creative commons
COMMONS DEED

저작자표시-비영리-변경금지 2.0 대한민국

이용자는 아래의 조건을 따르는 경우에 한하여 자유롭게

- 이 저작물을 복제, 배포, 전송, 전시, 공연 및 방송할 수 있습니다.

다음과 같은 조건을 따라야 합니다:

저작자표시. 귀하는 원저작자를 표시하여야 합니다.

비영리. 귀하는 이 저작물을 영리 목적으로 이용할 수 없습니다.

변경금지. 귀하는 이 저작물을 개작, 변형 또는 가공할 수 없습니다.

- 귀하는, 이 저작물의 재이용이나 배포의 경우, 이 저작물에 적용된 이용허락조건을 명확하게 나타내어야 합니다.
- 저작권자로부터 별도의 허가를 받으면 이러한 조건들은 적용되지 않습니다.

저작권법에 따른 이용자의 권리는 위의 내용에 의하여 영향을 받지 않습니다.

이것은 이용허락규약(Legal Code)을 이해하기 쉽게 요약한 것입니다.

Disclaimer

dCollection

경영학석사 학위논문

Empirical Analysis of Noisy B/M in China Stock Market

중국 주식 시장에서 장부가치 대 시장가치 비율에 관한 실증연구

2013년 02월

서울대학교 대학원

경영학과 금융재무 전공

당 박 진

Empirical Analysis of Noisy B/M in China Stock Market

중국 주식 시장에서 장부가치 대 시장가치 비율에 관한 실증연구

지도교수 고 봉 찬

이 논문을 경영학 석사학위 논문으로 제출함

2013년 02월

서울대학교 대학원

경영학과 금융재무 전공

당 박 진

당박진의 석사학위 논문을 인준함

2013년 02월

위 원 장	채 준	(인)
부위원장	김 우 진	(인)
위 원	고 봉 찬	(인)

Abstract

Empirical Analysis of Noisy B/M in China Stock Market

Bochen Tang
Department of Business Administration
The Graduate School of
Seoul National University

Fama and French (2008a) argue that the limited success of the valuation formula using Fama and French 3 Factor Model is because the book–to–market ratio is a noisy measure of expected stock returns, which captures information about both expected cash flows and expected returns.

To find a better Capital Asset Pricing Model for China stock market, this study takes the data in China from 1996 to 2010 to examine whether the origins of Book-to-Market ratio, BM_t, in terms of past share issues, $NS_{t-k,t}$, past changes in price and book equity, $dM_{t-k,t}$ and $dB_{t-k,t}$, and the more distant changes in price and book equity summarized by BM_{t-k} can be used to provide better estimates of expected returns than BM_t alone. The hypothesis of this paper is that the components of BM_t help disentangle the information in the ratio about expected cash flows and expected returns, thus enhancing estimates of expected returns.

The empirical test in China stock market basically supports the hypothesis and over equity financing model well explains the differences and the anomalies in China stock market which includes that the net issue does not show the strong forecast power on the expected returns and the results differ for Microcap stocks (below the 20th China A–share stock market capitalization percentile) and All but Microcap stocks (above the 20th percentile of China A–share stock market capitalization percentile).

In the meantime, motivated by Min Li and Li He (2009), to test the inefficiency of China stock market, the whole sample periods is spitted into three parts to compare the efficiency before and after the China Split–share Structure Reform (2005) which aims to enhance the efficiency of China stock Market. There are some evidences which, to some extent, show the inefficiency combined the Subprime Mortgage Crisis (2007) decrease the explanation power of the synthesized B/M ration to estimate the expected return.

Keywords: Book–to–market Ratio, Expected Return, Expected Cash Flow, Over Equity Financing, Capital Asset Pricing Model

Student Number: 2010–24031

Contents

Section 1 Introduction 6
1.1 Background 6
1.2 Paper Structure 10

Section 2 Methods and Data 11
2.1 Fama and French (2006) Motivations 11
2.2 Regression Approach and Data Processing 12
2.3 Regression Test 16
2.4 Innovations of this Paper 18

Section 3 Empirical Analysis Results 19
3.1 Baseline Regression 19
3.2 Regressions (7) and (9) for Whole Sample Period 20
3.2.1 Regressions (7) and (9) for All Stocks 20
3.2.2 Regressions (7) and (9) for ABM Stocks 25
3.2.3 Regressions (7) and (9) for Microcap stocks 29

Section 4 Extrapolated Analysis Results 31
4.1 China Stock Mystery 31
4.2 Regressions (7) and (9) for 1996–2005 32
4.3 Regressions (7) and (9) for 2005–2007 35
4.4 Regressions (7) and (9) for 2007–2010 38

Section 5 Conclusion 40

References 42

국문초록 44

Tables

Table 1 Baseline Regression for All Stocks for 1996–2010 19

Table 2 Estimates of Regressions (7) and (9) for all Stocks for 1996–2010 24

Table 3 Estimates of Regressions (7) and (9) for ABM Stocks for 1996–2010 28

Table 4 Estimates of Regressions (7) and (9) for Microcap stocks for 1996–2010 30

Table 5 Estimates of Regressions (7) and (9) for all Stocks for 1996–2005 34

Table 6 Estimates of Regressions (7) and (9) for all Stocks for 2005–2007 37

Table 7 Estimates of Regressions (7) and (9) for all Stocks for 2007–2010 39

Figures

Figure 1 China Stock Index and GDP..... 31

Section 1 Introduction

1.1 Background

In recent years China's economy crackles with the dynamics of change and has grown at a remarkable rate, averaging near to 10% per annum. But meanwhile China's stock market suffered successive shakeouts in a slow growth or even stagnation. In the delirium of revolutionary success and market dominance, such details were easily ignored. On one hand, after the Split-share Structure Reform[1] and experiencing the global financial crisis, China was much more conscious of the most pressing need is to build a more efficient stock market. On the other hand, the market efficiency and the anomalies are the basic topics in either theoretical or empirical finance for a long time. As the Capital Asset Pricing Model evolved and more and more anomalies has been drawn, more studies focus on the valuation formula and try to expand it to give some rational explanation to these anomalies. Fama and French 3 Factor Model is such a typical and successful example. It

[1] Not all the shares in a company incorporated in China that are listed on a stock exchange are freely tradable. The split share structure of the Chinese public securities market refers to the existence of a large amount of non-tradable shares, including state-owned shares and legal person shares of a listed Chinese company. Only about one-third of the shares in a listed Chinese company are freely tradable. And Split-share Structure Reform is the second institutional revolution in Chinese securities market. It brings the right of trading to the shareholders of non-tradable shares through the consideration between the shareholders of tradable and non-tradable shares, makes a common benefit and changes the inconsistent situation of each other.

also addresses partially size effect and book–to–market ratio puzzle which drive out more debates in the recent studies. Thus, to build a more suitable and accurate asset valuation model and exam the efficiency for China's stock market is the main purpose of this paper.

The use of the book–to–market ratio (hereafter "B/M ratio") is motivated by the findings of Fama and French (1992) which shows that the B/M ratio of individual stocks has the ability to explain cross–sectional variation in stock returns, and Rosenberg, Reid, and Lanstein (1985), Fama and French (1992), Lakonishok, Shleifer, and Vishny (1994) also find the stocks with higher B/M ratio have the higher average stock return. And the similar findings also have been proved in the China stock market (Qi Yang and Zhanhui Chen (2003), Zhanhui Chen (2004)).

However Vuolteenaho (2002) shows the relationships between B/M ratio and forecasts of cash flows for cross section individual stocks, which indicates the B/M ratio contains the information both from expected return and expected cash flow. To help isolate the information of expected cash flow in the B/M ratio in the cross section, Fama and French (2006) create the proxy of expected cash flow from accounting fundamentals separately and run the cross sectional regressions using the proxy and other variables along with B/M ratio to explain the excess return. But the results are not quite clear.

Then Fama and French (2008a) develops a similar approach to test whether using the synthesized B/M ratio based on the past changes on both book equity and market price can capture the independent information of expected cash flow, which improves the

estimates to predict the expected returns. Specifically, using the log of each variables, the B/M ratio at time t, BM_t, equals the B/M ratio at time t – k, BM_{t-k}, plus the change in the book equity from time t – k to t, $dB_{t-k,t}$ and minus the change in the price from time t – k to t, $dM_{t-k,t}$:

$$BM_t = BM_{t-k} + dB_{t-k,t} - dM_{t-k,t} \quad (1)$$

Motivated by the above literatures, on one hand this study mainly follows Fama and French (2008a) to examine the hypothesis that as in equation (1) the evolution of B/M ratio covers independent information about expected cash flows and isolates it from the information about expected returns, which improves estimates of expected return. On the other hand, Fama and French (2005) find the firms that issue stocks possibly contain large investments in the past or future, while the firms that repurchase stocks also works the opposite way. Thus net share issues[2] should be considered as a third part factor or a new explanatory variable to improve estimate expected returns and help isolate the information about expected cash flows (Fama and French (2008a)).

Thus, based on the current existing researches and intending to find a better Capital Asset Pricing Model for China stock market, this study takes the data from China stock market to examine whether using the synthesized B/M ratio (following variables are all in the log value) consisted of the past changes in price $dM_{t-k,t}$, and in book equity, $dB_{t-k,t}$, the

[2] Net shares issue is the difference between total stock value issued and the stock value repurchased in a specific time period.

B/M ration at time t-k, BM_{t-k} which captures the former past changes in price and book equity, and the net share issues in the period from time t-k to t, $NS_{t-k,t}$ as an evolution of the original B/M ratio, BM_t, can provide better estimates of expected returns than using BM_t alone. And then motivated by Min Li and Li He (2009), this paper focus on China stock market and test the efficiency of China stock market by tearing the whole sample periods into three parts.

