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Haigang Zhou


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Review Article:

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Rates are for camera-ready copy.
Herding in Dual-share Stock Markets: Evidence from China*

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Abstract
Using a state space model, this study examines the herding behavior in China’s A and B share markets, which are two classes of common shares with identical rights. Different from previous studies, the existence of significant herding, in both A and B share markets, is documented in this study. Besides, the herding is independent of market states. After China opened its once restricted B share market, herding intensified in both A and B share markets.

Key words: Herding; market efficiency; the Kalman filter; state space model

JEL classification: G14; G15

* The author is grateful to Dan Simon and the editors for their helpful comments.
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(Haigang Zhou).

I. Introduction
Contrary to investors in developed markets, investors in newly established or emerging markets find it difficult and expensive to gather and collect reliable accounting and financial information leading to conduct fundamental analysis (Lang, Raedy, and Yetman, 2003). Instead, observing and imitating other investors’ decision is relatively easy and cheap, and as a result, herding can and often ensues in emerging markets (Komulainen, 2001). For example, Choe, Kho, and Stulz (1998) show that herding behavior existed in the Korean stock market, eventually leading to economic instability with the financial crisis in 1997.

It is speculated that herding can be observed in China’s stock market. However, previous studies find no evidence of herding in China’s stock market. Using the Chang, Cheng, and Khorana (2000) methodology, Tan (2006) examines China’s A and B share markets, but finds no herding exists in the markets. Similarly, Demirer and Kutan (2006) do not find evidence of herding in either China’s Shanghai or Shenzhen markets.

We follow the Hwang and Salmon (2004) approach to examine herding behavior in China’s stock market. The Hwang and Salmon (2004) approach differentiates from previous studies, such as Christine and Huang (1995) and Chang, Cheng, and Khorana (2000), in that it focuses on cross sectional variability of factor sensitivities rather than returns, therefore, it is free from the influence of idiosyncratic components.
Using a sample of A and B shares from June 1993 to December 2002, we find evidence that herding exists in both A and B share markets. Different patterns of herding are found in the A and B share markets. Domestic investors have more information about the firms operating in the markets but lack investment knowledge and experience (See for example, Chen, Lee, and Rui, 2001; Karolyi and Li, 2003), while foreign institutional investors are more likely to be experienced in investment analysis (See for example, Cohen, Hall, and Viceira, 2003; CSRC, 2004; Mei, Scheinkman, and Xiong, 2005; Tian and Wan, 2004). If either party uses its comparative informational advantage to conduct financial analysis, the herding behaviors in the two segmented markets should be different. One explanation of similar herding behavior is the lack of credible financial and accounting information from the firms. Investors are forced to rely upon technical analysis, which may lead to herding in both segments.

On February 19, 2001, China opened the B share market to domestic individual investors. Capital controls however continue to serve as a restriction for domestic investors to acquire B shares, because B shares are traded in foreign currencies. We examine the impact of policy shift on investors by comparing herding behavior before and after February 2001. We documented a significant increase in the herding index in both A and B share markets after China opened its B share market. It is not clear what leads to the increased herding behavior.

The remainder of the paper is organized as follows: Section II describes the measurement of herding and model construction, while Section III reports the sampling process and univariate statistics. Section IV presents empirical evidence, while Section V concludes this study.

II. Measurement of herding and model construction

Hwang and Salmon (2004) argue that empirical evidence on the variation in betas may be attributed to behavioral anomalies such as herding since it is rare for a firm to make fundamental changes to affect its fundamental beta suggested by the CAPM model. Therefore, they propose to use the cross-sectional standard deviation of betas to derive a measure of herding, \( h \).

They assume the following relation holds in the presence of herding toward the market:

\[
\frac{E^b_i(r_{it})}{E^e_i(r_{it})} = \beta^b_i = \beta^b_i - h_i(\beta^b_i - 1),
\]

where \( E^b_i(r_{it}) \) is the market’s biased expected excess returns of asset \( i \), \( E^e_i(r_{it}) \) is the equilibrium excess return of asset \( i \), \( \beta^b_i \) is the biased asset’s beta at time \( t \), and \( \beta^e_i \) is the equilibrium asset beta at time \( t \).

Degree of herding in the market is measured by \( h_i \leq 1 \). When \( h_i = 0 \), there is no herding: expected excess returns equal the equivalent excess returns. When \( 0 < h_i < 1 \) some degree of herding exists in the market. \( h_i = 1 \) suggests perfect herding towards the market portfolio. Under this scenario, all individual assets move in the same direction and with the same magnitude as the market portfolio, regardless of their individual betas. When \( h_i < 0 \), adverse herding exists in the market.

1 Many Chinese companies issue two classes of common shares with identical voting and dividend rights. Moreover, they are listed at the same stock exchanges. Class A shares were restricted to domestic residents, while, until February 2001, Class B shares are denominated in foreign currency (USD in Shanghai Stock Exchanges and HKD in Shenzhen Stock Exchanges) and were restricted to foreign investors.

2 The currency of price for Shanghai B-shares is the US dollar, while that of Shenzhen B-shares is the HK Dollar.
Since the herding measure \( h_t \) is not observable, we use the state space model proposed by Hwang and Salmon (2004) to extract \( h_t \), from cross sectional standard deviations of betas, \( \text{Std}_c(\beta_{it}^b) \) which are estimated by

\[
\text{Std}_c(\beta_{it}^b) = \sqrt{\frac{\sum_{i=1}^{N_t} \left( \beta_{it}^b - \bar{\beta}_t^b \right)^2}{N_t}},
\]

(2)

Where, \( \bar{\beta}_t^b = \frac{\sum_{i=1}^{N_t} \beta_{it}^b}{N_t} \) is the cross sectional mean beta and \( N_t \) is the number of equities in the month \( t \). \( \bar{\beta}_t^b \) is estimated by regressing daily returns against market return over monthly intervals.

Based on Hwang and Salmon (2004), if herding, \( H_t = \log(1 - h_t) \) follows a mean zero AR(1) process, we have a standard state space model.

(Model 1) Signal Equation: \[
\log[\text{Std}_c(\beta_{it}^b)] = \mu + H_t + \nu_t,
\]

(3)

State equation: \[ H_t = \phi H_{t-1} + \eta_t, \]

where \( \nu_t = iid(0, \sigma^2_\nu) \) and \( \eta_t = iid(0, \sigma^2_\eta) \). We can estimate the model using the Kalman filter technique. The first equation is usually called a signal equation, while the second is labeled as a state equation.

The EM algorithm is used to estimate the model (See for example, Shumway and Stoffer, 1982, 2000). The estimates of the parameters indicate whether herding exists and whether the AR(1) process is proper. A significant value of \( \sigma^2_\eta \) indicates the existence of herding, and a significant \( \phi \) provides support for the AR(1) specification of the state equation.

In Model 1, \( \text{Std}_c(\beta_{it}^b) \) changes over time in response to the level of herding in the market. However, it is possible that other fundamental macroeconomic variables, especially the degree of market volatility or the market returns, may explain the changes in \( \text{Std}_c(\beta_{it}^b) \). Following Hwang and Salmon (2004), we include market volatility and market return as independent variables in the state equation:

(Model 2) Signal Equation: \[
\log[\text{Std}_c(\beta_{it}^b)] = \mu + H_t + c_1 \log(\sigma_t) + c_2 r_t + \nu_t,
\]

(4)

State Equation: \[ H_t = \phi H_{t-1} + \eta_t, \]

where \( \sigma_t \) is the market log volatility and \( r_t \) is market return at time \( t \). The monthly market volatility at time \( t \), \( \sigma_t \), is estimated by the sum of the squared daily deviated returns\(^3\) (Schwert, 1989):

\[
\sigma_t^2 = \sum_{t=1}^{N_t} (r_{it} - \bar{r}_t)^2,
\]

(5)

where there are \( N_t \) daily equally weighted market returns \( r_{it} \) in month \( t \), and \( \bar{r}_t \) is the average of the \( N_t \) daily returns.

