, 2018). The same share in Japan and Singapore, which introduced REITs around the same time as the Republic of Korea, each stands at 2.14% (58 REITs worth 116.7 trillion won) and 17.86% (36 REITs worth 58.8 trillion won), compared to the Republic of Korea's 0.02% (4 REITs worth 0.3 trillion won (Shyn, Yong Sang, 2018). Considering the size of economy and the advancement of overall financial markets in Korea, the country's indirect investment vehicles in real estate, K-REITs and K-REFs remain weak and are lagging far behind not only from their global peers like USA, UK, Australia but also from their Asian peers like Japan, Singapore, Hong Kong and even

Malaysia and Thailand though Korea started its journey with REITs pioneers in Asia. Modern portfolio theory suggests the existence of a market portfolio consisting of all assets available for investment (Kuhle L. James, et al., 1986) but real estate assets have been failed to include at market portfolio in Korea and its consequences real estate assets trade infrequently in the country due to unavailable of shares of REITs and REFs in the Korean financial market.

It is also mentionable that over 98 percent of Koreans aged from 25 to 34 graduated from junior college, university or graduate school and 65 percent of Korean 25-34 year olds have attained tertiary education which is the highest rate of participation in upper secondary and tertiary education among the 32 OECD countries. South Korea has eight universities on the list of "Reuters Top 100: The World's Most Innovative Universities – 2018" (Reuters, 2018). The described information demonstrates Korean strength in having well educated work force (human capital) to run knowledge-intensive service industries like indirect investment vehicle based on real estate assets industries for transition in knowledge economy (OECD, 2009).

In the context of possession of higher percentage of real estate wealth, high skilled human capital, advancement in science & technology oriented service industry but very slow progress of knowledge intensive REIT and REF industries in Korea has instigated me to learn more on real estate financing modality in this country. Therefore, above features of financial market in Korea, stimulates me to conduct a distinctive research on the relative Performance measurement of Real Estate Investment Trust and Real Estate Fund in Korea's Real Estate Financial Market.

Regarding research on indirect investment in real estate industry, there are rapid growths of non-listed indirect real estate indirect investment vehicle like non-listed REIT and non-listed REF in financial market around the world but academic research has failed to keep up same speed with this development. It is mentionable that a substantial amount of research has been conducted on the US REIT market and other mature, advanced REIT market like Germany, UK, Australia etc owing largely to the availability of data and relatively long time series. In Asian countries a considerable amount of research has been attempted to examine Japan REITs (J-

REITs), Singapore REITs (S-REITs), Hong Kong REITS (HK-REITs) in the area of performance, return analysis etc. But it is also mentionable that most of the researches around the globe are based on the stock exchange listed & traded REIT due to unavailability of externally audited non-listed REIT. Again, there are scarce researches on listed and non listed REF. Though the existing studies on real estate investments predominantly focus on REITs specially listed REITs and to date there have been only few publications that examine REFs (Lin, C., & Yung, K. 2004). Again, within REFs research, there are scanty studies on non-listed real estate funds though it has shown rapid growth over the last several years that contributed towards establishing this sector as a major investment vehicle for gaining exposure to commercial real estate (Matysiak, G., & Fuerst, F. 2009). To the best of my knowledge there is no research which conducted study on performance comparison in the four dimensional spheres like stock exchange listed REIT and REF and non-listed REIT and REF. Again, there are scanty researches which took a longer sample period like 10 years or 15 years due to meager data availability of available time series with cross section dimension (Panel data). It is also mentionable that the researches which worked on non-listed REIT and REF have not confirmed that the sample had taken from externally audited company only or not though financial figures require systematic and independent examination, verification or authentication by professional third party (audit company) ensure the trustworthiness of the research. It is also acknowledged that K-REITs are little known due to the lack of available reliable data and in this consequence a few set of researches are available for real estate investment in Korea (Jin, C., & Kim, K. 2017). Again, Korea is the unique case where there is existence of a significant amount of externally audited non-listed REITs and REFs with the presence of stock exchange listed REIT and REF.

The objective of this research is to fill the gap through focusing on REIT and REF firm level characteristics (cross section dimension) to return earnings with extended period of time (time series). The purpose of my research is to verify the characteristics of REIT or REF companies as the determinants of return earnings in terms of Return on Assets (ROA) where the characteristics are operational status as REIT or REF, listing status (listed or not listed) in the stock exchange, economy of scale effect, capital structure, leverage ratio, special purpose REIT

(CR-REIT) etc which had not been studied in Korean market previously. This empirical study is important due to measuring performance of an investment vehicle is a great way to understand the weakness and strength of that vehicle and assist in better management & improve the overall functioning state what currently is practiced. Again, performance of an investment vehicle is the sign of investor's choice of investment mostly based on the performance of the investment vehicle. It is very much true that with having real estate wealth potentials, skilled human capitals Korea's REIT and REF have failed to keep in same speed with their regional counterparts though the staring time was same for them. The current research endeavors try to quantify the performance of stock exchange listed REIT and non-listed REIT as well as stock exchange listed REF and non-listed REF using a unique externally audited credible sample (129 externally audited companies) of extensive sample period ranging from year 2001 to year 2018 which will able to decipher the performance of REIT and REF. As the research has been conducted on Korean financial market, a real estate rich emerging market outside of matured market U.S. and Australia will enrich existing literature on REIT and REF.

The research reveals that the company status as REIT or REF is not statistically significant and not the important determinant to Return earnings (ROA) thereof. The study is also found that that there is no statistically significant difference between stock exchange listed REIT and REF and non-listed REIT and REF in ROA measurement. However, the representing economy of scale variable is shown that there is positively association between assets and return earnings: 1% positive change of Assets increase 0.014 in the income before tax-Assets ratio (ROA) and non-linearity has been shown in case of the findings of the firm size, i.e., increasing with decreasing rate indicating diminishing marginal returns that is consistent with the conventional microeconomic theory. It is found that capital structure plays statistically significant negative role in return earnings: and it is stated that one percent increase in the liability- assets ratio decreases 0.314 percent in income before tax Assets ratio (ROA). In terms of the leverage effect on the return earnings, REIT is revealed to be more responsive than REF. Finally, it is shown that, ceteris paribus, highly levered firms are inflicted with a larger negative shock inflicted by that global financial crisis (GFC) in 2009.

It is strongly believed that this research will enrich existing literature in REIT and REF industry. The organization of the thesis is introduction, literature review and hypothesis, research methodology, results and discussion, and recommendation with concluding remarks

1.2. Institutional Arrangement

The Real Estate Investment Trust (REITs), a medium or vehicle of indirect investment to funnel investable funds towards income-generating real properties through the process of operation, possession and financing that conceptualized to enable small and marginal financiers for participation in gigantic commercial real estate ventures by buying in a portfolio of assets (The Economic Times, 2018). REIT started its regime in Republic of Korea (ROK) from year 2001 by enacting the Real Estate Investment Company Act (REICA) and the country has been positioned as one of the pioneer states in Asia with its other counterparts like Japan, Singapore and Hong Kong (Pham, Anh Khoi, 2011). But as an early adopter of REITs regime, having a favorable size of economy, possessing the real estate assets as a significant portion of the nation's wealth, Korea has failed to run its REITs scheme with same speed compare to the abovementioned counterparts. In terms of total assets and total market capitalization K-REITs is considerably smaller than these countries (Pham, Anh Khoi, 2011). Actually, Real estate financing specially REITs in Korea (K-REITs) had been introduced to help financially distressed firms by liquidating holding properties and securitizing their assets to revitalize their financial health in response to the Asian Financial Crisis in the late 1990s that hardly shattered most of east Asian economies including Korea in 1997 (Jin, C., & Kim, K. 2017). To strengthen such efforts two important laws were enacted "the Asset-backed Securitization Act (ABS act)" in 1998 and the REICA in 2001, correspondingly. REITs must be established as joint stock companies (chusik hoesa in Korean) but stock exchange listing in Korea Stock Exchange (KRX) is not mandatory. When a company is listed in KRX its shares (stocks) are traded publicly in KRX and the Securities Exchange Act is applied in this regards. Again, to develop, promote and regulate of REIT as collective investment vehicles the law on Administration and Promotion of Real Estate Development Business (REDBA) of December 2007 was enacted. The guardian/controlling authority of REIT is

the Ministry of Land, Infrastructure and Transport (MOLIT). To manage the asset and to operate REIT business it is obligatory to obtain prior approval from MOLIT.

On the other hand under the Financial Investment Services and Capital Markets Act (FISCMA), Real Estate Fund (REF) has been established in Korea as a collective investment vehicle and to going as REF operation, a company is required to have a registration from the Financial Services Commission (FSC), the supervisory authority of REF in the country. With the implementation of ABS act, REICA and the execution of the Indirect Investment Asset Management Business Act (IIAMBA) and FISCMA played a significant role in the area of indirect investment fund structurization, assets management as well as safeguarding the investors interest, easing the process of financial innovation and ensuring the fair competition in the capital market, fostering the investment venture in real estate financial sector, thereby enhancing the fairness, consistency, dependability and competency of the capital market. Again, by the shifting of policy regime in the financial sector, marginal people are able to invest their small savings to participate in large real estate projects through buying share of REIT and REF.

As Korea is moving from an aging to an aged society, the Korean economy and capital market must be ready for taking the challenges and adopt macro prudential policies, inclusive strategies to ensure retirees; senior & marginal citizens have access to the funds necessary to live on the steady earnings with minimum involvement in the professional funds management (KOFIA, 2011). Again, it is stated that financial supervisory and regulatory frameworks are essentials to ensure good governance, to improve the transparency of financial sector information, to strengthen financial resilience and soundness and then render the stable income streams to the investors.

1.2.1. Real Estate Investment Vehicles and Sustainable Investing

Primarily, Real Estate Investments can be classified as Direct and Indirect Equity Investment where all ownership related rights, responsibilities and interests are considered. In the case of indirect real estate Investments, proficient finance and investment personnel are required to engage as well as need to know best practices, state of the art technology and call for keeping update them regularly to cop up situation in changing environment in real estate finance sectors (KORAMCO, 2018). Then indirect investment can be segregated into Real Estate Limited Partnership (RELP), Real Estate Fund (REF) and Real Estate Investment Trusts (REITs). The RELP is composed of limited partners and general partners that governed by a limited partnership agreement to operate in a finite number of years and controlled by general partners. In RELP, limited partners serve as the investors for injecting capital in the fund and general partners in turn manage the development of real estate to sell it at a profit. However, RELP seem to be illiquid investments due to investors are able to withdrawal the cash out at schedule intermissions or frequently at all, up to dissolution of the RELP (Investopedia, 2018). REF can be divided into Real Estate Private Equity Funds (REPEF) and others. REPEF pools together individual and institutional investments in order to enjoy flexible investment in the real based markets for incorporation of diversified investment concepts such as core, value added and opportunistic strategies to achieve its overall objectives. REPEF is mostly non-listed, close end funds with fixed period investment usually between five and ten years. Besides REPEF, in REF there are other funds like mortgage investment entity, syndicated mortgage investments in Canada (OSC, 2018), open-ended property funds in Germany (Schweizer, D., Hab, et al, 2013). REITs, a model of mutual funds based structure welcomes investment from all sorts of investors, big, mid, small, institutional and individual. The investment destination of REIT companies is concentrated mainly in real properties and derivatives of real properties like shares bonds (securities) and unlocks the doors of income earnings periodically in consistent modality, diversification of portfolios as well capital appreciation in long-term basis.

It is mentionable that the "Division for Social Inclusive Social Development (DISD)" of the "United Nations Department of Economic and Social Affairs (UNDESA)" adopted "17

Sustainable Development Goals (SDGs)" of which Goal-11 "Make cities and human settlements inclusive, safe, resilient and sustainable is one of the important goal" based on the principle of "leaving no one behind", emphasized a holistic approach to achieve sustainable development for all through sustainable investing in built environment (UNEP, F. 2015). To attain Goal 11 of SDG, real estate investment stakeholders like regulators, researchers, investors, intermediaries are the keys and can play very crucial role in their business thinking, practices and management processes. Considering three spheres like environmental, social and governance (ESG) issues, "Sustainable Investment" is a broad spectrum for investment perspective through investing with the intention of generating a measurable, beneficial, social or environmental impact like curbing energy consumption and carbon pollution along with an attractive financial return by enhanced asset value. In sustainable real estate venture, selection of managers with proven active investment approaches, proven knowledge of sustainability is highly desired who can contribute to sustainability benchmarking at portfolio and operational levels and assess performance of the employees that eventually secure high return. Again, there is statistically significant positive correlation with lower cost of capital, good accounting practices, enhanced performance and higher ESG ratings (Oppenheimer Funds, 2017).

1.2.2. History and Practice of REIT and REF

REIT concept was derived from USA through the commencement of Real Estate Investment Trust Act under the titled of the Cigar Excise Tax Extension Act in 1960, created a new approach of indirect investment and paved the way for income-generating real estate investment– "a manner in which the best attributes of real estate and stock-based investment are combined" (NAREIT, 2018). In 1965, the first REIT had enlisted in the New York Stock Exchange (NYSE) which presence in the financial market paved the way to introduce REF to start its voyage in 1989 as a third-tier real estate investment vehicle. REIT achieved success and flourished in USA market through commercial real estate investment which attracted all sort of investors. Analogous instruments introduced in European market (Netherlands, Belgium), Australia and Asian stock exchanges market (Japan, South Korea, Singapore, Hong Kong) thereafter

Figure: 1 Listings of REIT Real Estate in USA from 1960 to 2015
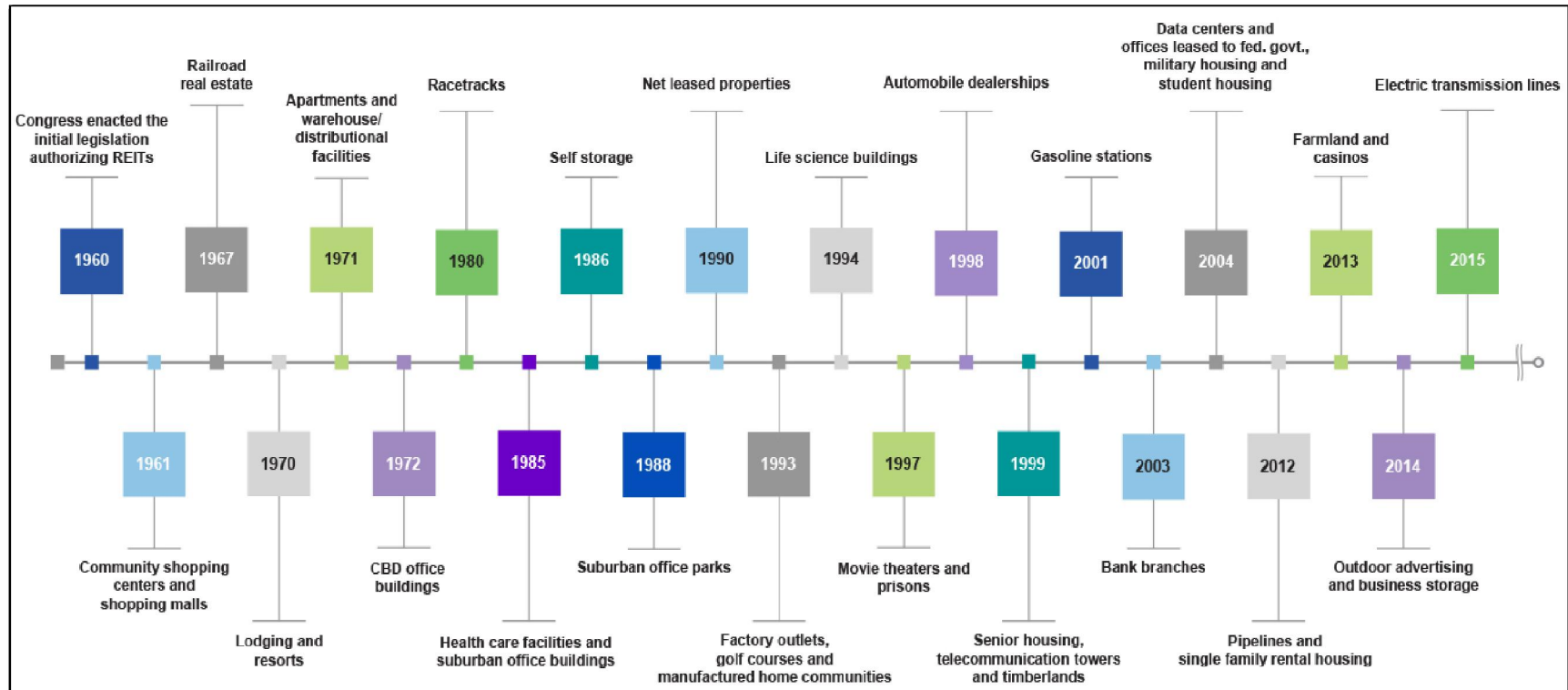
Source: NAREIT, 2017

(The Economic Times, 2018 and APREA, 2014). After initiation in USA at 1961, Real Estate Investment Trust (REIT) is introduced itself in the worldwide as an establishment in the structural form of corporation, company, trust or association that offers to the investors a passive method of investing in real estates.

According to the definition of NAREIT, the National association of REITs, "A REIT is a company that owns and, in most cases, operates income- producing real estate such as apartments, shopping centers, offices, hotels and warehouses". Received funds from multiple investors are invested income-generating real estate properties, development project, real estate securities, shares of REITs and their international equivalents and generated profits are distributed to investors as dividends (NAREIT, 2018). These investment companies may have to meet a number of requirements in the area of governing structure, ownership, Capital Stock, Investment portfolio (asset, development project), earned revenue portfolio, dividend payout to qualify as REITs. Actually, REIT was commenced to achieve certain policy goals to modernize the real estate market through enhanced transparency and efficiency, and to advance the real estate capital market. Based on equity and liability (debt) financing modality, REITs are mainly classified on the basis of financing modality like equity financing (equity REITs) and debt financing (mortgage REITs-mREITs) and hybrid financing (hybrid REITs). Equity REITs are engaged in acquiring, renovating and or building, maintaining facilities, renting and as well as selling real properties to generate revenues and it is mentionable that lion share of revenues are generated from rental incomes from their real estate holdings. On the other hand, financing modality and generation of earnings are different in the case of mortgage REITS which usually provide loan to real estate buyers or acquire available mortgages in the market or obtain mortgage-backed securities (MBS) and earn interest on their mortgage loans thereof. Structurally a composition of equity REITs and mortgage REITs are represented by Hybrid REITs. Considering governing or managerial structure REITs can be divided as internally controlled (self managed) and externally controlled (paper company, contracted out to external service provider) and regarding listing in stock exchange, REITs are bifurcated as listed (shares trade on national stock exchanges) and non-listed/private REITs (non registered by Securities and Exchange Commission-SEC).

On the other hand "a Real Estate Fund (REF) is structurally a special type of mutual fund characterized by indirect real estate investment vehicles that primarily focuses on investing in securities offered by public real estate companies" (NAREIT, 2018; Investopedia,

2018). Generally, the greater part of REF's investment focused on commercial real properties and the remaining parts are invested in raw land, development of land for commercial uses, residential complexes and agricultural space (Investopedia, 2018). Through REF, small and marginal investors able to invest large commercial real properties by buying a share of those properties which was impossible due to lack of a sufficient asset base to participate in commercial real estate in any direct sense (Investopedia, 2018). REF can be categorized as an open ended (having no restrictions on the amount of shares) and a close ended REF (fixed number of shares). On the basis of demand of REF's share in the market, buying and selling operations are done for Open-ended REF at their net asset value, or NAV. Again, the worth of underlying securities of a fund work as the decisive factor for NAV valuation. Buying and selling shares of Open-ended REF are done by investors through directly from a fund rather than traded on stock exchanges. However, "the illiquid nature of a REF's investment assets may make the open-ended structure unworkable since it presents the fund with the dual problems of establishing a fair value for each contributing and withdrawing investors" (Investment Law Group, 2018). Again, "Closed-ended REF cause all investors to join the REF's at the same time, removing the issues concerning the initial value of their investments, and restrictions may be crafted to match investor withdrawal rights with the fund's liquidity profile" (Investment Law Group, 2018). Trading of Close-ended REF's share are held on a stock exchange among the participant investors like stocks and the demand and supply are the determining factors for pricing the traded share in the secondary market. It is mentionable that both of Open-ended REF and Closed-ended REF are characterized as pass-through business venture where single taxation methodology (individual income tax) is applied instead of double taxation (e.g. corporation taxation) (Tax Foundation, 2018; Investment Law Group, 2018). There is another special type REF called exchange-traded REF which are also traded (some small ET-REF trade infrequently) on an exchange like stocks. Regarding market price of ET-REF, it is stated that the price is nearer to their NAV than closed-end REF. Again, regarding governing structure and asset management REF can be classified as corporate/ company REF and Trust REF.

Usually in the case of operational performance, both REIT and REF follow the conventional economic pathway and as alternative investment vehicles both are working as the ideal building blocks for wealth creation and preservation. Global real property market has got momentum and market capitalization has been quadrupled over the years by handling expert professionals in this sector. These indirect investment vehicles form diversified portfolio as well as reduce the dependency on direct real property investments that are highly illiquid, required large capital possession.

Therefore, from the above discussion it is stated that the main difference between REITs and REFs (Open ended) is the liquidating procedure of illiquid underlying real estate asset. In the case of REFs to liquidate, redemption is the main instrument but REIT does not allow early redemption procedure completely.

1.2.3. Advantaged and Disadvantaged of REITs and REFs

Both REITs and REF, well known as alternative investing vehicle are used when investors want to diversify a long-term investment portfolio. Sometimes both investment vehicles show analogous operational mode where investors integrate their all capitals to buy a share or stock of commercial real properties then get return from their stocks. It is mentionable that both vehicles have some intrinsic worth and shortcoming regarding investment and return earnings.

Mortgage REITs (m-REITs) provide higher yields than equity REITs. Mortgage REITs earn by two ways like receiving interest through loaning the securities and gaining capital for appreciated value on the collateral of loaned securities. On the other hand, assets are the key tool in equity REITs instead of mortgage loans and gaining capital is the means of earning for equity REITs. In the case of comparing capital gains between equity REITs and m-REITs, equity REITs gain significantly higher capital than m-REITs as through lending, capital gain is not possible like value appreciation of capital. M-REITs' potential earning source is the mortgage interest rates and the increase and decrease of mortgage interest rates fluctuate the earning of the m-REITs.

Again, capital appreciation in long term may not be possible due to REITs usually deliver more of its earnings.

In the case of REIT, the abovementioned three types of REIT and open-ended REF have been considered to discuss their advantages and disadvantages in this study.

1.2.3.1. Advantages of REIT

Predictable cash flow and higher dividends: REITs is distinguished from other investments for obtaining enhanced income and higher probability of getting extensive period of growth. REIT investors are quite confident that they will continually receive higher dividends as far as the REIT becomes profitable and 90% pay out system of its income as dividends is followed. Again, as inflation is common phenomenon in growing economy, values of real property seem to enhance in this financial system and through investment in tangible assets, REITs investors may get higher return with stable cash flow. Lease contract with tenants for extensive period is rewarding for the REIT investors by securing revenue generation for a lengthy period. Through this procedure, stable cash flow can be predicted well.

Less volatility of REIT price: The beta, a measure of price volatility of REIT in the stock exchange and consequently, risk, has been historically much lower than stocks at most times. Again, due to less volatile nature of REITs, its cash flows and business is as expected.

Liquidity: Through operation as REITs in real property market, a high liquid environment can be prevailed in real financial system. REIT shares are traded on the major stock exchanges in the world that makes REITs share buying and selling very easy. This unique distinctive feature is fundamental that enables investors to get trouble free access and as well as manages their portfolio; get the information of current prices in daily market; and adjust their invested capital to get benefit from attractive opportunities. On the other hand, a huge time, exertion and operating expense as well as professional knowledge are required for direct buying and selling modality of real property to convert illiquid form to cash form.

Managerial Efficiency: Professional knowledge in REITs operation is perquisite for successful venture. Through expertise knowledge and skill property operating efficiencies enhanced in the area of pursuing acquisitions, dispositions and development of properties. Competent Management policy directives also assist in driving value creation through effective capital allocation. These managerial excellencies trigger better outcome from REITs investments and it works as the goodwill of the company (add value to the company) which attract to the investors and shareholders. Though the investors enjoy the full benefit from the managerial competence but have no direct expenses or obligations in daily work for the management of their real estates.

Transparency: The Securities and Exchange Commission (SEC) is the sole authority to enlist the company and give registration number to the listed REITs (Traded REIT). The stock exchange listed company is bound to follow the rules and regulations, disciplines of SEC such as periodical disclosures of sensitive information related to share price, publishes audited financial statements, examined by analysts every day & oversight by board of directors/trustees to trade in stock exchange. As traded in the open market, REITs are fully open to the investors who can get detailed information about how the REITs are currently assessed at the market and they easily verify the value of their stocks. This assists to secure corporate governance and makes REIT operations more transparent to investors.

History of Outperforming the Market Index: Over the years, REIT stock record analysis in the leading stock exchanges like NYSE and Singapore showed that REITs stock alpha is higher (greater than Zero) relative to the benchmark index that means REITs stock outperformed the index.

Diversifiability: "REITs are highly flexible, allowing investors to invest in a range of real estate from commercial properties to shopping malls" (Investopedia, 2018). REITs was established for inclusion of small and marginal investors in real property markets where they can enjoy benefits with the large investors alike and help investors to diversify their income streams.

Mitigation of risk at the property level, getting access to the extensive real property markets with great variation in the geographic locations can be ensured through diversification of REITs regime by its sector, property type, and geography. Again, through diversification in asset base of RIETs portfolio, investors may also mitigate potential risks in their investment.

Choice: REITs offer a lot of choice to individual investors through presenting equity based REIT, debt based investment opportunity. Therefore, Risk loving investors and risk avert investors can choose their best suitable REITs. An individual investor may create risk-reward portfolio through buying a combination of debt and equity based REITs.

