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Corporate Valuation Models Applicable in a Small Stock Market: A Maltese Perspective

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Abstract:

Purpose: *This paper analyses the applicability of three main Corporate Valuation Models (CVMs) to Maltese listed companies by assessing the extent to which such models - the Income, Relative, and Asset-Based ones - produce accurate results in terms of quoted share prices. Furthermore, it examines whether factors such as accounting regulations, market efficiency and other factors in a small island-state such as merger and acquisition activities may be impacting corporate valuation, including the method chosen.*
Design/Methodology/Approach: *A multi-method explanatory strategy is adopted involving (i) the calculation and quantitative analysis of the theoretical equity values of eight listed property companies according to each method, this being followed qualitatively by (ii) nine semi-structured interviews with Big Four representatives, Chief Financial Officers and financial analysts.*
Findings: *Results indicate that, while the Income Model was most widely used by respondents, it had the weakest correlation with share prices, respondents also attributing this to the adverse impact from market inefficiency on the share price within the small stock market. Contrastingly, the Relative Model, investigated by the use of a Generalised Linear Model, yielded the strongest relationship with share prices.*
Practical Implications: *Respondents did not consider this method its own being superior to other methods but suggested that it is to be used in congruence with the Asset-Based Model which also had a not-so-strong correlation with share prices. Respondents perceived accounting regulations as enhancing trust and accountability during the valuation process although no quantitative evidence emerged that this factor or others such as merger activities had any direct correlation with share prices.*
Originality/Value: *The study concludes that there was no single dominant valuation model for the selected listed companies. It also questions the applicability of such CVMs in a small island-state, and indicates that a small stock market with its illiquidity and inefficiency can be easily affecting share price values, this evidently being a main contributor to the larger-*

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than-expected variations of market pricing with the theoretical value calculated through any CVM.

***Keywords**: Corporate Valuation Models, Income Model, Relative Model, Asset-Based Model.*

JEL codes:

***Paper type:** A Case Study.*

1. Introduction

The art of valuation[4] is key in corporate finance to make financial and investment decisions, safeguard the shareholders' interests and maximise their wealth. The selection of a Corporate Valuation Model[5] (CVM) which provides the best estimate of the share price is critical—an investor is not willing to pay more than what the asset is truly worth (Damodaran, 2002). Every valuation outcome portrays a narrative behind it, which visualises a company's status through a value representing the company's position within the market.

The share price of a company is influenced by company-specific factors, as well as the overall market and economic environment in which it operates. Furthermore, setting the maximisation of shareholder value as a key strategy ties up with the notion of corporate value creation. The latter analyses cash flows and future prospects, thus maximising shareholders' wealth. This guides the direction of the management's decision making (Arnold, 2008).

This paper will focus on the main factors affecting the corporate valuation of Maltese listed companies. Findings from this study will be compared with studies conducted in other countries, particularly small island states. The aim of this paper is to evaluate and compare three CVMs widely used in the investment world and to find the most appropriate valuation model for selected Maltese listed companies operating in the same industry by using a multi-method strategy. The share price will be estimated using: [i] the Income Model by discounting future cash flows, [ii] the Relative Model by applying industry multiples, and [iii] the Asset-Based Model which is based on the Net Asset Value[6] (NAV). This research will also be complemented by 9 semi-structured interviews with: [i] representatives from the Big Four accounting firms, [ii] Chief Financial Officers (CFOs) of the Maltese listed

[4]*Valuation is the process of providing value to an asset, whether real or financial, and justifying the means to the end through empirical models.*

[5]*A Corporate Valuation Model is a tool applied in finance to calculate the value of an asset using historical data mainly from financial statements and analysing the current and future growth prospects (Damodaran, 2002).*

[6]*The three Corporate Valuation Models are scrutinised in further depth in the Literature Review Section.*

companies used in the quantitative part of the study, and [iii] financial analysts based in Malta.
The objectives of this paper are:

a) To propose which corporate valuation technique (of those outlined above) is most appropriate for the calculation of the share price of companies operating in the real estate sector that are listed on the Malta Stock Exchange. This includes the analysis of any differences between the theoretical prices calculated by the models and the actual share prices of the companies;
b) To assess the impact of accounting regulations, market efficiency and other factors such as merger and acquisition activities and corporate governance in a small island-state may be impacting corporate valuation on corporate valuation and its process.

The rest of the paper is divided into four main sections. The first section will deliver a synopsis of the literature review related to corporate valuation and its major determinants. The second section will give an overview of the methodology adopted in this study. The third section will present the results from both the financial modelling and statistical analysis, and the semi-structured interviews conducted to the research participants. The final section will summarise the findings and the main conclusions extracted from this research.

2. Literature Review

Valuation experts such as Damodaran argue that there is no right approach when valuing a company and every model needs to be analysed within its own context. The three main CVMs normally used in financial modelling, and which are also used in the context of this study, include: [i] the Income Model, [ii] the Relative Model, and [iii] the Asset-Based Model. Ultimately, the value derived from each of these models depends on the level of granularity, the quality of the information provided by the management, and the appropriateness and correctness of the analyst when applying that information to the modelling (Parrino, 2005).

2.1 The Income Model

Empirical research shows that the Income Model is the most used valuation model as it produces the most accurate estimate of the share price, thereby reflecting true market conditions (De Gabriele, 2003; Fernandez, 2007; Grech, 2012). This model calculates the present value by discounting future cash flows at an appropriate discount rate. When making use of the Income approach[7], the discount rate should

[7]*The Income approach is mainly used in the real estate sector where elements of financial statements are employed to arrive at the business valuation by assuming current market conditions (Damodaran, 2001).*

reflect the degree of riskiness of the cash flows (Damodaran, 2006). The intrinsic value of a share is calculated using the mathematical model outlined below:

Figure 1. *Intrinsic value of a share*

$$\mathbf{V_o} = \sum_{t=1}^{n} \frac{CF_t}{(1+r)^t} + \frac{TV_n}{(1+r)^n}$$

V_o = Intrinsic value of a share
t = Time taken for the derivation of the valuation
CF = Annual cash flows generated
r = The discount rate
TV = Terminal value at period n
n = Terminal year

The intrinsic value of a share has two components: [i] the streams of future cash flows generated by the company and [ii] the terminal value of the assets at the end of the finite period used in the financial model. Both are discounted at the cost of capital of the company. The free cash flows of a company can be calculated by using the following formula:

Figure 2. *FCFF equation*

$$\mathbf{FCFF} = \text{EBIT}\,(1 - \text{Tax Rate}) - (\text{CAPEX} - \text{Depreciation and Amortisation}) - \text{Changes in Working Capital}$$