---

\(^3\)The daily deviated return is calculated by subtracting the average daily return in the month from daily returns.
III. Data and descriptive statistics

The daily prices of stocks listed at Shanghai Stock Exchanges and Shenzhen Stock Exchanges and daily equally weighted market indexes are obtained from the Wisdom Corporation. The company produces the most popular technical analysis software, the Analyst, in China, and feeds data to the software. The sample includes all the stocks listed in the Shanghai Stock Exchange and Shenzhen Stock Exchange. The sample period is from 1993 to 2002.

Following Hwang and Salmon (2004), monthly betas are estimated using non-overlapping one-month daily stock returns, and the monthly cross-sectional standard deviation of the estimated betas are used in our state space models.

Table 1 reports the descriptive statistics of the cross-sectional standard deviation of the estimated betas $\text{Std}_t(\hat{\beta}_t^b)$, market volatility ($\sigma$) and market returns ($r_t$). It shows that for $\text{Std}_t(\hat{\beta}_t^b)$ all the four markets are significantly greater than 0, and all of them are positively skewed. Market volatility and market returns for all four markets are not significantly different from zero. In the four markets, $\text{Std}_t(\hat{\beta}_t^b)$ is negatively correlated with market volatility and market returns (except in the Shenzhen B market where $\text{Std}_t(\hat{\beta}_t^b)$ is positively correlated with market returns), while market returns and market volatility are positively correlated.

### Table 1

**Descriptive Statistics of cross-sectional deviation of betas, market volatility and market returns**

Betas are calculated with OLS in market model. For each month, we use daily data to estimate OLS estimates of the betas on the factors and then these betas were used to obtain cross-sectional standard deviation of betas. For each month, we calculate the cross-sectional standard deviation of the betas on the market portfolio as $\text{Std}_t(\hat{\beta}_t^b) = \sqrt{\frac{\sum_{i=1}^{N_t}(\hat{\beta}_t^b_i - \bar{\beta}_t^b)^2}{N_t}}$, where $\bar{\beta}_t^b = \sum_{i=1}^{N_t} \hat{\beta}_i / N_t$.

$N_t$ is the number of equities in the month $t$, and $\hat{\beta}_t^b$ is calculated with OLS in market model using daily data. The monthly market volatility at time $t$, $\sigma$, is estimated by the sum of the squared daily returns (after subtracting the average daily return in the month), $\sigma_t^2 = \sum_{d=1}^{N_t} (r_{dt} - \bar{r}_t)^2$, where there are $N_t$ daily equally weighted market returns $r_{dt}$ in month $t$, and $r_t$ is the average of the $N_t$ daily returns.

<table>
<thead>
<tr>
<th></th>
<th>Cross-sectional standard deviation of OLS betas</th>
<th>Market Volatility ($\sigma_t$)</th>
<th>Market Returns ($r_t$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A). Shanghai A market</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>0.375</td>
<td>0.027</td>
<td>0.003</td>
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<tr>
<td>Median</td>
<td>0.390</td>
<td>0.005</td>
<td>0.001</td>
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<td>Standard Deviation</td>
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<tr>
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<tr>
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<td>126.088</td>
<td>37.650</td>
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<tr>
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<tr>
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<td>116</td>
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<td></td>
</tr>
<tr>
<td>Sample period</td>
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### Table 1 - Continued

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<th>Cross-sectional standard deviation of OLS betas ( \text{Std}<em>{{\hat{\beta}</em>{it}}} )</th>
<th>Market Volatility ( \sigma_i )</th>
<th>Market Returns ( r_i )</th>
</tr>
</thead>
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<td><strong>(B). Shanghai B market</strong></td>
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<td></td>
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<tr>
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<td>Median</td>
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<td>0.000</td>
</tr>
<tr>
<td>Standard Deviation</td>
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<td>0.014</td>
<td>0.006</td>
</tr>
<tr>
<td>Skewness</td>
<td>1.356</td>
<td>5.085</td>
<td>1.157</td>
</tr>
<tr>
<td>Kurtosis</td>
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<td>37.868</td>
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<td>Standard Deviation of betas</td>
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<td></td>
</tr>
<tr>
<td>Market volatility</td>
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<td>Market returns</td>
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<tr>
<td>Observations</td>
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<tr>
<td>Sample period</td>
<td>05/1993-12/2002</td>
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<tr>
<th></th>
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<th>Market Volatility ( \sigma_i )</th>
<th>Market Returns ( r_i )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(A). Shenzhen A market</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Mean</td>
<td>0.362</td>
<td>0.016</td>
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<tr>
<td>Median</td>
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<td>0.000</td>
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<tr>
<td>Standard Deviation</td>
<td>0.134</td>
<td>0.027</td>
<td>0.007</td>
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<tr>
<td>Skewness</td>
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<td>4.030</td>
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<tr>
<td>Kurtosis</td>
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<td>23.023</td>
<td>6.258</td>
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<tr>
<td>Standard Deviation of betas</td>
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<td>1</td>
<td></td>
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<tr>
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<td>Market returns</td>
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<tr>
<td>Observations</td>
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<tr>
<td>Sample period</td>
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<table>
<thead>
<tr>
<th></th>
<th>Cross-sectional standard deviation of OLS betas ( \text{Std}<em>{{\hat{\beta}</em>{it}}} )</th>
<th>Market Volatility ( \sigma_i )</th>
<th>Market Returns ( r_i )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(A). Shenzhen B market</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Mean</td>
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IV. Evidence on herding

Table 2 reports the estimates of state space models for herding towards the market portfolio. The estimated results on two models are reported for four different market segments: Shanghai A and B markets and Shenzhen A and B markets. In Model 1, we assume that \( \log \text{Std}(\beta_{st}) \) responds only to herding in the market. Model 2 assumes that \( \log \text{Std}(\beta_{st}) \) responds not only to herding in the market, but also to market volatility and market return. In both models, a significant \( \mu \) indicates the existence of herding, while a significant \( \mu \) validates the AR(1) model.

### Table 2

Estimates of state-space models for herding towards the market portfolio

This table reports the estimates of Model 1: \( \log \text{Std}(\beta_{st}) = \mu + H_t + \nu_t, \quad H_t = \phi H_{t-1} + \eta_t \), and Model 2: \( \log \text{Std}(\beta_{st}) = \mu + H_t + c_t \log \sigma_t + c_r r_t + \nu_t, \quad H_t = \phi H_{t-1} + \eta_t \). Total number of monthly betas, daily returns and firms in each market are reported. The numbers are different due to different sample periods. Standard errors are reported in the parentheses, and *, ** and *** represent significance at the 10%, 5% and 1% levels, respectively.

