AN ANALYSIS OF THE PRICE/BOOK RATIO OF TWO MALTESE LISTED COMPANIES

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Abstract. This paper analyses the relationship between the share prices of two locally listed companies and their respective book values by making use of the Price/Book (P/B) Ratio. This ratio is useful for identifying the extent to which the locally listed companies were overvalued or undervalued in terms of their book values during the period 1992 to 2005. In order to be able to carry out the analysis, a weighted P/B Index had to be constructed. The index was used to compare each company’s P/B ratio with that of the market and to compute a theoretical price in order to show what a company’s market price would be if, given its book value, it were to have the same P/B value as the whole market. This study demonstrates that the P/B ratio enables the investor to keep track of how the market is valuing a company when compared to its actual book value. When the share prices rise, the investor can check whether the company’s market value is appreciating as a result of the company’s performance or increased investment in the company or else as a result of the so-called “investor euphoria.”

Introduction

Before the 1990s, the most common option for the Maltese savers was to deposit their savings in a bank. When the Malta Stock Exchange was established and trading in shares commenced in 1992, many Maltese investors started to shift their investment preferences towards a riskier yet more rewarding investing approach. The motivation to invest in

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equities heightened in 1999 when while interest rates on bank deposits were falling, the share prices of the companies listed on the Stock Exchange were experiencing a remarkable rise.

Choosing the right shares to invest in is no easy task. Security analysts use various valuation models to help them identify the most attractive shares to invest in. There are three approaches to valuation (Damadoran, 1996):

- discounted cash-flow valuation, which measures the present value of the estimated cash flows to be generated by a company;
- relative valuation, which estimates the value of an asset by looking at the pricing of 'comparable' assets relative to a common variable like earnings, cash flows, book value, or sales; and
- contingent claim valuation, which uses option pricing models to measure the value of assets that share option characteristics.

Many investors use relative valuation models when valuing companies. This technique makes use of various indicators such as the price/earnings (P/E) ratio, the price/book (P/B) ratio or the price/sales (P/S) ratio.

The P/E ratio is the most widely used relative-valuation technique but could be meaningless when earnings are negative, that is, when losses are incurred. Therefore, the use of other ratios that are not directly affected by profits, such as the P/B ratio, may be more appropriate.

This study makes use of the P/B ratio to analyse the market values of two companies listed on the Malta Stock Exchange relative to their book values. The market value of a company is the value that is given to each share by the market, that is the actual share price. The book value, on the other hand, is the difference between the book value of assets and the book value of liabilities that are included in the company’s balance sheet.

The analysis of the P/B relation of the Maltese listed companies was based on a P/B Index weighted by market capitalisation. This index was specifically constructed for the analysis in this study, by deriving a monthly P/B ratio of each quoted company. The P/B Index was then used to compute a theoretical price which shows what a company’s market price would be if it were to have the same P/B ratio as the whole market, given its book value.
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The P/B ratio was derived with reference to the comparisons between (a) the theoretical price and the actual market price; and (b) the P/B Index, which represented the P/B relation of the whole equity market, and the P/B ratio of each listed company.

Investing in Quoted Companies

Security analysts, seeking to maximise returns, use a number of valuation models to assess companies. This section gives a brief description of the different investing theories and discusses the use of book values in valuing companies.

Investing Approaches

There are different methods that can be used to build an efficient investing portfolio, including (a) momentum investing (b) growth investing, and (c) value investing.

Momentum Investing. Investors using this investing approach buy shares as prices go up and sell them as soon as prices start to decline. A profit is made when the shares are sold at a higher price than when they were bought or bought back at a lower price when they have been sold short. Momentum investors typically have a much shorter investment horizon than other types of investors. They are rewarded by significant upward movements in share prices that can occur over the short term unlike the other types of investors who tend to focus on longer periods of time (Azzopardi, 2000).

