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# Moving Averages for Financial Data Smoothing

Conference paper

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## Abstract

For a long time moving averages has been used for a financial data smoothing. It is one of the first indicators in technical analysis trading. Many traders debated that one moving average is better than other. As a result a lot of moving averages have been created. In this empirical study we overview 19 most popular moving averages, create a taxonomy and compare them using two most important factors

- smoothness and lag. Smoothness indicates how much an indicator change (angle) and lag indicates how much moving average is lagging behind the current price. The aim is to have values as smooth as possible to avoid erroneous trades and with minimal lag - to increase trend detection speed. This large-scale empirical study performed on 1850 real-world time series including stocks, ETF, Forex and futures daily data demonstrate that the best smoothness/lag ratio is achieved by the Exponential Hull Moving Average (with price correction) and Triple Exponential Moving Average (without correction).

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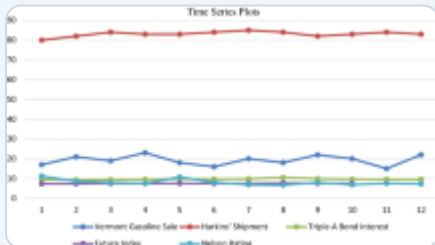
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## References

1. Hamilton, J.D.: Time series analysis, vol. 2. Princeton University Press, Princeton (1994)

[Google Scholar](#)

2. Tan, Z., Quek, C., Cheng, P.Y.K.: Stock trading with cycles: A financial application of ANFIS and reinforcement learning. Expert Systems with Applications 38(5) (2011)

[Google Scholar](#)

3. Perry, J.: Kaufman, New Trading Systems and Methods, 4th edn. John Wiley & Sons (2005)

[Google Scholar](#)

4. Ni, Y.-S., Lee, J.-T., Liao, Y.-C.: Do variable length moving average trading rules matter during a financial crisis period? Applied Economics Letters (2012)

[Google Scholar](#)

5. Marques, N.C., Gomes, C.: Maximus-AI: Using Elman Neural Networks for Implementing a SLMR Trading Strategy. In: Bi, Y., Williams, M.-A. (eds.) KSEM 2010. LNCS, vol. 6291, pp. 579–584. Springer, Heidelberg (2010)

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6. Ruseckas, J., Gontis, V., Kaulakys, B.: Nonextensive Statistical Mechanics Distributions And Dynamics of Financial Observables From The Nonlinear Stochastic Differential Equations. Advances in Complex Systems 15(suppl. 1) (2012)

[Google Scholar](#)

7. Jurgutis, A., Simutis, R.: An investor risk profiling using fuzzy logic-based approach in multi-agents decision support system. In: Proceedings of the 17th International Conference on Information and Software Technologies, Kaunas (2011)

[Google Scholar](#)

8. John, E.: Cybernetic Analysis for Stocks and Futures, pp. 213–227. John Wiley & Sons (2004)

[Google Scholar](#)

9. John, E.: Rocket Science for Traders, 245 pages. John Wiley & Sons (2001)

[Google Scholar](#)

10. Kirkpatrick, C.D., Dahlquist, J.R.: The Complete Resource for Financial Market Technicians, pp. 39-50. Financial Times Press (2006)

[Google Scholar](#)

11. Tillson, T.: Smoothing Techniques For More Accurate Signals. Stocks & Commodities 16, 33-37 (1998)

[Google Scholar](#)

12. Hull, A.: Hull moving average,

[http://www.justdata.com.au/Journals/AlanHull/hull\\_ma.htm](http://www.justdata.com.au/Journals/AlanHull/hull_ma.htm)

13. John, E.: Cybernetic Analysis for Stocks and Futures, pp. 213-227. John Wiley & Sons (2004)

[Google Scholar](#)

14. John, E.: Rocket Science for Traders. John Wiley & Sons (2001)

[Google Scholar](#)

15. Person, P.-O., Strang, G.: Smoothing by Sawitzky-Golay and Legendre filters,

<http://persson.berkeley.edu/pub/persson03smoothing.pdf>

16. Ellis, C.A., Parbery, S.A.: Is smarter better? A comparison of adaptive, and simple moving average trading strategies. Research in International Business and Finance 19(3), 399-411 (2005)

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17. Skurichina, M.: Effect of the kernel functional form on the quality of nonparametric Parzen window classifier. In: Raudys, S. (ed.) Statistical Problems of Control, vol. 93, pp. 167–181. Institute Mathematics and Informatics, Vilnius (1991) (in Russian)

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