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Which way does water flow? An econometric analysis of the global price integration of water stocks

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Abstract

Around US$600 billion of investment is desperately needed to address forecasted huge shortages in water supply globally. A number of worldwide investors – so-called water funds – have started to take up this challenge. For these global water investors, knowledge about the extent of integration between the water sectors of financial markets is highly important. According to international portfolio diversification theory, the less (more) integrated markets are, the more (less) benefits there are from international diversification. In this study, we investigate the extent and manner of interdependence among the US, European and Asian water sector of the equity markets based on Vector Autoregression (VAR), Granger causality and impulse response analyses. We find that world water stock market prices are indeed significantly interdependent although this interdependence varies across time periods. Each market

quickly responds to shocks from each other and completes its response within 3 days. Hence, for water investors, international diversification that is undertaken just within the water sector will not be beneficial. The result also implies that there is the risk of crossmarket contagion – that is, price volatility spill over across water sectors of different financial markets, and therefore, water authorities in one market should take cognisance of events in other markets.

Keywords:

water finance   environmental finance   financial market integration   vector autoregression

variance decomposition   impulse response

JEL Classification::

Q25   C32   G15

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Notes

[1] As argued by Kenen (1976): '… integration refers to the degree to which participants in any market are enabled and obliged to take notice of events occurring in other markets. They are enabled to do so when information about those events is supplied into the decision making processes of recipients. They are obliged to do so when it is supplied in ways that invite them to use it in order to achieve their own objectives …'. This definition therefore implies information spill-over.

[2] The continuous return formula is used as it is well-known to provide more accurate measure of return compared to the discrete formula (Brailsford et al., 2004, p. 9).

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