Great Inflation Hedge: REITs earning through the combination of rental income and value appreciation can beat inflation.

Exemption of Corporate Income Tax: In most of the countries, as a business entity, REITs do not have to pay Corporate Income Tax. As a result, REITs can distribute higher return among its share holder than other corporations.

Comparative Secure Investment: A good portion of REITs investment goes on tangible assets management like real estate & land development; as a result the investment is more secure than other investments. Again, usually oversupply problem is not occurred in the case of commercial real property, so values of real property increase slowly at the time of demand rises.

Inclusive Investment: Comparisons to direct investment in real estate properties, the advantages of investment in REITs include lesser investment cost at the time of entrance in the market. REITs makes pave the way for marginal people to invest large in commercial real estate by buying its share with small amounts of money and make away to get financial benefit from great venture as well as enhance social cohesion. As for example, REIT investors can invest for a unit of share or the price is as little as $500 in USA.

Cross-border Investment: Through REIT, cross border investment in real estate sector may raise capital stock in the invested/developing country and investee country share holders may get benefit through dividend also (e.g. Singaporean REIT invested in China and India).

From the above discussion it is stated that the success factors in the demand-side (of liquidity) include: an "asset-light" business strategy on the part of large real estate holders, usually triggered by an economy-wide shock; the supply of high-quality properties that generate acceptable returns to the capital market; and, a credible business counterparty for REITs stock offerings In the supply-side, the discipline imposed by the capital market through disclosure requirements, monitoring, as well as merger & acquisition threat, works as a critical factor in nurturing a REITs system, which is often replaced by regulatory requirements (Man, Cho 2016).

1.2.3.4. Disadvantages of REIT

Incapable of reinvested and grow Faster: The rule of paying out 90% of REITs earnings as dividend to shareholders may work as a double-edged sword too. Maximum 10% of REITs yearly earnings are retained and reinvested in doing core businesses is possible by following this regulation. Through this reinvestment methodology, hence REIT can remain stagnant for many years without visible progress. To grow, many REIT issue new units that dilute current share holders' equity or expansion its borrowings from financial institutions due to incapacity of reinvestment of its own earnings.

Highly Leveraged: It is mentionable that REITs Company may be drown with high leverage ratio by implementing paying out 90% of its earnings due to lack of available capital to run and expansion its business activity. This would result in higher interest payment and funds go out from the business venture and reduce their earnings. Higher leverage also lures REITs management to purchase more assets than they have in share holders' equity which create additional risks as REITs may face difficulty paying off its debt in hard times. It is tough for ordinary investors to go through on REITs higher or lower leverage portfolio.

Cyclical reasoning of Real estate: Real estate poses a cyclical market having four phases like recovery, expansion, hyper supply, recession and this cyclical downturn period of the real estate market may make REITs business unstable due to its main revenue source is real estate properties**.**

REITs Tax treatment: Though as a business entity REIT is exempted from corporate tax but REITs are required to pay property taxes. Naturally, REITs investment concentrates on properties and its tax expenses which can sum up as 25% of total operating cost that may reduce its cash flows and lessen dividend to shareholders.

It is also mentionable that the following 5 things are important elements in a REIT investments
i) Funds from Operations (FFO) payout; ii) Occupancy & Tenant Diversification; iii) Plans for growth; iv) Debt, Cost of Capital & Risks; v) Dividend Growth.

1.2.3.3. Advantages of REF

Alternative to Purchasing Property & Flexibility to Investment: Small investors may invest to purchase large commercial property with their limited capacity. Investors are flexible to select their suitable REF considering on their financial goals and the amount of income available to invest in real estate properties.

Diversification of Portfolio: Residential, commercial and rental projects are the major part of REF investment portfolio and small investors may diversify their portfolio through investment in these sectors.

High Liquidity: Due to reselling a real estate property might not be easy, investment in direct real estate offers low liquidity. In contrast, investing in real REFs may facilitate you to get higher gains when the market follows upward trend and you may liquidate your funds whenever you want.

Portfolio Stability: High skilled Professional manager operated REF efficiently balances out the high-risk investments in the portfolio. As a result in spite of having price fluctuation in real estate property market, REF is not affected by a large extent.

Protection against Inflation: During inflation, price of real estate property and rent increases which may lead to a go up the worth of real estate as well, this may in turn enhance the value of REF unit shares.

1.2.3.4. Disadvantages of REF

Market Volatility & Risk: Regarding volatility of fund market valuation, there are funds such as broader-based growth or income funds which tend to be less volatile than REFs. In a booming market REFs may show better performance but when market is in downturn the scenario may go completely opposite direction. Therefore, "as with any other sector, investors can generally expect to be hit hard in REFs when the real estate market collapses, and should keep a long-term perspective when allocating funds to this sector" (Investopedia, 2018).

Interest Rate Risk: When interest rate rises in the economy or in the high interest rest regime, the interest expenses and related cost overrun occurs that may lessen the return earnings of the company.

Maintenance of Cash in Hand: According to the demand and supply in the real property markets, buying and selling of REFs are held at their NAV. Therefore, REF must maintain certain cash reserves to meet redemptions in the daily operation which seems a burden for REF investment.

Concentration in Real Estate Securities Risk: As the REFs investment mostly concentrate on real estate sector venture products like securities, stock, property then it's portfolio exposes higher risk than other diversified portfolio due to high dependency only one sector.

Repurchase Policy Risks: Quarterly repurchases by the REFs of its shares typically funded from available cash. But when repurchased pressure is higher than available cash holdings then sales of portfolio securities or liquidating existing portfolio holdings may be required or may borrow money to finance repurchases of shares. Potential losses may be incurred to liquidate existing portfolio holdings with shortest possible time. Again borrowing money, interest may negatively affect shareholders by increasing the REFs' expenses and reducing net investment income.

Opening of New REF and Cannibalization: Launching a new REF may come from at the cost of family's existing REF

No Minimum amount to launch new REF: In order to commence operations, there is absence of any specific amount to raise the fund up to that amount to proceed of REF. Again, the advisers may advise certain amount but sometimes to raise such amount may be a timely manner and may negatively impact on the diversity of the portfolio.

1.2.4. Korean Financial Market

In conventional sense, the Korean financial market composed of financial institutions and financial products which are classified as short and long-term financial products that are dealing in relation to procurement and operation of funds, a foreign exchange market, and a derivatives market. "Financial institutions handled financial services in the country, which are categorized into schedule banks, non-bank deposit handling institutions that handle financial products similar to bank deposits, securities companies and asset management companies, insurance companies, and other financial institutions" (Asefeso, Ade 2012). The government continues to refine the Financial Investment and Capital Markets Act-2009 to promote greater deregulation and innovation in the financial services industry and address gaps in its coverage (KOFIA, 2011). Capital market related financial institutions such as securities companies, asset management companies, merchant banks, futures companies, trust companies are in weak condition in the area of return earnings configuration, business models, competency and yield

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per worker. Through the implementation of the Capital Markets Consolidation Act, these companies will be consolidated and able to attain positive changes in the Korean capital market. Again, through this initiative, investment banks will act as the center point of financial companies and private equity fund will get momentum to be specialized, enlarged and the derivatives market will also boost up which will act as the decisive factor to shape Korea as the one of the leading hub of financial centers.

It is mentionable that due to the timely implementation of a bundle of policies by the Korean Government after the East Asian financial crisis in 1997, Korea's private equity fund (PEF), venture capital (VC) and real estate market is steadily growing despite the global economic recession and has great potential in the future as the country has a competitive edge in the fourth industrial revolution (www.investkorea.org).

1.2.4.1. Real Estate Organizational and Legal Environment in Korea

In Asian crisis, one of the hypothesis was the weak fundamentals view and to address this issue Korea had enacted several financial market governance related laws like Asset Backed Securitization (ABS)-Act 1998, Securities Investment Company Act (SEICA)-1998, Real Estate Investment Company Act (REICA)-2001, Indirect Investment Asset Management Business Act (IIAMBA)-2004, Administration and Promotion of Real Estate Development Business (REDBA) Act-2007, Financial Investment Services and Capital Markets Act (FISCMA)-2007 and amended quite a number of times, to strengthen the fundamentals of a company through regulatory reform. Among the acts, ABS Act was a milestone in real estate finance industry whose principle was "to contribute to the sound progress of the national economy by establishing a system of asset-backed securitization in order to enhance the soundness of the financial structure of financial institutions and corporations through facilitating their financing activities and in order to secure the basis of housing financing through stable supply of long-term housing loans, and by protecting the investors who invest in asset-backed securities" (Statutes of Republic of Korea, 2018).

To set up a real estate investment company, to manage property and assets efficiently and effectively thereof, to protect the ownership and interest of the shareholders, to render greater opportunity to the small and marginal peoples in the society, to create sound investment regime the Real Estate Investment Company Act (REICA) was required to establish for addressing abovementioned issues. The cause of Indirect Investment Asset Management Business Act's (IIAMBA) - initiation was to provide required recommendation in the area of structuring of the indirect investment fund, to organize assets, to protect the interest of investors. By this way IIAMBA plays a key role in revitalizing capital market through placing indirect investment vehicle in the market and lay contribution in developing national economy.

In Korea, major intermediaries in the financial markets are Korea Securities Depository (KSD), Korea Securities Finance Corporation (KSFC) and investment brokerage companies. Securities related intermediaries companies are Asset Management Companies (AMCs), Securities Finance Companies (SFCs), Credit Specialized Financial Companies (CSFCs), Futures Companies (FCs), Venture Capital Companies (VCCs), Securities Companies (SC), and other capital market financial institutions etc.

It is mentionable that in countries with advanced real estate industry like the US, the UK and Australia, real estates are often grouped together with finance and insurance and termed as FIRE (Finance, Insurance & Real Estate) which reflects a wide recognition that real estate is a part of finance or at least closely tied to it. But in the case of Korea, Ministry of Land,

Table1: Real Estate Organizations and Legal Framework in Korea

Organization	Activities
Ministry of Land, Infrastructure and Transport (MOLIT)	**Major Functions:** The MOLIT is a central governmental regulatory agency in charge for the followings: ▪ Management of Territorial Affairs ▪ Regional development in Balanced way ▪ Up-gradation the competitiveness in national level, Efficiency enhancement in construction ▪ Major Infrastructure develop, operate and manage fruitfully ▪ The **MOLIT** is administrative head of REITs and engaged in preparation of required laws, rules and regulation.
Ministry of Strategy and Finance (MOSF)	**Major Functions:** MOSF is a central governmental regulatory agency in charge for the followings: ▪ Preparation of National Policies in the area of socio-economic development (Mid Term and Long Term Policy) ▪ National Budget Preparation, ▪ Project Appraisal and Resource Allocation ▪ Monitoring and Evaluation of Development Projects ▪ Imposition of Tax and prepare required laws thereof ▪ Administers National treasury ▪ Oversees Financial institutions, State-owned enterprises ▪ Supervises government properties ▪ **MOSF** is the controlling authority of **REF** and **Capital Market**
Financial Supervisory Service (FSS) of Financial Services Commission	**Major Functions:** Financial Supervisory authority under Financial Services Commission, a central governmental regulatory agency in charge for the followings: ▪ Jointly and or supervise and regulate REF and ABS structures with MOSF.
Registration Office (Internet-Digitally) of Supreme Court, South Korea	**Major Functions:** Registration Office is central government (National Statutory Organization) regulatory agency in charge for the followings: ▪ Registration of land and building separately in digital way ▪ Preserve records of Court Registration.

Source: Oh, Yon Kyun et al, 2011.

Infrastructure and Transport (MOLIT) is the regulatory authority of Real Estate to oversee its function and make required laws and regulation for efficient functioning in the financial markets (Table-1).

1.2.4.2. Present Status, Characteristics and Classification of Korean REIT

According to Korea Association of Real Estate Investment Trust (KAREIT), there are currently operating a total of 186 REITs and the overall asset size being approximately 31. 97 trillion won as at the end of September 2017 (Table: 2). It is mentionable that from 2012 to 2017 the total net asset increased more than 2.5 times. But there are some strict regulations which are obligatory to follow by the REIT companies that might affect the growth of REIT. Two types of REIT exist in Korea which are Traded and Non-traded REIT and Non-traded REITs are the majority.

Table: 2   REITs Performance in Korea   (100mn won)

Year	No. of REITs growth			Net Assets	Total Assets
	New REITs	REITs in Operation	Net Growth		
2002	4	4	-	3,285	5,584
2003	4	8	4	7,064	11,460
2004	2	10	2	8,014	14,360
2005	2	11	1	10,085	17,439
2006	4	14	3	10,463	33, 296
2007	6	18	4	23,926	49, 819
2008	5	20	2	27,743	48,724
2009	19	36	16	39,979	69,891
2010	17	50	14	35,597	76, 312
2011	31	69	19	41,996	82,308
2012	18	71	2	54,002	95,291
2013	20	80	9	59,156	117,876
2014	27	98	18	70,478	149,682
2015	41	125	27	84,070	180,180
2016	57	169	44	107,344	250,928
2017.1Q	6	175	6	116,492	281,778
2017.2Q	9	181	6	119,932	290,407
2017.3Q	9	186	5	123,115	319,664

Source: KAREIT, 2018

The following requirements and restrictions are obligatory to operate REITs in Korea:

❖ MOLIT is the approval authority to run REITs in Korea and the approval process take time around from 45 days to 60 days (six to eight weeks).

❖ After the date of receiving approval from MOLIT, it is required to go for public offering 30% of total REITs issuing stocks within one and half year. Sometimes this rule is not applied for certain conditions.

❖ Principally, the upper limit of holding (owning) REITs share by its individual sponsoring shareholder is 40% of total issuing share

It is argued that more rigorous legal constraints are applied to public REITs (Traded REITs) and only ten percent of the total REITs are found in the public (stock) market (Jin, C., & Kim, K. 2017). Due to these legal constraints, the formation of privately-held REITs is preferred among investors. However, there is a strong consensus on the benefits of developing REITs in markets that are more public, which lean toward external management (Jin, C., & Kim, K. 2017). Business scope of Korean REIT (Asia Pacific Property Investment Guide, 2017) is the followings:

❖ Acquirement, supervision , improvement and discarding of property;

❖ Projects for Real property development ;

❖ Contract out for Leasing and renting of real estate;

❖ Buying and Selling of securities and bond related to real properties;

❖ Return earnings, capital gains are deposition in financial institutions;

❖ Acquirement, supervision, improvement and discarding of rights to the use of real property, (e.g. right to contracting out for leasing and renting real estate);

❖ Acquirement, supervision, improvement and discarding of rights to beneficial of real estate, the trusted property of which is wholly attributed to the beneficiary at the time the trust expires

There are three kinds of REITs in South Korea which are the followings:

Internally-managed or Self-Managed REITs (S-REITs): REITs are mainly driven by ordinary securitization processes similar to those of the U.S. REITs (Jin, C., & Kim, K. 2017). Its assets are supervised and administered by the existing personnel (having permanent staff) of a real

company (self management) and often are managed with the assistance of investment advisory companies.

Externally-managed REITs or Entrusted Management REIT (EM-REIT): The paper company entrusts the management of assets to asset management companies (K-REITS, 2018). Again the duration of the paper is described in its article of incorporation.

The above of the two's together are designated as K-REITs.

Corporate Restructuring REITs (CR-REITs): A CR-REIT is established with a view to help financially distressed firms by investing in real properties that are being sold for redemption (liquidating fixed assets) of corporate debts and are featured like a mutual fund for stock investment having no standing staff (Jin and Kim 2017 & K-REITS, 2018). Based on burden sharing principle, CR REIT was formed to do five tasks which were enhancing the transparency and accountability of administration, elimination of guarantees related to mutual debt, financial structure improvement of the corporations, attaining focus on the key task of the conglomerates, strengthening the governing issues to reduce the internal and external conflicts among shareholders and managerial authority (Sohn, Chan-Hyun 2018). Functionally it is a paper company (duration is described in its article of incorporation) and its management (Investing and operating assets) is vested to a particular professional asset management company ("AMC") and distribute the greater part of its return earnings to the general investors as dividends.

Table 3: Comparison of Different REITs operation in South Korea

Category	Internally-advised REITs	Externally- advised REITs	CR-REITs
Law of Governance	Real Estate Investment Company Act (REICA)	REICA	REICA
Guardian Authority	MOLIT	MOLIT	MOLIT
Structure	Infinite company with employees.	Paper company without employees.	Finite paper company (5 years).
Capital Stock[1]	The lower limit of Capital	The lower limit of Capital	The lower limit of Capital

Category	Internally-advised REITs	Externally- advised REITs	CR-REITs
	requirement is KRW 7 bill.	requirement is KRW 5 bill.	requirement is KRW 5 bill.
Investment[1] Target (Composition of Asset)	In real estate investment is 70% or more of total assets required. In the case of investment in real estate or securities/cash related to real estate, 80% or more investment is needed of the total assets portfolio.	In real estate investment is 70% or more of total assets required. In the case of investment in real estate or securities/cash related to real estate, 80% or more investment is needed of the total assets portfolio.	In real estate investment is 70% or more of total assets required. In the case of investment in real estate or securities/cash related to real estate, 80% or more investment is needed of the total assets portfolio.
Ownership tests[2] (Distribution of Stock)	An individual shareholder or any institutional shareholder is not eligible to own greater than 30% of total issuing share of a REIT company. Regarding violation of the above rule, the exceeding segment of the share will be discarded conditions on ownership of the shares continued six months after the date 31-12-2012. Greater than 30% of total share required to distribute to the individual public for ensuring diversification of ownership.	An individual shareholder or any institutional shareholder is not eligible to own greater than 40% of total issuing share of a REIT company. Regarding violation of the above rule, the exceeding segment of the share will be discarded conditions on ownership of the shares continued six months after the date 31-12-2012 Greater than 30% of total share required to distribute to the individual public for ensuring diversification of ownership.	There are no limitations in ownership tests for CR-REIT
Income tests[4]	The lower limit of return earnings (income) from real properties and real property related securities is 80% of total REITs income.	The lower limit of return earnings (income) from real properties and real property related securities is 80% of total REITs income.	The lower limit of return earnings (income) from real properties and real property related securities is 80% of total REITs income.

Category	Internally-advised REITs	Externally- advised REITs	CR-REITs
Discarding of Real Estate[2]	It is not permitted by a REIT company to dispose of real properties within five years of acquision of that property. Again, it is not eligible to sell an empty land without any improvement of that land.	It is not permitted by a REIT company to dispose of real properties within five years of acquision of that property. Again, it is not eligible to sell an empty land without any improvement of that land.	No restriction for CR-REIT in disposal of real properties
Dividends[2]	At least 90% of total income is required by a REIT company to distribute among shareholders as dividends.	At least 90% of total income is required by a REIT company to distribute among shareholders as dividends.	No restriction for CR-REIT to distribute of dividends to the shareholders.
Corporate Provision Tax[2, 3&4]	A REIT company having without tax flow-through provisions.	A REIT company can apply for corporate tax exemption.	Favorable corporate tax provision is exempted for CR-REIT by abiding the 90% return earnings distribution among the shareholders.
Income Tax[2]	Income tax is levied on the remaining part after 90% of total income distribution as dividends.	Income tax is levied on the remaining part after 90% of total income distribution as dividends.	Income tax is levied on the remaining part after 90% of total income distribution as dividends.
Acquirement/ Registration Tax[2]	Tax is reduced 30% for Acquisition or to register the real property	Tax is reduced 30% for Acquisition or to register the real property	Tax is reduced 30% for Acquisition or to register the real property

Source-1: http://www.koramco.co.kr/eng/reits/reits_comparison.asp

Source-2: http://www.joneslanglasallesites.com/investmentguide/country/southkorea/realestateinvestmenttrusts

Source-3: Bams, D., Otten, R., & Ramezanifar, E. (2016)

Source-4: Jin, C., & Kim, K. (2017).

According to the Korea Financial Investment Association (KOFIA) upto December, 2015 (KOFIA, 2016) there were total 128 REITs which valuation was 18.4 trillion won of which 125 were non-listed and 3 were listed only (Table: 4). According to asset portfolio of all three types REITs, Trust management RIEITs possess highest asset percentage (67%) and internally managed REITs Trust holds the lowest asset percentage (2%). Regarding number of funds, Trust management

RIEITs stands on maximum 85 numbers and internally managed REITs Trust position on 8 numbers only.

Table 4: Different REITs operation in South Korea (as of December, 2015)

<Development of Ratio by REITs Type>

<Status of Real Estate Investment Company (2015.12)>

Type	REITs (number)	Asset Size (trillion won)	Asset Ratio (%)
Trust management REITs	85	12.0	67
Corporate restructuring REITs	32	5.6	31
Internally managed REITs	8	0.4	2
Total	125	18.0	100.0
Listed REITs	3	0.4	2.8
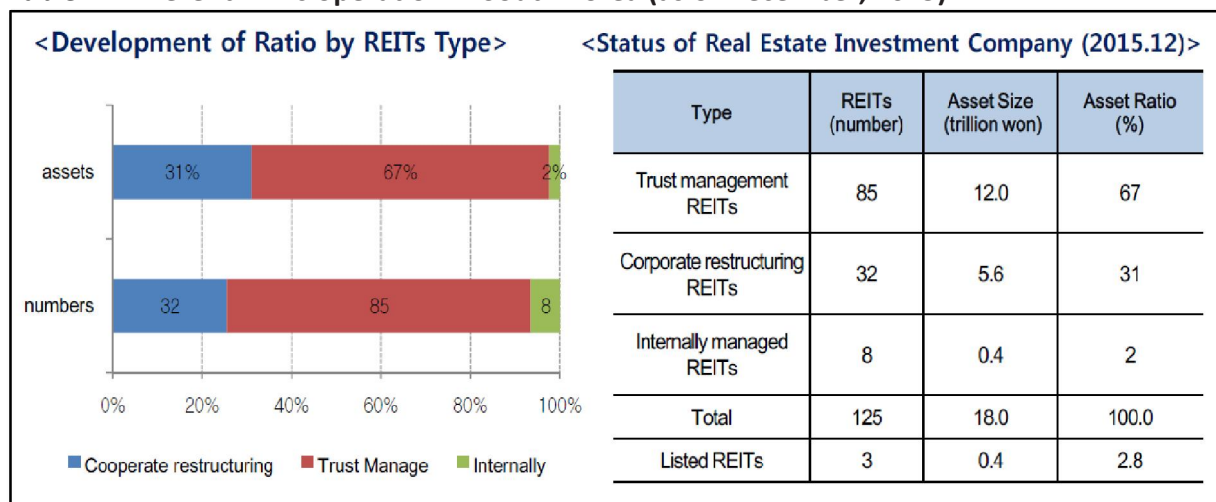
Source: KOFIA, 2016

Regarding district wise asset distribution of REITs (Table: 5), the maximum asset of EM REITs is held at the central business district (CBD) and the minimum asset is held at Yeoido business district. In the case of CR-REITs, the maximum asset is held at Seoul metropolitan area and the minimum asset is held at Yeoido business district.

Table: 5 EM REITs and CR-REITs District wise asset distribution

									2017.9.30. (%)
REIT type	Classification	Seoul				Seoul Metro.	Local	Overseas	Total
		GBD	CBD	YBD	Others				
EM REITs	Amount of Assets (100 mn won)	19,480	37,071	8,580	13,557	12,310	5,160	1,365	97,523
	Average yields (%)	5.51	6.10	5.35	6.07	7.43	7.33	8.50	6.2
CR-REITs	Amount of Assets (100 mn won)	6,557	12,707	1,601	13,869	14,593	7,134	-	56,461
	Average yields (%)	16.33	2.94	26.24	29.08	26.76	44.73	-	27.4
Total	Amount of Assets (100 mn won)	26,037	49,778	10,181	27,426	26,903	12,294	1,365	153,984
	Average yields (%)	8.20	5.86	8.20	18.97	16.77	30.42	8.50	12.7

Source: KAREIT, 2018

GBD= Gangnam Business District, CBD= Central Business District, YBD= Yeoido Business District

1.2.4.3. Characteristics and Classification of Korean REF (K-REF)

Generally trust type structural modality is held by K-REF containing three parties:

- ❖ Trust beneficiaries are the investors
- ❖ For professional management of the investor's assets, an entrusted body (agent) is appointed (A company work in the area of assets management work as the fiduciary for the investors and take care the interest of investors).
- ❖ Generally a commercial bank legally holds the right of fiduciary to the investors and works as the custodian of the asset thereof

Figure: 2 Diagram of REF Structure in Korea

Source: IFLR, 2018 (http://www.iflr.com/Article/1984252/Real-estate-funds.html)
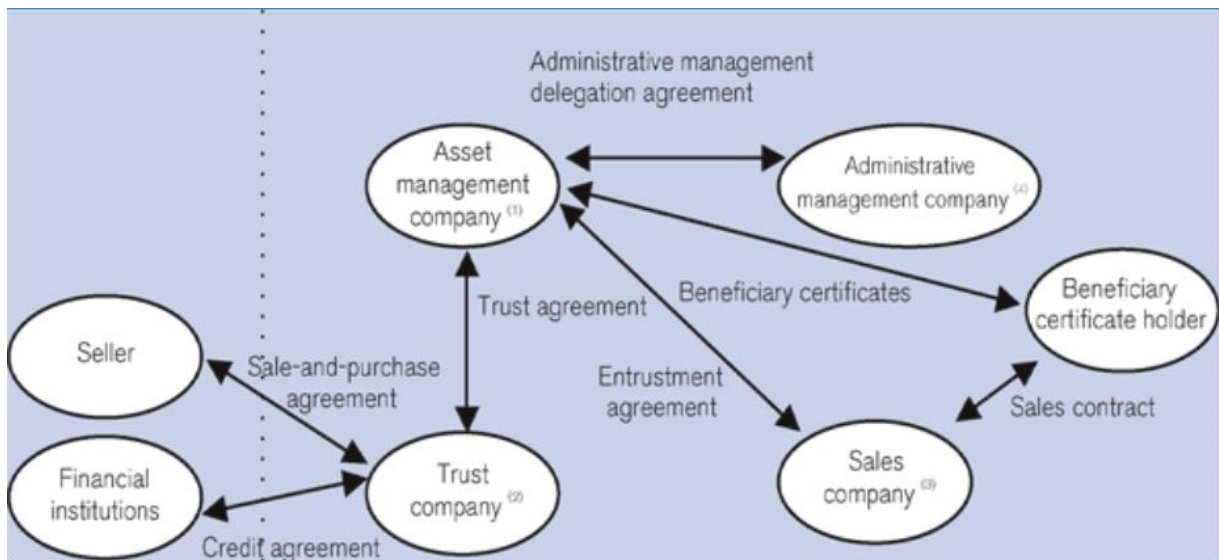
Korean REFs has been categorized into three types lease, project finance (PF) and public auction (Uk, Kim Hyong 2011). It is mentionable that PF and lease type are the main vehicles. Minimum 5% of the equity is required to hold by the financial institution through the PF modality arrangement. It is documented that through getting a variety of tax weaver or reduced tax rate, the PF has become well accepted investment modality for development projects (Oh, Yon Kyun et al 2011). Again, in Korea, the Corporate-type REF and Trust-type REF are two popular REF categories based on the law of IIAMBA. Corporate REF is the statutory limited and trust REF is the favored option. It is mentionable that the comparatively simpler approval process, the trust

type REIT has got more acceptances in the market as useful vehicle than its counterpart corporate type REF.

