



THE ROBERT DAY SCHOOL  
OF ECONOMICS AND FINANCE  
CLAREMONT MCKENNA COLLEGE

Robert Day School Working Paper No. 2008-10

**STOCK MARKET SENTIMENT AND THE DRAINING OF  
CHINA'S SAVINGS DEPOSITS**

October 2008

Richard C. K. Burdekin  
*Claremont McKenna College*  
*Robert Day School of Economics and Finance*

Luke Redfern  
*Credit Suisse*

Forthcoming in *Economics Letters*

**Corresponding author:**

Richard C. K. Burdekin  
Jonathan B. Lovelace Professor of Economics  
Claremont McKenna College  
500 E. Ninth Street  
Claremont, CA 91711  
Phone: 909-607-2884  
Email: [richard.burdekin@claremontmckenna.edu](mailto:richard.burdekin@claremontmckenna.edu).

**Abstract:** This letter examines the importance of sentiment effects on asset allocation decisions in mainland China. While liquidity matters too, we find that rising stock market sentiment exerted a statistically significant negative effect on Chinese time deposit growth during 2003-2007.

**Keywords:** China; savings deposits; share prices; sentiment; Shanghai

**JEL Classifications:** O16; E41

---

The authors are most grateful to the Lowe Institute of Political Economy at Claremont McKenna College for funding this student-faculty research project and thank Nancy Tao, Li Qingyang and Wen Yu for assistance with data collection.

## 1. Introduction

Traditionally, the vast bulk of Chinese household wealth has been held in banks and most savings have been held as bank deposits rather than as bonds, equities or hard assets. Bond markets, stock markets and housing markets were not even established in the People's Republic until the 1980s or later, and the performance of these asset classes was subject to high degrees of volatility and quite low participation rates (see, for example, Burdekin, 2008, Chapter 8). China's stock markets began a sharp ascent in 2005 that has been seen as triggering an outflow of funds from bank savings accounts into equities, however. After savings deposits fell by 7.6 billion RMB in a single month during October 2006, in a trend that continued into the following year, the People's Bank of China itself cited enthusiasm for the stock market as the major determinant of this decline (People's Daily Online, 2007a). In quantifying this flow of funds, the central bank announced that over 70 billion RMB was transferred from savings accounts into the stock market during the first four months of 2007 (China Securities Journal, 2007). Withdrawals from savings deposits may also, of course, reflect rising inflation rates in China that eventually gave rise to negative real interest rates in 2007. In this paper we allow for effects of real interest rates and income levels on savings deposits but also explicitly allow for the effects of the stock market as an attractor by using data on investor sentiment that has been compiled by the People's Bank of China since 2003. We identify consistently significant effects of this sentiment measure on savings deposit growth in China over the 2003-2007 period.

The slowdown in the accumulation of Chinese household savings in 2006-2007 was a striking departure from past strong growth that had continued year after year. As

laid out by Friedman (1956), such reduced bank money balances could reflect either lower own rates of return or higher returns on alternative assets. Even though the benchmark one-year deposit rate in China was successively increased, standing at 3.87% in October 2007, this lagged behind the rate of increase in China's consumer price index which reached an annualized 6.5% by August 2007. Our empirical analysis compares the effect of the declining inflation-adjusted own rates of return on deposits to the potential role of the stock market in drawing funds out of savings deposits as equity returns soared. Strongly positive stock market sentiment was reflected in an October 2007 survey by the People's Bank of China that showed a record 35.6% of respondents ranking investment funds and stocks as their most important assets. Meanwhile, 44.3% of the households "believed that it pays to invest in the stock market," while the proportion ranking bank deposits as their most important assets fell from 70.4% in the first quarter of 2007 to 50.4% in the third quarter (People's Daily Online, 2007b).