<table>
<thead>
<tr>
<th></th>
<th>Shanghai A Market</th>
<th>Shanghai B Market</th>
<th>Shenzhen A Market</th>
<th>Shenzhen B Market</th>
</tr>
</thead>
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<td>Excess market</td>
<td>No exogenous</td>
<td>Excess market</td>
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<td></td>
<td>variables</td>
<td>return and</td>
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<td>return and</td>
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<tr>
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<td>(Model 1)</td>
<td>volatility</td>
<td>(Model 1)</td>
<td>volatility</td>
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<tr>
<td></td>
<td></td>
<td>(Model 2)</td>
<td></td>
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<tr>
<td>( \mu )</td>
<td>-1.284</td>
<td>-1.124</td>
<td>-2.094</td>
<td>-1.07</td>
</tr>
<tr>
<td></td>
<td>(0.299)***</td>
<td>(0.295)***</td>
<td>(0.314)***</td>
<td>(0.232)***</td>
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<tr>
<td>( \phi )</td>
<td>0.982</td>
<td>0.952</td>
<td>0.984</td>
<td>-2.416</td>
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<tr>
<td></td>
<td>(0.015)***</td>
<td>(0.023)***</td>
<td>(0.012)***</td>
<td>(0.179)***</td>
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<tr>
<td>( \log \sigma_{\nu} )</td>
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<td>-2.988</td>
<td>-3.332</td>
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<td></td>
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<td>(0.128)***</td>
<td>(0.123)***</td>
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<tr>
<td>( \log \sigma_{\eta} )</td>
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<tr>
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<td>(0.381)***</td>
<td>(0.307)***</td>
<td>(0.637)***</td>
</tr>
<tr>
<td>( \log \nu )</td>
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<td>-0.14</td>
<td>-0.227</td>
</tr>
<tr>
<td></td>
<td>(0.042)***</td>
<td>(0.021)***</td>
<td>(0.014)***</td>
<td>(0.031)***</td>
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<td>( r )</td>
<td>-5.517</td>
<td>0.026</td>
<td>6.574</td>
<td>7.58</td>
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<tr>
<td></td>
<td>(1.209)***</td>
<td>(3.139)</td>
<td>(2.476)***</td>
<td>(5.152)***</td>
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<tr>
<td>Log likelihood</td>
<td>-13.070</td>
<td>10.644</td>
<td>-27.017</td>
<td>1.150</td>
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<td></td>
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<td>-0.315</td>
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<td>26.695</td>
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<td>61.991</td>
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<td>-41.966</td>
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<tr>
<td>Schwartz criterion</td>
<td>0.318</td>
<td>0.59</td>
<td>0.587</td>
<td>0.213</td>
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<td></td>
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<td>0.147</td>
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<td>-0.216</td>
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<td>1.233</td>
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<td>0.969</td>
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# of monthly betas 116 116 116 116

# of firms 599 52 503 60
For the Shanghai A market, the results on Model 1 present strong evidence that herding exists in the market, because $\hat{\phi}$ is significantly different from $0$. Besides, estimated $\mu$ is significantly different from $0$, confirming the AR(1) model specification. The estimated results from the other three markets (Shanghai B, Shenzhen A and Shenzhen B markets) are very similar in both sign and magnitude.

The results indicate the existence of herding in all four different market segments. It is revealing that both domestic and foreign investors exhibit similar herding behavior toward the market, even though B share markets are dominated by foreign institutional investors. The results imply that investment behavior in China’s stock markets is not determined by investors’ experience in investment or information of the companies listed in the markets. Domestic investors have more information about the firms operating in the markets but lack investment knowledge and experience (See for example, Chen, Lee, and Rui, 2001; Karolyi and Li, 2003), while foreign institutional investors are more likely to be experienced in investment analysis (See for example, Cohen, Hall, and Viceira, 2003; CSRC, 2004; Mei, Scheinkman; and Xiong, 2005). One explanation of our finding is the lack of credible financial and accounting information from the firms. Therefore, the only credible information that both domestic and foreign investors can rely upon is obtained by observing, and herd to other investors by conducting technical analysis, as did the investors in the early years of the U.S. market.

To examine whether investors react differently under different market conditions, we further examine the herding behavior by controlling for market volatility and market return (Model 2). We find consistent evidence that market volatility ($\log Q_t$) is significantly and negatively correlated with Std $t$. It implies that Std $(O_t) t$ decreases when the market risk increases, i.e., herding is more severe under a volatile market condition.\(^5\) The relation holds for all four different markets in our sample. It reflects the tendency that investors go back to the fundamental in volatile time periods. The finding is similar to what Hwang and Salmon (2004) found in the U.S. market.

However, the evidence on the relation between Std $P_t$ and market returns are mixed. In Shanghai A market, we find strong evidence that herding is more severe when the market return is high. However, herding is more severe when the market return is low in Shenzhen A market. We find no evidence of any significant relation between herding and market states in the B share markets.

V.1 Impacts of policy shift

Figure 1 and Figure 2 plot our herding measure $h_t = 1 - \exp(H_t)$ along with Std $t(\beta^h_{t})$ and market index in the four segmented markets.


In February 2001, China opened its once foreign restricted B share market. Given the different herding patterns in the A and B markets before February 2001, it is important to examine whether the markets react to the integration of the B share market into the A share market.

From Figure 1, we observe a significant increase in herding in the Shanghai A market starting in June 2001: The reverse herding disappeared after December 2001. A similar observation is made in the Shanghai B market. Herding index significantly increased following the policy shift. In February 2002, the market showed signs of herding the first time since 1995. A similar observation is made in Shenzhen A and B share markets.

Therefore, our results indicate that herding became more severe in all four market segments after China opened its once restricted B share market. However, The reason for the increase in herding is not clear.

\(^5\) Because Std $(O^i_t)$ and herding are negatively correlated.
Figure 1. Herding towards the market portfolio – Shanghai

(a) Shanghai A

(b) Shanghai B
Figure 2. Herding towards the market portfolio – Shenzhen

(a) Shenzhen A

(b) Shenzhen B
VI. Conclusion

Following Hwang and Salmon’s (2004) state space model, we examine the herding behavior in China’s A and B share markets, which are two classes of common shares with identical rights, but have restricted access prior to February 2001. Different from results of previous studies, we document the existence of herding in both A and B share markets. The finding implies the lack of credible accounting and financial information in the markets. Domestic investors have comparative information advantage over foreign investors on the performance of companies, while foreign investors, dominated by seasoned institutional investors, are more experienced in conducting investment analysis and are more likely to engage in complicated financial analysis. If the market provides reliable accounting and financial information and either side makes use of its comparative advantage, we should observe a different pattern in herding.

Moreover, we find that, after China opened its B markets to domestic investors, herding became more severe in both A and B-share markets. The reason for the increased herding is not clear.

VII. References


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Abstract

This paper focuses on the development of reference interest rates in the Czech Republic after the currency crisis of May 1997 and covers the period to the years 2002/2003 (that is to the time just before the country's entry into the European Union) when the currency exchange of the Czech koruna (CZK) and interest rates were stabilised. The relatively high volatility of Czech reference interest rates in the late 1990's influenced the development of company debt financing, forcing companies to become more sophisticated and dynamic in their use of debt instruments and hedging tools as they attempt to manage the subsequent interest rate risk. In this paper, the situation in three model corporations is also described – the first, a solvent company with a foreign owner (Moravian-Silesian Heating Company – MSHC, renamed to Dalkia Morava in 2002), the second, a solvent company with the Czech state as its majority owner (North Moravian Power Company – NMPC), and the third with domestic capital, which had economic problems during the given period (Vítkovice, a.s.), plus a big insurance company as a specific and very important institutional investor in domestic financial markets.

Key words: Reference interest rates, interest rates hedging tools, bonds, commercial papers, yield from financial operations, cost of external financing, Czech Republic, Central Eastern Europe

JEL classification: N 240
I. Introduction

The scarcity of specific studies addressing the impact of interest rate changes in the Czech Republic – especially in the years following 1997 – on corporate financial decisions provided the impetus to undertake this research. Unlike the relatively stable rates of Eurozone markets, the Czech Republic has in recent years experienced a precipitous decline in the inter-bank rate PRIBOR. During the period of relatively high interest rates (1997 and 1998), Czech companies scrambled to find alternative sources of financing to be able to avoid expensive short- and long-term bank loans. The range of alternatives included CP programs for short-term and bonds for long-term financing. From 1999 onwards, with lower interest rates, companies with cash surpluses have needed to find much more sophisticated instruments (especially from the point of view of tax regime applied to the yield) to increase their profit from financial operations. The relatively high volatility of the reference interest rates has encouraged a significant rise in the use of interest rate hedging instruments in the Czech financial market since 1997.