Table 6: Comparison of Different REFs operation in South Korea

Category	Company Type Real Estate Funds	Trust Type Real Estate Funds
Law of Governing	Acts on Capital Market	Acts on Capital Market
Sponsoring/ Implementing body Ministry	Ministry of Strategy and Finance (MOSF)	Ministry of Strategy and Finance (MOSF)
Structure	Contracted out externally managed (Paper company without employees)	Contracted out –externally managed (Paper company without employees)
Capital Stock[1]	The required capital stock is 1 billion Won	No restriction is imposed on trust type REIT
Investment [1] Target (Composition of Asset)	▪ Investment through project financing in credit modality ▪ Investment in real property around 50-70% of the total assets. ▪ Entrusted entity of real estate is required to hold beneficiary certificate (BC) right.	▪ Investment through project financing in credit modality ▪ No restriction (no specific ratio) regarding investment in real estate has been imposed. ▪ Entrusted entity of real estate is required to hold beneficiary certificate (BC) right
Ownership tests[2]	Ownership Test is not applied	Ownership Test is not applied
Corporate Provision Tax[2, 3&4]	As is it Corporate type entity It is required to pay corporate Tax.	As it is trust type REF, no Requirement is to pay corporate Tax.
Acquisition/Regis.Tax[2]	Tax is reduced 30% for Acquisition or to register the real property	Tax is reduced 30% for Acquisition or to register the real property
Income Tax[2,4]	Income tax is levied on the remaining part after 90% of total income distribution as dividends.	Income Tax provision is not applied

Source-1 : http://www.koramco.co.kr/eng/reits/reits_comparison.asp
Source-2: http://www.joneslanglasallesites.com/investmentguide/country/southkorea/realestateinvestmenttrusts
Source-3 : Bams, D., Otten, R., & Ramezanifar, E. (2016)
Source-4 : Jin, C., & Kim, K. (2017)

It is documented that limited liability company (in Korean-the yuhan heosa), one type of corporate type of REF is getting popularity amongst the foreign investors (Oh, Yon Kyun et al 2011). Regarding setting up (formation) of Trust type REF through following the Korean trust law, trust agreement is required between AMC and trust company (generally a bank). In the real estate market of Korea, REFs are enjoying the subsequent privileges:

- ❖ Corporate tax is not required to pay as REFs status are not corporations,
- ❖ The beneficiary owners of REFs are the investors and personal liabilities are not borne in the REFs.
- ❖ The process of Registration of the REF is time saving and simpler than authorization of a REIT.

Table: 7 Tax Benefit of Trust REF

	Ordinary corporation	Trust REF
Capital registration tax on the acquirer company	0.48% (1.44% if the head office of the company is in the Seoul Metropolitan Area) of the paid-in capital of the corporation	N/A
Acquisition tax (including 10% special tax for rural development)	2.2% of the acquisition value of the real property	1.1% of the acquisition value of the real property
Registration tax (including 20% local education tax)	2.4% (7.2% if the real property is in the Seoul Metropolitan Area) of the acquisition value of the real property	1.2% of the acquisition value of the real property
Corporate tax (including 10% resident tax)	27.5% of profit before tax of the corporation	N/A
Property tax	Land: Adjusted GPV* x 0.24% ~ 0.48% Building: GPV x 0.30%	N/A
Aggregate real property tax (including 20% special tax for rural development)	Land: 1) Separate type taxation: [(GPV – W4 billion) x 0.72% ~ 1.92%] – [Property tax (deductible as a prepaid tax)] 2) Combination type taxation: [(GPV – W300 million) x 1.2% ~ 4.8%] – [Property tax] House: [(Adjusted GPV – W600 million) x 1.2% ~ 3.6%] – [Property tax]	N/A

Source: IFLR, 2018

In the Table-7, there is the description of different Tax benefit like Capital registration tax, acquisition tax, registration tax, corporate tax, property tax, aggregate tax for Trust REF rather than ordinary corporation[GPV*: Government Posted Value].

It is also mentionable that there are some limitations of Korean REF which are the followings:

Beneficiary Holders Control Issue: As the management of a Trust REF's asset is governed by the Asset Management Company (AMC) through agreement between trust company and AMC. Therefore, the investors/BC holders have limited power to control the asset (IFLR, 2018).

80% Cap on equity investment per investor: Although not explicitly stated in the relevant statutes, the Financial Supervisory Service (FSS) has a policy whereby an investor (including its specially related parties) is prohibited from holding more than 80% of the equity in an REF that acquires and holds real estate (IFLR, 2018).

Limitation on the Disposal of real estate asset: Assets acquired by the REFs may not be disposed of real estate assets within three years of purchase. However, exceptions to this time restriction are afforded if land and structures developed or constructed for the purpose of a real estate development projects are sold, and if the REF is involved in a merger or when the REF is cancelled or dissolved (IFLR, 2018).

Lack of Specific Tax Guideline on Capital gains from the sale of BC: The Korean tax authority has not provided specific guidance as to whether capital gain obtained through the sale of beneficial certificates is capital gain from the sale of real estate or whether if it is capital gain obtained from the sale of securities As such, discussions with the Korean tax authorities will be called for on a case-by case basis based on the applicable tax treaty and the relevant transaction documents (IFLR, 2018).

1.2.5. Comparative Study of REIT and REF Regime in US and Korea

The fundamental feature of REIT and REF are "the transformation of the property investment from non-liquid, non-standardized and non-transparent items in financial assets through the issuance and purchasing of shares that allow generating cash without any obligation for the investor to acquire the direct property or a building" (Bankpedia, 2018). Now, the discussion point is how REIT and REF environment has been continuing at their birth place (US) and the emerging market, Korea. The underlying interest of this discussion is to compare the mature market with emerging one to about any customized modality presence or evolved in this area.

REIT Regime

Real Estate Market Maturity and Market Capitalization of REITs Company

US real property market is the oldest in the world and represents mature state in its cycle. Compare to US REIT market (US First REIT in 1961), Korean market (Korean First REIT in 2001), is an emerging one. As US REIT market is in maturity stage, therefore the relative level of risk in US is lower than Korean market and business operation is easier in US than Korean market. Again, mature market ensures more transparency in property level. Regarding REIT market, there are 227 REITs engaged in business operation in US (104 REITs were listed in 2017)) and its market capitalization stands around $1 trillion in August, 2016 (SNL Financial, 2016 and EPRA, July 2017) which is 66% of global market (global market capitalization is 1.7 trillion) (Global perspectives REIT report, 2016). Regarding assets accumulation, US REITs posses gross real assets more than $3 trillion. On the other hand, total 185 REITs are doing business (only 4 REITs were listed in 2017) in Korea and its total assets stand on approximately $28.418 billion (KAREIT, 2017).

Requirements for REITs Establishment

To establish as REIT Company in US, the applicant will have to go through filling up special tax return form administered by Internal Revenue Service (IRS) in the country. In the case of Korea, an initiator of REIT Company will have to get permission from Ministry of Land, Infrastructure and Transport (MOLIT), the regulatory authority of REITs business in the country.

Legal Arrangement of REIT

"A US REIT can have the form of any legal US entity (corporation, partnership, business trust, limited liability company, etc) that is taxable as a domestic corporation and the entity would be treated as a corporation for tax purposes" (EPRA, July 2017). According Cho, Man (2016) "The prevailing law for REITs in US is the Internal Revenue Code and the Treasury regulations". It is also mentionable that any financial institution (e.g. Schedule Banks, Insurance companies) cannot be eligible to qualify as REIT. On the other hand In Korea, through following REICA and Korean Commercial Code a REIT company can be able to establish as a stock corporation (In Korean Chusik Hoesa)

REIT Structure, Strategy and Operations

The general structure of US is internally or self managed (advised) REIT to manage its assets but in the case of Korea there is typically prevalence of paper company or externally managed (advised) REIT system. It is also mentionable that there is a unique specialized REIT configuration in Korea which is called Corporate Restructuring REIT (CR- REIT). Again, it is stated that both countries REITs are corporate type.

Required Capital Arrangement, Leverage for REIT Establishment

In the case of US REIT, no specific capital structure, leverage (e.g. liability to assets ratio, debt to equity ratio) is needed or there is no regulation for minimum share/equity arrangement to setup as REIT. In contrast, externally advised REITs, internally advised REITs and CR-REITs in Korea REITs face minimum share requirement regulations (initial capital requirement) for each category in specific threshold. Again, there is upper limit of liability of REIT venture where maximum borrowing value or the maximum value of issuing bond can be double worth of equity (upper limit of Liability equity ratio is 2:1).

Stock Exchange Listing Requirement

In both US and Korea, Stock Exchange Listing is not mandatory. It is documented that in US REIT market, the initiation of a REIT company is non-listed status and after some operations it transformed as Stock Exchange listed REIT Company. In the case of Korea, about above 95% REIT companies operate in the market through getting registration from authority as non-listed status and usually transformation to Stock Exchange listed REIT from non-listed status has not been done.

Requirement of Shareholders and Stock Ownership

In the case of the US REITs, at least 100 shareholders are required but any minimum value (lower limit) of the share has not been determined. US REITs also follow 5-50 rule which is "Five or fewer individuals or foundations may not hold more than 50% of the shares" (Cho, Man 2016 and NAREIT, 2018). On the other hand, more than 50% of the total share cannot be held by an individual shareholder regarding externally and internally advised REITs in Korea. Regarding stock ownership, minimum 30% of total REIT shares must be floated in publicly by 18 months of official approval for externally and internally advised REITs but no restrictions for the CR-REITs. It is also mentionable that both in US and Korean REITs market, no restrictions are applied for the foreign investors. Regarding share holdings, institutional players are the major share holders in both countries.

Asset Level (Asset Test)

In US REIT market, in a year the assets of the REIT Company comprise with real estate properties (Inclusion of mortgages), government securities or cash and cash items (funds of money market) which sum up at least 75 % of total REITs assets value (Cho, Man 2016). "A US REIT is permitted to invest in non-US real estate assets, which are considered real estate under the 75% asset test" (EPRA, 2017). In contrast, real properties comprise at least 70% of total REITs assets value and at least 70% investment of REITs is directed to real properties and at least 80% investment of REITs is directed to real properties, securities based on real properties and cash in Korea.

Income Test

In US, in a taxable year, "at least 75% of the gross income must be generated from rents through real estate property rental or from interest on mortgages on gain on disposition of real property. Furthermore, at least 95% of the gross income must come from a composition of real estate related sources and passive sources, such as dividends and interest. No more than 5% of a REIT's income may come from non-qualifying sources" (Cho, Man 2016 and EPRA, 2017). In the case of Korea, though strict investment restrictions are imposed on REIT but any rules and regulations have not been found as documented.

Obligatory Profit Distributive Mechanism

According to US law, a REIT is obliged to distribute at its shareholder end minimum 90% of its ordinary taxable income as dividend annually and the income from capital gains are out of taxable REITs ordinary income calculation. REIT Companies pay corporate income tax against Capital gains of the company. On the other hand, from the distributable income a Korean REIT distribute minimum 90% in a year and the capital gains of the company are included to calculate distributable income. Again, distributable income is calculated based on NAV excluding reserve capital of the company.

At REIT Level Tax Treatment

In US REIT regime, the distributed dividends are tax-exempt from the REIT's annual taxable income (deduction from taxable income) and ordinary corporate income tax is levied on the remaining amount (undistributed portion) of REITs income. Again, in a year 100% tax is levied as well on any income (net capital gains) generated from sales or dispositions of property or inventory of US REITs. In Korean REIT regime, Externally advised REITs and CR-REITs income in Korea are technically tax-exempt through meeting the dividend distribution requirement (90% threshold) of their income and within same financial year, undistributed taxable income is subject to pay corporate income tax (Cho, Man 2016).

At Shareholder Level Tax Treatment

US corporate shareholders are obliged to pay tax at 35% rate on return earnings from capital distribution, capital gains and other ordinary earnings. It is also mentionable that no deduction is imposed on any received dividend from REITs Company by the corporate shareholders. On the other hand, in the case of Korean Law on Corporate Income Tax, "There is no difference between current income dividend and a capital gains dividend and the treatment of capital gains constitutes as ordinary income subject to the ordinary corporate income tax rate" (National Tax Service-Korea, 2009; EPRA, 2017 and PwC, 2018).

REIT Performance, Transparency and Governance Mechanism

It is mentionable that in the area of governance mechanism US REITs is more transparent (e.g. application of US GAAP rules and regulations on US REITs) than K-REITs and US recruit high skilled, talent and challenge winning personnel in REITs businesses. In the case of leverage, US REITs is comparatively less levered than its counter parts. Therefore, US REITs has exposed exceptional long-term higher return earnings than K-REITs.

Market Volatility

In the case of market volatility, both US and Korea show higher volatility after the global financial crisis.

REF Regime

REF Initiation and Present Status

US has become pioneer in the area of passive real estate investment through enacting the REIT Act in 1960 which pave the way to invest in real properties worldwide by establishing REF in customized modality. It is mentionable that after starting US REF journey in 1989, hundreds of REF created and US-based REF reached totaling at 1024 (including global REF and sub-share classes) in 2009 (Eichholtz, P., Kok, N., and Margaritova, M. 2009). US based mutual fund analyst MutualFunds.com documented 437 enlisted REF and 184 enlisted global REF in US market (MutualFunds.com, 2018 and Lipper, 2018).

Korean REF (K-REF) has been rooted in Korea through REIT act in 2001 and started its journey by the Mirae asset Investment Groups in 2004 with net asset amounting 45 billion won. REF reached at total 538 numbers by June, 2014 and at total 1,175 numbers in 2017 where more than 300 new REFs introduced in 2017 alone (Invest Korea, 2015 and KOFIA, 2018). Through the time passing, the demand of K-REF has increased and K-REF market capitalization reached at 60 trillion won ($ 56.3 billion) in 2018 in the midst of low interest regime for a long time. It is mentionable that REFs net assets value reached to 64.7 trillion won in 2017 which is 25.1% increased from year 2016 (Invest Korea, 2018). It is also stated that the average size (e.g. net assets value) of K-REF is lesser than US REF.

Administered Authority

In US, REF is overseen by the Internal Revenue Service (Tax Authority) and Korean REF is regulated by MOSF and Financial Services Commission of the country.

REF Structure, Capital Requirement

US REFs are leaning to specialization by strategy or asset class or both. REF is classified as private REF and public REF and public REF is again divided as non-traded and traded REF. It is mentionable that regarding capital requirement no restriction is imposed on setting up REF in US. Following the state laws, usually REFs are structured as partnerships companies or limited liability companies in US and the normally life span (life cycle) of US REF is lesser than 10 years. The life cycle of US REF can be segregated into three phases which are a) investment-reinvestment period; b) holding period and c) liquidation period. Again, if there are any unanticipated changes in investment values or in delays in disposition, life cycle can be extended. It is also stated that US REF hardly ever change its investment strategy in midway of its lifecycle. Minimum investment amount for ordinary investors and retiree investors are the different in US REIT regime. In US market, the dividends declaration of REF can be done annually, semi-annually, quarterly.

In Korea, K-REFs have been classified as corporate REF and Trust REF where Trust REF is the

popular one. Trust REFs are externally advised (Paper Company) and usually life span lesser than 10 years. There is no restriction regarding minimum capital stocks requirement for the Trust REF though have restriction on corporate REF. In the case of minimum investment amount in REF, no document has been found in this regard. Usually dividends are declared in Korea in a financial year.

2. Literature Review and Hypothesis

2.1. Determinants of REIT and REF Success:

According to Man, Cho (2016), the identified success factors of REITs in the demand-side (of liquidity) include: an "asset-light" business strategy on the part of large real estate holders, usually triggered by an economy-wide shock; the supply of high-quality properties that generate acceptable returns to the capital market; and, a credible business counterparty for REITs stock offerings In the supply-side, the discipline imposed by the capital market through disclosure requirements, monitoring, as well as merger & acquisition threat, works as a critical factor in nurturing a REITs system, which is often replaced by regulatory requirements. Bugl, R., et al (2009), notified the market acceptance of Sustainable-REFs by institutional investors depends on independent sustainability factors with cognitive drivers, find institutional context, age, and family status of investors. The followings are details of the success factors of REIT and REF.

2.1.1. Stock Exchange Listing:

The listing is a mean to several important ends in shaping an efficient and welfare-enhancing REITs system: namely, it enables to tap into a large liquidity pool and, at the same time, it heightens monitoring activities by the capital market participants, which can vastly enhance efficiency and transparency in REITs' operation via market discipline (Man, Cho 2016). Gyourko, J. (2009) conducted a comparative study between listed vs. non-listed real estate firms to identify the reason of flourishing stock exchange listed REIT in U.S. where he pointed out the underline causes of the listed REIT superiority over non listed REITs are more professional and efficient monitoring and analysis by stock analysts, high-quality information generation,

upholding accountability and market discipline that trigger to ensure REITs operations to be more efficient and transparent. Henderson, Mallet, and McCann (2015) also compared the performance of stock exchange listed REITs and non listed REITs in the U.S. market where they find that the later performance significantly lags than that of the listed firms during the same time period. The empiricists unearth that the annual returns of listed REITs is 12.7% where as its counterpart is 5.8% and they indicate "up-front fee charge" at the time of trading shares of non-listed REITs, various other cost items, and non-transparent corporate governance issues as the causation of the underperformance of non-listed ones.

2.1.2. Scale Economy: Based on U.S. and Korea market It is empirically reported that size of REITs does matter in the REITs performance, the larger their operations are, the more efficient their production processes become (Ambrose, Highfield, and Linneman, 2005; for the U.S., and Kim and Jin, 2014; for Korea). Ambrose et al. (2005) concludes that it is not surprising that REITs experience profitability (measured by ROE) as their size increases, which is evidence of the existence of economies of scale. In addition, the study asserts that large REITs can access lower costs of capital.

Using a REF sample covering the period 1990-2008 in U.S., Kaushik, A. et al (2012) find that investors can earn higher returns by investing in funds that are large in size and rebalanced more frequently. Brown and Goetzmann (1997) and Carhart (1997) find that size and value help explain the differences in REF performance. Chen Joseph et al (2004) document that REF returns, both before and after fees and expenses, decline with lagged fund size, even after accounting for various performance benchmark. Y.P. Shen et al (2010) find that REF flows are driven by investors' return-chasing behaviors and fund size, but not by diversification purpose. Ferreira Miguel A. et. al. 2012 analyze the Determinants of Mutual Fund Performance and their findings suggest that the adverse scale effects in the USA are related to liquidity constraints faced by funds that, by virtue of their style, have to invest in small and domestic stocks. Country characteristics also explain fund performance. Funds located in countries with liquid stock markets and strong legal institutions display better performance.

2.1.3. Leverage and Capital Structure: Empirical evidences based on leverage ratio and profitability is mixed. Ling and Naranjo (2015) and Giacomini, Ling, and Naranjo (2015) studied on U.S. market and found that an increased leverage positively affects REITs returns. They also found that the levered REITs returns in those countries are significantly more volatile than the non-levered returns. In contrast, Cheng and Roulac (2007) found a weak negative correlation between REITs returns and leverage in the U.S.; and, Pavlov, Steiner, and Wachter (2013) reported no evidence of a leverage effect on REITs returns with a firm-level international data set.   Sun, Libo et. al. (2015) examine the cross-sectional dispersion of REIT returns during 2007-2009 periods in U.S. with a particular focus on the influence of their capital structures. They find that the share prices of REITs with higher debt-to-asset ratios and shorter maturity debt fell more during the 2007 to early-2009 crisis period. Although REIT prices rebounded with the bounce back in commercial real estate prices, financial distress costs had a permanent effect on REIT values. In particular, they find that REITs with more debt due during the crisis period tended to sell more property and issue more equity in 2009, when prices were depressed.

Evans Richard et al (2017) find that funds that lend equities underperform otherwise similar funds in spite of lending income. The effect of lending is concentrated in funds that cannot act on the short-selling signal due investment restrictions set by the fund family to diversify their fund offerings across styles.

2.1.4. Management structures and governance: Empirical evidence based on U.S. market is mixed regarding performance of externally or internally managed REITs (Ambrose and Linneman, (2001) Deng et al. (2011)). However, a captive REITs is generally viewed as worse than others in operational efficiency in the U.S. context (Man, Cho 2016). In contrast, based on Japan market through empirically testing effects of sponsor relationships among J-REITs' on return and volatility spillovers for the period from 2004 to 2013, Mori et al., (2014) found that a sponsor relationship of J-REITs with a large corporation is reported to be enhancing capital mobilization and to reduce the chance of financial distress. Chong, W. L., Ting, K. H., & Cheng, F.

F. (2018) find significant corporate governance moderating effects on the performance of Asian REITs. Bauer et al. (2010) show that the higher the CGQ (Corporate Governance Quotient) index among the U.S. REITs, the better the REITs earnings performance; An, H., D. Cook, and Zumpano (2011) demonstrate that the higher the transparency in REITs operation (in the U.S. context), the higher the REITs growth.

2.1.5. Institutional Investment: Empirical evidence on diversification benefit in a REIT company level, either across different property types or across different geographical markets, is mixed (Chan et al., 2003). To study on institutional investors behavior through comprehensive interviews with Korean institutional investors and their external partners, Nam Sangwook (2014) find that Korean institutional investors have attempted to establish their own asset allocation strategies based on each unique investment appetite and liability.

2.1.6. Diversified Portfolio: According to Chan et al., 2003, REITs stocks with more institutional investors' holdings tend to perform better than those with fewer of them that symbolizing a heightened monitoring effect through the institutional share holder activism as well as an increased number of stock analysts to scrutinize those REITs stocks with more institutional holdings.

2.2. Performance Measurement of the Investment Outcome of REIT and REF

Return on Assets (ROA) and Return on Equity (ROE) are the profitability ratios assisting in obtaining a description of the financial performance or development of the company and what has been achieved in the past and in the future is running through proper analysis (Heikal, M. et al. 2014). The ROA provides information about how much profits are generated on average by each unit of assets. Therefore, ROA is an indication of the operational efficiency of the company is being run. On the other hand, ROE is a true bottom-line profitability metric, comparing the profit available to shareholders to the capital provided or owned by shareholders (equity holders) and the potential growth on their investment (Petersen, M. A. et al 2008). It is also true that the company managers do not want to hold too much equity (capital) because by doing so they will lower the returns to equity holders. By using ratio

analysis we will be able to explain or illustrate the good and bad circumstances or financial position of a company (Heikal, M. et al. 2014) and this information is necessary for the investors to invest in the fund. Therefore, investment performance measurement is crucial issue for comparing the efficiency of available investment vehicles like mutual fund, real estate fund, real estate investment trust in the real estate financial literature where academicians and researchers attempted to measure that performance for years. Empirical support for the evidence of over or under performance in indirect real estate investment vehicle like REIT and REF is mixed.

2.2.1. Performance Measurement by Capital Asset Pricing Model (CAPM): In the late 1960s, researchers adopted Capital Asset Pricing Model (CAPM) to posit several alternative composite measures of which three employed most extensively are the Sharpe measure (Sharpe, 1966), the Treynor measure (Treynor, 1965), and Jensen's Alpha (Jensen, 1968) for portfolio performance based on CAPM. These performance measures essentially compare the return of a managed portfolio to the return of a standard benchmark portfolio to attempt to determine if the activities of a professional fund manager provided additional returns to that of the passive benchmark. Fama-French three-factor model (Fama and French, 1996) and the Carhart four-factor model (Carhart, 1997) Edward, S., & Daniel, E. (2000) applied to measure abnormal performance by comparing fund returns against market indices only. While these traditional measures are extremely useful, research has shown that they possess potential problems in addressing key factors in evaluating portfolio performance such as identifying the appropriate benchmark and incorporating all relevant transaction costs (Brockman, C. M., et al, 2006).

2.2.2. Performance Measurement by Data Envelopment Analysis (DEA):

Charnes, Cooper, and Rhodes in 1978 developed Data Envelopment Analysis (DEA) for measuring the productive efficiency of management or any other "Decision-Making Unit" (DMU) where DEA allows the relationship between multiple inputs and multiple outputs to be described in terms of the most efficient combination of inputs to produce given output (Charnes, A., Cooper, et al 1978). As DEA technique is nonparametric, it does not require the

use of a theoretical model such as the CAPM or the Arbitrage Pricing Theory (APT) model. The information generated from DEA can also be used in determining the marginal contribution of each input, which can be useful in evaluating optimal resource allocation (Kao, C. 2014 and Banker and Maindiratta 1986). According to Seiford and Thrall (1990) DEA is superior to regression due to DEA is a relative measure of optimal performance and not of average performance like regression analysis. REITs efficiency are measured by Anderson & Springer (2003), Anderson, Brockman, Giannikos & Mcleod (2004), Miller, Clauretie and Springer (2005), Douglas N.B. (2006) Harun, S. L.,et al (2012) using DEA where inputs are total number of expenses, price variable, interest expenses and property operating expenses etc outputs are the total assets, total revenue. Anderson & Springer (2003) had found portfolio of REITs constructed had superior performance in 1st, 2nd and 3rd year when using DEA technique for the 1995-1999.

