Int. Fin. Markets, Inst. and Money 36 (2015) 85–99

Contents lists available at ScienceDirect

Journal of International Financial Markets, Institutions & Money

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

International capital markets structure, preferences and puzzles: A "US–China World"☆

Guglielmo Maria Caporale[a], Michael Donadelli[b,*], Alessia Varani[c]

[a] Department of Economics and Finance, Brunel University, London, United Kingdom
[b] Research Center SAFE, House of Finance, Goethe University, Frankfurt, Germany
[c] HEC-Montréal, Department of Applied Economics, Canada

ARTICLE INFO

Article history:
Received 7 October 2014
Accepted 19 December 2014
Available online 29 December 2014

JEL classification:
F3
F4

Keywords:
Macro-anomalies
Financial autarky
Complete markets
Long-run innovations
Home bias

ABSTRACT

The US–China data suggest that (i) the real exchange rate (RER) volatility puzzle (high RER volatility relative to consumption volatility), (ii) the Backus–Smith anomaly (negative correlation between the RER and consumption differentials), (iii) the consumption correlation puzzle (relatively low cross-country consumption correlation) became more severe in the aftermath of China's stock market liberalization. This indicates that international macro-anomalies do not show up exclusively among pairs of advanced economies. In an international endowment economy context, we show that the combination of recursive preferences and long-run risk allows for the simultaneous resolution of these anomalies. In contrast to standard macro models, this holds even in the presence of full financial integration, segmented goods markets and non-negligible changes in several parameter values.

1. Introduction

The international business cycle (IBC) literature of the last 20 years points out that the risk-sharing predictions of standard models with international complete markets do not match cross-country movements in consumption. Early studies show that a standard IBC model with complete markets encounters difficulties in matching international consumption and asset pricing data (Backus et al., 1994, 1995). In particular, it produces (i) smoothed asset prices; and (ii) an unrealistically high level of international risk-sharing. As discussed in Backus and Smith (1993), among others, this excess amount of risk-sharing gives rise to a perfect positive co-movement between RER and consumption differentials as well as between cross-country consumption growth rates. In a seminal contribution, Lewis (1996) suggests that high degrees of international risk-sharing might be generated by the non-separability of tradable and non-tradable goods in the utility function employed in the model as well as by the presence of complete markets. She concludes that capital market restrictions and non-separability are both required to explain the lack of international risk-sharing observed in the data.

☆ This paper was prepared for the 4th EMG-ECB Emerging Markets Group Conference, Cass Business School (London), May 8–9, 2014. We would like to thank an anonymous referee, Patrick Grüning, and seminar participants at Brunel University, LUISS Guido Carli, Hall Institute of Economic Research, and the 12th INFINITI Conference on International Finance. All remaining errors are our own.

* Corresponding author at: Research Center SAFE, Goethe University Frankfurt, Grüneburgplatz 1, 60323 Frankfurt am Main, Germany. Tel.: +49 69 798 33882.
E-mail addresses: Guglielmo-Maria.Caporale@brunel.ac.uk (G.M. Caporale), michael.donadelli@gmail.com (M. Donadelli), alessia.varani@gmail.com (A. Varani).

http://dx.doi.org/10.1016/j.intfin.2014.12.006
1042-4431/

Overall, the international risk-sharing mechanism embodied in standard IBC models gives rise to three highly discussed international macroeconomic puzzles: (i) the high volatility of the RER relative to the volatility of consumption (RER volatility puzzle); (ii) the negative correlation between the RER and consumption differentials (Backus–Smith anomaly); (iii) the low correlation of consumption growth across countries (consumption correlation puzzle).[1] Further, traditional models with standard preferences do not address two well known domestic asset pricing puzzles: (i) the equity premium puzzle, EPP, (Mehra and Prescott, 1985; Mehra, 2003); (ii) the risk-free rate puzzle (Weil, 1989).

