

# Bibliography of Microstructure of Foreign Exchange Markets\*

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## Abstract

This file provides a bibliography of the literature on the Microstructure of Foreign Exchange Markets. It includes clickable URL- or DOI-links<sup>†</sup> to most of the published papers, and even to some of the working papers. I will add more annotations over time. The B<sub>B</sub>T<sub>E</sub>X database used for this file is available from my homepage.

The references are organized in three sections: 1) Journal papers; 2) Working papers; and 3) Books, book-chapters, PhD dissertations, etc. Journal articles are classified into four subsections. New in this version is a author-index at the end.

## 1 Journal papers

Journal papers are organized in four subsections. The two first subsections attempt to classify empirical papers based on whether they use observations on FX-quantities or primarily FX-prices. The third subsections is for theoretically oriented papers, while the last subsection is for papers that give an overview of the field or FX market and include literature surveys as well as papers with questionnaire evidence.

### 1.1 Quantities

- [1] Ammer, John and Allan D. Brunner. “Are banks market timers or market makers? explaining foreign exchange trading profits”. *Journal of International Financial Markets, Institutions and Money*, 7(1):43–60, 1997. doi:10.1016/S1042-4431(97)00010-3.

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Please email me paper-details, including links to paper (either DOI or URL), if you miss a paper on the list, yours or others. The links should preferably be stable links, e.g., links from IDEAS, SSRN, NBER, CEPR, and other institutions. A special thank goes to Andreas Wettstein, the creator of the L<sup>A</sup>T<sub>E</sub>X package `authorindex`.

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<sup>†</sup>DOI, short for Document Object Identifier, is a system for identifying scientific work in the digital environment, and is supposed to be more stable than URLs. Most publishers identify their journal-articles with DOI's. Any DOI can be resolved into a URL by entering it at <http://dx.doi.org>. See <http://doi.org> for more information. The DOI of a paper can be found by doing a search at <http://www.crossref.org/guestquery/>.

- [2] Berger, David W., Alain P. Chaboud, Sergey V. Chernenko, Edward Howorka, and Jonathan H. Wright. "Order flow and exchange rate dynamics in electronic brokerage system data". *Journal of International Economics*, 75(1):93–109, 2008. doi:10.1016/j.jinteco.2007.10.004.

ANNOTATION: Data: Interbank indirect (Board data set), EBS. Currencies: USDEUR; JPYUSD. Period: Jan 1999 - dec. 2004. Frequency: 1 min to 3 month. Presented at the 1st Annual CB Workshop (BI/NB 05).

- [3] Berger, David W., Alain P. Chaboud, and Erik Hjalmarsson. "What drives volatility persistence in the foreign exchange markets?" *Journal of Financial Economics*, 94(2):192–213, 2009. doi:10.1016/j.jfineco.2008.10.006.

ANNOTATION: Data: Interbank indirect (Board data set), EBS. Currencies: USDEUR; JPYUSD. Period: Jan 1999 - dec. 2004. Frequency: Daily. Presented at the 3rd Annual CB Workshop (MNB 07).

- [4] Bjønnes, Geir H. and Dagfinn Rime. "Dealer behavior and trading systems in foreign exchange markets". *Journal of Financial Economics*, 75(3):571–605, 2005. doi:10.1016/j.jfineco.2004.08.001.

ANNOTATION: Data: D2000-1, D2000-2 and EBS (Bjønnes-Rime dealers, all trades, inventories etc.)

- [5] Bjønnes, Geir H., Dagfinn Rime, and Haakon O.Aa. Solheim. "Liquidity provision in the overnight foreign exchange market". *Journal of International Money and Finance*, 24(2):177–198, 2005. doi:10.1016/j.jimonfin.2004.12.003.

ANNOTATION: Data: End-user, disaggregated, Sveriges Riksbank. Currencies: SEKEUR. Period: 2. jan 1994 - 28. june 2002. Frequency: Daily. Presented at SIFR-workshop in FX microstructure, 03.