Growth Investing. Investors adopting this approach try to identify companies that are undervalued. They do this by principally looking at two factors, namely earnings and the P/E ratio. White et al. (2003) indicate that growth investors make money by investing in those companies that they believe will obtain above-average future growth in earnings and/or above-average valuations as a result of higher P/E ratios. A company’s earnings are represented by the earnings per share (EPS), which tells investors how much profit is being made for each share in the company. The investor analyses both the P/E ratio and the EPS to be able to predict a potential increase in the share price. Therefore,
growth investors try to find companies that, in their opinion, have their P/E ratios in the market being less than the appropriate “fundamental” P/E ratio. They can then conclude that such companies are undervalued and thus make the investment decision accordingly.

**Value Investing.** Value investors, like growth investors, try to identify undervalued companies. But, whereas growth investors focus on the EPS and its growth potential, value investors focus on the company’s assets. In the 1930s, Benjamin Graham and David Dodd, finance professors at Columbia University, laid out the framework for value investing in their famous book entitled *Security Analysis*. Graham, who is considered to be the father of value investing, believes that one should focus on facts regarding a company’s financial condition and its future earnings potential (Lowe, 1999). The value investor, therefore, looks for a bargain by identifying an undervalued company. A company is undervalued when its share price is relatively cheap compared to its earnings and book value. Graham’s star student Warren Buffett, who is arguably one of the greatest investors of all time, successfully adopted this investment strategy. A share in his company, Berkshire Hathaway, costing $12 in 1967 was worth $70,900 in 2002.

**The Importance of Book Values**

Benjamin Graham regarded book value as the starting point and a possible guide to the selection of companies to invest in (Lowe, 1995). He believed that if the business has been prosperous, and is at least reasonably promising for the future, it should be worth its book value. Hence buying shares in such a company would be attractive.

Graham suggested a simple approach to equity investment – to invest in companies that are trading at a price that is two-thirds or less of their stated book value. Graham calculated book value by subtracting total liabilities from current assets. This is described in more detail below. It should be noted that shares rarely trade at such a low price in relation to their book value and therefore, investors may find it difficult using this approach.

The book value of equity is the difference between the book value of assets and the book value of liabilities. A company’s book value, or net asset
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time, is an accounting measure that is computed using the information published in the financial statements. Benjamin Graham’s definition is current assets minus all the liabilities and debt including preference shares that take precedence over the company’s ordinary shares (Graham and Dodd, 1988). In this formula, fixed assets are excluded but Graham recommends that investors include intangibles particularly where the market values of such assets can be estimated.

Financial statements play an important role in the world of security analysis. In the U.S., for example, Bernard (1994) found that on average across time, 66 percent of the variance in price per share is explained by book value per share and the rank of EPS. However, it is quite evident that accounting figures do not completely explain the level of market prices. Being an accounting measure, book value is not necessarily a perfect reflection of a company’s true value. There are a number of factors that influence prices that do not feature in financial statements such as the value of brand assets, patents, copyrights, growth opportunities, trained staff, team building, and research and development.

The Price/Book Ratio

The relationship between the current market value and the book value of a company is measured by the P/B ratio, which is also called the market-to-book ratio. The ratio was used by several security analysts to categorise securities or portfolios according to their value/growth dimension. Capaul et al. (1993) defined this ratio as:

“the current price per share divided by the most recently reported book value per share... A security’s price represents investors’ assessments of future prospects, while its book value represents accountants’ representation of its past costs; the greater a company’s prospects for future growth, the greater should be the ratio of its future prospects to its embedded costs.”

The interaction between accounting variables and the market value of companies is an important issue in finance. Some authors consider the P/B ratio to be the best variable to explain the relation between the two (Garza-Gómez, 2001). This is why the ratio was given major attention among the accounting variables and often featured in finance and accounting literature.
Investors find this P/B ratio useful in investment analysis. Besides enabling the comparison between book values and market values, the ratio is relatively simple to compute and understand. The P/B ratios of similar firms can be compared to determine whether the firm is under- or overvalued, in terms of the difference between their market price and book value.

A number of studies were carried out through the years mostly in the U.S. to analyse the relevance of the P/B ratio. Rosenberg, Reid, and Lanstein (1985) found that the average returns on U.S. stocks were positively related to the ratio of a firm’s book value to market value. Between 1973 and 1984, the strategy of picking stocks with low P/B ratios yielded an excess return of 36 basis points a month.

