Does Economic Freedom Affect the Returns of
International Real Estate Securities?

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Abstract

This paper investigates whether higher trade and financial freedom affect the returns of international real estate securities. We add four sub-indices of economic freedom into the multifactor model of Bardhan et al. (2008), which covers the effects of global capital markets, domestic macroeconomic conditions, and firm-specific variables, and further apply the dynamic generalized method of moment (GMM) regression to estimate the annual data of 1,108 publicly-traded real estate companies in 24 economies from 2006 to 2013. This paper also examines whether the effects of the different variables on excess returns of real estate securities are similar or different in two income-level groups: high-income and middle-income countries. The main findings are as follows.

First, in light of the evidence from the whole sample, all four indices of economic freedom significantly affect the excess returns of real estate securities. Higher investment freedom increases the excess returns of real estate securities, while the other three sub-indices of economic freedom (trade, monetary, and financial freedom) correlate negatively to the returns.

Second, a firm's market capitalization correlates negatively to the excess returns of real

estate securities in both income-level groups, but there are different effects of the other two variables of firm-specific characteristics, market-to-book ratio and trading volume, in the two income-level groups. In the high-income economies, the market-to-book ratio's effect is negative and the trading volume's effect is positive, but their effects present converse impacts on the excess returns of real estate securities in the middle-level economies.

Third and finally, higher monetary and trade freedoms reduce the excess returns of real estate securities in both income-level groups, but the effect of trade freedom is insignificant in the high-income group. In the middle-income group, higher investment freedom significantly decreases the excess returns of real estate securities, but the effect of financial freedom is insignificant. Conversely, in the high-income group, financial freedom significantly and negatively correlates to the excess returns of real estate securities, but the effect of investment freedom is unimportant.

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1. Introduction

The global economy has distinctly moved toward higher economic freedom over the recent two decades. Aside from being widely assumed that economic freedom is beneficial to economic growth, it also normally affects the development of capital and financial markets. Some recent empirical studies have indicated the importance of economic freedom and its influence on economic performance (De Haan & Sturm, 2000; Gwartney et al., 1999). Moreover, some empirical works have studied how economic freedom affects stock and equity markets (Stocker, 2005; Blau et al., 2014; Chen et al., 2017).

Economic freedom also can change the prices and returns of real estate markets across countries, as it raises production and further causes higher derived demand for real estate. Some other transmission paths of economic freedom impact real estate markets as well. One path is through the impact of trade freedom, which enlarges international trade, causes asymmetric productivities to change between real estate and tradable goods, and enhances the relative prices of real estate. Moreover, financial and investment freedoms can allow global investors to participate in many real estate markets, thus further changing the demands of real estate investors through their international portfolios (Bardhan et al., 2008).

Reviewing the existing related literature, most studies target the issue of international

diversification of real estate portfolios, such as Eichholtz (1996), Ling and Naranjo (1999), Kallberg et al. (2002), Liow and Yang (2005), Cotter and Stevenson (2006), Michayluk et al. (2006), and Liow (2006), among others. By considering the possible impacts of economic openness or globalization on real estate markets, some empirical models of real estate markets cover various proxy variables, such as the ratio of total trade to GDP and the ratio of net inflow FDI to GDP, so as to measure the degree of economic openness or globalization. Most of these papers investigate the effects of economic openness on real estate markets (Aizenman and Jinjarak, 2009; Jinjarak and Sheffrin, 2011; Ferrero, 2011, 2012; among others). Different from the above literature, Bardhan et al. (2008) focus on the effects of economic globalization on the returns of real estate securities, and their empirical results show that economic openness negatively relates to the excess returns of real estate securities.

Up until the present, no existing research on real estate has examined the effects of economic freedom on the returns of real estate securities. To fill this gap in the literature, the present paper establishes a multifactor model of real estate securities, employing the international capital asset pricing model (CAPM) of Bardhan et al. (2008) and the Fraser Institute's economic freedom index, to examine the effects of economic freedom on the returns of real estate securities. In particular, we target the effects of four sub-indices of economic freedom: investment, financial, monetary, and trade freedoms. The methodology of the dynamic generalized method of moment (GMM) is applied to estimate the annual data

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of 1,108 publicly-traded real estate companies in 24 economies from 2006 to 2013. This paper

contributes to the related literature of real estate securities in the following.

