G Model
QUAECO-1043; No. of Pages 13

ARTICLE IN PRESS

The Quarterly Review of Economics and Finance xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

The Quarterly Review of Economics and Finance

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

Residual state ownership and stock market integration: Evidence from Chinese partly-privatised firms

Hong Li*

Nottingham University Business School, University of Nottingham, Nottingham NG8 1BB, United Kingdom

ARTICLE INFO

Article history:
Received 9 December 2016
Received in revised form 14 May 2017
Accepted 20 May 2017
Available online xxx

JEL classification:
C32
F36
G12
G15

Keywords:
State ownership
Political interference
Asset pricing
Stock market integration
Kalman smoothing
Regime switching

ABSTRACT

This paper assesses China's integration with the global stock market over its privatisation process, by examining the asset pricing mechanisms of Chinese firms under different levels of state ownership within a two-beta CAPM framework. We derive time-varying national and global systematic risks for the portfolios compiled on the basis of residual state ownership and examine how these risks are priced while controlling for structural changes exogenously and endogenously. Through anchoring our analysis to the portfolios capturing this institutional factor, we observe mostly positive pricing of the systematic risks, instead of the negative pricing often found in the literature on emerging markets. Within this well-controlled framework, some interesting points emerge. While full privatisation does not eliminate exposure to the national systematic risk, more heavily privatised firms (i.e., those with the least residual state ownership) tend to price only the global risk more often than less privatised ones. Hence, among partly-privatised firms, integration with the global market strengthens as state ownership decreases. These results suggest that emerging economies pursue rigorous privatisation and yet governments keep small stakes in privatised firms in order to ensure integration with the global market.

1. Introduction

Emerging economies around the world pursue privatisation for the benefits of improved efficiency, reduction of public debt and/or better access to equity capital. However, inflow of portfolio investments depends on whether the emerging stock markets are integrated with the global market. Although integrated stock markets may be more volatile, funds for these markets are more readily available at lower costs. It is of interest to examine whether emerging stock markets could be more integrated with the global market if political authorities were less significantly involved in firm governance. This paper, therefore, attempts to control for residual state ownership in the assessment of China's integration with the global stock market within an augmented CAPM framework in the style of Jorion and Schwartz (1986). As China has many of the typical characteristics of emerging markets, the study of the role of residual state ownership in stock market integration will produce useful policy implications for emerging economies.

Within the chosen asset-pricing framework, stock market integration is defined as a situation where investors earn the same risk-adjusted expected return on similar portfolios in local and global markets. Hence, the investigation of market integration for a particular economy, in principle, involves testing whether systematic risk relative to the global market is the only significant factor in an asset pricing model, when both global and national systematic risks are controlled for. This definition of stock market integration is in stark contrast to the less theoretically based statistical interdependence that is widely used in the existing literature on integration between national stock markets. However, many studies in the context of asset pricing (e.g., Li, 2013; Mo & Wu, 2007; Omran, 2007) commonly find negative risk pricing, especially the pricing of the national systematic risk, for emerging markets. Negative risk pricing is inconsistent with the theory of risk aversion and suggests that investors will not be compensated for taking on risky investment projects. Haugen (1999) attributes the negative trade-off between return and risk to the omission of a size or liquidity premium effect in the CAPM model. It is also possible that

* Fax: +44 1158466667.
E-mail address: hong.li@nottingham.ac.uk

http://dx.doi.org/10.1016/j.qref.2017.05.004
1062-9769/

Please cite this article in press as: Li, H. Residual state ownership and stock market integration: Evidence from Chinese partly-privatised firms. *The Quarterly Review of Economics and Finance* (2017), http://dx.doi.org/10.1016/j.qref.2017.05.004

the negative risk pricing in emerging markets is due to the omission of the risk of political interference, given that Bekaert, Erb, Harvey, and Viskanta (1997), Diamonte, Liew, and Stevens (1996) and Erb, Harvey, and Viskanta (1996) find that in most emerging markets, political risk is a priced factor for which investors are rewarded.

We accept that these potentially omitted risk factors might not be diversified away as assumed by the modern portfolio theory, so in this paper, we will take these factors into account when assessing stock market integration within the well-developed two-beta CAPM framework. However, we will not simply add these risk factors to the two-beta asset-pricing model that is already based on a sound theoretical definition of stock market integration. Our practice is based on econometric considerations. If we do not know any 'true' model alternative to this two-beta asset-pricing model, adding more factors to the existing model will not help unless we could exhaust the list of omitted variables that need to be considered. There are also practical difficulties to proxy properly or quantify these omitted risk factors for empirical studies. For example, political risk is typically measured by ratings that relate to restrictions on the repatriation of profits, exchange control or the risk of expropriation and contract repudiation by governments. These national ratings cannot be applied to studies of asset pricing at the firm level within countries. Another example is liquidity risk. Liquidity refers to the degree to which assets can be liquidated over a short period of time at minimal cost with minimum price impact. Although a multitude of liquidity proxies can be found in the literature, Bernstein (1987) argues that no single measure tells the whole story of liquidity. Instead we will control for these factors by anchoring our analysis to portfolios, whose constituent stocks are selected in such a way that they have similar levels of these omitted risks within portfolios and distinct levels of the risks between portfolios.