- [6] Boyer, M. Martin and Simon van Norden. "Exchange rates and order flow in the long run". *Finance Research Letters*, 3(4):235–243, 2006. doi:10.1016/j.frl.2006.06.002.

ANNOTATION: Data: D2000-1 (Evans-Lyons JIMF 2002 data set)

- [7] Breedon, Francis and Paolo Vitale. "An empirical study of portfolio-balance and information effects of order flow on exchange rates". *Journal of International Money and Finance*, 29(3):504–524, 2010. doi:10.1016/j.jimonfin.2009.07.001.

- [8] Brzeszczynski, Janusz and Michael Melvin. "Explaining trading volume in the euro". *International Journal of Finance and Economics*, 11(1):25–34, 2006. doi:10.1002/ijfe.289.

- [9] Cai, Fang, Edward Howorka, and Jon Wongswan. "Informational linkages across trading regions: Evidence from foreign exchange markets". *Journal of International Money and Finance*, 27(8):1215–1243, 2008. doi:10.1016/j.jimonfin.2007.08.001.

ANNOTATION: Data: EBS (Board data set)

- [10] Cai, Fang, Edward Howorka, and Jon Wongswan. "Transmission of volatility and trading activity in the foreign exchange market". *Journal of International Money and Finance*, 2009. URL <http://www.federalreserve.gov/pubs/ifdp/2006/863/default.htm>. Forthcoming.

ANNOTATION: Data: EBS (Board data set)

- [11] Cai, Jun, Yan-Leung Cheung, Raymond S. K. Lee, and Michael Melvin. "Once-in-a-generation' yen volatility in 1998: Fundamentals, intervention, and order flow". *Journal of International Money and Finance*, **20**(3):327–347, 2001. doi:10.1016/S0261-5606(00)00056-5.

- [12] Cao, H. Henry, Martin D.D. Evans, and Richard K. Lyons. "Inventory information". *Journal of Business*, **79**(1):325–363, 2006. doi:10.1086/497413.

ANNOTATION: Data: D2000-1 (Evans data set)

- [13] Carlson, John A. and Melody Lo. "One minute in the life of the DM/US\$: Public news in an electronic market". *Journal of International Money and Finance*, **25**(7):1090–1102, 2006. doi:10.1016/j.jimonfin.2006.08.005.

ANNOTATION: Data: D2000-2 (LSE 1-week data set)

- [14] Carpenter, Andrew and Jianxin Wang. "Herding and the information content of trades in the Australian dollar market". *Pacific-Basin Finance Journal*, **15**(2):173–194, 2007. doi:10.1016/j.pacfin.2006.06.002.

ANNOTATION: Data: End-user, disaggregated, and interbank, Major Australian bank. Currencies: AUDUSD; USDEUR. Period: 1.may - 3.jul 2002. Frequency: 1 min.

- [15] Carrera, José M. "Speculative attacks to currency target zones: A market microstructure approach". *Journal of Empirical Finance*, **6**(5):555–582, 1999. doi:10.1016/S0927-5398(99)00009-2.

ANNOTATION: Data: Daily Mexican Peso Inventories, order flow and volume (Carrera data set)

- [16] Cerrato, Mario, Nicholas Sarantis, and Alex Saunders. "An investigation of customer order flow in the foreign exchange market". *Journal of Banking and Finance*, 2011. doi:10.1016/j.jbankfin.2010.12.003. Forthcoming.

ANNOTATION: Data:End-user, disaggregated (filtered), UBS. Currencies: EURUSD; JPYUSD; CHFUSD; GBPUSD; AUDUSD; NZDUSD; CADUSD; SEKUSD; NOKUSD. Period: 2. nov 2001 - 23. nov 2007. Frequency: Weekly.

