UNIVERSITY OF HOHENHEIM

Institute of Financial Management
Dept. of Business Mathematics and Data Science
Prof. Dr. Thomas Dimpfl

Master's Seminar in Finance (5100-511)

"Price Discovery"

Summer Term 2026

The seminar will deal with the fundamental tasks of a market, namely the finding of the efficient price. The topics below are either empirically (A topics) or theoretically (B topics) oriented.

Prerequisites

A topics: This branch requires prior coursework in time-series or financial econometrics, corresponding to the material of 'Time Series Econometrics' or 'Applied Financial Econometrics'.

B topics: This branch requires prior coursework in finance, corresponding to the material in "Trading & Exchanges".

Statistical knowledge is required in both branches.

Elements and Grading

Course requirements include:

1. a short progress report (5 minutes) on your seminar project,
2. a 20–25 minute oral presentation of your seminar paper with subsequent discussion,
3. the preparation and submission of a written seminar paper (approx. 7500 to 8500 words, 11pt font, 1.5 linespacing).

Grading will be based on the final seminar paper (60%), the final presentation of the seminar paper (30%), and the interim short presentation (10%).

Schedule

The seminar will be structured as follows:

1. Application for seminar participation is open until **8 April 2026 12:00 noon**
2. In-person kick-off meeting for seminar participants: **8 April 2026 16:15** (HS 36).
3. Final deadline for submitting the mandatory seminar paper outline: **15 April 2026**.
4. Short progress report (zoom-meeting): **21 May 2026**. Zoom link is available here. ATTENDANCE IS COMPULSORY!
5. In-person seminar presentations are scheduled for **10 July 2026 starting at 10:00**. Two days before this date (08.07.2026 12 noon), the slides for the presentation have to be submitted. Note that at this stage, no final seminar paper is required. ATTENDANCE IS COMPULSORY!
6. Deadline for the submission of the final seminar paper: **31 July 2026 12:00 noon**.

Application for seminar participation

Students interested in participating in the seminar should write an email to `datascience@uni-hohenheim.de` accompanied by a current transcript of records.

A detailed list of topics will be made available in due course.

Topics from two main areas are available:

- Area A: empirical topics
- Area B: theoretical topics

Topics Area A:

For the empirical analysis, you have to choose a methodology and a suitable dataset. Price discovery is usually motivated by the law of one price and therefore you should try to think of price relationships that are relevant. Examples are spot and future relationships, prices of related commodities (crude oil and petrol).

A.1 Joel Hasbrouck (1995). "One Security, Many Markets: Determining the Contributions to Price Discovery". In: *The Journal of Finance* 50.4, S. 1175–1199
This is the workhorse in price discovery and builds the foundation for numerous other measures and applications. The price discovery measure is calculated from a particular variance decomposition in a vector error correction model.

A.2 Michael Flad und Robert C. Jung (2008). "A common factor analysis for the US and the German stock market in overlapping trading hours". In: *Journal of International Financial Markets, Institutions and Money* 18.5, S. 498–512

Flad und Jung (2008) do not propose their own measure, but nicely describe the application of the measures proposed by Gonzalo und Granger (1995) and **Kasa**. The measure rely on the adjustment coefficients and the cointegrating vectors, respectively.

A.3 Thomas Dimpfl und Franziska J. Peter (2013). "Using transfer entropy to measure information flows between financial markets". In: *Studies in Nonlinear Dynamics & Econometrics* 17.1, S. 85–102. DOI: 10.1515/snde-2012-0044 We proposed a different approach to measure price discovery based on transfer entropy.

A.4 Donald Lien und Keshab Shrestha (2009). "A new information share measure". In: *Journal of Futures Markets* 29.4, S. 377–395 Lien und Shrestha (2009) propose a different decomposition of the covariance matrix compared to Hasbrouck 1995 and, thus, come up with their modified information share.