Residual state ownership is a major institutional characteristic of emerging economies and it is likely to be associated with potential risks omitted from the two-beta CAPM framework as documented in the section of review of the literature. Hence, in this paper, we will use the extent of residual state ownership as the criterion to compile portfolios in order to control for risks of political interference and liquidity. Specifically, we compile portfolios to represent the firms that have been privatised to different degrees, e.g., the firms falling in the bottom, middle and upper quartiles of the state ownership distribution during January 2000 to December 2011. The constituent stocks of the portfolios are permitted to change over time, i.e., to leave or join a portfolio according to their percentage of state-owned shares each year, ensuring that the stocks within portfolios have similar levels of potential risks over time. For comparison purposes, we also generate portfolios of shares, respectively, from firms that have never been owned by the state and firms that have been fully privatised. For all portfolios, we weigh their constituent stocks with their market capitalisation, further controlling for heterogeneity in market activity and size within portfolios. Selecting portfolios representing firms under different levels of state ownership as the anchor of our analysis has therefore both empirical and economic appeal. With similar strategic importance, shares within such portfolios have similar liquidity risk and political risk, ensuring fair tests of their exposures to the global and national systematic risks across portfolios within the two-beta CAPM framework. By contrasting the test results between portfolios, we can observe whether residual state ownership hinders stock market integration additionally.

The empirical work in this paper will entail firstly the derivation of time-invariant and time-varying global and national systematic risks for these portfolios using OLS and Kalman smoothing techniques respectively and secondly the examination of how the national and global systematic risks are priced by these portfolios in a time-varying setting. We will ensure that structural changes in the sample period are controlled for exogenously through a dummy variable approach and endogenously by the Markov regime-switching technique respectively. Compared with the conventional two-pass or simultaneous time-series cross-section regression analysis in the literature, these statistical techniques will help address the concerns of financial economists that the behaviour of beta risks is not constant over time and that risk prices can be altered by policy changes or crises.

We contribute to the literature in several important ways. Firstly, we propose to take into account the institutional factor of state ownership when testing for stock market integration between emerging economies and the global market. We successfully incorporate potential risks, such as liquidity and political interference, into the two-beta CAPM framework by anchoring our analysis to the unique portfolios that represent different levels of state ownership of an emerging market like China. Although many studies have been carried out on the influence of China's state ownership on corporate operating performance (see Fan, Wong, & Zhang, 2014), to the best of our knowledge, our work is the first to explore whether residual state ownership alters firms' exposures to the national and global systematic risks. As we aim to detect changes in the degree of China's integration with the global market over its privatisation process, our work is also different from Li (2013) and Wang and Di Iorio (2007) who study China's stock market integration in relation to whether foreign investors are restricted or not. Lastly, we stratify the whole sample to enable the contrast of the asset pricing mechanisms between fully- and partly-privatised firms as well as among the partly-privatised firms and deduce a non-linear relationship, which is missing in the literature but needed for policy making, between ownership structure and stock market integration. Our findings about this relationship will enable emerging economies to design a privatisation programme that is most likely to result in integration with the global market and reap the benefits associated with integration, such as lower cost of capital and greater investment funds.

The remainder of the paper is organised as follows. We review the literature in Section 2 and describe the empirical framework in Section 3. We generate the unique portfolios and carry out the preliminary data analysis in Section 4. Estimation and tests are implemented in Section 5 and finally, in Section 6 we provide our conclusions.

2. Review of the literature

Most studies on stock market integration are conducted through cointegration or correlation analysis of market indices or returns. However the existence of a long-run relationship or correlation between national markets does not prove stock market integration. Recently, a number of studies on China's stock market integration have been carried out in the context of asset-pricing models. Following Jorion and Schwartz (1986), Li (2013) and Wang and Di Iorio (2007) have tested for China's stock market integration within the framework of an augmented CAPM. While Wang and Di Iorio (2007) do not find any evidence of integration, Li (2013) finds that China's once-restricted A-share market tends to be more integrated with the global market than the unrestricted B-share market. Commonly, these studies have overlooked the ownership structure of Chinese firms. Although privatisation is deepening, most of the Chinese firms are still partly owned by the government, which holds the power to interfere.

Please cite this article in press as: Li, H. Residual state ownership and stock market integration: Evidence from Chinese partly-privatised firms. *The Quarterly Review of Economics and Finance* (2017), http://dx.doi.org/10.1016/j.qref.2017.05.004