[17] Chaboud, Alain P., Sergey V. Chernenko, and Jonathan H. Wright. "Trading activity and macroeconomic announcements in high-frequency exchange rate data". *Journal of the European Economic Association*, 6(2-3):589–596, 2008. doi:10.1162/JEEA.2008.6.2-3.589.

[18] Chaboud, Alain P. and Blake LeBaron. "Foreign exchange trading volume and federal reserve intervention". *Journal of Futures Markets*, 21:851–860, 2001. doi:10.1002/fut.1904.

[19] Chinn, Menzie D. and Michael J. Moore. "Order flow and the monetary model of exchange rates: Evidence from a novel data set". *Journal of Money, Credit and Banking*, 2011. URL <http://www.nber.org/papers/w14175>. Forthcoming.

ANNOTATION: Data: Interbank indirect, EBS. Currencies: USDEUR; JPYUSD. Period: jan. 1999 - jan. 2007. Frequency: Monthly.

[20] Corsetti, Giancarlo, Paolo Pesenti, and Nouriel Roubini. "What caused the asian currency and financial crisis?" *Japan and the World Economy*, 11:305–373, 1999. doi:10.1016/S0922-1425(99)00019-5.

[21] Daníelsson, Jón and Ryan Love. "Feedback trading". *International Journal of Finance and Economics*, 11(1):35–53, 2006. doi:10.1002/ijfe.286.

ANNOTATION: Data: Interbank indirect (LSE II), Reuters D2000-2. Currencies: USDEUR. Period: 6. oct. 1999 - 24. july 2000. Frequency: 1 min, 5 min. Show that Feedback trading creates an endogeneity problem in aggregated data, and that instrumenting for this OF-impact is even larger.

[22] Daníelsson, Jón, Jinhui Luo, and Richard G. Payne. "Explaining and forecasting exchange rates". *European Journal of Finance*, 2011. Forthcoming.

ANNOTATION: Data: LSE-II. Used to be "Exchange Rate Determination and Inter-Market Order Flow Effects"

[23] Daníelsson, Jón and Richard G. Payne. "Real trading patterns and prices in spot foreign exchange markets". *Journal of International Money and Finance*, 21(2):203–222, 2002. doi:10.1016/S0261-5606(01)00043-2.

ANNOTATION: Data: D2000-2 (LSE 1-week data set)

[24] Daníelsson, Jón and Richard G. Payne. "Measuring and explaining liquidity on an electronic limit order book: Evidence from reuters' d2000-2". *European Journal of Finance*, 2011. Forthcoming.

ANNOTATION: Data: LSE II

[25] Ding, Liang. "Market structure and dealers' quoting behavior in the foreign exchange market". *Journal of International Financial Markets, Institutions and Money*, 18(4):313–325, 2007. doi:10.1016/j.intfin.2007.03.002.

[26] Ding, Liang. "Bid-ask spread and order size in the foreign exchange market: An empirical investigation". *International Journal of Finance and Economics*, **14**(1):98–105, 2009. doi:10.1002/ijfe.365.

[27] Dominguez, Kathryn M.E. and Freyan Panthaki. "What defines 'News' in foreign exchange markets?" *Journal of International Money and Finance*, **25**(1):168–198, 2006. doi:10.1016/j.jimonfin.2005.10.009.

ANNOTATION: Data: Interbank indirect (LSE II), Reuters D2000-2. Currencies: USDEUR; USDGBP. Period: 6. oct. 1999 - 24. july 2000. Frequency: ?

[28] D'Souza, Chris. "Price discovery across geographic locations in the foreign exchange market". *Bank of Canada Review*, 17–25, 2008. URL <http://www.bankofcanada.ca/en/review/spring08/dsouza.pdf>.

[29] D'Souza, Chris. "The role of dealers in providing interday liquidity in the canadian-dollar market". *Bank of Canada Review*, 17–25, 2008. URL <http://www.bankofcanada.ca/en/review/winter08-09/dsouza.pdf>.

