

# The economics of exchange rate volatility asymmetry

Michael McKenzie 

First published: 09 August 2002

<https://doi.org/10.1002/ijfe.189>

Citations: 35

## Abstract

One commonly observed feature of financial market volatility is the presence of asymmetry whereby shocks to the market do not generate equal responses. This phenomenon has been attributed to the leverage effect for stock markets. For exchange rates, asymmetry has also been documented with no economic reason apparent. In this paper, a hypothesis is proposed and tested which attributes the presence of asymmetric responses in exchange rate volatility to the intervention activity of the central bank. Using daily intervention data for the Reserve Bank of Australia, empirical evidence is presented in support of this hypothesis which suggests that intervention may do more harm than good in volatile markets. Copyright © 2002 John Wiley & Sons, Ltd.

## REFERENCES

Ackert LF, Racine MD. 1997. The economics of conditional heteroscedasticity: evidence from Canadian and US stock futures market. *Atlantic Economic Journal* 25: 371–385.

 [Google Scholar](#)

Andrew R, Broadbent J. 1984. Reserve bank operations in the foreign exchange market: effectiveness and profitability. Research Discussion Paper 9406, International Department, Reserve Bank of Australia.

 [Google Scholar](#)

Black F. 1976. Studies of stock price volatility changes. Proceedings of the 1976 Meetings of the Business and Economics Statistics Section, American Statistical Association, 177–181.

 [Google Scholar](#)

Bollerslev T. 1986. Generalised autoregressive conditional heteroscedasticity. *Journal of Econometrics* 31: 307–328.

Bollerslev T, Chou RY, Kroner KF. 1992. ARCH modelling in finance. *Journal of Econometrics* 52: 5–59.

Bollerslev T, Mikkelsen H. 1996. Modelling and pricing long memory in stock market volatility. *Journal of Econometrics* 73: 151–184.

Brailsford T. 1995. Market closures and time varying volatility in the Australian equity market. *Journal of Empirical Finance* 2: 165–172.

Brailsford TJ, Faff RW. 1993. Modelling Australian stock market volatility. *Australian Journal of Management* 18: 109–132.

Byers JD, Peel DA. 1995. Bilinear quadratic ARCH and volatility spillovers in inter-war exchange rates. *Applied Economics Letters* 2: 215–219.

Campbell J, Hentschel L. 1992. No news is good news: an asymmetric model of changing volatility in stock returns. *Journal of Financial Economics* 31: 281–318.

Christie A. 1982. The stochastic behaviour of common stock variances: value, leverage and interest rate effects. *Journal of Financial Economics* 10: 407–432.

Diebold FX, Lopez JA. 1995. Modelling volatility dynamics. In *Macroeconometrics: Developments, tensions and prospects*, KD Hoover (ed.). Kluwer Academic Press: Boston.

Engle RF. 1982. Autoregressive conditional heteroscedasticity with estimates of the variance of United Kingdom inflation. *Econometrica* 50: 987–1007.

Engle RF, Bollerslev T. 1986. Modelling the persistence of conditional variances. *Econometric Reviews* 5: 1–50.

[Google Scholar](#)

Engle RF, Ng V. 1993. Measuring and testing the impact of news on volatility. *Journal of Finance* 48: 1749–1778.

[Web of Science®](#) | [Google Scholar](#)

Frankel JA, Dominguez KM. 1993. Foreign exchange intervention: an empirical assessment. In *On Exchange Rates*, JA Frankel (ed.) MIT Press: Boston, MA.

[Google Scholar](#)

Gannon GL. 1996. Unconditional first and conditional second moment effects: Index portfolios and index futures: Research in Finance Supplement to 1996, Chen AH, Chan KC (eds.) 143–158.

[Google Scholar](#)

Glosten LR, Jagannathan R, Runkle DE. 1993. On the relation between the expected value and the volatility of the nominal excess return on stocks. *Journal of Finance* 48: 1779–1801.

[Web of Science®](#) | [Google Scholar](#)

Henry O. 1998. Modelling the asymmetry of stock market volatility. *Applied Financial Economics* 8: 145–153.

[Web of Science®](#) | [Google Scholar](#)

Hentschel L. 1995. All in the family: nesting symmetric and asymmetric GARCH models. *Journal of Financial Economics* 39: 71–104.

[Web of Science®](#) | [Google Scholar](#)

Hsieh DA. 1989. Modelling heteroscedasticity in daily foreign exchange rates. *Journal of Business and Economic Statistics* 7: 307–317.

[Web of Science®](#) | [Google Scholar](#)

Hu MY, Jiang CX, Tsoukalas C. 1997. The European exchange rates before and after the establishment of the European Monetary System. *Journal of International Financial Markets, Institutions and Money* 7: 235–254.