The empirical test results in China stock market basically supports the hypothesis that the information of expected cash flows and expected returns contained in BM_t can be captured by the evolved components of BM_t, which improves estimates of expected returns. But the results differ for All but Microcaps stocks (hereafter "ABM stocks"), that is, stocks above the 20th percentile of China A-share[3] stock market capitalization, and Microcap stocks (below the 20th China A-share stock market capitalization percentile). And the net issue losses forecast power on the expected returns. In the meantime, there are some evidences indicate the reasons of the inefficiency of China stock market with limited success on the new Capital Asset Pricing Model for Chinese stocks and show the

[3] In China, stocks can be classified into two types of shares: class A shares, which are denominated in Renminbi (CNY) and traded among Chinese citizens, and class B shares, which are denominated in foreign currencies (US dollar in Shanghai and Hong Kong dollar in Shenzhen) and originally traded among only non-Chinese citizens or overseas Chinese from 1992 to 2001 and changed to be open to both Chinese (concluding overseas Chinese) and non-Chinese citizens since 2001. (Apart from the ownership restrictions, these two classes of shares are same; owners have equal rights to cash flows and voting privileges.)

impact of the Split–share Structure Reform combined with the Subprime Crisis.

1.2 Paper Structure

In the following sections, Section 2 highlights the motivations and details the regression approach with further data processing and the test generated by the regression itself. In Section 3, the first part shows the foundation of this whole paper and the second part presents the results obtained from the empirical test in China stock market for the whole sample period from 1996 to 2010. The results for all stocks and for ABM stocks basically support the hypothesis that using the synthesized BM_t captures more information of expected cash flows and expected returns and generates better estimates of expected returns than using the original BM_t. But the results are not very clear for the Microcap stocks. In the meantime, Loughran and Ritter (1995) finds issuing stocks leads to a negative abnormal return, and Ikenberry, Lakonishok, and Vermaelen (1995) also states the positive abnormal return is caused by repurchases. But the results in this paper do not support any evidence for earlier works and report there is no any explanatory power of the net issues in China. Then Section 4 divides the whole sample period into three parts to test the inefficiency of China stock market and how the stock returns change under different market situations as the policy changed, specifically, before and after the Split–share Structure Reform and how the stock market works under the economic influence from the reform in the long run combing with the Subprime Crisis. Finally, Section 5 concludes, with emphasis on the interpretation of the results.

Section 2 Methods and Data

This section first presents the motivation for the tests as Fama and French (2006) explains. Then the Fama and French (2008a) cross–section regression setup is approached next. The following part expanded on the data processing and one simple regression test method generated by the cross–section regression itself in details. At last, the innovations and the main contributions are talked about a little.

2.1 Fama and French (2006) Motivations

Fama and French (2006) states that in the dividend discount valuation model as below,

$$M_t = \sum_{t=1}^{\infty} \frac{E(D_{t+\tau})}{(1+r)^{\tau}} \tag{2}$$

on the share level, the market value equals the expected dividends per share discounted by the internal rate of return, where M_t stands for the market equity price per share at time t, $E(D_{t+\tau})$ is the expected dividend at time $t + \tau$, and r is the internal rate of return for the expected dividends. Based on clean surplus accounting, the dividend at time t, D_t, equals equity earnings per share at time t, Y_t, minus the change in book equity per share from time t-1 to time t, $dB_{t-1,\,t}$[4].

Then the dividend discount model can be rewritten as

$$M_t = \sum_{t=1}^{\infty} \frac{E\left(Y_{t+\tau} - dB_{t+\tau-1,\,t+\tau}\right)}{(1+r)^{t}} \tag{3}$$

[4] Here $dB_{t-1,\,t}$ is the change in levels, i.e.: $dB_{t-1,\,t} = B_t - B_{t-1}$.

Both sides dividing by time t book equity, the final equation is like

$$\frac{M_t}{B_t} = \frac{\sum_{t=1}^{\infty} \frac{E\left(Y_{t+\tau} - dB_{t+\tau-1,\, t+\tau}\right)}{(1+r)^t}}{B_t} \tag{4}$$

In equation (4), if the other variables, $\frac{E\left(Y_{t+\tau} - dB_{t+\tau-1,\, t+\tau}\right)}{B_t}$, which is considered as expected cash flow, are held constant, a lower M/B ratio, M_t/B_t, i.e., a higher B/M ratio, B_t/M_t, implies a higher internal rate of return, r, vice versa. Thus the B/M ratio can be considered as a proxy for expected returns. As the assumption here is holding the expected cash flow constant, the uncertainty in the expected cash flows distorts the estimates of the expected returns using B_t/M_t. In the other words, B_t/M_t is not a clear proxy for expected returns, but contains the noisy information of expected cash flows. Removing or decreasing this noisy information from B_t/M_t helps building a clearer and better proxy for expected returns along, which enhances the estimates of the expected returns.

Thus, modifying the noisy BM_t which contains the independent information in its components about expected cash flows and expected returns into its components of BM_t in (1) to predict returns should provide better estimates of expected returns than BM_t alone.

2.2 Regression Approach and Data Processing

To approach the regression model for this paper, considerate the cross–section regressions of individual stock returns follow Fama and French (1992) while only using

market cap and the B/M ratio to predict monthly excess returns as the baseline regression:

$$R_{t+n} = a_{0,t+n}+a_{1,t+n}MC_t+a_{2,t+n}BM_t+e_{t+n} \quad (5)$$

In this regression, R_{t+n} is the simple return of stock for month t + n in excess of the market risk-free rate which is the 1-month deposit interest rate adjusted by "Time Deposits of Lump-Sum Deposit And Withdrawal - 3 Months" in "Deposit Interest Rates of Financial Institutions" from China Stock Market & Accounting Research Database (hereafter "CSMAR"); According to "Monthly Stock Price & Returns" in CSMAR, MC_t is the log of stock's market cap at time t where in China the market cap is usually calculated as the sum of the non-negotiable stock shares times net assets and negotiable stock shares times stock market price which is the closed price on June 30th of each year; BM_t is the log of the B/M ratio for time t, and B/M ratio is picked in "Return On Equity" from CSMAR calculating as the net asset per share over the market price at June 30th[5].

Then use the three components of BM_t in (1) instead of the B/M ratio part in the baseline regression function:

$$R_{t+n} = a_{0,t+n}+a_{1,t+n}MC_t+a_{2,t+n}(BM_{t-k}+dM_{t-k,t}+dB_{t-k,t})+e_{t+n} \quad (6)$$

In the meantime, since the change of the total book value contains the net issue which may be one of the candidates to help isolate information about expected cash flows. So considering the potential effect of net issues on the calculation of $dB_{t-k,t}$, this study takes the per share change as the measure of B/M and includes net share issues as a separate

[5] In China, preferred stock does not exist.

explanatory variable for returns. At last for the regression, this paper refers to model of Fama and MacBeth (1973), set cross–section regression month by month to test the stock excess return and analysis the average slopes from monthly cross–section regressions of stock returns on five variables as following:

$$R_{t+n} = a_{0,t+n}+a_{1,t+n}MC_t+a_{2,t+n}BM_{t-k}+a_{3,t+n}dM_{t-k,t}+a_{4,t+n}dB_{t-k,t}+a_{5,t+n}NS_{t-k,t}+e_{t+n} \quad (7)$$

In this regression, as all in the log value, R_{t+n} and MC_t as expounded before are the excess return and the market cap; BM_{t-k} is its B/M ratio for $t - k$ (with $k = 12$, 36, or 60); and $dM_{t-k,t}$, $dB_{t-k,t}$, and $NS_{t-k,t}$ are the change in price per split–adjusted share, in book equity per split–adjusted share, and in split–adjusted shares outstanding for the past 1, 3, and 5 years. In China, the book equity per share, B_t, is picked from the financial statements which is published in the next year, so this paper uses the fiscal year value reported during the previous calendar year, but the price in BM_t is for the end of the preceding December. The three change variables line up with BM_t. Thus, $dB_{t-k,t}$ is the change in book equity per share for the past 1, 3, or 5 fiscal years, and $dM_{t-k,t}$ and $NS_{t-k,t}$ are the changes in price per share and split–adjusted shares outstanding for the k months that end in December. Again in China the deadline for publishing the financial statements is the next year before the end of April (time t minus 2), in consider of the market may delay to react as the new information published, the regressions variables are updated at the end of June each year to predict the expected return monthly for July through the following June, which means the subscript n runs from 1 to 12. Then the subscript t increases to the next

June as the n equals 12. The data sample period in this paper is from July 1996 to June 2010[6]. Thus, when k = 12, t runs from July 1997, n starts at 1 and the first regression is used to test the variables for the expected returns of July 1997. Similarly, when k = 36 and k = 60, t runs from July 1999 and June 2001. As former notations, all variables in the regressions are in the log value, specifically, MC_t and BM_{t-k} are natural logs of market cap at time t and the B/M ratio at time t-k, and $dM_{t-k,t}$, $dB_{t-k,t}$ and $NS_{t-k,t}$ are the differences calculated in the log level between time t-k and time t. The sample in this paper uses all stocks data in both Shanghai Stock Exchange (hereafter "SHSE") A–share Market and Shenzhen Stock Exchange (hereafter "SZSE") A–share Market (i.e. All A–share stocks)[7].

The null hypothesis is that using the evolution of the original B/M ratio into does not help isolate the noisy information of expected cash flow, thus no improvement in the

---

[6] Though the China stock market is founded in 1992, but the <Corporation Law> was published in December, 1993 and more laws and regulations related were published to improve the validity and legality of the market till 1995. So the data time period is from 1996 to 2010 to enhance the efficiency and the accuracy of the market data.

[7] This paper deleted the following data from all A-share stocks:

(1) All kinds of ST stocks (S, ST, *ST, S*ST, SST, NST stocks) which are called Special Treatment Stock with the 5% stock price limitation and abnormal high risk.

(2) All stocks with non-positive B/M ratio (negative net assets).

(3) All stocks with missing data from July 1996 to June 2010.