[30] Dunne, Peter, Harald Hau, and Michael J. Moore. "International order flows: Explaining equity and exchange rate returns". *Journal of International Money and Finance*, **29**(2):358–386, 2010. doi:10.1016/j.jimonfin.2008.12.012.

ANNOTATION: Data: Interbank indirect, EBS. Currencies: USDEUR. Period: jan 1999 - dec. 1999. Frequency: Daily. Presented at Norges Bank/BI workshop in 2005.

[31] Evans, Martin D.D. "FX trading and exchange rate dynamics". *Journal of Finance*, **57**(6):2405–2447, 2002. doi:10.1111/1540-6261.00501.

ANNOTATION: Data: Interbank direct, Reuters D2000-1. Currencies: DEMUSD. Period: 1. may - 31. aug. 1996. Frequency: 5-minute. Estimate a structural model with GMM which distinguish between Common Knowledge news and Non-Common Knowledge (NCK) news, where order flow is a function of NCK-news. Evans finds that the importance of order flow increases with horizon and trading intensity. CK-news are rarely important.

[32] Evans, Martin D.D. "Order flows and the exchange rate disconnect puzzle". *Journal of International Economics*, **80**(1):58–71, 2010. doi:10.1016/j.jinteco.2009.05.001.

ANNOTATION: Data: End-user, disaggregated, Citibank. Currencies: USDEUR. Period: Jan. 1993 - June 1999. Frequency: Weekly

[33] Evans, Martin D.D. and Richard K. Lyons. "Informational integration and FX trading". *Journal of International Money and Finance*, **21**(6):807–831, 2002. doi:10.1016/S0261-5606(02)00024-4.

ANNOTATION: Data: Interbank direct, Reuters D2000-1. Currencies: DEMUSD; USDGBP; JPYUSD; CHFUSD; FRFUSD; BEFUSD; ITLUSD and NLGUSD . Period: 1. may - 31. aug. 1996. Frequency: Daily.

- [34] Evans, Martin D.D. and Richard K. Lyons. "Order flow and exchange rate dynamics". *Journal of Political Economy*, **110**(1):170–180, 2002. doi:10.1086/324391.

ANNOTATION: Data: Interbank direct, Reuters D2000-1. Currencies: DEMUSD; JPYUSD. Period: 1. may - 31. aug. 1996. Frequency: Daily.

- [35] Evans, Martin D.D. and Richard K. Lyons. "Time-varying liquidity in foreign exchange". *Journal of Monetary Economics*, **49**(5):1025–1051, 2002. doi:10.1016/S0304-3932(02)00124-1.

ANNOTATION: Data: D2000-1 (4 months, 1996). Comments by Hodrick

- [36] Evans, Martin D.D. and Richard K. Lyons. "Do currency markets absorb news quickly?" *Journal of International Money and Finance*, **24**(6):197–217, 2005. doi:10.1016/j.jimonfin.2004.12.004.

ANNOTATION: Data: D2000-1 (4 months, 1996)

- [37] Evans, Martin D.D. and Richard K. Lyons. "Meese-rogooff redux: Micro-based exchange-rate forecasting". *American Economic Review Papers and Proceedings*, **95**(2):405–414, 2005. doi:10.1257/000282805774669934.

ANNOTATION: Data: CitiBank customer order flow

- [38] Evans, Martin D.D. and Richard K. Lyons. "Understanding order flow". *International Journal of Finance and Economics*, **11**(1):3–23, 2006. doi:10.1002/ijfe.287.

- [39] Evans, Martin D.D. and Richard K. Lyons. "How is macro news transmitted to exchange rates?" *Journal of Financial Economics*, **88**(1):26–50, 2008. doi:10.1016/j.jfineco.2007.06.001.

- [40] Fieleke, Norman S. "Foreign-exchange speculation by U.S. firms: Some new evidence". *New England Economic Review*, 5–17, 1979.