Fama and French (1992) found that after sorting all non-financial companies listed on the U.S. stock exchanges between 1963 and 1990 according to their capitalisation, shares with low P/B values provided the best returns (Fama and French, 1992). They concluded that the Beta (β) used in the Capital Asset Pricing Model (CAPM) was not a good measure because it did not have any relation with returns. The companies were ranked according to price as a percentage of book value and sorted into 10 equal groups. The group with the lowest P/B value obtained an average annual return of 19.6 percent.

The authors also found that the combination of the P/B ratio and the market value of equity absorbed the roles of leverage and the P/E ratio in explaining stock returns. Barber and Lyon (1997) used the same approach applied by Fama and French to include also financial firms that were listed between 1973 and 1994. Their analysis revealed that the relation between size, book-to-market, and security returns is similar for financial and non-financial firms.

Chan, Hamao, and Lakonishok (1991) found that the P/B ratio has a strong role in explaining the cross-section of average returns on Japanese stocks. Capaul, Rowley, and Sharpe (1993) extended the analysis of the ratio across six major security markets for the period 1981 – 1992. They concluded that stocks with low P/B ratios (value stocks) earned excess returns superior to those with high P/B ratios (growth stocks) in every market that they analysed.
Lakonishok, Vishny and Shleifer (1994) confirmed that those shares which were held for five years between 1968 and 1990, and had low P/B values, which they called “value” stocks, had average annual returns of 19.8 percent when compared to 9.3 percent obtained by the highest P/B portfolios. The latter were called “glamour” stocks by the researchers. Lakonishok et al., (1994) also studied the element of risk associated with the two levels of P/B stocks. They found that low P/B value stocks outperformed high P/B stocks in the worst 25 months of the stock market during the research period, as well as in 88 other months when the market dropped.

Morgan Stanley Capital International, in a study on the shares of all the companies included in its database during the 10 years from 1981 to 1990 found that the group with the lowest P/B ratio enjoyed a compound annual return of 23 percent, compared with 13.8 percent attained by companies in the high P/B group. About 80 percent of those companies were non-U.S. firms. In this study the stocks were ranked according to their P/B values and sorted into 10 equal groups.

The usefulness of the P/B ratio was questioned by some analysts. The study carried out by Fama and French mentioned earlier was criticised by Kothari, Shanken and Sloan (1995) who found a positive relation between $\beta$, which is a measure of risk, and returns by measuring returns annually rather than monthly. Furthermore, they did not find any significant relation between the P/B ratio and stock returns for S&P industry-level data from 1947 to 1987.

In defence of their study, Fama and French (1995) used a three-factor model made up of $\beta$, P/B and size to prove that the latter two measures, together with $\beta$, are also related to returns. The CAPM which claims that $\beta$ is the sole risk measure, is therefore challenged (White et al., 2003).

The main problem with the P/B ratio is that it could give the impression that companies that are not very capital intensive, like technology-related companies, are overvalued. In reality, such companies do not need a lot of land and buildings to produce their very high-margin products. In addition as Barbee et al. (1996) point out, “the P/B ratio has practical limitations because the book value of equity is influenced by depreciation and inventory-accounting methods, as well as by a firm’s age.”
It should also be noted that most investment styles mentioned in this section are based on historical data such as the book value of the shares being used to compute the P/B ratio. It should be acknowledged that investors are actually interested in future gains and therefore historic data may not give a good indication of how the market will perform in the future.

**Data and Methodology**

The data for computing the P/B ratio of companies listed on the Malta Stock Exchange (MSE) was obtained from annual reports of the companies analysed\(^1\) from which information on the number of ordinary shares, the net asset value and the earnings per share were obtained. The monthly share prices of the companies under consideration were obtained from MSE sources.

In order to analyse the P/B ratio of all the quoted companies, it was decided to compare each company’s P/B ratio with a market ratio which gives the P/B relation of all the listed companies. This was done in order to determine whether the particular company was contributing to pull the market average up or to drag it down during the period from 1992 to 2005. A P/B Index was therefore required to obtain this market ratio.