II. Influence of the reference interest rates evolution on corporate sector

Unlike the relatively stable rates of Eurozone markets, the Czech Republic has in the period under consideration, i.e. 1997-2002, experienced a precipitous decline in the inter-bank rate PRIBOR. In the years 1997 and 1998, the Czech economy was hit by a number of external as well as internal unfavourable factors. At the beginning of 1997 the Czech koruna was a relatively strong currency, its strong exchange rate, however, was not founded on macro-economic data, but only on currency policy – short-term investors concentrated too much on the high interest rates of the domestic market. Interest rates at this time moved around 12% p.a. In May 1997 foreign speculators led an attack on the Czech currency. This raid was led by two groups of speculators. The first group was made up of devaluation speculators who created a short position in CZK and waited for devaluation. The second group consisted of interest speculators, who had a long position in CZK from the past, which they rashly began to fear about. The Czech National Bank (i.e. central bank) immediately began to intervene on behalf of the Czech koruna, through operations on the free market and indirectly by increasing interest rates. Nevertheless, this attempt was unsuccessful and the Central Bank was forced to introduce a “floating regime” for the Czech currency after two weeks. Consequently, currency policy carried out to protect the koruna exchange rate led to a robust growth in interest rates. The result was a slowing down of all economic activities, a hindering of investment and a worsening financial position for many companies.

At the beginning of 1998, the short-term interest rates on the money market were characterised by a gradual drop from its high level from the end of the previous year. But the trend of dropping interest rates was negatively influenced by the Russian financial crisis and the inner-political situation (an early parliamentary election). After the situation calmed down, another – August 1998 – crisis broke out in Russia, which gradually hit emerging markets as well. The influence of this turbulence on the Czech money market was only short-term and interest rates could continue in their ascending trends, which enabled a very favourable influence on inflation and a total recovery of the situation on the other financial markets. The interest rates in The Czech Republic have gradually dropped since the year 1999 as a consequence of a favourable development of the inflation level, economic recovery, and expectation of entry to the European Union (in May 2004).

During the period of relatively high interest rates (1997 and 1998), Czech companies scrambled to find alternative sources of financing to be able to avoid expensive short- and long-term bank loans. The range of alternatives included Commercial Paper programs for short-term and bonds for long-term financing. As Figure 1 illustrates, the reference interest rate in the Czech Republic declined sharply since 1997. As a result, Czech corporations were forced to operate in a relatively unstable
interest rate environment until 2000, in comparison with their Eurozone counterparts. The average 3-month Dutch AIBOR (since 1999 the EURIBOR, as a result of the introduction of the Euro currency) is presented for comparison.

![Figure 1: Comparison of the development of the 3M reference interest rates for Czech and Dutch (i.e. since 1999 Euro) markets, yearly averages in % p.a.
Source: Czech Central Bank, De Nederlandsche Bank N.V.](image)

As Polák (2005) argued, the unstable interest rate environment at the end of the 90’s forced Czech businesses to choose differing strategies during periods of high and low interest rates, and even expand the tools used to eliminate risk caused by such interest rate variation. During periods of relatively high reference rates (particularly 1997 and 1998, and in terms of EURIBOR rates, even 1999 and 2000), businesses seeking financial resources looked for alternatives to short and long-term credits. In the Czech Republic, such alternatives include most notably, commercial paper issues for short and mid-term financing. For long term financing, there are alternatives to loans, namely the issue of corporate bonds. As Tables 1 and 2 show, corporate bond issues are not very wide spread, despite the inverted profile of IRS yield curve (in the years 1997-1998) for attracting fixed coupons under the appropriate PRIBOR rate. The reasons behind this include a lack of confidence from the side of investors, and at the same time, a lack of willingness from the issuers to go into long-term commitments in an environment of high and volatile interest rates.

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<tr>
<td>from loans provided to corporations in bln. of CZK</td>
<td>1,149.6</td>
<td>1,135.4</td>
<td>1,085.7</td>
<td>952.4</td>
<td>974.5</td>
<td>949.8</td>
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<tr>
<td>in%</td>
<td>85.8%</td>
<td>80.8%</td>
<td>78.4%</td>
<td>75.6%</td>
<td>64.8%</td>
<td>58.5%</td>
</tr>
<tr>
<td>from long term loans provided to corporations in bln. of CZK</td>
<td>327.5</td>
<td>335.8</td>
<td>336.2</td>
<td>316.8</td>
<td>289.2</td>
<td>236.1</td>
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Table 1: Advancement in volume of loans provided to the clients of Czech based banks, in billions of CZK, as at the end of respective year
Source: Czech National Bank

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<tr>
<td>8.65</td>
<td>17.95</td>
<td>40.00</td>
<td>53.01</td>
<td>53.04</td>
<td>57.04</td>
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Table 2: Advancement in volume of corporate bonds (in nominal value) registered at the Prague Stock Exchange, in billions of CZK, as at the end of respective year
Source: Reuters, ABN Amro Bank N.V.
In terms of commercial paper issues, there are no central statistics. This is because such securities issues needn’t be approved by the SEC. Besides this, in the Czech Republic, this program is only for debtors who belong to companies with prime credit risk ratings.

III. Foreign exchange and interest rate hedging, debt financing

Czech banks have been at the forefront of treasury developments in the Central and Eastern European region, offering their corporate clients a whole range of treasury products, including options. They also play a big role in keeping clients up to date about currency and interest rate risks. Since the Czech economy depends heavily on foreign trade (exports in 2002 were 55% of GDP, with almost 60% of this to the euro zone), mostly with the euro zone countries, exporters in particular have had to adjust their approach towards hedging instruments because of the reinforced Czech koruna. The most frequently used product in foreign exchange assurance is the currency forward. The market in currency options in koruna has developed over the past nine to ten years. At first, the main trading was in plain vanilla options, but gradually the offer was extended to include barrier and exotic options. To hedge interest rate risk operations, companies tend to use forward rate agreements (FRA) and interest rate swaps (IRS), in addition to instruments based on interest rate facilities, such as cap and floor options. The high volatility of reference interest rates has influenced enormous progress in using such tools since 1997.

III.1 The marked ambivalence of interest rates on the Czech market since 1997 has led companies to behave more cautiously and use hedging tools

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<tbody>
<tr>
<td>Forward rate agreement</td>
<td>487.3</td>
<td>925.7</td>
<td>973.0</td>
<td>1012.6</td>
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<tr>
<td>Interest rate swap</td>
<td>398.6</td>
<td>760.7</td>
<td>1020.6</td>
<td>1067.9</td>
</tr>
<tr>
<td>Interest rate futures</td>
<td>4.1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total of IR hedging tools</td>
<td>890.0</td>
<td>1686.4</td>
<td>1993.6</td>
<td>2080.5</td>
</tr>
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</table>

Table 3: Advancement in volume of main interest rate hedging tools used by clients of Czech banking sector in the years 2000-2003, in billions of CZK

Source: Czech National Bank

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<tbody>
<tr>
<td>Forward rate agreement</td>
<td>132</td>
<td>337</td>
<td>423</td>
</tr>
<tr>
<td>Interest rate swap</td>
<td>180</td>
<td>220</td>
<td>294</td>
</tr>
<tr>
<td>Interest rate futures</td>
<td>31</td>
<td>26</td>
<td>4</td>
</tr>
<tr>
<td>Total of IR hedging tools</td>
<td>343</td>
<td>583</td>
<td>721</td>
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Table 4: Advancement in volume of main interest rate hedging tools used by clients of Czech banking sector in the years 1997-1999, in billions of CZK – rounded estimation from CNB graphs