- [41] Fieleke, Norman S. "Foreign-currency positioning by U.S. firms: Some new evidence". *Review of Economics and Statistics*, **63**(1):35–42, 1981. doi:10.2307/1924215.

- [42] Francis, Bill B., Iftekhar Hasan, and Delroy M. Hunter. "Dynamic relations between international equity and currency markets: The role of currency order flow". *Journal of Business*, **79**(1):219–258, 2006. doi:10.1086/497417.

- [43] Frömmel, Michael, Alexander Mende, and Lukas Menkhoff. "Order flows, news, and exchange rate volatility". *Journal of International Money and Finance*, **27**(6):994–1012, 2008. doi:10.1016/j.jimonfin.2007.07.002.

- [44] Froot, Kenneth A. and Tarun Ramadorai. "Currency returns, intrinsic value, and institutional-investor flows". *Journal of Finance*, **60**(3):1535–1566, 2005. doi:10.1111/j.1540-6261.2005.00769.x.

ANNOTATION: Data: End-user, State Street. Currencies: 18 currencies against USD. Period: 20. jun 1994 - 9. feb 2001. Frequency: Daily

- [45] Froot, Kenneth A. and Tarun Ramadorai. "Institutional portfolio flows and international investments". *Review of Financial Studies*, **21**(2):937–971, 2008. doi:10.1093/rfs/hhm091.

- [46] Goodhart, Charles A.E., Yuanchen Chang, and Richard G. Payne. "Calibrating an algorithm for estimating transactions from FXFX exchange rate quotes". *Journal of International Money and Finance*, **16**(6):921–930, 1997. doi:10.1016/S0261-5606(97)00013-2.

ANNOTATION: Data: D2000-2, one day in June 1993.

- [47] Goodhart, Charles A.E. and Richard G. Payne. "Microstructural dynamics in a foreign exchange electronic broking system". *Journal of International Money and Finance*, **15**(6):829–852, 1996. doi:10.1016/S0261-5606(96)00044-7.

ANNOTATION: Data: D2000-2 (LSE one-day data set)

- [48] Gradojevic, Nikola. "A market microstructure analysis of the canadian dollar depreciation episodes in the 1990s". *Applied Financial Economics*, **17**(17):1377–1387, 2007. doi:10.1080/09603100601018807.

- [49] Gradojevic, Nikola. "The microstructure of the canada/U.S. dollar exchange rate: A robustness test". *Economics Letters*, **94**(3):426–432, 2007. doi:10.1016/j.econlet.2006.09.001.

ANNOTATION: Data: End-user, disaggregated, and interbank, Bank of Canada. Currencies: CADUSD. Period: Oct 1994 - Dec. 2004. Frequency: Daily.

- [50] Gradojevic, Nikola and Jing Yang. "Non-linear, non-parametric, non-fundamental exchange rate forecasting". *Journal of Forecasting*, **25**(4):227–245, 2006. doi:10.1002/for.986.

ANNOTATION: Data: Bank of Canada customer-data.

- [51] Hartmann, Philipp. "Do reuters spreads reflect currencies' differences in global trading activity?" *Journal of International Money and Finance*, **17**(5):757–784, 1998. doi:10.1016/S0261-5606(98)00024-2.

- [52] Hartmann, Philipp. "Trading volumes and transaction costs in the foreign exchange market. evidence from daily dollar-yen spot data". *Journal of Banking and Finance*, **23**:801–824, 1999. doi:10.1016/S0378-4266(98)00115-0.

ANNOTATION: Data: Tokyo broker volumes (8 years)

- [53] Hau, Harald, William P. Killeen, and Michael J. Moore. "The euro as an international currency: Explaining puzzling first evidence from the foreign exchange markets". *Journal of International Money and Finance*, 21(3):351–383, 2002. doi:10.1016/S0261-5606(01)00041-9.