**Constructing the Market Price/Book Index**

One way to compute such an index was by dividing the Price Index provided by the Malta Stock Exchange by a Net Asset Value (NAV) Index. The latter Index had to be calculated for the purpose of the study, since no such Index existed. The Malta Stock Exchange Share Index includes all listed ordinary shares, weighted according to the number of shares in issue for each company. However, this option was set aside due to the fact

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that the MSE Price Index starts from 27 December 1995. For this reason, it was decided to build a market P/B Index so that the analysis could also cover the period preceding December 1995. By that date, the equity market on the Exchange already consisted of ordinary shares of BOV, Mid-Med Bank, Middlesea Insurance and Lombard Bank.

The market P/B Index was not readily available and it was therefore constructed by the present author. The methodology used to construct the index was based on the *FTSE Guide to UK Calculation Methods* (2003). The FTSE Actuaries UK Share Indices are weighted indices where the weights represent the market capitalisation of each listed company. This means that the P/B ratio of each company was multiplied by the weighted average number of ordinary shares to obtain the weighted P/B value of that company. The following formula was used to calculate the index value:

\[
\text{Market P/B Index Value} = \frac{\text{Total P/B Ratio of all Companies}}{\text{Latest Index Divisor}}
\]

The total P/B ratio figure was found by summing the weighted P/B value of each company for each quarter. It was decided to use quarterly data because annual data was considered deficient in giving an adequate picture of the actual fluctuations in the P/B relation. The resulting P/B Index on the other hand, captured the major fluctuations and hence a much more complex monthly Index was not required.

The divisor is an arbitrary number calculated at the starting point of the index and is used to arrive at the index starting value. The starting value was set at 1.326. This value was chosen since it was the P/B ratio of Bank of Valletta, which was the only company to be listed in 1992. The index divisor was calculated by dividing the total P/B ratio of the companies by the index value. The divisor had to be adjusted (1) whenever a company made its initial public offering; (2) whenever a company made a new issue of shares; and (3) whenever a company made a share split.

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In this study the P/B ratio of each quoted company was compared with this market P/B Index. The divergence between the two was then used to
determine whether the particular company was either pulling up or dragging down the market average.

Figure 1 depicts the constructed market P/B Index starting from 1992, the year in which the equity market at the MSE commenced up to and including 2005, while Figure 2 shows the MSE Price Index.

**Figure 1**
The Market Price/Book Index

![Image of Market Price/Book Index](image1.png)

*Source: Constructed by the author*

**Figure 2**
The MSE Price Index

![Image of MSE Price Index](image2.png)

*Source: Malta Stock Exchange*
The Monthly Theoretical Price

To be able to analyse each quoted company’s prices, Net Asset Values (NAVs) and their relation, it was decided to derive a theoretical price that would reflect what the actual market price should be if that particular company was to have the same P/B value as the Maltese equity market. This involved applying the relative valuation technique using the following formula:

Theoretical Price = Net Asset Value per share × P/B Index

This theoretical price was then compared to the actual market price and the divergences between the two were analysed.

The Analysis

The Market P/B Ratio

Figure 1 shows that the P/B ratio of the market was roughly constant between 1992 and December 1998, with only slight movements being experienced in 1993 when the increases in the share prices of BOV and Mid-Med Bank were directly reflected in the Index. The P/B Index then started to increase steadily, reaching its peak in January 2000, but subsequently decreasing again and remaining relatively stable towards the end of 2003. After that year, the P/B Index tended to increase until the end of 2005. This movement reflected the positive share price performance experienced by the MSE towards the end of the period under analysis.

These fluctuations in the P/B Index were ‘price led’ rather than ‘book value led’ in that they were brought about mostly by the movements in the prices of shares on the Stock Exchange.

Figure 2 shows how the MSE Price Index peaked and declined at the same time as the P/B Index. These similar movements occurred in view of the fact that while the share prices were spiralling upwards as a result of the heightened investor confidence the Exchange started to enjoy in 1999, the listed companies were not actually increasing their profits and
book values by the same rate. Thus, the P/B Index fluctuated according to the price movements and not because of higher profitability.