Source: Czech National Bank

As tables 3 and 4 show, a marked yearly increase in interest rate hedging tools for bank clients in the Czech Republic is evident for the years 1997-2002. During the periods of high PRIBOR and PRIBID reference rates in 1997 and 1998, businesses tried first and foremost to take advantage of the...
negative inclination of FRA and IRS rates of return (which means that long term annual interest rates were lower than short term rates). This effort is especially clear in the issue of corporate bonds in 1997 and 1998. Bond issues in 1997 had fixed interest rates, which means that on the day of issue, an interest rate swap was placed on the entire amount of the issue, where the original floating PRIBOR + margin p.a. was exchanged for a fixed rate. In 1998, just two companies in the utility sector chose different paths. On March 5th, 1998, the Northern Moravian Power Company (NMPC), issued 1 billion CZK in bonds at a floating 6M PRIBOR + 0.40% p.a. In June of the same year, and under the same conditions, Southern Moravian Gas Company issued 700 million CZK in bonds. Both of these companies bet on the future decline in the PRIBOR rate, and they were proven right. However, at the time of their issue, they were going against market forecasts. Nonetheless, NMPC ensured itself against a potential rise in the 6M PRIBOR purchase cap with a strike price of 11.60% p.a. All in all, five caps were purchased on semi-annual coupons, however with premium payment requirements. Of these caps, only one was called, the very first coupon in September 1998, when the 6M PRIBOR was at 14.51% p.a., and the company actually paid 11.60% p.a.

The period since 1999 is characterised by the sharp continual decline of the PRIBOR rate, and in comparison with the previous two years, the positive slope the IRS curve (which indicates that annual interest rates for the longer term were higher than for the short term) and a noticeable growth in the issue of corporate bonds. But even at this time, there were companies that hedged against interest rates by issuing IRS bonds. The above-mentioned NMPC conformed to this trend, by exchanging its original floating interest rates from its 1998 issue for a fixed interest rate swap in 2001. In addition to that, Belgian owned company Glaverbel issued 3 billion CZK in bonds in 2000, and Škoda auto in the same year issued 50% of its 10 billion CZK with floating coupons. After 1999, corporations feared again that floating coupons would suffer from return of rising interest rates in the near future. This forecast did not come true; interest rates continued their falling trend.

III.2 Debt Financing

It is supposed that a company chooses such debt financing that would have the lowest costs for financing (including subscription and administrative costs). Discussions were carried out on the grounds of the Czech Association of Corporate Treasurers in recent last years on this given theme, encouraged by one of the authors (Polák). Parallel, it is possible to analyse the proportional amount of cost interest paid in regards to external sources of financing – the issuing of bonds and bank credit. For this purpose, it is also possible to state the quality indicator of financial management in areas of company debt activities, and the interest costs for external financing.

\[
CEF = \frac{IC}{BL + B} \times 100\%
\]

CEF – costs of external financing
IC – interest cost (profit and loss statement)
BL – bank loans (balance sheet), average state at the beginning and end of period
B – bonds issued (balance sheet), distinguished by time

In Tables 5 – 7 costs of external financing development is illustrated in % p.a. in three selected companies – Northern Moravian Power Company (NMPC), Moravian-Silesian Heating Company (MSHC), since the year 2002 the company has used a new name – Dalkia Morava, and Vítkovice. In the cases of Vítkovice and NMPC, we are dealing with companies with mostly state ownership in the years under observation. Their position in relation to financial intermediaries on the Czech financial market was however and is by no means different. The North Moravian Power Company is the most important distributor of electrical energy in the Czech Republic from the point of view of sales and
profit, and has a BBB+ rating from Standard & Poor’s. From the point of view of its position, the North Moravian Power Company has an excellent position in the area of obtaining external financial means for its activities, as in investing in financial market means, whose intermediary has established a certain credit risk for the bank. Vítkovice is in a different position, financing its production was ensured by credit from the state Consolidation Bank through the means of the company Osinek.

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<tr>
<td></td>
<td>18.33%</td>
<td>14.43%</td>
<td>9.36%</td>
<td>7.08%</td>
<td>5.49%</td>
<td>5.41%</td>
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**Table 5: Costs of external financing of North Moravian Power Company in % p.a.**
*Source: Annual report of North Moravian Power Company*

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<tr>
<td></td>
<td>14.14%</td>
<td>10.15%</td>
<td>10.52%</td>
<td>9.77%</td>
<td>9.58%</td>
<td>NA</td>
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**Table 6: Costs of external financing of Moravian-Silesian Heating Company in % p.a.**
*Source: Annual report of Moravian-Silesian Heating Company*

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<tr>
<td></td>
<td>16.20%</td>
<td>16.09%</td>
<td>12.29%</td>
<td>5.36%</td>
<td>8.83%</td>
<td>NA</td>
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**Table 7: Costs of external financing of Vítkovice in % p.a.**
*Source: Annual report of Vítkovice*

The achieved results of these companies can be compared with the development of the 3M PRIBOR reference rate as an average in the following years – see Table 8. From these rates, the interest paid by bank clients derives at times of making use of bank credit. as well as the rate of coupons for the bonds issued.

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<tr>
<td></td>
<td>15.97%</td>
<td>14.33%</td>
<td>6.84%</td>
<td>5.36%</td>
<td>5.18%</td>
<td>3.55%</td>
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**Table 8: Development of the 3 months PRIBOR reference rate in % p.a. yearly average**
*Source: Czech National Bank*

At NMPC and MSHC two different strategies were seen. In 1994, MSHC issued bonds at a total nominal value of 350 million korunas (that is 3,500 bonds at a nominal value of 100,000 CZK each) with a fixed coupon of 13% p.a. The bonds were paid in the year 1999. In connection with the development of interest rates, part of the bonds, at an amount of 24 million CZK, were successfully bought back in the year 1996. A second issuing of bonds followed in October 1997, when the bonds were issued at a total nominal rate of 2 billion CZK with a fixed coupon of 13.90% and maturity in October 2002.

In the years 1997 and 1998 – as is shown in the Table 6 – MSHC made an about-face in the swap curve, when long-term interest rates (in the case 5-year IRS) were lower per year than an appropriate 3, or if need be 6, months PRIBOR rate, from which cost interests are derived in cases of changeable interest rates. In other years, however, these fixed coupons, especially in the second issuing of bonds, recorded a higher cost load than there was in the NMPC case. And even despite this reality, the company succeeded to buy back part of its own bonds at an amount of 830 million Czech korunas. What’s more – for a nominal value plus aliquot interest yields only. NMPC chose the opposite strategy and issued bonds on 5.3.1998 at a value of 1 billion Czech korunas for a variable 6M PRIBOR rate + 0.40 % p.a. The bonds matured in March 2003. That is why it has profited since the year 1999 from a favourable drop in the short-term interest rate. Nevertheless even in the case of NMPC there were fears
about a reverse growth in interest rates in March 2001 for the exchange of changeable coupons for fixed IRS funds. In the table, cost stagnation is seen for financing in the year 2002 as opposed to the year 2001 for the reason of fixed coupons. The slight drop cost indicator for financing in the case of MSHC in the years 2000 and 2001 is due to a drop in changeable rates for short-term interest and the mentioned promissory notes programme in July 1999. In the year 2001, two joint-stock companies – North Moravian Power Heating Company and Karviná Heating Company – were incorporated into one and called Dalkia Morava. The joint-stock company Vítkovice issued bonds at the same time with a fixed coupon of 13.50% p.a. at an amount of 1 billion Czech korunas and in June 1995 with maturity in the year 2000. The costs for external financing of Vítkovice are further marked by a high margin above the average PRIBOR for credit provided to companies by the state’s Consolidation Bank and by private local banks. This margin moves from 3% per annum above the PRIBOR.

