Gilbert, Aaron; Tourani Rad, Alireza; Wisniewski, Tomasz Piotr

Working Paper

The relationship between insider trading and volume-induced return autocorrelation

The Postgraduate Research Programme working paper series / Europa-Universität Viadrina Frankfurt (Oder), Graduiertenkolleg "Kapitalmärkte und Finanzwirtschaft im erweiterten Europa", No. 2005,9

Provided in cooperation with:

Europa-Universität Viadrina Frankfurt (Oder)

The Relationship between Insider Trading and Volume-Induced Return Autocorrelation

Abstract

As was established in Llorente et al. (2001) the dynamic relationship between return and volume is a function of information asymmetry. This study extends their analysis by linking the volume-induced return autocorrelation coefficients with the level of disclosed insider trading. Using New Zealand data, we document a strong link between the sustainability of trade-generated price changes and the extent of insider trading. This relationship is robust to alternative econometric specifications and remains significant even after controlling for conventional measures of information asymmetry such as bid-ask spreads, size and analyst following. This suggests that volume-induced autocorrelation may be a suitable criterion on which to rank firms on the level of private information trading.

JEL Classification: C22, G14
Keywords: Insider trading, return autocorrelation

Aaron Gilbert
Waikato Management School
University of Waikato
Private Bag 3105
Hamilton, New Zealand
E-mail: abg1@waikato.ac.nz

Alireza Tourani-Rad*
Waikato Management School
University of Waikato
Private Bag 3105
Hamilton, New Zealand
Telephone: (64) 838 4559
Email: tourani@waikato.ac.nz

Tomasz P. Wisniewski
European University Viadrina
Department of Finance
P.O. 1786
15207 Frankfurt (Oder), Germany
Telephone (49 335) 55342987
E-mail: wisniewski@euv-frankfurt-o.de

* Corresponding author.

I. Introduction

Llorente, Michaely, Saar, and Wang (2001, henceforth LMSW) develop a theoretical model with heterogeneously informed agents to show that the return-volume dynamic of individual stocks is governed by the degree of informational asymmetry. In particular, the stocks with a high proportion of private information trading volume exhibit return continuations, whereas stocks in which investors trade predominantly for portfolio rebalancing reasons have a negative volume-induced return autocorrelation. The rationale behind this result is that whenever an insider exploits nonpublic information by trading in securities, prices will partially reflect the information before it is announced, i.e. the price impact of an insider trade will be permanent. Conversely, dealings driven by allocational motives tend to generate return reversals. The stock price will initially move in the direction of the hedging transaction in order to encourage other market participants to take the other side. However, since the trade does not reflect any superior knowledge of future payoffs the stock price is likely to rebound in the next period. By conditioning on volume, the LMSW model isolates the aforementioned impact of trading on serial correlations of returns.

LMSW perform a cross-sectional regression analysis of the trade-generated first-order autocorrelation coefficient and provide persuasive evidence that its magnitude can be successfully explained by the standard informational asymmetry proxies such as capitalization, bid-ask spreads and analyst following. In a related paper, Grishchenko, Litov and Mei (2002) examined market index constituents from

18 emerging markets and concluded that stocks in countries that enforce insider trading laws and provide better investor protection exhibit less return continuation following high volume days. It has to be noted, however, that the dichotomous variable for a successful prosecution on insider trading charges used in their study is a rather indirect measure of the degree of speculative trading based on private information. The authors were unable to develop a more explicit proxy due to a lack of data. It is our intention to empirically expand on the model of LMSW by explicitly including insider transactions into the model. Specifically, the analysis focuses on the corporate insider trading reports filed with the New Zealand Stock Exchange (NZSE)[1] and investigates the relationship between the degree of insider trading and volume-induced autocorrelations.

The remainder of the paper is organized as follows. The following section describes the sample and variable construction. Section 3 outlines the methodology and provides empirical results. Section 4 concludes the paper.

