

Does Financial Statement Analysis Generate Abnormal Returns Under Extremely Adverse Conditions?

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ABSTRACT

Does financial statement analysis generate abnormal returns on emerging markets characterized by low quality accounting regimes, macroeconomic instability, poor institutions, weak law enforcement and market inefficiency as it does in more developed markets? Our results show that it does. Using Brazil as a laboratory we show that an investor could have changed his/her high book-to-market (HBM) portfolio one-year (two years) market-adjusted returns from 5.7% (42.4%) to 26.7% (120.2%) selecting financially strong HBM firms listed in the São Paulo Stock Exchange over the 1994-2004 period. Our results are influenced by firm's size, liquidity and indebtedness.

I. INTRODUCTION

Since the classical book of Graham and Dodd (1934) investment strategies based on accounting numbers – the so-called accounting based fundamental analysis - focused on buying stocks with low price-to-book (the so called value stocks) were told to produce higher returns than strategies based on growth (glamour – high price-to-book) stocks. Since then there is a vast literature showing the relevance of financial statements analysis to build portfolios that outperform the market (Abarbanell and Bushee, 1997; Lev and Thiagarajan, 1993; Fama and French 1992; 1993; 1996; Lakonishok et al., 1994; Rosenberg et al., 1984; Doukas et al., 2002). However, this body of literature is based on evidences obtained from

firms listed in common law developed countries (specially the US) and immersed in high quality accounting regimes where financial reports are informative and maintain a strong relation to stock prices and returns (Ball et all 2001). These results do not come as a surprise and reflect the informativeness² of accounting numbers in countries which possesses high quality financial reporting environments as recent research has confirmed (Ball et all, 2001; 2003). However, there is no evidence of the utility of accounting based fundamental analysis for the selection of portfolios of firms located in countries characterized by low quality accounting regimes and market inefficiency. This paper tries to fill this gap in the literature by investigating whether an accounting-based fundamental analysis strategy can help investors earn excess returns on a portfolio of high book-to-market (HBM) firms immersed in a low quality accounting regime.

We can list arguments *pro* and *con* financial statement analysis in countries immersed in low quality accounting regimes – emerging markets³. On the *pro* side Harvey (1995) shows that the amount of predictability found in emerging markets is greater than found in developed markets what should contribute to the usefulness of financial accounting information – financial accounting information would be more valuable because the market is slower to incorporate new information into prices. Ultimately, research on fundamental analysis is testing the efficiency of the market with respect to accounting information and it should produce higher abnormal returns on less efficient markets. On the *con* side, emerging markets are normally considered to have poorly developed financial reporting models (Ali and Hwang, 2000). State intervention in the economy, government standard setting, strong

² We define informativeness as the relation between accounting numbers and market variables (securities prices and returns).

³ We are not providing a rigorous definition of what constitutes an emerging market in this paper. We are referring to markets in countries where the capital markets are not well developed and firms rely on insider deals to finance themselves. These countries generally comply negatively with the five criteria outlined by Ali and Hwang (2000) to determine the informativeness of accounting reports.

influence of the tax law on financial accounting, poor enforcement, small amounts spend on auditing among other factors would contribute to reduce the usefulness of accounting numbers. Still on the *con* side, financial statement analysis is designed to identify mispriced specific risks (financial statement analysis is focused on firms and not on markets or economies) and emerging markets are strongly exposed to macroeconomic shocks as we can see (Ortiz, 2002) in the last ten years (Mexican, Russian and Brazilian crisis). In this unstable macroeconomic scenario financial statement analysis is expected to loose relevance because (Kothari, 2001) financial statements do not affect the cross-sectional variation of security's returns related to the covariance risk. Fundamental analysis is about pricing idiosyncratic risk related to the firm-specific component of the stock return. Macroeconomic shocks increase the systemic risk component in expected returns reducing the relative importance of idiosyncratic risk, which is priced by financial statement analysis. Thus it becomes interesting to investigate which factor does play a more important role. Will financial statement analysis be relevant in an emerging market despite all the macroeconomic, accounting and governance problems?

Brazil provides an interesting opportunity to answer these questions due to the features of its capital market and financial reporting model. First, the Brazilian financial reporting model complies badly with the five factors related with the relevance of accounting information for equity investors identified by Ali and Hwang (2000). As Lopes (2005) has shown Brazil is code law, credit oriented country where the government issues all accounting rules and tax has a strong influence on financial reporting. On the top of this poor accounting regime, only Colombia ranks above Brazil in terms of legal enforcement in the rating prepared by Durnev and Kim (2005). Second, there are evidences that market efficiency in Brazil is lower than in the United States (Haque et al., 2001; Ratner and Leal 1999; Costa, 1994; Karemera et al.,

1999; Ojah and Karemera 1999). Third, the Brazilian economy has been severely affected by a series of macroeconomic crisis in the last ten years – Mexican, Russian, Argentinean, Thailand etc and the devaluation of the Real (Brazilian currency).

For all the above-mentioned reasons, we find it worth to investigate whether an accounting-based fundamental analysis strategy can help investors earn excess returns in Brazil. We apply an adapted version of the methodology identified by Piotroski (2000) to select a portfolio of financially strong HBM Brazilian firms listed in the São Paulo Stock Exchange (Bovespa) over the 1994-2004 periods. We find evidences that a financial statement analysis strategy based on HBM Brazilian firms can separate winners from losers, particularly for two-year (raw and adjusted) returns after the portfolio formation. One could have changed his/her HBM portfolio one-year (two-year) market-adjusted returns from 5.7% (42.4%) to 26.7% (120.2%) selecting financially strong HBM firms in the 1994-2004 period. Additionally a strategy based on forming portfolios long on financially strong HBM firms and short on financially weak HBM firms generates 41.8% annual (or 144.2% for two years accumulated) market-adjusted returns between 1994 and 2006.

Any test of the usefulness of financial statement analysis is ultimately a market efficiency test. To conclude that financial statement analysis do generate abnormal returns is also to conclude that the market is slow to incorporate new information into prices. However, previous research (Kothari, 2001) has warned that deficient research designs can create the false appearance of market inefficiency. To address this problem we control for two possible omitted risk factors: size and liquidity. Our results show that the fundamental analysis strategy employed works for the groups of small and medium size firms and for the groups of low and medium liquidity firms but not for the group of large size and high liquidity firms.

This evidence could lead to the conclusion that the abnormal returns generated are only a premium for size and liquidity risk not adequately incorporate into the model used. This is not the case. If size and liquidity were the main determinants of our results we should not observe significant differences among the performance of the smaller and less liquid firms. Our results, however, show that firms with the better scores outperform the ones with the lower scores within the groups of less liquid smaller firms. Thus we can state that there is an effect related to the financial health of each firm, which is not related to its size or liquidity. Piotroski (2000) finds similar results to US market, but his strategy is able to equally differentiate between the groups of small and medium firms as well as for the groups of firms with stocks classified as low volume, medium volume and high volume traded. Our strategy mainly differentiates between small firms and less traded stocks, which turns it more difficult to realize the gains. This caveat can explain the large amount of abnormal return obtained applying *BrF_SCORE* strategy.

Additionally we perform tests related to the effectiveness of the strategy for different levels of firms' indebtedness. We find evidences that fundamental analysis differentiate winners from losers between HBM firms with higher indebtedness levels. This result can be explained by the enhanced power of fundamental analysis when it is applied to more distressed firms, especially in an environment with adverse investment conditions like Brazil.

The rest of the paper is organized as follows. Section 2 reviews prior research on book-to-market effect, fundamental analysis and motivates the paper. Section 3 presents the main features of Brazilian capital markets and accounting information. Section 4 presents the financial performance signals used to identify strong and weak HBM firms. Sample selection, summary statistics and results are presented in Section 5. Section 6 concludes the paper.

II. HBM EFFECT, FUNDAMENTAL ANALYSIS LITERATURE REVIEW AND MOTIVATION

Capital markets research on fundamental analysis has become a popular topic in recent years due to the evidence in the financial economics literature that markets are not efficient. Part of this literature relates to the HBM effect. There is large evidence particularly on developed markets, that portfolios of HBM stocks outperform portfolios of low book-to-market stocks. Rosenberg, Reid and Lanstein (1984), Fama and French (1992, 1993, 1996) and Lakonishok et al. (1994), agree on the evidence that the book-to-market ratio is strongly and positively correlated to future stock performance. However explanations to the HBM effect are not uniform. Fama and French (1992, 1996) relate that the HBM effect is due to the higher risks faced by this kind of firms. Vassalou and Xing (2004) document that the book-to-market risk is a proxy for default risk in HBM firms. On the other hand Lakonishok et al. (1994) argue that mispricing should explain the book-to-market effect. According to them HBM are neglected stocks where prior performance creates pessimistic expectations about future performances. Additional research supports mispricing. Ali et al. (2003) show that the HBM effect is greater for stocks with higher idiosyncratic return volatility, higher transaction costs and owned by less sophisticated investors.

Other researchers have been focused on the usefulness of fundamental analysis. Kothari (2001, p.171) states that the principal motivation for fundamental analysis research and its use in practice is to identify mispriced securities for investment purposes. Ou and Penman (1989) use financial statement analysis and document that a set of financial ratios are able to forecast future earnings and stock returns. Lev and Thiagarajan (1993) analyze financial signals that

are frequently used by analysts, and show that these signals are correlated to returns. Abarbanell and Bushee (1997) document that an investment strategy based on financial signals help investors to earn significant abnormal returns. Concerning specific accounting signals, Sloan (1996) finds evidence that firms with higher amounts of accruals underperform in the future. Piotroski (2000) aggregates the HBM effect to financial statement analysis and shows that the mean return earned by a HBM investor can be increased by at least 7.5% annually through the selection of financially strong HBM firms. Beneish et al. (2001) use market based signals and financial statement analysis to differentiate between winners and losers. Recently Mohanram (2005) combines traditional fundamental analysis with measures tailored for low book-to-market firms and documents significant excess returns. This last result is controversial to the risk-based explanation of excess returns for HBM stocks. Generally, the bulk of this literature suggests that financial statement analysis can add value to a strategy solely based on HBM firms.

