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Education and the local equity bias around the world☆

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ABSTRACT

Using a panel of 38 economies, over the period 2001–2010, we analyse the link between different facets of education and diversification in international portfolios. We find that university education, mathematical numeracy, in addition to financial skill, play an important role in reducing home bias. After separating countries according to their level of financial development, we find that less developed economies with more university graduates, or with higher level of mathematical numeracy, have lower level of local equity bias compared to more developed countries. We also find that the beneficial effect of education is more pronounced during the most recent financial crisis, especially for economies with less developed financial markets.

1. Introduction

A topic of considerable recent interest in international capital markets is the extent to which equity portfolios are concentrated in investors' domestic markets. Investors seem reluctant to reap the full benefits of international diversification and overinvest in their domestic assets rather than in international portfolios. This preference is commonly termed as the '*Home bias puzzle*' and has attracted a great amount of attention in the recent literature (see Sercu and Vanpée, 2007, 2012). Following the seminal work of French and Poterba (1991), several authors have documented a number of plausible explanations, which primarily focus on institutional factors or individual investor behaviour (see Lewis, 1999; Karolyi and Stulz, 2003; Sercu and Vanpée, 2012 for surveys). However, the role of education in international portfolio diversification is less researched. Our aim in this paper is to fill this gap by exploring the link between various measures of education and equity home bias, paying special attention to the heterogeneity in financial development and the most recent financial crisis.

The last two decades have seen a phenomenal growth of financial instruments and products, as evidenced by a number of new assets that were developed based on subprime and other mortgages before the 2007–2010 global financial crisis.

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However, the ability of investors to make sound financial decisions on the basis of these new assets was severely challenged in the light of the massive losses incurred during this period (see Klapper et al., 2013). This process has underlined the need for better education and financial awareness among citizens, educators, community groups, businesses, policymakers and government agencies to ensure their financial security (see Lusardi, 2008; Lusardi and Tufano, 2009; Gerardi et al., 2010). The extant literature on financial literacy is concerned with the links between financial knowledge, saving and investment behaviour (see Jappelli and Padula, 2013; Lusardi et al., 2013), and has considered the role of education and financial literacy in many aspects of economic behaviour, both at the micro and the macro level (see Stango and Zinman, 2009; Guiso and Jappelli, 2005, 2008, for surveys). For example, this literature demonstrates a clear relationship between borrowing and investment decisions of individuals and a number of researchers have shown that a lack of education and knowledge leads to poor risk diversification and inefficient portfolio allocations (Christelis et al., 2010). At the macro level, economic literacy is essential for the good and efficient working of the markets and policies. A lack of financial knowledge, on the other hand, can result in an increase of deceitful financial practices and unfair competition in financial markets (Jappelli, 2010). Therefore, both micro and macro studies conclude that we should observe a direct and positive relation between financial education and financial decision making (Hilgert et al., 2003; Cole et al., 2011).

One popular finding in the financial literacy literature postulates that formal education matters for the process of financial decision making (see Graham et al., 2009; Cole et al., 2012) and financial participation (see Karlsson and Nordén, 2007; Van Rooij et al., 2011). Education also works through the behavioural patterns of investors. In particular, educated investors demonstrate a higher level of competence and invest more heavily in foreign equities compared to individuals with lower levels of education (Heath and Tversky, 1991; Bernheim and Garrett, 2003; Magi, 2009). Thus, knowledgeable, educated and more financially capable people are able to manage their finances better by making good and profitable decisions for their economic security and well-being.

The purpose of this paper is to bridge the strands of the literatures on international portfolio diversification and education in order to provide, a systematic empirical analysis of the impact of education on equity holdings, taking into account both the different degree of financial development among economies and the most recent financial crisis. The motivation for exploring the role of education in equity portfolios stems from the fact that education influences financial awareness, knowledge, skills, attitude and the behaviour of investors to make sound financial decisions in order to achieve individual financial well-being. Lack of education and financial awareness, on the other hand, can be key reasons behind the lower degree of international portfolio diversification and an increasing reliance on domestic equity portfolios. Hence, education and potentially financial literacy help to reduce information acquisition costs related to foreign investment opportunities, improving the awareness of the benefits and risks of international portfolio diversification.

In our study, we also recognise that education may not influence all economies in a similar way. We allow for the fact that economies with different levels of financial development might respond to improvements in the level of education differently, since emerging market economies typically find it difficult, or prohibitively expensive, to access foreign financial markets (Mizen and Tsoukas, 2010; Mizen et al., 2012). However, emerging markets have experienced considerable development in their financial markets over the past few decades accompanied by lower inflation, stronger institutions and creditor rights (Burger and Warnock, 2003, 2006). In addition, the link between different levels of education and portfolio diversification should be more potent during extreme economic events, such as the most recent financial crisis. Gerardi et al. (2010) show that limited financial literacy (numerical ability) played an important role in the recent subprime mortgage crisis in the US. Thus, the link between education and financial literacy is likely to be more potent during the financial crisis as it might help in resolving information asymmetries in the economy and improve investors' competence level and cognitive abilities.

The value added of the present paper is threefold. First, we consider a direct role of education in influencing the equity home bias. In addition to the country-specific and financial indicators previously considered, this study also considers the impact of different measures of education. This approach complements the existing empirical literature on international portfolio holdings (see Chan et al., 2005; Fidora et al., 2007; De Moor and Vanpée, 2013), which highlights the effect of different institutional and financial factors, geographical, political and behavioural effects on home bias in international portfolios.

The second main contribution of this paper is that, using comparable multi-country panel data, we are able to identify which countries are more likely to benefit by the reduction in equity home bias from a higher level of education. Intuitively, we do not expect all countries to be equally affected by education. It is widely accepted that economic literacy differs extensively across countries and tends to be rather limited in poorer demographic groups (Jappelli, 2010). Countries with higher levels of education tend to benefit much more from financial liberalisation (Bekaert et al., 2001). In this paper, we test whether there is a differential effect of education on international diversification for economies with more and less developed financial markets.

Finally, we assess whether the education-home bias nexus has evolved over time for economies with more and less financially developed markets. The most recent financial crisis has provided fertile ground for analysing the changes and developments that took place in the financial systems of several countries. During the crisis period, markets faced macroeconomic imbalances, liquidity risk and international risk, leading to the possibility of contagion (Arghyrou and Kontonikas, 2012). Hence, there is a need of financial awareness among investors to make correct investment decisions during periods of distress. The pattern of capital flows was vastly heterogeneous across countries during the crisis as investors tried to reduce their international exposure and accordingly increase their exposure in improved economic conditions (Raddatz and