2. Data

The sample employed in this study was drawn from companies listed on the NZSE between January 1995 and December 2003 for which insider trades could be collected. This resulted in a sample of 83 companies, 577 firm-years and 3031 insider trades. Information on insider transactions came from the NZSE and company annual reports. Data on company prices, volume, bid-ask spreads and market capitalization were collected from Thompson Financial Datastream while analyst following data came from Datex. The analyst following data, however, was

[1] Insiders, defined as directors, substantial shareholders and executives, are required to disclose changes in their shareholdings under the Securities Market Act 1988 and Securities Market Amendment Act 2002. For more information on the institutional setting of insider trading in New Zealand we would refer the reader to Eterbari, Tourani-Rad and Gilbert (2004).

only available from 1997 necessitating a smaller sample be used in some specifications.

The insider trading variable is defined as the absolute value of net insider trading volume (volume of purchases minus volume of sales) scaled by the total volume of trading in a given company-year (as consistent with the reasoning of John and Lang (1991), Lustgarten and Mande (1995) and Roulstone (2003)). Scaling by the total volume follows directly from the LMSW model which predicts that the relation between the volume-induced return autocorrelation and the significance of speculative trades relative to hedging trades is monotonic.

[Table 1 about here]

The market value of equity for our sample is distributed with an arithmetic mean of NZ$520 million and a median of only NZ$82 million, indicating that the sample comprises both the smallest and largest firms listed on the NZSE. The Bid-Ask spread has a mean of 4.31% and a median of 2.44%. The relatively high magnitude of spreads is likely attributable to the poor liquidity of the New Zealand market. To reduce the excess skewness in these two variables a log transformation of the data was used. There was at least one analyst following a company in 51% of the firm-years and in total 60% of the firms were followed in at least one year. The disclosed trades of insiders make up 4.4% of the total volume traded and 2.9% of the volume traded each year appears to be informed trading by insiders. The summary statistics for the variables employed in our study are shown in Table 1.

The cross sectional correlations between variables are also presented. While neither size nor analysts following is significantly related to insider trading, its association with bid-ask spreads is positive and statistically significant. This conforms with the well-established finding that market makers increase spreads in

response to active insider trading in order to avoid considerable losses (Glosten and Milgrom (1985), Kyle (1985) and Copeland and Galai (1988)). Furthermore, the information asymmetry proxies are strongly interrelated in the expected directions. Larger companies and companies with smaller bid-ask spreads for instance are covered by more analysts while size and bid-ask spreads are inversely related.

3. Methodology and Empirical Findings

To calculate the value of trade-generated return autocorrelation we apply two LMSW empirical specifications, the second of which removes the impact of market-wide variations from the analysis:

$$R_{i,t+1} = C_0 + C_1 R_{i,t} + C_2 R_{i,t} V_{i,t} + e_{i,t+1} \quad [1]$$

$$R_{i,t+1} = C_0 + C_1 R_{i,t} + C_2 R_{i,t} V_{i,t} + C_3 R_{m,t+1} + e_{i,t+1} \quad [2]$$

where $R_{i,t}$ and $R_{m,t}$ denote the continuously compounded return on security i and the NZSE ALL index on day t, respectively. $V_{i,t}$ is the log, detrended turnover at date t, such that

$$V_{i,t} = \ln((Vol_{i,t} / N_{i,t}) + c) - (1/200) \sum_{j=1}^{200} \ln((Vol_{i,t-j} / N_{i,t-j}) + c)$$

where $Vol_{i,t}$ and $N_{i,t}$ are the number of shares traded and the total number of shares outstanding on day t for company i, respectively. Following LMSW we add a small constant $c = 0.0000025$ to the turnover ratio in order to avoid the problem of zero trading volume days. The detrending procedure accounts for the fact that daily turnover series tend to be nonstationary.

The parameter of interest, C_2, has been deemed to indicate whether the trading is dominated by portfolio rebalancing or private information trades. To verify this assertion we estimate the C_2 coefficient for each of the firm-years available in

sample and regress it on the insider trading variable and information asymmetry proxies. The findings are reported below.