In conclusion, it is possible to confirm this second partial influence that a company has chosen debt financing, for which the lowest costs for financing are paid – above all, this means interest and other costs (for example, subscription). The cases of NMPC and MSHC clearly illustrate two different strategies which companies accepted after the currency crisis in May 1997, when reference interest rates reached very high levels.

MSHC – as a considerable number of Czech companies – used the purchase of mid-term and long-term swap, which carry a certain risk in the case of a future drop in interest rates. In years of high reference interest rates – 1997 and 1998 – MSHC paid interest, which was lower than the real PRIBOR rate. This advantage has been nevertheless lost since the year 1999, in which a dramatic drop in reference rates took place. This drop then carried on in other years as well up to today. On the other hand, NMPC was one of few companies which abandoned its own bonds of variable coupons during issuing. That is why interest costs for financing moved high above the costs of MSHC and above the PRIBOR in their year of issuing NMPC at the same time, fearing a growth in interest rates, ensured a cap type operation with a strike price at 11.60% p.a. for the five first half-years of coupon payment. The bonus for this interest option was paid at an amount of 50 million Czech korunas in total. Nevertheless, the changeable coupon has enabled NMPC to profit since the year 1999 from the favourable drop in reference rates.

III.3 Other costs for providing financing

By providing long-term and short-term financing, in addition to paying interest, a whole number of other fees and costs were brought into consideration. The amount of these costs is not commonly determined from the current account statements that are the financial parts of a company’s annual report. Such costs may include, for example, accountants’ and lawyers fees, arrangement fee, costs of printing of the offering circular and of security-printing the securities where they are issued in definitive bearer form, and the due diligence process.

IV. Investment strategy

It is supposed that a company will choose an investment instrument which will ensure it the greatest yield up to the time of maturity or sale. An indicator of financial management was also set (by authors) in the fields of corporate investment and in the yields from financial operations.

\[
YFFO = \frac{IY + S(SS) - S(SD)}{FP} \times 100\%
\]

YFFO – yield from financial operations
IY - interest yield (profit and loss statement)
S (SS) – sales on the sale of securities (profit and loss statement)
S (SD) – sale of securities and deposits (profit and loss statement)
FP – financial property (balance sheet), average state at the beginning and end of period
The yield from financial operations for selected joint-stock companies is illustrated in % p.a. in Tables 9 to 11. A special case in this group is the MSHC, which has been in the hands of foreign investors since 1997, and is part of the company Dalkia, which was the power division of the French company Vivendi. After problems with the media division of the concern Vivendi, the state energy giant Electricité de France appeared among the owners of the company Dalkia. The MSHC, similarly as NMPC, before the takeover by foreign owners were among the most important companies in the Czech Republic from the point of view of attained sales and profit, and this position is still improving at the present time. The attained results of these companies can be compared with the development of PRIBID reference rates as an average for the individual following years. This rate is simply said – in our conditions, the maximum that companies can achieve in koruna deposits through a bank. The development of the tri-monthly PRIBID rate is shown in Table 12.

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<td></td>
<td>14.15%</td>
<td>13.94%</td>
<td>6.62%</td>
<td>5.23%</td>
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Table 12: Development of the 3 months PRIBID reference rate in % p.a. yearly average
Source: Czech National Bank

In the year 1997, the company concentrated on short-term term deposits, which had high interest payments, especially in the time of the currency crisis in the Czech Republic in May and June 1997. PRIBID reached the highest average values in the shortest time periods – for one week it was 15.42% p.a., 2 weeks – 15.19% p.a. It is possible to say that the year 1997 witnessed the use of simple, very short-term, deposit instruments. From this point of view, for revaluing free money funds companies did not need any specialised Treasurer. In the year 1998, there was a change in Law No. 588/1992 of the Law Code about value added tax, in the wording of later regulations, that enabled companies to invest to a greater extent into safe securities with a higher yield than for term deposits, such as Treasury bills, deposit promissory notes of international banks with a rating even greater than the Czech Republic has (in the initial stages, in particular – Citibank, BNP – Dresdner Bank, Deutsche Bank). From the year 1997, there have been regular seminars by Czech banks for their important clients (among which are the above mentioned duo MSHC and NMPC), which are informed in particular about new, sophisticated banking products offered to corporate clients. Because of this and due to the personal approach of dealing bank staff towards their most important clients, an
The information gap has grown in the areas of financial market instruments between the financial department staff of the most important companies and other companies. This is amplified by the establishment of the Czech Association of Corporate Treasurers, founded in February 2001 and connected to the discussion and working group activities of the Treasury staff of the most important companies. Among the founding members of the Association, we can find staff from MSHC and NMPC. The other members are the collected staff of the most important companies in the Czech Republic, such as Transgas, Czech Telecom, Unipetrol, Škoda Auto, and important utility companies. In the year 1998, in the North Moravian Power Company, a specialised Treasury staff associate could devote full-time investment in free money instruments, which would ensure appropriate financial operations and the investment requirements of the company. In particular, of the two mentioned in the paragraphs above, NMPC has had a growth in yields from financial operations as opposed to the year 1997 (and in spite of a drop in interest rates). There was a similar situation in MSHC, where the centralisation activities of the Treasury were gradually carried out in MSHC and its subsidiaries (especially Heating Station in Karviná), since the year 1999.

In the year 1998, MSHC yields from financial operations were more than 3% lower than average 3M PRIBID. This was caused by the fact that MSHC keeping a large amount of funds in German marks to pay for invoices of the Finnish Company FW-Ivo Power engineering, which carried out a revamping of the equipment of the Olomouc Heating Station. Due to delays in investment and the consequent later invoicing, the funds in German marks (DEM) were valorised, but at an average rate of 10% p.a. lower than for the Czech koruna at that time. In the year 1999, Vítkovice began to also valorise its free money funds according to its annual report at a volume of tens of millions of korunas through Citibank deposit promissory notes.

In the year 2001, NMPC made a change in its Treasury staff. This change was marked by riskier methods in valorising free money funds by investing in Polish state bonds issued in Polish zloty (PLN). Higher interest rates for PLN than for CZK, together with a favourable shift in the currency exchange at the time of yield payments enabled NMPC to achieve a high yield value in the years 2001 and 2002 from financial operations, and in the year 2002 even above the PRIBID.

At the conclusion of this discussion, it is interesting to compare the above mentioned yields of industrial companies with the financial position of the technical reserves of Czech Insurance Company Inc. (Česká pojišťovna. a.s.) – see Table 13.

| Source: Annual Report of Czech Insurance Company |

| Table 13: Yields from the financial investment of technical reserve funds of life and non-life insurance in the Czech Insurance Company in % p.a. |
|---|---|---|---|---|---|
| 3M PRIBID | 14.15% | 13.94% | 6.62% | 5.23% | 5.08% | 3.46% |

This type of yield at insurance companies is made up mostly of high yields from fixed interest instruments (mostly bonds), for which there consequently was a drop in interest rates in Czech Insurance Company long-term investments with fixed interest instruments. In the years 1998 and 2000, there was a more considerable negative affect on the yield of the possession of property securities, and most of all, in the form of losses from revaluing or realizing Pragobanka Bank and IPB bank shares. It is necessary to calculate the “Yields of the Assets of Financial Reserves from Life and Non-life Insurance” with the yields presented, to understand the yields after the deduction of corresponding costs for financial positions.
V. Conclusion

Evolution in Czech corporate debt financing has been driven by changes in the requirements of suppliers of capital, with institutional and other non-bank investors replacing traditional banks. Investors have become increasingly sophisticated, favoring less regulated instruments. Increased volatility in the reference interest rate has also influenced capital raising decisions, and increased the use of hedging instruments to manage the resulting interest rate risk.

