Mind Matters

Cooking the books, or, More sailing under the black flag

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In good times, few focus on such 'mundane' issues as earnings quality and footnotes. However, this lack of attention to 'detail' tends to come back and bite investors in the arse during bad times. There are notable exceptions to this generalisation. The short sellers tend to be amongst the most fundamentally driven investors. Indeed, far from being rumour mongers, most short sellers are closer to being the accounting police. To aid investors in assessing the likelihood of accounting shenanigans, I have designed the C-score. When combined with measures of overvaluation, this score is particularly useful at identifying short candidates.

- Contrary to the silly populist backlash which sees short sellers as rumour mongers and conspirators, they are actually amongst the most fundamentally driven of all the investors I interact with. Rather than being some malignant force within the markets, in my experience short sellers are closer to the accounting police (something the SEC once purported to do!).

- Whilst companies often accuse short sellers of lying and conspiracy, it turns out that the accusers are often the guilty party. Owen Lamont from Chicago University has examined the battles between corporates and short sellers in the US between 1977-2002. He found that ultimately it was the shorts that were right; the stocks underperformed the market by a cumulative 42% over three years after the start of the battle.

- Inspired by the shorts' focus on fundamentals, I have created a C (for cooking the books or cheating) score which seeks to capture how many of six common earnings manipulations a firm is engaging in. Of course, the C-score is only a first step in analysing whether a company is or isn't cooking its books.

- That said, the C-score does seem to have some power to separate out stocks which go on to underperform. Those stocks with high C-scores underperform the market by around 8% p.a. and 5% p.a. in the US and Europe respectively (over the period 1993-2007).

- Of course, the C-score is likely to be more effective when it is used in tandem with some measure of valuation. After all, it is often the case that high flying stocks will be more tempted to try to 'cheat' to maintain their status. This is borne out by the data. Stocks with a C-score of 5 and a price to sales ratio of greater than 2 tend to generate a negative absolute return of 4% (in both the US and Europe). Around 50-60% of the stocks identified see negative returns.

- A list of US and European stocks that currently have a high C-score and high price to sales ratio can be found inside. Highlights include such names as **Apple**, and **Amazon.Com** in the US and **Rio Tinto** and **Lonmin** in the UK!

IMPORTANT: PLEASE READ DISCLOSURES AND DISCLAIMERS BEGINNING ON PAGE 8

Cooking the books, or, More sailing under the black flag

In my recent note on required reading for investors (see Mind Matters, 16 June 2008 http://sgresearch.socgen.com/publication/strategy_update(20080616)_2c3.pdf), I suggested that after a five-year bull run in earnings, investors were at risk of paying too little attention to earnings manipulation. In the good times, sadly few care about such mundane issues as earnings quality or footnotes (as foolish as that is). In the bad times, these characteristics tend to come back into widespread fashion.

However, in a world where most analysts are more concerned with forecasting quarterly earnings to two decimal places over the next five years, and writing up company press releases, their ability to actually analyse a company seems to be in danger of becoming a lost art.

The most fundamental orientated analysts I have come across are without a doubt the short sellers. These guys, by and large, really take their analysis seriously (and so they should since their downside is effectively unlimited). So the continued backlash against short sellers as rumour mongers and conspirators simply leaves me shaking my head in bewilderment. I can only assume that those making these claims are either policy makers pandering to shorted companies, or shorted companies themselves. Rather than being some malignant force within the markets, in my experience short sellers are closer to accounting police.

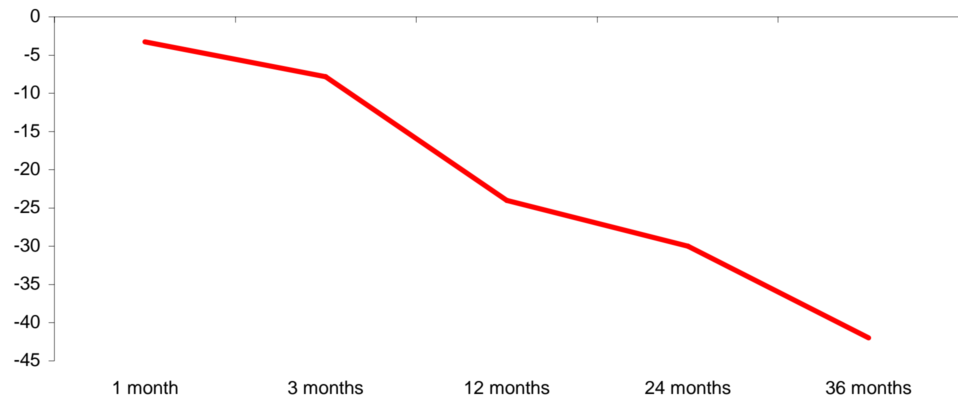
Companies lie, short sellers police: the evidence

This viewpoint was confirmed by a insightful study by Owen Lamont[1] (then at Chicago University). He wrote a paper in 2003 examining the battles between short sellers and the companies they shorted. He examined such battles between 1977 and 2002 in the US. He focused on situations where the company that was being shorted protested innocence by suggesting it was the subject of a bear raid, or a conspiracy, or alleged that the short sellers were lying. He also explored firms that requested investigation by the authorities into the shorts, urged the stock holders not to lend shares out, or even set up repurchase plans (presumably to create a short squeeze).

