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No contagion, only globalization and flight to quality

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A B S T R A C T

In this article, tests for globalization and contagion are separated using an *ex* ante definition of crises, and contagion tests are neutralized with respect to globalization effects. A large database is constructed to study the stability of correlation matrices for four asset classes: equities, government bonds, investment grade corporate bonds, and high-yield corporate bonds, in four geographical zones. Overall, the results confirm the instability of correlations and point to a combination of globalization and flight to quality, while emphasizing that contagion on the equity markets appears as an artifact due to globalization.

1. Introduction

The interdependence of financial markets is a serious concern for investors looking to diversify their portfolios internationally. However, two analytical frameworks exist side by side on this issue. Some see economic globalization, coupled with the growing integration of financial markets, as the main reason for the uptrend in correlations among international stock markets. Others attribute the correlation movements to market contagion during crises.[1]

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[1] The existing definitions of contagion are reviewed by Pericoli and Sbracia (2003). In this paper, we follow Forbes and Rigobon (2002) who define contagion as "*significant increase in cross-market linkages after a shock*". Some authors claim that contagion is driven by fundamentals (Erdorf and Heinrichs, 2011; Kodres and Pritsker, 2002), while others view contagion as created by over-reactions (Broner et al., 2006; Goldstein and Pauzner, 2004). The definition proposed by Forbes and Rigobon (2002) is wide enough to cover both possibilities. Moreover, this definition allows dealing with various types of shocks, which is consistent with the stance taken in this paper.

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On the one hand, the globalization phenomenon, i.e. the general increase of correlations within asset classes and across geographical areas over the past decades, is well documented, both for equities[2] (Berben and Jansen, 2005; Morana and Beltratti, 2008) and for government bonds (Hunter and Simon, 2004). On the other hand, crises can be transmitted to markets other than those in which they originate, leading to a contagion effect. Empirical studies (Billio and Caporin, 2010; Corsetti et al., 2005; De Santis and Gérard, 1997; Hossein and Nossman, 2011; Lin et al., 1994; Wälti, 2003) find that correlations increased in equity markets during hectic periods, pointing to the presence of contagion. However, according to Hartmann et al. (2004), equity markets are twice as likely as bond markets to crash simultaneously.

Besides, correlations across different asset classes are shown to decrease in times of crises, creating potential for diversification through asset allocation (Hunter and Simon, 2004; Smith, 2002). This is particularly the case for correlations between bonds and equities (Connolly et al., 2005). The contrast between the global increase within each asset class and the correlation decrease across asset classes seems to be explained by the effect known as "flight to quality" (Baur and Lucey, 2009; Hartmann et al., 2004; Inci et al., 2011), where investors shift funds towards safer assets, leading to "decoupling": higher correlations within the equity markets but negative correlations between government bonds and equities (Gulko, 2002). The decrease in equity and bond correlations during crises, attributable to flight to quality effects, may be present whether associated or not with contagion.

Contagion can be confused with globalization since both have a tendency to increase correlations among assets, especially during periods of high volatility coupled with bear markets (Chesnay and Jondeau, 2001; Longin and Solnik, 1995, 2001; Silvapulle and Granger, 2001). In a theoretical paper, Calvo and Mendoza (2000) show that globalization may promote contagion by weakening incentives for gathering costly information. On empirical grounds, Forbes and Rigobon (2002) deny the existence of contagion as such. They point to a high level of market co-movement in all periods, not only crises – a phenomenon they refer to as interdependence. Similar results are found by Flavin and Panopoulou (2009). Our paper attempts to go further in dissociating globalization and contagion phenomena by testing them separately while including all financial crises from 1978 to 2010.

Contagion and globalization are not necessarily mutually exclusive, but they are difficult to separate econometrically (Bekaert et al., 2005). One major problem consists in identifying precisely what constitutes a crisis period. For investors, though, the practical consequences will be different depending on whether these developments are attributable to increasing market globalization or to crisis contagion. In the first case, a gradual but unstoppable movement can be expected. In the second, investors will have to be especially careful when international volatility is high, because increased risk will be compounded by a decline in diversification protection. Optimal portfolio management depends on proper identification of the effects at work.

This article makes use of the tests for correlation stability laid down by Jennrich (1970) and refined by Goetzmann et al. (2005) through new advances in asymptotic theory. We propose an original empirical study that is broadly scoped in terms of geographical coverage and asset classes. We abide by established crisis definitions to avoid a personal classification that might be tainted by endogeneity.

Although most research has concentrated on equity markets, we broaden our scope to include government and corporate bonds, the latter being almost completely uncharted in the literature on globalization and contagion.[3] We also distinguish between investment grade (IG) and high yield (HY) bonds, so as to segment bond products according to whether they are primarily dependent on interest rate risk or on default risk. Furthermore, we simultaneously analyze the impact of 16 crises on asset markets between 1978 and 2010. Securities are divided into 15 categories depending on their financial characteristics and geographical zone.

Our results confirm the presence of globalization, with several nuances. In particular, the bond market segments do not appear to be greatly affected. By contrast, contagion effects are not

[2] However, using a new parsimonious risk-based factor model, Bekaert et al. (2009) find no upward trend in stock return correlations, except for the European markets.

[3] with the exceptions of Annaert et al. (2006), Hunter and Simon (2004), and Smith (2002).