One key disadvantage of the Income Model is the element of subjectivity with some of the parameters. For example, analysts might apply a different cost of capital or determine a different growth rate (Kruschwitz *et al.,* 2006). The discount rate used in the Free Cash Flow to Firm (FCFF) Model, assuming it is financed by both equity and debt, is the Weighted Average Cost of Capital[8] (WACC). The WACC is a financial ratio which calculates a company's cost of financing, which is the weighted return of return required by equity holders and debt holders (after allowing for tax). The WACC formula is depicted as:

Figure 3. *WACC equation*

$$\mathbf{WACC} = k_E\left(\frac{E}{D+E}\right) + \left(k_D(1-T_C)\right)\left(\frac{D}{D+E}\right)$$

K_e = Cost of Equity
K_D = Cost of Debt
T_C = Tax Shield
D = Debt Ratio
E = Equity Ratio

[8]*The WACC is equal to the required rate of return employed to discount future cash flows which is determined both by the equity and the liability market (Arnold, 2008).*

The value of a company is maximised by using an optimal financing mix of debt and equity (Damodaran, 2006). Researchers such as Treynor (1962) and Sharpe (1964) introduced the concept of the Capital Asset Pricing Model (CAPM) to calculate the cost of equity. It is regarded as one of the most popular theories used for asset pricing, given that it incorporates elements of both debt and equity, and simplifies the complexity of financial analysis by applying an array of assumptions. The CAPM assumes that the interests of the investors are homogenous in constructing a portfolio of assets, which generates the utility factor. Investors use beta estimates to value shares based on risk-return benefits and assuming perfect market conditions.

2.2 The Relative Model

In the Relative Model, assets are valued by using the price of similar assets within the same industry as a benchmark (Damodaran, 2006). The company's value is subsequently assessed by ratios such as the Price-to-Book Value Ratio (PBV) or the Price-to-Earnings Ratio (PE) (Brealey et al., 2014). Multiples are also used to provide a second opinion to analysts to achieve consistency with other valuations (Forte and Rossi, 2016). The Price-to-Book Value Ratio is determined by dividing the market share price and the current book value of equity as per accounting information:

Figure 4. *The Price-to-Book Value Equation*

$$\frac{\mathbf{P}}{\mathbf{BV}} = \frac{\text{Market Share Price}}{\text{Book Value of Equity}}$$

The PBV ratio is the most used multiple within the real estate sector as earnings might not be the primary goal for property companies. Furthermore, Damodaran (2001) emphasises the importance of using standardised value estimates based on comparable assets. Growth rate and risk characteristics are broadly similar for all real estate companies. The only differences relate to the levels of income streams derived from the sale of property or rental income. This makes it easier for companies to use, rather than applying rigorous Discounted Cash Flow (DCF) valuation modelling. This valuation method is widely used as it is easy to understand, and its results are easily comparable between different companies. However, in Malta, this valuation approach is usually applied to provide assurance when identifying differences between competitors within the same industry. Apart from the fact that there is limited market depth in Malta, multiples can easily be misused and manipulated because an element of subjectivity is required to understand the prospects of every company within the industry (Grech, 2012).

2.3 The Asset-Based Model

The third primary valuation model used is the Asset-Based Model, where the company's value is derived from the NAV, which is the sum of the assets less the

short-term and long-term liabilities extracted from the published financial statements (Arnold, 2008). This model is used when a company is about to liquidate and needs to distribute its assets to its shareholders. Investors usually determine the Liquidation Value and the Replacement Cost of the company to analyse whether it would be feasible to replace all of its assets (Damodaran, 2002). This valuation method is used as a point of reference to establish the lowest value of the company's assets during the valuation process. The shares should, in theory at least, equate the disposal value of the company's assets. Locally, the Asset-Based Model is mostly used for liquidations and takeovers. This model is valid for companies operating in real estate, given that their assets mainly comprise of immovable property. With the introduction of fair value measurement, analysts have found themselves in a better position to apply the standards of fair value measurement to the valuation of properties (Mifsud, 2009).

2.4 Selection of an Appropriate Valuation Model in a Small Island-State

The value of a company is dependent on both company-specific factors, such as growth prospects and wider systemic factors, such as the overall economic state of the market in which it operates. For managers to achieve corporate goals and align stakeholders' interests to their objectives, markets should be sufficiently developed in a way that a company's share price incorporates all available information (Pike and Neale, 2009). The stock market in Malta cannot be considered as efficient, as historical experience shows a delay in the adjustment of share price to allow for all available information and hence, opening opportunities for analysts to exploit arbitrage. The relatively low trading volume of the Malta Stock Exchange could be a strong contestant for the delay in share prices to incorporate new information (Sammut, 2002; Cassar, 2012; Vella, 2012 and Tabone, 2016).

Another factor affecting decisions when choosing valuation methodology is the impact of accounting regulations. When valuing companies, financial statements are a key source of data, particularly to derive the earnings before tax and the net income to be distributed to shareholders. Publicly listed companies should prepare consolidated financial statements based on IFRS regulations in compliance with the implementation of Regulation (EC) 1606/2002. With the adoption of the mandatory IFRS regulations enforced by the European Union, changes in accounting treatment are affecting the way corporate valuation is being conducted. IFRS regulations improve the quality of financial reporting, transparency and accountability, leaning towards fair value accounting by comparing asset valuation across international markets (Aharony *et al.*, 2010).

Maltese listed companies are now complying with IFRS regulations, and cross-border transactions have been on the rise. Listed companies seem to be adapting positively to the change in accounting requirements as these were primarily intended for larger companies adopting a market strategy targeted to a wider public (Attard and Bezzina, 2012).

An economy like Malta's is still regarded as a developing stock exchange market, mainly due to the information gap and illiquidity. In countries like the United States and Japan, where the size of the stock exchanges, the listed entities and the volume of transactions is significant, analysts are more comfortable using the results from evidence-based theories such as beta coefficients. On the contrary, the results emanating from smaller scale stock markets are more volatile and prone to error due to higher market inefficiencies and a specific Country Risk Premium (CRP). Therefore, professionals analysing emerging markets need to exert caution when it comes to applying theories accepted in large markets to smaller countries

3. Methodology

The study employed a multi-method strategy by delineating both exploratory and explanatory variables. The research first applied quantitative analysis by using the three valuation models and comparing their results using the Intraclass Correlation Coefficient[9] (ICC). The research questions were based on the four main objectives set out in the introduction:

- **Research Question 1:** What is the most appropriate Corporate Valuation Model (CVM) to use for the valuation of companies operating in the real estate sector that are listed on the Malta Stock Exchange?
- **Research Question 2:** Are the shares listed on the Maltese Stock Exchange mispriced? Is the Maltese stock market efficient?
- **Research Question 3:** What is the impact of the financial statements of listed companies and the adoption of accounting standards on corporate valuation?
- **Research Question 4:** What are the effects of factors such as merger & acquisition (M&A) activities, discounting factors and corporate governance on corporate valuation in the Maltese scenario, in comparison with other developing countries?