Financial integration and its implications for the resolution of both macroeconomic and asset pricing anomalies have received considerable attention in the most recent literature, much of it addressing individual anomalies (Benigno and Thoenissen, 2008; Corsetti et al., 2008; Kollmann, 2012; Hamano, 2013, among others). Relatively little research, however, has focused on the joint resolution of some of these puzzles (Bodenstein, 2008; Colacito and Croce, 2013). Benigno and Thoenissen (2008) develop a standard IBC model with non-traded goods and incomplete markets. They show that under strong complementary between domestic and foreign tradables the model reproduces the Backus–Smith correlation. Similarly, Corsetti et al. (2008) argue that international financial markets are not developed enough to generate full risk-sharing and show that standard macro models with incomplete markets may account for the Backus–Smith correlation. In particular, if there is a high level of complementary between exported and imported goods, then the model produces substantial movements in the RER as well as a negative correlation between the RER and relative consumption, and reduces the correlation between domestic and foreign consumption. However, these results are not robust to the introduction of a second trade asset (see Benigno and Kücük-Tuger, 2012).[2] Kollmann (2012) shows that the Backus–Smith anomaly can be explained by a simple model where only a fraction of households can trade assets freely in complete financial markets. Following Corsetti et al. (2008), Thoenissen (2011) shows that a standard IBC model with incomplete markets is able to solve the RER volatility puzzle, the RER persistence puzzle and the Backus–Smith anomaly. However, the success of the model heavily depends on the choice of the elasticity of substitution between domestic and foreign produced goods. In particular, the range of elasticity values that allows the model to address the macro-puzzles is very narrow, suggesting that the model's performance is not sufficiently robust. Bodenstein (2008) develops an international endowment economy with complete asset markets and limited enforcement for international financial contracts where the ability to share risk depends on the degree of patience of the agents. He shows that, if agents are sufficiently impatient (i.e. markets are incomplete), the model jointly solves the RER volatility puzzle, the Backus–Smith anomaly and the consumption correlation puzzle. In line with these studies, Hamano (2013) shows that market incompleteness (i.e. an inefficient international risk-sharing environment) is crucial for the resolution of the consumption-real exchange rate anomaly.

However, the debate on whether or not a "financial autarky" or a "single-bond economy" regimes may represent a realistic financial environment is still open. On the one hand, numerous international finance studies show that both developed and emerging (in particular Brazil, China and India) capital markets have become increasingly integrated over the last two decades (Cheung et al., 2006; Lane and Schmukler, 2007; Donadelli, 2013; Ma and McCauley, 2013; among others). For example, Fitzgerald (2012) finds that financial risk-sharing among developed countries is nearly optimal. Jappelli and Pistaferri (2011), show that the increasing degree of financial integration across international financial markets has largely improved households consumption smoothing (i.e. risk-sharing). This suggests that either a "financial autarky" or a "single-bond economy" regimes cannot be employed to model the current international capital markets structure. On the other hand, some theoretical studies directly argue that these two regimes do not represent realistic financial environments. Crucini (1999) and Santos Monteiro (2008) point out that standard incomplete markets models are problematic because they are characterized by limited consumption risk-sharing at both the domestic and international level. Kollmann (2012) argues that international capital markets allow for an almost frictionless trading activity in a large variety of securities (e.g. equities, futures, options, CDS, bonds). Heathcote and Perri (2002) stress that an efficient international trading activity is important for the cross-country business cycles.

The aim of the present paper is to compare the macroeconomic quantities and prices produced by two different international endowment economies: (i) one in which agents can trade assets for consumption smoothing purposes only domestically (i.e. financial autarky); and (ii) one where all agents are allowed to efficiently share their consumption risk by trading in complete financial markets. In other words, we ask the question whether a limited amount of international risk sharing is necessary to simultaneously solve the above mentioned international macroeconomic anomalies as well as two well known asset pricing puzzles. In addition, we examine whether these puzzles exist in the case of the US and China, an issue not previously investigated.

Our analysis is carried out by using the international endowment economy developed by Colacito and Croce (2010, 2013). In this economy, (i) home and foreign agents display recursive preferences; (ii) endowment processes embody a long-run risk component a là Bansal and Yaron (2004) and are co-integrated (see also Tretvoll, 2013). In this setup, capital markets are complete both domestically and internationally, and agents have preference for domestic goods (i.e. home bias in consumption). The choice of this model is motivated by several factors: (i) it reflects a period of increasing financial integration by assuming complete markets; (ii) it can capture both the first and second moments of asset pricing;

[1] For additional details, see Bodenstein (2008).

[2] Specifically, they say "... the performance of these models worsens considerably when we move away from a single-bond economy..." (Benigno and Kücük-Tuger, 2012, p. 562).