In addition to the euphoria of Maltese investors who were willing to invest in local equities towards the end of 1999, the rise in the prices of Mid-Med Bank following its sale to HSBC had a positive effect on the share prices of most of the listed companies. Towards the end of 2001 however, following the September terrorist attacks on the U.S., the stock markets throughout the world experienced a significant downfall with the MSE being no exception.

The months of instability that followed the attacks caused the share prices to fall and as a result, each company’s market value approached its respective book value. Subsequently, the remarkable increase in the share prices of the main financial institutions affected the whole market. The Price Index and to a lesser extent the Price/Book Index, reached relatively high levels towards the end of the period under review, as can as be seen in Figures 1 and 2.

Analysing Bank of Valletta plc

Figures 3 and 4 clearly show that Bank of Valletta has performed well year after year, pulling the market average up most of the time. Besides being profitable in its operations, BOV has subsidiaries which also contribute to its profits including the Valletta Fund Management, Middle Sea Valletta Life Assurance and Bank of Valletta International. Furthermore, the bank is growing internationally with offices being opened overseas in various countries like Canada, Australia, Tunisia, Egypt, and in cities such as Milan and Tripoli.

Figure 3a compares the theoretical price (TP) with the actual price of BOV shares–measured by the trade weighted average price (TWAP) as computed by the MSE, while Figure 3b shows the divergence between these two price indices.

It can be seen from Figure 3a that TP and TWAP moved together till the end of 1998, with the year 1999 starting off the divergence that was to peak in 2000 and thereafter decline until the end of 2003. The sudden slide at the end of 1994 of both prices was the result of the share split in
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December, where each ordinary share having a nominal value of 50c was converted to two ordinary shares of 25c each. In 2004, the share price of the Bank started to increase steadily reaching the highest level at Lm7.40 in December 2005.

Figure 3a also shows that the NAV per share rose steadily after 1999. This was due to the fact that BOV increased its assets, surpassing those of HSBC Malta for the first time in September 1999 (Malta Business Weekly, 2000).

**Figure 3a**
BOV Prices and NAV per Share

![Chart showing BOV Prices and NAV per Share](chart1)

*Source: MSE and Author’s Calculations*

TP=Theoretical Price; TWAP=Traded Weighted Average Price; NAVPS=Net Asset Value Per Share

**Figure 3b**
Divergences between TP and TWAP of BOV

![Chart showing Divergences between TP and TWAP](chart2)
The market price of each ordinary share was very close to both the NAV per share and the theoretical price between 1995 and 1998. In 1999, the market price started to increase and exceeded Lm5. This boom was brought about by a number of factors.

Besides the euphoria of Maltese investors who were willing to invest in local equities, the rise in the prices of Mid-Med Bank following its sale to HSBC had an effect on the prices of most of the listed companies with BOV being no exception. BOV’s positive performance towards the end of the period under analysis was rewarded by the international trading agency Fitch which upgraded its outlook on the Bank from negative to stable. Fitch declared that the rating action reflects “BOV’s position as the largest bank within the Maltese financial system, its improving profitability and sound capitalisation”. Fitch acknowledged the improvement of BOV’s asset quality indicators up to March 2005 (*Malta Business Weekly*, 2005). BOV was also awarded the Bank of the Year Award 2005 by *The Banker*, the monthly banking publication of the *Financial Times*.

The movements referred to earlier can be compared to the actual P/B ratios both of the whole market and of BOV itself as shown in Figure 4a. It can be seen that the P/B of the market and that of BOV are very similar to the theoretical and actual price movements analysed above.

![Figure 4a](image-url)

*Source: MSE and Author’s Calculations*
This is further evidenced in the Figure 4b, which shows similar movements in the divergences between the market P/B Index and the BOV P/B Index.

Figure 5 shows that the divergence between the BOV and the Market Price Index (shown in Figure 3b) are largely similar to the P/E ratio, in that both the P/E and the divergence peaked at the same time. This would seem to suggest that the P/B ratio could serve as a guide for investors. In addition, given that the EPS remained roughly constant during the period under review, it can be concluded that the P/E ratio was mostly conditioned by the price of BOV shares.