(4) All stocks of financial industry where firms normally have much higher liberties than the other industry firms, which may result a lower book equity value, but the meaning here is different.

estimates of expected returns. Recalling regression (6), the null means BM_{t-k}, $dB_{t-k,t}$, and $dM_{t-k,t}$ have the same parameter $a_{2,t+n}$. Developing this into regression (7), the true slopes for BM_{t-k}, $dB_{t-k,t}$, and $dM_{t-k,t}$ should have the same value, but for BM_{t-k} and $dB_{t-k,t}$ are positive and for $dM_{t-k,t}$ is negative. Then the alternative hypothesis of this paper is the independent information about expected cash flows and expected returns can be captured by the components of BM_t, which generates better estimates of expected returns. If the alternative hypothesis is accepted, then the slopes for the three components of BM_t should be different, because the three components capture different information about expected cash flows and expected returns.

2.3 Regression Test

If coefficients of BM_{t-k}, $dB_{t-k,t}$, $dM_{t-k,}$ in regression (7) can be proved all have the different values, then it shows the success in isolating the information of the expected expected cash flow and expected returns hidden in the different factors, which means the different explanatory power contribution are made by different factors. In short, breaking BM_t into its components improves expected return estimates.

The key point here is analyzing the average slopes from monthly cross-section regressions of stock returns on five variables. So if only rely on the result from regression (5) then it will lack of convince. To enhance the accuracy and convince, this study also further testing the sum of $a_{3,t+n}$ and $a_{4,t+n}$. As $dB_{t-k,t}$ and $dM_{t-k,t}$ have different signs, so do the coefficients. If the sum is non-zero and statistically significant, then the significant

difference between the two coefficients states the different explanatory power to the stock expected return.

At last, to compare BM_{t-k} to $dB_{t-k,t}$ and $dM_{t-k,t}$, this paper takes a simple way use BM_t instead of BM_{t-k}. After substituting equation (1) into regression (6) as follow:

$$R_{t+n} = a_{0,t+n} + a_{1,t}+_nMC_t + a_{2,t+n}BM_{t-k} + a_{3,t+n}dM_{t-k,t} + a_{4,t+n}dB_{t-k,t} + a_{5,t+n}NS_{t-k,t} + e_{t+n}$$

$$=a_{0,t+n}+a_{1,t+n}MC_t+a_{2,t+n}(BM_{t-k}+dB_{t-k,t}-dM_{t-k,t})+(a_{2,t+n}+a_{3,t+n})dM_{t-k,t}+(a_{4,t+n}-a_{2,t+n})dB_{t-k,t}+$$

$$a_{5,t+n}NS_{t-k,t}+e_{t+n}$$

$$=a_{0,t+n}+a_{1,t+n}MC_t+a_{2,t+n}BM_t+(a_{2,t+n}+a_{3,t+n})dM_{t-k,t}+(a_{4,t+n}-a_{2,t+n})dB_{t-k,t}+a_{5,t+n}NS_{t-k,t}+e_{t+n} \quad (8)$$

The result generates a new regression:

$$R_{t+n}=b_{0,t+n}+b_{1,t+n}MC_t+b_{2,t+n}BM_t+b_{3,t+n}dM_{t-k,t}+b_{4,t+n}dB_{t-k,t}+b_{5,t+n}NS_{t-k,t}+e_{t+n} \quad (9)$$

Compare the (8) and (9), we can easily find the slopes for MC_t and $NS_{t-k,t}$ is the same as in (7) to (9). The slope for BM_{t-k} in (7), $a_{2,t+n}$, is also the slope for BM_t in (9), $b_{2,t+n}$, as given the lagged changes in price and book equity, $dM_{t-k,t}$ and $dB_{t-k,t}$, but the slope $b_{2,t+n}$ means the marginal effect of BM_t and stands for the marginal effect of BM_{t-k} in (7) as $a_{2,t+n}$. The interesting findings here are, firstly, the slope for $dM_{t-k,t}$ in (9), $b_{3,t+n}$, equals the sum of the slope for BM_{t-k} in (7), $a_{2,t+n}$ and the slope for $dM_{t-k,t}$ in (7), $a_{3,t+n}$; secondly, the slope for $dB_{t-k,t}$ in (9), $b_{4,t+n}$, is the difference between the slope for $dB_{t-k,t}$ in (7), $a_{4,t+n}$ and the slope for BM_{t-k} in (7), $a_{2,t+n}$. Thus using the average slopes $b_{3,t+n}$ and $b_{4,t+n}$ can be measured as a regression test as required of whether $a_{3,t+n}$ and $a_{4,t+n}$ have the same value as the slope $a_{2,t+n}$.

2.4 Innovations of this Paper

Basically, this paper follows Fama and French (2008a) to build the tests of synthesized B/M ratio and aims to find a better pricing model which could generate better estimates of expected return by helping isolate the information about expected cash flow and expected return. And this paper also refers to the idea in Min Li and Li He (2009), following the similar measures of the variables and the similar approaches to build more China-based regression tests by splitting the sample period into three parts.

The most important contribution of this paper is a new over equity financing model which well explains the differences and anomalies existing in China stock market. Also this paper improves some measures of variables and some parts of the regression approaches. For example, in Min Li and Li He (2009), the variables are update at the end of April every year because the end of April is the deadline for publishing the financial statements of last accounting year, and the sample is taken from 1995 to 2009. But in this paper, the variables are update at the end of June every year to give one month time for the market to absorb the new information and fully reflect the information in the stock price, which should enhance the accuracy of the tests; and the sample period range is expended to 2010, which probably covers more information about the economic situation, thus enhancing the efficiency test of China stock Market.

Section 3 Empirical Analysis Results

3.1 Baseline Regression

Table 1 summarizes estimates of baseline regressions for all stocks for 1996–2010.

Table 1 Baseline Regression for All Stocks for 1996–2010

Table 1 reports the results generated from baseline regression (5) which predicts monthly returns in excess of the 1–month risk–free rate adjusted by the 1–month deposit interest rate adjusted by "Time Deposits of Lump–Sum Deposit and Withdrawal (3 Months)" in "Deposit Interest Rates of Financial Institutions" from CSMAR for all individual stocks. "MC_t" is the log of stock's market cap at time t where the market cap is usually calculated as the sum of the non–negotiable stock shares times net assets and negotiable Stock shares times stock market price which is the closed price on June 30th; BM_t is the log of the book equity to market equity ratio per share at time t. Here book equity for the preceding calendar year is using the fiscal year ending data pronounced in April in the following year and market equity is using the end of December of the preceding calendar year data. The monthly regressions for July of year t to June of t+1 include SHSE A–share Market and SZSE A–share Market stocks with positive the fiscal year–end book equity for the preceding calendar year, $t-1$. Book equity for 1996 ~ 2010 is using CSMAR "Net Asset per share (adjusted)". The regression R^2 is the average of monthly coefficients of determination adjusted for the degrees of freedom. In this paper, the t–statistics for the average slopes are taking the approach as in Fama and French (1973): $t(\bar{a}_j) = \frac{\bar{a}_j}{s(\hat{a}_j)/\sqrt{n}}$ where $\bar{a}_j$ is the average of the month–by–month regression coefficient estimates; $s(\hat{a}_j)$ is the standard deviation of the monthly estimates and n is the number of months in the period, which is also the number of estimates. To explain monthly returns from July to next June, the variables in the regressions are updated at the end of June each year. The sample period is from July 1996 to June 2010 (1996 ~ 2010).

		Intercept	MC_t	BM_t	R^2
All Stocks	Slope	0.165 ***	-0.106 ***	0.071 ***	0.047
	t–statistics	3.696	-3.478	2.846	
ABM Stocks	Slope	0.112 **	-0.072 *	0.098 ***	0.047
	t–statistics	2.294	-1.851	3.157	
Microcaps	Slope	0.733 ***	-0.105 ***	0.105 **	0.064
	t–statistics	2.613	-2.594	2.199	

*: Statistically significant at 10% significance level
**: Statistically significant at 5% significance level
***: Statistically significant at 1% significance level

As the foundation of this paper and a baseline for the estimates of regressions (7) and (9), Table I summarizes the average slopes and their T−statistics from the cross−section regressions of individual stock, as Fama and French (1992), only using market cap and the B/M ratio, MC_t and BM_t, to predict monthly excess returns for the whole sample period from 1996 to 2010. Consistent with recent studies, Baoxian Zhu and Zhiguo He (2002) and Lin Luo (2003), the results here are very clear that the B/M ratio has a strongly positive relationship to forecast the excess return for both Total, ABM and Microcap stocks at a at least 10% significant level. Thus, the B/M ratio, BM_t, catches a strong explanatory power in China stock market and by this finding, the further studies on B/M ratio itself may help to build a better Capital Asset Pricing Model for China stock market. In the meantime, the market cap, MC_t, also shows extraordinary forecast power to the expected stock return in a negative relationship at a 5% significant level for both ABM and Microcap stocks. And the more interesting thing is after dividing all stocks into ABM stocks and Microcaps stocks, the results say the Microcap stocks seem more easily been affected by the size factor with a T−statistics = -2.594, compared to ABM stocks with a T−statistics = -1.851.

3.2 Regressions (7) and (9) for Whole Sample Period

3.2.1 Regressions (7) and (9) for All Stocks

According to Table 2, both MC_t and the three components BM_{t-k}, $dM_{t-k,t}$ and $dB_{t-k,t}$ have the strong explanatory power on the monthly excess return of all stocks for the

whole sample period, which means the evolution does help isolate the information hidden in expected cash flow and expected return. In the other hand, the net issue defined in this paper as a candidate to help isolate information about expected cash flows captures no explanatory power here. Min Li and Li He (2009) imputes this result to the statutory requirements of IPO/SEO are too high and the process of IPO/SEO is too time-wasting. This paper takes another deeper sight on this situation. Most of the studies of China stock market show the pecking order theory is not functional in China stock market where listed companies do not follow a pecking order when they need funds to finance investment projects (Jinlan Ni and Miaomiao Yu (2008), Zhengfei Lu and Kangtao Ye (2004)). But the reason net issue cannot capture the information of expected cash flow is because of the inefficiency of China stock market which leads a serious over equity financing behavior (Xiaojun Li (2009)). Zuxuan Zhao, Tao Zhao and Xuqiang He (2005) finds the split-share structure[8] gives the companies more reasons to do equity financing for transferring the company assets as the tunneling problem. Thus net issue is not a good candidate for expected cash flow when the profitable projects are no longer the reason to do equity financing.