ANNOTATION: Data: HInterbank indirect, EBS volumes, Reuters FAFX. Currencies: JPYUSD; CHFUSD; DEMUSD; JPYDEM; CHFDEM; US-DEUR; JPYEUR; CHFEUR. Period: jan 1998 - oct 1999. The euro spread debate

- [54] Hau, Harald, William P. Killeen, and Michael J. Moore. "How has the euro changed the foreign exchange market?" *Economic Policy*, 17(34):149–192, 2002. doi:10.1111/1468-0327.00086.

ANNOTATION: Data: Interbank indirect, EBS volumes, Reuters FAFX. Currencies: JPYUSD; CHFUSD; DEMUSD; JPYDEM; CHFDEM; US-DEUR; JPYEUR; CHFEUR. Period: jan 1998 - oct 1999. The euro spread debate.

- [55] Killeen, William P., Richard K. Lyons, and Michael J. Moore. "Fixed versus flexible: Lessons from ems order flow". *Journal of International Money and Finance*, 25(4):551–579, 2006. doi:10.1016/j.jimonfin.2005.11.011.

ANNOTATION: Data: Interbank indirect, EBS; Currency: FFRDEM; Period: Jan- Dec. 1998; Frequency: Daily. Document cointegration between rate-level and cumulative flow, and that this relation is a function of uncertainty.

- [56] King, Michael, Lucio Sarno, and Elvira Sojli. "Timing exchange rates using order flow: The case of the loonie". *Journal of Banking and Finance*, 34(12):2917–2928, 2010. doi:10.1016/j.jbankfin.2010.02.016.

ANNOTATION: Currency: End-user, disaggregated, and interbank, Bank of Canada. Currencies: CADUSD. Period: 19942005. Frequency: Daily

- [57] Lo, Ingrid and Stephen G. Sapp. "The submission of limit orders or market orders: The role of timing and information in the reuters d2000-2 system". *Journal of International Money and Finance*, 27(7):1056–1073, 2006. doi:10.1016/j.jimonfin.2008.05.009.

ANNOTATION: Data: D2000-2 (LSE 99-00 data set)

- [58] Love, Ryan and Richard G. Payne. "Macroeconomic news, order flows and exchange rates". *Journal of Financial and Quantitative Analysis*, 43(2):467–488, 2008. doi:10.1017/S0022109000003598.

ANNOTATION: Data: Interbank indirect (LSE II), Reuters D2000-2. Currencies: USDEUR; USDGBP; GBPEUR. Period: 28. sept 1999 - 24. july 2000. Frequency: 1 min

- [59] Lyons, Richard K. "Tests of microstructural hypothesis in the foreign exchange market". *Journal of Financial Economics*, **39**:321–351, 1995. doi:10.1016/0304-405X(95)00832-Y.

ANNOTATION: Data: Lyons' dealer (D2000-1, broker-traders, inventories, 1992)

- [60] Lyons, Richard K. "Profits and position control: A week of FX dealing". *Journal of International Money and Finance*, **17**(1):97–115, 1998. doi:10.1016/S0261-5606(97)00053-3.

ANNOTATION: Data: Lyons' dealer (D2000-1, broker-traders, inventories, 1992)

- [61] Lyons, Richard K. and Michael J. Moore. "An information approach to international currencies". *Journal of International Economics*, **79**(2):211 – 221, 2009. doi:10.1016/j.jinteco.2009.08.003.

ANNOTATION: Data: Interbank indirect, Reuters D2000-2 and EBS. Currencies: USDEUR. Period: Aug. 2000 - mid-Jan 2001. Frequency: Daily

- [62] Marsh, Ian W. "Order flow and central bank intervention: An empirical analysis of recent bank of japan actions in the foreign exchange market". *Journal of International Money and Finance*, **30**(2):377 – 392, 2011. doi:10.1016/j.jimonfin.2010.10.001.

ANNOTATION: Data: RBS customer data, 1 August 2002 – 2 March 2006.