First, although some empirical studies in the literature have looked at the relationship

between economic freedom and the stock and equity markets (Stocker, 2005; Blau et al., 2014;

Chen et al., 2017), no existing literature has investigated the linkage between economic

freedom and the returns of real estate securities. This paper is the first empirical work to

provide evidence of the effects of economic freedom on real estate markets. Second, this

paper applies a wider dataset, including 1,108 publicly-traded real estate companies in 24

different income-level economies. This allows us to analyze the different effects of economic

freedom on the returns of real estate securities for different income-level economies, which

have not been discussed in the existing research of real estate markets. Third, the existing

research on the effects of economic freedom normally study the effects of the aggregate index

of economic freedom, with few of them having examined the effects of the specific sub-index

of economic freedom related to financial and trade liberalizations. To catch the different

effects of financial and trade freedoms on real estate markets, this paper focuses on the effects

of the sub-indices of economic freedom as related to financial and trade labializations,

including the indices of investment, financial, monetary, and trade freedoms.

The remainder of this paper runs as follows. Section 2 reviews the related literature.

Section 3 outlines the estimating model and the methodology. Section 4 displays and discusses the empirical results. The final section provides some conclusions.

2. Literature Review

Reviewing the existing literature over the past few decades, we see that many studies target the issue of the diversification potential of international real estate investments. Eichholtz (1996) indicates the existence of international diversification benefits of real estate portfolios. Some studies, like Ross and Webb (1985), Quan and Titman (1997), and Hoesli et al. (2004), investigate the diversification benefits of real estate portfolios through international real estate markets. Some other studies, such as Eichholtz (1996), Eichholtz and Hartzell (1996), Liu and Mei (1998), and Conover et al. (2002), focus on the diversification opportunities for indirect real estate investments. Other relative literature includes Ling and Naranjo (1999), Kallberg et al. (2002), Liow and Yang (2005), Cotter and Stevenson (2006), Michayluk et al. (2006), and Liow (2006), among others.

Another important line of the empirical literature examines the fundamental variables that affect the difference in real estate returns across countries. Some papers investigate the impacts of global, regional, and country-specific factors on the returns of international real estate securities. For example, the empirical results of Eichholtz et al. (1998) show that regional factors influence the continental real estate index returns in Europea, North America,

and Asia-Pacific. Many studies have examined the performance of real estate securities from an international perspective. Ling and Naranjo (2002) find a strong worldwide factor to affect international real estate returns, and the effects of country-specific factors are also significant even after controlling global systematic risk. Examining a dataset covering 16 countries, the empirical results of Hoesli and Serrano (2006) display that the returns of real estate securities are related to country betas.

There are nevertheless large variations of real estate returns across different countries, and the performances of individual firms within a country also present substantial differences. Hence, a parallel line of the literature has studied the variations across firms or countries based on asset pricing models, thus expanding the set of possible variables covering country-specific and firm-specific factors. Applying firm-level data, the empirical results of Eichholtz and Huisman (1999) show that interest rates and firm size can significantly affect cross-sectional variation of excess returns of international real estate firms, and their evidence confirms the significant effects of country-specific variables. By applying the dataset of publicly-traded real estate companies from 14 countries, Bond et al. (2003) present that country-specific risks still significantly affect the returns of international real estate securities after controlling Fama and French factors. Hamelink and Hoesli (2004) show that there are some significant country, scale, and value/growth factors to affect the returns of real estate securities in 21 countries. According to the evidence of real estate firms in 7 East Asia

countries, Ooi and Liow (2004) indicate that small capitalization and high book-to-market value cause higher excess returns of real estate securities, and three macroeconomic variables (the Asian financial Crisis, interest rate, and market returns) can significantly affect the returns. Hence, Ooi and Liow (2004)'s results confirm that firm-specific and country macroeconomic variables determine the returns of real estate securities. Glascock and Kelly (2007) find different results by employing the data of the Global Property Research Index, whose analysis shows that property type effects are much smaller than country effects.