For the purpose of this study, the real estate industry was selected, representing 17.78% of the Maltese stock market[10]. These listed entities have property investment as their main strategic objective. The real estate sector has been expanding significantly over the past few decades in Malta, representing a steady house price index growth level of 35.66% over 10 years up to the first quarter of 2016 (Global Property Guide, 2017). The eight companies operating in the real estate sector were

[9]*The Intraclass Correlation is a descriptive statistic coefficient ranging from 0 to 1. The higher the coefficient, the stronger the reliability between the variables.*
[10]*As at 31st December 2016.*

selected using non-probability sampling[11]. The market capital and market share of the companies chosen for this study are specified in the Table below:

***Table 1**. List of sample companies selected for this study*

Company Number	**Market Capitalisation[12]**	**Market Share**
Co. 1	€17,380,000	0.40%
Co. 2	€385,549,167	8.93%
Co. 3	€126,928,611	2.94%
Co. 4	€75,170,133	1.74%
Co. 5	€59,773,188	1.38%
Co. 6	€30,793,780	0.71%
Co. 7	€5,585,313	0.13%
Co. 8	€67,116,000	1.55%
Total	**€768,296,192**	**17.78%**

This study was not without its limitations. Firstly, some of the variables in a corporate valuation, such as the discount rate to use or the terminal period are subjective, and assumptions such as the projection of future cash flows contain significant volatility. Therefore, it was imperative to formulate assumptions and apply judgement when setting the parameters for the model being used.

Secondly, all valuation processes and modelling were solely based on information found in the financial statements. Forward-looking variables such as growth rates and the companies' long-term objectives were based and limited to historical data gathered from annual financial statements. That being said, historical trends and patterns were identified in the estimation of potential growth or declining expectations of future revenue and costs.

Moreover, it was assumed that the going concern principle would apply to all companies in the sample population. This assumption allowed the forecasting of future cash flows without any limitation on the terminal period. Another limitation was that all the valuation models were based on a cut-off date of 31st December 2016, with the assumption that assets and liabilities could be measured at their fair

[11]Non-probability sampling is when the sample chosen for the purpose of the study is non-random and carefully chosen. Furthermore, the companies selected were the ones operating in the property sector as at 31st December 2016.
[12]As at 31st December 2016.

value as at that date. The reason behind the date chosen is that not all the financial statements ending 31st December 2017 of the sample population had been published during the research period.

Furthermore, all the companies forming part of the sample were classified to be Real Estate and Investment Property companies. Although the companies may not solely operate within the property sector or have different types of properties in their portfolio, they were classified under one category for the purposes of this study. The limitation of this assumption is that the local stock market is too shallow to identify a large sample of companies with exactly homogenous characteristics and operations.

3.1 Quantitative Research

The quantitative dimension of the study was based on applying the prime valuation methods used in corporate valuation. The statistical modelling applied to the valuation models are designated below:

Table 2. *Statistical models used for the valuation models*

Valuation Model	Quantitative Research
Income Model	Calculation of the discount rates and forecast of future cash flows for the next three financial years
Relative Model	Application of the Generalised Linear Model
Asset-Based Model	Quantitative analysis of published financial statements

3.1.1 Quantitative Research: The Income Model

The Income Model focuses on deriving the share price by discounting expected future cash flows. The formula used for the purpose of this valuation model is:

Figure 5. *The Income Model equation*

$$V_o = \sum_{t=1}^{n} \frac{FCFF_t}{(1 + WACC)^t} + \frac{TV_n}{(1 + WACC)^n}$$

The FCFF was then determined by the formula as formulated by previous researchers:

Figure 6. *FCFF equation*

$$\mathbf{FCFF} = \text{EBITDA} - \text{CAPEX} - \text{Tax paid} \pm \text{Net Changes in Working Capital}$$

To forecast future cash flows, historical data for the period 2012 to 2016 was used to estimate the FCFF for the years 2017 to 2019 and the Terminal Value. The reasoning for applying a three-year projection period was that most of the companies selected in the sample have stable growth rates and are in the maturity stage of their

lifecycle. To arrive at the projected EBITDA, every component of revenue and expenditure was projected on the basis of historical trends and assumptions in line with industry averages, starting off with the top line item of revenue and deducting all the operational expenses. The expected growth rates were extracted from the financial statements. When no growth rates were mentioned in the financial statements, it was assumed that the revenue growth would equate to the inflation rate. The other assumptions were that expenses either remained constant or that they grew at the expected inflation growth rate, depending on the type of expense. The formula for determining the Terminal Value is:

Figure 7. *Terminal Value equation*

$$\mathbf{TV} = \frac{\mathrm{FCFF_n}(1+\mathrm{g})}{(\mathrm{WACC}-\mathrm{g})}$$

Moreover, Key Performance Indicators (KPIs) were applied to the analysis to project future revenues and expenses. Examples include debtor collection period and creditor payment period, which were applied to the projected trade receivables and trade payables respectively. Furthermore, the future CAPEX was also determined by calculating the ratio of CAPEX as a percentage of revenue for each historical year, working out the average KPI over the historical period and using this KPI to estimate CAPEX for the projection period. However, any outlier historical yearly ratios were omitted from the average historical KPI. Furthermore, the tax paid and the changes in working capital were also deducted from the EBITDA to determine the forecasted FCFF. The next step was the evaluation of the discount rate. The WACC was used as a proxy for the discount rate since it incorporates both the cost of debt and the cost of equity. The formula for calculating the cost of debt is as follows:

Figure 8. *Cost of debt equation*

$$\mathbf{k_D} = (\mathrm{r_f} + \mathrm{CRP} + \mathrm{DSRP}) \times (1 - \mathrm{T})$$

The risk-free rate was equated to the 10-year German Government Bond[13], while the CRP for Malta and any Default Risk Spread Premium (DRSP) attributable to the company were added to the cost of debt. The DSRPs were calculated by determining the weighted average Yield to Maturities (YTMs) of the debt liabilities while the company-specific risk premium (CSRP) was estimated by applying the formula depicted in Figure 11. Finally, a tax shield was multiplied to the total cost of debt to determine the rate at net of the tax shield. On the other hand, the formula for calculating the cost of equity is as follows:

[13]*As Maltese Government Stocks incorporate an element of CRP, the relative risk-free instruments dominated in the Euro currency are considered to be the German Government Bonds.*

Figure 9. *Cost of equity equation*

$$\mathbf{k_E} = r_f + (\beta_L \times MRP) + CRP + CSRP$$

The following table captures the total Equity Risk Premium (ERP) and the CRP for Malta as at January 2017 (Damodaran, 2017a). The Market Risk Premium (MRP) was determined by deducting the CRP from the total ERP.