## **2. Data and Empirical Specification**

The People's Bank of China began conducting public sentiment surveys in 2003 and sentiment index data have been reported quarterly since September 2003 by the People's Bank (<http://www.pbc.gov.cn>). In these surveys, 20,000 households from large, medium and small cities throughout the country are questioned. With the survey results being compiled throughout each quarter, straight-line growth between quarters offers a reasonable way of estimating monthly sentiment levels. We combine this sentiment series with data on narrow and broad money (M0 and M2), time deposits, time deposit interest rates, per-capita monthly income, consumer price inflation, and the Shanghai A-share index—all obtained from the Great China Database

(<http://www.finasia.biz/tejonline/tejonline.htm>).<sup>1</sup> The real one-year time deposit rate was generated by subtracting current period inflation from the current one-year nominal rate. The money growth measures, time deposits, per-capita income, and the Shanghai A-share index were converted into log growth rates for all regressions to assure stationarity.<sup>2</sup> We used the following as our basic regression model estimated using the available 46 monthly observations since the People’s Bank’s sentiment surveys began in 2003:

$$\begin{aligned} \text{Growth of Time Deposits} = & \alpha_i + \beta_1 \text{Growth of M0} & (1) \\ & + \beta_2 \text{Growth of Per-Capita Monthly Income} + \beta_3 \text{Real Time Deposit Rate} \\ & + \beta_4 \text{Stock Propensity} + \beta_5 \text{Lagged Growth of Time Deposits} \\ & (+ 11 \text{ seasonal dummies}) \end{aligned}$$

“Stock Propensity” measures the percent of people that list stocks or funds as their first investment choice, so that as the value of this sentiment index increases more people prefer the stock market over other investment opportunities such as savings accounts. Given that M2 includes time deposits, our dependent variable, we focused on base money, M0, as our benchmark liquidity measure. Additional controls incorporated in subsequent regressions include growth in the Shanghai A-share index, a time trend, and a second sentiment measure: “Price Satisfaction.” This price satisfaction index reflects how comfortable people are with current prices – and, as higher index values imply less worries about current price levels, this could boost demand for savings deposits to the extent that there is less concern about inflation eroding real returns.

---

<sup>1</sup> As only quarterly per-capita monthly income figures were available for 2007 we calculated the average income over each quarter in that year and combined this with the monthly data available for the preceding years.

<sup>2</sup> Attention was limited to contemporaneous values as allowance for lagged values of the right-hand-side variables always showed these extra terms to be insignificant.

### 3. Estimation Results

The OLS results of estimating Equation 1 are presented in column (1) of Table 1.<sup>3</sup> We observe a negative relationship between the growth in time deposits and stock propensity that is significant at approximately the 95% level.<sup>4</sup> Consistent with our priors, this suggests that the rising attraction of China's stock markets has played a meaningful role in inducing Chinese households to substitute away from their traditional concentration in savings accounts. Also as expected, higher levels of liquidity reflected in growth in M0 appear to positively impact time deposit growth and this effect is significant at the 99% level. The coefficients on growth in per-capita income and the real interest rate, while having the expected positive signs, are statistically insignificant. This offers support for the premise that the buoyant stock market has been a more important contributor to the slowdown in China's savings deposits than the erosion in real interest rates associated with rising inflationary pressures. An inverse relationship between stock propensity and the growth rate of China's time deposits is also suggested by the graphical display in Figure 1, which plots movements in these two series over the full available 2003-2007 sample period.

The relationship between stock propensity and growth in time deposits remains negative and statistically significant after controlling for additional factors as shown in columns (2) through (5) of Table 1. Substituting growth in M2 for M0 actually increases the significance of stock propensity to almost the 99% level (column (2)). While the addition of a time trend leads to some fall in significance, stock propensity remains

---

<sup>3</sup> The existence of serial correlation was always rejected based on the Breusch-Godfrey LM test. The limited available sample period (leaving us with 28 degrees of freedom after including eleven seasonal dummies and allowing for a lagged dependent variable) made testing for structural breaks infeasible in this case.

<sup>4</sup> The exact significance level is 94.71%.

significant at above the 90% level here (column (3)).<sup>5</sup> Adding growth in the Shanghai A-share index to the specification alongside stock propensity leaves stock propensity significant as before but shows growth in the share index to be insignificant (column (4)). Although investor preferences are clearly highly influenced by the level of the stock market, period-to-period changes in the stock market appear to contribute no additional explanatory power, therefore.<sup>6</sup> Finally, adding another sentiment measure, price satisfaction, actually has the effect of increasing the significance of stock propensity by a small amount – while price satisfaction is itself found to be insignificant.

