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Does financial integration affect real exchange rate volatility and cross-country equity market returns correlation?



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ABSTRACT

Existing empirical studies show that financial integration affects the behavior of average excess returns, cross-country equity market returns (EMR) correlations and real exchange rate (RER) volatility. We employ a recently developed two-country model with recursive preferences, frictionless and complete markets and highly correlated long-run innovations to examine whether full financial integration (i.e. full risk-sharing) affects the US-Canada EMR correlation and the US RER volatility, consistently with existing empirical findings. First, full risk-sharing gives rise to a relatively high RER volatility. Second, it induces very strong positive cross-country EMR correlations. Both quantities are higher than those observed in the US-Canada asset pricing data, and increase as the risk-sharing incentive increases. In contrast, “international consumption quantities” are weakly sensitive to changes in the level of aversion to consumption and utility risk.

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1. Introduction

During the last the last three decades international equity markets have become increasingly integrated. Recent studies show that the level of segmentation across developed equity markets is

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rather low, that is, equity markets across industrialized economies are close to be fully integrated (Bekaert, Harvey, Lundblad, & Siegel, 2011; Donadelli, 2013; Pukthuanthong & Roll, 2009; among others). This facilitates consumption smoothing and risk-sharing opportunities (Jappelli & Pistaferri, 2011; Kollmann, 2012; Suzuki, 2014). Global financial integration, both *de jure* and *de facto*, has received an enormous amount of attention in the international empirical finance literature, much of it devoted to examine its effects on cross-country EMR correlations as well as on RER volatility dynamics and average equity market returns. A large number of empirical studies confirm that the cross-country EMR correlation increases as the level of segmentation across international capital markets decreases (Dellas & Hess, 2005; Donadelli, 2013; Donadelli & Persha, 2014; Goetzmann, Li, & Rouwenhorst, 2005; Longin & Solnik, 1995). Other studies have shown that a high level of financial integration is an important source of RER volatility (Caporale, Amor, & Rault, 2011; Corden, 2002; Reinhart & Todd Smith, 2001). However, there is little research examining the “financial integration-RER volatility and EMR correlation relationships” in a general equilibrium context. This is due to the fact that in most of the recently developed international business cycle models markets are internationally incomplete (e.g. “financial autarky”, “one-bond world”) or display imperfections/frictions (e.g., borrowing constraints, limited asset market participation, enforcement constraints). Why? Standard international business cycle (IBC) models with complete and frictionless markets tend to have problems in matching international macroeconomic data (Backus, Kehoe, & Kydland, 1994, 1995; Benigno & Kucuk-Tuger, 2012; Bodenstein, 2008; Heathcote & Perri, 2002; Kollmann, 2012; Mandelman, Rabanal, Rubio-Ramírez, & Vilán, 2011). In particular, these models, in contrast to empirical evidence, tend to produce a close to unity cross-country consumption correlation, a relatively low equity risk premium (ERP), a relatively low RER volatility and a positive correlation between consumption differentials and real exchange rate. Therefore, past attempts to solve some of these anomalies have focused mostly on models in which only a restricted set of assets can be traded internationally or agents are borrowing constrained. But, in this environment consumption risk-sharing is limited both internationally and domestically (Crucini, 1999; Santos Monteiro, 2008). In reality, there exists a wide array of assets that can be traded (e.g. equities, bonds with different maturities, plain vanilla derivatives, exotic financial products), both domestically and internationally (Kollmann, 2012). Therefore, international equity markets are not segmented, and the intensive trading activity should produce more pressure on the currency market as well as a higher degree of co-movement between international EMR. A partial risk-sharing environment becomes a much more unrealistic assumption if two economies are really close in terms of trade and financial transactions (Tavares, 2009). As estimated by Fitzgerald (2012), the level of financial risk-sharing across developed markets is nearly optimal.

We employ a recently developed two country-two good model with recursive preferences, highly correlated long-run growth innovations, frictionless and complete markets to address whether financial integration affects the RER volatility and the cross-country EMR correlation, an aspect neglected in existing studies. We address this issue by assuming that (i) goods markets are partially integrated; (ii) home and foreign long-run innovations are highly correlated.¹ In addition, we study the effects of changes in agents’ aversion to consumption and utility risk on the RER volatility and cross-country EMR correlation. Our analysis focuses on “US-Canada data”. Therefore, we rely on two economies that enjoy one of the closest relationships in the world (consistent with our international capital markets structure). Data run from 1975 to 2007, a period of increasing economic and financial integration.² In particular, over the past three decades, Canada’s economic ties to the US have deepened, first under the Free Trade Agreement (FTA) and later under the North American Free Trade Agreement (NAFTA).

We summarize our results as follows. First, and most importantly, full international risk-sharing produces: (i) a relatively high RER volatility and (ii) a strong positive cross-country EMR correlation. We stress that both quantities increase as the level of aversion to utility risk increases (i.e., as the intertemporal elasticity of substitution (IES) increases), and are higher than those observed in the US-Canada data. Second, and not surprisingly, the RER volatility is increasing also in the level of relative risk aversion (RRA). Third, the model produces a relatively low consumption growth volatility

¹ See also Colacito and Croce (2010).

² We exclude the sub-prime crisis period because it is characterized by a high number of uncertainty shocks (Bloom, 2009; Cazzavillan & Donadelli, 2010).

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