[8] Not all the shares in a company incorporated in China that are listed on a stock exchange are freely tradable. The split-share structure of the China public securities market refers to the existence of a large amount of non-tradable shares, including state-owned shares and legal person shares of a listed Chinese company. Only about one-third of the shares in a listed Chinese company were freely tradable before Split-share Structure Reform. The reform is designed to float the non-tradable legal person shares through the open market.

The null hypothesis that if the components of the B/M ratio are irrelevant for estimating expected returns, then the true slopes for the three components of BM_t in (7) are equal in value for positive BM_{t-k} and $dB_{t-k,t}$ and negative $dM_{t-k,t}$ without statistical differences. According to the last column in Panel A and the estimates of $dB_{t-k,t}$ and $dM_{t-k,t}$ in Paner B, there are statically significant differences at least at 10% significance level between the true slopes in (7) of $dB_{t-k,t}$ & $dM_{t-k,t}$, and $dB_{t-k,t}$ & $BM_{t-k,t}$; but there is no statistically significant difference between the true slopes in (7) of $dM_{t-k,t}$ & $BM_{t-k,t}$. Basically, the explanation power for the three components of BM_t are statistically significant different, except for $dM_{t-k,t}$ & $BM_{t-k,t}$ are similar. Thus the evolution of B/M ratio can help isolate the information of expected cash flow and expected return, which generates better estimates of expected return.

The similar explanation power for $dM_{t-k,t}$ and BM_{t-k} indicates they must reflect the similar information which is both mixed with expected cash flow and the expected return, but the time is the difference here. BM_{t-k} has a more lag and older information than $dM_{t-k,t}$ does. In table 2, there are no differences exist between neither BM_{t-k} & $dM_{t-k,t}$ nor for one variable in different lagged time. So the time differences do not have effect on the estimates of expected return, which could be the result of over equity financing with ignoring the investment opportunity.

In the other hand, the estimates in table 2 also show the $dB_{t-k,t}$ which is a candidate of expected cash flow has a smaller slope than $dM_{t-k,t}$ and BM_{t-k} which hide the information

mixed with both expected cash flow and expected return. This could be a sign of inefficiency of China stock market caused by the over equity financing. Xiaojun Li (2009) states the companies do not prefer equity financing, but keep doing equity financing for several other reasons, such as low financing cost (Zhengfei Lu and Kangtao Ye (2004)). As a result, after equity financing, the companies commonly do not invest the money into some good or profitable projects, or change the use of these money into other non-main-business operations, even lend to the trust management companies. In the long run, the expected cash flow fails to have effective information. Thus the estimates effect from the expected cash flow is lower than the sum of expected cash flow and the expected return.

Table 2 Estimates of Regressions (7) and (9) for all Stocks for 1996–2010

Table 2 reports the results generated from regression (7) and (9) which predict monthly returns in excess of the 1−month risk−free rate adjusted by the 1−month deposit interest rate adjusted by "Time Deposits of Lump−Sum Deposit and Withdrawal (3 Months)" in "Deposit Interest Rates of Financial Institutions" from CSMAR for all individual stocks. "MC_t" is the log of market cap at the end of June, and "BM_t" is the log of the book equity to market equity ratio per share. "$dM_{t-k,t}$" is the log of change in stock price from time t − k to t and "$dB_{t-k,t}$," is the log of change in book equity per share from time t − k to t. "$NS_{t-k,t}$" is the log of change in split−adjusted shares outstanding with the same period from t − k to t. "$dB_{t-k,t}$ + $dM_{t-k,t}$" in Part A reports the average value calculating the sum of the true slopes for $dB_{t-k,t}$ and $dM_{t-k,t}$. the t−statistics for the average slopes are taking the approach as in Fama and French (1973): $t\left(\bar{a}_j\right) = \frac{\bar{a}_j}{s(\hat{a}_j)/\sqrt{n}}$ where $\bar{a}_j$ is the average of the month−by−month regression coefficient estimates; $s(\hat{a}_j)$ is the standard deviation of the monthly estimates and n is the number of months in the period, which is also the number of estimates. The variables in the regressions are updated at the end of June each year to explain monthly returns from July to June of the following year. Sample period is from July 1996 to June 2010 corresponding to k = 12 where k represents the monthly periods. The regressions starts from July 1998 and July 2000 for k = 36 and k = 60.

		Intercept	MC_t	BM_{t-k}	$dM_{t-k,t}$	$dB_{t-k,t}$	$NS_{t-k,t}$	$dB_{t-k,t}$ + $dM_{t-k,t}$
Panel A: Estimates of Regression (7), Which Uses BM_{t-k} as an Explanatory Variable								
k=12	Slope	0.207***	−0.137***	0.072***	−0.061***	−0.029**	−0.000	−0.031***
	t−statistic	2.884	−3.211	4.219	−3.771	−2.143	−0.278	−2.609
k=36	Slope	0.103**	−0.102***	0.053***	−0.047***	0.042*	0.000	−0.005*
	t−statistic	2.421	−2.768	3.764	−3.276	1.668	0.586	−1.708
k=60	Slope	0.062**	−0.005**	0.062***	−0.051***	0.022***	0.000	−0.028*
	t−statistic	1.982	−2.053	4.503	−3.549	3.116	0.631	−1.723
Panel B: Estimates of Regression (9), Which Uses BM_t as an Explanatory Variable								
		Intercept	MC_t	BM_t	$dM_{t-k,t}$	$dB_{t-k,t}$	$NS_{t-k,t}$	
k=12	Slope	0.199**	−0.136**	0.072***	0.011	−0.042***	−0.000	
	t−statistic	3.176	−3.358	4.238	1.230	−3.476	−0.282	
k=36	Slope	0.098**	−0.102***	0.053***	0.006	−0.011*	0.000	
	t−statistic	2.775	−2.772	3.664	0.338	−1.650	0.587	
k=60	Slope	0.063**	−0.005**	0.062***	0.010	−0.042	0.000	
	t−statistic	2.013	−1.987	4.575	0.809	−1.727*	0.680	

3.2.2 Regressions (7) and (9) for ABM Stocks

Table 3 summarizes estimates of regressions (7) and (9) for ABM stocks for the whole sample period. As using all stocks data, using ABM stocks data along gets the similar results that MC_t, BM_{t-k}, $dM_{t-k,t}$ and $dB_{t-k,t}$ remain the strong explanatory power on the monthly excess return of ABM stocks for the whole sample period; In the other hand, the net issue fails to reflect any information it may contains.

Again, the way to test is there any improvements for using the three components of BM_t to estimate the expected return is by comparing the statically significant differences among the three components. But in Table 3, it fails to support our hypothesis when using the 1 year- and 3 year-lagged (i.e. k = 12 and k = 36) data. Except $dM_{t-k,t}$ and $BM_{t-k,t}$ as explained before, which they represent the similar information, according to Table 2, Panel A, the last column as the sum of $dB_{t-k,t}$ and $dM_{t-k,t}$ and in Panel B, the $dB_{t-k,t}$ column which is representative of the difference between dB_{t-k} in (7) and BM_{t-k} in (7) both only show the statistical meaning with a strong t–statistics 1.975 and 2.998 when using the 5 year-lagged (i.e. k = 60) data, but no meaning when using the 1 year- and 3 year-lagged (i.e. k = 12 and k = 36) data, which means in Regression (7) the slope of the $dB_{t-k,}$ has statistically significant differences with $dM_{t-k,t}$ and BM_{t-k} at a 5% and 1% significance level only when using the 5 year-lagged data. Thus, only the 5 year-lagged dB_{t-k} has a different explanatory power on the monthly excess return of ABM stocks for the whole sample period with $dM_{t-k,t}$ and BM_{t-k}.

Min Li and Li He (2009) points out the reason why newer data lose its explanation power is the different reliabilities of fundamental data between ABM stocks and Microcap stocks. Comparing to Microcap stocks, the investors take more attentions on the fundamental information of ABM stocks, which helps the information to be reflected in its price. So the information contained in the 5 years lagged dB_{t-k} may has been already reflected in the past stock price, which decreases the explanatory power on the on the current monthly excess return and shows the differences to $dM_{t-k,t}$ and BM_{t-k}.

Though this hypothesis explains the differences among different lagged data for ABM

stocks, but as Min Li and Li He (2009) said and said at first place "comparing to Microcap stocks", this explanation fails to explain the differences of the results show in Table 4 which summarizes estimates of regressions (7) and (9) for Microcap stocks for the whole sample period. Because, following this idea of the different reliabilities of fundamental data, Microcap stocks which have the lower reliabilities of the fundamental data should have a lower explanation power on dB_{t-k} (lower slopes) or relative higher differences between dB_{t-k} & dM_{t-k} or between dB_{t-k} & BM_{t-k}. But there is not such a finding in the results; on the contrary, dB_{t-k} for Microcap stocks in Table 4 shows a higher explanation power and relative lower differences between dB_{t-k} & dM_{t-k} and between dB_{t-k} & BM_{t-k}. Thus reliability differences seem not enough to this model.

