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Does national culture affect the intensity of volatility linkages in international equity markets?

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ABSTRACT

We investigate whether cultural proximity can intensify volatility linkages across international equity markets. Using daily data on national stock market indices for a sample of 49 developed and developing countries, we find that our cultural distance measure is inversely related to the strength in return volatility linkages between country pairs. We also find evidence that national culture is particularly important when there is a wider common investor base between two markets with greater bilateral portfolio investments. Furthermore, we reveal that when one market within a country pair is relatively less open than another market in terms of their foreign exchange trading activity then the cultural distance between them will further weaken volatility linkages. Our results suggest that market participants with similar cultural backgrounds respond to and impound information into equity prices in a similar fashion and this works to intensify volatility linkages around the world.

1. Introduction

Culture refers to the values and norms of a particular society or country, which in turn influences and imposes informal constraints one's perceptions and behaviour. Therefore, the way in which investors behave in response to information can conceivably be influenced by their culture. Previous studies have examined the role of culture in different areas of finance. Importantly, it has been shown that culture is important in the development of financial systems (Kwok and Tadesse, 2006), the legal system, levels of investor protection and ultimately economic development (Stulz and Williamson, 2003).

It is established that culture not only systematically biases the actions of investors but also corporate managers and can thus influences stock price behaviour. For instance, Roe (2003), Chan and Cheung (2012), Han et al. (2010) and Bae et al. (2012) find there is a clear role for national culture on corporate policies and the strength of firms' corporate governance practices. Drogendijk and Slangen (2006) also show that culture can help explain a company's foreign direct investment decisions. Similarly, it has been shown by Chan et al. (2005) that institutional investors invest in markets that are culturally similar to their home market as they share a common language or are geographically proximate, consistent with a familiarity bias (Huberman, 2001). Aggarwal and Goodell (2014) identify in particular that certain cultural dimensions like uncertainty avoidance are responsible for firms' inability to access external finance. Chui et al. (2010) find that culture drives momentum trading in equity markets. Studies such as these, document that national culture plays an influential role in finance. However,

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there remains a gap in our current understanding on the role of national culture in synchronising international financial markets. We attempt to fill this void.

Our study relates most closely to the literature examining national culture as a determinant of stock market co-movement. It is related to the recent work of Eun et al. (2015) showing that culture is an important factor in determining stock price synchronicity and exerts systematic biases into investor behaviour as reflected in higher stock price synchronicity. Instead, we focus on examining whether cultural proximity is reflected in a higher intensity in volatility linkages. In support of this, Akhtar et al. (2012) have shown that volatility linkages are stronger (more correlated) amongst Islamic assets, suggesting that a shared culture is likely to play a significant role in information transmission and asset pricing. Furthermore, other studies within this area of research have used cultural distance and shared religion as measures of cultural similarity, ultimately enabling them to be identified as factors leading to stock market integration (Lucey and Zhang, 2010). However, the prior literature has not comprehensively examined the role of different cultural dimensions on volatility linkages, as previous studies have only looked at Hofstede's cultural dimensions when examining the effect of cultural distance on stock market correlations.

Additionally, we contribute to the literature addressing volatility linkages across inter-national markets. Cifarelli and Paladino (2008) shows that the flow of information leads to volatility transmission between markets, and there is sufficient evidence of volatility spill-overs across certain markets. However, there is a gap between the culture and volatility linkages literature. To date, culture has not been considered as an influential factor that intensifies volatility linkages between countries. We go a step further by suggesting that the way in which investors interpret information is influenced by their culture, therefore, investors from culturally similar countries would interpret information in similar ways. Hence, volatility will be transmitted from one market to the other given that information transmission across markets leads to volatility linkages between these markets.

The aim of this study is to examine the role of national culture on the intensity of volatility linkages across international markets, with a specific focus on the equity markets. We investigate this relationship by considering a global sample of 49 countries over a period of eight years, from 2003 to 2010. Akin to previous studies, we use Hofstede's (2011) six cultural dimensions power distance index, individualism, masculinity, uncertainty avoidance index, long-term orientation and indulgence versus restraint as the fundamental dimensions of national culture but we aggregate them into a composite cultural distance measure to study the relationship between cultural proximity and volatility linkages. We find that cultural proximity strengthens the information sharing and common investor reactions across equity markets. The effects of culture are stronger in countries with greater bilateral investments and a greater difference in relative openness.

We base our empirical analysis on Hofstede's (1980, 2011) cultural dimensions as prior studies have shown these are important determinants of financial activity. Kogut and Singh (1988) and Lee et al. (2008) also used a cultural distance index based on Hofstede's cultural dimensions to show that culture plays a role in the decision of a how a company would invest and enter a foreign market. They find that the greater the cultural distance between two countries, the less likely it is that a firm would invest significantly without cooperation. Other studies also document an important role for individual cultural dimensions. Recently, Li et al. (2011) examine the relationship between national culture and corporate risk-taking by focusing on three dimensions of culture that have been developed by Schwartz and Hofstede – harmony, individualism and uncertainty avoidance. They show that harmony and uncertainty avoidance are negatively related to a firm's risk-taking, whilst individualism is positively associated even after accounting for other factors. Kwok and Tadesse (2006) show that the financial system adopted by a country is dependent on that country's degree of risk tolerance, which they measure using Hofstede's uncertainty avoidance index. Power distance, individualism and uncertainty avoidance are examined in Aggarwal and Goodell (2010) to investigate the relationship between culture and other institutional factors with the choice of national financing. They find that countries that exhibit a higher degree of uncertainty avoidance are more likely to favour institutions over markets, given the risk associated with participating in the market. Zheng et al. (2012) find that firms located in countries with high uncertainty avoidance, high collectivism, high power distance, and high masculinity tend to use more short-term debt. Chui et al. (2010) find a positively significant relationship between momentum profits and individualism. However, our study is the first attempt to comprehensively examine the association between a comprehensive array of cultural dimensions and commonalities in volatility across markets.

Existing literature suggests that investors tend to invest in countries that would be familiar to them and culturally similar to their home market. French and Poterba (1991) observe that US, Japanese and UK investors do not diversify their portfolios to an extent that allows them to reap the benefits of international diversification. They mention that investors perceive that there is a greater risk in holding foreign equity because they know little about foreign markets, thus resulting in a high degree of home bias. Indeed studies have looked into what factors lead to home bias, and most recently there has been a focus on behavioural explanations. For example, Grinblatt and Keloharju (2001) use familiarity attributes, culture, language and geographical distance, to explain investor preferences in the market by focusing on Finnish firms. Similarly, Amadi (2004) investigates foreign diversification by looking at what drives investor behaviour. He finds that factors such as common language and distance significantly affect international diversification, although the former shows a stronger affect confirming a familiarity bias. Anderson et al. (2011) consider the influence of culture in international diversification by employing five of Hofstede's cultural dimensions. They find that all four dimensions influence home bias, however some dimensions uncertainty avoidance, masculinity and long-term orientation have a stronger effect than others, whilst controlling for other factors that are shown to influence home bias in previous studies. Like-wise, Beugelsdijk and Frijns