On the other hand, Lewin, Morey, and Cook (1982) note that because DEA requires just a single observation per unit, the results of DEA may be sensitive to errors in measurement and data entry. Epstein and Henderson (1989), indicate that because DEA is an extreme point estimation technique, it could be sensitive to model specification, input and output selection, and data errors.

2.3. Real Estate Research on Korea:

The extremely limited availability of reliable data on commercial real estate in Korea makes it difficult to do research on this area. Man, Cho (2016) stated that K-REITs are generally non-diversified in firm-level ("one-property-for-one-company"), many of them take a closed-end fund structure with a specific term (e.g., 3-year life), still concentrated to the prime office buildings in Seoul, and they virtually get no direct investment from small household investors. Jin, C., & Kim, K. (2017) explore the economies of scale of both private and public REITs in Korea through examining a total of 74 REIT companies in Korea from March 2009 to December 2013 where they find size is an important factor. Through using the sample data of 8 available REITs companies of the Financial Supervisory Service electric public notice system during the period

2002. 01. 30 -2009. 07. 31., Won, H. J., & Park, S. B. (2016) analyze K-REITs return and risk structure where the research results show that K-REITs has higher return and lower risk structure than KOSPI, and higher return and higher risk than bond.

Pham, A. K. (2011) examines the risk and return characteristics of K-REITs and the correlation of Korean real estate investment trusts (K-REITs) to other asset classes and their diversification potential in a mixed-asset portfolio through utilizing a total of 107 monthly observations of South Korean REITs, bonds, shares, and property Companies from January 2002 to December 2010. The results reveal that K-REITs performed poorly over the entire period as compared to shares, bonds, and property companies.

It is found that some REIT related literature on Korea is in Korean version of which abstract is in English only. Among them Chang, Y. G., & Lee, H. S. (2010) analyzes Korean listed REITs' beta, alpha, and risk-adjusted return and risk characteristics of individual REITs by using GARCH-M models where KOSPI, BOND and REITs Return are used as independent variables for the analysis. The result shows that REITs have low risk characteristics, comparing to the KOSPI. Lee, H., & Seo, W. (2007), Kim, K. Y., & Park, J. H. (2007) also study the overall REITs market in Korea to clarify the outstanding characteristics of K-REITs in term of risk and return by comparing with the other common stocks and bonds. According to the result of this empirical study, K-REITs has well performed with high return, yet very low risk in comparison with bonds and other common stocks.

2.4. Research Gap in Real Estate Industry and Contribution to the existing Literature:
There are rapid growths of non-listed indirect real estate indirect investment vehicle like non-listed REIT and non-listed REF in financial market around the world but academic research has failed to keep up same speed with this development. However, there are still only few published studies on non-listed REIT and REF which focused mainly performance comparison between stock exchange listed REIT with non-listed REIT or listed REF with non-listed REF. To the best of my knowledge there is no research which conducted study on performance comparison in the four dimensional spheres like stock exchange listed REIT and REF and non-

listed REIT and REF. Again, there are scanty researches which took a longer sample period like 10 years or 15 years due to meager data availability of available time series with cross section dimension (Panel data). It is also mentionable that the researches which worked on non-listed REIT and REF have not confirmed that the sample had taken from externally audited company only or not though financial figures systematic and independent examination, verification or authentication by professional third party (audit company) ensure the trustworthiness of the research.

The objective of this research is to fill the gap through focusing on REIT and REF firm level characteristics (cross section dimension) to return earnings with extended period of time (time series). This paper seeks to compare the performance of 4 types of real estate indirect investment vehicles like stock exchange listed REIT, stock exchange listed REF, non-listed REIT and non-listed REF which had not been studied previously. This empirical study is important due to measuring performance of an investment vehicle is a great way to understand the weakness and strength of that vehicle and assist in better management & improve the overall functioning state what currently is practiced. Again, performance of an investment vehicle is the sign of investor's choice of investment mostly based on the performance of the investment vehicle. It is very much true that with having real estate wealth potentials, skilled human capitals Korea's REIT and REF have failed to keep in same speed with their regional counterparts though the staring time was same for them. The current research endeavors will try to quantify the performance of stock exchange listed REIT and non-listed REIT as well as stock exchange listed REF and non-listed REF using a unique externally audited credible sample (129 externally audited companies) of extensive sample period ranging from year 2001 to year 2018 which will able to decipher the performance of REIT and REF. As the research will conduct on Korean financial market, a real estate rich emerging market outside of matured market U.S. and Australia that will enrich existing literature on REIT and REF.

2.5. Hypothesis

REITs run in highly regulated environment with distinct legal setting and have been extensively documented in many research studies where the majority of these studies are U.S.-centric studies examined on the relation between corporate governance and performance (Chong, W. L., Ting, K. H., & Cheng, F. F. 2018). In the same vein, K-REITs, a capitalized corporation upholding structured governance & regulatory regime, a creditworthy counterparty to capital market players is deemed to enhance the level of efficiency and transparency in managing income-generating real estate by increasing the real property liquidity and expanding opportunities for real estate investment available to general investors in Korean market (Man, Cho 2016; K·REITS, 2018). REIT has played crucial roles in stabilizing the real estate market and assisting the financial and corporate restructuring efforts and are widely accepted as a major indirect investment vehicle along with the real estate fund, promoting the sound investment in real estate with positive impact on the national economy now (K·REITS, 2018). On the other hand, it is mentionable that there are very few studies on the performance of REF. Based on U.S. data, Lin, C. and Yung, K. (2004) analyzed the performance of real estate mutual funds for 1993 through 2001 period and found that real estate mutual funds do not provide positive abnormal performance on average. Due to distinctive regulatory regime with its unique attributes REIT may outperform REF in Korean market.

Hypothesis 1: Ceteris Paribus, Real Estate Investment Trust (REIT) should perform better over Real Estate Fund (REF)

Listed companies in Korean Stock exchange (KRX), the world's ninth-largest stock exchange in daily-trading value and the biggest derivatives market ensures transparency and accountability by disclosing its corporate information such as the securities being offered and their details, as well as the assets and the liabilities of the company, the team leadership (chairman, directors, CEOs), investors rights, financial statements on profit and loss account, financial projections (KRX, 2018). Listing renders an opportunity of getting financial benefit in the form of raising capital to the corporate entities to inject fund for new projects, expansions/diversifications and

acquisitions. Listing opens the doors of welcoming new liquidity through various routes like preferential issue, rights issue by attracting a wide and varied body of institutional and professional investors and as well as ready marketability of securities on a continuous basis. The financial transactions carried uniformly as per the rules and by-laws of the exchange and monitored by the regulatory mechanisms of the stock exchange which prevents unfair trade practices. Therefore, the high supervision and control of trading of securities in Stock exchange improves the confidence level of small and marginal investors, increased public awareness of the company, generate publicity and attracts them to invest in the listed entities. Listing assists in getting an independent evaluation of the company by the prices quotation in market as the prices are publicly determined on the basis of demand and supply considered reflection of the real value of the security. Stock exchanges can help companies for recognition, visibility and consolidation of their holdings with speed and earnestness that may better attract employers capable of making the company more profitable. Listed companies can also obtain loans from financial institutions with additional leverage and easily through of their high valued collateral of securities.

On the other hand, listed companies often face several disadvantages to comply with rules and regulations of Securities and Exchange Commission (SEC), especially smaller companies that will operate in the market in the specified time. Higher regulatory requirements and substantial financial and controlling costs are associated with being listed on a stock exchange. Some of the additional costs include the generation of financial reporting documents, audit fees, investor relation departments, and accounting oversight committees (Investopedia, 2018). Therefore, incurred cost may hamper net income and income before taxation.

Hypothesis 2: Stock Exchange Listing should be decisive factor of REIT and REF performance in Return earnings

An economy of Scale simply implies that efficiency in production and operations increase with firm size. Fama, E. F. and French, K. R. (1995) found association of firm size with profitability of the company. They also investigated the size effect in earnings is largely due to the low profits

of small stocks after 1980. Until 1981, profitability shows little relation to size. Through using 11 year data (from 1990-2001) in the public real estate market of USA, Ambrose and Linneman (2003) find a significant direct economies of scale effect on profitability. They also find that implicit capitalization rates fall as REITs grow larger. Again, Asset-light strategy in the business environment refers to the firms' preference to not own fixed assets (Liou, 2011) and this strategy has been gaining popularity among practitioners for its virtues in lowering capital investment burden and allowing efficient expansion (Kim, S. H., et al 2018). Man, Cho (2016) mentioned this strategy is a factor of REIT success. Therefore, there are disagreements and arguments against the concept of scale economies continue to exist.

Hypothesis 3: Scale of Economy of the REIT and REF may be influential factor for Return earnings

Capital structure has been an interesting research topic in the real estate investment trust (REIT) literature due to its importance and significance in return earning and survivability in a recession or depression period that started by Modigliani & Miller (1958, 1963) to solve the complex decision of investment financing. But still now, we have inadequate understanding of corporate financing behavior, and of how that behavior affects security returns (Myers, S. C. 1984). The general academic view by the mid-1970s was that the optimal capital structure involves balancing the tax advantage of debt against the present value of bankruptcy costs and under certain conditions the tax advantage of debt financing at the firm level is exactly offset by the tax disadvantage of debt at the personal level (Bradley, M. et. al. 1984 and Miller, M. H. 1977). Little empirical analysis has been done on the optimal mixture of debt or the dynamics of REIT capital structure on returns in the new REIT era since REITs are tax-exempt entities (Chikolwa, B. 2011, Hung, C. H., et al 2014).

Hypothesis 4: Capital structure as form of Liability Assets ratio may act as important determinant in return earning

"Degree of financial leverage'' depends on the percentage of the investment that is financed by borrowing from others and leverage can add to the market value of the entire property. In this stratum, conventional view is that real estate investors seek leverage to enhance the return to

their equity but the role of leverage as a potential means of contributing to fund performance in the long or the short run remains unclear (Alcock, J. et. al. 2013). For listed real estate, Shilling (1994) argues that REIT value is maximized for equity-only financing. Anson and Hudson- Wilson (2003) find that leverage is an important determinant of private equity real estate fund performance. Baum et al. (2011, 2012) establish that leverage and market beta are highly significant in the explanation of the cross-section of fund returns but that leverage overall appears to make a negative contribution to fund performance. Through analyzing a unique, original dataset of primary fund information from 169 global private equity real estate investment funds over an extended period of time (2001- 2011) Alcock, J. et. al. (2013) find that leverage-related strategies, be it adding leverage in general or tactically changing leverage levels in an attempt to time the market, do not appear to represent reliable techniques to enhance excess fund returns. It is investigated that debt funding has played a significant role in Australian REIT (A-REIT) growth, increasing from 10% in 1995 to 35% in 2007 (Newell, 2008). Ghosh, C., et al (2011) provide evidence that firms with high profitability and growth opportunities use less leverage and firms with liquid assets use more leverage.

Hypothesis 5: Leverage (Debt/Equity) of REIT and REF may play a key role to determine Return earnings

3. Research Methodology

3.1. Data and Variables

As this empirical study is based on the REIT and REF of real estate financial market in Korea, REIT and REF industry data of the country have been collected. It is mentionable that though the REF existed before 2001 but REIT was introduced in Korean market in 2001. Therefore, to maintain balance in data set for REIT and REF, data of both REIT and REF have been taken the period from year 2001- 2018. For to Test the Hypotheis-1-5, the year wise data are required of REIT and REF companies on total assets, total liability, total shareholder equity, income before tax, Return on Assets (ROA)- income before tax /total assets ratio (IBT-Assets), capital structure

(liability/assets ratio), leverage (liability/shareholder equity), Consumer Price Index(CPI)-Inflation, GDP growth, real interest rate in the economy, listing in Korea Stock Exchange (KRX) through Korea Securities Dealers Association (KOSDAQ) or Korea Composite Stock Price Index (KOSPI), operational type of REIT companies like Corporate Restructuring or not, location of the main office (Seoul, Gyeonggi-do and Daegu), business registration number etc.

REIT and REF related yearly data have been collected from "TS2000" database which is Korean Company business information service system that compiles business reports and other information submitted by business organizations subject to external audit and provided the information through internet service system. Some of these externally audited companies are listed on KOSPI, KOSDAQ and Korea New Exchange (KONEX).

Table 8a: Summary Statistics-1

	REIT	REF	Total
Listed	3	2	5
Non Listed	83	41	124
Total	86	43	129

Total 129 companies have been drawn from the database which is composed of REIT companies and REF operated Asset Management companies (AMC) of which 83 non-listed REIT, 3 listed REIT in KOSPI, 41 non-listed AMCs and 2 listed AMCs (Table- 8a). The selected REIT companies have been tallied by Korea Stock Exchange (KRX) and Korea Association of Real Estate Investment Trust (KAREIT). Again, for REF related data, Asset Management Companies (AMC) information has been verified by Korea Financial Investment Association (KOFIA) and Korea Stock Exchange (KRX). Real Interest rate data of South Korea from 2001 to 2018 had been collected from World Bank.

The 795 observational data of Net Income (NI), Income Before Tax (IBT), Assets, Liabilities, Share Holder Equity (SEquity) and other all other variables mean, standard deviation, minimum,

Table 8b: Summary Statistics-2

Variable	Obs	Mean	Std. Dev.	Min	Max
Income Before Tax (IBT) (mi won)	795	7714.372	25659.65	-133591.2	229062.2
Assets (mi won)	795	287227.9	1535686	76	2.41e+07
LogAssets	795	4.726801	.6315865	1.880814	7.381657
LogAssets-Square	795	22.74104	6.258993	3.53746	54.48886
Liabilities (mi won)	795	211579.9	1446502	0	2.25e+07
Share Holder Equity (SEquity) (mi won)	795	75648.06	152667.5	-97474.23	1530496
IBT-Assets ratio (ROA)	795	.0244815	.4247207	-8.326579	.6943386
IBT-Asset$_{t-1}$ ratio (ROA$_{t-1}$)	666	.0397938	.3887943	-8.326579	.6943386
Liability-Assets ratio	795	.3243997	.5540073	0	10.80263
Debt-Equity ratio	795	4.67556	102.3641	-332.94	2833.55
Stock Listing (SL)	795	0.0993711	0.2993479	0	1
REIT or REF (REIT)	795	0.372327	0.4837292	0	1
Corporate Restructuring (CR)-REIT	793	0.1059269	0.3079382	0	1
GDP Growth	795	3.627317	1.602526	.7075099	7.432434
Consumer Price Index (CPI)-Inflation	795	2.480314	1.155599	.71	4.67
Real Interest Rate (R_Inter_Rate)	795	3.194056	1.31105	0.86	6.135921
Location of the main office (Region-ID)	780	1.1	.3402785	1	3
REITLogAssetss	795	1.79474	2.368077	0	6.05899
REITLiabilities_assets	795	.2224568	.5645006	0	10.80263
REITDebt_Equity	795	0.52883	13.35969	-76.4	338.73
After GFC	795	.5672956	.4957625	0	1
Year	795	2010.083	4.4314	2001	2018

maximum have been presented in Table-8b. It is mentionable that Income Before Tax (IBT), Assets, Liabilities, Share Holder Equity (SEquity) variables data have been taken in million won and due to standard deviations of the Assets data are high, the actual data have been transformed to natural logarithmic form as well.

Checking Correlation among all the Variables:

The contemporaneous cross-correlation patterns are examined, as shown in Table-9, among all the explanatory variables and dependent variables to select estimation models after minimizing the potential multicollinearity problem. It is found that among all the explanatory variables

LogAssets and LogAssets square (quadratic form of Log assets) show the highest level of correlation (0.9924) across all pairs considered followed by other pairs like REIT and REITLogassets (0.9857), REIT and REITLiability_assets (0.9534), After_GFC and Year (0.8448), ROA and REITLiability_assets (-0.7889), ROA and Liability_assets (-0.7855). It is observed that among the above pairs with high correlation, there is only two pairs (ROA and REITLiability_assets, ROA and Liability_Assets) based on explanatory-dependent variable. It is mentionable that REITLiability_assets is the interation of REIT*Liability_assets. The other two highly correlate pairs (REIT and REITLogassets, REIT and REITLiability_assets) variables REITLogassets and REITLiability_assets have also created through the interaction of REIT*Logassets and REIT*Liability_assets. The After_GFC and Year shows high correlation where After_GFC (binary variable) has been created from Year variable. The negative correlation between ROA and Liability assets ratio has been shown in Figure-3.

Table: 9 Correlation of All Variables

	REIT	Stock exchange Listing	IBT _Assets (ROA)	IBT _Assets$_{t-1}$ (ROA$_{t-1}$)	LogAssets	LogAssets _Sq	Liability _Assets	Debt _Equity	GDP _Growth	CPI_ Inflation	R_Inter _Rate	REITLogassets
REIT	1											
Stock exchange Listing	0.2517	1										
IBT_Assets (ROA)	-0.1645	0.0175	1									
IBT_Assets$_{t-1}$ (ROA$_{t-1}$)	-0.1495	0.0138	0.2687	1								
LogAssets	0.1181	0.3175	0.2533	0.1081	1							
LogAssets_Sq	0.1212	0.3021	0.1798	0.0891	0.9924	1						
Liability _Assets	0.3734	0.0723	-0.7855	-0.1411	-0.0297	0.0463	1					
Debt_Equity	-0.0272	-0.0147	0.0044	-0.0216	-0.0186	-0.0201	-0.0206	1				
GDP_Growth	-0.0403	0.0297	0.0791	-0.0886	-0.0082	-0.0133	-0.0848	-0.0123	1			
CPI_Inflation	0.0052	0.0277	-0.0048	-0.0197	-0.0769	-0.071	0.0095	-0.0225	0.1915	1		
R_Inter_Rate	0.0167	0.0203	-0.0007	0.0075	-0.0683	-0.0619	-0.0254	-0.0419	0.2338	0.4012	1	
REITLogassets	0.9857	0.3002	-0.0922	-0.1214	0.2194	0.2147	0.3108	-0.0269	-0.0336	-0.004	0.0067	1
REITLiability _assets	0.4911	0.074	-0.7889	-0.1639	-0.147	-0.0848	0.9534	-0.0131	-0.0874	0.0167	-0.0163	0.4277
REITDebt _Equity	0.0444	0.0151	-0.0081	-0.0105	-0.0021	-0.0043	0.0214	0.0506	0.0134	0.028	0.0436	0.0417
CR-REIT	0.4008	-0.0953	-0.1434	-0.0557	0.2097	0.2105	0.1786	-0.0117	-0.0004	0.028	0.0124	0.4397
Region_ID	0.1637	0.0566	-0.0299	-0.0318	-0.0587	-0.0599	0.1074	-0.0049	0.0374	0.0925	-0.0186	0.1316
After_GFC	0.1026	-0.0583	-0.0098	-0.0478	0.115	0.1054	-0.0145	0.0258	-0.0892	-0.5484	-0.3313	0.1083
Year	0.077	-0.0594	-0.0044	0.0055	0.122	0.1133	0.011	0.0487	-0.3972	-0.6844	-0.5066	0.0857

	REITLiability_assets	REITDebt_Equity	CR-REIT	Region_ID	After_GFC	Year						
REITLiability_assets	1											
REITDebt_Equity	0.0266	1										
CR-REIT	0.2254	0.0032	1									
Region_ID	0.1095	-0.0019	0.124	1								
After_GFC	-0.0161	-0.0329	0.1469	-0.0194	1							
Year	0.0089	-0.0305	0.0936	-0.0192	0.8448	1						

Figure: 3 Correlation between IBT_Assets (ROA) and Liability_Assets Variables

Figure: 3a Correlation between IBT_Assets (ROA) and Liability_Assets Variables (Full Sample)	**Figure**:3b Correlation between IBT_Assets (ROA) and Liability_Assets Variables (excluding Liability_assets ratio>6)
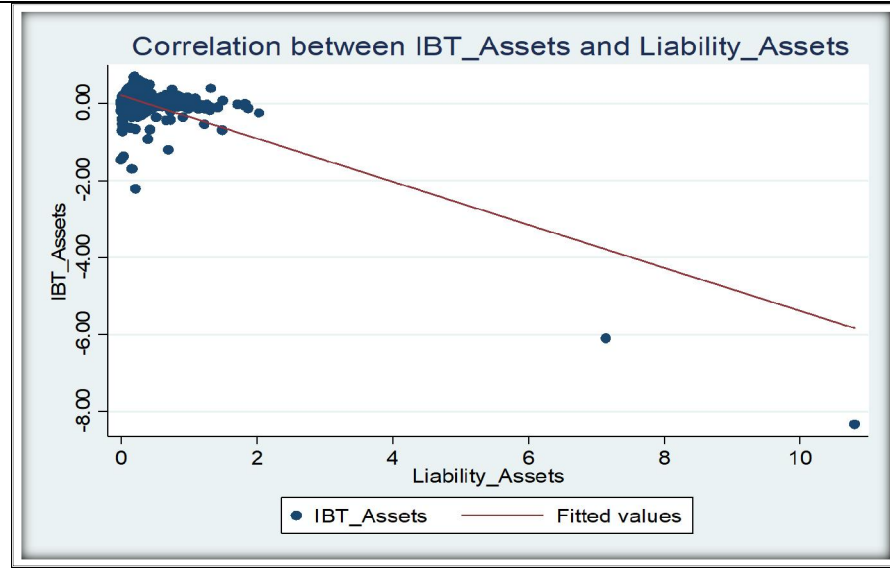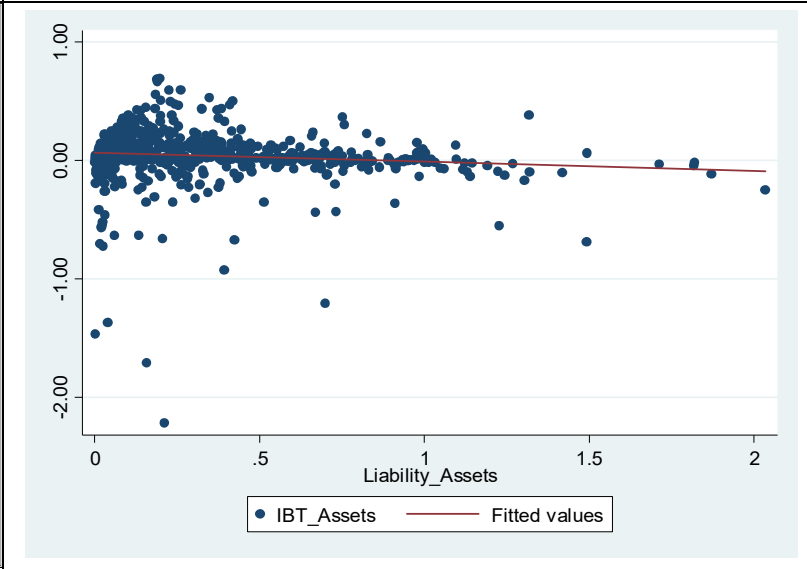
By using histogram, distribution of data of the continuous variables like Income before Tax, Income before Tax Assets ratio and Year have been presented in Figure -4a, 4b and 2c.

Figure: 4 Distribution of Data Analysis by Histogram

Figure-4a Histogram of Income Before Tax	**Figure**-4b Histogram of Income Before Tax-Assets Ratio	**Figure**-4c Histogram of Year
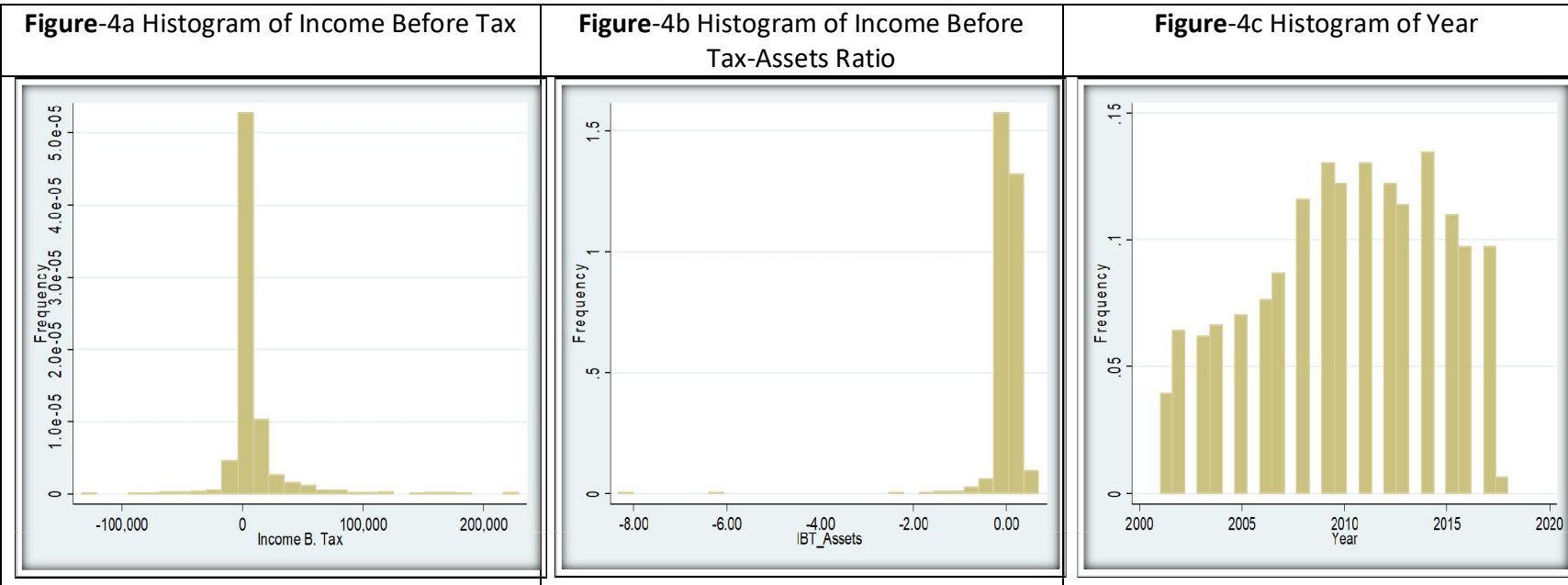
3.2. Estimation Strategy

My basic insight is that to exploit the variation in operational characteristics of indirect investments in real estate like operation status of a real estate company as REIT or REF, stock exchange listing status of REIT or REF entity, economies of scale, capital structure, leverage, specialized attributes (special purpose REIT company, CR-REIT) etc of the organization as a way to determine the decisive factors for return earnings of the business. The outputs of a company, Return on assets (ROA) and Return on equity (ROE) are the important indicators to know what earnings were generated from invested capital (assets) and owning share equity or how profitable a company is relative to its total assets and equity. As, REIT and REF companies are tax excepted, I take here Income before Tax Assets ratio as ROA. Then, I will regress the Income before Tax Assets ratio (output of REIT/REF) on abovmentioned operational characteristics of REIT or REF. It is mentionable that macroeconomic variables like GDP growth, Consumer Price Index (CPI)-inflation, real interest rate will be as control variable in the regression. It is also stated that location diversity of the business entity will be controlled through regional fixed effect and time variation will be controlled through inclusion of year fixed effect in the model.