The results Lamont uncovered show the useful role played by short sellers. The chart below shows the average cumulative return to the shorted stock. In the 12 months after the battle started, the average stock underperformed the market by 24%. In the 3 years after the battle commenced these stocks underperformed the market by 42% cumulatively! The shorts were right, it was often the companies that were lying and conspiring to defraud investors, not the reverse!

[1] Owen Lamont (2003) Going down fighting: Short sellers vs firms, available from http://www.haas.berkeley.edu/groups/finance/lamontpaper.pdf

Cumulative market adjusted returns (%)



Source: Lamont (2003), SG Global Strategy Research

Who is cooking the books – The C-score

I recently explored one method of screening for short candidates (see Mind Matters, 13 May 2008 http://sgresearch.socgen.com/publication/strategy_update(20080513)_822.pdf[2]. However, it occurred to me that a more accounting based screen might also be useful in identifying potential shorts by looking at those who might well be cooking their books, or trying every last trick to ensure that they can beat the analysts' quarterly forecasts.

To this end I have created the C (for cooking the books or cheating) score to help measure the likelihood that a firm may be trying to pull the wool over investors' eyes. The score has six inputs, each designed to capture an element of common earnings manipulation:

I. A growing difference between net income and cash flow from operations. In general, managements have less flexibility in shaping cash flows than earnings. Earnings contain a large number of highly subjective estimates such as bad debts, pension returns etc. A growing divergence between net income and cash flows may also indicate more aggressive capitalisation of costs.

II. Days sales outstanding (DSO) is increasing. This, of course, signifies that accounts receivable are growing faster than sales. This measure is really aimed at picking up channel stuffing (sending inventory to customers).

III. Growing days sales of inventory (DSI). Growing inventory is likely to indicate slowing sales, never a good sign.

IV. Increasing other current assets to revenues. Canny CFOs may know that investors often look at DSO and/or DSI, thus they may use this catch-all line item to help hide things they don't want investors to focus upon.

[2] Just in case you are wondering about the alternative title for this note (More on sailing under the black flag) this refers to the title of the previous note Joining the dark side: Pirates, Spies and Short Sellers.

V. Declines in depreciation relative to gross property plant and equipment. To beat the quarterly earnings target, firms can easily alter the estimate of useful asset life.

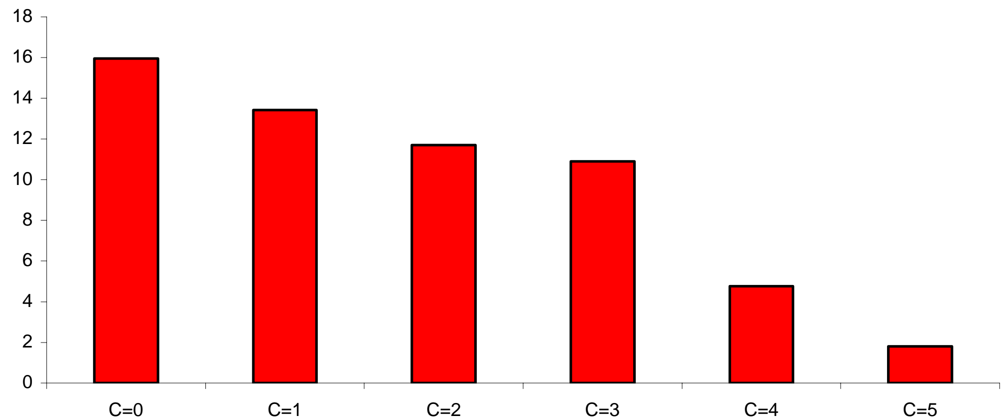
VI. High total asset growth. Some firms become serial acquirers and use their acquisitions to distort their earnings. High asset growth firms receive a flag in this score.

These elements are scored in a simple binary fashion, so if a company has increasing DSI it will receive a score of one. These are then summed across the elements to give a final C-score bounded from 0 (no evidence of earnings manipulation) to 6 (all the flags are present).

Does the C-score work?