A company, as an investor, can certainly select an instrument which will bring it the highest net revenue from the tax regime and interest-bearing points of view. It is interesting in this connection to compare the investment activities of industrial companies, which have aimed mostly on the instruments of money market, with an insurance company that has invested a greater part of its technical reserves into fixed interest-bearing instruments of the capital market (mostly into bonds). For this reason, the insurance company reached revenues under the PRIBID and vice versa in the period of a reversal in the revenue curve of long-term rates (using the IRS rates).

At the same time, the company, as a debtor, tried to minimise interest and other costs in parts of debt financing. In the environment of volatile interest rates, debtors could select two basic strategies – to fix its paid interest by means of an interest swap or to leave the variable interest rate connected to the PRIBOR. The primary sense in choosing one of these strategies was to minimise interest rates, for reasons of the dramatic drop in interest rates. The variable interest rate has shown to be better in the period following the year 1999. Other costs for short-term and long-term debt financing are comparable.

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VI. References


Article Review

Dr. Maximo Eng

Except for the short financial crisis in Mexico in 1994, from 1993 to 1996 the world enjoyed economic prosperity. The sudden economic downturn and financial crisis in Southeast Asia in 1997 and financial crisis in Russia in 1998 shocked the world. Almost ten years later the world has enjoyed continued economic growth from 2003 to 2006. In January 2007 the United Nations has issued a timely warning signal: world output is expected to decelerate from 3.8 percent in 2006 to 3.2 Percent in 2007 (p. 2), due to a weakening housing market and softer consumer spending in the United States. This assumes no other developed economy will emerge as an alternative growth engine for the world economy. Furthermore, over the past decade the world economy has changed from one based on regional economics to global economics. Any drastic change in a major country such as the United States certainly will have spillover effects on other parts of the world.

Based on this scenario, this book analyzes the world economy and its prospects in four chapters: Global Outlook, International Trade, Financial Flows to Developing and Transition Economies, and Regional Developments and Outlook.

In Chapter 1, Global Outlook, this report essentially describes that growth of United States gross domestic product (GDP) will slide from 3.2 percent in 2006 to 2.2 percent in 2007, but the impact of the moderate decline in U.S. economic growth will have uneven effects among developed and developing countries. For example, Europe is forecast to slow to 2 percent; Japan will drop to 1.7 percent. However, developing countries (except China and India) will enjoy growth of 5.9 percent; transition economies 6.5 percent; and Latin America 4.2 percent. China and India are expected to maintain economic growth rates at 8.9 percent and 7.9 percent, respectively, followed by Russia’s 5.8 percent and Brazil’s 3.5 percent. The different economic growth rates reflect primarily relative trade and investment positions as well as the volatile prices of oil and non oil commodities (see Tables A1, A2, and A3). Fortunately, inflation is not a prime concern at this time. In the United States the inflation rate is expected to moderate from 3 percent in 2006 to 2 percent in 2007, with a slow down in world demand. This is perceived as within the comfort zone of the Federal Reserve (p. 15).

In Chapter II the upward trends in world trade since 2003 have been bolstered by international import demand for oil, non oil commodities and capital flows needed to support economic growth. The United States of America remains the major locomotive for world trade with its imports accounting for 13 percent of the world total in 2001. A further moderation in the import demand in the U.S. is expected for 2007. Exports in Western Europe are expected to decelerate in 2007 as world demand slows. However, the Euro may appreciate further due to exports to new EU members. Import demand in most developing countries and the economies in transition have accelerated during 2006, owing to sustained economic growth in these economies. Strong regional demand in Africa, Latin America and Western Asia may stimulate their regional trade offsetting low import demand from developed economies such as the United States and Japan. China’s imports account for 7 percent of the world total and it has enjoyed strong growth in intra Asian flows. For example, 60 percent of China’s imports originated from other Asian economies (P. 36). According to Figure 11.2 on Page 37, the value of world imports 2000-2007, developed economies share 60
percent, developing: economies account for 35 percent, and transition countries take 5 percent. Undoubtedly, the growth of international trade in the past ten years is now facing two difficult problems. One is the Doha Round which effects member countries cooperation at the World Trade Organization (WTO). Another is the imbalances in trade accounts across regions, especially the trade deficit in the United States, and on the contrary, the trade surpluses of China, Japan and Germany.

Chapter III is a difficult chapter to analyze because financial flows are less tangible than international trade. Moreover, financial flows involve different parties, different regions, different components and different objectives. This Chapter first explains, paradoxically, how developing economies as a group increased their net outward transfers of financial resources to developed countries cumulatively to an estimated $657 billion (P. 57). This large amount basically represents how the trade surplus countries such as China, Japan, Russia and Saudi Arabia were able to finance the U.S. current account deficit by investing in U.S. Treasury securities. Some other trade surplus countries such as Brazil, Argentina, Mexico, the Philippines and Turkey also used their reserves to pay off their external debt to investors in the developed countries, formerly incurred under the Brady Bond agreements.

Secondly, Chapter III focuses on the financial flows to developing and transition economies. Table III.2 shows the net financial flows to developing and transition economies was $185 billion in 2006. It is expected to decline to $142 billion in 2007 (pp. 59 60). Among different regions East and South Asia accounted for about 50 percent ($98 billion) of the total amounts, transition economies 25 percent ($42 billion) in 2006. The major purpose of the financial flows was for foreign direct investment (FDI); followed by portfolio investment which was volatile, depending on the economic and financial market cycle. Short term flows between banks in different regions also were volatile, subject to interest rate and foreign exchange rate movements, as well as changes in inflation rates. Net official flows in general have been lower, due to the fact that developing countries in recent years have raised funds from financial markets in lieu of borrowing from the international agencies such as the IMF and World Bank. These countries have paid back previous borrowed funds. Occasionally, some countries such as China and India have donated funds to help heavily indebted and poor countries (HIPC) under the UN Millennium Project.

Finally, this chapter briefly explains development in the local currency bond markets in emerging economies such as Brazil, China, India, Malaysia, Mexico, Korea, Turkey, and South Africa (pp. 63 and 81), but fall short of providing analysis of other emerging market sectors (e.g. equity market and foreign exchange market), which are vitally important for economic growth and trade financing. However, there is a brief note at the end of the chapter stating that financial markets are within the jurisdiction of the IMF. The reviewers make comments on this subject below.

Chapter IV, Regional Development and Outlook, provides more detailed analysis of both developed and developing countries in all regions. The analysis is supported by many good sources including the IMF, World Bank, UN Regional Economic Commissions and the Central Bank of the Russian Federation.

Concluding Remarks and Suggestions

Overall, this volume provides a broad coverage of developments in the world economy, including trade, financial flows, regional developments, and macroeconomic policy coordination. It serves the international analyst well. However, there are four important points related to regional developments deserving some comments.

First, this report includes Mexico in the Latin American group (common language) instead of the North American group (geographical neighbors), surprising when Mexico is a signatory of the NAFTA Agreement (North American Free Trade Association). Mexico’s manufactured goods and oil exports to the United States have, since 1993 been designed to meet destination market specifications. For this reason, Mexican-United States economic relations are quite different from those of other Latin American countries (pp. 119 120).
Second, the possible trade slowdown between Western Europe and the United States may force Western Europe to increase trade with Eastern Europe, Africa, and Asia where economic growth remain strong. This shift may affect the U.S. competitive trade position in these areas in 2007 and thereafter (pp. 93 97). Third, considerable economic growth in China and India will need more intra-Asia regional trade and increase their imports from and exports to Africa. This also may weaken the U.S. trade position with these countries (pp. 109 112).