As Kothari (2001) comments fundamental analysis research cannot be disentangled from tests of market efficiency. Fundamental analysis research ultimately tests whether the market is efficient in respect to accounting numbers. Supposedly, the ability of fundamental analysis to produce abnormal returns would be positively related to the degree of market inefficiency. Thus fundamental analysis would produce superior results in less efficient markets than it produces in more developed markets. A natural question is to investigate its effect on markets considered to be less efficient than the American market where most of this research has been conducted – the so-called emerging markets. Emerging markets, however, do not possess the same sophisticated financial reporting environments found in common law developed countries. Financial reporting in these countries is generally considered to be uninformative⁴

⁴ According to the five criteria presented by Ali and Hwang (2000).

what counts against the success of a fundamental analysis strategy. Additionally, emerging markets present significant macroeconomic instability, supposedly, reducing the relevance of financial statement analysis. Thus, we find it interesting to investigate whether fundamental analysis is useful in emerging markets – focusing our efforts in Brazil. As discussed in next section, Brazil provides an interesting opportunity to investigate the above mentioned questions.

III. CAPITAL MARKETS AND FINANCIAL REPORTING MODEL IN BRAZIL

Several factors make Brazil an interesting place to test a strategy based on financial statements. We list these factors below on three categories: (i) quality of accounting numbers, (ii) market efficiency, (iii) and macroeconomic shocks.

Quality of Accounting Numbers

Ali and Hwang (2000) documents that five factors drive the relevance of accounting numbers for equity investors: (i) bank versus investors' oriented market, (ii) type of regulatory body, (iii) influence of tax regulations, (iv) ownership concentration and (v) amount spent on auditing. According to Lopes (2005; 2006) Brazil clearly complies negatively with the factors outlined. According to Ali and Hwang (2000) country-specific factors and Nobes' (1998) systems classifications the Brazilian accounting environment can be classified as follows.

Bank Oriented-Financial System and Ownership Concentration: Brazilian firms do not depend on equity markets to finance their activities⁵. Comparing Brazil with the US in Table 2 of La Porta et al (1997: 1138) this can be observed. Brazil has a ratio of external capitalization to GNP⁶ of 0.18 while this ratio is of 0.58 in the United States. The ratio of the number of domestic firms listed in a given country to its population in millions in 1994 is of 3.48 in Brazil and 30.11 in the US. During the period of 1986-1996 there was not a single IPO in Brazil. The opposite happened - in 2000 seven public companies turned to be private: Agrale, White Martins, Arno, Durex Industrial, Abril, Ceval and Lojas Brasileiras. This movement is characteristic of the poor protection that investors have in Brazil. According to Luz (2000) Brazilian majority shareholders have been expropriating minority shareholders in several ways including the sale of assets below market values to companies which are owned by director's of the parent's company, employment of unqualified personnel, implementation of projects to benefit company's executives and the classical problem of high salaries. The poor treatment that minority shareholders have in Brazil has a direct impact on the ownership concentration. Research on corporate governance has show that ownership concentration works a substitute for poor investor protection (Sheleifer and Vishny, 1997). The situation in Brazil is characteristic of this poor investor protection environment. According to the Economática database (in Gazeta Mercantil, 2000) 95% of all companies traded in the São Paulo Stock Exchange (Bovespa) have 3 or less shareholders with 50% or more of the voting rights. This kind of financial market structure reduces the informativeness of accounting reports because they serve no role as reducers of information asymmetry. According to Nobes

⁵ Studard (2000: 15) comments *“since the 1950’s, the financing of economic development in Brazil has relied significantly of selective credit policies, inflationary financing and external saving. We claim that in the 1990’s and for the first time in its post-war history, due to the developments both in the international and in the domestic financial markets, there existed opportunities to develop non-inflationary private sources of long term finance and to reduce its dependency on foreign savings. These opportunities have been so far spared due to the lack of policies towards enhancing some of the positive aspects of recent developments in Brazil’s financial systems, and avoiding excessive volatility and instability of financial markets.”*

⁶ The ratio of the stock market capitalization held by minorities to gross national product for 1994.

(1998) Brazil can be classified, based on this evidence, as Class B country because it does not have an equity-outsider market model.

Government Standard-Setting: the Brazilian Company Law (Lei das Sociedades por Ações - Lei 6404/1976) is the most important accounting normative for firms listed in the São Paulo Stock Exchange (Bovespa). In addition to the Company law, the Brazilian Securities and Exchange Commission (CVM) issues norms that regulate specific accounting questions. While CVM statements are considered to be GAAP in Brazil, they cannot be in disagreement to what is exposed in the Law. In addition to the Company Law and CVM rules, Brazilian firms have to comply with specific accounting guidance provided by the tax authority (SRF). Despite this structure, sometimes the Ministry of Finance simply intervenes on accounting matters as it did in 1999 when it authorized firms to defer losses on exchange rate devaluations. This deferment was not allowed under the CVM instructions. Professional accounting bodies have no actual influence on the standard-setting process in Brazil⁷. Brazil clearly is a Class B country in this matter. As discussed by Ali and Hwang (2000), this aspect is likely to reduce the value relevance of published accounting numbers in Brazil.

Continental Model: Nobes (1998) discuss the concept of culturally self-sufficient and culturally dominated countries. As it is the case in South America (former Spanish and Portuguese colonies) Brazil is culturally dependent and clearly adopts a Continental model as Anderson (1999) comments⁸. Costa (1993) – the first president of CVM – comments that Brazilian annual reports are not really prepared to inform investors but to comply with

⁷ CVM holds a group called Consultive Committee designed to advise on specific accounting matters. This committee however does not have an independent structure and CVM has the discretionary power to adopt or not its decisions.

⁸ “...the quality of disclosure by Brazilian firms is perceived to be low. South American accounting practices are dominated by the legal and administrative systems inherited from the Iberian colonizers and the ‘highly political environment that result from such systems’”.

regulations (Class B country). Based on Ali and Hwang (2000) evidence this aspect is likely to reduce the value relevance of Brazilian accounting numbers.

Influence of Tax Rules on Financial Reporting: Tax legislation in Brazil has a strong influence on financial reporting. In Brazil, firms can present financial statements under accounting methods not allowed by the tax authority (SRF) in Brazil. These firms have to adjust their statements to form the basis for the calculations in a special book (LALUR) designed to conciliate the SRF and Companies' Law regulations. However, tax rules have a major influence since most firms choose to report according to them avoiding costly adjustments on LALUR. It is the case with inventory methods. Most companies adopt the weighted average method due to tax limitations to report LIFO, for example. In this aspect, Brazil is clearly a Class B country.

Summarizing, we can say that Brazilian accounting reports – during our sample period – were not prepared to inform external users. Financial reports in Brazil are prepared to comply with tax and government regulations. There is no demand for informative accounting reports since firms do not rely on external sources of finance and banks supply privately the resources firms use. The biggest conflict of interest in Brazil is not between managers and shareholders but between controlling and minority shareholders. The law specifies a minimum mandatory dividend (25% of reported earnings) to protect minority shareholders, thus creating strong incentives for managers to understate earnings. Additionally, tax rules have a strong influence on financial accounting which increases the incentives managers have to report lower earnings. Additionally, Brazilian managers have great discretion over accounting reports (revaluation of fixed assets, capitalization of research and development among others) and are subject to weak oversight. We believe that these characteristics reduce the informativeness of

accounting reports and make the investigation of the relevance of financial statement analysis in Brazil a worthwhile endeavour.

Market Efficiency

It is not consensus whether the Brazilian capital market is semi-strong or weak form efficient. Karemera et al. (1999) used runs tests (with monthly returns) to conclude that Argentina, Brazil and Mexico were weak form efficient from an international investor's perspective while Brazil and Mexico were weak form efficient in local currency terms. Ojah and Karemera (1999) suggest that Argentina, Brazil, and Chile were weak form efficient. However Haque et al. (2001) documents that all of these markets are not weak form efficient on the basis of testing the single variance ratio procedure using weekly returns. Ratner and Leal (1999) shows that there is no evidence that a strategy based on past prices information (technical analysis) results in abnormal results. Da Costa (1994) documents the process of price reversals in Brazil is higher than those in US.

Some authors suggest that this inefficiency is due to the primitive nature of Brazilian institutions. Hurdles that limit the development of Brazilian capital markets are presented by Gorga (2003) and Black (2000) and include: i) the Brazilian Securities Commission (CVM) has a very limited staff and budget and is not yet sophisticated enough to catch subtle forms of mis-disclosure or self-dealing; ii) there are no specialized prosecutors with the skill to bring complex securities cases to court and prosecutors have a reputation for not always being honest; iii) the courts lack sophistication; iv) Brazil does not yet have a strong culture of compliance with disclosure rules; v) there is a disincentive for private companies to prepare audited financial statements because it is more difficult for a company with audited statements

to hide income from the tax collector; vi) there is no meaningful liability risk for bad audits conducted by accountants; there are no cases of accountants being found liable for violations in GAAP; vii) public held companies make little use of independent directors, and nominally independent directors may not be so independent in practice. Additionally, Brazil has also been classified as a poor enforcement, legal regime and transparency country (Durnev and Kim, 2005).

This reality has a mixed impact on the usefulness of financial accounting reports. If markets are slow to incorporate new information into prices financial statement analysis can presumably provide valuable insights into firm's future performance. On the other way if market institutions are too weak financial statements can loose credibility and be of little use. The final result of this set of forces is ultimately an empirical question over which this paper intends to shed some light.

Macroeconomic Shocks

The Brazilian economy suffered several macroeconomic shocks in the past years. In 1993 the Real Plan was implemented with the focus of reducing inflation and stabilizing the country on fiscal terms. The Real was anchored on pegged currency scheme to the US dollar what left economy very vulnerable to external shocks because the exchange rate could not fluctuate and all the adjustments should be made trough interest rates. The Brazilian economy was affected by the crises of Mexico (1995), Argentina (1995), Thailand (1997), Indonesia (1997), Philippines (1998), Korea (1997-8), Russia (1998) and finally the Brazilian devaluation of the Real in 1999. More recently, the crises in Turkey (2001-2), Argentina (2002) and the Brazilian presidential election (2002) complete the picture.

Figure 1 shows that around those macroeconomic crises the volatility increased dramatically. This uncertainty on the macroeconomic arena potentially leads to a reduction in the usefulness of financial statement analysis. One important question is whether these macroeconomic events overshadow firms' fundamentals. In that sense Brazil provides an interesting opportunity to test the usefulness of financial statement analysis. For all the above-mentioned reasons we believe it's important to assess the usefulness of financial statement analysis in Brazil.

