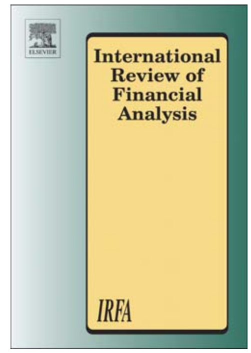


# Relationship between gold and stock markets during the global financial crisis: Evidence from Nonlinear Causality Tests

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# Relationship between gold and stock markets during the global financial crisis: Evidence from Nonlinear Causality Tests

Taufiq Choudhry* Syed S. Hassan** Sarosh Shabi**

*University of Southampton, School of Business, UK
** University of Swansea, School of Management, UK

## Abstract

This paper investigates the nonlinear dynamic co-movements between gold returns, stock market returns and stock market volatility during the recent global financial crisis for the UK (FTSE 100), the US (S&P 500) and Japan (NIKKEI 225). Initially, the bivariate dynamic relationships between i) gold returns and stock market returns and ii) gold returns and stock market volatility are tested; both of these relationships are further investigated in the multivariate nonlinear settings by including changes in the three-month LIBOR rates. In this paper correlation integrals based on the bivariate model show significant evidence of nonlinear feedback effect among the variables during the financial crisis period for all the countries understudy. Very limited evidence of significant feedback is found during the pre-crisis period. Results from the multivariate tests including changes in the LIBOR rates provide results similar to the bivariate results. These results imply that gold may not perform well as a safe haven during the financial crisis period due to the bidirectional interdependence between gold returns and, stock returns as well as stock market volatility. However, gold may be used as a hedge against stock market returns and volatility in stable financial conditions.

*Keywords:*
Gold returns
Stock returns
Stock volatility
LIBOR
Nonlinear causality
JEL Classification: C5, C22, G01, G1, G15

## 1. Introduction

According to Coudert and Raymond (2011) and Tuysuz (2013), during periods of financial crisis, the price of risky financial assets falls almost simultaneously as the losses in