3.2.1. Panel Random Effect Estimation Model

As the data is the extended longitudinal (18 Years time series with across companies), Panel Random Effect Model will be used where Random effects are simply the extension of the partial pooling technique as a general-purpose statistical model. In the random effects model, the individual-specific effect is a random variable that is uncorrelated with the explanatory variables of all past, current and future time periods of the same individual. The use of random effects offers several advantages when modeling longitudinal data. It is mentionable that the data which is used in this study is unbalanced panel data. Random effects provide a way to model correlation in unbalanced designs. Again, random effect models assist in controlling for unobserved heterogeneity when the heterogeneity is constant over time and not correlated with independent variables.

The baseline Estimation is the followings:

$$Y_{i,t} = \beta_0 + \sum_{k=1}^{n} \beta_{1k} \text{(Character)}_{i,k} + \beta_2 \text{GDP}_t + \beta_3 \text{Inflation}_t + \beta_4 \text{Real Int.}_t + \gamma_t + \delta_t + \varepsilon_{i,t} \qquad \textbf{(1)}$$

Where $Y_{i,t}$ is the dependable variable represents Return on assets (ROA) through measuring income before tax- assets ratio in a year. In general, the higher the value of ROA, the better a company is. Our main variable of interest is characteristics of REIT and REF which consist of REIT dummy, listing in stock exchange, economy of scale, capital structure, leverage, CR-REIT (special purpose REIT) when we control macroeconomic variables (GDP, Inflation, Interest), regional diversity (γ_t) and time variation (δ_t). $\varepsilon_{i,t}$ is the error term in the model.

"REIT or REF" is an operational status of a real estate company which is our variable of interest under character jurisdiction may act as important determinant of return earnings. REIT is a dichotomous/binary variable which represents REIT equal to 1 and zero otherwise.

Stock exchange listed status in KRX is another attribute of a company where Stock exchange listing is a dichotomous/binary variable which represents Listed REIT or REF equals to 1 and Zero otherwise (Non-Listed REIT or REF)

An Economy of scale or firm size is crucial trait of a business organization. Here, assets of the company are used as proxy for firm size. Again, as the collected data shows some values are too large for some periods and other values are too small for other periods, this situation resembles as skewed of data distribution and gives rise to outliers of our important data. To solve this issue, here natural logarithm of total assets (log transformation of total asset) is representing as substitute variable for size of the company in an individual year. It is assumed that the asset level posses the company may play great role in efficiency and hence catalyze in enhancing and decreasing the ROA through generating revenue, increase business value, and facilitate to run business.

With Log-Assets, quadratic functions of Log-Assets, (Log-Assets)^2 will also be considered in the regression to capture decreasing or increasing marginal effects (the relationship is concave or convex) of assets on return earnings.

Capital structures (Liability-Assets ratio) representing financial flexibility of the company resemble the important feature of the business entity and major capital structure theories like trade-off theory which states that interest tax shields have value to the firm and may be used up to the point where the marginal tax benefits of debt equal the costs of potential financial distress. It is mentionable that the ability to borrow money is a sign of financial health, and using every available asset to promote growth and maximize shareholder returns is crucial.

Leverage is the strategy of using borrowed money to boost return on an investment. If the return on the total value invested in the business venture (equity plus borrowed funds) is higher than the interest payment on the borrowed funds, then significant profit is earned. Again, debt amplifies the risk of company as well. Goetzmann et al. (2007), argue that managers employ leverage to modify the market exposure of their funds in order to make a positive contribution to excess fund returns. Knowing how and when to deploy leverage strategically and intelligently that's in line with the average for their industry and size is an important approach to the healthy operation of any company.
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As corporate restructuring (CR) is the special type of REIT in Korea where investment is injected in properties sold only by the insolvent and indebted companies. The principle of burden-sharing had been applied in the process of corporate restructuring. Therefore it is treated as one of the explanatory variable as considering its specialty.

The GDP growth, a macroeconomic variable, is an indicator of how our country's economy is performing. This means a business can utilize it to predict whether their industry will grow or if it will shrink. When the GDP falls, companies may decide to start saving extra money as a backup to ensure liquidity, which means layoffs and cost-cutting measures are used. If the GDP is growing a right direction, a business may choose to invest more for expansion of the business,

hire new employees, pay higher salaries, and open new divisions that may change the return earnings. In Korea, Highest GDP growth was in 2002 (7.43%) followed by 6.49% in 2010 and 5.46% in 2007 and the lowest was in 2009 (0%).

Inflation is another macroeconomic variable which may lessen confidence in investment. For a long-term investment in real estate sector, a stable price environment is prerequisite by which real companies accurately predict the future earnings and losses for long-term projects. But Inflation creates uncertainty in investing through price levels fluctuation and it becomes complicated for a business to value a long-term investment. In inflation rising period there is a higher probability of lesser returns on capital and last inflation decreases the investment in real sector. The highest inflation was 4.67% in 2008 followed by 4.07% in 2001 and 4.03% in 2011 and the lowest level inflation was in 0.71% in 2015.

In this study, real interest rate in a year has been used as control variable due to when interest rate is high then the debtors have to pay more interest to lenders. The borrowing money from the financial institution becomes more expensive for the companies. Therefore interest rate increases the expenditure of the company. Again when interest rate is low the business enjoys the ability to finance operations, acquisitions and expansions at a cheaper rate which creates earnings potentials. It is mentionable that from 2001 to 2017, Korean financial market has been experienced two types of interest rate environment. From 2001 to 2011 relatively higher interest rate regime and from 2012 to 2017 relatively lower interest rate regime which might affect the performance of the real estate investment funds.

There are differences in GDP/Cap in different regions in Korea as for example in Seoul GDP/Cap is ($42,793), Gyeonggi-do ($34,858) and Daegu ($23,794) which may impact on real estate investment as well as return earnings of REIT and REF. Therefore regional differences have been considered as controlled variable.

It is mentionable that the longitudinal data has been taken for an extended period during year 2001 to 2018 which is very unique nature of research in real sector where Korean economy was

recovering steps by steps from Asian financial crisis through different remedial measure implementation and again world recession occurred in 2008-2009 affected as well on Korean economy significantly. Specific year may influence on returns and Himmelberg et al. (1999) proposed to use fixed effects. "Year dummies" or "dummies for each of the year in the dataset capture the influence of aggregate (time-series) trends, taking care any variation in the outcome (ROA) that happens over the years and that is not attributed to the other explanatory variables. To consider this year fixed effect included as control variable. However, the fixed effects method does not fully remove the possibility of time-varying omitted variables (such as time-varying growth opportunities or changing management quality) and it does not address reverse causality. To consider this time variation is controlled.

3.2.2. Autoregressive Regression Estimation Model

Autoregressive models are general models where autoregressive process operates under the premise that past values (lagged values) have an effect on current values can be applied in all longitudinal studies. As financial variables show inherent autocorrelation, therefore Autoregressive models can be a suitable statistical technique for this financial oriented research where lagged values presence. It is mentionable that the selection of lag length is a crucial issue that will affect results significantly (more lags than necessary will result in over-fitting). Therefore, I will consider an analysis of a simple first order autoregressive model in the following way:

$$Y_{i,t} = \beta_0 + \sum_{k=1}^{n} \beta_{1k} \text{ (Character)}_{i,k} + Y_{i,t-1} + \beta_2 \text{ GDP}_t + \beta_3 \text{ Inflation}_t + \beta_4 \text{ Real Int.}_t + \gamma_t + \delta_t + \varepsilon_{i,t} \qquad \textbf{(2)}$$

Here, $Y_{i,t-1}$ is the first order (last year) lagged value of Income before tax – Assets ratio (ROA_{t-1}).

It is stated that adding interaction terms to a regression model can significantly expand understanding of the relationships among the variables in the model. The Interaction effects indicate that a third variable influences the relationship between an explanatory variable and dependent variable. To observe the combined effect with the operational character of

companies, I will use interaction term of lagged values with the character in the autoregressive model. It is mentionable that the company characters are dichotomous as well as continuous variables.

$$Y_{i,t} = \beta_0 + \sum_{k=1}^{n} \beta_{1k} (Character)_{i,k} + Y_{i,t-1} + \sum_{k=1}^{n} \beta_{1k} (Character)_{i,k} * Y_{i,t-1}$$
$$+ \beta_2 GDP_t + \beta_3 Inflation_t + \beta_4 Real\ Int._t + \gamma_t + \delta_t + \varepsilon_{i,t} \qquad (3)$$

Here, the interaction term $\sum_{k=1}^{n} \beta_{1k} (Character)_{i,k} * Y_{i,t-1}$ represents the relationship between the characters and the lagged value (Last year ROA) of Income before tax – Assets ratio on the current year Income before tax–Assets ratio (ROA). The motivation of inclusion of the interaction is to observe if the company is REIT (dichotomous) than REF, then the change of the lagged value may or may not influence to increase or decrease the impact of REIT on ROA. Regarding continuous variables of company characters like size of the company (assets), capital structure, leverage etc will be interacted with the lagged value in same vein. Therefore, the addition of interaction in the model explains that the effect of company characters changes depending on the lagged values (Last year ROA) of Income before tax – Assets ratio of the company. Statistically significant coefficient of interaction term will reveal there is really no "unique" effect of company characters; it is different for lagged values.

3.2.3. Robustness Check strategy

3.2.3.1. Dropped of stock exchange listing variable and excluding data from listed REIT and REF companies

It is stated that our data is comprised with non-listed REIT and REF as well as listed REIT and REF (data based on whole population) where number of stock exchange listed REIT and REF are very few (5 only) but they have 79 observations out of 795 observations consecutively. It is documented that the mean of income before tax-Assets ratio (ROA) for stock exchange listed REIT and REF is 0.057691 and the mean is 0.0208173 for non-listed REIT and REF in same variable (ROA). Some may be worried on selection bias between listed and non-listed firms and the selection effect like influence of few listed REIT and REF companies, the overall result has

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come out as biased due to selection or unobservable variable bias. It is also mentionable that in the correlation test, stock exchange listing variable is not found highly correlated with other explanatory variables. To partially check this selection bias, the dummy for being stock exchange listed variable will be used as the dependent variable and all other important characters like REIT (dummy variable), Lagged value of ROA, size of the company, leverage, capital structure, CR-REIT (dummy variable) will be used as explanatory variables. If insignificant coefficients would be got then less concern on selection bias based on the observables. Again, if significant coefficients would be got for some variables then stock exchange listing variable would be dropped in the model and stock exchange listed REIT and REF data have been excluded and run the regression to check the previous results authenticity.

3.2.3.2. Robustness check through excluding high Diversity in data set

Liability_ assets ratio, (the capital structure of a company) is an important variable in my researh. It is observed that the average value of Liability_ assets ratio among the companies is 0.3243997 where mean of Liability_ assets ratio in the case of REIT is higher than REF companies (0.5974769 Vs 0.1624141). Again, it is also observed that there are two REIT companies whose observational data on Liability_ assets ratio in year 2009 and 2012 are above 6 (10.803 and 7.144 consequitively). It is mentionable that according to basic accounting principle, liability and equity is equal to assets and assets is higher than liability. But when a company does not perform well (occuring huge losses) for several years and then liability may go above assets. This situation is referrd as insolvency situation of the company when the company become failed to repay all the liabilities and its own capital (shareholder equity) shows negative sign. As in this research observational data set are based on total population of externally audited REIT and REF companies, some companies are found in the abovementioned condition specially some of the REIT companies data have fallen in this category. It is also mentionable that after excluding the two observations which posses high Liability_ assets ratio, the average value of Liability_ assets ratio has been reduced at 0.3025863. Considering the control of high diversity in Liability_ assets ratio, I exclude the abovementioned two observations and check the results.

3.2.3.3. Robustness Check strategy- Global Financial Crisis (GFC)

It is also mentionable that over the sampling period (2001-2018), no subjects (company) has been changed as its operational status at all in this study as for example no REIT has been transformed (no change) to REF or no REF has been transformed (no change) to REIT, no Non-listed REIT has been transformed to listed REIT or no listed REIT has been transformed to non listed REIT, across observational time period. Therefore, a **fixed effects model** may not work at all.

Again, **Difference in Difference** is not possible due to REIT has been established in 2001 and before of 2001 there was no REIT company. Parallel trend assumption was not validated in this case. It is also mentionable that considering the observational data size, **Propensity Score Matching (PSM)** technique is not possible to apply in this research.

It is documented that **Global Financial Crisis (GFC)** had been started from real estate sector (financial turmoil began with the bankruptcy of Lehman Brothers on 15 September 2008) and it were spread to US as well as global economy the global capitalist system was threatened including Korean financial market (Korea Economic Institute and Korea Institute for International Economic Policy, 2009). Given the region's large trade volume and its financial integration with the rest of the world, Korea has been one of the Asian nations most severely hit by the global financial crisis (GFC) in 2008. Investors' views on the Korean economy deteriorated as global deleveraging intensified that affected the foreign exchange markets as foreigners began to repatriate their funds out of Korean financial markets. As of the end of November 2008, the Korean won had depreciated by over 25.4 percent in dollar terms, the largest fall among major Asian countries excluding Turkey. The stock price collapsed by 27.2 percent during the same period (Kim, K. S., & Chey, H. K. (2010) and equity markets have followed a similar pattern, with the benchmark KOSPI 200 index falling to a low of 948 points in November 2008 (from 2,054 points a year before) before regaining to current levels at 1,684 points (Lim, Jamus 2010).

Some studies documented that after the crisis, the effect of GFC has been continued for several years and real estate financial sector had not been performed as pre GFC period (Senturk, Fatih 2016). To consider this issue, I want to check any shock present or not after the GFC in the financial market thereof. I create After Shocks of GFC variable, a dichotomous/binary variable which represents the unobservable shocks responsible for continual effect after GFC (Year 2010-2018) equal to 1 and Zero otherwise (Year 2001-2009).

4.0 Results and Discussions

4.1. Determinants of the Return Earnings (ROA)

In Table-10, Panel random effect as well as autoregressive strategy has been applied to find the decisive factors of REIT for Return on Assets (ROA) earnings where dependent variable is the Income before tax-assets ratio and the sampling period is 2001-2018 (full sample).

In the model (1), REIT (operational status of company- dummy variable), stock exchange listing status of the company, size of the company (LogAssets, square of LogAssets) and its capital structure in the form of liability- assets ratio (Liability_Assets), leverage of the company debt-equity ratio (Debt_Equity), macroeconomic variables like GDP growth, Inflation and real interest rate. It is mentionable that to control of the regional fixed effect and yearly shocks on the return earnings, regional fixed effect and year fixed effect have been used in this model and others as well. It is found that there is no relationship or no difference in operating as REIT or REF in return earnings. It is also observed that stock exchange listing has no association with return earnings. Therefore, REIT or REF status as well as stock exchange listing status may not be considered as the determinant of return on assets earnings. In the case of economies of scale, size of the company shows statically highly significant positive association with ROA. It is stated that 1% positive change of Assets increase 0.019 in the income before-tax- Assets ratio. It is also stated that Assets shows diminishing marginal return (increase return with decreasing trend) in return earnings. It is examined that the variable liability_assets ratio (capital structure)

Table: 10 Determinants of the REITs Success Factors (Total Sample, Time Period: 2001- 2018) (All Variable)

Dependent Variable: Return on Assets (ROA)-Income Before Tax Assets Ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7	Model-8
REIT	0.0204	0.0547	0.433	0.365	0.365	0.202	0.195	0.195
	(0.48)	(1.30)	(1.76)	(1.53)	(1.53)	(0.82)	(0.81)	(0.81)
Stock Ex. Listing	-0.0428	-0.0350	-0.0272	-0.0359	-0.0357	-0.0823	-0.101	-0.101
	(-0.45)	(-0.44)	(-0.34)	(-0.49)	(-0.48)	(-0.92)	(-1.36)	(-1.36)
LogAssets	1.881^{***}	1.418^{***}	1.545^{***}	1.465^{***}	1.464^{***}	1.460^{***}	1.424^{***}	1.423^{***}
	(14.01)	(7.50)	(7.52)	(7.20)	(7.16)	(7.10)	(7.04)	(7.03)
LogAssets_Sq	-0.172^{***}	-0.125^{***}	-0.135^{***}	-0.131^{***}	-0.130^{***}	-0.131^{***}	-0.127^{***}	-0.127^{***}
	(-12.01)	(-6.54)	(-6.71)	(-6.59)	(-6.56)	(-6.51)	(-6.43)	(-6.43)
Liability_Assets	-0.537^{***}	-0.592^{***}	-0.597^{***}	-0.321^{***}	-0.324^{***}	-0.359^{***}	-0.314^{***}	-0.314^{***}
	(-32.66)	(-26.14)	(-26.11)	(-4.11)	(-4.14)	(-4.67)	(-4.05)	(-4.04)
Debt_Equity	0.0000569	0.0000665	0.0000683	0.0000755	0.0000751	0.0000661	0.0000754	0.0000754
	(0.99)	(1.12)	(1.15)	(1.25)	(1.25)	(1.15)	(1.25)	(1.25)
GDP_Growth	0.00808	0.00867	0.00968	0.0109	0.0108	0.00655		0.0112
	(0.08)	(0.08)	(0.09)	(0.10)	(0.10)	(1.48)		(0.10)
CPI_Inflation	0.127	-0.199	-0.211	-0.179	-0.181	0.00927		-0.156
	(0.70)	(-0.30)	(-0.31)	(-0.26)	(-0.27)	(1.44)		(-0.23)
R_Inter_Rate	-0.0693	0.136	0.143	0.121	0.122	-0.00274		0.109
	(-0.42)	(0.43)	(0.45)	(0.38)	(0.38)	(-0.51)		(0.34)
ROA_{t-1}		0.0596^{**}	0.0606^{**}	0.0697^{**}	0.0694^{**}	0.0675^{**}	0.0722^{**}	0.0722^{**}
		(2.60)	(2.64)	(3.09)	(3.07)	(2.94)	(3.24)	(3.24)
REITLogAssets			-0.0793	-0.0512	-0.0515	-0.00881	-0.00302	-0.00291
			(-1.56)	(-1.03)	(-1.04)	(-0.17)	(-0.06)	(-0.06)
REITLiability_Assets				-0.291^{***}	-0.289^{***}	-0.245^{**}	-0.289^{***}	-0.290^{***}
				(-3.66)	(-3.62)	(-3.10)	(-3.66)	(-3.66)
REITDebt_Equity					0.000130	0.0000999	0.0000920	0.0000912
					(0.11)	(0.09)	(0.08)	(0.08)
CR-REIT						-0.188^{**}	-0.192^{**}	-0.192^{**}
						(-2.82)	(-3.23)	(-3.23)
Region Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
_cons	-5.064^{***}	-3.566^{***}	-3.944^{***}	-3.741^{***}	-3.738^{***}	-3.809^{***}	-3.616^{***}	-3.662^{***}
	(-11.18)	(-4.79)	(-5.05)	(-4.77)	(-4.76)	(-7.22)	(-6.94)	(-4.69)
N	780	658	658	658	658	658	658	658
R^2	0.6793	0.7167	0.7157	0.7403	0.7401	0.7405	0.7507	0.7507

t statistics in parentheses
$^{*}\ p < 0.05,\ ^{**}\ p < 0.01,\ ^{***}\ p < 0.001$

demonstrates negative relationship with ROA. It is stated that 1 percent increase in the liability-assets ratio decreases 0.537 percent in ROA (income before tax Assets ratio) and coefficients are statistically highly significant ($p < 0.001$). It is mentionable that there is found no association between leverage (debt_equity ratio) and ROA. It is investigated that there is found no association among macroeconomic variables and ROA. It is observed that R^2 of this model is 0.6793 which represents the data are well fitted with the regression line through this model.

In the model (2), (autoregressive strategy) first order (immediately past year) lagged value of ROA has been included which represents statistically significant positive association with ROA. It is stated that 1 percent increase in the first order lagged value of ROA (ROA is a ratio of income before tax Assets) enhances 0.0596 percent in current year ROA. It is observed that R^2 of this model is 0.7167 which also represents the data are well fitted with the regression line than the previous model. It is also stated that through the adding this lagged variable in the model-2, no significant change in the earlier results which we got in the model-1.

To check REIT has or has not a different effect on the ROA depending on the various value of Assets. To consider this issue, in the model (3), the interaction term REIT*LogAssets has been added to observe the effect if the company is REIT or not REIT with impact of LogAssets. It is found that the interaction is not statistically significant. It is also stated that through the adding this interaction variable in the model-3, no significant change in the earlier results which we got in the model-1 and 2. The coefficients of REIT, Stock exchange listing, debt equity ratio and macroeconomic variables are still statistically significant with some changes of value. Again, the coefficients of LogAssets, LogAssets square and Liability_Assets ratio show their significance as like the model-1 and 2 with some small changes in the value.

In the same vein, in the model (4) & (5) the interaction term REIT*Liability_Assets, REIT*Debt_Equity had been included respectively to observe the effect if the company is REIT or not REIT with impact of capital structure and leverage. It is investigated that the interaction variable REIT*Liability_Assets represents statistically significant negative coefficients which

states when REIT variable shift from 0 to 1 that is when the company is REIT than REF, then increase of Liability assets ratio decreases the return earnings (ROA) or in other words If the company is REIT than REF, then it will augment the negative impact of Liability_Assets on the ROA. It is observed that interaction term REIT*Debt_Equity has no association with the dependent variable ROA. It is also examined that that through the adding the interactions variable, no significant change in the earlier results which we got in the model-1, 2, 3.

In the model-6, a new variable, special purpose REIT, CR-REIT a binary variable is added, which shows statistically significant negative association with return earnings (ROA). It is stated that when the variable CR-REIT move from 0 to 1 that is when the company is CR-REIT, then decrease 0.188 in the ROA. It is stated that in this model, year fixed effect has been excluded to observe any changes in the coefficients of the predictor variables specially the targeted variables were GDP growth, Inflation and real interest rate (macroeconomic variables) due to their changes usually occur yearly. It is also mentionable that the adding of this CR-REIT variable and dropping of year fixed effect do not alter other coefficients but with small changes in the values that we got from previous models.

In the model-7, macroeconomic variables like GDP growth, Inflation and real interest rate have been dropped to oversee any changes in the coefficients of the desired variables. It is stated that the dropping of the abovementioned macroeconomic variables do not transform the coefficients of the desired variables but with small changes in values comparing to earlier models. It is investigated that 1% positive transformation of Assets increase 0.014 in the return earnings, the income before-tax- Assets ratio (ROA) which was highest (0.019) in the model-1. It is also stated that Assets shows diminishing marginal return (increase return with decreasing trend) in return earnings that we confirm through the previous 6 models as well. It is examined that the capital structure demonstrates negative relationship with ROA. It is stated that 1 percent increase in the liability- assets ratio decreases 0.314 percent in ROA (income before tax Assets ratio) which was minimum (-0.597) in the model-3 and maximum (-0.314) in model-7 and both models coefficients are statistically highly significant ($p < 0.001$). It is mentionable that

there is found no association between leverage (debt_equity ratio) and ROA that similar to the previous results. It is examined that 1 percent increase in the first order lagged value of ROA (ROA is a ratio of income before tax Assets) enhances 0.0722 percent in current year ROA which is the highest among all models. It is found that in this model the interaction variable REIT*Liability_Assets shows statistically significant negative coefficients which states when REIT variable shift from 0 to 1 that is when the company is REIT than REF, then increase of Liability assets ratio decreases the return earnings (ROA) or in other words If the company is REIT than REF, then it will enhance the negative impact of Liability_Assets on the ROA. It is also noted that the magnitude of the coefficient is very similar to other models in the Table-10. It is investigated that there is found no association with the interaction terms REITLogAssets, REITDebt_Equity and ROA as we got from previous models. In the model-7, the CR-REIT variable also been controlled like model-6 and got similar result. It is stated that when the variable CR-REIT move from 0 to 1 that is when the company is CR-REIT, then decreases 0.192 in the ROA. It is investigated that R^2 of this model is 0.7507 which also represents the data are well fitted with the regression line than the previous models.

In the model-8, all variables have been included and it is stated that the results are very much similar to the model-7 where macroeconomic variables like GDP growth, Inflation and real interest rate have been dropped. It is also observed that R^2 of this model is 0.7507 which is alike to the previous model-7. Therefore, in the presence of year fixed effect with and without macroeconomic variables, it is not found any different results from other variables.

It is stated that model-8, may be considered the best model in the Table-10, due to all the variables have been considered. As, without macroeconomic variables the model-7 is representing same results and its R^2 is also showing same magnitude, therefore model-7, can be treated as the best model.