DY=% Dividend Yield; P/E=Price Earnings Ratio; EPS=Earnings per Share; Divergence= from Figure 3b
Figure 5 also shows that the percentage dividend yield (DY), however, moved in the opposite direction indicating that the increase in the market price was not accompanied by higher dividend distributions. The P/E ratio and the divergence, therefore, had a positive relationship with the BOV share price and a negative relation with DY.

**Analysing Maltacom plc**

Maltacom is one of Malta’s largest companies. It diversified its services not only by building on its existing business but also by entering new markets such as mobile telephony through Go Mobile, thereby enhancing further gains in shareholder value.

Because of the company’s persistent low book value, as can be seen in Figure 6a, the theoretical price also registered low levels throughout the period under analysis. This constructed quite visibly with the market share price, which soared towards the end of 1999. During that period, there was heightened confidence by investors in local equities, but the increase in the prices of Maltacom can also be attributed to particular occurrences. For example, the share price gained 11 cents when the company gained the upper hand against Melita Cable over the transmission of data services and cable Internet in October 1999 (Manduca, 1999). Another reason for such a boom in the share price is that Maltacom shares are among the most traded on the local Exchange accounting for 37 per cent of the entire value of trading carried out in 2000 (Lindsay, 2000).

The boom did not last long. By mid-2000, the TWAP started to fall and approached the theoretical price and NAV per share. In fact, a research report carried out by stockbrokers Curmi and Mallia (2001) concluded that Maltacom faced huge challenges as market trends and liberalisation of the fixed line telephony took effect. The report also hinted that the market was overly optimistic in supporting the share price. The price kept falling until the end of the period being analysed. Considering that profits increased despite intense competition, higher dividends were not lacking and Maltacom’s shares were among the most traded on the Exchange. As a result of the poor performance of share prices when the NAV was quite constant, the superiority of the company’s P/B relation with respect to that of the whole market diminished ending the period under analysis with a minimal P/B divergence. This can be seen clearly in Figure 7b.
The same movements in the divergences of Figure 6b, were experienced by the P/E ratio. They can be seen to move together in Figure 8, peaking towards the end of 1999, then starting to decrease at a diminishing rate reaching their minimum towards the end of 2003.
After the upward movement of the P/E ratio in 2004, the decrease in the share prices of the company in the beginning of 2005 brought about the decline in the P/E ratio. During the whole period, the EPS and dividend yield were broadly constant.

Again the information presented in Figure 8 would seem to suggest that the P/B ratio can be used as a useful guide in taking investment decisions.
Conclusion

This study analysed the relation of the share prices of companies listed on the Malta Stock Exchange with their respective book values. The analysis made extensive reference to the P/B ratio as a relative valuation multiple, enables an investor to keep track of how the market is valuing a company when compared to its actual book value.

When share prices rise, the investor can check whether the company’s market value is appreciating as a result of better prospects such as positive performance and increased investment or because of investor euphoria. If the latter is the case, the P/B ratio will increase showing that the company is being valued higher than it should in terms of its book value. Conversely, a decrease in the company’s P/B ratio would signify a possible undervaluation with respect to its book value brought about by either a fall in share prices or an increase in the book value, or a mixture of both. As a result, the investor would be cautious in investing or continuing to invest in that company.

The biggest limitation in the P/B ratio is that book values may not be very good indicators of the value of a company. In fact, most intangibles like brand names, trademarks and trained staff are not directly accounted for.
in the financial statements but feature only if they were the subject of an acquisition. As mentioned earlier, companies that are not capital intensive might give the wrong impression that they are overvalued in terms of their book values. This applies to companies like Maltacom and Datatrak, both of which are classified as technology-related companies. These companies have very high P/B ratios. Investors, however, cannot conclude that companies having high P/B ratios mean that they are overvalued and therefore should not be invested in. In fact, some of the companies’ most important assets, such as human resources, may not be reflected in the balance sheet and as a result, their real value is actually higher than that stated in the financial statements.

In practice, investment decisions are often made after taking cognisance of various factors. These include P/E and P/B ratios of the company, the industry and the market, news and expected events, interest rates, opportunity costs, general economic trends, investment analysts’ opinions, and action by other investors, in the short run as well as in the long run. The importance of the relevant P/B ratios in investment decisions must be placed in this wider context.

References