Table 3. *ERP and CRP of Malta as at January 2017*

Country	Continent	Moody's Rating	Total ERP	CRP
Malta	Western Europe	A3	7.40%	1.71%

The following table presents the gearing ratio and unlevered beta for the real estate (operations) industry across Europe, measured by Damodaran (2017b) as at January 2017.

Table 4. *Gearing ratio and unlevered beta of the real estate industry in Malta*

Industry Name	D/E Ratio	Unlevered Beta
Real Estate (Operations and Services)	90.42%	0.35

The asset beta collected from Damodaran's (2017b) data is the unlevered beta for real estate companies in Europe. The following formula was applied to determine the levered beta:

Figure 10. *Levered beta equation*

$$\boldsymbol{\beta_L} = \beta_U \times [1 + (1 - (1 - T)) \times \text{Industry}\frac{D}{E}\ \text{Ratio}]$$

Furthermore, the methodology used by Highland Global (2004) was applied to determine the CSRP of a company. This is calculated as the sum of five factors calculated as a rating multiplied by a scalar. The formula for determining the CSRP is:

Figure 11. *CSRP equation*

$$\mathbf{CSRP} = 0.2(\text{Revenue Growth}) + 0.2(\text{Financial Risk}) + 0.2(\text{Profitability}) + 0.2(\text{Industry Risk}) + 0.2(\text{Economic Risk})$$

The independent variables were measured as per the table below:

Table 5. *CSRP independent variables*

Independent variable	Formula	Source of information
Revenue Growth	$\frac{\text{Revenue}_n}{\text{Revenue}_{n-1}} - 1$	Growth rates used for the Income Model

		valuation
Financial Risk	$\frac{\text{Debt}}{\text{Equity}}$	Market values of debt and equity
Profitability	$\frac{\text{Net Profit}}{\text{Revenue}}$	Financial statements as at year ending 2016
Industry Risk	$\frac{\text{Firm Return on Assets}}{\text{Industry Average Return on Assets}}$	Financial statements as at year ending 2016
Economic Risk	$\frac{\text{Firm Return on Assets}}{\text{GDP growth in Malta}}$	Same firm ROA used for Industry Risk. GDP Growth represents the growth in Maltese GDP during 2016 (NSO Malta, 2017)

After calculating the Return on Equity (ROE), the WACC was then estimated as outlined in Figure 12, to determine the overall cost of capital of the company in the sample:

Figure 12. *WACC equation*

$$\textbf{WACC} = k_D\left(\frac{D}{D+E}\right) + k_E\left(\frac{E}{D+E}\right)$$

Finally, the company value was determined after discounting the forecasted future cash flows by applying the WACC rates. However, to reach the equity values, the following formula was applied, and subsequently, the total equity values were divided by the number of shares in issue:

Figure 13. *Equity value equation*

$$\textbf{Equity Value} = \text{Enterprise Value} - \text{Debt} + \text{Cash and Cash Equivalents}$$

3.1.2 Quantitative Research: The Relative Model

As explained in Damodaran's literature (2006), the best way to determine a theoretical value is to perform Generalised Linear Modelling on a multiple. As stated by both Damodaran (2002) and the research participants of the study, the PBV ratio is the most suitable metric for real estate companies because of their volatility in earnings. Damodaran (2002) identifies four fundamental factors which determine the PBV ratio, these being the ROE, the expected growth rate, the payout ratio and the CSRP. Therefore, a GLM was formulated based on Damodaran's study to determine the theoretical PBV ratio as outlined below:

Figure 14. *GLM for PBV ratio*

$$\mathbf{PBV} = \beta_1 + \beta_2 \mathrm{ROE} + \beta_3 \mathrm{Growth} + \beta_4 \mathrm{Payout} - \beta_5 \mathrm{CSRP}$$

Traditional Regression Models assume that the dependent variable has a normal distribution. However, in a non-linear relationship, a GLM could be fitted. GLMs accommodate any distribution which is a member of the exponential family. Before running the model, the dependent variable was tested for the normality assumption and thereafter, the error distribution was chosen on whether the null hypothesis was accepted or rejected. The result of the regression model was then extracted based on its parameter estimates.

The a priori expectations of the coefficients of the independent variables were positive for the ROE, the growth rate and the payout rate[14]. A negative value was expected for the CSRP[15].

3.1.3 Quantitative Research: The Asset-Based Model

To determine the NAV, published financial statements were inspected and analysed by calculating the market values of assets and liabilities. Any adjustments were accounted for by estimating the real values of the financial statements' elements. The NAV was calculated and used in comparison with other valuation models in absolute terms.

3.1.4 Quantitative Research: Model Specifications

The statistical models, as used in the research methodology, were applied to achieve the results for the quantitative aspect of the study. To compare the correlation between the valuation models and the share prices, and the valuation models between themselves, the Intraclass Correlation Coefficient (ICC) was applied for all variables. The ICC ranged from 0 to 1, where a value close to 1 indicated almost absolute agreement between the readings, while a value of 0 indicated inconsistencies between the values.

The null hypothesis (H_0) specified that there was poor consistency between the measurements and was accepted if the p-value exceeded 0.05 level of significance. The alternative hypothesis (H_1) specified that there was a strong significant agreement between the measurements and was accepted if the p-value was less than the 0.05 criterion. The hypotheses formulated for the purposes of this testing were the following:

[14]*As the ROE, the growth rate and the payout ratio are expected to increase, the PBV ratio is also expected to increase.*

[15]*As the CSRP is expected to increase, the PBV Ratio is expected to decrease because of the higher risk incurred by the company.*

Figure 15. *Hypotheses formulated for the GLM*

H_0: There is a poor relationship between the measurements
H_1: There is a strong relationship between the measurements

3.2 Qualitative Research

Three types of interviews were conducted with different participants.

Table 6. *Types of interviews conducted to different participants*

Type	Interview Title	Participants	Number of participants
Type 1	Corporate Valuation Models and their application to the selected Maltese listed companies	Advisors from the Big Four accounting firms specialising in valuation	4
Type 2	Corporate Valuation Models and their application to the selected Maltese listed companies	CFOs employed with companies forming part of the research sample	3
Type 3	Corporate Valuation Models and their application to the selected Maltese listed companies	Financial analysts who are not employed with companies forming part of the research sample	2

While Type 1 and Type 2 interviews aimed to address all the research objectives, Type 3 interviews only addressed Objectives 1, 2 and 4. Objective 3 was omitted as financial analysts were expected to have minimal knowledge of accounting regulations and IFRS requirements.