To explain the differences between ABM stocks and Microcap stocks and from the lagged differences, recall the reason explained before for the differences between dB_{t-k} & dM_{t-k} and between dB_{t-k} & BM_{t-k} which is the inefficiency of stock market caused by over equity financing. As said before, firstly, there is a strong equity financing preference in China stock market (Shaoan Huang and Gang Zhang (2001), Dawu Yan, Jianxin Gen and Wenpeng Liu (2001)); secondly, according to recent studies, the equity financing preferences is actually the result of over equity financing rather than a real preference; thirdly, in the next few years after equity financing, companies normally do not have good profit on the projects and even changed the use of the fund owed from financing (Xiaojun Li (2009)). Especially, for ABM stocks which commonly (at least more than 70%) are or were nationwide state-owned companies in China, there are more motivations choose to do equity financing than Microcap stocks. Except the low financing cost, the debt capacity (Zhengfei Lu and Kangtao Ye (2004)) and tunneling (Zuxuan Zheng, Tao Zhao and Xuqiang He (2005)) also could be the candidate for the motivations of over equity financing. In China, the nationwide state-owned companies have a much higher debt ratio than average level, which gives them more motivations to do equity financing to decrease it. And tunneling also more commonly happened in the nationwide state-owned companies, probably because of the China Split-share Structure (Zuxuan Zheng, Tao Zhao and Xuqiang He (2005)). Thus, in one hand, over equity

financing makes the investors lose their faith in the projects companies invests and the expected cash flow lose its explanation power on the expected return, so the investors take more attentions on the fundamental information of ABM stocks (not because of the reliability differences), which results the differences of the explanation power for 5 year-lagged $dB_{t-k,t}$ with $dM_{t-k,t}$ and BM_{t-k}; in the other hand, comparing to the Microcap stocks, since ABM stocks have more motivations and trends in over equity financing, ABM stocks should have a lower explanation power on dB_{t-k} (lower slopes) or relative higher differences between dB_{t-k} & dM_{t-k} or between dB_{t-k} & BM_{t-k} than Microcap stocks have, which is identical to the findings in this paper.

In summary, only when using the 5 years-lagged (or more over ago) data, the basic story which the components of BM_t help disentangle the information in the ratio about expected cash flows and expected returns, thus enhancing estimates of expected returns, but the net issue losses forecast power on the expected returns, can be also proved in ABM stocks. And the over equity financing problem which is one of the reasons make the China stock market inefficient is more obvious and more serious in ABM stocks than in Microcap stocks when comparing the results here with the findings in Microcap stocks as in Table 4.

Table 3 Estimates of Regressions (7) and (9) for ABM Stocks for 1996–2010

Table 3 reports the results generated from regression (7) and (9) which predict monthly returns in excess of the 1−month risk−free rate adjusted by the 1−month deposit interest rate adjusted by "Time Deposits of Lump−Sum Deposit and Withdrawal (3 Months)" in "Deposit Interest Rates of Financial Institutions" from CSMAR for All but Microcap stocks. "MC_t" is the log of market cap at the end of June, and "BM_t" is the log of the book equity to market equity ratio per share. "$dM_{t-k,t}$" is the log of change in stock price from time t − k to t and "$dB_{t-k,t}$," is the log of change in book equity per share from time t − k to t. "$NS_{t-k,t}$" is the log of change in split−adjusted shares outstanding with the same period from t − k to t. "$dB_{t-k,t}$ + $dM_{t-k,t}$" in Part A reports the average value calculating the sum of the true slopes for $dB_{t-k,t}$ and $dM_{t-k,t}$. the t−statistics for the average slopes are taking the approach as in Fama and French (1973): $t\left(\bar{a}_j\right) = \frac{\bar{a}_j}{s(\hat{a}_j)/\sqrt{n}}$ where $\bar{a}_j$ is the average of the month−by−month regression coefficient estimates; $s(\hat{a}_j)$ is the standard deviation of the monthly estimates and n is the number of months in the period, which is also the number of estimates. The variables in the regressions are updated at the end of June each year to explain monthly returns from July to June of the following year. Sample period is from July 1996 to June 2010 corresponding to k = 12 where k represents the monthly periods. The regressions starts from July 1998 and July 2000 for k = 36 and k = 60.

		Intercept	MC_t	BM_{t-k}	$dM_{t-k,t}$	$dB_{t-k,t}$	$NS_{t-k,t}$	$dB_{t-k,t}$ + $dM_{t-k,t}$
Panel A: Estimates of Regression (7), Which Uses BM_{t-k} as an Explanatory Variable								
k=12	Slope	0.076***	−0.071**	0.098***	−0.103**	−0.031***	−0.000	−0.070
	t−statistic	3.917	−2.226	2.941	−3.319	−3.009	−0.220	−0.109
k=36	Slope	0.102**	−0.011**	0.106**	−0.101**	0.036***	0.000	−0.063
	t−statistic	2.132	−2.187	2.230	−2.302	2.670	0.190	−1.042
k=60	Slope	0.029**	−0.043*	0.126***	−0.107**	0.028**	0.000	−0.077**
	t−statistic	2.001	−1.842	2.913	−2.067	2.122	0.476	−1.975
Panel B: Estimates of Regression (9), Which Uses BM_t as an Explanatory Variable								
		Intercept	MC_t	BM_t	$dM_{t-k,t}$	$dB_{t-k,t}$	$NS_{t-k,t}$	
k=12	Slope	0.142**	−0.073**	0.099***	−0.004	−0.067	−0.000	
	t−statistic	2.301	−2.396	4.032	−1.012	−0.897	−0.222	
k=36	Slope	0.106***	−0.012**	0.108**	−0.005	−0.070	0.000	
	t−statistic	2.712	−2.109	2.335	−0.765	−1.573	0.188	
k=60	Slope	0.032**	−0.042*	0.126***	0.019	−0.100***	0.000	
	t−statistic	1.919	−1.804	2.948	0.719	−2.998	0.451	

3.2.3 Regressions (7) and (9) for Microcap stocks

Table 4 summarizes estimates of regressions (7) and (9) for Microcap stocks for the whole sample period. As the results show, MC_t, BM_{t-k}, $dM_{t-k,t}$ and $dB_{t-k,t}$ get a decreasing explanatory power on the monthly excess return with the lagged years increase, and only when using 1 year lagged data, the four factors can capture a strong explanatory power, in terms of a high t-statistics. The net issue also does have any statistical meaning here.

Exactly the reverse to ABM stocks, in Table 4, Panel A, the sum of $dB_{t-k,t}$ and $dM_{t-k,t}$ and Panel B the $dB_{t-k,t}$ which presents the differences between $dB_{t-k,t}$ and $BM_{t-k,t}$ in (7), both only show the statistical meaning with a strong t-statistics 2.652 and 2.761 only when using 1 year-lagged (i.e. k = 12) data, but no meaning when a longer time lagged, which means in Regression (7) the slope of the $dB_{t-k,}$ has statistically significant differences with $dM_{t-k,t}$ and BM_{t-k} at a 1% significance level only when using 1 year-lagged data. Thus only the 1 year-lagged dB_{t-k} has a different explanatory power on the monthly excess return of Microcap stocks with $dM_{t-k,t}$ and BM_{t-k}.

As the over equity financing model goes, in one hand, unlike ABM stocks, the over equity financing trend is relatively not so obviously for Microcap stocks. Thus the fundamental information of companies plays a less important role for Microcap stocks than for ABM stocks. But in the other hand, because of the small market value and relatively higher opaque financial situations, the stock prices of Microcap stocks are highly sensitive to the new information and are more easily to be manipulated. Thus, the effective information must be more captured by the new data and as the lagged time increases, the explanation power of the variables to the expected return gets decreased. By which means, the differences of explanatory power between dB_{t-k} with $dB_{t-k,t}$ and $dM_{t-k,t}$. also decrease and even disappear over the longer lagged time.

In a word, only when using the 1 year-lagged (or shorter) data, the basic story which the components of BM_t help disentangle the information in the ratio about expected cash flows and expected returns, thus enhancing estimates of expected returns, but the net issue losses forecast power on the expected returns, can be held for Microcap stocks.

Table 4 Estimates of Regressions (7) and (9) for Microcap stocks for 1996–2010

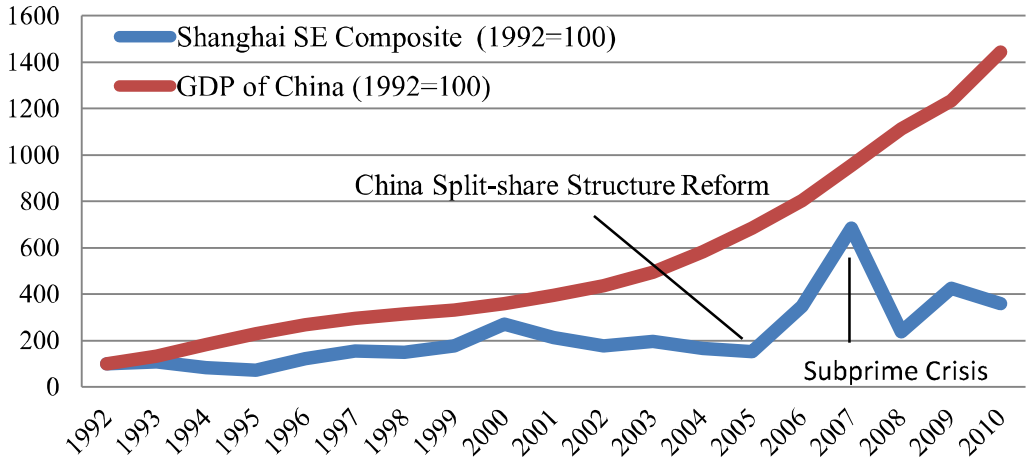
Table 4 reports the results generated from regression (7) and (9) which predict monthly returns in excess of the 1−month risk−free rate adjusted by the 1−month deposit interest rate adjusted by "Time Deposits of Lump−Sum Deposit and Withdrawal (3 Months)" in "Deposit Interest Rates of Financial Institutions" from CSMAR for Microcap stocks. "MC_t" is the log of market cap at the end of June, and "BM_t" is the log of the book equity to market equity ratio per share. "$dM_{t-k,t}$" is the log of change in stock price from time $t - k$ to t and "$dB_{t-k,t}$," is the log of change in book equity per share from time $t - k$ to t. "$NS_{t-k,t}$" is the log of change in split−adjusted shares outstanding with the same period from $t - k$ to t. "$dB_{t-k,t} + dM_{t-k,t}$" in Part A reports the average value calculating the sum of the true slopes for $dB_{t-k,t}$ and $dM_{t-k,t}$. the t−statistics for the average slopes are taking the approach as in Fama and French (1973): $t\left(\bar{a}_j\right) = \frac{\bar{a}_j}{s(\hat{a}_j)/\sqrt{n}}$ where $\bar{a}_j$ is the average of the month−by−month regression coefficient estimates; $s(\hat{a}_j)$ is the standard deviation of the monthly estimates and n is the number of months in the period, which is also the number of estimates. The variables in the regressions are updated at the end of June each year to explain monthly returns from July to June of the following year. Sample period is from July 1996 to June 2010 corresponding to k = 12 where k represents the monthly periods. The regressions starts from July 1998 and July 2000 for k = 36 and k = 60.