4.2. Robustness check through Dropping of stock exchange listing variable and excluding observational data from listed REIT and REF companies

It is stated that though listing is an important character and according to previous literatures listing is one of the significant determinant of the return earnings but in this study, listing has failed to show statistically significant coefficients in any model of the Table-10. It is mentionable that whole population has been taken as the observational data and there are only few (5) firms are listed REIT and REF out of total 129 firms and some may be worried on selection bias between listed and non-listed firms due to selection or unobservable variable bias. It is also mentionable that in the correlation test stock exchange listing variable is not found highly correlated with other variable. To partially check this selection bias, the dummy for being stock exchange listed variable has been used as the dependent variable and all other important characters like REIT (dummy variable), Lagged value of ROA, size of the company, leverage, capital structure, CR-REIT (dummy variable) use as explanatory variables. In this test, Probit, Poisson Pseudo Maximum Likelihood Estimation (PPML), Panel random effect and Logit model have been used and some variables like REIT, LogAssets have got the significant coefficients (please see annexure-1). Therefore, it is decided to drop the variable in the further regressions model to avoid the selection bias issue.

In the Table-11, the stock exchange listing variable has been dropped and check the regressions to observe any changes of the coefficients in the different models. It is investigated that the variables LogAssets, LogAssets square, Liability_assets ratio, ROA_{t-1}, CR-REIT, REITLiability_assets ratio which coefficients were statistically significant in the Table-10, are still statistically significant with minor changes and maintaining same sign in the case of some variables in Table-11. Again, the variables (REIT, debt_equity ratio, and macroeconomic variables GDP Growth, CPI-Inflation, real interest rate interaction terms REITLogAssets, REITdebt_equity) which were not statistically significant in the previous table are still maintaining statistically insignificant coefficients. It is noted that model-7 and model-8 are representing almost same results for all different variables. Again, it is examined that R^2 of the

models are around 0.70 which symbolize that models are rightly fitted with regression line and

model-7 and 8 are showing same value (0.7456) of R^2.

Table: 11 Determinants of the REITs Success Factors (Total Sample, Time Period: 2001- 2018) **(Without Listing Variable)**

	Dependent Variable: Return on Assets (ROA)-Income Before Tax Assets Ratio							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7	Model-8
REIT	0.0210	0.0544	0.437	0.374	0.375	0.232	0.242	0.242
	(0.50)	(1.30)	(1.78)	(1.57)	(1.56)	(0.94)	(1.01)	(1.01)
LogAssets	1.881***	1.414***	1.543***	1.463***	1.462***	1.462***	1.424***	1.424***
	(14.02)	(7.49)	(7.51)	(7.19)	(7.16)	(7.10)	(7.02)	(7.01)
LogAssets_Sq	-0.172***	-0.125***	-0.135***	-0.130***	-0.130***	-0.131***	-0.127***	-0.127***
	(-12.04)	(-6.53)	(-6.72)	(-6.59)	(-6.56)	(-6.52)	(-6.43)	(-6.42)
Liability_Assets	-0.537***	-0.592***	-0.598***	-0.326***	-0.328***	-0.365***	-0.326***	-0.325***
	(-32.67)	(-26.22)	(-26.20)	(-4.18)	(-4.21)	(-4.75)	(-4.20)	(-4.19)
Debt_Equity	0.0000567	0.0000663	0.0000681	0.0000753	0.0000749	0.0000659	0.0000748	0.0000748
	(0.99)	(1.11)	(1.15)	(1.25)	(1.25)	(1.15)	(1.25)	(1.25)
GDP_Growth	0.00816	0.00892	0.00989	0.0111	0.0110	0.00653		0.0118
	(0.08)	(0.08)	(0.09)	(0.10)	(0.10)	(1.48)		(0.10)
CPI_Inflation	0.127	-0.201	-0.212	-0.183	-0.185	0.00908		-0.169
	(0.70)	(-0.30)	(-0.32)	(-0.27)	(-0.27)	(1.42)		(-0.25)
R_Inter_Rate	-0.0692	0.136	0.143	0.123	0.124	-0.00293		0.114
	(-0.42)	(0.43)	(0.45)	(0.38)	(0.39)	(-0.55)		(0.36)
ROA_{t-1}		0.0596**	0.0607**	0.0692**	0.0689**	0.0667**	0.0708**	0.0709**
		(2.60)	(2.64)	(3.07)	(3.05)	(2.90)	(3.16)	(3.16)
REITLogAssets			-0.0802	-0.0535	-0.0538	-0.0165	-0.0150	-0.0149
			(-1.59)	(-1.08)	(-1.08)	(-0.32)	(-0.30)	(-0.29)
REITLiability_Assets				-0.287***	-0.285***	-0.241**	-0.281***	-0.281***
				(-3.61)	(-3.58)	(-3.05)	(-3.55)	(-3.55)
REITDebt_Equity					0.000132	0.000102	0.000102	0.000101
					(0.11)	(0.09)	(0.09)	(0.09)
CR-REIT						-0.172**	-0.169**	-0.169**
						(-2.64)	(-2.92)	(-2.92)
Region Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
_cons	-5.064***	-3.551***	-3.937***	-3.732***	-3.728***	-3.812***	-3.614***	-3.645***
	(-11.18)	(-4.78)	(-5.04)	(-4.77)	(-4.76)	(-7.21)	(-6.92)	(-4.67)
N	780	658	658	658	658	658	658	658
R^2	0.6785	0.7158	0.7152	0.7392	0.7389	0.7368	0.7456	0.7456

t statistics in parentheses $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

In Table-12, stock exchange listed REIT and REF have been excluded from the observational

Table: 12 Determinants of the REITs Success Factors (Excluded Stock Exchange Listed REIT and REF Time Period: 2001- 2018)

	Dependent Variable: Return on Assets (ROA)-Income Before Tax Assets Ratio						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
REIT	0.0197	0.0640	0.471	0.418	0.421	0.256	0.204
	(0.44)	(1.41)	(1.74)	(1.61)	(1.61)	(0.94)	(0.76)
LogAssets	1.889***	1.368***	1.520***	1.455***	1.455***	1.449***	1.386***
	(13.24)	(6.72)	(6.71)	(6.51)	(6.50)	(6.43)	(6.23)
LogAssets_Sq	-0.173***	-0.122***	-0.133***	-0.130***	-0.130***	-0.130***	-0.124***
	(-11.33)	(-5.88)	(-6.06)	(-6.01)	(-6.00)	(-5.92)	(-5.73)
Liability_Assets	-0.539***	-0.602***	-0.607***	-0.321***	-0.324***	-0.360***	-0.317***
	(-31.01)	(-24.67)	(-24.71)	(-3.80)	(-3.84)	(-4.37)	(-3.77)
Debt_Equity	0.0000575	0.0000653	0.0000678	0.0000754	0.0000754	0.0000645	0.0000755
	(0.95)	(1.03)	(1.08)	(1.18)	(1.18)	(1.06)	(1.18)
GDP_Growth	0.0110	0.0131	0.0145	0.0161	0.0160	0.00683	
	(0.10)	(0.11)	(0.12)	(0.13)	(0.13)	(1.36)	
CPI_Inflation	0.123	-0.158	-0.168	-0.143	-0.144	0.00917	
	(0.65)	(-0.22)	(-0.24)	(-0.20)	(-0.20)	(1.27)	
R_Inter_Rate	-0.0696	0.110	0.116	0.0956	0.0968	-0.00491	
	(-0.40)	(0.32)	(0.34)	(0.28)	(0.28)	(-0.81)	
ROA_{t-1}		0.0668**	0.0675**	0.0758**	0.0754**	0.0740**	0.0781***
		(2.76)	(2.79)	(3.20)	(3.18)	(3.07)	(3.32)
REITLogAssets			-0.0862	-0.0621	-0.0628	-0.0186	-0.00340
			(-1.53)	(-1.14)	(-1.14)	(-0.32)	(-0.06)
REITLiability_Assets				-0.299***	-0.296***	-0.252**	-0.294***
				(-3.49)	(-3.45)	(-2.97)	(-3.45)
REITDebt_Equity					0.0000575	-0.000946	-0.00123
					(0.01)	(-0.22)	(-0.31)
CR						-0.179*	-0.188**
						(-2.55)	(-2.96)
Region Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	No	Yes
_cons	-5.070***	-3.459***	-3.906***	-3.744***	-3.744***	-3.764***	-3.503***
	(-10.64)	(-4.32)	(-4.59)	(-4.39)	(-4.39)	(-6.50)	(-6.10)
N	703	584	584	584	584	584	584
R^2	0.6840	0.7235	0.7232	0.7460	0.7458	0.7445	0.7548

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

data and run the regressions keeping same time period (full observation year 2001-2018) for different models to investigate any transformation of the previous results. As, mentioned in the Table-10 and Table-11 on the similarity of model-7 and model-8, in Table-12, model-8 has been dropped to avoid the redundancy but keeping all other previous regression models in the Table-12. The reason for keeping all other models in the tables is to check how the changes of coefficient of variables are occurring through introducing a variable in the model.

In the Table-13, stock exchange listed REIT and REF have been Included but restricted diversification based on liability assets ratio (the liability assets ratio which are less than 6 have been included) and the time is whole period (2001- 2018). It is noted that only two observations have been dropped due to this restrictions which are two REIT companies (DASAN REIT and Plustar I CR-REIT Co., Ltd). It is also observed that the DASAN REIT's liability assets ratio was 10.803 in 2009 and in the case of Plustar I CR-REIT Co. Ltd, liability assets ratio was 7.144 in 2012. It is also mentionable that stock exchange listing variable has been dropped at all models in Table-13. In the model-1, it is investigated that the binary variable REIT shows statistically significant negative coefficient which was insignificant in all the models in Table-10, 11 and 12. In Model-1, the variables LogAssets, LogAssets Square, Liability_Assets, Debt_Equity, macroeconomic variables, regional and year fixed effects has been included in the model. It is also noted that the variable Liability_Assets ratio (capital structure) first time has presented statistically insignificant coefficient in the model-1. The proxy of size variables LogAssets, LogAssets Square have been continued its previous statistically significant results. In the model-2, first order lagged of ROA has been included and it repeated previous results as well by showing statistically significant positive coefficient. The REIT variable also presents statistically significant negative coefficient as like model-1 of this table. The important point of this model is the variable Liability_Assets ratio (capital structure) again demonstrates statistically significant negative coefficient with the presence of ROA_{t-1}. In the model-3, through introducing of the interaction variable REITLogAssets, it is examined that REITLogAssets variable presents statistically insignificant coefficient and the REIT variable also shows statistically insignificant coefficient as well though it showed statistically significant negative coefficient in the previous

Table: 13 Determinants of the REITs Success Factors (Included stock exchange listed REIT and REF but restricted diversification in Liability_Assets Ratio, Time Period: 2001- 2018)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent Variable: Return on Assets (ROA)-Income Before Tax Assets Ratio						
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
REIT	-0.122***	-0.0819**	-0.00596	0.0121	0.0173	0.00655	-0.103
	(-5.41)	(-3.04)	(-0.03)	(0.07)	(0.10)	(0.03)	(-0.58)
LogAssets	1.414***	0.740***	0.768***	0.700***	0.707***	0.840***	0.682***
	(12.68)	(4.79)	(4.60)	(4.19)	(4.21)	(4.65)	(4.10)
LogAssets_Sq	-0.132***	-0.0665***	-0.0686***	-0.0599***	-0.0605***	-0.0714***	-0.0583***
	(-11.56)	(-4.33)	(-4.26)	(-3.69)	(-3.70)	(-4.05)	(-3.60)
Liability_Assets	-0.0329	-0.0810*	-0.0832*	-0.220***	-0.223***	-0.302***	-0.223***
	(-1.07)	(-2.31)	(-2.34)	(-3.32)	(-3.35)	(-4.44)	(-3.37)
Debt_Equity	0.0000512	0.0000655	0.0000657	0.0000604	0.0000619	0.0000638	0.0000616
	(0.87)	(1.15)	(1.15)	(1.06)	(1.09)	(1.18)	(1.08)
GDP_Growth	0.00268	0.00245	0.00278	0.00176	0.00191	0.00447	
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(1.08)	
CPI_Inflation	0.112	-0.0895	-0.0921	-0.0836	-0.0858	0.00820	
	(0.62)	(-0.14)	(-0.14)	(-0.13)	(-0.13)	(1.38)	
R_Inter_Rate	-0.0755	0.0781	0.0792	0.0783	0.0793	-0.000174	
	(-0.45)	(0.26)	(0.26)	(0.26)	(0.26)	(-0.03)	
ROA_{t-1}		0.0806***	0.0810***	0.0801***	0.0796***	0.0738***	0.0805***
		(4.32)	(4.34)	(4.31)	(4.28)	(3.81)	(4.36)
REITLogAssets			-0.0157	-0.0306	-0.0319	-0.0275	-0.000107
			(-0.43)	(-0.84)	(-0.87)	(-0.65)	(-0.00)
REITLiability_Assets				0.192*	0.195*	0.263**	0.193*
				(2.47)	(2.51)	(3.21)	(2.51)
REITDebt_Equity					-0.000388	-0.000444	-0.000412
					(-0.36)	(-0.42)	(-0.38)
CR						-0.113*	-0.113**
						(-2.34)	(-2.76)
Region Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	No	Yes
_cons	-3.796***	-1.876**	-1.956**	-1.818**	-1.834**	-2.245***	-1.708***
	(-8.87)	(-2.77)	(-2.78)	(-2.59)	(-2.61)	(-4.84)	(-3.99)
N	778	656	656	656	656	656	656
R^2	0.2524	0.1821	0.1813	0.1747	0.1741	0.1564	0.1883

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

two models (model-1 and 2). In the model-4, another important interaction variable REIT *Liability_Assets has been added which presents statistically significant positive coefficient in the first time in all the tables though Liability_Assets presented statistically significant negative coefficient. That means if the company is REIT than REF, then it will reduce the negative impact of Liability_Assets on the ROA but previously the results indicated that If the company is REIT than REF, then it will amplify the negative impact of Liability_Assets on the ROA.

The probable explanation of the change of sign of important interaction variable REIT *Liability_Assets is that REIT has higher Liability_Assets ratio than REF (mean Liability_Assets ratio 0.5974769 Vs 0.1624141) but REIT companies are smaller size than REF (mean assets 174791.6 Vs 353923.6). Therefore, with higher Liability_Assets ratio and smaller asset size, REIT companies fail to perform well. But when diversification restriction applied on Liability_Assets, only two observations from REIT side has been dropped due to having their higher Liability_Assets ratio and after dropping, the mean of Liability_Assets ratio reduced to 0.5404976. The ratio indicates that when the assets value is 1 then the liability is 0.5404976 or according to accounting principle, we can say liability is just nearly half of the assets and other half is comprised with share holder equity. In this magnitude of Liability_Assets ratio the REIT companies may perform well. Therefore, it may be mentioned that when the company is REIT than REF, then enhancing of Liability assets ratio may decrease the return earnings (ROA) or in other words if the company is REIT than REF, then it will augment the negative impact of Liability_Assets on the ROA in certain higher Liability_Assets ratio like Liability-assets ratio crosses 0.55. Again, when the Liability-assets ratio is under 0.55, then enhancing of Liability assets ratio may increase the return earnings (ROA) or in other words when the Liability-assets ratio is under 0.55 and if the company is REIT than REF, then it will reduce the negative impact of Liability_Assets ratio on the ROA.

Again, managerial efficiency may be another factor to use the liability best in possible way.

It is observed that the magnitude of the coefficient of LogAssets variable has been reduced in different models specially in model-7 which shows minimum coefficient for LogAssets variable though the variable is still maintaining statistical significant coefficient. In the model-5, 6 and 7 of Table-13 confirming the previous results which we got Table-10, 11, 12 except in the case of interaction variable REIT *Liability_Assets which has been explained already.

In the Table-14, the observational data of Stock Exchange Listed REIT and REF has been excluded and limitation has been applied on diversification in Liability_Assets Ratio (the liability -assets ratio which are less than 6 have been included) and the time is whole observational period (2001- 2018).

It is noted that the regression results of the different models in Table-14, have presented prototype consequences of the Table-13 and confirming the findings of that Table (Table-13) which have been profoundly discussed in earlier paragraphs.

Table: 14 Determinants of the REITs Success Factors (Excluded Stock Exchange Listed REIT and REF and restricted diversification in Liability_Assets Ratio, Time Period: 2001- 2018)

	Dependent Variable: Return on Assets (ROA)-Income Before Tax Assets Ratio						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
REIT	-0.136***	-0.0897**	0.0325	0.0417	0.0447	-0.0157	-0.161
	(-5.80)	(-3.07)	(0.17)	(0.22)	(0.24)	(-0.07)	(-0.81)
LogAssets	1.405***	0.748***	0.797***	0.704***	0.708***	0.843***	0.660***
	(12.22)	(4.62)	(4.47)	(3.95)	(3.96)	(4.33)	(3.73)
LogAssets_Sq	-0.131***	-0.0676***	-0.0715***	-0.0603***	-0.0607***	-0.0714***	-0.0562**
	(-11.18)	(-4.21)	(-4.17)	(-3.49)	(-3.49)	(-3.76)	(-3.26)
Liability_Assets	-0.00656	-0.0613	-0.0649	-0.208**	-0.212**	-0.297***	-0.207**
	(-0.20)	(-1.63)	(-1.71)	(-2.89)	(-2.95)	(-4.05)	(-2.90)
Debt_Equity	0.0000502	0.0000653	0.0000660	0.0000594	0.0000601	0.0000639	0.0000596
	(0.80)	(1.07)	(1.09)	(0.97)	(0.99)	(1.11)	(0.98)
GDP_Growth	0.00318	0.00313	0.00385	0.00246	0.00244	0.00608	
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(1.30)	
CPI_Inflation	0.130	-0.0314	-0.0382	-0.0173	-0.0199	0.0101	
	(0.68)	(-0.05)	(-0.06)	(-0.03)	(-0.03)	(1.51)	
R_Inter_Rate	-0.0935	0.0524	0.0551	0.0495	0.0511	0.000134	
	(-0.53)	(0.16)	(0.17)	(0.15)	(0.16)	(0.02)	
ROA$_{t-1}$		0.0831***	0.0832***	0.0837***	0.0830***	0.0738***	0.0849***
		(4.23)	(4.24)	(4.29)	(4.24)	(3.65)	(4.37)
REITLogAssets			-0.0257	-0.0384	-0.0393	-0.0254	0.0128
			(-0.65)	(-0.98)	(-1.00)	(-0.53)	(0.30)
REITLiability_Assets				0.199*	0.203*	0.290**	0.196*
				(2.40)	(2.44)	(3.28)	(2.38)
REITDebt_Equity					-0.000200	-0.000793	-0.00101
					(-0.06)	(-0.24)	(-0.32)
CR						-0.118*	-0.126**
						(-2.20)	(-2.70)
Region Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	No	Yes
_cons	-3.784***	-1.955**	-2.093**	-1.899*	-1.911*	-2.269***	-1.641***
	(-8.40)	(-2.69)	(-2.77)	(-2.52)	(-2.53)	(-4.53)	(-3.59)
N	701	582	582	582	582	582	582
R^2	0.2681	0.1960	0.1950	0.1925	0.1917	0.1719	0.2078

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.3. Robustness check through- After Shocks of GFC

In Table-15, to check the robustness of the previous results, "After Shocks of GFC" a binary variable (Year 2010-2018 is equal to 1 and Zero otherwise) has been included in all of the models where diversification of Liability_ Assets ratio allowed or not (inclusion and exclusion of high diversified Liability_Assets ratio) and stock exchange listing REIT and REF excluded or included. It is also mentionable that as all of the models were mainly based on "After Shocks of GFC", therefore, the impact of After Shocks of GFC has been checked in the presence or absence of year fixed effect. It is mentionable that in the absence of year fixed effect, no diversification restriction on Liability_ Assets ratio has been applied and stock exchange listing REIT and REF included in the model-1. In the model-1, it is observed that after inclusion of GFC variable, there is no change in the significance with sign of the coefficients of all variables which is certifying the previous findings which we got from Table-10. It is also investigated that in the model-1, "After Shocks of GFC" is showing statistical significant negative coefficient which means that the After Shocks of GFC variable has negative relation with the return earnings (ROA) which is in line with the existing literature. In the model-2, no diversification restriction on Liability_ Assets ratio has been applied and stock exchange listing REIT and REF included in the presence of year fixed effect. It is found that though the magnitude of the coefficient of After Shocks of GFC variable has been enhanced but coefficient is not statistically significant. The result explains that most of the effect of the After Shocks of GFC has been enveloped by year fixed effect. In the model-3, it is noted that the result of After Shocks of GFC is very similar to model-1 where both models excluded year fixed effect. Again, in the model-4, the coefficient of After Shocks of GFC variable is not statistically significant in the presence of year fixed effect which is resemblance of model-2. The models from 5 to 8, diversity restriction on Liability_ Assets ratio has been applied and no year fixed effect applied in the model 5 and 7 but it is found that the coefficients of After Shocks of GFC variable are not statistically significant. The results of After Shocks of GFC variable also explain that regarding return earnings (ROA) the companies which having high Liability_ Assets ratio may have been badly affected by after GFC shocks compare to which had less Liability_ Assets ratio.

Table: 15 Determinants of the REITs Success Factors Including After Shocks of GFC as Control (Robustness Check) (Time Period 2001-2018)

Dependent Variable: Return on Assets (ROA)-Income Before Tax Assets Ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Including Diversification in Liability_Assets		Including Diversification but Excluded Stock Listed		Excluded diversification but Included Stock Exchange Listed		Excluded diversification and Stock Exchange Listed	
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7	Model-8
REIT	0.322	0.242	0.297	0.204	0.0159	-0.103	-0.0202	-0.161
	(1.32)	(1.01)	(1.10)	(0.76)	(0.08)	(-0.58)	(-0.09)	(-0.81)
After Shocks of GFC	-0.0466**	-0.156	-0.0426*	-0.156	-0.0203	-0.116	-0.0240	-0.123
	(-2.61)	(-1.45)	(-2.09)	(-1.34)	(-1.23)	(-1.15)	(-1.29)	(-1.12)
ROA$_{t-1}$	0.0697**	0.0708**	0.0770**	0.0781***	0.0751***	0.0805***	0.0758***	0.0849***
	(3.11)	(3.16)	(3.27)	(3.32)	(3.95)	(4.36)	(3.82)	(4.37)
LogAssets	1.492***	1.424***	1.475***	1.386***	0.830***	0.682***	0.827***	0.660***
	(7.33)	(7.02)	(6.62)	(6.23)	(4.68)	(4.10)	(4.34)	(3.73)
LogAssets_Sq	-0.132***	-0.127***	-0.131***	-0.124***	-0.0703***	-0.0583***	-0.0697***	-0.0562**
	(-6.68)	(-6.43)	(-6.06)	(-5.73)	(-4.07)	(-3.60)	(-3.77)	(-3.26)
REITLogAssets	-0.0331	-0.0150	-0.0246	-0.00340	-0.0276	-0.000107	-0.0219	0.0128
	(-0.64)	(-0.30)	(-0.42)	(-0.06)	(-0.66)	(-0.00)	(-0.46)	(0.30)
Liability_Assets	-0.332***	-0.326***	-0.321***	-0.317***	-0.278***	-0.223***	-0.268***	-0.207**
	(-4.34)	(-4.20)	(-3.88)	(-3.77)	(-4.12)	(-3.37)	(-3.70)	(-2.90)
REITLiability_Assets	-0.274***	-0.281***	-0.288***	-0.294***	0.237**	0.193*	0.259**	0.196*
	(-3.48)	(-3.55)	(-3.41)	(-3.45)	(2.93)	(2.51)	(3.00)	(2.38)
Debt_Equity	0.0000710	0.0000748	0.0000691	0.0000755	0.0000645	0.0000616	0.0000642	0.0000596
	(1.21)	(1.25)	(1.11)	(1.18)	(1.18)	(1.08)	(1.10)	(0.98)
REITDebt_Equity	-0.000016	0.000102	-0.00101	-0.00123	-0.000482	-0.000412	-0.000810	-0.00101
	(-0.01)	(0.09)	(-0.25)	(-0.31)	(-0.46)	(-0.38)	(-0.25)	(-0.32)
CR-REIT	-0.164**	-0.169**	-0.180**	-0.188**	-0.110*	-0.113**	-0.117*	-0.126**
	(-2.72)	(-2.92)	(-2.75)	(-2.96)	(-2.39)	(-2.76)	(-2.30)	(-2.70)
GDP_Growth	0.00754		0.00795		0.00495		0.00679	
	(1.68)		(1.55)		(1.18)		(1.43)	
CPI_Inflation	0.000942		0.00195		0.00425		0.00537	
	(0.13)		(0.24)		(0.63)		(0.71)	
R_Inter_Rate	-0.00463		-0.00618		-0.00108		-0.000909	
	(-0.84)		(-0.99)		(-0.21)		(-0.16)	
Region Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	No	Yes	No	Yes	No	Yes	No	Yes
_cons	-3.882***	-3.614***	-3.828***	-3.503***	-2.204***	-1.708***	-2.207***	-1.641***
	(-7.43)	(-6.92)	(-6.69)	(-6.10)	(-4.84)	(-3.99)	(-4.51)	(-3.59)
N	658	658	584	584	656	656	582	582
R^2	0.7415	0.7456	0.7503	0.7548	0.1621	0.1883	0.1793	0.2078

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

It is also observed that the interaction variable REITLiability_Assets shows statistically significant negative coefficient in the absence of diversity restriction on Liability_Assets variable and presents statistically significant positive coefficient in the presence of diversity restriction on Liability_Assets variable which attest the previous findings.

5. Conclusions and Recommendations

5.1. Summary of the achievements

The study tested all its 5 hypothesis through applying its estimation strategy. Here, are the summary of the findings.

- ➢ In ceteris paribus condition, there is no impact on Return on Assets (ROA) if the company is REIT or not. Therefore, company status as REIT or REF is not the decisive factor (determinant) for return earnings.