4. Research Findings and Discussion

4.1 The Income Model

As outlined earlier[16], the discounting factors were determined to calculate the present values of future cash flows to the company. In deriving the WACC, the cost of debt and cost of equity were multiplied by the industry-average debt-to-equity capital [Damodaran D/E Ratio based on Real Estate Europe (Operations and Services)] structure to estimate a WACC.

Companies 1, 2 and 4 yielded the highest WACC rates. The high WACC for Company 1 is attributed to the high coupon rate on its bonds, which yields a comparatively high DRSP. Companies 2 and 4 suffered from a high CSRP due to their significantly geared structures and net losses.

[16] *See Section 3.1.1*

Table 7. *WACC rates of the selected listed companies*

	Co. 1	Co. 2	Co. 3	Co. 4	Co. 5	Co. 6	Co. 7	Co. 8
Cost of Debt								
Risk-free rate	0.208%	0.208%	0.208%	0.208%	0.208%	0.208%	0.208%	0.208%
Country Risk Premium	1.71%	1.71%	1.71%	1.71%	1.71%	1.71%	1.71%	1.71%
Default Risk Spread Premium	6.21%	3.55%	3.05%	3.41%	2.47%	2.99%	0.00%	3.69%
Long-term Cost of Debt	8.124%	5.463%	4.972%	5.324%	4.391%	4.908%	1.918%	5.610%
Tax Shield	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Cost of Debt (Net of Tax Shield)	**5.28%**	**3.55%**	**3.23%**	**3.46%**	**2.85%**	**3.19%**	**1.25%**	**3.65%**
Cost of Equity								
Risk-free rate	0.208%	0.208%	0.208%	0.208%	0.208%	0.208%	0.208%	0.208%
Asset Beta	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
Assumed Long-Term Total D/E Ratio	90.42%	90.42%	90.42%	90.42%	90.42%	90.42%	90.42%	90.42%
Tax Shield	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Re-levered Equity Beta	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
Market Risk Premium	5.69%	5.69%	5.69%	5.69%	5.69%	5.69%	5.69%	5.69%
Country Risk Premium	1.71%	1.71%	1.71%	1.71%	1.71%	1.71%	1.71%	1.71%
CAPM Cost of Equity	4.54%	4.54%	4.54%	4.54%	4.54%	4.54%	4.54%	4.54%
Company-Specific Risk Premium	6.00%	8.60%	4.20%	8.40%	3.60%	4.40%	2.20%	4.40%
Cost of Equity	10.54%	13.14%	8.74%	12.94%	8.14%	8.94%	6.74%	8.94%
Cost of Equity	10.54%	13.14%	8.74%	12.94%	8.14%	8.94%	6.74%	8.94%
Equity-to-Capital	52.52%	52.52%	52.52%	52.52%	52.52%	52.52%	52.52%	52.52%
Weighted Cost of Equity	5.54%	6.90%	4.59%	6.80%	4.27%	4.69%	3.54%	4.69%
Cost of Debt net of tax shield	5.28%	3.55%	3.23%	3.46%	2.85%	3.19%	1.25%	3.65%
Total debt-to-capital	47.48%	47.48%	47.48%	47.48%	47.48%	47.48%	47.48%	47.48%
Weighted Cost of Debt	2.51%	1.69%	1.53%	1.64%	1.36%	1.51%	0.59%	1.73%
Weighted Average Cost of Capital	**8.04%**	**8.59%**	**6.12%**	**8.44%**	**5.63%**	**6.21%**	**4.13%**	**6.43%**

The following tables outline the forecasted cash flows of the companies within the research sample, together with their derived enterprise values and equity values.

Table 8. *Equity value per share of the selected listed companies (1)*

	Co. 5	Co. 6	Co. 7	Co. 8
Discount rate	5.63%	6.21%	4.13%	6.43%
Discounted Cash Flows				
Enterprise Value	86,543,603	57,273,447	37,324,826	80,155,060
Less: Debt	(16,000,000)	(12,723,846)	--	(19,977,566)
Add back: Cash and Cash Equivalents	1,376,510	265,644	1,125,265	867,784
Equity Value	**71,920,113**	**44,815,245**	**38,450,091**	**61,045,278**
Number of shares in issue	101,310,488	28,242,000	4,432,788	56,400,000
Equity Value per Share	**0.710**	**1.587**	**8.674**	**1.082**

Table 9. *Equity value per share of the selected listed companies (2)*

	Co. 1	Co. 2	Co. 3	Co. 4
Discount rate	8.04%	8.59%	6.12%	8.44%
Discounted Cash Flows				
Enterprise Value	12,862,868	203,318,581	178,688,932	25,982,878
Less: Debt	(10,811,000)	(405,392,000)	38,529,000	(60,448,245)
Add back: Cash and Cash Equivalents	1,087,000	29,382,000	3,427,250	14,173,142
Equity Value	**3,138,868**	**(172,691,419)**	**143,587,092**	**(20,292,225)**
Number of shares in issue	20,000,000	597,750,646	148,108,064	214,159,922
Equity Value per Share	**0.157**	**-0.289**	**0.969**	**-0.095**

4.2 The Relative Model

The four independent variables used in the GLM model to determine the PBV Ratio are the ROE, the payout ratio, the expected growth and the risk of the company. [17]

Table 10. *Data for the variables applied to the GLM*

Company	Price-to-Book Value (PBV) ratio	Return on Equity (ROE)	Growth Rate (Earnings per share)	Payout Ratio (Debt/Equity)	CSRP
Co. 1	6.141	13.251%	3.00%	1.280	6.00%
Co. 2	0.596	-1.184%	2.00%	0.000	8.60%
Co. 3	1.140	5.770%	2.50%	0.534	4.20%
Co. 4	1.116	-3.735%	1.37%	-0.596	8.40%
Co. 5	1.656	7.085%	5.00%	0.000	3.60%
Co. 6	1.176	4.839%	4.00%	0.655	4.40%
Co. 7	0.486	13.822%	1.37%	0.000	2.20%
Co. 8	1.879	5.729%	3.00%	0.689	4.40%

Using the underlying historical and forecasted data, the above table shows the values of the independent variables for the selected companies. While the ROE and the payout ratio were measured by using data published in financial statements, the growth rate and the CSRP were taken from the DCF valuation used in the Income Model. The normality assumption was tested on the dependent variable by applying the Shapiro-Wilk Test[18]. The p-value of the independent variable was less than 0.05 due to the relatively high PBV Ratio of Company 1. Therefore, the null hypothesis was rejected, and the frequency distribution was non-parametric[19].