Considering the important effects of economic openness or globalization on real estate markets, some recent studies focus on the impacts of economic openness, especially current account or capital inflows, on international real estate markets. Aizenman and Jinjarak (2009) examine the impacts from the ratio of current account to GDP on real estate prices by using 43 countries' data and present that the current account is negatively related to real estate prices. Some other studies, like Jinjarak and Sheffrin (2011) and Ferrero (2011, 2012), also confirm that capital inflows and economic booms positively relate to real estate prices. Bardhan et al. (2004) set up a model covering economic openness and the percentage of exports plus imports to GDP, and their empirical results display that higher economic openness increases residential rents from a dataset of 55 cities around the world. Different from the above literature and based on a multifactor CAPM model, Bardhan et al. (2008) examine the impact of economic globalization on the returns of real estate securities and

apply a sample covering 946 firms from 16 countries. Their results show that higher economic openness reduces the excess returns of real estate securities.

Another line of recent literature has indicated the importance of economic freedom's effect on economic performance (De Haan & Sturm, 2000; Gwartney et al., 1999; and others). Though some empirical works in financial markets have studied how economic freedom affects stock and equity markets (Stocker, 2005; Blau et al., 2014; Chen et al., 2017), such a linkage between economic freedom and real estate markets has not been examined. Hence, we establish a multifactor model, combining the international CAPM of Bardhan et al. (2008) and the Fraser Institute's economic freedom index, to investigate how economic freedom affects the returns of real estate securities.

3. Model and Methodology

To establish the estimating model of international real estate securities, we add some indices of economic freedom into the international CAPM of Bardhan et al. (2008), controlling for the factors of global capital markets, national macroeconomic impacts, and firm-specific variables. This model is set up as equation (1).

$$ER_{i,t} = b_1 ER_{i,t-1}$$
$$+ b_2 RMK_{a,t} + b_3 SZ_{i,t} + b_4 MB_{i,t} + b_5 TUR_{i,t} + b_6 GDP_{j,t} + b_7 SRD_{j,t} + b_8 OP_{j,t}$$
$$+ b_9 \left(\frac{FDI}{GDP}\right)_{j,t} + b_{10} TF_{j,t} + b_{11} MF_{j,t} + b_{12} IF_{j,t} + bFF_{j,t} + e_{i,t}$$

$$(1)$$

Here, $ER_{i,t}$ is firm i's excess securities return over the country risk-free rate in period t, and

$RMK_{a,t}$ represents the excess return for the respective country[1] j's market portfolio over the

risk-free rate.

In equation (1), the three dependent variables are the firm-specific characteristics on real

estate returns: $SZ_{i,t}$, $MB_{i,t}$, and $TUR_{i,t}$, which are firm i's market capitalization,

market-to-book ratio, and total trading volume, respectively. Furthermore, two independent

variables present national macroeconomic fundamentals; GDP_{jt} is gross domestic product

growth, which can be the key fundamental determinant of real estate demand; and $SRD_{j,t}$ is

the interest rate spread, calculated by country j's long-term interest rate minus its short-term

interest rate, and is a measure of the credit cost and capital availability in country. The model

includes some variables to measure the degree of globalization and economic freedom. The

variable $OP_{i,t}$ is exports plus imports as a percentage of GDP. Being different from the

model of Bardhan et al. (2008), this paper especially covers one more variable, $(FDI/$

$GDP)_{i,t,}$, or the ratio of Foreign Direct Investment (FDI) to GDP, to measure the degree of

globalization.[2] Finally, to study the effects of trade and financial liberalization on real estate

securities, equation (1) covers four sub-indices of economic freedom. The first is the index of

trade freedom, $TF_{i,t}$, which is a measure of the absence of tariff and non-tariff barriers that

affect imports and exports of goods and services. The second is the index of monetary