[Table 2 about here]

The results in Table 2 Panel A examine the relationship between insider trading and volume-induced return autocorrelation measured by the C_2 coefficient from equation [1]. The results show a significant relationship between the insider trading variable and the regressant indicating that the C_2 coefficients increase monotonically with the degree of speculative trading on non public information. This supports the prediction of Lorente et al (2001) that positive C_2 coefficients are symptomatic of prevalent private information trading. The robustness of the results to inclusion of other information asymmetry variables is verified in specifications (2), (3) and (4). Since all the informational asymmetry measures are highly cross-correlated they are not bundled together into one regression due to potential multicolinearity problems. Insider trading retains its predictive power in all of the models considered, however, inclusion of bid-ask spreads or analyst following reduces its significance level. This could be due to the fact that bid-ask spreads partially reflect the degree of informed trading and analysts condition their investment decisions on the subset of information available to insiders.

Panel B in Table 2 presents the determinants of the C_2 coefficient from a model incorporating the overall movement of the market. This specification takes into account a possible cross equation correlation of errors arising from sensitivity to common factors. The magnitude and statistical significance of the coefficients is directly comparable with the findings reported in Panel A. Moreover, the sensitivity of results to the exclusion of outliers has been examined by eliminating observations for which the absolute value of the fitted residual exceeded three times the estimated

residual standard deviation. The results were not materially altered. Lastly, we retest the model using an alternative definition of volume, where volume is defined as (ln(1+number of shares traded))^2. This specification reduces the discrepancy between the theoretical and empirical representation of the LMSW model. The use of alternative volume definition, however, does not affect the conclusions drawn.

IV. Conclusions

This study investigated the connection between volume-induced return autocorrelation and the relative significance of private information trading versus trading for portfolio rebalancing reasons. Insider transactions disclosed to the NZSE have been used to construct a measure of informed trading prevalence. The findings validate the theoretical predictions of the LMSW model in that the return continuations following high volume days appear to be more likely for stocks with high degree of insider dealing. Consequently, the volume-induced autocorrelation coefficient could be helpful in identifying periods in which ordinary shareholders are at a great disadvantage, especially in markets in which insiders are not required to report their transactions.

References

Copeland, T. and D. Galai (1988) Information Effects and the Bid-Ask Spread, Journal of Finance, 38, 1457-1469.

Etebari, A., Tourani-Rad, A., and A. Gilbert (2004) Disclosure Regulations and Profitability of Insider Trading: Evidence from New Zealand, forthcoming Pacific Basin Finance Journal.

Glosten, L. and P. Milgrom (1985) Bid, Ask and Transaction Prices in a Specialist Market with Heterogeneously Informed Traders, Journal of Financial Economics, 14, 71-100.

Grishchenko, O.V., Litov, L.P. and J. Mei (2002) Measuring Private Information Trading in Emerging Markets, Working Paper, NYU Department of Finance.

John, K. and L. Lang (1991) Insider Trading around Dividend Announcements, Journal of Finance, 46, 1361-1389.

Kyle, A. (1985) Continuous Auctions and Insider Trading, Econometrica, 53, 1315-1335.

Llorente, G., Michaely, R., Saar, G. and J. Wang (2002) Dynamic Volume-Return Relation of Individual Stocks, Review of Financial Studies, 15, 1005-1047.

Lustgarten, S. and V. Mande (1995) Financial Analysts' Earnings Forecasts and Insider Trading, Journal of Accounting and Public Policy, 14, 233-261.

Roulstone, D.T. (2003) Insider Trading and the Information Content of Earnings Announcements, Working Paper, University of Chicago GSB.

White, H. (1980) A Heteroscedastic-consistent Covariance Matrix Estimator and a Direct Test for Heteroscedasticity, Econometrica, 48, 817-838.

Table 1

Summary Statistics

Variable	Mean	Median	Standard Deviation	Cross-Sectional Correlations		
				Size	Analysts	BAS
INS	0.0292	0.0016	0.0876	0.0055 (0.8951)	-0.0159 (0.7327)	0.1265 (0.0023)
Size	11.3934	11.3097	1.8252	_	0.6729 (0.0000)	-0.8073 (0.0000)
Analysts	2.7909	1.0000	3.2982	_	_	-0.6380 (0.0000)
BAS	-3.6499	-3.7146	0.9475	_	_	_

Note - The p-values are shown in parentheses. INS is the absolute value of net insider trading volume (volume of purchases minus volume of sales) scaled by the total volume of trading in a given company-year. Size is the natural logarithm of the average market value of equity during a given firm-year. Analysts is the number of analyst forecasts available for a company at the end of a calendar year. BAS is the natural logarithm of the average bid-ask spread during a given firm-year.