These results all indicate that individuals' evolving investment preferences have been a driving factor in the slowdown of time deposits as sentiment was boosted by China's newly resurgent domestic stock markets. The major qualification in all this remains, of course, the very limited 2003-2007 sample period over which the sentiment series has been collected. This short period of time does still appear to offer substantial variation in the overall market environment, however. Yan et al. (2007) identify a bull market cycle running from the beginning of our estimation period in October 2003 until March 2004, followed by a bear cycle from March 2004-May 2005, and finally an uncompleted bull cycle beginning in May 2005. It should also be emphasized that our results are very much in line with the People's Bank of China's own market observations and with the visual display of the trends shown in Figure 1.

---

<sup>5</sup> The lower significance level may well be due to multicollinearity – and the correlation between the time trend and stock propensity is 0.681.

<sup>6</sup> The investor sentiment series is itself, not surprisingly, closely tied to the level of the A-share index. Notwithstanding a very high 0.978 correlation between these two variables, experimentation with simply entering the level of the A-share index in place of the sentiment series resulted in lower significance levels that were generally no better than the 90% threshold – suggesting that the sentiment series does offer some meaningful additional value relative to the share price index.

#### **4. Conclusions**

The withdrawal of funds from savings accounts in order to participate in a hot stock market has some apparent parallels with the US experience in the 1990s. In this latter case, well before the bull run ended in 2000, former Federal Reserve Chairman Alan Greenspan (1996) famously expressed his concern about “irrational exuberance.” Further data may not only allow firmer conclusions to be drawn regarding the role of investor sentiment in China but also us to observe how the relationships studied in this paper may be affected by the eventual ending of China’s greatest ever bull market cycle (so far) .

## References

- Burdekin, R.C.K., 2008, China's Monetary Challenges: Past Experiences and Future Prospects (New York: Cambridge University Press), forthcoming.
- China Securities Journal, 2007, Chinese pour savings deposits into stock market, May 14 ([http://www.cs.com.cn/english/ei/200705/t20070514\\_1101649.htm](http://www.cs.com.cn/english/ei/200705/t20070514_1101649.htm)).
- Friedman, M., 1956, The quantity theory of money—a restatement, in: M. Friedman, ed., Studies in the Quantity Theory of Money (Chicago: University of Chicago Press) 3-21.
- Great China Database, Taipei, Taiwan (<http://www.finasia.biz/tejonline/tejonline.htm>).
- Greenspan, A., 1996, The challenge of central banking in a democratic society, Remarks at the Annual Dinner and Francis Boyer Lecture of the American Enterprise Institute for Public Policy Research, Washington, DC, December 5 (<https://www.federalreserve.gov/boarddocs/speeches/1996/19961205.htm>).
- People's Bank of China, Beijing (<http://www.pbc.gov.cn>).
- People's Daily Online, 2007a, The pace of growth in savings seems to be slowing, January 5 ([http://english.people.com.cn/200701/05/eng20070105\\_338558.html](http://english.people.com.cn/200701/05/eng20070105_338558.html)).
- People's Daily Online, 2007b, Growth in China's household savings slows down, October 15 (<http://english.people.com.cn/90001/90778/6282823.html>).
- Yan, W., J.G. Powell, J. Shi and W. Xu, 2007, Chinese stock market cyclical regimes: 1991-2006, Economics Letters 97, 235-239.



Independent Variables	Dependent Variable = Growth of Time Deposits				
	(1)	(2)	(3)	(4)	(5)
Growth rate of M0	0.1556*** (4.54)		0.1545*** (4.65)	0.1648*** (4.73)	0.1561*** (4.74)
Growth rate of M2		1.7366*** (3.25)			
Growth Rate of PerCapita Monthly Income	0.0220 (1.50)	0.0204 (1.53)	0.0209 (1.34)	0.0315 (1.56)	0.0210 (1.35)
Real Time Deposit 1-yr Rate	0.0003 (0.26)	-0.0012 (-0.85)	-0.0004 (-0.20)	0.0008 (0.55)	0.0002 (0.17)
Growth rate of Shanghai A Index				-0.0321 (-0.75)	
Stock Propensity	-0.0456** (-2.02)	-0.0564** (-2.72)	-0.0591* (-1.75)	-0.0396** (-2.02)	-0.0535*** (-2.03)
Price Satisfaction					-0.0002 (-0.62)
Time			0.0001 (0.48)		
Lagged Growth of Time Deposits	0.0932 (0.54)	-0.0906 (-0.58)	0.1051 (0.60)	0.0902 (0.50)	0.0957 (0.55)
Observations	45	45	45	45	45
Adjusted R-squared	0.872	0.868	0.868	0.872	0.869