		Intercept	MC_t	BM_{t-k}	$dM_{t-k,t}$	$dB_{t-k,t}$	$NS_{t-k,t}$	$dB_{t-k,t} + dM_{t-k,t}$
Panel A: Estimates of Regression (7), Which Uses BM_{t-k} as an Explanatory Variable								
k=12	Slope	0.291***	−0.120**	0.141***	−0.172**	−0.085***	0.000	−0.088**
	t−statistic	3.202	−2.017	2.221	−3.275	−2.951	0.702	−2.652
k=36	Slope	0.302**	−0.169*	0.154*	−0.161	0.093*	0.000	−0.067
	t−statistic	2.532	−1.952	1.992	−1.687	1.729	0.513	−1.563
k=60	Slope	0.029***	−0.092	0.270	−0.296	0.028*	0.000	−0.263
	t−statistic	2.783	−1.218	1.531	−1.029	1.693	0.328	−1.491
Panel B: Estimates of Regression (9), Which Uses BM_t as an Explanatory Variable								
		Intercept	MC_t	BM_t	$dM_{t-k,t}$	$dB_{t-k,t}$	$NS_{t-k,t}$	
k=12	Slope	0.208***	−0.120***	0.141***	−0.031**	−0.056***	−0.000	
	t−statistic	2.763	−2.081	2.782	−1.978	−2.761	−0.701	
k=36	Slope	0.266**	−0.071**	0.155**	−0.007	−0.061*	0.000	
	t−statistic	2.425	−1.960	2.011	−0.982	−1.670	0.519	
k=60	Slope	0.048**	−0.093	0.279	−0.026*	−0.240	0.000	
	t−statistic	2.039	−1.267	1.509	−0.168	−0.089	0.316	

Section 4 Extrapolated Analysis Results

4.1 China Stock Mystery

Figure 1 China Stock Index and GDP



Resource: Datastream

Alien from the Chinese economy which has grown at a remarkable rate, averaging near to 10% per annum, the China stock market suffered successive shakeouts in a slow growth or even stagnation, which indicates the China stock market may be still in between ness from inefficacy to efficiency. To improve the market efficacy, the China Securities Regulatory Commission in 2005 published the Guidance Notes on the Split-share Structure Reform of Listed Companies. Led by the State Council, "the split share structure problem shall be dealt with in a dynamic and prudent manner." The reform is designed to float the non–tradable legal person shares through the open market. Such legal person shares could, under the reform program, be converted to tradable A–shares. The converted A–shares are subject to a lockup period. After Split–share Structure Reform, the stock market has exploded even as interest rates have remained low till 2007 the stock market also met the peak point. As mentioned before, over equity financing is the problem causing the inefficiency of China stock market and decreases or even eliminate the explanation power of the expected cash flow to expected return, which

caused the part differences between the explanation power in the components of BM_t for expected return and the net issue losing its explanation power in China stock market. And this over equity financing problem are highly related to the split-share structure and could be one of the results generated by the split-share structure (Zuxuan Zhao, Tao Zhao and Xuqiang He (2005)). Thus, test whether the Split-share Structure Reform helps enhance the efficiency of China stock market by decreasing the over equity financings in China stock market will be one important extrapolation of this paper. The reform remains some further measures to support the stock price, which seems caused a serious panic in China stock market (Siyao Wang and Penglin Li (2010)) and in the meaning time, the Subprime Crisis has broken out and also seems taken a heavy toll on the equity markets in Asia, making one wonder whether this is not the onset of a 'fourth–generation financial crisis' in the emerging market economies. Under such a background, this paper then divides the sample period into three parts to test before and after Split–share Structure Reform, are there any differences on the improvement of components of BM_t in China stock market and how it works in the long run under the global financial crisis.

4.2 Regressions (7) and (9) for 1996–2005

Table 5 summarizes estimates of regressions (7) and (9) for all stocks from July, 1996 to June, 2005. The results here are just basically supporting the hypothesis of this paper and similar but not identical to the findings in Table 2. The strong explanatory power on the monthly excess return of all stocks from BM_{t-k} and $dM_{t-k,t}$ is obvious in the findings; the explanation power of $dB_{t-k,t}$ is statistical-significantly different from BM_{t-k} and $dM_{t-k,t}$; the similar explanatory power between BM_{t-k} and $dM_{t-k,t}$ is also explained; and the net issue also captures no explanatory power. But MC_t loses its explanation power and $B_{t-k,t}$ does not show a very strong explanation power in this table.

Some interesting findings here are, firstly, MC_t loses its explanation power on excess return by using the longer lagged data, which could be considered as the evidence of the inefficacy of China stock market before the Split–share Structure Reform. Before the reform, for most of the listed companies, the stocks are in the form of non–tradable

shares, including state–owned shares and legal person shares, and the tradable shares only take a very small part of the total capitalizations. Thus, the MC_t cannot capture enough information to reflect the true price of the stocks; secondly, $dB_{t-k,t}$ does not show a strong explanation power on the excess return, which could be the clue that the split-share structure aggravates the over equity financing and gives more motivations to do so. As a result, the investors no longer buy these "profitable investment" stories. That is why $dB_{t-k,t}$ as a candidate of expected cash flow loses the information to estimate expected return.

Thus, based on findings here, the hypothesis the evolution of B/M ratio could help isolate the information of expected cash flow and expected return, which helps to estimate the expected return is basically proved but not quite statistically clear.

Table 5 Estimates of Regressions (7) and (9) for all Stocks for 1996–2005

Table 5 reports the results generated from regression (7) and (9) which predict monthly returns in excess of the 1−month risk−free rate adjusted by the 1−month deposit interest rate adjusted by "Time Deposits of Lump−Sum Deposit and Withdrawal (3 Months)" in "Deposit Interest Rates of Financial Institutions" from CSMAR for all stocks. "MC_t" is the log of market cap at the end of June, and "BM_t" is the log of the book equity to market equity ratio per share. "$dM_{t-k,t}$" is the log of change in stock price from time t − k to t and "$dB_{t-k,t}$," is the log of change in book equity per share from time t − k to t. "$NS_{t-k,t}$" is the log of change in split−adjusted shares outstanding with the same period from t – k to t. "$dB_{t-k,t} + dM_{t-k,t}$" in Part A reports the average value calculating the sum of the true slopes for $dB_{t-k,t}$ and $dM_{t-k,t}$. the t−statistics for the average slopes are taking the approach as in Fama and French (1973): $t(\bar{a}_j) = \frac{\bar{a}_j}{s(\hat{a}_j)/\sqrt{n}}$ where $\bar{a}_j$ is the average of the month−by−month regression coefficient estimates; $s(\hat{a}_j)$ is the standard deviation of the monthly estimates and n is the number of months in the period, which is also the number of estimates. The variables in the regressions are updated at the end of June each year to explain monthly returns from July to June of the following year. Sample period is from July 1996 to June 2005 corresponding to k = 12 where k represents the monthly periods. The regressions starts from July 1998 and July 2000 for k = 36 and k = 60.

		Intercept	MC_t	BM_{t-k}	$dM_{t-k,t}$	$dB_{t-k,t}$	$NS_{t-k,t}$	$dB_{t-k,t} + dM_{t-k,t}$
Panel A: Estimates of Regression (7), Which Uses BM_{t-k} as an Explanatory Variable								
k=12	Slope	0.106**	−0.010**	0.079***	−0.088***	−0.049*	0.000	−0.038*
	t−statistic	2.790	−2.319	3.486	−3.945	−1.780	0.258	−1.769
k=36	Slope	0.086	−0.007	0.104***	−0.123**	0.057	0.000	−0.066*
	t−statistic	1.129	−1.108	2.568	−2.308	1.524	0.811	−1.821
k=60	Slope	0.007	0.003	0.093**	−0.084***	0.071**	0.000**	−0.012*
	t−statistic	0.319	0.560	2.273	−3.021	2.063	1.272	−1.910
Panel B: Estimates of Regression (9), Which Uses BM_t as an Explanatory Variable								
		Intercept	MC_t	BM_t	$dM_{t-k,t}$	$dB_{t-k,t}$	$NS_{t-k,t}$	
k=12	Slope	0.112***	−0.009**	0.079***	−0.009	−0.029**	0.000	
	t−statistic	2.892	−2.291	3.582	−0.759	−2.117	0.298	
k=36	Slope	0.042	−0.007	0.110***	−0.019	−0.047**	0.000	
	t−statistic	1.036	−1.192	2.871	−0.214	−2.120	0.812	
k=60	Slope	0.012	0.002	0.082***	0.010	−0.023**	0.000	
	t−statistic	0.718	0.519	2.594	0.414	−2.374	1.271	

4.3 Regressions (7) and (9) for 2005−2007

Table 6 summarizes estimates of regressions (7) and (9) for all stocks from July, 2005 to June, 2007. According to the findings, MC_t regained the strong explanation power on expected return, which indicates the Split-share Structure Reform immediately releases the information hidden in the non-tradable shares, thus enhancing the estimates of expected return; the similar explanatory power for BM_{t-k} and dM_{t-k} could be the sign for the similar information they contain; though dB_{t-k} has the statistically significant differences with both BM_{t-k} and $dM_{t-k,t}$ which means there is different explanatory power between $dB_{t-k,t}$ & BM_{t-k} and $dB_{t-k,t}$ & $dM_{t-k,t}$. But here is no evidence shows the evolution of B/M ratio gets a better estimate effect. Because $dB_{t-k,t}$ does not have a statistically significant result as an estimator of excess return. $dB_{t-k,t}$ does not have any significant explanatory power to estimate the future return. Thus, the differences between explanatory power of dB_{t-k} with BM_{t-k} and $dM_{t-k,t}$ is not a clue that the information of expected cash flow and expected return could be isolated. Then there is no clue whether using the evolution of B/M ratio is a better way to estimate expected return.