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[1] This equation assumes country j is the respective country of firm i.
[2] Many studies, for example Fard et al. (2014), use FDI/GDP as a proxy variable to measure the degree of globalization.

freedom, $MF_{i,t}$, which is a measure of price stability with an assessment of price controls and is free of inflation and governmental intervention. The third is the index of investment freedom, $IF_{i,t}$, which is a measure of the constraints on the flow of investment capital. The fourth is the index of financial freedom, $FF_{i,t}$, which is is a measure of banking efficiency and a measure of independence from government control and interference in the financial sector.

To improve the shortcoming of static panel models, the Generalized-Method-of-Moments (GMM) method of Arellano and Bond (1991) is employed to estimate equation (1). This methodology is proper, because the explanatory variables of the estimating model are not strictly exogenous, and there are fixed effects, heteroscedasticity, and autocorrelation within countries. However, this methodology can eliminate weak instrumental variables and enhance the effectiveness of the limited sample. Hence, we apply GMM to examine the effects of four sub-indices of economic freedom on the excess returns of real estate securities for a panel dataset that covers 1,108 publicly-traded real estate securities in 24 economies from 2006 to 2013.

4. Data and Empirical Results

This section presents the empirical results of equation (1) by using the Generalized Method of Moment (GMM).

4.1. Data

The sample covers annual data for 1,108 publicly-traded real estate securities in 24 economies from 2006 to 2013. Figure 1 displays the number of firms for each country in the sample. In light of the sample of the relative literature, Eichholtz et al. (1998) utilize 250 real property companies in 22 economies, and Bardhan et al. (2008) use 946 real estate firms in 16 economies. Compared with the sample of those two studies, our sample covers more firms and more countries.
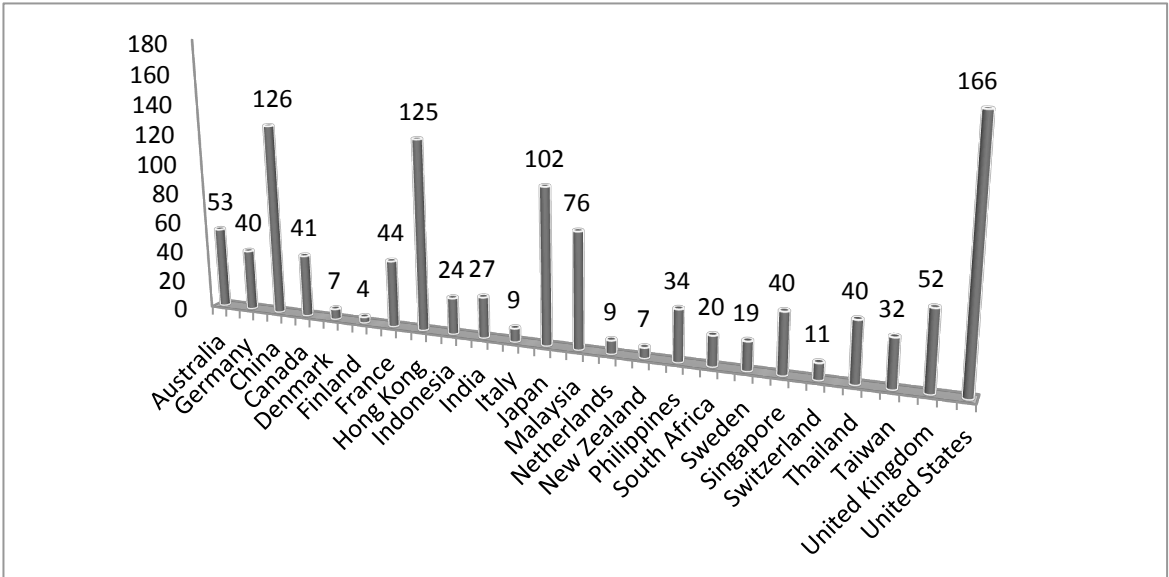

