



Savings, investment, and capital mobility within China[☆]

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ABSTRACT

This paper addresses the capital mobility among regions within China. Using a range of panel estimators which deals with the non-stationarity of time series components, individual heterogeneity and common unobserved factors, we show that the savings and investment (both expressed as ratios to GDP) are positively correlated for a sample of 28 Chinese provinces over the period of 1978 to 2006. According to the Feldstein-Horioka's argument (1980, *Economic Journal* (90), pp.314–329), such a correlation can be interpreted as evidence of low capital mobility. In addition, by means of Granger causality test, we fail to provide consistent evidence to support the hypothesis of efficient capital allocation in China. Combining the results given above, it is believed that the capital may be inefficiently retained within the provincial confines. We conjecture that the intermarriage between financial power and local authorities is primarily responsible for this worrying phenomenon.

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1. Introduction

To some extent, the opening of China's 'inner doors', namely domestic market integration, as an integral part of the post-1978 economic reform, had long been neglected and overshadowed by the relatively successful opening up to the outside. In particular, it is argued that the decentralization of economic management and decision-making undertaken over the 1980s considerably weakened China's central government's capacity to control regional affairs and facilitated the local protectionist practices (Wang & Hu, 2001; World Bank, 1994).

However, partly due to the 1989 political crisis and the collapse of Soviet Union in 1991, which posed a serious challenge to the unity of China, the issue of national market integration has received increasing attention from both policymakers and economic scholars since the early 1990s. On the one hand, the Chinese authorities, especially the central government, have started their determined efforts to break down localism and set up a unified domestic market, including the center-region tax assignment reform, financial institutions restructuring and the vertical administration (*chuizi guanli*) reconstitution (see Yang (2004) for a detailed discussion). On the other hand, a vast body of empirical literature has emerged. Without reaching a consensus on the extent or even the trends on interregional integration over reform period, many facets of domestic market development have been explored, such as price convergence (Fan & Wei, 2006; World Bank, 1994; Young, 2000), production structure similarity (Bai, Du, Tao, & Tong, 2004; World Bank, 1994; Young, 2000), synchronization of the business cycle (Poncet & Barthélémy, 2008; Tang, 1998; Xu, 2002), internal trade links (Naughton, 2003; Poncet, 2005; World Bank, 1994), and labor migration (Liang & Ma, 2004; Poncet, 2006; Wei, 1997).¹

Nevertheless, to the best of our knowledge, few studies have focused on the integration of China's capital market, with the notable exception of Boyreau-Debray and Wei (2004, hereafter BDW) which address the capital mobility across regions. Using a panel of Chinese provinces (or province-level regions) for the period of 1978–2001, they find that provincial savings and

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¹ For a detailed survey of literature relative to China's domestic market integration, the reader is referred to World Bank (2005).

investment rates are closely linked. According to the seminal work of Feldstein-Horioka (1980, hereafter FH), these results could be interpreted as evidence for low degree of interprovincial capital mobility.

Because of the relative scarcity of capital stock in China, the frictionless allocation of such limited financial resources toward more productive areas appears to be of paramount importance. Roughly speaking, there are at least four reasons worth noting. First, Chinese enterprises, especially the non-state-owned ones, require a liberalized capital market where all kinds of origin-related discrimination are absent. Such a market can not only ease external funds constraints facing them, but also facilitate their expansion in respond to the nationwide opportunities. Second, to seek better return-risk trade-off, investors also need to freely diversify their financial assets across regions which may suffer from heterogeneous shocks. Third, by the similar logic of the goods market integration, additional gains would be associated with financial institutions reorganization: the least efficient ones should be eliminated from a highly integrated market, whereas the remaining ones will achieve economies of scale. Fourth, as the nascent consumption credit market is emerging in China, high capital mobility will equally matter for the consumption smoothing.