The Split-share Structure Reform was launched in 2005 and finished in 2006. In the meantime, a big dull market which never met before for China stock market came in and kept climbing to defy gravity till the Shanghai Stock Exchange Composite Index (hereafter "SHSEC Index") hits the peak at 6124 points in October, 2007. It seems very easy to give the credit to the success of the Split-share Structure Reform which must enhance the efficiency of China stock market. But did it?

As the former findings, this paper believes the over equity financing is one of the root reasons that caused the inefficiency of China stock market and as a result, $dB_{t-k,t}$ is no longer a clear proxy for the expected cash flow, and expected cash flow also loses its explanation power on expected return. And split-share structure may causes or at least aggravates the over equity financing (tunneling problem). Thus, if the Split-share Structure Reform is succeeded, the over equity financing problem could be controlled and decrease to some degree. In terms of numbers here, the increase of true slopes of $dB_{t-k,t}$ in

(7) and a lower differences between the slopes of $dB_{t-k,t}$ & $dM_{t-k,t}$, and $dB_{t-k,t}$ & BM_t, which means the higher explanation power to the expected return, could be considered as the sign.

But according to the findings in this paper, there is not such a clue. In fact, $dB_{t-k,t}$ is getting a smaller slopes in (7) and bigger differences between $dB_{t-k,t}$ & $dM_{t-k,t}$, and $dB_{t-k,t}$ & BM_t, which indicates the less explanation power for $dB_{t-k,t}$. Thus, the Split-share Structure Reform does not work very well, at least, no help for solving the over equity financing problem. This finding matches with recent studies of the reform. Yashan Shang and Ran Duan (2011) states the reform weakens the equity financing preference (defined in this paper as over equity financing), but the equity financing preference still dominants China stock market and will not be changed in a short while.

In the other hand, during this sample period, the China stock market has suffered from a 4 year-long bear market and the SHSEC Index finally meets the bottom at 998 points. And all the fundamental data of the economics, companies or other basic economic index all has been adjusted into a reasonable value, so this recover of market is not caused by the reform, but just a "happy accident". Especially, since the market continues to climb, the companies have more motivations to do equity financing for such a high price, no matter how the future investment and expected cash flow is. Then the $dB_{t-k,t}$ is no longer a clear proxy for the expected cash flow. That is the reason the $dB_{t-k,t}$ even losses more explanation power.

Thus, in this period there is not enough evidence to support the hypothesis that evolution of B/M ration could has a better estimate.

Table 6 Estimates of Regressions (7) and (9) for all Stocks for 2005–2007

Table 6 reports the results generated from regression (7) and (9) which predict monthly returns in excess of the 1−month risk−free rate adjusted by the 1−month deposit interest rate adjusted by "Time Deposits of Lump−Sum Deposit and Withdrawal (3 Months)" in "Deposit Interest Rates of Financial Institutions" from CSMAR for all stocks. "MC_t" is the log of market cap at the end of June, and "BM_t" is the log of the book equity to market equity ratio per share. "$dM_{t-k,t}$" is the log of change in stock price from time t − k to t and "$dB_{t-k,t}$," is the log of change in book equity per share from time t − k to t. "$NS_{t-k,t}$" is the log of change in split−adjusted shares outstanding with the same period from t − k to t. "$dB_{t-k,t}$ + $dM_{t-k,t}$" in Part A reports the average value calculating the sum of the true slopes for $dB_{t-k,t}$ and $dM_{t-k,t}$. the t−statistics for the average slopes are taking the approach as in Fama and French (1973): $t(\bar{a}_j) = \frac{\bar{a}_j}{s(\hat{a}_j)/\sqrt{n}}$ where $\bar{a}_j$ is the average of the month−by−month regression coefficient estimates; $s(\hat{a}_j)$ is the standard deviation of the monthly estimates and n is the number of months in the period, which is also the number of estimates. The variables in the regressions are updated at the end of June each year to explain monthly returns from July to June of the following year. Sample period is from July 2005 to June 2007 corresponding to k = 12 where k represents the monthly periods. For k = 36 and k = 60, the data ranges start from July 2003 and July 2001 using the lagged data for the regressions for 2005.

		Intercept	MC_t	BM_{t-k}	$dM_{t-k,t}$	$dB_{t-k,t}$	$NS_{t-k,t}$	$dB_{t-k,t}$ + $dM_{t-k,t}$
Panel A: Estimates of Regression (7), Which Uses BM_{t-k} as an Explanatory Variable								
k=12	Slope	0.188*	−0.031**	0.048**	−0.055***	0.012	−0.000	−0.032**
	t−statistic	1.721	−2.216	2.372	−2.724	0.106	−0.783	−2.832
k=36	Slope	0.201**	−0.027***	0.059***	−0.053***	0.031	−0.000	−0.022**
	t−statistic	2.219	−2.876	2.920	−3.201	0.603	−0.923	−2.653
k=60	Slope	0.220*	−0.025**	0.071***	−0.068***	0.046	−0.000	−0.012**
	t−statistic	1.765	−1.972	3.293	−3.346	1.238	−0.987	−2.387
Panel B: Estimates of Regression (9), Which Uses BM_t as an Explanatory Variable								
		Intercept	MC_t	BM_t	$dM_{t-k,t}$	$dB_{t-k,t}$	$NS_{t-k,t}$	
k=12	Slope	0.214*	−0.030**	0.048**	−0.008*	−0.036***	−0.000	
	t−statistic	1.792	−2.208	2.373	−1.782	−2.175	−0.781	
k=36	Slope	0.189**	−0.027***	0.060***	0.006	−0.029***	−0.000	
	t−statistic	2.207	−2.875	2.827	1.238	−2.380	−0.926	
k=60	Slope	0.201*	−0.024**	0.072***	0.003	−0.025***	−0.000	
	t−statistic	1.803	−1.968	3.510	1.206	−2.768	−0.972	

4.4 Regressions (7) and (9) for 2007–2010

Table 7 summarizes estimates of regressions (5) and (6) for all stocks from July, 2007 to June, 2010 to test how the evolution of B/M ratio works in a pretty high volatility market effected by the Split-share Structure Reform in the long run and the Subprime Crisis. In this table, except MC_t, all the other variables in regression (7) lost their explanation power to estimate the expected return, since there are basically no any statistically significant meanings for each candidate.

During this period, for China stock market, the inside influences probably from the Split-share Structure Reform. To minimize the shock of the reform to the stock price and preserve the supply-demand relationship in the market, in the latest reform of non-tradable shares the Chinese authority set up a lock-up period during which stocks owned by the state and state-owned enterprises cannot be sold even after they have been converted into tradable shares These measures have certainly helped support share prices so far, but the lifting of the ban on the widespread sale of stocks is approaching since 2006 and meeting the peak during 2007 to 2008. But the problem is these measures caused a panic in the stock market which could be the fundamental reason of the fall in share prices where the SHSEC Index jumps to 6124.04 points, the highest in the history, and falls to 1664.93. The unreasonable design consideration of the reform gives the institution investors motivations to behavior to circumvent the market panic further aggravated the market panic. Outside influences from the Subprime Crisis has taken a heavy toll on the equity markets in Asia, making one wonder whether this is not the onset of a 'fourth–generation financial crisis' in the emerging market economies. Combing all these, the market fells and struggles till even today. The fundamental information no longer holds the explanation power to estimate the expected return in such a market. Thus, there is no need to talk about the findings here for this paper. But, for the future study, since the influences of the reform could be in a long run, focusing on a longer range of sample period to test whether the reform really rebuild or kind of decreases the efficiency of the stock market would be more interesting and meaningful for China stock market.

Table 7 Estimates of Regressions (7) and (9) for all Stocks for 2007–2010

Table 7 reports the results generated from regression (7) and (9) which predict monthly returns in excess of the 1−month risk−free rate adjusted by the 1−month deposit interest rate adjusted by "Time Deposits of Lump−Sum Deposit and Withdrawal (3 Months)" in "Deposit Interest Rates of Financial Institutions" from CSMAR for all stocks. "MC_t" is the log of market cap at the end of June, and "BM_t" is the log of the book equity to market equity ratio per share. "$dM_{t-k,t}$" is the log of change in stock price from time t − k to t and "$dB_{t-k,t}$," is the log of change in book equity per share from time t − k to t. "$NS_{t-k,t}$" is the log of change in split−adjusted shares outstanding with the same period from t − k to t. "$dB_{t-k,t} + dM_{t-k,t}$" in Part A reports the average value calculating the sum of the true slopes for $dB_{t-k,t}$ and $dM_{t-k,t}$. the t−statistics for the average slopes are taking the approach as in Fama and French (1973): $t(\bar{a}_j) = \frac{\bar{a}_j}{s(\hat{a}_j)/\sqrt{n}}$ where $\bar{a}_j$ is the average of the month−by−month regression coefficient estimates; $s(\hat{a}_j)$ is the standard deviation of the monthly estimates and n is the number of months in the period, which is also the number of estimates. The variables in the regressions are updated at the end of June each year to explain monthly returns from July to June of the following year. Sample period is from July 2007 to June 2010 corresponding to k = 12 where k represents the monthly periods. For k = 36 and k = 60, the data ranges start from July 2005 and July 2003 using the lagged data for the regressions for 2007.

