Pacific-Basin Finance Journal 19 (2011) 571–585

Contents lists available at ScienceDirect

Pacific-Basin Finance Journal

journal homepage: www.elsevier.com/locate/pacfin

Are stock and real estate markets integrated? An empirical study of six Asian economies

Tsoyu Calvin Lin [a,*], Zong-Han Lin [b]

[a] Department of Land Economics, National ChengChi University, Taiwan. Address: 64, Sec. 2, ZhiNan Rd., WenShan District, Taipei, Taiwan
[b] Department of Finance, ChaoYang University of Technology, Taiwan

ARTICLE INFO

Article history:
Received 4 January 2010
Accepted 9 May 2011
Available online 17 May 2011

JEL classifications:
F21
G11
G15
R51

Keywords:
Real estate market
Stock market
Cointegration
Segmentation
Substitution effect
Portfolio management

ABSTRACT

Rising asset prices spurred by Asia's emerging economy have drawn much attention recently. This study examines one source of growth patterns in asset prices by analyzing the integration relationship between stock markets and real estate markets in Asia. Six economies are selected for empirical analysis: China, Hong Kong, Japan, Singapore, South Korea, and Taiwan. Results show that stock markets are integrated with real estate markets in Japan, and partially integrated with real estate markets in China, Hong Kong, and Taiwan. This implies that these two investment vehicles are substitutable in China, Hong Kong, Japan, and Taiwan, and provide diversification potential for investment portfolios in South Korea and Singapore. Examining the timing of market changes, we found the real estate market leading the stock market in some countries, and the stock market leading the real estate market in others. We conclude that stock and real estate markets show a variety of inter-relationships depending on economic and political policy environments.

1. Introduction

Real estate and stocks are important assets for most investors. The liquidity and the relationship of these two assets have often attracted the attention of both homebuyers and investors. Stock is the most convenient form of investment for many. It offers relatively high liquidity and transparency of transaction information compared with other investment vehicles. For most households, however, real estate is probably the most important and expensive asset to obtain. In Asia real estate is especially preferred, due to traditional values and to the region's high population density.

* Corresponding author. Tel.: +886 2 29393091x51142.
E-mail address: tsoyulin@nccu.edu.tw (T.C. Lin).

0927-538X/$ – see front matter
doi:10.1016/j.pacfin.2011.05.001

Stock and real estate values are also influenced strongly by economic conditions (e.g., economic growth, inflation, interest rates, employment, financial crisis, and so on). For example, the 2008 subprime mortgage crisis that began in the U.S. had a significant negative impact on both stock and real estate prices in the six markets surveyed, as shown in Figs. 1 and 2. However, the differential effects of these conditions on these assets have repeatedly drawn the attention of investors, households, and scholars. On the one hand, if there is an integrated relationship between markets for these two assets, this implies that they are substitutable or interchangeable. Investors may be able to predict one market through observing the other's performance. On the other hand, the stock market may also react independently of real estate market due to various market conditions or government

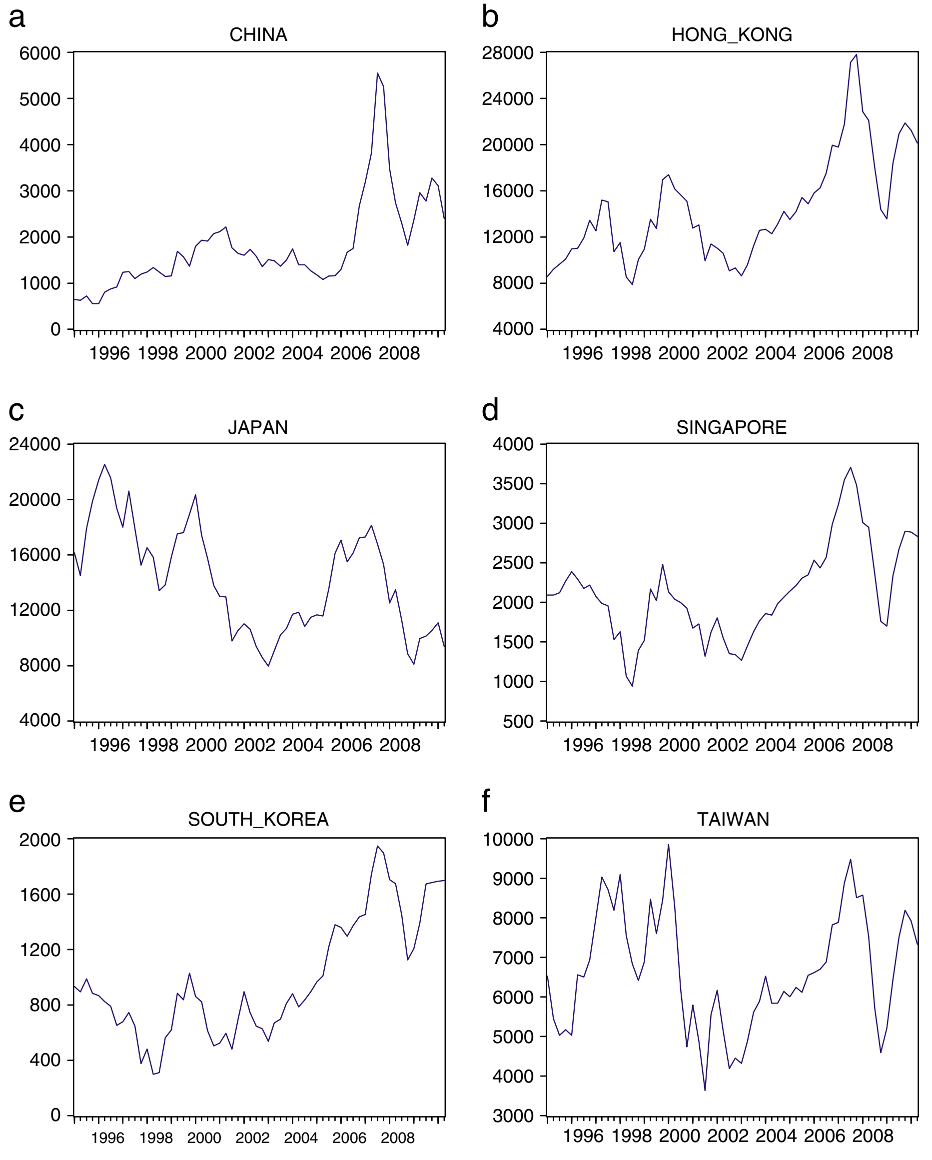

Fig. 1. The movements of Asian stock markets.