IV. FINANCIAL PERFORMANCE SIGNALS

We used an adapted version of the strategy proposed by Piotroski (2000) who built a score composed of fundamental signals (F_SCORE) extracted from financial statements. We classify each firm's signal realization as either "good" or "bad" depending on the signal's theoretical impact on future prices and performance. If the realization signal is "good" the indicator variable is equal to one (1); if it is "bad", it equals zero (0). Additionally we adapted Piotroski's score to reflect the absence of published cash flow statements in Brazil. The composite score represents the sum of the following indicator variables, or:

$$BrF_SCORE = F_ROA + F_CF + F_ΔROA + F_ACCRUAL + F_ΔLIQUID + \\ F_ΔLEVER + EQ_OFFER + F_ΔMARGIN + F_ΔTURN$$

Where:

$F_ROA = 1$ if ROA is positive, zero otherwise. ROA is defined as net income scaled by beginning-of-the-year total assets⁹;

$F_CF = 1$ if CF is positive, zero otherwise. CF is defined current firm-year change in cash and equivalents, scaled by beginning-of-the-year total assets;

$F_ΔROA = 1$ if $ΔROA$ is positive, zero otherwise. $ΔROA$ is defined as current firm-year ROA less the previous firm-year ROA ;

$F_ACCRUAL = 1$ if $CF > ROA$, 0 otherwise;

$F_ΔLIQUID = 1$ if $ΔLIQUID$ is positive, zero otherwise. $ΔLIQUID$ measures the changes in the firm's current ratio in relation to previous year. The current ratio is defined as the ratio of current assets to current liabilities at company's year end.

$F_ΔLEVER = 1$ if there is a decrease in leverage ($ΔLEVER < 0$), zero otherwise. We measure $ΔLEVER$ as the change in the ratio of total gross debt to total assets in relation to prior year.

$EQ_OFFER = 1$ if the firm did not issue equity in the year preceding portfolio construction, zero otherwise.

$F_ΔMARGIN = 1$ if there is a positive change (i.e. $ΔMARGIN > 0$), zero otherwise. We define $ΔMARGIN$ as the change in firm-year current gross margin scaled by total sales (gross margin ratio) compared to previous year.

$F_ΔTURN = 1$ if there is an improvement in assets turnover, zero otherwise. We define $ΔTURN$ as the change in firm's current firm-year sales scaled by beginning-of-the-year total assets (asset turnover ratio).

⁹ For all variables that should be scaled by total assets from the beginning-of-the-year of 1994 we use the assets for the end-of-the-year. This procedure is necessary due to the end of monetary correction related to inflation rates that existed until 1994 in Brazil. Since that year monetary correction is not accounted for.

BrF_SCORE range is from 0 (“bad” signals) to 9 (“good” signals). Low *BrF_SCORE* represent firms with poor expected future performance and stock returns, while high *BrF_SCORE* is associated with firms expected to outperform. The investment strategy analyzed in this paper is similar to Piotroski (2000) and is based on selecting firms with high *score*. We consider firms with high *BrF_SCORE* the ones in the range of 7-9 and firms with low *BrF_SCORE* the ones beneath or equal to 3. We expand the range in comparison to Piotroski (2000) due to the sample size and to special features of Brazilian capital markets (e.g. the low number of equity offerings).

V. SAMPLE SELECTION AND RESULTS

Data

We start with all non financial firms listed in Bovespa between 1994 and 2004¹⁰. We collect these data from Economatica® database and we select the higher liquidity stock class¹¹ of each firm for each year. This procedure resulted in 6,682 firm-year observations. Additionally we identify firms with sufficient stock prices and book values and calculate the market value of equity (*MVE*) and book-to-market ratio (*BM*) of each company at fiscal year-end. Finally we exclude firms with negative *BM* and trimmed the data at 1% for one-year-row

¹⁰ We select this range due to the beginning of current Brazilian currency, Real. After the adoption of Real, Brazilian inflation rate drastically decreased and remained stable.

¹¹ As stated on Section 3, both preferred or common stocks are considered as equity in Brazil. Usually the preferred stock has higher liquidity than common shares. To select the most liquidity class of shares we use the stock liquidity ratio that is calculated as the ratio of the number of days in which there were at least 1 trade of the stock during the year to the total number of days in the year multiplied by the square root of the ratio of number of trades of the stock during the year to the total number of trades of all stocks in the year times the ratio of volume in monetary terms of the stock in the year to total volume in monetary terms of all stocks in the same year.

returns¹². Companies with sufficient data are annually classified and we identify distribution of *BM* and *MVE*. This procedure resulted in 2,151 firm-year observations.

We use the *BM* distribution from the prior year to the construction of the portfolio and classify firms *BM* data for each year into *BM* quintiles. To construct the HBM portfolio (value firms) we selected the top *BM* quintile. Figure 2 presents the top quintiles of *BM* used to build HBM portfolio. Firms above these levels of *BM* were included in the HBM portfolio. Additionally we separate companies by its size (small, medium or large) according to their 33.3 and 66.7 percentiles distribution of *MVE* and by its stock liquidity (less, medium or more) according to their 33.3 and 66.7 percentiles distribution of stock liquidity ratio. This approach outcomes 426 HBM firms to the final sample from 1994-2004 (see appendix A).

Returns

Firm returns are calculated as buy-and-hold returns for 1-year and 2-years period starting on the 1st of May of the year after portfolio formation. This procedure is also adopted by Piotroski (2000) and Mohanram (2005) to ensure all financial statements information are publicly available at the moment of portfolio formation. This method is consistent with Brazilian requirements to public held companies release their annual financial statements until the end of April. If a firm delists, we assume the delisting return as zero. We define market-adjusted-returns as the buy-and-hold returns for 1-year and 2-years in excess to the value-

¹² This procedure was necessary due to some absurd returns. There were firms with more than 13,000% one-year return.

weighted market return¹³ over the same time period. We collect returns from May 1995 to March 2007¹⁴.

HBM versus Non HBM firms - Descriptive Statistics

We compute descriptive statistics for HBM and non HBM firms to better understand the HBM effect in Brazil. To form the portfolio of non HBM firms we selected firms that did not qualify as HBM. Our sample of non HBM firms has 1,725 firm-year observations. Table 1 presents descriptive statistics about the financial and returns characteristics of the non HBM portfolio of firms, while table 2 provides descriptive statistics about the financial and returns characteristics of the HBM portfolio. Some comparisons are interesting.

Panel A from table 1 shows the average (median) BM of non HBM firms is 1.46 (1.25) while panel A from table 2 presents the average (median) BM of HBM firms of 8,68 (5.48). Piotroski (2000) finds an average (median) BM of HBM American firms of 2.44 (1.72). The standard deviation BM of HBM firms (15.81) is considerable higher than standard deviation BM of non HBM firms (0.98), representing the great heterogeneity among HBM Brazilian firms. The difference between the median market capitalization (*MVE*) of non HBM (BRL 280 million) and HBM (BRL 16 million) shows growth stocks represents usually more mature companies compared to value stocks. *ROA* performs poorly in HBM firms. Panel A from table 2 documents average (median) *ROA* of HBM firms is -1.35% (0.40%) while panel A from table 1 points an average (median) *ROA* of 3.36% (3.72%) for non HBM firms. This evidence is consistent with Fama and French (1995) and Piotroski (2000) for US companies.

¹³ We use IBRX as benchmark. IBRX represents a Brazilian stock market index composed by the most 100 liquid stocks traded on Bovespa.

¹⁴ We consider the two-year raw and adjusted returns for fiscal year-ended 2004 as the accumulated return from May 1st 2005 to the end of March 2007. This procedure is adopted due to the available data at the date this paper is written.

Panel B from tables 1 and 2 presents one-year and two-year buy-and-hold returns. Consistently with the HBM effect, returns are higher (raw and market-adjusted) for HBM firms in comparison to non HBM firms. Additionally the market-adjusted returns are considerable negative in the left tail of return distribution for both, HBM and non HBM firms. Given this scenario the strategy proposed by Piotroski (2000) based on fundamental analysis of HBM firms should improve the average portfolio return for HBM Brazilian firms.

Main Results

Table 3 shows Spearman and Pearson correlations between the nine financial performance signals, *BrF_SCORE* and one year raw return (*RETURN*), one year market-adjusted return (*MA_RET*) and two years market-adjusted return (*MA_RET2*). *BrF_SCORE* is significant, positive and correlated (spearman and pearson) with *RETURN*, *MA_RET* and *MA_RET2*. This is an indication of the explanatory power of *BrF_SCORE* on portfolio returns. The individual financial performance signs that have the highest spearman correlation with *RETURN* are *F_ALEVER* and *F_ΔMARGIN*. *F_ROA* also has somewhat relevant spearman correlation with returns, especially with *MA_RET2*. Regarding pearson correlation, *F_ALEVER* and *F_CF* are the most correlated to *RETURN*.

Table 4 panel A, B, C and D presents the buy-and-hold returns for the investment strategy based on financial statement analysis for the HBM portfolio of Brazilian firms. We present the mean, median and percentiles one-year raw, one-year adjusted, two-years raw and two-years adjusted returns for each *BrF_SCORE* class. We test the returns earned with high *BrF_SCORE* firms portfolio against returns gained from low *BrF_SCORE* firms portfolio. We adopted two-sample mean comparison test for mean returns, two-sample proportion test for

positive returns and Wilcoxon signed-rank test for median returns. Additionally we implement bootstrap procedure to test between the difference of mean and medians returns from high *BrF_SCORE* and low *BrF_SCORE* portfolios. Reported bootstrapped z-statistics (p-values) result from 1,000 iterations. Table 4 panel A shows the significant difference between one-year raw returns from High Score firms and Low Score Firms. Mean returns shift from 36% to 53% considering *BrF_SCORE* based strategy. Comparing to low *BrF_SCORES* HBM firms returns improve 35 p.p. and are statistically significant at 1%. The difference between median and percentage positive one-year raw returns for high and low *BrF_SCORES* firms are significant at 1% and 10%, respectively. Table 4 panel B documents significant difference between one-year market-adjusted returns from High Score firms and Low Score Firms. Returns shift from 5.7% to 26.7% considering *BrF_SCORE* based strategy. This is a considerable improvement. Comparing to low *BrF_SCORES* HBM firms returns improve 41.8 p.p. and are statistically significant at 1%. It is possible to differentiate the one-year market-adjusted median returns at 1% of significance, but the difference in percentage positive for one-year market-adjusted returns from High and Low *F_SCORE* firms are significant at 10%. Table 4, panels A and B show that *BrF_SCORE* strategy helps one to differentiate firms with poor performance (classified in the 10th percentile and 25th percentile) and firms with superior performance (classified above 50th percentile) within the sample of HBM firms.