Table 2

Empirical determinants of the C_2 coefficient

Panel A: Regressions on the Volume-Induced Return Autocorrelation Coefficient					
Variable	Predicted Sign	(1)	(2)	(3)	(4)
Intercept		-0.0012 (0.0035)	0.0960*** (0.0278)	0.0162*** (0.0046)	0.0510*** (0.0156)
INS	+	0.0745** (0.0343)	0.0755** (0.0314)	0.0602* (0.0316)	0.0551* (0.0304)
Size	-	–	-0.0085*** (0.0025)	–	–
Analysts	-	–	–	-0.0069*** (0.0014)	–
BAS	+	–	–	–	0.0142*** (0.0044)
Adj. R-squared		0.68%	4.23%	7.19%	3.17%
No. of obs.		577	577	577	464
Panel B: Regressions on the Market- Adjusted Volume-Induced Return Autocorrelation Coefficient					
Variable	Predicted Sign	(1)	(2)	(3)	(4)
Intercept		-0.0016 (0.0036)	0.0927*** (0.0285)	0.0145*** (0.0046)	0.0482*** (0.0158)
INS	+	0.0727** (0.0341)	0.0737** (0.0313)	0.0588* (0.0317)	0.0542* (0.0304)
Size	-	–	-0.0083*** (0.0026)	–	–
Analysts	-	–	–	-0.0064*** (0.0014)	–
BAS	+	–	–	–	0.0135*** (0.0045)
Adj. R-squared		0.46%	3.89%	6.08%	3.17%
No. of obs.		577	577	577	464

Note - ***, **, * indicate significance at the 1%, 5%, and 10% level, respectively.
The White (1980) heteroscedasticity consistent standard errors are shown in parentheses. INS is the absolute value of net insider trading volume (volume of purchases minus volume of sales) scaled by the total volume of trading in a given company-year. Size is the natural logarithm of the average market value of equity during a given firm-year. Analysts is the number of analyst forecasts available for a company at the end of a calendar year. BAS is the natural logarithm of the average bid-ask spread during a given firm-year.

Postgraduate Research Programme
"Capital Markets and Finance in the Enlarged Europe"
Working Paper Series

2001

- The Problem of Optimal Exchange Rate Systems for Central European Countries, Volbert Alexander, No. 1/2001.
- Reaktion des deutschen Kapitalmarktes auf die Ankündigung und Verabschiedung der Unternehmenssteuerreform 2001, Adam Gieralka und Agnieszka Drajewicz, *FINANZ BETRIEB*.
- Trading Volume and Stock Market Volatility: The Polish Case, Martin T. Bohl und Harald Henke, *International Review of Financial Analysis*.
- The Valuation of Stocks on the German „Neuer Markt" in 1999 and 2000, Gunter Fischer, *FINANZ BETRIEB*.
- Privatizing a Banking System: A Case Study of Hungary, István Ábel und Pierre L. Siklos, *Economic Systems*.
- Periodically Collapsing Bubbles in the US Stock Market?, Martin T. Bohl, *International Review of Economics and Finance*.
- The January Effect and Tax-Loss Selling: New Evidence from Poland, Harald Henke, *Eurasian Review of Economics and Finance*.
- Forecasting the Exchange Rate. The Model of Excess Return Rate on Foreign Investment, Michal Rubaszek und Dobromil Serwa, *Bank i Kredyt*.