[17] *See Section 3.1.2*

[18] *The Shapiro-Wilk test was applied as the normality assumption was tested on a continuous variable.*

[19] *The frequency distribution is right-skewed.*

Traditional Regression Models assume that the dependent variable has a normal distribution. The distribution of the underlying data showed that the assumption of normality did not hold. Instead, a GLM was fitted as this model accommodates any distribution which is a member of the exponential family[20]. Since the distribution is right-skewed, the Gamma distribution was assumed to be the best fitting distribution, with a Canonical Reciprocal Link Function[21] being the most appropriate. The data was then tested for the formulation of the Regression Model, with the results outlined below:

Table 11. *GLM specifics*

Model Information	
Dependent Variable	PBV
Probability Distribution	Gamma
Link Function	Power (-1)

Table 12. *GLM parameter estimates*

			Hypothesis Test
Parameter	**Coefficient**	**Std. Error**	**P-values**
(Intercept)	2.220	0.6540	0.001
ROE	-2.168	2.7993	0.439
Growth Rate	-20.038	10.4178	0.054
Payout Ratio	-0.401	0.2659	0.132
CSRP	-10.859	6.9961	0.121
Dependent Variable: PBV Model: (Intercept), ROE, Growth, Payout, CSRP			
a. Maximum likelihood estimate.			

All the p-values exceeded the 0.05 criterion, and therefore, the null hypotheses were accepted for all the variables. This indicates that the independent variables are insignificant predictors to the formulation of the model. However, given the relatively small sample size[22] and the number of variables used in the model, it was decided not to remove insignificant variables from the model as they all, theoretically, play an important role in enhancing the PBV Ratio[23] (Damodaran, 2006).

[20]*The exponential family includes the Gamma, Binomial, Poisson, Normal and Exponential, amongst others.*

[21]*A canonical reciprocal link means that the coefficient of the dependent variable is equal to the power of -1, thus having an inverse function.*

[22]*The p-value depends heavily on the sample size and it is unlikely to obtain statistical significance when the sample size is small (less than 30). This is unless the relationship between the variables is very strong, which is hardly ever the case.*

[23]*Vide Section 3.1.2, the Law of Parsimony states that a model should remove any insignificant variables and include those variables which are statistically significant. As a rule of thumb, statisticians take a p-value of 0.05 as the threshold to determine significant independent variables.*

The following figure depicts the resulting formula constructed from the Regression Model:

Figure 16. *Resultant GLM for the PBV ratio*

$$\left(\frac{1}{\mathbf{PBV}}\right) = 2.220 - 2.168\text{ROE} - 20.038\text{Growth} - 0.401\text{Payout} - 10.859\text{CSRP}$$

As a result of the reciprocal canonical link function, the ROE, growth and payout variables have a negative coefficient and concur with the a priori expectations of a positive relationship with the PBV ratio. However, the CSRP also has a negative coefficient which contradicts the expectation of the negative relationship between the PBV ratio and the CSRP. To determine the theoretical share price from the application of the GLM, the predicted dependent variable was calculated by reversing the reciprocal power and subsequently multiplying the value by the Net Book Value (NBV) per share. The results are outlined in Table 13:

Table 13. *Equity values of the selected listed companies calculated from the GLM*

Company	1/PBV	Theoretical PBV	NBV/Share (31/12/16)	Theoretical Share Price
Co. 1	**0.147**	**6.814**	€ 0.142	**€ 0.964**
Co. 2	**0.891**	**1.122**	€ 1.082	**€ 1.214**
Co. 3	**0.904**	**1.106**	€ 0.752	**€ 0.832**
Co. 4	**1.333**	**0.750**	€ 0.315	**€ 0.236**
Co. 5	**0.654**	**1.530**	€ 0.356	**€ 0.545**
Co. 6	**0.553**	**1.808**	€ 0.927	**€ 1.676**
Co. 7	**1.387**	**0.721**	€ 2.591	**€ 1.868**
Co. 8	**0.721**	**1.388**	€ 0.633	**€ 0.879**

4.3 The Asset-Based Model

The NAV per share of each company in the sample was calculated by deducting short-term and long-term liabilities from the total assets and then dividing the NAV by the number of ordinary shares in issue. All NAVs were calculated as at 31st December 2016 and are illustrated in the table below.

Table 14. *Net Asset Values of the selected listed companies*

Company	Total Assets	Current Liabilities	Non-Current Liabilities	Net Asset Value
Co. 1	€ 16,782,000	€ 2,660,000	€ 11,292,000	**€ 2,830,000**
Co. 2	€ 1,220,254,000	€ 85,581,000	€ 487,851,000	**€ 646,822,000**
Co. 3	€ 156,375,183	€ 2,366,343	€ 42,686,902	**€ 111,321,938**
Co. 4	€ 203,779,753	€ 42,547,113	€ 93,873,334	**€ 67,359,306**
Co. 5	€ 58,730,821	€ 912,750	€ 21,726,891	**€ 36,091,180**
Co. 6	€ 43,424,193	€ 1,243,930	€ 16,000,181	**€ 26,180,082**
Co. 7	€ 12,139,938	€ 216,940	€ 438,458	**€ 11,484,540**
Co. 8	€ 64,857,938	€ 3,005,230	€ 26,129,686	**€ 35,723,022**

Table 15. *Net Asset Values per share of the selected listed companies*

Company	Issued ordinary shares	NAV/share
Co. 1	20,000,000	€ **0.142**
Co. 2	597,750,646	€ **1.082**
Co. 3	148,108,064	€ **0.752**
Co. 4	214,159,922	€ **0.315**
Co. 5	101,310,488	€ **0.356**
Co. 6	28,242,000	€ **0.927**
Co. 7	4,432,788	€ **2.591**
Co. 8	56,400,000	€ **0.633**

4.4 Overview of the Corporate Valuation Models

The following table outlines the theoretical share prices derived from the three CVMs, together with the actual share prices of the companies in the sample as at 31st December 2016.

Table 16. *Share prices of the selected listed companies against the theoretical share prices of the three selected valuation models*

Company	Share Price as at 31/12/16	Income Model	Relative Model	Asset-Based Model
Co. 1	€ **0.869**	€ 0.157	€ 0.964	€ 0.142
Co. 2	€ **0.645**	-€ 0.289	€ 1.214	€ 1.082
Co. 3	€ **0.857**	€ 0.969	€ 0.832	€ 0.752
Co. 4	€ **0.351**	-€ 0.095	€ 0.236	€ 0.315
Co. 5	€ **0.590**	€ 0.710	€ 0.545	€ 0.356
Co. 6	€ **1.090**	€ 1.587	€ 1.676	€ 0.927
Co. 7	€ **1.167**	€ 8.674	€ 1.868	€ 2.591
Co. 8	€ **1.190**	€ 1.082	€ 0.879	€ 0.633

The Intraclass Correlations were tested to determine any statistical significance between the dependent and the three independent variables to compare the share prices of the selected listed companies with the theoretical share prices derived from the three CVMs.