BrF_SCORE based strategy is also (and apparently even more) useful to increase subsequent two-years raw and market-adjusted returns for Brazilian firms. Table 4 panel C shows an increase of 82 p.p. if one applies the *BrF_SCORE* strategy in comparison to a HBM strategy. Table 4 panel D presents 144% (80%) significant difference between two-years market-adjusted mean (median) returns from High and Low Score firms. Additionally there is

a significant difference at 1% between percentage positive in two-years (raw and market-adjusted) returns from High and Low *BrF_SCORE* firms as well as for the two-years (raw and market-adjusted) median returns. Bootstrap results confirm the classical tests. The difference between two-year market-adjusted mean returns of High Score firms and all HBM firms is 78 p.p. and is statistically significant at 1%. These results are interesting considering the presumably lower market efficiency and poor accounting numbers relevance in Brazil. Piotroski (2000) finds that *F_SCORE* based strategy improves subsequent returns, particularly over the first year. Our results suggest that financial accounting information follows a slower path to be incorporated into prices in Brazil in comparison to US.

We present on appendix A a comparison between returns earned annually from High *BrF_SCORE* (≥ 7) portfolio and Low *BrF_SCORE* portfolio (≤ 3). Consistent with prior results, High *BrF_SCORE* firms outperform Low *BrF_SCORE* firms in 10 of 11 years analyzed for one-year market-adjusted returns and in 9 of 11 years for two-year market-adjusted returns.

Additional Analysis – Size, Liquidity and Indebtedness Effects

We classify HBM (Table 5) firms into three categories by size (small, medium or large). The percentile size cutoffs are constructed according to firms 33.3 and 66.7 percentiles distribution of previous year *MVE*. The HBM sample for Brazilian firms is formed mostly by small companies. We present buy-and-hold market-adjusted returns for one year and two years after the portfolio construction. The results presented on table 5 panel A indicate the excess returns earned by High *BrF_SCORE* strategy can statistically differentiate between winners and losers only for small and median firms considering the one-year market-adjusted mean and median returns earned from a strategy long on High Score firms and Short on Low Score firms. The strategy based on High *BrF_SCORE* small firms also differentiate one-year

market-adjusted mean and median returns from the returns obtained by a strategy investment based on all HBM small firms. Comparing our results to Piotroski's (2000)¹⁵ one can realize the amount of return that financial statement analysis provide in an environment like Brazil seems much higher than in US and our strategy differentiates essentially between HBM small and medium firms. Another important feature is to analyze how the *BrF_SCORE* strategy works regarding the liquidity of firms' shares. The Spearman correlation between classification of firm size and liquidity is 0.46, so we implement an additional analysis for stock's liquidity partition. We classify firms' stock as low liquidity, medium liquidity or high liquidity based on their year distribution of liquidity ratio. This ratio considers both, numbers of shares traded and volume traded during the year of portfolio implementation. The 33.3 and 66.7 percentiles represent the cutoffs. The results on table 5, panels B show that firms with low liquidity ratio should be the target to differentiate returns from HBM firms. The strategy works for low and medium liquidity stocks for one-year market-adjusted returns to separate High *BrF_SCORE* and Low *BrF_SCORE* firms with 5% of significance. Finally we classify firms' indebtedness as low debt, medium debt or high debt based on their prior year's distribution of debt to debt plus equity ratio. The 33.3 and 66.7 percentiles represent the cutoffs. Results from table 5, panel C show that the investment strategy works better for firms with higher indebtedness levels. Piotroski's (2000) finds evidence that the accounting-based fundamental analysis strategy works for HBM firms independently of its level of financial distress. We find evidences that fundamental analysis differentiate winners from losers for firms with higher indebtedness levels. Our result can be explained by the enhanced power of fundamental analysis when it is applied to more distressed firms. In an environment like Brazil the outcome of fundamental analysis applied to HBM firms with high indebtedness levels suppresses the low quality of accounting reports.

¹⁵ Table 4, page 21.

Robustness of F_SCORE to predict returns

In order to check the relation between *BrF_SCORE* and subsequent returns we run cross-sectional (pooled) and fixed-effect regressions to analyze if there are correlations between *BrF_SCORE* and other variables that could explain returns and are directly or indirectly related to *BrF_SCORE* strategy. We control *BrF_SCORE* effect for *BM*, *MVE*, *EQ_OFFER* and *ACRRUALS*. Additionally we also control *BrF_SCORE* effect for momentum strategies. As commented by Piotroski (2000, p.26) the underreaction to historical information and financial events, which should be the ultimate mechanism underlying the success of *F_SCORE*, is also the primary mechanism underlying momentum strategies. Momentum strategies (based on past prices) are intended to better work in less efficient markets. Considering that *BrF_SCORE* strategy works in Brazil, one could wonder if momentum strategies could work as well. To help answer these issues we estimate robust cross-sectional regression for HBM Brazilian firms. The cross sectional regressions presented on table 6, panel A show (with 5% of significance) that *BrF_SCORE* coefficient is positively related to future returns after controlling for *MVE* and *BM* (model 3). . Comparing models (3) and (4) one can realize that *F_SCORE* add considerable information to *MVE* and *BM*. Models (1) and (2) show that *ACCRUAL* and *MOMENT* do not have power in predicting one-year market-adjusted returns. Additionally we run robust fixed effect regression for unbalanced panel data (table 6, panel B) and the result confirms the relevance of *BrF_SCORE* on predicting one-year market-adjusted returns. Model (6) shows that one additional *BrF_SCORE* point is associated with an approximate 5% increase in one-year market-adjusted returns (with 5% of significance). These results confirm the effectiveness of *BrF_SCORE* to separate winners from losers in HBM portfolio.

VI. CONCLUSIONS

This paper investigates if an accounting-based fundamental analysis strategy can help investors earn excess returns on a portfolio of HBM firms in Brazil. We find evidences that a financial statement analysis strategy based on select financially strong HBM firms can separate winners from losers in an environment of adverse conditions like Brazil. One could have changed his/her HBM portfolio one-year (two-year) market-adjusted returns from 5.7% (42.4%) to 26.7% (120.2%) selecting financially strong HBM firms in the 1994-2004 period. Additionally a strategy based on forming portfolios long on financially strong HBM firms and short on financially weak HBM firms generates 41.8% annual (or 144.2% for two years accumulated) market-adjusted return to portfolios implemented from 1994 to 2004.

Additional tests, however, show that these results are mainly driven by small, low liquidity or highly indebted firms. This evidence differs from Piotroski's (2000) results which worked for small and medium firms, for the full range of trading volume (liquidity) and for different levels of distressed firms. This lead us to conclude that financial statement analysis in Brazil only works for a subset of firms, but for these firms the results are larger in magnitude than previously reported by Piotroski (2000). For the larger, less distressed and higher liquidity firms traded in Brazil a fundamental analysis strategy based on fundamental financial signs did not work as well as it did in more developed markets which favors the argument that financial accounting reports in Brazil are of low quality.

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Figure 1 – Macroeconomic Crises and the São Paulo Stock Exchange Index Volatility