Figure 1 Number of firms for each country

In order to compare the different effects of economic freedom on the returns of real estate securities for different income-level economies, the sample is divided into two income-level sub-groups: one is the middle-income group covering 7 economies (China, India, Indonesia,

Philippines, Malaysia, Thailand, and South Africa); and the other is the high-income group

containing 17 high-income economies (the U.S., Canada, Australia, New Zealand, the U.K.,

Germany, France, Netherlands, Denmark, Finland, Italy, Sweden, Switzerland, Japan,

Singapore, Taiwan, and Hong Kong). The data of GDP and openness are obtained from the

IMF website, the data of economic freedom indices are provided by the Heritage Foundation

website, and the other data of variables come from the Datastream Database. Table 4-1

presents detailed definitions, proxies of all variables, and the sources of the data.

Table 4-1 Summary of variables, descriptions, and data sources

Variable	Symbol	Data Source
Excess return of publicly-traded real estate equity[a]	ER	Datastream
Excess return of market[a]	RMK	Datastream
Firm's market capitalization	SZ	Datastream
Market-to-book ratio	MB	Datastream
Total value of firm's trading volume (turnover)	TUR	Datastream
Gross domestic product growth	GDP	IMF
Interest rate spread [b]	SRD	Datastream
Openness[c]	OP	IMF
Global index	FDI/GDP	The world Bank
Index of Trade Freedom	TF	Heritage Foundation
Index of Monetary Freedom	MF	Heritage Foundation
Index of Investment Freedom	IF	Heritage Foundation
Index of Financial Freedom	FF	Heritage Foundation

a. ER = $R_{it} - R_{ft}$, R_{it} is the realized returns of the publicly-traded real estate security for firm i at time t, and R_{ft} is the risk-free rate of the respective country; both are collected from Datastream.
RMK = $R_{st} - R_{ft}$, R_{st} is realized returns of the stock index for country.
b. Interest rate spread equals the 10-year bond rate minus the 3-month treasury rate.
c. OP = (imports + exports)/GDP; imports, exports, and GDP are collected from IMF.

4.2. The GMM estimation of the whole sample

Table 4-2 displays the GMM estimated results to equation (1) for the whole sample of 24 countries. In Table 4-2, models (1), (2), and (3) include different indices of globalization and economic freedom. In model (1), as in the model of Bardhan et al. (2008), except for excess return of market (RMK), there are three firm-specific variables, SZ, MB, and TUR, and two national economic variables, GDP and SPD.   Model (2) adds the variable OP into model (1) to examine the effect of globalization on the excess return of real estate securities. Model (3) adds the variable FDI/GDP, another index of globalization, into model (2). Model (5) covers four more sub-indices of economic freedom, IF, MF, FF, and TF. Comparing the results of these models in Table 4-2, several features are presented as follows.

First, the coefficients of excess return of market (RMK) and GDP are positive and the coefficient of interest rate spread (SPD) is negative for all models, which are the same as theoretical expectations. Second, the coefficient of a firm's market capitalization (SZ) is negative for all models, implying that a real estate firm's returns are negatively related to firm's size, which confirms the argument of a small firm effect by Fama and French (1992). Hence, investors can have abnormal profits by investing in smaller real estate firms. Third, the coefficients of a firm's market-to-book ratio (MB) and trading volume (TUR) for most of the models are negative, showing that a higher market-to-book ratio and trading volume decrease excess returns. Fourth, in light of the effects of globalization on the excess returns of

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real estate securities, for all models, the coefficient of openness (OP) is negative, but the coefficient of FDI/GDP is positive, meaning that increasing international trade reduces excess the returns of real estate securities while higher FDI raises this return.

In light of the effects of economic freedom on the excess returns of real estate securities, from the result of model (5), the coefficient of investment freedom (IF) is positive, implying higher investment freedom can increase excess returns of real estate securities. What causes this? If the government deregulates some constraints of investment capital, then investors can more freely allocate the portfolios of their investment and thus have higher possibilities to increase the returns of financial commodities, such as real estate securities.