Panel A: Estimates of Regression (7), Which Uses BM_{t-k} as an Explanatory Variable								
		Intercept	MC_t	BM_{t-k}	$dM_{t-k,t}$	$dB_{t-k,t}$	$NS_{t-k,t}$	$dB_{t-k,t} + dM_{t-k,t}$
k=12	Slope	0.281**	−0.192***	0.095	−0.102	0.034	−0.002*	−0.068
	t−statistic	2.164	−3.284	1.283	−0.837	0.097	−1.783	−0.842
k=36	Slope	0.232**	−0.107***	0.169	0.128	0.071	−0.000	−0.057
	t−statistic	2.672	−2.762	0.729	1.293	0.483	−0.124	−0.602
k=60	Slope	0.220*	−0.089**	0.099	0.092	0.029	−0.000	−0.062
	t−statistic	1.765	−2.438	0.873	0.938	0.403	−0.478	−1.394
Panel B: Estimates of Regression (9), Which Uses BM_t as an Explanatory Variable								
		Intercept	MC_t	BM_t	$dM_{t-k,t}$	$dB_{t-k,t}$	$NS_{t-k,t}$	
k=12	Slope	0.290**	−0.192**	0.095	−0.007	−0.061	−0.002*	
	t−statistic	2.018	−3.289	1.271	−0.874	−0.293	−1.762	
k=36	Slope	0.286**	−0.108***	0.170	0.039	−0.099	−0.000	
	t−statistic	2.896	−2.832	0.703	0.283	−0.928	−0.128	
k=60	Slope	0.253**	−0.087**	0.100	0.007	−0.070	−0.000	
	t−statistic	1.987	−2.391	0.889	0.137	−1.589	−0.482	

Section 5 Conclusion

This study takes the sample from July, 1996 to June, 2010 of China Stock Market (A–share Market) to test the explanatory power of the evolution of BM_t in China comparing to the original BM_t. The empirical test results in China stock market basically support the hypothesis that the three components of BM_t help disentangle the information in the ratios about expected cash flows and expected returns, thus enhancing estimates of expected returns, but the net issue, another candidate of the expected cash flow, losses its forecast power on the expected returns and the results differ for Microcap stocks and ABM stocks. This paper builds an over equity financing model to explain all the findings, especially the differences and the anomalies in China stock market. Then the final part focuses on and tests the split-share structure and the Split-share Structure Reform in China stock market which are the foundation of this story by splitting the sample period into three parts.

For the whole sample period, MC_t, BM_{t-k}, $dB_{t-k,t}$ and $dM_{t-k,t}$ have the statistically significant explanatory power on the excess return of all individual stock; but $NS_{t-k,t}$ does not capture any power to estimate the expected return, probably because it is not an effective proxy of expected cash flow in China, since the over equity financing makes IPO and SEO no longer strongly relates to the profitable investment. The similar idea about the root reason why $dB_{t-k,t}$ captures a weak explanation is also over equity financing which decreases the accuracies of $dB_{t-k,t}$ as a preventative of expected cash flow.

Further results show the over equity financing differences between the ABM stocks and the Microcap stocks results in the explanation power differences between them. For ABM stocks, only when using the 5 years- lagged (or more over ago) data, the components of BM_t can help disentangle the information in the ratio about expected cash flows and expected returns. But for Microcap stock, only when using the 1 year-lagged (or shorter) data, the components of BM_t could be used to enhance estimates of expected returns.

After splitting the sample period into three parts, MC_t does not capture the explanatory

power from 1996 to 2005 (before the Split-share Structure Reform); from 2005 to 2007, the reform release the information hidden in the non-tradable shares, but there is no clear clue that it also help the other candidates to estimate the expected return, thus enhancing the efficiency of the China stock market to some degree; in the last period from 2007 to 2010, MC_t is the only candidate shows a strong explanatory power on the monthly return, which is considered as the sign of the remaining problems from the reform combined the outside effect from the Subprime Crisis.

This paper aims to find a better asset pricing index proxy for China stock market by examining whether the evolution of BM_t could generate better estimates than BM_t itself. According to the findings and recent studies, this paper builds an over equity financing model to explain the anomalies in China stock market and using different time period to exam the model whether matches the hypothesis. There are obvious evidences in this paper indicate inefficiency of the China market, which gives more motivations to keep researching the misleading information in this evolution of BM_t.

References

Fama, Eugene F., and Kenneth R. French, 2008, Average Returns, B/M, and Share Issues, Journal of Financial Economics 53, 2971 – 2995

Fama, Eugene F., and Kenneth R. French, 1992, The cross–section of expected stock returns, Journal of Finance 47, 427 – 465 Lanstein

Fama, Eugene F., and Kenneth R. French, 2006, Profitability, investment, and average returns, Journal of Financial Economics 82, 491 – 518

Fama, Eugene F., and Kenneth R. French, 2005, Financing decisions: Who issues stock? Journal of Financial Economics 76, 549 – 582

Fama, Eugene F., and James MacBeth, 1973, Risk, return, and equilibrium: Empirical tests, Journal of Political Economy 81, 607 – 636

Rosenberg, Barr, Kenneth Reid, and Ronald Lanstein, 1985, Persuasive evidence of market inefficiency, Journal of Portfolio Management 11, 9 – 17

Lakonishok, Josef, Andrei Shleifer, and Robert W. Vishny, 1994, Contrarian investment, extrapolation, and risk, Journal of Finance 49, 1541 – 1578

Vuolteenaho, Tuomo, 2002, What drives firm–level stock returns? Journal of Finance 57, 233 – 264

Loughran, Tim, and Jay Ritter, 1995, The new issues puzzle, Journal of Finance 50, 23 – 42

Ikenberry, David, Josef Lakonishok, and Theo Vermaelen, 1995, Market under reaction to open market share repurchases, Journal of Financial Economics 39, 181 – 208

Min Li and Li He, 2009, Evolution of Book-to-Market Ratio and Average Stock Returns: Evidence from China's Stock Market, Research on Financial and Economic Issues 11, 61 – 68

Qi Yang and Zhanhui Chen, 2003, Empirical Studies on Three Factors Asset Pricing Model in China's Stock Market, Quantitative and Technical Economics 12, 137 – 141

Zhanhui Chen, 2004, Cross-Sectional Variations and Three Factors Asset Pricing

Model:Empirical Evidences from China A Share Market, Chinese Journal of Management Science 6, 12 – 17

Baoxian Zhu and Zhiguo He, 2002, β值和账面市值比与股票收益关系的实证研究, Journal of Financial Research 04, 71 – 79

Lin Luo, 2003, 中国股票市场风险模型, Journal of Financial Research 04, 32 – 43

Jinlan Ni and Miaomiao Yu, 2008, Testing the Pecking-Order Theory: Evidence from Chinese Listed Companies, Chinese Economy 41, 97 – 113

Zhengfei Lu and Kangtao Ye, 2004, The Puzzle of Equity Financing Preference in China's Listed Companies, Economic Research Journal 04, 50 – 59

Xiaojun Li, 2009, Do China's Listed Companies Prefer Equity Financing or over Financing? Some Empirical Evidences from Listed Companies Re-financing, Finance and Trade Research 02, 90–95

Zuxuan Zheng, Tao Zhao and Xuqiang He, 2005, 股权分置背景下的隧道效应与过度融资, Adam Smith Forum 04/05

Shaoan Huang and Gang Zhang, 2001, 中国上市公司股权融资偏好分析, Economic Research Journal 11, 12 – 27

Dawu Yan, Jianxin Gen and Wenpeng Liu, 2001, The Positive Researches on Behavior of Rights Issue for Financing of Listed Companies in China, Accounting Research 09, 19 – 25

Siyao Wang and Penglin Li, 2010, The Panic Behaviors in the Stock Market during Share-trading Reform – BasedonVECModel, Reformation & Strategy 02, 68 – 71

Yashan Shang and Ran Duan, 2011, 股权分置改革对我国上市公司融资渠道选择的影响, Foreign Investment in China 03, 160 – 161

국문초록

Fama, and French (2008a)는 장부가치 대 시장가치 비율(BM)을 과거의 장부가치 대 시장가치 비율과 장부가와 주가의 과거 변화로 분해한 후 이 변수들이 기대 수익률 추정치를 향상시켜 줄 기대현금흐름에 대한 독립된 정보를 갖고 있는가에 대해 검증하였다.

본 논문은 Fama, and French (2008a)의 연구방법론을 이용하여 과거의 장부가치 대 시장가치 비율(BM_{t-k})과 장부가의 과거 변화($dB_{t-k,t}$)와 주가의 과거 변화($dM_{t-k,t}$) 및 과거의 신주 발행($NS_{t-k,t}$)으로 분해한 BM변수가 현재시점의 장부가치 대 시장가치 비율(BM_t) 단독으로 사용하는 것보다 더 나은 기대수익률 예측치를 제공하는가를 중국 시장을 대상으로 검증하고자 한다.

실증분석 결과는 본 논문의 가설과 일부 부합하였다. 전체 기업을 대상으로 분석한 결과는 BM_t의 구성요소 중 $NS_{t-k,t}$를 제외한 모두는 기대 현금흐름과 기대수익률에 관한 비율 정보를 푸는데 도움이 되기 때문에 기대수익률 예측을 강화시켜 준다는 것이다. 설명력이 없는 $NS_{t-k,t}$변수와 소형주(중국 A주 시장가치 백분률 하위 20 퍼센트)와 중대형주(중국 A주 시장가치 백분률 상위 80 퍼센트) 간의 차이점은 과도자본경영 모형으로 잘 설명하게 된다.

추가로 중국 주식 시장의 효율성을 측정을 하려고 해서 중국 지분분할개혁(2005)과 서브프라임모기지(2007) 두 사건 기준으로샘플 기간(1996~2010)을 시대별로 나누어 분석하였을 경우 중국 시장 비효율성을 인해 부분 변수의 설명력이 떨어지진 것을 검증되었다.

주요어: 장부가치 대 시장가치 비율, 기대수익률, 기대 현금흐름, 과도자본경영, 자본자산 가격결정 모형

학 번 : 2010-24031