2002

- The Influence of Positive Feedback Trading on Return Autocorrelation: Evidence for the German Stock Market, Martin T. Bohl und Stefan Reitz, in: Stephan Geberl, Hans-Rüdiger Kaufmann, Marco Menichetti und Daniel F. Wiesner, Hrsg., *Aktuelle Entwicklungen im Finanzdienstleistungsbereich,* Physica-Verlag, Heidelberg.
- Tax Evasion, Tax Competition and the Gains from Nondiscrimination: The Case of Interest Taxation in Europe, Eckhard Janeba und Wolfgang Peters, *The Economic Journal*.
- When Continuous Trading is not Continuous: Stock Market Performance in Different Trading Systems at the Warsaw Stock Exchange, Harald Henke, No. 3/2002.

- Redistributive Taxation in the Era of Globalization: Direct vs. Representative Democracy, Silke Gottschalk und Wolfgang Peters, *International Tax and Public Finance*.
- Sustainability of Public Finances at the State Level: Indicators and Empirical Evidence for the German Länder, Helmut Seitz, No. 5/2002.
- Structure and Sources of Autocorrelations in Portfolio Returns: Empirical Investigation of the Warsaw Stock Exchange, Bartosz Gebka, *International Review of Financial Analysis*.
- The Overprovision Anomaly of Private Public Good Supply, Wolfgang Buchholz und Wolfgang Peters, *Journal of Economics*.
- EWMA Charts for Monitoring the Mean and the Autocovariances of Stationary Processes, Maciej Rosolowski und Wolfgang Schmid, *Sequential Analysis*.
- Distributional Properties of Portfolio Weights, Yarema Okhrin und Wolfgang Schmid, *Journal of Econometrics*.
- The Present Value Model of US Stock Prices Redux: A New Testing Strategy and Some Evidence, Martin T. Bohl und Pierre L. Siklos, *Quarterly Review of Economics and Finance*.
- Sequential Methods for Detecting Changes in the Variance of Economic Time Series, Stefan Schipper und Wolfgang Schmid, *Sequential Analysis*.
- Handelsstrategien basierend auf Kontrollkarten für die Varianz, Stefan Schipper und Wolfgang Schmid, *Solutions*.
- Key Factors of Joint-Liability Loan Contracts: An Empirical Analysis, Denitza Vigenina und Alexander S. Kritikos, *Kyklos*.
- Monitoring the Cross-Covariances of Multivariate Time Series, Przemyslaw Sliwa und Wolfgang Schmid, *Metrika*.
- A Comparison of Several Procedures for Estimating Value-at-Risk in Mature and Emerging Markets, Laurentiu Mihailescu, No. 15/2002.
- The Bundesbank's Inflation Policy and Asymmetric Behavior of the German Term Structure, Martin T. Bohl und Pierre L. Siklos, *Review of International Economics*.
- The Information Content of Registered Insider Trading Under Lax Law Enforcement, Tomasz P. Wisniewski und Martin T. Bohl, *International Review of Law and Economics*.
- Return Performance and Liquidity of Cross-Listed Central European Stocks, Piotr Korczak und Martin T. Bohl, *Emerging Markets Review*.