- ➢ There is no difference between stock exchange listed REIT and REF and non-listed REIT and REF in return earnings.

- ➢ The size of company is an important determinant of return earnings. It is stated that 1% positive change of Assets increase 0.014 in the income before-tax- Assets ratio (ROA).

- ➢ Assets shows diminishing marginal return (increase return with decreasing trend) in return earnings.

- ➢ Capital Structure (Liability-assets ratio) demonstrates negative relationship with ROA and may affect on return earnings negatively. It is stated that 1 percent increase in the liability- assets ratio decreases 0.314 percent in income before tax Assets ratio (ROA).

- ➢ There is found no effect of leverage (Liability/Equity ratio) on return earnings.

- ➢ The first order lagged value of ROA has positive association with current year ROA. It is stated that 1 percent increase in the first order lagged value of ROA (income before tax Assets) enhances 0.0722 percent in current year ROA.

- ➢ Macroeconomic Variables (GDP growth, Inflation, Real Interest Rate) have no impact on income before tax return.

- ➢ When the company is REIT than REF, then enhancing of Liability assets ratio may decrease the return earnings (ROA) or in other words if the company is REIT than REF,

then it will augment the negative impact of Liability_Assets on the ROA in certain higher Liability_Assets ratio like Liability-assets ratio crosses 0.55. Again, when the Liability-assets ratio is under 0.55, then enhancing of Liability assets ratio may increase the return earnings (ROA) or in other words when the Liability-assets ratio is under 0.55, if the company is REIT than REF, then it will reduce the negative impact of Liability_Assets ratio on the ROA.

➢ It is observed that interaction term REITLogAssets and REITDebt_Equity have no association with the dependent variable ROA.

➢ It is noted that After Shocks of GFC variable may reduce ROA in certain condition like in high Liability_ Assets ratio. It can be stated that regarding return earnings (ROA), the companies which having high Liability_ Assets ratio may have been badly affected by after GFC shocks compare to which had less Liability_ Assets ratio.

➢ Macroeconomic Variables (GDP growth, Inflation, Real Interest Rate) have no impact on income before tax return.

➢ When the company is special purpose CR-REIT, then it decreases ROA.

➢ Regional Variation of main office of the companies has no effect on return earnings.

5.2. Limitations of the Research and Future Study

5.2.1. Limitations of the Research

• Though there are without externally audited and externally audited companies are performing in Korean real estate market. But, only externally audited RET/REF company has been taken in this study.

• Number of Listed REIT and Listed REF is very limited in Korea. Therefore, the sample size of Listed REIT and Listed REF are very less.

• Assets are not classified as land, rented office, market, shopping mall, geographic locations of the assets, securities. Therefore, I failed to take different assets categories as variables in this study.

• There is lack of information on new fund opening of Asset management companies

(AMC) and the fund that has been dissolved. Therefore, cannibalization test of the new fund opening has not been considered in this research.

5.2.2. Future Avenue of the Study

- Assets categories like land, rented office, market, shopping mall, geographic locations of the assets, securities may be considered to measure the return earnings for REIT and REF performance.
- Cannibalization test of the new fund opening in the real estate market can be a good study in Korea.

5.3. Policy Implications for Bangladesh

Though Bangladesh has achieved self sufficiency in food production and ensure food security for its 164 million people with its only 147K sq km (Chen, Yuanyuan and Lu, Changhe, 2018)) area but still the country is struggling to secure another important fundamental right, "adequate housing" that is mainly for supply side limitations specially inadequacy in financing. Housing affordability gap in Dhaka is a major drag on the health, economy and the environment which affects severely.

The supply side constraints of housing include 1) Land-supply constraint; 2) Non enabling of the regulatory and infrastructure development regimes : a) Institutionally, non-participatory mode of governance, b) Absence of a clear line of authority, c) Poor human resources capacities, technology, d) Land-use regulations encourage land hoarding and land value speculation, e) Planning permission processes for residential development are significant time and cost inflators; 3) Financing Constraint for lower middle and poor income groups as the housing lenders do not truly serve to these groups. Though National Housing Authority (NHA), Rajdhani Unnayan Kartipakkha (RAJUK), Chittagong Development Authority (CDA) and 1151 member comprised Real Estate & Housing Association of Bangladesh (REHAB) are serving in improving housing sector but their dimension is limited to certain segment of the society due to financing impediment.

Housing finance system in Bangladesh are "institutional patchworks" that comprise private sector lenders like private commercial banks, employee loans, life insurance policies, housing cooperatives and informal means as well as government-managed housing finance institution like Bangladesh House Building Finance Corporation (BHBFC) or programs only for govt. employee loan at low interest and easy condition based. Mortgage markets are small and fragmented with the unorganized sector and the organized segments run by the commercial banks and financing institutions only cater to the upper and middle income segments. Again, though the Asset Backed Securities (ABS), leading form of structured finance a key role player in the global capital markets and have widely used in developed as well as developing markets but due to not having a separate securitization law real estate financing have been weaken in the country (Siddiquee, M., et al 2006). The interest rate, duration, loan to equity ratio of real estate financing is 15-16%, 6-10yrs and 5-25% consequently which are not favorable for ensuring affordable housing (Rahman S. M. et al 2017).

REITs Prospect in Bangladesh: REITs may help to enlarge Bangladesh's capital market through boosting capital access (high liquidity) and reduce capital costs for property owners, managers and developers that will increase adequate housing properties and as a result middle and lower income people will able to buy or rent house with affordable cost. On other hand marginal people will able to buy commercial real estate's share and will get dividend from its income (at least 90% of REITs operating income) that can be termed as inclusive development. Stock market listing of REITs will enhance efficiency and transparency through analyzing Interest rates, inflation rate and market capitalization and periodical financial reporting. REITs will assist to grow its local fund management, property management, construction, supervision, support services business and spill over these benefits to other areas of the financial sector that will support in expertise upgrading, jobs creation, enhancing urban productivity and living standard, economic development, funding Social Welfare (CSR) etc.

Pre-requisite for REIT Operation in Bangladesh: New separate law should be enacted like Asset Backed Securitization Act, Indirect Investment Asset Management Business Act, Administration and Promotion of Real Estate Development Business Act and as well as amendment of Trust law is highly required. Tax framework reform remains a fundamental requirement to create an effective REIT market.

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Table: 16 Selection Bias Checking

Dependent Variable: Stock Exchange listing

	(1)	(2)	(3)	(4)
	Probit Model	PPML	Panel Random Effect	Logit Model
REIT	1.197***	1.705***	0	2.288***
	(6.77)	(7.52)	(.)	(7.01)
ROA_{t-1}	0.0697	0.138	0	0.155
	(0.28)	(0.87)	(0.00)	(0.32)
LogAssets	1.051***	1.253***	0	1.799***
	(7.91)	(12.09)	(0.00)	(7.56)
Liability_Assets	-0.448	-0.456	0	-0.808
	(-1.54)	(-1.66)	(0.00)	(-1.55)
Debt_Equity	-0.000204	-0.000417	0	-0.000420
	(-0.13)	(-0.49)	(0.00)	(-0.13)
CR	0		0	0
	(.)		(.)	(.)
_cons	-6.684***	-9.002***	0.111	-11.59***
	(-10.11)	(-15.71)	(0.38)	(-9.58)
N	622	622	666	622
R^2	0.2827	0.25	0.0968	0.2770

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table: 18 REIT Status as the Determinant of the before-tax returns (Time Period: 2001- 2009)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
REIT	-0.184	-0.170	-0.384*	-0.244**	-0.243*	-0.199	-0.226**
	(-1.56)	(-1.44)	(-2.23)	(-2.73)	(-2.56)	(-1.59)	(-2.89)
IBT_Assets$_{t-1}$			0.349***	0.0575	0.0549		0.0917
			(3.49)	(0.55)	(0.52)		(0.84)
REIT* IBT_Assets$_{t-1}$				3.252***	3.238***		3.455***
				(15.65)	(15.41)		(17.24)
GDP_Growth		0.0141	0.0177	0.0257*	0.0257*	-0.0483	0.0163
		(1.12)	(1.62)	(2.40)	(2.40)	(-0.44)	(0.72)
CPI_Inflation		0.0556*	0.0368	0.0350	0.0350	0.112	0.0120
		(2.27)	(1.74)	(1.67)	(1.67)	(0.27)	(0.26)
R_Inter_Rate		0.0126	0.00295	-0.00834	-0.00850	0.0410	0.0260
		(0.65)	(0.18)	(-0.53)	(-0.54)	(0.09)	(0.42)
Gyeonggi-do Region					-0.0338	0.119	-0.0491
					(-0.22)	(0.62)	(-0.39)
Daegu Region					0.0127	0.122	-0.0271
					(0.05)	(0.29)	(-0.13)
Yr. Fixed Effect	No	No	No	No	No	Yes	Yes
_cons	0.0630	-0.217	-0.133	-0.0952	-0.0927	-0.385	-0.0933
	(0.70)	(-1.54)	(-0.96)	(-0.91)	(-0.88)	(-1.37)	(-0.89)
N	344	344	250	250	250	342	250
R^2	0.0233	0.0352	0.1405	0.7279	0.7286	0.0346	0.7334

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table: 18 Stock Exchange Listing as the Determinant of the before-tax returns (Time Period: 2001-2018)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
Stock Exch. Listing	0.106	0.0952	0.128	0.127	0.124	0.0937	0.130
	(0.43)	(0.39)	(0.45)	(0.44)	(0.42)	(0.37)	(0.46)
IBT_Assets$_{t-1}$			0.364***	0.362***	0.351***		0.422***
			(3.61)	(3.58)	(3.48)		(3.97)
Stock Exch. Listing * IBT_Assets$_{t-1}$				0.0209	0.0183		-0.147
				(0.02)	(0.02)		(-0.13)
GDP_Growth		0.0146	0.0184	0.0183	0.0181	-0.0425	0.0178
		(1.17)	(1.66)	(1.66)	(1.64)	(-0.39)	(0.76)
CPI_Inflation		0.0566*	0.0355	0.0355	0.0352	0.113	0.0320
		(2.31)	(1.66)	(1.66)	(1.66)	(0.28)	(0.68)
R_Inter_Rate		0.0128	0.00293	0.00292	0.00267	0.0345	0.00912
		(0.66)	(0.18)	(0.18)	(0.17)	(0.07)	(0.14)
Gyeonggi-do Region					0.0699	0.0664	0.0663
					(0.23)	(0.34)	(0.23)
Daegu Region					0.0882	0.0372	0.0681
					(0.19)	(0.09)	(0.16)
Yr. Fixed Effect	No	No	No	No	No	Yes	Yes
_cons	-0.0497	-0.327**	-0.287*	-0.287*	-0.293*	-0.495	-0.287*
	(-0.82)	(-2.67)	(-2.26)	(-2.25)	(-2.24)	(-1.80)	(-2.17)
N	344	344	250	250	250	342	250
R^2	0.0352	0.0136	0.2798	0.2792	0.2672	0.0115	0.2838

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table: 19 (A) Scale of Economy as the Determinant of the before-tax returns- Assets as Continuous Variable (Time Period: 2001- 2009)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
LogAssets	4.746***	4.709***	5.107***	1.616***	1.669***	4.751***	1.580***
	(17.19)	(16.97)	(13.27)	(7.35)	(7.49)	(16.70)	(7.31)
LogAssets_Sq	-0.471***	-0.467***	-0.497***	-0.150***	-0.156***	-0.472***	-0.148***
	(-15.82)	(-15.58)	(-12.05)	(-6.90)	(-7.05)	(-15.31)	(-6.91)
IBT_Assets$_{t-1}$			0.152	6.050***	6.046***		6.156***
			(1.79)	(21.48)	(21.35)		(22.01)
LogAssets* IBT_Assets$_{t-1}$				-1.287***	-1.294***		-1.314***
				(-19.29)	(-19.28)		(-19.80)
GDP_Growth		0.0101	0.00834	0.00868	0.00856	-0.0545	0.00442
		(1.00)	(0.92)	(0.97)	(0.96)	(-0.61)	(0.24)
CPI_Inflation		0.0355	0.0211	0.0215	0.0225	-0.0668	0.0130
		(1.78)	(1.21)	(1.20)	(1.26)	(-0.20)	(0.35)
R_Inter_Rate		0.0146	0.00812	-0.000951	-0.00214	0.181	0.0108
		(0.93)	(0.62)	(-0.07)	(-0.16)	(0.46)	(0.22)
Gyeonggi-do Region					-0.115*	-0.0849	-0.126*
					(-1.99)	(-0.85)	(-2.23)
Daegu Region					-0.00315	0.175	-0.0349
					(-0.03)	(0.83)	(-0.31)
Yr. Fixed Effect	No	No	No	No	No	Yes	Yes
_cons	-11.71***	-11.83***	-12.93***	-4.236***	-4.348***	-11.93***	-4.091***
	(-18.21)	(-18.29)	(-14.39)	(-7.69)	(-7.79)	(-17.48)	(-7.53)
N	344	344	250	250	250	342	250
R^2	0.4794	0.4877	0.5503	0.8536	0.8561	0.4940	0.8608

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table: 19 (B) Scale of Economy (Assets as Categorical Variable) as the Determinant of the before-tax returns (Time Period: 2001- 2009)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6
Assets_02	0.201*	0.230*	0.211**	0.210**	0.218*	0.204*
	(2.19)	(2.52)	(2.75)	(2.74)	(2.35)	(2.49)
Assets_03	0.184*	0.212*	0.172*	0.172*	0.202*	0.162
	(2.01)	(2.33)	(2.20)	(2.21)	(2.15)	(1.93)
Assets_04	0.255*	0.278**	0.239*	0.244*	0.277*	0.217*
	(2.47)	(2.69)	(2.42)	(2.46)	(2.56)	(2.03)
Assets_05	0.283*	0.313*	0.287*	0.296*	0.311*	0.270
	(2.22)	(2.46)	(2.04)	(2.09)	(2.34)	(1.80)
Assets_06	0.292*	0.308*	0.298*	0.307*	0.301*	0.271
	(2.10)	(2.21)	(2.07)	(2.13)	(2.06)	(1.76)
IBT_Assets$_{t-1}$			0.300**	0.287**		0.359***
			(3.02)	(2.90)		(3.43)
GDP_Growth		0.0192	0.0188	0.0186	-0.0313	0.0234
		(1.53)	(1.77)	(1.76)	(-0.28)	(1.04)
CPI_Inflation		0.0624*	0.0391	0.0386	0.0986	0.0462
		(2.54)	(1.90)	(1.89)	(0.24)	(1.02)
R_Inter_Rate		0.0139	0.00335	0.00299	0.0450	-0.00669
		(0.72)	(0.22)	(0.19)	(0.09)	(-0.11)
Gyeonggi-do Region				0.0976	0.0772	0.0906
				(0.32)	(0.41)	(0.31)
Daegu Region				0.194	0.176	0.169
				(0.41)	(0.43)	(0.38)
Yr. Fixed Effect	No	No	No	No	Yes	Yes
_cons	-0.234**	-0.569***	-0.448***	-0.464***	-0.711*	-0.448**
	(-2.70)	(-4.04)	(-3.31)	(-3.31)	(-2.51)	(-3.09)
N	344	344	250	250	342	250
R^2	0.0251	0.0428	0.1900	0.1709	0.0411	0.2162

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table: 20a Capital structure as the Determinant of the before-tax returns (Time Period: 2001- 2009)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
Liability_Assets	-0.607***	-0.604***	-0.691***	-0.0586	-0.0447	-0.605***	-0.0501
	(-28.72)	(-28.29)	(-25.05)	(-1.68)	(-1.23)	(-28.44)	(-1.39)
IBT_Assets_{t-1}			0.160*	0.285***	0.259***		0.260***
			(2.06)	(4.65)	(4.18)		(4.20)
Liability_Assets *IBT_Assets_{t-1}				0.390***	0.401***		0.399***
				(17.15)	(16.97)		(17.01)
GDP_Growth		0.00748	0.0154	0.0138	0.0138	-0.000487	0.0106
		(1.14)	(1.82)	(1.85)	(1.86)	(-0.01)	(0.71)
CPI_Inflation		0.0168	0.0336*	0.0278	0.0287	0.113	0.0181
		(1.31)	(2.04)	(1.85)	(1.92)	(0.54)	(0.58)
R_Inter_Rate		-0.00524	-0.00735	0.000548	-0.000271	-0.0795	0.0144
		(-0.52)	(-0.59)	(0.05)	(-0.02)	(-0.32)	(0.35)
Gyeonggi-do Region					-0.0990*	0.117	-0.108*
					(-2.18)	(0.97)	(-2.38)
Daegu Region					-0.0237	0.395	-0.0434
					(-0.25)	(1.50)	(-0.46)
Yr. Fixed Effect	No	No	No	No	No	Yes	Yes
_cons	0.234***	0.171*	0.135	-0.0762	-0.0708	0.0457	-0.0502
	(5.95)	(2.46)	(1.70)	(-1.14)	(-1.06)	(0.31)	(-0.75)
N	344	344	250	250	250	342	250
R^2	0.6118	0.6126	0.7621	0.9004	0.9024	0.6248	0.9058

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table: 20b New Capital structure as the Determinant of the before-tax returns (Time Period: 2001-2009)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6
Liability_Assets	-0.607***	-0.604***	-0.606***	-0.605***	-0.583***	-0.894***
	(-28.72)	(-28.29)	(-28.32)	(-28.44)	(-30.48)	(-15.51)
LogAssets					0.380***	0.239***
					(9.94)	(5.77)
Liability_Assets*LogAssets						0.141***
						(5.62)
GDP_Growth		0.00748	0.00796	-0.000487	0.0150	-0.00969
		(1.14)	(1.21)	(-0.01)	(0.29)	(-0.19)
CPI_Inflation		0.0168	0.0182	0.113	0.0474	0.0286
		(1.31)	(1.40)	(0.54)	(0.25)	(0.15)
R_Inter_Rate		-0.00524	-0.00541	-0.0795	-0.0352	0.00674
		(-0.52)	(-0.53)	(-0.32)	(-0.16)	(0.03)
Gyeonggi-do Region			0.117	0.117	0.137	0.0867
			(0.99)	(0.97)	(1.39)	(1.01)
Daegu Region			0.398	0.395	0.626**	0.398*
			(1.56)	(1.50)	(2.91)	(2.12)
Yr. Fixed Effect	No	No	No	Yes	Yes	Yes
_cons	0.234***	0.171*	0.145*	0.0457	-1.700***	-1.178***
	(5.95)	(2.46)	(2.01)	(0.31)	(-7.79)	(-5.36)
N	344	344	342	342	342	342
R^2	0.6118	0.6126	0.6227	0.6248	0.6926	0.7280

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table: 21 Leverage as the Determinant of the before-tax returns (Time Period: 2001- 2009)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
Debt_Equity	0.00259	0.00259	0.0123*	0.00972	0.00990	0.00211	0.00884
	(0.46)	(0.46)	(2.23)	(0.96)	(0.99)	(0.37)	(0.83)
IBT_Assets$_{t-1}$			0.416***	0.430***	0.416***		0.502***
			(4.06)	(3.99)	(3.87)		(4.43)
Debt_Equity *IBT_Assets$_{t-1}$				-0.00518	-0.00457		-0.00787
				(-0.31)	(-0.28)		(-0.45)
GDP_Growth		0.0146	0.0218*	0.0216	0.0213	-0.0408	0.0222
		(1.17)	(1.98)	(1.94)	(1.92)	(-0.37)	(0.95)
CPI_Inflation		0.0573*	0.0378	0.0380	0.0377	0.114	0.0362
		(2.34)	(1.79)	(1.79)	(1.78)	(0.28)	(0.77)
R_Inter_Rate		0.0122	-0.00342	-0.00291	-0.00315	0.0319	0.00151
		(0.63)	(-0.21)	(-0.18)	(-0.19)	(0.07)	(0.02)
Gyeonggi-do Region					0.0883	0.0718	0.0827
					(0.30)	(0.37)	(0.30)
Daegu Region					0.0856	0.0339	0.0646
					(0.19)	(0.08)	(0.15)
Yr. Fixed Effect	No	No	No	No	No	Yes	Yes
_cons	-0.0454	-0.323**	-0.285*	-0.284*	-0.293*	-0.490	-0.289*
	(-0.77)	(-2.66)	(-2.31)	(-2.30)	(-2.30)	(-1.78)	(-2.24)
N	344	344	250	250	250	342	250
R^2	0.0009	0.0161	0.3141	0.3358	0.3208	0.0125	0.3390

t statistics in parentheses
$^{*} p < 0.05$, $^{**} p < 0.01$, $^{***} p < 0.001$

Table: 22 Other Characters (CR-REIT) as the Determinant of the before-tax returns (Time Period: 2001-2009)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
CR-REIT	0.0662	0.0939	0.0948	0.0538	0.0665	0.0884	0.0506
	(0.51)	(0.73)	(0.28)	(0.15)	(0.18)	(0.66)	(0.14)
IBT_Assets_{t-1}			0.366^{***}	0.368^{***}	0.357^{***}		0.417^{***}
			(3.63)	(3.64)	(3.54)		(3.95)
CR-REIT				17.85	17.75		17.80
$* IBT\_Assets_{t-1}$							
				(0.28)	(0.28)		(0.28)
GDP_Growth		0.0153	0.0186	0.0187	0.0184	-0.0404	0.0181
		(1.21)	(1.68)	(1.69)	(1.67)	(-0.37)	(0.78)
CPI_Inflation		0.0580^{*}	0.0353	0.0361	0.0357	0.116	0.0325
		(2.34)	(1.65)	(1.67)	(1.66)	(0.28)	(0.70)
R_Inter_Rate		0.0137	0.00289	0.00320	0.00296	0.0314	0.00911
		(0.70)	(0.18)	(0.20)	(0.18)	(0.07)	(0.14)
Gyeonggi-do Region					0.0926	0.0607	0.0859
					(0.31)	(0.32)	(0.30)
Daegu Region					0.0852	0.0570	0.0646
					(0.19)	(0.14)	(0.15)
Yr. Fixed Effect	No	No	No	No	No	Yes	Yes
_cons	-0.0622	-0.357^{**}	-0.281^{*}	-0.285^{*}	-0.295^{*}	-0.520	-0.286^{*}
	(-0.89)	(-2.74)	(-2.23)	(-2.25)	(-2.24)	(-1.87)	(-2.16)
N	342	342	250	250	250	342	250
R^2	0.0001	0.0127	0.3354	0.3360	0.3138	0.0104	0.3134

t statistics in parentheses
$^{*} p < 0.05, ^{**} p < 0.01, ^{***} p < 0.001$

Table: 23 REIT Status as the Determinant of the before-tax returns (Time Period: 2010- 2018)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
REIT	-0.154**	-0.150**	-0.161**	-0.160**	-0.170**	-0.163**	-0.162**
	(-3.02)	(-3.00)	(-2.68)	(-2.70)	(-2.67)	(-2.97)	(-2.90)
IBT_Assets$_{t-1}$			0.0744	0.0808	0.0733		0.135
			(1.85)	(0.68)	(0.61)		(1.09)
REIT* IBT_Assets$_{t-1}$				-0.00568	0.000614		-0.0629
				(-0.05)	(0.00)		(-0.48)
GDP_Growth		0.00996	0.0144	0.0145	0.0148	0.0520	0.0588
		(0.66)	(0.90)	(0.90)	(0.91)	(0.26)	(0.28)
CPI_Inflation		-0.0000624	-0.00191	-0.00245	-0.00166	-0.184	-0.0604
		(-0.00)	(-0.09)	(-0.12)	(-0.08)	(-0.30)	(-0.09)
R_Inter_Rate		-0.0145	-0.0118	-0.0118	-0.0105	0.0835	-0.0939
		(-1.00)	(-0.79)	(-0.79)	(-0.68)	(0.14)	(-0.15)
Gyeonggi-do Region					-0.0298	-0.0283	-0.0212
					(-0.27)	(-0.28)	(-0.22)
Daegu Region					0.129	0.133	0.144
					(0.56)	(0.61)	(0.68)
Yr. Fixed Effect	No	No	No	No	No	Yes	Yes
_cons	0.0760*	0.0817	0.0622	0.0625	0.0597	0.107	0.0998
	(2.11)	(1.22)	(0.86)	(0.86)	(0.80)	(0.65)	(0.58)
N	451	451	416	416	408	438	408
R^2	0.0368	0.0422	0.0640	0.0651	0.0652	0.0575	0.0875