Table 17. *The intraclass correlations of the share prices against the three selected valuation models*

Average measures	**Intraclass Correlation**	**P-value**
Share prices and the Income Model	0.215	0.384
Share prices and the Relative Model	0.752	0.036
Share prices and the Asset-Based Model	0.546	0.182

It is noted that the Relative Model yields the highest Intraclass Correlation[24] with the share price, while the Income Model yields the lowest correlation. Moreover, the Relative Model is the only model which yields a p-value (0.036) less than the 0.05 level of significance, thus rejecting the null hypothesis. Rejecting the null hypothesis implies a strong relationship between the actual share prices and the Relative Model. As a result, although empirical literature suggests that the Income Model is the most accurate predictor of share prices due to its intricacy in determining future cash flows[25], the Relative Model has obtained the highest significance level against the share price variable in this study. The results show that the Relative Model is followed by the Asset-Based Model and ultimately, the Income Model.

The results determining which model has the strongest relationship with the share prices also contradict previous empirical literature and the responses provided by the participants in the study. The Income Model tends to be the preferred approach as it reflects true market conditions and considers company-specific factors such as growth levels in revenue and expenditure. Valuers and professionals tend to prefer the Income Model as it includes all future expectations of the company by determining its intrinsic value. Furthermore, the model's level of detail allows room for sensitivity analysis where alternative scenarios can be built in the model[26].

Both previous studies such as that produced by valuation experts like Damodaran and the qualitative part of this study (9/9) state that the Income Model is the strongest of the three, in a generic context. This contradiction with the quantitative facet of the study might suggest that it is the share price of the listed companies which deviates significantly from the theoretical equity value, rather than the Income Model that significantly deviates from the prices listed on the Maltese Stock Exchange.

Moreover, according to the research participants, the Income Model might not be the strongest contender in this study. The management of Maltese companies is often reluctant to provide detailed financial information due to competitive constraints and the small size of the market. Thus, financial information may not portray a true and fair view of the company. On the other hand, the main reason as to why the Relative Model has the strongest ICC could be that the application of a statistical model to the data enhances the accuracy of the predicted values. Although the a priori expectations were that the results of the model would be statistically insignificant due to the small sample size[27], the model still generated the closest results to the share prices out of the three CVMs.

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[24]*The correlation is 0.752 if average measures are assumed and 0.603 if single measures are assumed.*

[25] *Vide Section 2.1*

[26] *Vide Section 2.1*

[27] *Vide Section 3.1.2*

The following table delves into the relationship between the three CVMs and depicts the Intraclass Correlations between the three models:

Table 18. *Intraclass Correlations between the three selected valuation models*

Average measures	Intraclass Correlation	P-value
Income Model and Relative Model	0.414	0.261
Income Model and Asset-Based Model	0.623	0.113
Relative Model and Asset-Based Model	0.849	0.011

The Relative Model and the Asset-Based Model yield the strongest ICC, as it is expected that the PBV Ratio and the NAV should be highly correlated. On the other hand, the weakest relationship is between the Income Model and the Relative Model, elucidated by the weak relationship between the DCF valuation and the share price.

One research participant suggested that, in theory, the equity value derived from the Income Model of real estate companies should be equal to the NAV, assuming that properties are measured at fair value. However, although the ICC between the Income Model and the Asset-Based Model is relatively positive (0.623), the p-value still exceeds the 0.05 criteria, and therefore, the null hypothesis is not rejected. The large deviation observed between the share price derived from the Income Model and the actual share price is the main contributor for a relatively weak relationship between the two independent variables.

Nevertheless, the qualitative research shows that all the participants (9/9) tend to use the Income Model as their main valuation approach. The main reasons for this choice are the abilities to: [i] generate the expected future cash flows, [ii] value assets for the long-term horizon, [iii] be forward-looking, and [iv] determine a fair market value. The ideology of the Income Model being superior to others is also evident in developed countries such as the United States and Japan[28] (Damodaran, 2002).

Six of the respondents (6/9) use the Relative Model in conjunction with the Income Model to corroborate the findings of the latter, while four participants (4/9) use the Asset-Based Model to establish the theoretical price floor. Previous empirical studies in Malta also show that the Income Model is the most widely used model to estimate the theoretical share price, as it takes into consideration all the company's specific characteristics and its future plans and objectives[29] (De Gabriele, 2003; Fernandez, 2007; Grech, 2012).

The results show that contrary to international studies on corporate valuation, the share prices listed on the Maltese Stock Exchange might not depict the actual value of the company and therefore, cannot be used as a benchmark to determine the real

[28]*Vide Section 2.1.*
[29]*Vide Section 2.1.*

value of the company. That being said, it is salient to note that all the Big Four accounting firms employ all the three main models and triangulate the approaches accordingly, usually depending on the nature of the company. The decision on which valuation technique to use depends on the availability of information, the timeframe of the valuation process and the company's nature and characteristics (Damodaran, 2006).

4.5 The Relationship between Market Efficiency and Corporate Valuation

Participants were asked about how efficient the Maltese stock market is in response to new information using a 5-point Likert Scale (with 5 being the highest rating). The highest rating of 4 was given by two CFOs from companies participating in the quantitative analysis of this study. They stated that the share price of the companies they are employed with tends to react slowly to published information.

On the other hand, 75% of the participants[30] (6/8) agreed with the assertion regarding the market inefficiency of the Malta Stock Exchange. The given reasons mirror the findings of previous studies conducted on market efficiency in Malta (Sammut, 2002; Cassar, 2012; Vella, 2012 and Tabone, 2016). Three of the participants (3/8) stated that one of the main reasons for market illiquidity is the lack of appetite to invest in equity markets in Malta. Local investors tend to prefer government and corporate bonds. After the global financial crisis, investors became more risk-averse and preferred to receive a fixed coupon per annum rather than invest in equities with unpredictable and volatile dividend payments.

Nonetheless, one participant (1/9) highlighted that given the prolonged low interest rate environment and the emergence of a risk-taking younger generation, investors are gradually becoming more interested in investing in equities. Also, the majority of local retail investors tend to lack equity trading knowledge, and as a result, buy to hold is a popular strategy adopted by equity investors. One financial analyst also argued that infrequent trading is driven by the risk-averse attitude of local investors.

Data collected from the quantitative part of this study tallies with the replies from the interview participants. The statistically significant deviation between the Income Model and the prices listed on the stock exchange could possibly be due to market inefficiency and share mispricing, as the Income Model reflects future cash flows and sound projections established by the management of the company. This assertion regarding the statistically significant deviation between the Income Model and share mispricing is backed up by the weak Intraclass Correlation, thus ranking it the lowest out of the three coefficients to share pricing.