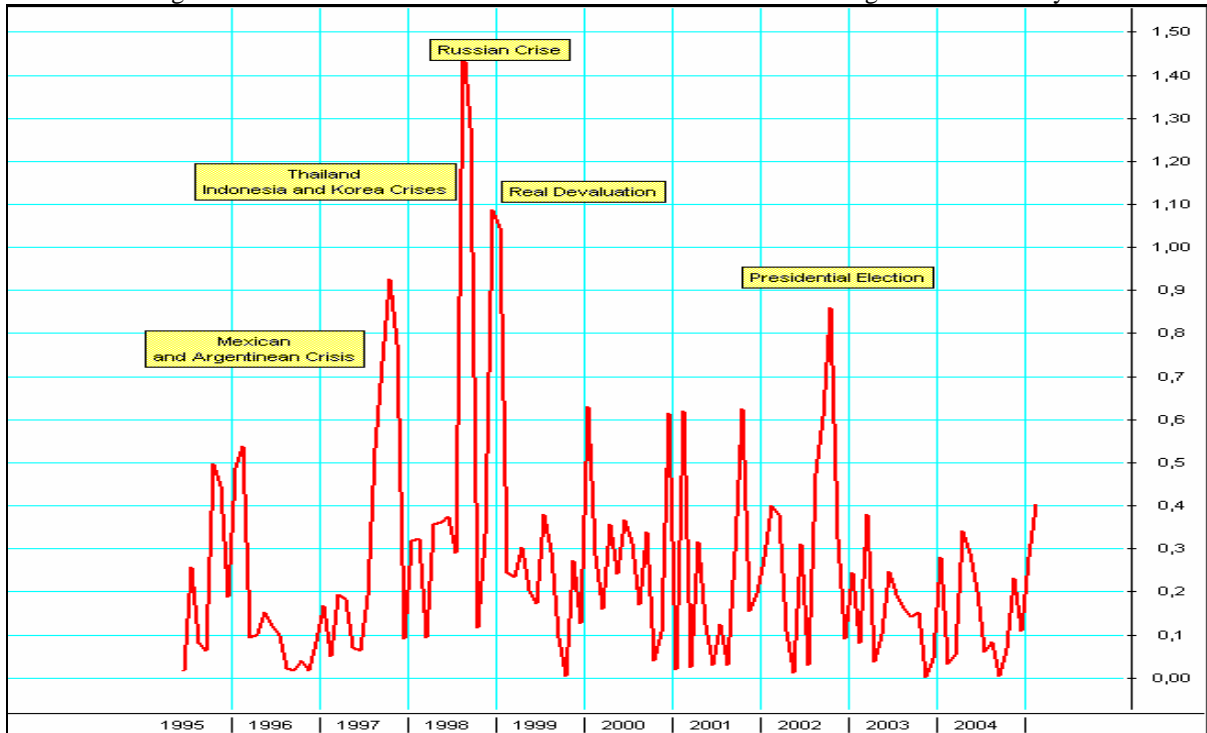


Figure 2. Cutoff HBM quintile per year

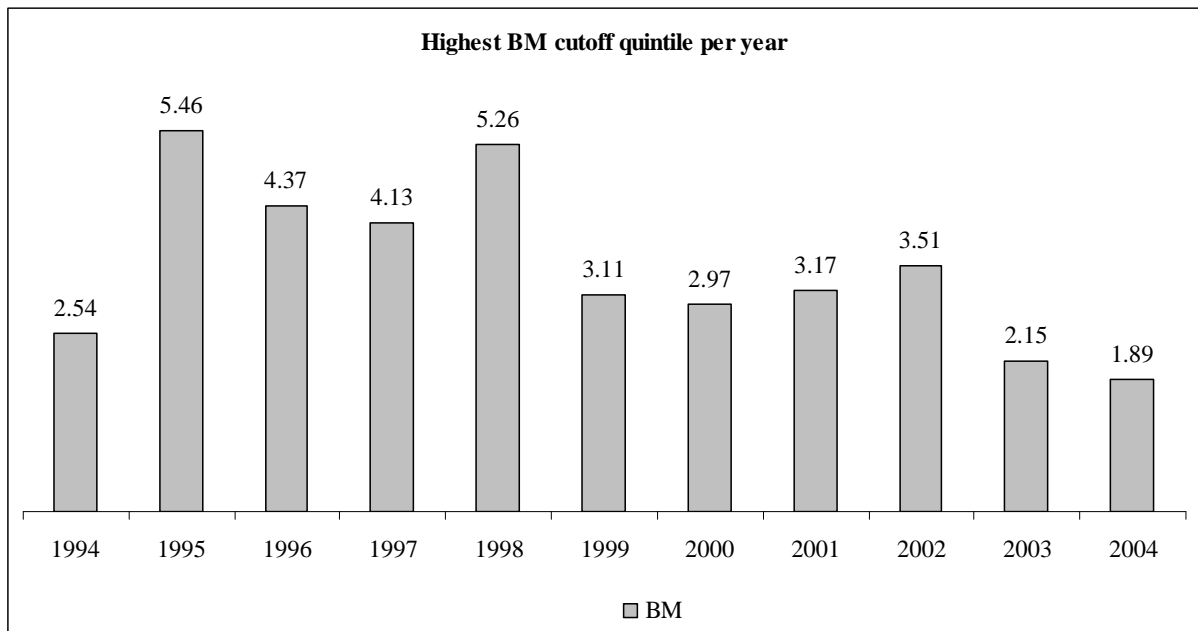


TABLE 1
Financial and Returns Characteristics of Non High Book-to-Market Firms
(Firm-Year Observation between 1994 and 2004)

Panel A: Financial Characteristics					
Variable	Mean	Median	Standard Deviation	Proportion with Positive Signal	n
<i>BM</i>	1.4626	1.2501	0.9853	n/a	1725
<i>MVE</i>	1,661,306	279,708	5,698,093	n/a	1725
<i>ROA</i>	0.0336	0.0372	0.1134	0.7704	1674
<i>CF</i>	0.0325	0.0062	0.1708	0.6365	1674
ΔROA	-0.0404	0.0018	0.2885	0.5490	1589
<i>ACCRUAL</i>	-0.0281	-0.0297	0.1702	0.3774	1577
$\Delta LIQUID$	0.0563	0.0200	1.2113	0.5171	1725
$\Delta LEVER$	0.0132	0.0071	0.1046	0.5449	1725
$\Delta TURN$	0.0494	0.0227	0.2663	0.5983	1725
$\Delta MARGIN$	0.0144	0.0025	0.1405	0.5177	1725

Panel B: Buy-Hold Returns from a Non High Book-to-Market Investment Strategy							
Returns	Mean	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Percentage Positive
One-Year Returns							
Raw	0.2312	-0.4534	-0.2042	0.1137	0.5200	1.0082	0.5843
Market-Adjusted	-0.0679	-0.7414	-0.4748	-0.1413	0.2306	0.6306	0.3907
Two-Years Returns							
Raw	0.6997	-0.5324	-0.1862	0.3261	1.0143	1.9758	0.6591
Market-Adjusted	0.0245	-1.3048	-0.7537	-0.2638	0.3896	1.2285	0.3872

.This table refers to financial and returns characteristics of non HBM firms. Non HBM firms are the ones that did not qualify as HBM firm, i.e. did not reach the cutoff quintile of HBM companies. We collected data from firms with sufficient financial statement data to calculate the financial performance signals and we trimmed one-year returns at 1%. We also exclude companies with negative BM.

BM = book value of equity at fiscal year-end scaled by *MVE*.

MVE = market value of equity at fiscal year-end.

ROA = net income scaled by beginning-of-the-year total assets.

CF = current firm-year change in cash and equivalents, scaled by beginning-of-the-year total assets.

ΔROA = current firm-year ROA less the previous firm-year ROA.

ACCRUAL = changes on non-cash current assets minus changes on current liabilities (except short-term debt) minus depreciation, scaled by beginning-of-the-year total assets.

$\Delta LIQUID$ = changes in the firm's current ratio in relation to previous year. The current ratio is defined as the ratio of current assets to current liabilities at company's year end.

$\Delta LEVER$ = change in firm's gross debt scaled by fiscal year-end total assets.

$\Delta TURN$ = change in firm's current firm-year sales scaled by beginning-of-the-year total assets in relation to prior year.

$\Delta MARGIN$ = change in firm-year current gross margin scaled by total sales.

.One-Year Raw Return = buy-and-hold returns for 1-year period starting on the 1st of May of the year after portfolio formation.

.Two-Years Raw Return = buy-and-hold returns for 2-years period starting on the 1st of May of the year after portfolio formation.

.One-Year Market-Adjusted Return = buy-and-hold returns for 1-year period starting on the 1st of May of the year after portfolio formation less the value-weighted market return over the same time period.

.Two-Years Market-Adjusted Return = buy-and-hold returns for 2-years period starting on the 1st of May of the year after portfolio formation less the value-weighted market return over the same time period.

TABLE 2
Financial and Returns Characteristics of High Book-to-Market Firms
(Firm-Year Observation between 1994 and 2004)

Panel A: Financial Characteristics					
Variable	Mean	Median	Standard Deviation	Proportion with Positive Signal	n
<i>BM</i>	8.6817	5.4821	15.8105	n/a	426
<i>MVE</i>	326,359	16,366	2,153,823	n/a	426
<i>ROA</i>	-0.0135	0.0040	0.0885	0.5681	416
<i>CF</i>	0.0112	0.0002	0.1364	0.5305	416
ΔROA	0.0016	0.0013	0.2573	0.5329	404
<i>ACCRUAL</i>	-0.0301	-0.0302	0.1106	0.3545	379
$\Delta LIQUID$	-0.5545	-0.0200	8.6688	0.4671	426
$\Delta LEVER$	0.0101	0.0000	0.1122	0.4977	426
$\Delta TURN$	0.0026	0.0025	0.2717	0.5258	426
$\Delta MARGIN$	0.0153	0.0000	0.1780	0.4765	426

Panel B: Buy-Hold Returns from a High Book-to-Market Investment Strategy							
Returns	Mean	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Percentage Positive
One-Year Returns							
Raw	0.3569	-0.4815	-0.2427	0.1192	0.7453	1.5180	0.5634
Market-Adjusted	0.0574	-0.8279	-0.5194	-0.1220	0.3903	1.2739	0.4460
Two-Years Returns							
Raw	1.0992	-0.5385	-0.2727	0.3846	1.6243	3.3385	0.6197
Market-Adjusted	0.4244	-1.4384	-0.7735	-0.2272	1.0405	2.4437	0.4366

This table refers to financial and returns characteristics of HBM firms. HBM firms are the ones that reach the top quintile of BM. We collected data from firms with sufficient financial statement data to calculate the financial performance signals and we trimmed one-year returns at 1%. We also exclude companies with negative BM.

BM = book value of equity at fiscal year-end scaled by *MVE*.

MVE = market value of equity at fiscal year-end.

ROA = net income scaled by beginning-of-the-year total assets.

CF = current firm-year change in cash and equivalents, scaled by beginning-of-the-year total assets.

ΔROA = current firm-year ROA less the previous firm-year ROA.

ACCRUAL = changes on non-cash current assets minus changes on current liabilities (except short-term debt) minus depreciation, scaled by beginning-of-the-year total assets.

$\Delta LIQUID$ = changes in the firm's current ratio in relation to previous year. The current ratio is defined as the ratio of current assets to current liabilities at company's year end.

$\Delta LEVER$ = change in firm's gross debt scaled by fiscal year-end total assets.

$\Delta TURN$ = change in firm's current firm-year sales scaled by beginning-of-the-year total assets in relation to prior year.

$\Delta MARGIN$ = change in firm-year current gross margin scaled by total sales.

.One-Year Raw Return = buy-and-hold returns for 1-year period starting on the 1st of May of the year after portfolio formation.

.Two-Years Raw Return = buy-and-hold returns for 2-years period starting on the 1st of May of the year after portfolio formation.

.One-Year Market-Adjusted Return = buy-and-hold returns for 1-year period starting on the 1st of May of the year after portfolio formation less the value-weighted market return over the same time period.

.Two-Years Market-Adjusted Return = buy-and-hold returns for 2-years period starting on the 1st of May of the year after portfolio formation less the value-weighted market return over the same time period.