The other three sub-indices of economic freedom, monetary freedom (MF), financial freedom (FF), and trade freedom, are negatively related to the excess returns of real estate securities, as from model (5) in Table 4-2, which means that a higher MF, FF, or TF, reduces these excess returns. Higher monetary freedom is greater freedom from inflation and governmental intervention, and a government's monetary policy can facilitate market pricing and competition. Financial freedom is a measure of banking efficiency and a measure of independence from government control and interference in the financial sector; higher financial freedom brings about higher competition and efficiencies for financial markets. Hence, both MF and FF improve the efficiencies of financial markets and further decrease the

excess returns of financial commodities, such as real estate securities. As to the effects of trade freedom, higher trade freedom increases the international trade for a country and causes closer economic integration, which cut away arbitraging opportunities and reduce the excess returns of real estate securities (Bardhan et al., 2008).

In model (5), all four coefficients of IF, MF, FF, and TF are significant at the 5% level, showing that the four sub-indices of economic freedom are important factors to affect the excess returns of real estate securities. The coefficients of excess return of market (RMK), firm's trading volume (TUR), and interest rate spread (SPD) are also significant at the 5% level. However, there are insignificant coefficients in model (5), which could be caused by the different economic characteristics between high- and middle-income countries. To improve the significances of these variables, we estimate equation (1) for the two different income-level groups' data and compare their results.

Table 4-2 The results of GMM for all economies

Variables/Model	1	2	3	4	5
R(-1)	0.01	0.11***	0.06	0.13***	0.15**
	(0.99)	(0.00)	(0.06)	(0.00)	(0.04)
RMK	10.57	18.42	16.21	2.64	20.92**
	(0.47)	(0.12)	(0.23)	(0.87)	(0.03)
SZ	-12.10	-26.65	-12.42**	-13.35	-11.32
	(0.73)	(0.40)	(0.01)	(0.65)	(0.08)
MB	-0.12	-0.06	-0.36***	0.02	-0.27
	(0.92)	(0.53)	(0.00)	(0.87)	(0.32)
TUR	-4.70**	-6.52**	-6.28**	-8.69***	-4.36***
	(0.01)	(0.01)	(0.03)	(0.00)	(0.00)
GDP	19.85	19.71	35.62	39.65	15.42
	(0.35)	(0.37)	(0.15)	(0.16)	(0.07)
SRD	-26.06	-15.24	-10.54	-17.44	-15.97**
	(0.08)	(0.15)	(0.33)	(0.23)	(0.04)
OP		-0.54		-1.35	-1.42
		(0.85)		(0.496)	(0.34)
FDI GDP			16.06**	28.53***	29.82
			(0.01)	(0.00)	(0.09)
IF					6.66**
					(0.01)
MF					-3.45**
					(0.03)
FF					-4.11**
					(0.04)
TF					-8.46***
					(0.00)
Sargan test (P-value)	0.66	0.99	0.96	0.87	0.69

Note: P-values are presented in parentheses. * Significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level. The Sargan test: The null hypothesis is defined as the instruments used that are not correlated with the residuals.

4.3.2. The GMM estimations of different income-level groups

Tables 4-3 presents the results of GMM estimations for the two income-level groups, and

several features are displayed as follows.

First, in terms of the coefficients of firm-specific variables, at the 5% significant level, the coefficients of SZ and TUR are significant for most of the models in both groups, implying that a firm's market capitalization and trading volume are important determinants for the excess return of real estate securities in both groups. The coefficient of SZ is negative for both groups, which confirms the existence of a small firm effect by Fama and French (1992), no matter in the high-income group or in the middle-income group. It is noteworthy that the sign of TUR's coefficient is different for the two groups. It is positive in the high-income group, but it is negative in the middle-income group. In other words, higher trading volume increases the excess return of real estate securities in the high-income group, but there is a reverse effect in the middle-income group.