2003

- When Continuous Trading Becomes Continuous, Harald Henke, *Quarterly Review of Economics and Finance*.
- Volume Shocks and Short-Horizon Stock Return Autocovariances: Evidence from the Warsaw Stock Exchange, Bartosz Gebka, *Applied Financial Economics*.
- Institutional Trading and Return Autocorrelation: Empirical Evidence on Polish Pension Fund Investors' Behavior, Bartosz Gebka, Harald Henke und Martin T. Bohl, *Global Finance Journal*.
- Insiders' Market Timing and Real Activity: Evidence from an Emerging Market, Tomasz P. Wisniewski, in: S. Motamen-Samadian, Hrsg., Risk Management in Emerging Markets (3), Palgrave Macmillan, New York.
- Financial Contagion Vulnerability and Resistance: A Comparison of European Capital Markets, Dobromil Serwa und Martin T. Bohl, *Economic Systems*.
- A Sequential Method for the Evaluation of the VaR Model Based on the Run between Exceedances, Laurentiu Mihailescu, *Allgemeines Statistisches Archiv*.
- Do Words Speak Louder Than Actions? Communication as an Instrument of Monetary Policy, Pierre L. Siklos und Martin T. Bohl, No. 7/2003.
- Die Aktienhaussen der 80er und 90er Jahre: Waren es spekulative Blasen?, Martin T. Bohl, *Kredit und Kapital*.
- Institutional Traders' Behavior in an Emerging Stock Market: Empirical Evidence on Polish Pension Fund Investors, Svitlana Voronkova und Martin T. Bohl, *Journal of Business Finance and Accounting*.
- Modelling Returns on Stock Indices for Western and Central European Stock Exchanges - a Markov Swiching Approach, Jedrzej Bialkowski, *South-Eastern Journal of Finance*.
- Instability in Long-Run Relationships: Evidence from the Central European Emerging Stock Markets, Svitlana Voronkova, *International Review of Financial Analysis*.
- Exchange Market Pressure and Official Interventions: Evidence from Poland, Szymon Bielecki, No. 12/2003.
- Should a Portfolio Investor Follow or Neglect Regime Changes? Vasyl Golosnoy und Wolfgang Schmid, No. 13/2003.
- Sequential Monitoring of the Parameters of a One-Factor Cox-Ingersoll-Ross Model, Wolfgang Schmid und Dobromir Tzotchev, *Sequential Analysis*.
- Consolidation of the Polish Banking Sector: Consequences for the Banking Institutions and the Public, Olena Havrylchyk, *Economic Systems*.

- Do Central Banks React to the Stock Market? The Case of the Bundesbank, Martin T. Bohl, Pierre L. Siklos und Thomas Werner, No. 16/2003.
- Reexamination of the Link between Insider Trading and Price Efficiency, Tomasz P. Wisniewski, *Economic Systems*.
- The Stock Market and the Business Cycle in Periods of Deflation, (Hyper-) Inflation, and Political Turmoil: Germany 1913 – 1926, Martin T. Bohl und Pierre L. Siklos, in: Richard C. K. Burdekin und Pierre L. Siklos, Eds., *Deflation: Current and Historical Perspectives,* Cambridge University Press, Cambridge.
- Revision Policy for the Two Assets Global Minimum Variance Portfolio, Vasyl Golosnoy, No. 19/2003.
- Price Limits on a Call Auction Market: Evidence from the Warsaw Stock Exchange, Harald Henke und Svitlana Voronkova, *International Review of Economics and Finance*.
- Efficiency of the Polish Banking Industry: Foreign versus Domestic Banks, Olena Havrylchyk, No. 21/2003.
- The Distribution of the Global Minimum Variance Estimator in Elliptical Models, Taras Bodnar und Wolfgang Schmid, No. 22/2003.
- Intra- and Inter-regional Spillovers between Emerging Capital Markets around the World, Bartosz Gebka und Dobromil Serwa, No. 23/2003.
- The Test of Market Efficiency and Index Arbitrage Profitability on Emerging Polish Stock and Futures Index Markets, Jedrzej Bialkowski und Jacek Jakubowski, No. 24/2003.

2004

- Firm-initiated and Exchange-initiated Transfers to Continuous Trading: Evidence from the Warsaw Stock Exchange, Harald Henke und Beni Lauterbach, *Journal of Financial Markets*.
- A Test for the Weights of the Global Minimum Variance Portfolio in an Elliptical Model, Taras Bodnar und Wolfgang Schmid, No. 2/2004.
- Testing for Financial Spillovers in Calm and Turmoil Periods, Jedrzej Bialkowski, Martin T. Bohl und Dobromil Serwa, *Quarterly Review of Economics and Finance*.
- Do Institutional Investors Destabilize Stock Prices? Emerging Market's Evidence Against a Popular Belief, Martin T. Bohl und Janusz Brzeszczynski, *Journal of International Financial Markets, Institutions & Money*.
- Do Emerging Financial Markets React to Monetary Policy Announcements? Evidence from Poland, Dobromil Serwa, *Applied Financial Economics*.