TABLE 3

Panel A: Spearman Correlation

Spearman Correlation Analysis between One and Two Year Market Adjusted Returns, the Nine Fundamental Signals and the Composite Signal (*F_SCORE*) for High Book-to-Market Firms

	<i>RETURN</i>	<i>MA_RET</i>	<i>MA_RET2</i>	<i>F_ROA</i>	<i>F_ΔROA</i>	<i>F_ΔMARGIN</i>	<i>F_CF</i>	<i>F_ΔLIQUID</i>	<i>F_ΔLEVER</i>	<i>F_ΔTURN</i>	<i>F_ACCRUAL</i>	<i>EQ_OFFER</i>	<i>BrF_SCORE</i>
<i>RETURN</i>	1.0000												
<i>MA_RET</i>	0.9115	1.0000											
<i>MA_RET2</i>	0.6369	0.6749	1.0000										
<i>F_ROA</i>	0.0393	0.0539	0.0930	1.0000									
<i>F_ΔROA</i>	-0.0617	-0.0387	-0.0592	0.3698	1.0000								
<i>F_ΔMARGIN</i>	0.0804	0.1242	0.1706	0.0226	0.1068	1.0000							
<i>F_CF</i>	0.0752	0.0310	0.0406	0.1268	0.1035	-0.0656	1.0000						
<i>F_ΔLIQUID</i>	0.0516	0.0878	0.0728	0.1374	0.1158	0.0676	0.1509	1.0000					
<i>F_ΔLEVER</i>	0.0828	0.0772	0.0711	0.1833	0.1974	0.0942	-0.0611	0.0850	1.0000				
<i>F_ΔTURN</i>	0.0588	0.0676	0.1017	0.0760	0.1520	0.1342	0.0233	0.1447	0.0797	1.0000			
<i>F_ACCRUAL</i>	0.0375	-0.0034	0.0378	-0.1184	-0.0849	-0.0314	0.1444	-0.1822	0.0764	-0.0233	1.0000		
<i>EQ_OFFER</i>	-0.0045	-0.0273	-0.0006	-0.0214	-0.0305	0.0804	0.0285	0.0226	0.0846	-0.0800	-0.0650	1.0000	
<i>BrF_SCORE</i>	0.1093	0.1192	0.1519	0.5191	0.5690	0.3838	0.4033	0.4378	0.4743	0.4530	0.1944	0.0500	1.0000

Panel B: Pearson Correlation

Pearson Correlation Analysis between One and Two Year Market Adjusted Returns, the Nine Fundamental Signals and the Composite Signal (*F_SCORE*) for High Book-to-Market Firms

	<i>RETURN</i>	<i>MA_RET</i>	<i>MA_RET2</i>	<i>F_ROA</i>	<i>F_ΔROA</i>	<i>F_ΔMARGIN</i>	<i>F_CF</i>	<i>F_ΔLIQUID</i>	<i>F_ΔLEVER</i>	<i>F_ΔTURN</i>	<i>F_ACCRUAL</i>	<i>EQ_OFFER</i>	<i>BrF_SCORE</i>
<i>RETURN</i>	1.0000												
<i>MA_RET</i>	0.9498	1.0000											
<i>MA_RET2</i>	0.4126	0.4057	1.0000										
<i>F_ROA</i>	0.0216	0.0301	0.0655	1.0000									
<i>F_ΔROA</i>	-0.0557	-0.0272	0.0014	0.3698	1.0000								
<i>F_ΔMARGIN</i>	0.0761	0.1238	0.0959	0.0226	0.1068	1.0000							
<i>F_CF</i>	0.0852	0.0522	0.0278	0.1268	0.1035	-0.0656	1.0000						
<i>F_ΔLIQUID</i>	0.0579	0.0871	0.0699	0.1374	0.1158	0.0676	0.1509	1.0000					
<i>F_ΔLEVER</i>	0.1144	0.1118	0.1176	0.1833	0.1974	0.0942	-0.0611	0.0850	1.0000				
<i>F_ΔTURN</i>	0.0504	0.0702	0.0897	0.0760	0.1520	0.1342	0.0233	0.1447	0.0797	1.0000			
<i>F_ACCRUAL</i>	0.0342	0.0072	0.0096	-0.1184	-0.0849	-0.0314	0.1444	-0.1822	0.0764	-0.0233	1.0000		
<i>EQ_OFFER</i>	0.0052	-0.0084	0.0200	-0.0214	-0.0305	0.0804	0.0285	0.0226	0.0846	-0.0800	-0.0650	1.0000	
<i>BrF_SCORE</i>	0.1107	0.1307	0.1385	0.5177	0.5644	0.3871	0.4102	0.4404	0.4806	0.4536	0.2130	0.0544	1.0000

Panel A presents spearman correlation between the nine financial performance signals, *BrF_SCORE* and portfolio returns of HBM firms. Panel B presents pearson correlation between the nine financial performance signals, *BrF_SCORE* and portfolio returns of HBM firms. *RETURN* represents the buy-and-hold returns for 1-year period starting on the 1st of May of the year after portfolio formation. *MA_RET* represents the buy-and-hold returns for 1-year period starting on the 1st of May of the year after portfolio formation less the value-weighted market return over the same time period. *MA_RET2* represents the buy-and-hold returns for 2-years period starting on the 1st of May of the year after portfolio formation less the value-weighted market return over the same time period. *F_ROA* equals 1 if *ROA* is positive, zero otherwise. *F_CF* equals 1 if *CF* is positive, zero otherwise. *F_ΔROA* equals 1 if *ΔROA* is positive, zero otherwise. *F_ACCRUAL* equals 1 if *CF* > *ROA*, 0 otherwise. *F_ΔLIQUID* equals 1 if *ΔLIQUID* is positive, zero otherwise. *F_ΔLEVER* equals 1 if there is a decrease in leverage (*ΔLEVER* < 0), zero otherwise. *EQ_OFFER* equals 1 if the firm did not issue equity in the year preceding portfolio construction, zero otherwise. *F_ΔMARGIN* equals 1 if there is a positive change (i.e. *ΔMARGIN* > 0), zero otherwise. *F_ΔTURN* equals 1 if there is an improvement in assets turnover, zero otherwise.

The sample represents 426 HBM firm-year observations between 1994 and 2004.

TABLE 4

Buy-and-Hold Returns to a Value Investment Strategy Based on Fundamental Signals

This table presents on Panel A, B, C and D the buy-and-hold returns to financial statements analysis based on fundamental signals of high book-to-market firms. Low BrF_SCORE portfolio consists of firms with an aggregate score of 1-3 while the High BrF_SCORE represents firms with a score of 7-9.

Panel A: One-Year Raw Returns								
Returns	Mean	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Percentage Positive	n
All Firms	0.3569	-0.4815	-0.2427	0.1192	0.7453	1.5180	0.5634	426
<i>BrF_SCORE</i>								
1	0.0317	-0.1818	-0.1818	0.0317	0.2451	0.2451	0.5000	2
2	0.1094	-0.5474	-0.3278	0.0847	0.4645	0.8275	0.5333	30
3	0.2287	-0.6002	-0.3590	-0.0400	0.5000	1.5000	0.4490	49
4	0.4260	-0.4783	-0.1957	0.2580	0.8551	1.5472	0.5921	76
5	0.2263	-0.5231	-0.3797	-0.0262	0.5779	1.3768	0.4651	86
6	0.3997	-0.4917	-0.2196	0.2059	0.7958	1.7963	0.6477	88
7	0.6427	-0.4111	-0.1354	0.2265	1.3361	2.0000	0.6610	59
8	0.3242	-0.3248	-0.1852	0.1912	0.7059	1.2973	0.6296	27
9	0.4226	-0.4050	-0.2873	-0.1367	0.4349	3.1018	0.3333	9
Low Score (1-3)	0.1797	-0.5717	-0.3333	0.0000	0.4645	1.1053	0.4815	81
High Score (7-9)	0.5314	-0.4000	-0.1821	0.2040	0.9500	1.7671	0.6211	95
High - Low	0.3517	0.1717	0.1512	0.2040	0.4855	0.6618	0.1396	-
t-stat/z-stat	2.6943	-	-	2.723	-	-	1.8578	-
(p-Value)	(0.0077)	-	-	(0.0065)	-	-	(0.0632)	-
Bootstrap Result								
1000 rep/z-stat	2.7300	-	-	2.8600	-	-	-	-
(p-Value)	(0.0060)	-	-	(0.0040)	-	-	-	-
Panel B: One-Year Market Adjusted Returns								
Returns	Mean	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Percentage Positive	n
All Firms	0.0574	-0.8279	-0.5194	-0.1220	0.3903	1.2739	0.4460	426
<i>BrF_SCORE</i>								
1	-0.3430	-0.8949	-0.8949	-0.3430	0.2089	0.2089	0.5000	2
2	-0.2474	-1.1028	-0.6231	-0.3935	0.2718	0.5957	0.4333	30
3	-0.0845	-1.1481	-0.6115	-0.2131	0.2158	1.0972	0.3469	49
4	0.1533	-0.6214	-0.3988	-0.0209	0.4917	1.3832	0.4868	76
5	-0.1017	-0.8865	-0.5991	-0.2281	0.2026	0.9439	0.3256	86
6	0.0962	-0.8541	-0.5322	0.0113	0.4392	1.4155	0.5114	88
7	0.3862	-0.5541	-0.2701	0.1372	1.0540	1.6199	0.5593	59
8	0.0771	-0.4606	-0.4253	-0.0676	0.3298	0.8108	0.4815	27
9	0.0522	-0.8498	-0.7591	-0.6414	0.4135	3.0656	0.3333	9
Low Score (1-3)	-0.1513	-1.0582	-0.6231	-0.2254	0.2655	0.6724	0.3827	81
High Score (7-9)	0.2667	-0.6476	-0.4253	0.0564	0.7694	1.5610	0.5158	95
High - Low	0.4180	0.4106	0.1978	0.2818	0.5039	0.8886	0.1331	-
t-stat/z-stat	3.2258	-	-	3.051	-	-	1.7671	-
(p-Value)	(0.0015)	-	-	(0.0023)	-	-	(0.0772)	-
Bootstrap Result								
1000 rep/z-stat	3.2900	-	-	3.2400	-	-	-	-
(p-Value)	(0.0010)	-	-	(0.0010)	-	-	-	-