The last but not least important question is: How could the downside risk of world output in general and the United States economy in particular be helped by strong growth in emerging economies such as China, India, Russia and Brazil (BRIC), at the same time, these emerging economies also need help for themselves? Nowadays, it is not unusual to encounter these headlines in some respectable periodicals: "China Bubble", "India Overheats", "Two Russian listings in London fall short of target", and "Brazil's timid reform".

In view of these interconnected events, we suggest that policies may be needed to strengthen the "regional locomotive financial markets", in the four fast growth developing countries, namely China, India, Russia and Brazil. Some essential points regarding these suggestions are identified below. These relate to Purpose, Process, and Critical Elements required for these markets to operate as effective drivers within these respective regions.

**Purposes:** To improve the structural and functional aspects of national financial markets to meet national and international standards and targets for national economic development locomotive financial markets are expected to become a model of financial market operation and performance for other countries in the same region.

**Process:** Individual locomotive countries should take the initiative in consultation with the key supranational agencies such as the IMF and World Bank, concerning how their financial markets may be strengthened and improved. Governments should beware of any stages of market development policy priority, focusing on long term objectives toward market efficiency and operational effectiveness in the context of growing markets that are broad, deep and resilient. The recent "Joint China IMF Training Program" is a case in point.

**Critical Elements for Success:**
Functioning financial markets require adequate financial infrastructure, sufficient savings and investment outlets, supportive monetary policy, and appropriate securities regulation to ensure a successful evolution of the financial sector. We must expect changing circumstances and surprises, including business cycles, financial speculation and financial crisis. Healthy financial institutions and forward looking market research must be encouraged to be prepared for and to deal effectively with these changing circumstances.

**Notes:**
** IMF Survey, July 26, 2006, p. 221.
Book Review

Recent Financial Crises: Analysis, Challenges and Implications.


The editors of this volume have brought together papers authored by fifteen researchers, highly respected for their long standing efforts to analyze and clarify our understanding of financial crises. One of the editors, Lawrence R. Klein is a Nobel laureate and renowned econometrician. The second editor, Tayyeb Shabbir, is an expert analyst of East Asian economic trends. The contributing authors include a number of well known and highly regarded professionals, including F. Gerard Adams, Barry Eichengreen, Anil B. Deolalikar, Richard J. Herring, Ronald L. McKinnon, Süleyman Ozmucur, Liping Tao, and Pranee Tinakorn.

The focus of this volume is the Asian financial crisis and ripple effects concerning Russia, Brazil and other countries. Considerable attention is given to predictability of crisis, reforms to ameliorate after effects, and econometric studies of labor market, investment productivity, exchange rate, and core inflation. Since we have experienced a significant number of major financial crises during the past decade, and felt the after shocks, it is important to consider country specific economic and financial sector reforms. We need to be sure that the appropriate lessons have been learned from these crises, and that the reform of the global financial system moves forward.

Many lessons have been learned from these crisis episodes. More countries regularly report the value of non performing loans as a way of monitoring the banking sector. There is a trend towards maintaining transparency and prudent risk management by private financial institutions. Central banks are now routinely expected to furnish prompt and regular reports regarding the international reserves they manage.

Analysis has focused on possible cures for the crises. These center on three areas: appropriate exchange rate policy, capital market reforms, and governance in private business.

Exchange Rate Policy

In many circles it is believed that an appropriate exchange rate policy is to have no deliberate policy at all. While the Asian crisis (1997-98) was a watershed event that persuaded many of the desirability of flexible exchange rates, many subtleties require attention. The question of the appropriate choice of an exchange rate system is not an open and shut case. Private capital flows have come to dominate trade flows and lend a high level of volatility. Also, the capital mix has changed, with more direct foreign investment, and less capital flow on official account.

A particularly vexing question is the appropriate policy response to China’s trade surplus. An often cited solution, yuan appreciation, may do little to alleviate the problem, since one cause of the imbalance is found in international wage differentials in the range of 20-1 to 30-1 in favor of China.

In Chapter 2 it is noted that in the case of Thailand several early warning indicators of currency crises are worth watching; export growth, current account/GDP, real exchange rate, real GDP growth, and change in stock prices. An awareness of these indicators should lead to more timely policy action.

In Chapter 4 discussion focuses on use of capital controls. The chapter concludes that capital controls in Malaysia had a number of desired effects on real GDP growth. In this case capital controls helped policy makers manage the crisis better with improved stabilization benefits.
Capital Market Reforms

Two dominant issues need to be considered in reforming capital markets. These are 1) the optimal degree of liberalization, and 2) relative completeness of the scope of capital market instruments or institutions. Capital market liberalization is desired, since it increases efficiency through better allocation of resources. But this benefit comes at a cost, since liberalization makes the economy more vulnerable to contagion and external shocks. The balancing of these gains and losses suggests that there is an "optimal market liberalization." This raises the question, what is the safe rate at which transition should take place? Capital controls is one method to contain potential vulnerability to openness. This requires precise and thoughtful design of policy, with assessment of relevant side effects. Few studies undertake this assessment. In Chapter 4 of this volume such assessment is carried out, in an econometric analysis of Malaysia. The chapter notes that Malaysian capital controls had many positive and desired effects in economic stabilization.

Regarding the issue of relative completeness of capital markets, the emerging market countries lack well functioning bond markets, even when they possess fairly well developed equity markets. The study of bond markets in emerging economies is starting to receive greater attention. There is growing interest in the role of a viable bond market in improving the efficacy of financial intermediation, as well as how a robust bond market may buffer or soften a future crisis. Chapter provides a case study of the Thai bond market in relation to the 1997-98 Asian crisis.

Private Business Governance

The third aspect of capital market reforms, corporate governance, is an important issue receiving greater attention. This encompasses concerns over the role of minority shareholders, full disclosure, prudent risk management, and the role of the board of directors. Also, it considers behavioral issues such as conflict of interests and use of inside information.

One focus in Chapter 3 is the promulgation of standards and codes designed to enhance transparency and strengthen market discipline. A problem is that benefits may be less than expected if public information crowds out private information. The IMF has become more transparent, and now posts so much information on its website, that it is difficult for many to keep up.

The addition of collective action clauses (CACs), to debt securities governed by New York law has further made the world a safer place. Since 2003 this contractual innovation has become the norm. In the period 2003 2004 sovereign bonds containing CACs constituted over 75 percent of the total value of new issues. It is hoped (and expected) that the addition of majority consent provisions to sovereign debt instruments will ease holdout problems and facilitate orderly restructuring. There will be fewer cases like Argentina (2001), and they will reduce the moral hazard associated by the expectation of bailouts, in turn, strengthening market discipline.

Concluding Remarks Re: Crises

Financial crises can be costly for the world economy and in their societal impacts. Predictability in the form of early warning systems is important and highly useful. However, they are not a cure all. Formal econometric models of currency crises are useful tools. But due to limitations related to convergence and other technical matters, they can be overly structured and restrict the scope of discussion. The vulnerabilities of economies to currency crisis require a broad sense of the determinants of crisis.

It also is important to explore the aftermath of a financial crisis. The after effects have many societal implications, including income distribution and poverty. Structural reforms are needed, both to reduce the chances of recurrence and soften their impact. The authors recommend robust safety nets targeted towards those most likely to be adversely affected by a financial crisis.
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