- [63] McGroarty, Frank, Owain ap Gwilym, and Stephen Thomas. "Microstructure effects, bid-ask spreads and volatility in the spot foreign exchange market pre and post-EMU". *Global Finance Journal*, **17**(1):23–49, 2006. doi:10.1016/j.gfj.2006.06.004.

- [64] McGroarty, Frank, Owain ap Gwilym, and Stephen Thomas. "The components of electronic inter-dealer spot FX bid-ask spreads". *Journal of Business Finance & Accounting*, **34**:1635–1650, 2007. doi:10.1111/j.1468-5957.2007.02051.x.

- [65] McGroarty, Frank, Owain ap Gwilym, and Stephen Thomas. "The role of private information in return volatility, bid-ask spreads and price levels in the foreign exchange market". *Journal of International Financial Markets, Institutions and Money*, **19**(2):387–401, 2009. doi:10.1016/j.intfin.2008.04.001.

ANNOTATION: Data: Interbank indirect, EBS. Period1: 1 August 1998 to 4 September 1999; Currencies1: USD/DEM, USD/JPY, USD/CHF, DEM/JPY and DEM/CHF. Period2: 1 August 1999 to 3 September 1999; Currencies2: EUR/USD, USD/JPY, USD/CHF, EUR/JPY and EUR/CHF; Frequency: 5min.

[66] Melvin, Michael, Lukas Menkhoff, and Maik Schmeling. "Exchange rate management in emerging markets: Intervention via an electronic limit order book". *Journal of International Economics*, **79**(1):54–63, 2009. doi:10.1016/j.jinteco.2009.06.008.

[67] Mende, Alexander. "09/11 on the USD/EUR foreign exchange market". *Applied Financial Economics*, **16**(3):213–222, 2006. doi:10.1080/09603100500386206.

ANNOTATION: Data: End-user and interbank (The Menkhoff-dealer), A small German bank. Currencies: USDEUR. Period: 11. juli 2001 - 09.nov 2001. Frequency: Pr. trade.

[68] Mende, Alexander and Lukas Menkhoff. "Profits and speculation in intraday foreign exchange trading". *Journal of Financial Markets*, **9**(3):223–245, 2006. doi:10.1016/j.finmar.2006.05.003.

ANNOTATION: Data: End-user and interbank, A small German bank. Currencies: USDEUR. Period: 11. juli 2001 - 09.nov 2001. Frequency: Pr. trade. Complete trading records of dealer in a "median-sized" bank (the "Menkhoff-dealer"). Presented at SIFR 03.

[69] Menkhoff, Lukas, Carol L. Osler, and Maik Schmeling. "Limit-order submission strategies under asymmetric information". *Journal of Banking and Finance*, **34**(11):2665–2677, 2010. doi:10.1016/j.jbankfin.2010.05.007.

[70] Menkhoff, Lukas and Maik Schmeling. "Local information in foreign exchange markets". *Journal of International Money and Finance*, **27**(8):1383–1406, 2008. doi:10.1016/j.jimonfin.2007.10.003.

ANNOTATION: Data: Interbank indirect, MICEX. Currencies: RU-RUSD. Period: 11. mar - 21. mar 2002. Frequency: Full orderbook

[71] Menkhoff, Lukas and Maik Schmeling. "Trader see, trader do: How do (small) FX traders react to large counterparties' trades?" *Journal of International Money and Finance*, **29**(7):1283–1302, 2010. doi:10.1016/j.jimonfin.2010.04.001.

ANNOTATION: Presented at the 4th Annual CB Workshop (BIS/HKMA 08). Previously: Learning from post-trade identity disclosure in electronic trading.

[72] Menkhoff, Lukas and Maik Schmeling. "Whose trades convey information? evidence from a cross-section of traders". *Journal of Financial Markets*, **13**(1):101–128, 2010. doi:10.1016/j.finmar.2009.08.001.