TABLE 4 – Continued

Panel C: Two-Years Raw Returns

Returns	Mean	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Percentage Positive	n
<i>All Firms</i>	1.0992	-0.5385	-0.2727	0.3846	1.6243	3.3385	0.6197	426
<i>BrF_SCORE</i>								
1	-0.2797	-0.3182	-0.3182	-0.2797	-0.2412	-0.2412	0.0000	2
2	0.5465	-0.7520	-0.4649	-0.1410	1.0472	2.3488	0.4333	30
3	0.3039	-0.6735	-0.3799	0.0000	0.4450	1.6874	0.4898	49
4	1.2617	-0.5214	-0.1930	0.5753	2.1306	3.7222	0.6842	76
5	0.7913	-0.5294	-0.3478	0.0639	1.0196	2.8999	0.5116	86
6	1.0328	-0.5154	-0.2237	0.4458	1.8908	2.8179	0.6591	88
7	2.3523	-0.4975	0.0353	0.8519	2.7706	6.8864	0.7797	59
8	1.1972	-0.4174	-0.0651	0.5200	1.4853	1.9118	0.7407	27
9	1.2901	-0.1902	0.2263	0.9789	1.6243	3.9099	0.7778	9
<i>Low Score (1-3)</i>	0.3794	-0.6735	-0.4000	-0.1000	0.7230	2.0006	0.4568	81
<i>High Score (7-9)</i>	1.9234	-0.4236	0.0320	0.7633	2.2597	3.9726	0.7684	95
High - Low	1.5440	0.2499	0.4320	0.8633	1.5367	1.9720	0.3116	-
t-stat/z-stat	3.5723	-	-	4.6570	-	-	4.2563	-
(p-Value)	(0.0005)	-	-	(0.0000)	-	-	(0.0000)	-
Bootstrap Result								
1000 rep/z-stat	5.5900	-	-	5.1500	-	-	-	-
(p-Value)	(0.0000)	-	-	(0.0000)	-	-	-	-

Panel D: Two-Years Market Adjusted Returns

Returns	Mean	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Percentage Positive	n
<i>All Firms</i>	0.4244	-1.4384	-0.7735	-0.2272	1.0405	2.4437	0.4366	426
<i>BrF_SCORE</i>								
1	-0.9504	-1.1193	-1.1193	-0.9504	-0.7814	-0.7814	0.0000	2
2	-0.2096	-1.9691	-1.5219	-0.3421	0.2180	2.0725	0.3667	30
3	-0.2308	-1.5317	-0.8235	-0.4906	0.1561	1.0615	0.2653	49
4	0.6724	-1.1312	-0.6543	0.0712	1.3408	2.8032	0.5132	76
5	0.0667	-1.5081	-0.8981	-0.4576	0.2906	1.9282	0.3256	86
6	0.3326	-1.4384	-0.8585	-0.1903	1.2782	2.2469	0.4432	88
7	1.6012	-1.6012	-0.5828	0.5403	2.1999	5.7781	0.6610	59
8	0.6439	-0.6099	-0.4602	-0.0202	0.7295	1.2856	0.4815	27
9	0.2571	-1.8076	-1.2157	-0.5748	1.5659	3.3697	0.4444	9
<i>Low Score (1-3)</i>	-0.2407	-1.6452	-0.9990	-0.4906	0.1942	1.0615	0.2963	81
<i>High Score (7-9)</i>	1.2018	-1.3691	-0.5748	0.3117	1.6004	3.3697	0.5895	95
High - Low	1.4425	0.2761	0.4242	0.8023	1.4062	2.3082	0.2932	-
t-stat/z-stat	3.3662	-	-	4.0030	-	-	3.8932	-
(p-Value)	(0.0009)	-	-	(0.0001)	-	-	(0.0001)	-
Bootstrap Result								
1000 rep/z-stat	5.1900	-	-	4.1700	-	-	-	-
(p-Value)	(0.0000)	-	-	(0.0000)	-	-	-	-

.One-Year Raw Return = buy-and-hold returns for 1-year period starting on the 1st of May of the year after portfolio formation.

.Two-Years Raw Return = buy-and-hold returns for 2-years period starting on the 1st of May of the year after portfolio formation.

.One-Year Market-Adjusted Return = buy-and-hold returns for 1-year period starting on the 1st of May of the year after portfolio formation less the value-weighted market return over the same time period.

.Two-Years Market-Adjusted Return = buy-and-hold returns for 2-years period starting on the 1st of May of the year after portfolio formation less the value-weighted market return over the same time period.

.*BrF_SCORE* range is from 0 (“bad” signals) to 9 (“good” signals). Low *BrF_SCORE* represent firms with poor expected future performance and stock returns, while high *BrF_SCORE* is associated with firms expected to outperform. *BrF_SCORE* represents the sum of all indicator variables, or: $BrF_SCORE = F_ROA + F_CF + F_ARO + F_ACCRUAL + F_LIQUID + F_ALEVER + EQ_OFFER + F_AMARGIN + F_ATURN$

TABLE 5

Panel A: One-year market-adjusted returns for Buy-and-Hold Returns to a Value Investment Strategy based on Fundamental Signals by Size Partition									
Returns	Small Firms			Medium Firms			Large Firms		
	Mean	Median	n	Mean	Median	n	Mean	Median	n
<i>All Firms</i>	0.0754	-0.1282	159	0.0542	-0.1138	140	0.0385	-0.1019	127
<i>BrF_SCORE</i>									
1	n/a	n/a	0	n/a	n/a	0	-0.3430	-0.3430	2
2	-0.1507	-0.0760	11	-0.4028	-0.5624	9	-0.2140	-0.3935	10
3	-0.1056	-0.2193	24	-0.2689	-0.3876	14	0.1961	0.0800	11
4	-0.1458	-0.2181	25	0.4354	0.1312	29	0.1215	-0.1018	22
5	-0.1222	-0.3058	30	-0.1899	-0.2593	32	0.0416	-0.1943	24
6	0.1420	-0.0348	35	0.0804	0.0416	24	0.0541	0.0297	29
7	0.6140	0.2591	26	0.2304	-0.1111	21	0.1652	0.0607	12
8	0.1786	0.2730	5	0.2506	0.0333	10	-0.1098	-0.1314	12
9	0.5550	-0.6414	3	-0.8498	-0.8498	1	-0.0690	-0.5132	5
<i>Low Score (1-3)</i>	-0.1198	-0.2131	35	-0.3213	-0.4058	23	-0.0291	-0.1679	23
<i>High Score (7-9)</i>	0.5448	0.2278	34	0.2030	-0.1276	32	0.0110	-0.0676	29
High - Low	0.6646	2.5810	-	0.5243	2.1670	-	0.0401	0.3960	-
t-stat/z-stat	2.8300	0.0099	-	2.3279	0.0302	-	0.2150	0.6920	-
(p-Value)	(0.0061)	(0.0105)	-	(0.0238)	(0.0070)	-	(0.8306)	(0.7935)	-
High - All	0.4694	0.3560	-	0.1488	-0.0139	-	-0.0275	0.0343	-
t-stat/z-stat	2.5650	2.3150	-	0.8936	0.8050	-	-0.1964	0.0800	-
(p-Value)	(0.0111)	(0.0206)	-	(0.3728)	(0.4210)	-	(0.8446)	(0.9365)	-
Panel B: One-year market-adjusted returns for Buy-and-Hold Returns to a Value Investment Strategy based on Fundamental Signals by Stock Liquidity Ratio									
Returns	Low Liquidity			Medium Liquidity			High Liquidity		
	Mean	Median	n	Mean	Median	n	Mean	Median	n
<i>All Firms</i>	0.2222	0.0045	142	-0.0040	-0.1131	142	-0.0460	-0.1658	142
<i>BrF_SCORE</i>									
1	n/a	n/a	0	-0.8949	-0.8949	1	0.2089	0.2089	1
2	-0.2592	-0.5422	5	-0.2735	-0.4557	11	-0.2227	-0.2036	14
3	0.0690	-0.2131	17	-0.3284	-0.4058	15	-0.0230	-0.1279	17
4	-0.0004	-0.0574	23	0.4102	0.0557	27	0.0225	-0.1988	26
5	0.0031	-0.3547	25	-0.2556	-0.2183	33	-0.0138	-0.1917	28
6	0.2588	0.1821	32	0.0376	-0.0364	32	-0.0424	-0.0585	24
7	0.6631	0.6415	28	0.1898	0.1299	18	0.0617	-0.1441	13
8	0.2542	0.1024	10	0.2011	0.2868	5	-0.1221	-0.2169	12
9	1.1079	1.1079	2	n/a	n/a	0	-0.2494	-0.6414	7
<i>Low Score (1-3)</i>	-0.0056	-0.2193	22	-0.3270	-0.4329	27	-0.1031	-0.1020	32
<i>High Score (7-9)</i>	0.5831	0.3988	40	0.1923	0.1651	23	-0.0753	-0.1816	32
High - Low	0.5887	0.6180	-	0.5193	0.5980	-	0.0278	-0.0796	-
t-stat/z-stat	2.2964	2.5600	-	2.6594	2.6960	-	0.1390	0.2620	-
(p-Value)	(0.0252)	(0.0105)	-	(0.0106)	(0.0070)	-	(0.8899)	(0.7935)	-
High - All	0.3609	0.3943	-	0.1962	0.2782	-	-0.0293	-0.0158	-
t-stat/z-stat	2.1336	2.2020	-	1.0790	1.6160	-	-0.1999	-0.5170	-
(p-Value)	(0.0342)	(0.0277)	-	(0.2822)	(0.1061)	-	(0.8418)	(0.6054)	-

TABLE 5 – Continued

Panel C: One-year market-adjusted returns for Buy-and-Hold Returns to a Value Investment Strategy based on Fundamental Signals by Indebtedness									
Returns	Low Debt			Medium Debt			High Debt		
	Mean	Median	n	Mean	Median	n	Mean	Median	n
<i>All Firms</i>	0.0031	-0.1353	142	0.1357	-0.0555	143	0.0328	-0.1282	141
<i>BrF_SCORE</i>									
1	n/a	n/a	0	0.2089	0.2089	1	-0.8949	-0.8949	1
2	-0.1373	-0.0951	10	-0.2620	-0.4147	10	-0.3430	-0.3089	10
3	-0.0959	-0.3095	12	0.0661	-0.1442	20	-0.2538	-0.2087	17
4	0.1683	0.0295	30	0.1624	-0.0792	26	0.1190	-0.0118	20
5	-0.2861	-0.2938	30	0.1721	0.1450	23	-0.1248	-0.4011	33
6	0.1558	0.1316	28	-0.0141	-0.2529	31	0.1567	0.0822	29
7	0.2385	-0.1441	17	0.5001	0.1464	20	0.3967	0.2259	22
8	0.1112	-0.0676	11	0.2747	0.3066	8	-0.1673	-0.3761	8
9	-0.7868	-0.7712	4	0.1380	-0.0499	4	3.0656	3.0656	1
<i>Low Score (1-3)</i>	-0.1147	-0.3095	22	-0.0352	-0.2964	31	-0.3085	-0.2171	28
<i>High Score (7-9)</i>	0.0666	-0.1561	32	0.3985	0.1814	32	0.3372	0.1730	31
High - Low	0.1813	0.1534	-	0.4337	0.4778	-	0.6458	0.3901	-
t-stat/z-stat	0.6986	0.5810	-	2.0118	1.8560	-	3.1922	2.9140	-
(p-Value)	(0.4879)	(0.5613)	-	(0.0487)	(0.0635)	-	(0.0023)	(0.0036)	-
High - All	0.0635	-0.0208	-	0.2628	0.2369	-	0.3045	0.3012	-
t-stat/z-stat	0.3945	0.0140	-	1.5271	1.4550	-	1.7969	1.9840	-
(p-Value)	(0.6937)	(0.9892)	-	(0.1286)	(0.1456)	-	(0.0741)	(0.0473)	-

.One-Year Market-Adjusted Return = buy-and-hold returns for 1-year period starting on the 1st of May of the year after portfolio formation less the value-weighted market return over the same time period.