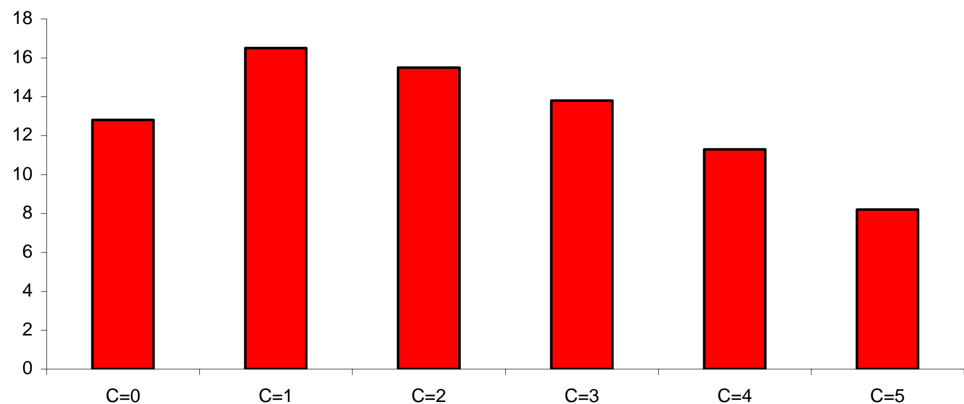
The C-score is only a first step in analysing whether a company is or isn't cooking its books. However, it does seem to work relatively well. The charts below show the performance of stocks by C-score across Europe and the US over the period 1993-2007 (portfolios are formed in June and held for one year).

Performance across C-scores – US (1993-2003) Mkt return 10% p.a.



Source: SG Global Strategy Research

Performance across C-scores – Europe (1993-2003) Mkt return 13% p.a.



Source: SG Global Strategy Research

In the US, stocks with high C-scores underperform the market by around 8% p.a. Generating a return of a mere 1.8% p.a. In Europe, high C-score stocks underperform the market by around 5% p.a., although they still generate absolute returns of around 8% p.a.

Of course, the C-score is likely to be more effective when it is used in tandem with some measure of valuation. After all, it is often the case that high flying stocks (which are likely to be expensive) will be more tempted to alter their earnings to appear to maintain their high growth status, than value stocks. It is also likely that when these stocks get 'found out' the punishment will be considerably worse than that for a cheap stock.

This is borne out by the evidence. When we combine the C-score with a price to sales ratio of greater than 2 the returns drop dramatically. In the US this combination results in a negative absolute return of 4% p.a. (median stock return -6% p.a, and 54% of stocks seeing negative returns). In Europe, the combination of a high C-score and price to sales greater than 2 also generates a negative absolute return of 4% p.a. (median stock return -10% p.a. and 57% of stocks seeing negative absolute returns).

So, unsurprisingly, the combination of expensive stocks with worrying accounting is a very unhealthy combination. The list of US and European stocks that current hit these criteria is shown below:

US stocks with C=5 and Price to sales>2

Akeena Solar Inc.

Amazon.com Inc.

Ametek Inc.

Apple Inc.

Applied Materials Inc.

Atheros Communications Inc.

Blue Coat Systems Inc.

CryoPort Inc.

Danaher Corp.

Diodes Inc.

Electronic Arts Inc.

EnergySouth Inc.

ENSCO International Inc.

IDEX Corp.

Inverness Medical Innovations Inc.

Lithium Technology Corp.

National Instruments Corp.

Natural Gas Services Group Inc.

NetLogic Microsystems Inc.

NII Holdings Inc.

Omrix Biopharmaceuticals Inc.

PepsiCo Inc.

Private Media Group Inc.

ResMed Inc.

Schering-Plough Corp.

Schlumberger Ltd.

SkyTerra Communications Inc.

Smith Micro Software Inc.

Spectranetics Corp.

Spicy Pickle Franchising Inc.

Stratasys Inc.

Strategic Diagnostics Inc.

Sun Hydraulics Corp.

Valence Technology Inc.

Volcano Corp.

Wright Medical Group Inc.

Yarraman Winery Inc.

ZAP

Zimmer Holdings Inc.

ZVUE Corp.

European stocks with C=5 and price to sales >2

Aixtron AG

Albemarle & Bond Holdings PLC

Concurrent Technologies PLC

Digital Multimedia Technologies S.p.A

Eurotech S.p.A.

GEONG International Ltd.

GETECH Group PLC

IndigoVision Group PLC

Inmarsat PLC

Innovise PLC

Lonmin PLC

M.P. Evans Group PLC

MAMA Group PLC

Manz Automation AG

Rio Tinto PLC

SkiStar AB

Smartrac N.V.

Straumann Holding AG

Summit Corp. PLC

Ultrasis PLC

Wren Homes Group PLC

Zoologischer Garten Berlin AG

Zytronic PLC

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