The coefficient of MB at the 5% level is significantly positive for most of the models in the middle-income group, but it is negative and insignificant in the high-income group. Hence, a firm's market-to-book ratio (MB) can significantly and positively affect the excess return of real estate securities in the middle-income economies, but this effect is not important in the high-income economies. Three variables of firm-specific characteristics show different effects on real estate excess returns for the two income-level groups. However, if the model covers the indices of economic freedom, like model (5), then a firm's market capitalization and

trading volume have significant effects in the high-income group, and the effects of firm's market-to-book ratio and trading volume are important in the middle-income group.

Second, the coefficients of national macroeconomic variables, GDP and SPD, are insignificant at the 5% level for most of the models in the high-income group, and the coefficient of SPD is also insignificant for most of the models in the middle-income group. As to the coefficient of GDP in the middle-income group, it is significant for most of the models, but it turns insignificant for model (5), which covers the indices of economic freedom. In short, no matter for the high- or middle-income economies, if the model cover the indices of economic freedom, then GDP growth and interest rate spread are not important factors to affect the excess return of real estate securities.

Third, the four sub-indices of economic freedom show different effects on the excess return of real estate securities in the two groups. According to the results of model (5) in Table 4-3, the coefficients of MF and TF are negative in both groups, which imply that higher monetary freedom and trade freedom decreases the excess return of real estate securities. The sign of the coefficients of IF is different in the two groups. The coefficient of IF is positive in the high-income group, but it is negative in the middle-income group. In other words, higher investment freedom increases the excess return of real estate securities in the high-income economies, but there is reverse effect in the middle-income economies. What causes this

different effect in the middle-income economies? The middle-income countries are developing countries, and there are more controls and restrictions of capital outflow there. If these developing countries relax constraints on the flow of investment capita, then it could cause capital outflows to invest in foreign assets and further decrease the excess returns of real estate securities.

The sign of the coefficient of FF is also different in the two groups. Being different from the sign of IF, the coefficient of FF is negative in the high-income group, but is positive in the middle-income group. Developing countries' financial systems are less efficient due to more constraints, controls, and interventions in the financial sector. If a government in a developing country relaxes restrictions of its financial system, then financial institutions will face less constraints on how to manage their business, and it would reduce the costs of financial transactions, which further can increase the returns of real estate securities in a middle-income country. Differently, in the high-income group, higher financial freedom causes excessive competition among financial institutions, which decreases the abnormal profits of financial investments, such as excess returns of real estate securities.

Higher monetary and trade freedoms reduce the excess returns of real estate securities in both groups, but the effect of trade freedom is insignificant in the high-income group. The effects of investment freedom and financial freedom are different in the two groups. In the

middle-income group, higher investment freedom can significantly decrease the excess

returns of real estate securities, but the effect of financial freedom is insignificant. In the

high-income group, financial freedom significantly and negatively relates to the excess

returns of real estate securities, but the effect of investment freedom is unimportant.

