

Are crises threatening the benefits?

[Economics](#), [Financial Markets](#)



Are crises threatening the benefits from international portfolio diversification? This essay examines whether rising international stock market correlations during market crises are weakening the efficacy of modern portfolio theory, which promises benefits from international portfolio diversification. The importance of the combining assets that are not perfectly correlated is discussed, as are reasons why we might expect markets to move more closely during crises. If it is clear that markets are moving more closely together during crises, investors are losing diversification benefits at the most critical time.

However, because of assumptions, it is apparent that there is considerable debate over the validity of the correlation coefficient for use in explaining the co-movement of market returns. It may be that markets are moving closely together at all times. Also, over the long run, short term rises in correlations may have negligible effects for the investor. For these reasons, we cannot discredit the worth of international portfolio diversification. The correlation coefficient is a key statistic for devising the optimal portfolio.

In accordance to Modern Portfolio Theory, where risk is to be minimized for a given level of return, the correct combination of assets relies critically on the correlation between those assets. When defining the risk of a portfolio as its standard deviation, when assets that are less than perfectly correlated are combined, the standard deviation of the portfolio is actually less than the weighted average of each individual asset's standard deviation, although the expected return from a portfolio is simply the weighted average of the expected return of each individual asset (Bodie, Kane, Marcus, Perrakis, & Ryan, 2008, p. 08). This is why combining assets with correlations of less

than one (proper diversification) is referred to as a 'free lunch.' It is also apparent that this principle also extends to international portfolio diversification, where market returns are less than perfectly correlated. From examining the correlation data from Table 2, the financial crisis of the late 2000's seems to be yet another example of international stock market correlations rising during bear markets.

The selective correlations of the UK's FTSE 100 Index, Japan's Nikkei 225 Average, and Brazil's Bovespa Index to the S&P 500 come from simple fifteen year data series' on monthly index returns. All correlations were higher from 2008 to March 2009 (the substance of the S&P 500's decline during the financial crisis) relative to correlations for the entire sample period, and even higher relative to correlations for the bull run of 2003-2008. This correlation behaviour may create misgivings for an investor who values his 'free lunch,' and raises the questions: do markets move more closely during crises and why?

When using the correlation coefficient to measure the comovement of market returns, we are making assumptions about the underlying data (stock market returns.) An important assumption is that the underlying data follow a normal distribution. A study by Campbell, Forbes, Koedijk, and Kofman (2007) examined annualized mean return data for five stock indices from 1990-2005 and found that each data set failed to conform to normality, by displaying significant skewness and kurtosis.

They also test conditional correlation estimators under normality and under the student-t distribution, and find that " earlier studies may have overestimated the excess in conditional correlation by assuming bivariate

normality,” and that under the student-t distribution excess conditional correlation ceases for the left tail (bear markets) of returns (para. 4). Furthermore, Forbes and Rigobon (2002) assert that the correlation coefficient is further biased as an estimator of market comovement because of the heteroskedasticity of market return data (volatility changes), while the correlation coefficient assumes homoskedasticity.

They conclude that increases in volatility during crises result in an upward bias in correlation coefficients during those periods. After adjusting for this bias, they find that there is no statistically significant increase in market correlations during crises. They do find that markets comove strongly at all times, which they call “interdependence”(p. 2250). It is important to note that Forbes and Rigobon’s result is not uncontested, and that they also employed their own set of assumptions, and when violated, “correlation coefficients are not always biased measures of dependence when markets become more volatile”(Bartram and Wang, 2005, para. 1). This illustrates the academic uncertainty of dismissing or accepting correlation coefficients as an effective measure of market comovement. It is because of the uncertainty in the literature, and the inherent assumptions of the correlation coefficient, that we cannot strictly conclude, by examining stock market return correlations, that markets move more closely together during crises.

In a study of the comovement of stock market returns during the aforementioned financial crisis, Didier, Love, Soledad, and Peria (2011) provide some insights into why shocks may transmit and manifest in different stock exchanges. They test three possible drivers of market comovement: real linkages through trade; financial linkages, both direct and

indirect, including the actions of international investors with respect to margin calls, risk aversion, and herding; and ‘ demonstration effects’, where investors give new attention to risks that have materialized, and then update valuations.

From their empirical tests, they find that financial variables played the largest role in transmission during the financial crisis of the late 2000’s, while ‘ demonstration effects’ also contributed to increased comovement in the early stages of the crisis. Also, although trade linkages were not found to explain co movement during the period, the authors remind “ this does not mean that they will not play an important role in future crises (as they have in the past)” (p. 2). The drivers of stock market correlation by Didier et al. do provide meaningful explanations of why we might expect markets to move together during crises, but they aren’t all excluded from working in the opposite direction (not just in crises). Assuming market correlations are in fact an unbiased and accurate measure of market comovement during crises, this would result in a significant loss of the benefits of international diversification during downturns.

According to Butler and Joaquin’s (2002) test of an equally weighted portfolio amongst international markets, investors would get an annual return of 2% less than predicted by the normal distribution in extreme bear markets (5% left tail). They conclude that in this case investors may benefit from trying to predict which markets will have near-normal market correlations during bear markets, and then weight their portfolios more heavily in these markets. Is that (potential guesswork) really necessary? According to Asness, Israelov, and Liew (2010) the answer is no, at least if you are a long-term investor.

Asness et al. compare the returns of holding a local portfolio vs. an equal-weight global portfolio, where they find that a global portfolio shows lower short term volatility (for one month and one year averages) but greater skewness where “ simultaneous market crashes cause the global portfolios to experience worse risk adjusted crashes”(p. 6). Over the long run, though, they find that holding a global portfolio provides considerable insulation from local downturns, and the skewness of the global portfolio approaches zero.

They contend that in the long run countries’ market returns are driven by country-specific underlying economic performance, and that international diversification insulates the investor from being exposed to any one underperforming country in concentration. This long run result gets back to the premise of modern portfolio theory, that is, combining assets that aren’t perfectly correlated, or don’t co-move in direct proportions. As we can see, it is hard to discredit the efficacy of international portfolio diversification by strictly examining rising international market correlations.

Because market return data may not conform to the assumptions inherent to the correlation coefficient, there is uncertainty over its usefulness as a measure of market co-movement. Also, if the investor has a long-term horizon, the benefits from international diversification are still strong. References Asness, C. S. , Israelov, R. , & Liew, J. M. (2010). International diversification works (In the long run). SocialScienceResearch Network, n/a. Retrieved from <http://www.retailinvestor.org/pdf/ForDiversify.pdf> Bartram, S. M. , & Wang, Y. H. (2005).

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