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Decomposition of book-to-market and the cross-section of returns for Chinese shares[☆]

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ABSTRACT

In this paper, we show that the book-to-market decomposition described in Fama–French (2008) significantly improves the predictive power of the estimation for an important emerging market, viz, Chinese shares. Second, we show that this improvement comes mainly from the change in book equity and not from the change in price. The predictive power of the change in book equity is most pronounced for large stocks, for stocks listed on Shenzhen Exchange, for stocks with low book-to-market (or growth stocks), and for Class B shares. Net Share Issue and Momentum add no explanatory power to the predictive regressions.

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1. Introduction

There is a long line of empirical research in Finance on the relation between the expected stock return and the book-to-market (B/M) ratio of a firm¹. The main conclusion of this research is that firms with high book value of equity relative to the stock's market value have higher expected return and outperform growth firms that have low book-to-market ratio. Fama and French (2008) extend this research by asking whether

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¹ The list of papers is quite long and includes Rosenberg et al. (1985), Fama and French (1992, 1995, 2006, 2008, 2011), Lakonishok et al. (1994), Chen and Zhang (1998), Piotroski (2000), and Daniel and Titman (2006) among others.

the evolution of B/M itself, in terms of past changes in book equity (dB) and market value (dM), contains independent information that can enhance the estimation of expected returns and whether more distant changes in book equity and prices have less information content than more recent changes (i.e., whether old news is less relevant than new news). The data from U.S. equity markets produce mixed results, and Fama and French (2008) state that “results on this score (viz, decomposing B/M into its components) differ for different categories of stocks and different time periods”.

In this paper, we examine the explanatory power of the evolution of B/M, and its decomposition into dB and dM, for the equity markets of an important country, viz, China. There are several reasons for extending and examining the Fama and French (2008) model for Chinese stocks. First, the combined market capitalization of all stocks listed on the Shanghai and Shenzhen stock markets is a little above \$4 trillion, which ranks below NYSE-Euronext and Nasdaq-OMX, but above London and Tokyo stock exchanges. In addition, several strands of recent research on emerging markets have identified Chinese stock markets as particularly relevant for examining the link between information and prices².

Several authors have replicated the Fama and French (2008) model for non-US data³ but these tests have been limited to *equity market indices* and/or *aggregation of individual equity returns data into a regional index*. There are very few papers that examine the *returns of individual stocks* from emerging markets in any detail in this framework. Cakici et al. (2013b) examines firm-level cross-sectional stock return predictability for Chinese stocks by using book-to-market as a predictor, but does not examine the evolution and decomposition of book-to-market as in Fama and French (2008). Our paper tries to fill this gap.

Testing and replicating the Fama and French (2008) methodology on emerging market stocks can provide additional insights regarding the information content of dB and dM. Fama and French (2008) find an interesting and important difference in the U.S. data between Microcap stocks and ABM (all but micro) stocks in terms of the information content of dB and dM. They find that for ABM stocks, the change in book equity and the change in price are equally relevant in explaining expected returns, but this result does not hold for Microcaps; for Microcaps, changes in price contribute much more than changes in book equity in explaining expected return. Fama and French (2008) attribute this important difference to the fact that Microcaps have high volatility in their fundamentals, thus obscuring the contribution of change in book equity. This observation is likely to be relevant for emerging markets as well, because emerging market stocks are generally characterized by high volatility of fundamentals, with small stocks in these markets having relatively higher volatility. Our results provide interesting new evidence on this perspective. Consistent with Fama and French (2008), we find that change in book equity plays a much lesser role for small stocks, but we do not find that change in prices play a significant role for small stocks in the Chinese market. Our results differ from those reported by Fama and French (2008) in other ways as well. In contrast to Fama and French (2008), we find that for large stocks, the marginal contribution of the change in book equity (as measured by the slope coefficient of dB) is several times larger than the marginal contribution of the change in price (Fama–French find that the marginal contributions are similar for ABM stocks). Therefore, we do not find that changes in prices make the same *kind* of contribution that Fama and French (2008) found in their sample of Microcaps, although our conclusions are qualitatively similar to their conclusions regarding the importance of the book-to-market decomposition in improving the explanatory power of the predictive regression.

The Chinese equity market provides another interesting opportunity because of the segmentation of the market in terms of domestic and foreign investors, viz, the existence of A and B shares. The two main exchanges in China are the Shanghai stock exchange (SHSE) and the Shenzhen stock exchange (SZSE). SHSE targets blue-chip companies, while SZSE is similar to Nasdaq and focuses on early-stage companies. The shares that were initially listed in the Shanghai and Shenzhen stock exchanges (starting in December 1990 and July 1991 respectively) were referred to as A-shares that could be traded only by Chinese citizens and are denominated in yuans. In early 1992, a second class of shares, called B-shares, was introduced. B-shares were exclusively for foreign investors and are denominated in U.S. dollars in Shanghai and in Hong Kong dollars in Shenzhen. Both A and B shares enjoy the same voting rights and dividends. The market was

² Beltratti et al. (2009) argues that Chinese stock markets are particularly relevant for examining the link between information and prices in speculative markets characterized by heterogeneous beliefs and sentiment. Morck et al. (2000) and Gul et al. (2010) examine the degree and reasons for stock-price synchronicity (i.e., lower firm-specific return variation) in Chinese markets.

³ Fama and French (2011), Asness et al. (2013), Bali et al. (2013), and Cakici et al. (2013a) among others. Dempsey (2011) and Huang and Yang (2011) report that high book-to-market (value) stocks outperform other Chinese company stocks.

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