.We classify firms as small, medium or large based on their prior year's distribution of firm market value (*MVE*). The 33.3 and 66.7 percentiles represent the cutoffs.

.We classify firms' stock as low liquidity, medium liquidity or high liquidity based on their prior year's distribution of liquidity ratio. This ratio considers both, numbers of shares traded and volume traded during the year of portfolio implementation. The 33.3 and 66.7 percentiles represent the cutoffs.

.We classify firms' indebtedness as low debt, medium debt or high debt based on their prior year's distribution of debt to debt plus equity ratio. The 33.3 and 66.7 percentiles represent the cutoffs.

.*BrF_SCORE* range is from 0 ("bad" signals) to 9 ("good" signals). Low *BrF_SCORE* represent firms with poor expected future performance and stock returns, while high *BrF_SCORE* is associated with firms expected to outperform. *BrF_SCORE* represents the sum of all indicator variables, or: $BrF_SCORE = F_ROA + F_CF + F_AROA + F_ACCRUAL + F_LIQUID + F_ALEVER + EQ_OFFER + F_AMARGIN + F_ATURN$

TABLE 6

Regressions

This table presents the results of cross sections and fixed effect robust regressions for one-year market-adjusted returns (MA_RET_j) controlling for MVE , BM , $ACCRUAL$, $MOMENT$, EQ_OFFER and BrF_SCORE for high book-to-market firms. Coefficients are shown in first line, [t-statistics] appears in second line and (p-values) in third line.

Panel A: Pooled Cross Section Regressions								
Coefficients from Pooled Regression - dependent variable: MA_RET_I								
	Intercept	Ln (MVE)	Ln (BM)	$MOMENT$	$ACCRUAL$	EQ_OFFER	BrF_SCORE	Adj. R^2
Model (1)	-1.3644 [-2.97] (0.003)	0.0458 [1.79] (0.075)	0.1898 [2.61] (0.010)	0.0009 [1.20] (0.232)	0.1746 [0.43] (0.671)	0.3621 [2.02] (0.044)	0.0436 [1.61] (0.107)	0.0316
Model (2)	-1.1498 [-2.33] (0.021)	0.0473 [1.84] (0.066)	0.1722 [2.32] (0.021)	0.0010 [1.38] (0.170)	0.1286 [0.31] (0.758)	0.3857 [2.00] (0.046)		0.0238
Model (3)	-1.0113 [-3.69] (0.000)	0.0317 [1.53] (0.126)	0.2103 [3.31] (0.001)				0.0742 [3.09] (0.002)	0.0403
Model (4)	-0.5912 [-2.08] (0.038)	0.0329 [1.56] (0.120)	0.1808 [2.79] (0.006)					0.0174
Model (5)	-1.4877 -3.5100 (0.000)	0.0465 [1.98] (0.048)	0.2220 [3.29] (0.001)	0.0010 [1.53] (0.126)		0.3562 [2.14] (0.033)	0.0563 [2.21] (0.027)	0.0450

Panel B: Fixed Effect Regression**Coefficients from Cross Section Fixed Effects for unbalanced panel data - dependent variable: MA_RET_I**

	Intercept	Ln (MVE)	Ln (BM)	BrF_SCORE
Model (6)	1.3397 [0.91] (0.366)	-0.2038 [-1.6] (0.110)	0.2578 [1.69] (0.092)	0.0511 [2.08] (0.038)

MA_RET_I = buy-and-hold market adjusted returns for 1-year period starting on the 1st of May of the year after portfolio formation.

MVE = market value of equity at fiscal year-end.

BM = book value of equity at fiscal year-end scaled by MVE .

$MOMENT$ = six month buy-and-hold return prior to portfolio formation.

$ACCRUAL$ = changes on non-cash current assets minus changes on current liabilities (except short-term debt) minus depreciation, scaled by beginning-of-the-year total assets.

EQ_OFFER = 1 if the firm did not issue equity in the year preceding portfolio construction, zero otherwise.

BrF_SCORE = $F_ROA + F_CF + F_AROA + F_ACCRUAL + F_LIQUID + F_ALEVER + EQ_OFFER + F_AMARGIN + F_ATURN$.

APPENDIX A

This appendix presents one-year market adjusted returns by year in a portfolio formed with High *BrF_SCORE* (≥ 7) firms and other formed with Low *BrF_SCORE* (≤ 3) firms. Additionally it shows one-year market adjusted returns by year in a portfolio taking long position in firms with High *BrF_SCORE* and short position in firms with Low *BrF_SCORE* and the one-year market adjusted returns by year in a portfolio formed with intermediate *BrF_SCORE* ($3 > BrF_SCORE > 7$).

Panel A - One-year market-adjusted return taking a long position in High *BrF_SCORE* firms and a short position in Low *BrF_SCORE* firms by Year

Year	High <i>BrF_SCORE</i> One Year Market		Low <i>BrF_SCORE</i> One Year Market		High - Low Return Difference	Intermediate <i>BrF_SCORE</i> One Year Market		Total ($n_1+n_2+n_3$)	
	Adjusted Return	n_1	Adjusted Return	n_2		Adjusted Return	n_3		
1994	-0.5942	13	-0.8013	3	0.2071	-0.4926	23	39	
1995	-0.0159	1	-0.6027	15	0.5868	-0.0167	23	39	
1996	0.3453	6	-0.1096	12	0.4549	-0.2225	23	41	
1997	-0.1218	8	-0.0670	6	-0.0548	0.2468	22	36	
1998	0.9292	5	0.4438	9	0.4853	0.3387	25	39	
1999	0.6144	9	0.4610	8	0.1535	0.1763	27	44	
2000	0.1696	11	-0.1490	6	0.3186	0.0340	24	41	
2001	0.6744	13	-0.0528	6	0.7272	0.2857	20	39	
2002	0.7673	10	-0.2403	6	1.0076	0.2729	20	36	
2003	0.3190	9	-0.2783	6	0.5973	0.1930	22	37	
2004	0.0628	10	-0.6123	4	0.6751	-0.3181	21	35	
Average	0.2864	-	-0.1826	-	0.4690	0.0452	-	-	
Total	0.2667	95	-0.1513	81	0.4180	0.0455	250	426	
					t-stat	3.2258			
					(p-Value)	(0.0015)			

Panel B - Two-years market-adjusted returns taking a long position in High *BrF_SCORE* firms and a short position in Low *BrF_SCORE* firms by Year

Year	High <i>BrF_SCORE</i> One Year Market		Low <i>BrF_SCORE</i> One Year Market		High - Low Return Difference	Intermediate <i>BrF_SCORE</i> One Year Market		Total ($n_1+n_2+n_3$)	
	Adjusted Return	n_1	Adjusted Return	n_2		Adjusted Return	n_3		
1994	-1.6216	13	-2.2842	3	0.6627	-1.2762	23	39	
1995	0.5889	1	-1.0142	15	1.6031	1.0440	23	39	
1996	-0.0880	6	-0.1053	12	0.0173	-0.1240	23	41	
1997	0.0049	8	0.4654	6	-0.4604	0.7793	22	36	
1998	1.9420	5	0.3294	9	1.6126	0.5442	25	39	
1999	0.6602	9	0.1021	8	0.5580	0.3148	27	44	
2000	0.5167	11	-0.0830	6	0.5996	0.1912	24	41	
2001	3.2529	13	-0.3285	6	3.5815	0.2272	20	39	
2002	2.3648	10	-0.6417	6	3.0064	1.0811	20	36	
2003	4.1463	9	-0.2296	6	4.3759	-0.3576	22	37	
2004	1.0566	10	1.2389	4	-0.1823	1.5312	21	35	
Average	1.1658	-	-0.2319	-	1.3977	0.3596	-	-	
Total	1.2018	95	-0.2407	81	1.4425	0.3444	250	426	
					t-stat	3.3662			
					(p-Value)	(0.0009)			

Financial statements
Three Financial Statements
The three financial statements are the income statement, the balance sheet, and the statement of cash flows. These three core statements are intricately linked to each other and this guide will explain how they all fit together. By following the steps below you'll be able to connect the three statements on your own. Normalization involves adjusting non-recurring expenses or revenues so that it only reflects the usual transactions of a company. Financial statements often contain expenses that do not constitute the normal business operations and Start studying Financial Statement Analysis Ratios. Learn vocabulary, terms and more with flashcards, games and other study tools. Often useful to couple DSI analysis with an examination of the inventory valuation allowance and write down that is generally disclosed in the footnotes. Days Sales Outstanding. Accounts Receivable/Daily Sales. Rule of Thumb is 5 days for firms selling to consumers 30 days for selling to other companies. A long period suggests that the expense is under-reported and thus earnings is over-stated. This conclusion is especially plausible if the depreciation period has increased significantly from prior periods. It is strongly indicative of earnings management. Return on Equity. Annual Net Income/Equity. Ideally the ROE should exceed the equity cost of capital. Financial Statement Analysis is a method of reviewing and analyzing a company's accounting reports (financial statements) in order to gauge its past, present or projected future performance. This process of reviewing the financial statements allows for better economic decision making. Globally, publicly listed companies are required by law to file their financial statements with the relevant authorities.