Notes: Regressions include 11 seasonal dummies and constant (not shown); T-stat is in parentheses; Heteroskedastic Robust Standard Errors Used; \* denotes significance at 90% level, \*\* denotes significance at 95% level, \*\*\* denotes significance at 99% level

Table 1: Determinants of the Growth of Chinese Time Deposits, October 2003-June 2007

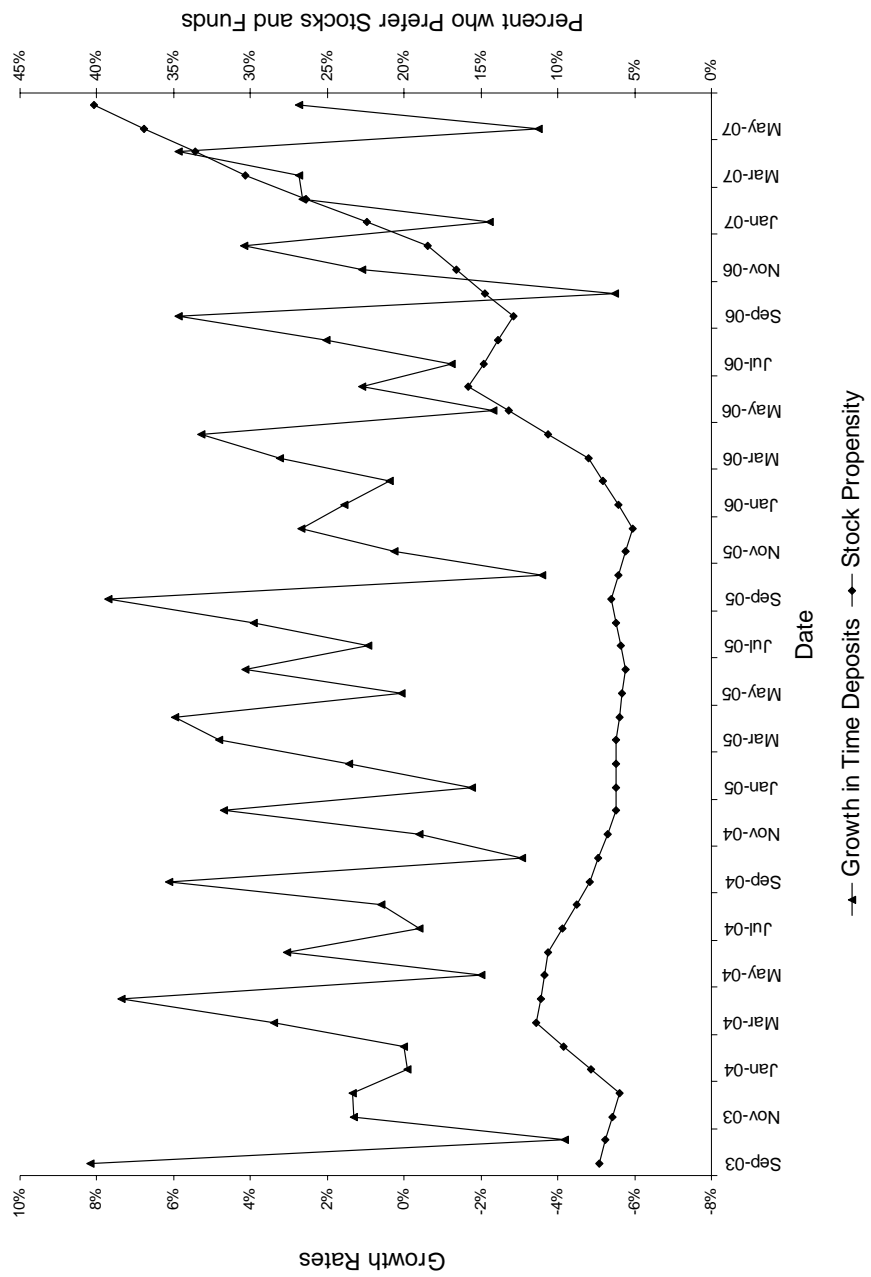


Figure1: Time Deposit Growth vs. Investor Sentiment, 2003-2007