A.5 Tālis J. Putniņš (2013). "What do price discovery metrics really measure?" In: *Journal of Empirical Finance* 23, S. 68–83. ISSN: 0927-5398. DOI: https://doi.org/10.1016/j.jempfin.2013.05.004 Putniņš 2013 proposes a correction of Hasbrouck's price discovery measure

A.6 Jianxin Wang und Minxian Yang (2011). "Housewives of Tokyo versus the gnomes of Zurich: Measuring price discovery in sequential markets". In: *Journal of Financial Markets* 14.1, S. 82–108 J. Wang und Yang (2011) consider a sequential price discovery market instead of Hasbrouck's parallel market setup.

A.7 Jian-Xin Wang, Minxian Yang und Qi Zhang (2021). "Measuring Common and Market-Specific Information Flows". In: *SSRN Electronic Journal*. ISSN: 1556-5068. DOI: 10.2139/ssrn.3980198 The authors also consider a sequential market with a common information component.

Topics Area B:

The following papers are either extensions or alternatives to the price discovery methodology proposed by Hasbrouck (1995). For topic area B, you have to choose one of these papers and compare the model, the setup, and the resulting price discovery measure to the basic model of Hasbrouck (1995). In addition, you have to select another empirical paper (not from this list) that uses the adapted methodology. In particular, you have to motivate why the adaption is superior to the basic setting.

B.1 Thomas Dimpfl und Franziska J. Peter (2016). "Price discovery in the markets for credit risk: A Markov switching approach". In: *Studies in Nonlinear Dynamics & Econometrics* 20.3, S. 233–249. DOI: 10.1515/snde-2015-0032

B.2 Thomas Dimpfl und Karsten Schweikert (2023). "Information shares for markets with partially overlapping trading hours". In: *Journal of Banking & Finance* 154, S. 106970. DOI: 10.1016/j.jbankfin.2023.106970

B.3 Frederick H. deB. Harris, Thomas H. McInish und Robert A. Wood (Juli 2002). "Security price adjustment across exchanges: an investigation of common factor components for Dow stocks". In: *Journal of Financial Markets* 5.3, S. 277–308. ISSN: 1386-4181. DOI: 10.1016/s1386-4181(01)00017-9 to explain Jesus Gonzalo und Clive Granger (1995). "Estimation

of Common Long-Memory Components in Cointegrated Systems". In: *Journal of Business & Economic Statistics* 13.1, S. 27–35

B.4 Joachim Grammig und Franziska J. Peter (2013). "Telltale Tails: A New Approach to Estimating Unique Market Information Shares". In: *Journal of Financial and Quantitative Analysis* 48.2, S. 459–488. DOI: 10.1017/S0022109013000215

B.5 Kenneth Kasa (1992). "Common stochastic trends in international stock markets". In: *Journal of Monetary Economics* 29.1, S. 95–124

B.6 Konstantin Kuck und Karsten Schweikert (Apr. 2023). "Price discovery in equity markets: A state-dependent analysis of spot and futures markets". In: *Journal of Banking & Finance* 149, S. 106808. DOI: 10.1016/j.jbankfin.2023.106808

B.7 Tālis J. Putniņš (2013). "What do price discovery metrics really measure?" In: *Journal of Empirical Finance* 23, S. 68–83. ISSN: 0927-5398. DOI: https://doi.org/10.1016/j.jempfin.2013.05.004

The following papers are general comments and discussions on cointegration and methodology. If you choose one of these papers, you still have to see where the relation to the fundamental paper of Hasbrouck (1995) lies. In addition, you have to select an empirical paper (not from this list) that uses the methodology (maybe in a wrong way). In particular, you have to show where the issues lie and how they should be addressed better.

8. Thomas Dimpfl (2014). "A Note on Cointegration of International Stock Market Indices". In: *International Review of Financial Analysis* 33, S. 10–16. DOI: 10.1016/j.irfa.2013.07.005

9. Bingcheng Yan und Eric Zivot (2010). "A Structural Analysis of Price Discovery Measures". In: *Journal of Financial Markets* 13.1, S. 1–19. DOI: doi.org/10.1016/j.finmar.2009.09.003