- Natural Shrinkage for the Optimal Portfolio Weights, Vasyl Golosnoy, No. 6/2004
- Are Financial Spillovers Stable Across Regimes? Evidence from the 1997 Asian Crisis, Bartosz Gebka und Dobromil Serwa, *Journal of International Financial Markets, Institutions & Money*.
- Managerial Ownership and Informativeness of Accounting Numbers in a European Emerging Market, Adriana Korczak, No. 8/2004.
- The individual stocks arbitrage: Evidence from emerging Polish market, Jedrzej Bialkowski und Jacek Jakubowski, No. 9/2004.
- Financial Contagion, Spillovers, and Causality in the Markov Switching Framework, Jedrzej Bialkowski und Dobromil Serwa, *Quantitative Finance*.
- Foreign Acquisitions and Industry Wealth Effects of Privatisation: Evidence from the Polish Banking Industry, Martin T. Bohl, Olena Havrylchyk und Dirk Schiereck, No. 11/2004.
- Insiders and the Law: The Impact of Regulatory Change on Insider Trading, Aaron Gilbert, Alireza Tourani-Rad und Tomasz Piotr Wisniewski, No. 12/2004.
- Do Insiders Crowd Out Analysts? Aaron Gilbert, Alireza Tourani-Rad und Tomasz Piotr Wisniewski, No. 13/2004.
- Measuring the Probability of Informed Trading: Estimation Error and Trading Frequency, Harald Henke, No. 14/2004.
- Discount or Premium? New Evidence on the Corporate Diversification of UK Firms, Rozalia Pal und Martin T. Bohl, No. 15/2004.
- Surveillance of the Covariance Matrix of Multivariate Nonlinear Time Series, Przemysław Śliwa und Wolfgang Schmid, *Statistics*.
- Specialist Trading and the Price Discovery Process of NYSE-Listed Non-US Stocks, Kate Phylaktis und Piotr Korczak, No. 17/2004.
- The Impact of Regulatory Change on Insider Trading Profitability: Some Early Evidence from New Zealand, Aaron Gilbert, Alireza Tourani-Rad und Tomasz Piotr Wisniewski, in: M. Hirschey, K. John and A.K. Makhija, Eds., *Corporate Governance: A Global Perspective*, Advances in Financial Economics, Vol. 11, Elsevier, Amsterdam.
- Macroeconomic Uncertainty and Firm Leverage, Christopher F. Baum, Andreas Stephan und Oleksandr Talavera, No. 19/2004.
- Is the Close Bank-Firm Relationship Indeed Beneficial in Germany? Adriana Korczak und Martin T. Bohl, No. 20/2004.
- International Evidence on the Democrat Premium and the Presidential Cycle Effect, Martin T. Bohl und Katrin Gottschalk, *North American Journal of Economics and Finance*.

2005

- Steht der deutsche Aktienmarkt unter politischem Einfluss?, Martin T. Bohl und Katrin Gottschalk, *FINANZ BETRIEB*.
- Optimal Investment Decisions with Exponential Utility Function, Roman Kozhan und Wolfgang Schmid, No. 2/2005.
- Institutional Investors and the Information Content of Earnings Announcements: The Case of Poland, Piotr Korczak und Amir Tavakkol, *Economic Systems*.
- Regional Disparities in the European Union: Convergence and Agglomeration, Kurt Geppert, Michael Happich und Andreas Stephan, No. 4/2005.
- Do Eurozone Countries Cheat with their Budget Deficit Forecasts? Tilman Brück und Andreas Stephan, No. 5/2005.
- The Role of Asset Prices in Euro Area Monetary Policy: Specification and Estimation of Policy Rules and Implications for the European Central Bank, Pierre L. Siklos und Martin T. Bohl, No. 6/2005.
- Trading Behavior During Stock Market Downturns: The Dow, 1915 – 2004, Martin T. Bohl und Pierre L. Siklos, No. 7/2005.
- The Bundesbank's Communications Strategy and Policy Conflicts with the Federal Government, Pierre L. Siklos und Martin T. Bohl, *Southern Economic Journal*.
- The Relationship between Insider Trading and Volume-Induced Return Autocorrelation, Aaron Gilbert, Alireza Tourani-Rad und Tomasz P. Wisniewski, *Finance Letters*.