Table 4-3 The results of GMM for the two income-level groups

Variables/Model	High-income					Middle-income				
	1	2	3	4	5	1	2	3	4	5
R(-1)	-3.05***	-0.39***	0.36***	-0.38***	-0.45***	0.02***	0.17**	0.01***	0.02	-0.18***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.14)	(0.00)
RMK	10.72	83.93	61.46	59.20***	60.43**	9.37***	3.03***	10.10***	8.02	14.98
	(0.49)	(0.10)	(0.64)	(0.00)	(0.04)	(0.00)	(0.00)	(0.00)	(0.58)	(0.06)
SZ	-88.34**	-96.91	-25.06**	-71.87	-88.14**	-12.59***	-1.95	-12.19***	-15.69***	-8.48
	(0.04)	(0.10)	(0.02)	(0.30)	(0.03).	(0.00)	(0.53)	(0.00)	(0.00)	(0.56)
MB	-0.92	-1.41	-0.25	-1.48	-0.59	0.04	0.48***	0.06**	0.18	1.163***
	(0.31)	(0.06)	(0.81)	(0.26)	(0.56)	(0.20)	(0.00)	(0.05)	(0.12)	(0.00)
TUR	32.23***	33.65	26.06	42.98***	41.81***	-4.95***	-1.83**	-3.72***	-4.70**	-3.79***
	(0.00)	(0.21)	(0.25)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.01)	(0.00)
GDP	2.83	11.85	1.17**	1.54	13.37	3.01***	0.56***	6.16***	8.61***	2.98
	(0.31)	(0.29)	(0.01)	(0.67)	(0.34)	(0.00)	(0.01)	(0.00)	(0.00)	(0.89)
SRD	-26.45	-20.11**	-12.04	-39.02	-18.14	-1.09	-1.46	-5.31	-6.65	-1.76
	(0.13)	(0.02)	(0.18)	(0.05)	(0.74)	(0.66)	(0.08)	(0.09)	(0.45)	(0.66)
OP		7.09**		10.86**	6.11		-0.04**		-0.75**	-0.18
		(0.02)		(0.03)	(0.17)		(0.04)		(0.01)	(0.85)
FDI GDP			1.01	7.73	2.97			7.45**	0.77	15.35
			(0.98)	(0.46)	(0.87)			(0.01)	(0.90)	(0.37)
IF					14.78					-23.68**
					(0.09)					(0.01)
MF					-44.24**					-12.85**
					(0.01)					(0.02)
FF					-10.20**					42.05
					(0.01)					(0.24)
TF					-29.47					-70.35**
					(0.30)					(0.01)
Sargan test (P-value)	0.14	0.59	0.56	0.14	0.14	0.15	0.33	0.33	0.28	0.75

Note: P-values are presented in parentheses. * Significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level. The Sargan test: The null hypothesis is defined as the instruments used that are not correlated with the residuals.

5. Conclusions

The paper establishes a multifactor model of real estate securities, utilizing the international Capital Asset Pricing Model (CAPM) of Bardhan et al. (2008) and the Fraser Institute's economic freedom index, in order to examine the effects of economic freedom on the returns of real estate securities. In particular, we focus on the effects of four sub-indices of economic freedom: investment, financial, monetary, and trade freedoms. The methodology of the dynamic generalized method of moment (GMM) is applied to look at the annual data of 1,108 publicly-traded real estate companies in 24 economies from 2006 to 2013. The main findings are as follows.

First, based on the evidence of the whole sample, all four sub-indices of economic freedom significantly affect the excess returns of real estate securities. Higher investment freedom increases the excess returns, because investors can more freely allocate the portfolios of their investment and have higher possibilities to increase the returns of real estate securities. On the contrary, monetary freedom and financial freedom are negatively correlated to the excess returns, because both of them improve the efficiencies of financial markets and decrease the excess returns of real estate securities. Similarly, higher trade freedom also causes lower excess returns.

Second, a firm's market capitalization relates negatively to the excess returns of real

estate securities in both income-level groups, but there are different effects of the other two variables of firm-specific characteristics, market-to-book ratio and trading volume, for the two income-level groups. In the high-income economies, the market-to-book ratio's effect is negative and the trading volume's effect is positive, but their effects present converse impacts on the excess returns of real estate securities in the middle-level economies. Furthermore, at the 5% significant level, the effect of trading volume is significant in both groups, but the effect of a firm's market capitalization is significant only in the high-income group, while the effect of a firm's market-to-book ratio is important only in the middle-income group. However, no matter for the high- or middle-income economies, if the model covers the indices of economic freedom, then GDP growth and interest rate spread are not important factors to affect the excess return of real estate securities.

Third and finally, higher monetary and trade freedoms reduce the excess returns of real estate securities in both income-level groups, but the effect of trade freedom is insignificant in the high-income group. The effects of investment freedom and financial freedom are different in the two groups. In the middle-income group, higher investment freedom significantly decreases the excess returns of real estate securities, but the effect of financial freedom is insignificant. In the high-income group, financial freedom significantly and negatively correlates to the excess returns of real estate securities, but the effect of investment freedom is unimportant.

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