[Google Scholar](#)

Kam SW. 1995. Heteroscedastic modelling of daily foreign exchange rates with non-normal assumption and day-of-the-week and holiday effects. Discussion Paper No. 186, University of Queensland.

[Google Scholar](#)

---

Kearns P, Pagan AR. 1993. Australian stock market volatility: 1875–1987. *Economic Record* 69: 163–178.

[Web of Science®](#) | [Google Scholar](#) |

---

Kim SJ. 1998. Do Australian and US macroeconomic news announcements affect USD/AUD exchange rate. Some evidence from E-GARCH estimations *Journal of Multinational Financial Management* 8: 233–248.

[Web of Science®](#) | [Google Scholar](#) |

---

Kim SJ. 1999. Do macro-economic news announcements affect the volatility of foreign exchange rates? Some Evidence from Australia. Forthcoming in *Applied Economics*.

[Google Scholar](#) |

---

McClain KT, Humphreys HB, Boscan A. 1996. Measuring risk in the mining sector with ARCH models with important observations on sample size. *Journal of Empirical Finance* 3: 369–391.

[Google Scholar](#) |

---

McKenzie MD, Brooks RD. 1998. Research design issues in time series modelling of financial market volatility. Series in Advance Corporate Finance, Volume 2, McGraw-Hill Publishing Company: Australia.

[Google Scholar](#) |

---

Mansfield P. 1997. The relationship between the trading activities of the Reserve Bank of Australia and movements in the value of the Australian dollar. *International Review of Financial Analysis* 6: 49–61.

[Google Scholar](#) |

---

Murphy J, Hopkins S. 1997. Do interventions contain information? Evidence from the Australian foreign exchange market. *Australian Journal of Management* 22: 199–218.

[Google Scholar](#) |

---

Nelson DB. 1990a. Stationarity and persistence in the GARCH (1,1) model. *Econometric Reviews* 6: 318–334.

[Web of Science®](#) | [Google Scholar](#) |

---

Nelson DB. 1990b. ARCH models as diffusion approximations. *Journal of Econometrics* 45: 7–38.

[PubMed](#) | [Web of Science®](#) | [Google Scholar](#) |

---

Nelson DB. 1991. Conditional heteroscedasticity in asset returns: a new approach: *Econometrica* 59: 347–370.

[Web of Science®](#) | [Google Scholar](#) |

Osterberg WP, Humes RW. 1993. The inaccuracy of newspaper reports of US foreign exchange intervention: Economic Review. Federal Reserve Bank of Cleveland, Fourth Quarter, 25–33.

[Google Scholar](#)

Osterberg WP, Humes RW. 1995. More on the differences between reported and actual US central bank foreign exchange intervention. Federal Reserve Bank of Cleveland Working Papers No. 9501.

[Google Scholar](#)

Pagan AR, Schwert GW. 1990. Alternative models for conditional stock volatility. *Journal of Econometrics* 45: 267–290.

[Web of Science®](#) | [Google Scholar](#)

Rabemananjara R, Zakoian JM. 1993. Threshold ARCH models and asymmetries in volatility. *Journal of Applied Econometrics* 8: 31–49.

[Web of Science®](#) | [Google Scholar](#)

Reserve Bank of Australia. Bulletin. Various issues.

[Google Scholar](#)

Tse YK, Tsui AKC. 1997. Conditional volatility in foreign exchange rates: evidence from the Malaysian Ringgit and Singapore Dollar. *Pacific-Basin Finance Journal* 5: 345–356.

[Google Scholar](#)

Usman AA, Savvides A. 1994. Foreign exchange market intervention and the French Franc–Deutschemark exchange rate. *Journal of International Financial Markets, Institutions and Money* 4: 49–60.

[Google Scholar](#)

Zakoian J-M. 1994. Threshold heteroskedastic models. *Journal of Economic Dynamics and Control* 18: 931–995.

[Web of Science®](#) | [Google Scholar](#)

## **ABOUT WILEY ONLINE LIBRARY**

[Privacy Policy](#)

[Terms of Use](#)

[About Cookies](#)

[Manage Cookies](#)

[Accessibility](#)

[Wiley Research DE&I Statement and Publishing Policies](#)

[Developing World Access](#)

## **HELP & SUPPORT**

[Contact Us](#)

[Training and Support](#)

[DMCA & Reporting Piracy](#)

## **OPPORTUNITIES**

[Subscription Agents](#)

[Advertisers & Corporate Partners](#)

## **CONNECT WITH WILEY**

[The Wiley Network](#)

[Wiley Press Room](#)

Copyright © 1999-2025 John Wiley & Sons, Inc or related companies. All rights reserved, including rights for text and data mining and training of artificial intelligence technologies or similar technologies.

**WILEY**