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table: 24 Stock Exchange Listing as the Determinant of the before-tax returns (Time Period: 2010-2018)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
Stock Exchange Listing	0.0719	0.0670	0.0638	0.0664	0.0762	0.0788	0.0680
	(0.67)	(0.67)	(0.54)	(0.52)	(0.58)	(0.73)	(0.58)
IBT_Assets_{t-1}			0.0874^{*}	0.0872^{*}	0.0868^{*}		0.0917^{*}
			(2.16)	(2.15)	(2.10)		(2.29)
Stock Exch. Listing * IBT_Assets_{t-1}				-0.0383	-0.0308		0.0246
				(-0.05)	(-0.04)		(0.03)
GDP_Growth		0.00803	0.0131	0.0131	0.0139	0.0501	0.0530
		(0.53)	(0.82)	(0.82)	(0.85)	(0.24)	(0.25)
CPI_Inflation		-0.00157	-0.000742	-0.000742	0.000166	-0.159	-0.0562
		(-0.08)	(-0.03)	(-0.03)	(0.01)	(-0.26)	(-0.09)
R_Inter_Rate		-0.0172	-0.0143	-0.0143	-0.0136	0.0481	-0.0808
		(-1.17)	(-0.96)	(-0.95)	(-0.89)	(0.08)	(-0.13)
Gyeonggi-do Region					-0.0777	-0.0644	-0.0679
					(-0.68)	(-0.63)	(-0.66)
Daegu Region					0.0316	0.0460	0.0428
					(0.13)	(0.21)	(0.20)
Yr. Fixed Effect	No	No	No	No	No	Yes	Yes
_cons	-0.00667	0.0203	-0.00871	-0.00909	-0.0102	0.0438	0.0304
	(-0.24)	(0.31)	(-0.13)	(-0.13)	(-0.14)	(0.27)	(0.18)
N	451	451	416	416	408	438	408
R^2	0.0012	0.0097	0.0418	0.0417	0.0415	0.0236	0.0569

t statistics in parentheses
$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table: 25(A) Scale of Economy as the Determinant of the before-tax returns- Assets as Continuous Variable (Time Period: 2010- 2018)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
LogAssets	3.334***	3.283***	4.491***	4.363***	4.862***	4.127***	4.672***
	(14.84)	(14.58)	(18.14)	(17.43)	(19.95)	(17.61)	(19.21)
LogAssets_Sq	-0.316***	-0.311***	-0.425***	-0.412***	-0.457***	-0.391***	-0.439***
	(-13.39)	(-13.15)	(-16.21)	(-15.56)	(-17.96)	(-15.91)	(-17.40)
IBT_Assets$_{t-1}$			-0.0134	1.533**	1.251*		1.292*
			(-0.38)	(2.66)	(2.31)		(2.33)
LogAssets* IBT_Assets$_{t-1}$				-0.365**	-0.300*		-0.309*
				(-2.69)	(-2.35)		(-2.35)
GDP_Growth		-0.00197	-0.00397	-0.00471	-0.00331	0.00948	-0.00250
		(-0.17)	(-0.38)	(-0.45)	(-0.33)	(0.07)	(-0.02)
CPI_Inflation		0.0109	0.00244	0.00190	0.000781	0.00140	-0.0562
		(0.73)	(0.17)	(0.14)	(0.06)	(0.00)	(-0.15)
R_Inter_Rate		-0.00638	0.000775	-0.00144	0.00157	-0.0150	0.0826
		(-0.58)	(0.08)	(-0.15)	(0.17)	(-0.04)	(0.22)
Gyeonggi-do Region					-0.145	-0.142	-0.146
					(-1.32)	(-1.38)	(-1.42)
Daegu Region					0.389	0.307	0.374
					(1.76)	(1.46)	(1.81)
Yr. Fixed Effect	No	No	No	No	No	Yes	Yes
_cons	-8.582***	-8.454***	-11.56***	-11.22***	-12.59***	-10.67***	-12.14***
	(-15.94)	(-15.67)	(-19.68)	(-18.85)	(-21.39)	(-18.68)	(-20.29)
N	451	451	416	416	408	438	408
R^2	0.2500	0.2500	0.2585	0.2622	0.3099	0.2938	0.3142

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table: 25 (B) Scale of Economy (Assets as Categorical Variable) as the Determinant of the before-tax returns (Time Period: 2010- 2018)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6
Assets_02	0.252***	0.261***	0.269***	0.295***	0.296***	0.304***
	(4.12)	(4.25)	(3.82)	(4.01)	(4.51)	(4.08)
Assets_03	0.318***	0.314***	0.372***	0.407***	0.353***	0.379***
	(4.87)	(4.82)	(4.83)	(5.09)	(5.18)	(4.84)
Assets_04	0.339***	0.335***	0.387***	0.429***	0.381***	0.401***
	(5.04)	(5.01)	(4.83)	(5.10)	(5.34)	(4.94)
Assets_05	0.356***	0.343***	0.403***	0.448***	0.384***	0.398***
	(4.90)	(4.75)	(4.78)	(5.08)	(5.03)	(4.68)
Assets_06	0.334***	0.322***	0.370***	0.414***	0.365***	0.378***
	(4.29)	(4.15)	(4.02)	(4.32)	(4.43)	(4.15)
IBT_Assets$_{t-1}$			0.0385	0.0342		0.0415
			(0.94)	(0.82)		(1.03)
GDP_Growth		0.00729	0.0123	0.0136	0.0510	0.0538
		(0.50)	(0.80)	(0.87)	(0.26)	(0.27)
CPI_Inflation		0.00205	-0.00341	-0.00282	-0.269	-0.213
		(0.11)	(-0.17)	(-0.14)	(-0.46)	(-0.35)
R_Inter_Rate		-0.0177	-0.0133	-0.0117	0.198	0.126
		(-1.25)	(-0.92)	(-0.80)	(0.35)	(0.21)
Gyeonggi-do Region				-0.103	-0.0884	-0.0866
				(-0.90)	(-0.88)	(-0.83)
Daegu Region				0.168	0.144	0.148
				(0.70)	(0.67)	(0.67)
Yr. Fixed Effect	No	No	No	No	Yes	Yes
_cons	-0.274***	-0.247**	-0.309***	-0.351***	-0.283	-0.306
	(-5.15)	(-3.12)	(-3.53)	(-3.81)	(-1.68)	(-1.74)
N	451	451	416	408	438	408
R^2	0.0639	0.0605	0.0605	0.0638	0.0824	0.0848

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table: 26a Capital structure as the Determinant of the before-tax returns (Time Period: 2010- 2018)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
Liability_Assets	-0.723***	-0.726***	-0.779***	-0.662***	-0.683***	-0.749***	-0.643***
	(-29.95)	(-30.09)	(-35.30)	(-20.40)	(-20.99)	(-31.03)	(-19.24)
IBT_Assets$_{t-1}$			0.0466	0.0390	0.0412		0.0436
			(1.71)	(1.46)	(1.56)		(1.69)
Liability_Assets * IBT_Assets$_{t-1}$				0.433**	0.392**		0.513***
				(3.28)	(2.99)		(3.70)
GDP_Growth		-0.00578	-0.00928	-0.00616	-0.00733	0.0185	0.0208
		(-0.72)	(-1.25)	(-0.74)	(-0.88)	(0.18)	(0.19)
CPI_Inflation		-0.000260	0.00322	0.00239	0.00259	-0.107	0.127
		(-0.02)	(0.33)	(0.22)	(0.23)	(-0.35)	(0.38)
R_Inter_Rate		-0.0204**	-0.0201**	-0.0193*	-0.0184*	0.0433	-0.259
		(-2.63)	(-2.89)	(-2.47)	(-2.36)	(0.15)	(-0.81)
Gyeonggi-do Region					-0.0257	-0.0344	-0.0238
					(-0.33)	(-0.36)	(-0.33)
Daegu Region					0.606***	0.637***	0.573***
					(3.83)	(3.31)	(3.86)
Yr. Fixed Effect	No	No	No	No	No	Yes	Yes
_cons	0.258***	0.341***	0.350***	0.298***	0.297***	0.336***	0.278**
	(9.41)	(7.93)	(8.21)	(7.21)	(7.09)	(3.81)	(3.06)
N	451	451	416	416	408	438	408
R^2	0.4173	0.4229	0.4614	0.5120	0.5216	0.4416	0.5389

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table: 26b Capital structure as the Determinant of the before-tax returns (Time Period: 2010- 2018)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6
Liability_Assets	-0.723***	-0.726***	-0.750***	-0.749***	-0.687***	-1.188***
	(-29.95)	(-30.09)	(-31.29)	(-31.03)	(-29.58)	(-16.24)
LogAssets					0.267***	0.0906**
					(8.95)	(2.63)
Liability_Assets*LogAssets						0.175***
						(7.33)
GDP_Growth		-0.00578	-0.00598	0.0185	0.00484	0.00174
		(-0.72)	(-0.76)	(0.18)	(0.05)	(0.02)
CPI_Inflation		-0.000260	-0.00290	-0.107	0.0363	0.00659
		(-0.02)	(-0.28)	(-0.35)	(0.13)	(0.02)
R_Inter_Rate		-0.0204**	-0.0197*	0.0433	-0.0555	-0.0154
		(-2.63)	(-2.56)	(0.15)	(-0.20)	(-0.06)
Gyeonggi-do Region			-0.0360	-0.0344	-0.0664	-0.0581
			(-0.38)	(-0.36)	(-0.75)	(-0.79)
Daegu Region			0.634***	0.637***	0.764***	0.530***
			(3.34)	(3.31)	(4.27)	(3.46)
Yr. Fixed Effect	No	No	No	Yes	Yes	Yes
_cons	0.258***	0.341***	0.339***	0.336***	-1.058***	-0.319
	(9.41)	(7.93)	(7.74)	(3.81)	(-6.03)	(-1.74)
N	451	451	438	438	438	438
R^2	0.4173	0.4229	0.4396	0.4416	0.5170	0.6296

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table: 27 Leverage as the Determinant of the before-tax returns (Time Period: 2010- 2018)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
Debt_Equity	0.000111	0.000101	0.000109	0.000168	0.000170	0.000112	0.000162
	(1.03)	(0.92)	(0.99)	(0.49)	(0.49)	(1.01)	(0.45)
IBT_Assets_{t-1}			0.0879^{*}	0.0874^{*}	0.0871^{*}		0.0929^{*}
			(2.17)	(2.16)	(2.12)		(2.32)
Debt_Equity				0.000412	0.000421		0.000387
$*IBT\_Assets_{t-1}$							
				(0.18)	(0.18)		(0.16)
GDP_Growth		0.00852	0.0137	0.0136	0.0143	0.0505	0.0533
		(0.56)	(0.85)	(0.84)	(0.88)	(0.25)	(0.25)
CPI_Inflation		-0.00236	-0.00140	-0.00127	-0.000518	-0.148	-0.0470
		(-0.12)	(-0.07)	(-0.06)	(-0.02)	(-0.24)	(-0.07)
R_Inter_Rate		-0.0166	-0.0135	-0.0137	-0.0130	0.0360	-0.0904
		(-1.13)	(-0.90)	(-0.91)	(-0.84)	(0.06)	(-0.15)
Gyeonggi-do Region					-0.0703	-0.0550	-0.0602
					(-0.62)	(-0.55)	(-0.60)
Daegu Region					0.0276	0.0424	0.0387
					(0.12)	(0.20)	(0.18)
Yr. Fixed Effect	No	No	No	No	No	Yes	Yes
_cons	-0.00261	0.0224	-0.00771	-0.00708	-0.00753	0.0388	0.0279
	(-0.10)	(0.34)	(-0.11)	(-0.10)	(-0.11)	(0.23)	(0.16)
N	451	451	416	416	408	438	408
R^2	0.0001	0.0079	0.0409	0.0406	0.0401	0.0213	0.0554

t statistics in parentheses
$^{*}\ p < 0.05,\ ^{**}\ p < 0.01,\ ^{***}\ p < 0.001$

Table: 28 Other Characters (CR-REIT) as the Determinant of the before-tax returns (Time Period: 2010-2018)

Dependent Variable: Income before tax- assets ratio

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6	Model-7
CR-REIT	-0.216**	-0.220**	-0.263**	-0.154*	-0.179*	-0.234**	-0.149*
	(-3.14)	(-3.26)	(-3.21)	(-2.05)	(-2.30)	(-3.13)	(-2.19)
IBT_Assets$_{t-1}$			0.0890*	0.0933*	0.0924*		0.109**
			(2.24)	(2.52)	(2.47)		(3.00)
CR-REIT* IBT_Assets$_{t-1}$				2.720***	2.931***		3.684***
				(4.13)	(4.34)		(5.75)
GDP_Growth		0.0113	0.0148	0.00401	0.00240	0.0542	0.0773
		(0.75)	(0.93)	(0.24)	(0.14)	(0.27)	(0.35)
CPI_Inflation		0.000308	0.00140	0.0154	0.0133	-0.177	-0.126
		(0.02)	(0.07)	(0.70)	(0.60)	(-0.29)	(-0.20)
R_Inter_Rate		-0.0157	-0.0128	-0.0170	-0.0158	0.0658	-0.0884
		(-1.08)	(-0.86)	(-1.12)	(-1.02)	(0.11)	(-0.14)
Gyeonggi-do Region					0.130	0.0365	0.135
					(1.38)	(0.35)	(1.77)
Daegu Region					0.0132	0.00980	0.0266
					(0.07)	(0.05)	(0.15)
Yr. Fixed Effect	No	No	No	No	No	Yes	Yes
_cons	0.0351	0.0417	0.0237	0.0516	0.0533	0.0728	0.113
	(1.25)	(0.64)	(0.35)	(0.78)	(0.78)	(0.45)	(0.65)
N	451	451	416	416	408	438	408
R^2	0.0454	0.0530	0.0915	0.1637	0.1684	0.0679	0.1890

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

List of Non-Listed REIT

No.	Company Name	Name of the industry	Date of Foundation	Business Register No.
1	114reits	Real estate activities	2001/09/20	129-81-45345
2	Aventree Real Estate Investment Trust Incorporated	Real estate activities	2011/02/01	119-86-38177
3	BUILD REIT	Real estate activities	2011/07/20	214-88-81459
4	C9 CRREIT VI. Co., Ltd	Real estate activities	2009/11/02	107-87-27621
5	C9 Infinity CR REIT	Real estate activities	2006/04/07	107-86-76936
6	DASAN REIT	Real estate activities	2007/12/07	214-88-19066
7	DOUBLE Asset Reits	Real estate activities	2011/05/04	211-88-59958
8	Daeyeong Reits Construction Co.,Ltd.	Real estate activities	1999/05/28	502-81-46947
9	FIRSTIGE REITs CO.,Ltd	Real estate activities	2011/04/05	106-86-78227
10	FN New Housing CR-REIT	Real estate activities	2009/08/31	129-86-36929
11	FN New Housing CR-Reit	Real estate activities	2009/06/30	129-86-34765
12	GENPS No1 EM-REIT	Real estate activities	2008/09/25	110-81-83608
13	Golden Narae Real Estate Development Investment Trust. co., Ltd.	Real estate activities	2008/06/10	107-87-09166
14	HAENGBOK MASTERN FIRST CR-REIT	Real estate activities	2010/12/03	220-88-09132
15	INFINITY NPS REIT	Real estate activities	2008/01/09	107-87-04157
16	JR CR-REIT II	Real estate activities	2009/05/27	220-87-81893
17	JR CR-REIT IV	Real estate activities	2010/02/10	220-88-01504
18	JR CR-Reits	Real estate activities	2008/12/30	220-87-75770
19	JR REIT	Real estate activities	2011/12/15	220-88-31861
20	JR REIT	Real estate activities	2011/01/20	220-88-13067
21	K-REALTY CR-REIT	Real estate activities	2011/09/29	120-87-73865
22	K-Top REITs Co., Ltd.	Real estate activities	2010/11/04	107-87-43354
23	K1 Corporate Restructuring Real Estate Investment Trust Co., Ltd.	Real estate activities	2002/09/26	120-86-42410
24	KB WISE CR Reits	Real estate activities	2010/12/17	220-88-09637

No.	Company Name	Name of the industry	Date of Foundation	Business Register No.
25	KB Wise Star CR REIT Co. Ltd.	Real estate activities	2010/08/23	220-88-03778
26	KB Wise Star CR REIT Co. Ltd. No.1	Real estate activities	2009/07/08	220-87-83853
27	KB-Bookook No.1 Development REIT Co., Ltd.	Real estate activities	2011/03/08	220-88-13806
28	KOCREF 17 REIT	Real estate activities	2010/11/03	220-88-08152
29	KOCREF AREIF KOREA 1 CR-REIT	Real estate activities	2007/10/25	220-87-56244
30	KOCREF CR-REIT	Real estate activities	2007/04/24	220-87-46917
31	KOCREF CR-REIT IV	Real estate activities	2004/04/02	107-86-48648
32	KOCREF CR-REIT	Real estate activities	2004/12/13	107-86-57453
33	KOCREF CR-REIT	Real estate activities	2005/07/26	107-86-67081
34	KOCREF CR-REIT1	Real estate activities	2002/05/04	107-86-16428
35	KOCREF CR-REIT2	Real estate activities	2002/10/17	107-86-25155
36	KOCREF CR-REITIII	Real estate activities	2003/08/05	107-86-37971
37	KOCREF NPS CR-REIT	Real estate activities	2006/12/22	220-87-40378
38	KOCREF NPS REIT	Real estate activities	2006/09/20	220-87-35797
39	KOCREF REIT 14	Real estate activities	2007/12/13	220-87-58897
40	KOCREF REIT 18	Real estate activities	2011/11/09	220-88-27426
41	KOCREF REIT 19	Real estate activities	2011/11/09	220-88-27431
42	KOCREF REIT	Real estate activities	2005/10/25	107-86-70548
43	KOCREF REIT VIII	Real estate activities	2006/05/10	220-87-29825
44	KOCREF15CR-REIT	Real estate activities	2009/11/12	220-87-90276
45	KOREA FIRST REIT	Real estate activities	2010/11/03	107-87-43034
46	KR1 CR-REIT Co., Ltd.	Real estate activities	2007/10/26	120-87-20621
47	KR2 Development REIT CO., Ltd.	Real estate activities	2007/10/26	120-87-20655
48	KR3 CR-REIT Co., Ltd.	Real estate activities	2008/03/31	120-87-26057
49	KR5 REIT Co.,Ltd.	Real estate activities	2010/11/11	120-87-61049
50	KREITS&PARTNERS	Real estate activities	2007/05/03	214-88-08083
51	KVG CR-REIT	Real estate activities	2011/11/10	107-87-61314
52	KVG REIT	Real estate activities	2010/10/13	107-87-42132

No.	Company Name	Name of the industry	Date of Foundation	Business Register No.
53	KYOBO-MERITZ FIRST CR-REIT	Real estate activities	2001/12/21	120-86-31043
54	Koramco REITs Management and Trust Co., Ltd.	Other Financial Business	2001/10/24	107-86-07628
55	Koreits Co., Ltd.	Real estate activities	2000/02/21	110-81-45128
56	Koreitsc Co., ltd.,	Real estate activities	2001/09/27	134-81-74444
57	MACQUARIE NPS REIT	Real estate activities	2007/09/19	104-86-10425
58	Macquarie NPS REIT No.2	Real estate activities	2010/12/08	104-86-32297
59	NEWCORE GANGNAM CORPORATE RESTRUCTURING REAL ESTATE INVESTMENT TRUST	Real estate activities	2009/08/04	220-87-85337
60	Ostara C9 CR-REIT Co., Ltd.	Real estate activities	2007/10/26	107-87-01484
61	PACIFIC REITS. CORP	Real estate activities	2006/08/28	504-81-68156
62	PAMCO RETAIL CR-REIT	Real estate activities	2007/11/16	220-87-57336
63	Plustar I CR-REIT Co., Ltd	Real estate activities	2009/02/22	220-87-77477
64	Plustar II CR-REIT Co., Ltd.	Real estate activities	2009/09/07	220-87-86850
65	Plustar III CR-REIT Co.,Ltd.	Real estate activities	2009/11/03	220-87-89425
66	REALTY KOREA CR REIT CO.,LTD	Real estate activities	2003/04/24	107-86-33806
67	REIT'S TERRA Co. Ltd	Real estate activities	2005/11/01	113-81-42528
68	Reits Co. Ltd.	Real estate activities	2001/02/13	214-86-84393
69	Reits Construction Co., Ltd.	Real estate activities	2000/09/01	105-86-16553
70	SY Indus cr-reits	Real estate activities	2009/06/04	107-87-21118
71	SYSCOR REITS CORPORATION	Real estate activities	2006/12/27	211-87-90947
72	TRG REITs	Real estate activities	2010/11/25	211-88-52182
73	TRUS K 8 REIT Co., Ltd.	Real estate activities	2011/11/07	214-88-86018
74	Trus Y 7 Reit Co.,Ltd.	Real estate activities	2011/03/03	117-81-75507
75	UMC PAMCO RETAIL CR-Reit Co.,Ltd.	Real estate activities	2009/09/17	220-87-87543
76	UREITS DEVELOPMENT Co.,Ltd	Real estate activities	2002/12/23	120-86-46532
77	UresMeritz1stCR-REIT	Real estate activities	2003/07/29	120-86-55763
78	WOOTOO HOUSING CR-REITS CO. LTD III	Real estate activities	2009/09/25	129-86-38005

No.	Company Name	Name of the industry	Date of Foundation	Business Register No.
79	Wootoo Housing CR-Reit Co., Ltd	Real estate activities	2009/07/20	129-86-35430
80	Wootoo Housing CR-Reit co., Ltd	Real estate activities	2009/02/13	107-87-17894
81	Wootoo ShinYoung Housing CR-Reit Co., Ltd	Real estate activities	2010/08/09	129-86-49759
82	e-Corea Real Estate Investment Trusts Co.,Ltd.	Real estate activities	2010/08/12	120-87-58020
83	hankyung reits co.,ltd	Real estate activities	2003/04/10	124-86-07870

List of Stock Exchange Listed REIT

No.	Company Name	Name of the industry	Date of Foundation	Business Register No. & Stock Code	Date of Listing
1	Korea Asset In Trust Co., Ltd.	Other Financial Business	2001/03/20	107-81-97673 & 123890	2016/07/13
2	Korea Real Estate Investment & Trust Co., Ltd.	Other Financial Business	1996/04/04	120-81-63986 & 034830	2001/05/22
3	e-Starco Co., Ltd.	Real estate activities	1980/09/30	133-81-22225 & 015020	1988/12/23

List of Stock Exchange Listed REF

No.	Company Name	Name of the industry	Date of Foundation	Business Register No. & Stock Code	Date of Listing
1	SK D&D Co., Ltd.	Real estate activities	2004/04/27	101-86-04792 & 034810	2015/06/23
2	e-Starco Co., Ltd.	Real estate activities	1980/09/30	133-81-22225 & 210980	1988/12/23

List of Non-Listed REF

No.	Company Name	Name of the industry	Exchange Code Item	Date of Foundation	Business Register No.
1	AMPLUS Asset Development Inc.	Real estate activities	054636	2008/03/03	214-88-23084
2	ASSETPLUS Investment Management Co., Ltd.	Securities	016319	1999/02/24	220-81-59079
3	Alpha Asset Management Co.,Ltd.	Securities	042748	2002/07/24	107-86-20897
4	Asia Asset Management Co., Ltd.	Securities	057513	2009/02/16	120-87-36633
5	CBRE Global Investors (Korea) Limited	Securities	057480	2004/11/05	101-86-09856
6	CONSUS ASSET MANAGEMENT CO., LTD	Securities	044871	2004/05/10	220-86-84345
7	Daishin Asset Management Co.,Ltd	Securities	013677	1988/03/24	116-81-21895
8	Deutsche Asset Management (Korea) Company Limited.	Securities	030555	2002/02/22	101-81-79639
9	Dongbu Asset Management CO., LTD.	Securities	010817	1997/01/10	116-81-62902
10	EUGENE ASSET MANAGEMENT CO.,LTD	Securities	020253	1989/09/28	116-81-27171
11	HDC Asset Management Co.,Ltd.	Securities	029278	2000/06/27	211-86-61178
12	HI Asset Magement Co., Ltd.	Securities	017354	1999/02/25	116-81-72074
13	HYUNDAI ASSET AND INVESTMENT CO.,LTD	Real estate activities	051256	2008/07/01	212-81-83656
14	Hana Daol Fund Management Co.,Ltd.	Securities	050780	2006/04/14	120-87-00440
15	Hana Daol Trust Co. Ltd	Other Financial Business	029782	1999/06/15	214-86-34082
16	Hanwha Asset Management Co., Ltd.	Securities	020296	1988/05/02	116-81-22351
17	Heungkuk Asset Management	Securities	012360	1999/08/23	116-81-76274
18	Hyundai Asset Management Co.,Ltd	Securities	057455	2008/11/24	107-87-14771

No.	Company Name	Name of the industry	Exchange Code Item	Date of Foundation	Business Register No.
19	Hyundai Swiss Asset Management	Securities	062551	2008/06/27	120-87-29544
20	K1 Corporate Restructuring Real Estate Investment Trust Co., Ltd.	Real estate activities	030658	2002/09/26	120-86-42410
21	KERR Asset Management Co., Ltd.	Securities	057485	2008/03/06	220-87-63987
22	Korea Investment Trust Management Co.	Securities	020020	2000/06/26	107-81-85653
23	MAIA Asset Management Co., LTD	Securities	054192	2007/05/18	107-86-91183
24	MPLUS ASSET MANAGEMENT CO., LTD.	Securities	057514	2008/04/07	120-87-26173
25	Midas asset management	Securities	011287	1999/02/01	116-81-71681
26	Mirae Asset Venture Investment Co.Ltd.	Other Financial Business	014634	1999/06/08	211-86-53095
27	Mirae Asset Global Investments Co.,Ltd.	Securities	023612	1997/08/01	211-86-23290
28	Mirae Asset Life Insurance Co.,Ltd	Insurance	010229	1988/03/07	305-81-08605
29	Mirae Asset Loan Co., LTD.	Credit Finance	059406	2009/10/08	214-88-48988
30	My Asset Investment Management co., ltd	Securities	014529	1987/11/04	116-81-22384
31	Newcore	Real estate activities	013478	1998/05/18	114-81-83823
32	Pheonix Asset Management Inc.	Securities	042742	1999/08/06	116-81-76084
33	Plus Asset Management Co,. Ltd.	Securities	012305	2000/01/19	211-86-96513
34	RYUKYUNGPSG ASSET MANAGEMENT, INC.	Securities	013505	1999/05/07	116-81-73582
35	Samsung Investment Trust Management Co., Ltd	Securities	015052	1998/09/15	501-81-23179
36	Samsung Investment Trust Management Co., Ltd.	Securities	015053	1998/09/15	501-81-23179
37	TONGYANG Asset Management Corp	Securities	014206	2000/08/01	107-81-87383
38	UBS Hana Asset	Securities	013881	2000/06/27	107-81-85804

No.	Company Name	Name of the industry	Exchange Code Item	Date of Foundation	Business Register No.
	Management Co., Ltd.				
39	WOORI ASSET MANAGEMENT CO., LTD.	Securities	020586	1988/03/26	116-81-22045
40	Woori Asset Management Co.,Ltd.	Other Financial Business	040731	2002/09/16	101-81-86538
41	alpha asset management &partners	Real estate activities	064411	2011/09/09	201-86-23065
42	hyundai investment management	Securities	030430	2000/07/25	201-81-59253
43	AMPLUS Asset Development Inc.	Real estate activities	054636	2008/03/03	214-88-23084