Focusing on the issue of capital mobility, we attempt to reexamine the Chinese evidence over the past three decades. Compared to the study of BDW (2004), the current paper has three major distinguishing features. First, using an updated sample over 1978–2006, we show that, contrary to the results given in BDW (2004), both provincial savings and investment rates appear to be individually non-stationary and there is no strong evidence for the co-integrating relation between them. It is argued that such findings have crucial implications for the long run savings-investment association. Second, to deal with the regional heterogeneity and national common factors, we implement a set of panel estimators, which differs from those used in BDW (2004). More importantly, our estimates remain consistent under the time series properties mentioned above. Third, as will be detailed later, the investigation on capital allocation efficiency provided in BDW (2004) relies on a problematic logic that in the case of efficient market, the capital flows are allocated toward regions with higher marginal product of capital. Alternatively, we propose examining the causal relationship between aggregate investment and income growth rates in the hope of shedding light on the allocative efficiency of China's capital market.

The reminder of this paper is organized as follows: Section 2 briefly presents the FH approach as well as some alternative interpretations on it. Section 3 examines the time series properties of China's savings and investment rates. Section 4 shows the results of FH regressions from a variety of panel estimators. A short discussion of the findings in other FH studies is also provided. Section 5 investigates further the efficiency of capital allocation in China. The last section concludes the paper.

2. FH approach and alternative interpretations

The basic idea of FH approach has been summarized as 'with perfect world capital mobility, there should be no relation between domestic saving and domestic investment: saving in each country responds to the worldwide opportunities for investment while investment in that country is financed by the worldwide pool of capital' (FH (1980, pp.317)). To verify this hypothesis, FH consider the following model:

$$\bar{I}_i = \alpha + \beta \bar{S}_i + \varepsilon_i, \text{ with } \bar{I}_i = T^{-1} \sum_{t=1}^T I_{it}, \text{ and } \bar{S}_i = T^{-1} \sum_{t=1}^T S_{it} \quad (1)$$

where I and S denote the ratios of domestic investment and national savings to GDP, respectively. Using a sample of 16 OECD economies during 1960 to 1974, FH showed that the parameter of savings rate, β , which is sometimes called 'FH coefficient' or 'savings-retention ratio', is close to unity. According to the hypothesis stated earlier, those results imply that nearly 100% of incremental savings are retained inside national borders and thereby the international capital market is weakly integrated. Their findings have been confirmed by subsequent research. In fact, as documented by Tesar (1991) who provides a comprehensive survey of FH literature, the positive savings-investment correlation is both a short-run and long-run phenomenon and is not restricted to a particular sample of countries.

However, given the apparent improvement in international financial market liberalization over recent decades, the FH's findings have been viewed as a 'puzzle'. Focusing on the implications of positive association between savings and investment rates, numerous authors indicate that the estimated FH coefficient sheds little light on capital mobility. For our purposes², three alternative views are particularly noteworthy. First, the long-run association between savings and investment can be interpreted as a direct implication of the intertemporal budget constraint. Since the cumulated balance of payments or regional debt cannot explode, the savings and investment series must be cointegrated with a unit coefficient when time series dimension goes to infinity (see Coakley, Kulasi, & Smith, 1996; Jansen, 1998; Taylor, 2002). In other words, the deviation between savings and investment rates, namely the current account share in GDP, should be a stationary process with zero expected value over long run. Second, it seems that the savings-investment link is heterogeneous across individual countries. In particular, it may be distorted by economic size of a country. On the one hand, Harberger (1980) conjectures that as countries become larger, they become more diversified and the need to borrow from abroad in the event of a shock declines. On the other hand, as argued by Dooley, Frankel, and Mathieson (1987) and Baxter and Crucini (1993), if a country is sufficiently large to affect the world interest rate, an initial increase in its savings, will lower the world interest rate and in turn, boost its own investment. Third, some exogenous disturbances can also generate savings-investment co-movements, which are unrelated to the capital mobility. For instance, Obstfeld (1986) argues that a positive productivity shock would cause the current wage to rise above the permanent level. In this case, households tend to increase savings to smooth their consumption over time. If the shock is persistent, higher productivity

² Here, we exclude another popular criticism of FH approach, namely 'policy reaction' argument, which is less relevant to the sub-national case. Because within a country, governments do not typically target 'regional current account' (see Bayoumi & Rose, 1993).

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