[73] Moore, Michael J. and Richard G. Payne. "On the sources of private information in FX markets". *Journal of Banking and Finance*, **35**(5):1250–1262, 2011. doi:10.1016/j.jbankfin.2010.10.013.

ANNOTATION: Data: Interbank indirect, disaggregated, EBS. Currencies: JPYUSD; JPYEUR; CHFUSD; CHF EUR. Period: Aug . 1999. Frequency: 1 sec, daily

[74] Moulton, Pamela C. "You can't always get what you want: Trade-size clustering and quantity choice in liquidity". *Journal of Financial Economics*, **78**(1):89–119, 2005. doi:10.1016/j.jfineco.2004.10.007.

[75] Mutafoğlu, Takvor H. "Impact of net positions in currency futures market on spot exchange rates". *Empirical Economics Letters*, 2010. Forthcoming.

[76] Onur, Esen. "The role of asymmetric information among investors in the foreign exchange market". *International Journal of Finance and Economics*, **13**(4):368–385, 2008. doi:10.1002/ijfe.367.

ANNOTATION: Data: End-user (disagg) flow. Currency: NISUSD (New Israeli Sheqel); Sample: June 2000-June 2006; Frequency: Daily.

[77] Osler, Carol L. "Currency orders and exchange-rate dynamics: Explaining the success of technical analysis". *Journal of Finance*, **58**(5):1791–1819, 2003. doi:10.1111/1540-6261.00588.

ANNOTATION: Data: Royal Bank of Scotland price-contingent orders

[78] Osler, Carol L. "Stop-loss orders and price cascades in currency markets". *Journal of International Money and Finance*, **24**(2):219–241, 2005. doi:10.1016/j.jimonfin.2004.12.002.

ANNOTATION: Data: Royal Bank of Scotland price-contingent orders. Presented at SIFR 03

[79] Osler, Carol L. and Tanseli Savaser. "Extreme returns: The case of currencies". *Journal of Banking and Finance*, 2011. Forthcoming.

[80] Pasquariello, Paolo. "Informative trading or just costly noise? an analysis of central bank interventions". *Journal of Financial Markets*, **10**(2):107–143, 2007. doi:10.1016/j.finmar.2006.11.001.

[81] Payne, Richard G. "Informed trade in spot foreign exchange markets: An empirical investigation". *Journal of International Economics*, **61**(2):307–329, 2003. doi:10.1016/S0022-1996(03)00003-5.

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ANNOTATION: Also NBER 9398. Presented at SIFR 03

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ANNOTATION: Presented at BoC/NB 06

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ANNOTATION: Theory-model based on Bacchetta and van Wincoop (AER, 2006)

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ANNOTATION: Questionnaire survey. See also Taylor and Allen, 1992.

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ANNOTATION: Questionnaire survey. Combined revision of NBER Working Papers 7416 and 7417

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ANNOTATION: Questionnaire survey

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ANNOTATION: Every three years, in april, the BIS coordinates a global central bank survey of foreign exchange and derivatives market activity. In March 1986 the central banks BoE, Fed, BoJ and BoC conducted surveys of their respective markets. Since 1989, the BIS has conducted the survey with a much wider coverage every third year, and the full report is published the year after. The first (1989) was called "Survey of Foreign Exchange Market Activity". From 1992 until 1998 the survey was called (a variant of) "Central Bank Survey of Foreign Exchange and Derivative Market Activity in April 199?". Since 2002 the survey is named "Triennial Central Bank Survey of Foreign Exchange and Derivative Market Activity in 200?". The first three surveys were limited to the foreign exchange markets (1989, 1992, 1995). Subsequently both the foreign exchange and the derivatives markets have been surveyed (1998, 2001, 2004, 2007). For the survey, each participating central bank collects data from the banks and dealers in its jurisdiction and calculates aggregate national data. These are provided to the BIS, which compiles global aggregates. See link for more information. See also the summary papers by Galati.

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ANNOTATION: Survey with special emphasis on the empirical literature

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