Moreover, the respondents pointed out that results obtained from the Income Model and the Asset-Based Model should converge when the assets are measured at fair

[30] *One CFO (1/9) preferred not to allocate a rating.*

value. However, the quantitative analysis shows a statistically significant difference between the two models, with a p-value of 0.113, indicating a poor relationship between these two models. That being said, only the test between the Relative Model and the Asset-Based Model yields a statistically insignificant difference.

Due to the illiquidity of the Maltese market, every company within the market should adjust the discount rate for its investors to allow for this risk (Mongrut and Ramirez, 2006). Even though Malta has been given an A- credit rating by Standard & Poor since 2017, only 44% of the participants (4/9) claimed that Malta is a developed country, arguing that it is difficult to compare small island states with strong economies such as Germany and France. It may be asserted that since Malta is deemed to be at a stage between an emerging and a developed market, market inefficiency should be reflected in the cost of capital.

The results derived from this research prove to be consistent with previous studies undertaken in Malta, where it is evident that when compared with developed countries, the establishment of a regulated market in Malta is a relatively recent event. Investors find it more difficult to exploit any arbitrage opportunities due to transaction costs, irrational behaviour of investors, and regulatory enforcement relating to share price movements (Sammut, 2002; Cassar, 2012; Vella, 2012 and Tabone, 2016)[31].

4.6 Corporate Valuation in the Maltese Scenario

71% of the respondents (5/7)[32] believe that the implementation of IFRS regulations as applied by EU law brought several benefits for corporate valuation, especially with the movement towards fair value accounting. However, compliance leads to an indirect positive relationship of trust and comfort when applying the values stipulated in the annual financial statements—an assertion backed up by Aharony et al. (2010) and Armstrong *et al.* (2010).

Although every participant (9/9) agreed that, in theory, enhancement of compliance should directly correlate to share price, one of the Big Four accounting firm representatives (1/9) stated that compliance has no direct effect on the share price in Malta. However, stable growth is visible when the management is able to articulate a clear vision and strategy to the stakeholders. Nonetheless, listed companies should be able to communicate their business plans to the shareholders to help attract investment in the company.

Part of the compliance regime includes corporate governance and a sound ethical framework. Although previous research shows that there is a direct relationship

[31] *Vide Section 2.4.*

[32] *Vide Section 3.2 – financial analysts were not asked about IFRS regulations as non-accountants might have minimal knowledge on the subject.*

between corporate valuation and corporate governance, five out of the nine participants (5/9) argued that in Malta, the relationship is an indirect one and that share prices do not increase in value solely due to governance compliance. These participants stressed the importance of having regulatory institutions, stating that these should be able to enforce and supervise listed companies to ensure compliance with ethical standards and report all disclosures to bridge the gap between the principal and the agent, hence strengthening reputation and creating value for the company.

Furthermore, merger and acquisition activities have played a major role in financial markets with the increase of cross-border finance and globalisation. If the due diligence process is performed correctly, share prices should theoretically increase due to the overexcitement in expanding market power (Arnold, 2008).

Although Narayan and Thenmohzi (2014) imply that companies in developing countries might have minimal knowledge on M&A activities, this does not seem to be the case in Malta as companies are given advice by large international audit firms[33]. That being said, the theoretical correlation between M&A activities and share price does not feature in the Maltese scenario, as the market illiquidity renders the share price slow to react to company information. Moreover, one-third of the participants claimed that the adverse reaction occurs in Malta, where the share price of the acquirer usually decreases while the opposite is observed in the target company. Participants mentioned two drivers for this change: brand loyalty and loss of reputation. Most Maltese investors place a significant value on the company's brand. When a company in which investors hold shares merges with another company, they might feel that they are losing contact with the brand. On the other hand, when a company is acquired by a larger company, investors feel a sense of security as the company now has additional security and a potentially larger market, thus increasing its potential and growth prospects.

5. Conclusions

The study aimed at analysing the results from three CVMs to determine the best valuation model when calculating the value of a listed company. It also investigated the impact on corporate valuation in this small-island-state of accounting regulations, market efficiency and other factors such as merger and acquisition activities and corporate governance. This study was motivated by the lack of research conducted on corporate valuation in small island states, including the Maltese scenario.

The quantitative analysis suggests that the Relative Model has the strongest relationship with the Maltese stock market, followed by the Asset-Based Model and the Income Model. This contradicts the results of both the interviews in this study

[33] *Vide Section 2.4.*

and previous studies focusing on developed markets. Both ascertained that the Income Model is the most used valuation method. However, the findings show that there is no ideal valuation model and that the choice of valuation model depends on the nature and characteristics of the company being assessed. It is suggested that valuation experts use the three CVMs and combine them accordingly to assess the results from the alternative methodologies before determining the value of a listed company.

The study also concludes that corporate valuation in the small Maltese stock market is actually impacted by market inefficiency because such market is less efficient than that of other developed countries. While the assertion of market inefficiency was backed by respondents, the quantitative analysis also solidifies the validity of this proposition. The persistent low interest rate environment and the emergence of younger investors with a higher risk appetite suggest that there is potential for growth in the Maltese listed equities market. One way to gradually make the Maltese stock market more efficient is to provide training and education to investors on equity trading and the stock market. This would enable both institutional investors and the less sophisticated investor to consider investing a part of their portfolio in equity instruments rather than just bonds. Increasing investor knowledge could lead to increased market efficiency and trading volumes.

Furthermore, while there is a lack of literature explaining the relationship between accounting regulations and corporate valuation in Malta, participants highlighted that accounting regulations have an indirect impact on corporate valuation. IFRS regulations are introducing the notion of transparency through enhanced disclosures and accountability in the published financial statements. Compliance with IFRS regulations reduces the probability of material misstatements in the audited financial statements, ensuring that the underlying data in the CVM does not lead to erroneous results. In addition,, while the literature shows that there is no relationship between merger and acquisition activities and share prices in developing countries, participants believe that this depends on the weight and scale of every transaction, with one-third claiming that the adverse reaction usually occurs in Malta.

Additionally, research participants believe that corporate governance does not have a direct relationship with stable growth in share price in Malta. However, the presentation of an ethical stance to shareholders would enhance the trust in and accountability of the company. Regulatory institutions should also maintain their oversight role function by making sure that listed companies are putting the shareholders and the wider public at the forefront of their strategic decisions.

Overall, the study suggests that there is no ideal CVM, and the best outcome would be to use more than one valuation model. The theoretical share price should be determined on the basis of sound judgement and professional scepticism. After all, as well stated by Smith (1988, p. 103), *"Valuing a business is part art and part science."*

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