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INNOVATION TRENDS IN BUSINESS VALUATION: THE CASE OF PORTUGUESE OFFICIAL AUDITORS

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ABSTRACT[1]

The process of business valuation includes methodologies where innovation is a key factor especially when companies have strategies of mergers and acquisitions, spin-offs and divestitures, corporate restructuring and changes in ownership. According to Portuguese Business Companies Code, in line with EU directives, the official auditors must be active part in the process of companies' valuation. However the regulation in force does not specify the methodology to be followed and thus it is not completely known which models the Portuguese auditors are actually using when valuing companies. Based on an inquiry submitted to a panel of auditors, this paper aims at analysing possible innovation in adjustments in assets value, estimation of cash flows, discount rate and residual value.

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1. INTRODUCTION

Law established Portuguese Order of Statutory Auditors, which represents the certified and statutory auditors, in 1974. This law has been revised several times and again the last time in 1999. All members have to follow the rules approved by the Order, in accordance with EU 8th Directive. Portuguese Order of Statutory Auditors is the regulatory body for auditing and the issuing of auditing standards, namely the continuing updating of these standards in compliance with market needs, EU legislation and advances in auditing standards.

Auditors have to present a report where they express their opinion as to whether the financial statements present a true and fair view in accordance with the Portuguese generally accepted accounting principles. Moreover, according to Portuguese Companies Business Code, in line with EU directives, the official auditors must be active part in the process of companies' valuation for specific situations such as mergers, acquisitions and splits. However the regulation in force does not specify the methodology to be followed, and so auditors are free to choose among the available models. Once it not completely known which models are being used, this paper aims at analysing the practice of companies' valuation by Portuguese official auditor.

In this perspective, the empirical research is based on an inquiry with thirty-two questions and submitted to a panel compounded by twenty Portuguese official auditors. This panel validated the questionnaire in terms of contents, consistency, clarity, accuracy and reliability. The questionnaire covers different aspects of the valuation models and methods used in practice, such as adjustments in assets value, estimation of cash flows, discount rate and residual value.

Following the introduction, this paper briefly describes the auditing profession, and the valuation rules in the Portuguese Companies Business Code and in the auditor's manual. Then, the paper presents the models for companies' valuation, which can be grouped in seven categories: (1) assets-based valuation; (2) earnings valuation; (3) dividend valuation; (4) discounted cash flow valuation; (5) residual income valuation; (6) relative valuation, and (7) options valuation. After, there is the research framework and the interpretation of results.

The conclusion is that auditors generally apply the traditional models (assets-based and discounted cash valuation) in comparison with dynamic models (option valuation). The paper finalizes discussing the reasons why auditors are being conservative and suggest the possibility of applying some innovative issues to valuate companies.

2. THE AUDITING PROFESSION

Auditors in Portugal must be registered in Portuguese Order of Statutory Auditors, which is responsible for issuing standards and undertaking disciplinary measures. This is the officially recognized professional body for auditors and is the national representative of Portugal in International Accounting Standards Board, International Federation of Auditing and *Fédération des Experts Comptables Européens*. In order to be registered as a statutory auditor, it is necessary to hold a relevant university degree, such as in auditing, accounting, law, economics, and business administration.

By the end of 2002 Portuguese, Order of Statutory Auditors had 937 individual members, known as statutory auditor (ROC) and 147 registered partnerships of statutory auditors (SROC), with 451 partners[2]. Most of the auditors are men, being less than 12% women. The average age of Portuguese auditors was 51 years. The number of auditors in activity is 807, that is, approximately 83% of the total number of auditors. In practice, the increasing competition, along with auditors' relationship to international firms has contributed to the quality and independence of the Portuguese auditors' work.

[2] Auditors' list has been periodically published. The full list of auditors was published in the Official Journal, dated from April 10, 2002 [*Diário da República* , III Serie, nr. 84, pp. 7479-7505 and amendments].

Auditors have to present a report where they express their opinion as to whether the financial statements present a true and fair view in accordance with the Portuguese generally accepted accounting principles.

In Portugal, about 20 500 business entities are currently subject to a statutory audit requirement. All corporations and private limited companies must appoint a statutory board of auditors, which size and composition depend on the company. Corporations must have a three-member audit board, one of them being the company's ROC who acts as auditor. For private limited companies above a certain size as specified in the law implementing the EU Fourth Directive, the same applies as in the case of a corporation (fifty employees, net assets of EUR 1.5 million, and sales turnover and other revenues EUR 3 million). For smaller private limited companies no statutory audit is required.

Furthermore, regulation of the securities market created the external auditor whose function is exclusive to statutory auditing firms and refers to audit of listed companies in addition to other audit. Listed companies are compelled to present an additional audit report by and auditor registered under the Portuguese Securities Market Commission. This external audit extends to semi-annual financial reports. It provides a reasonable basis for the auditor's opinion, which satisfies the principles of completeness, correctness, objectivity and timeliness required by the Securities Market Law. By the end of 2002, there were 48 registered partnerships of statutory auditors registered under that regulating body.

Regarding non statutory auditing, there has been a significant increase in demand for international auditors in Portugal, both from state-owned companies, especially those undergoing privatisation, and from private companies, whether for merger, acquisitions, financing and stock exchange purposes or, generally, for greater credibility of companies´ financial statements audited by them.

In addition, a number of the largest Portuguese companies employ international accounting firms to carry out voluntary independent audit in accordance with international auditing standards.

2. LEGAL AND PROFESSIONAL RULES ABOUT EQUITY VALUATION

Order of Statutory Auditors specifies auditing standards in its periodically updated Manual, which embraces international auditing principles. A set of technical recommendations, and technical interpretations, which guided the auditing practice, had been in force until their replacement by the technical guidelines, which must be applied to the audit of the financial statements. These guidelines, which have been strongly influenced by international standards on accounting and auditing, assist auditors in adhering to the rules of accounting. Topics covered by these rules include topics such as, audit working papers, declaration of responsibility, audit planning, audit report concerning works with special finality, audit of capital entries in the companies. None of the auditing guidelines specifically covers topics about models and methods of companies' valuation, although some may help auditors in specific task of valuation. Examples are the guidelines, which guides auditors who must verify non-monetary entries for the equity capital in companies and another one about business analysis.

Portuguese Order of Statutory Auditors highlighted the importance of companies' valuation when it issued a booklet containing a model of valuation, which may assist auditors in the task of valuation. The document, which dates back to November 1992, suggests the simplified version of discounted cash flow valuation model presented in Copeland *et al.* (1990) to be used by auditors. The document provides some examples of valuation and formats using spreadsheet tables. Additionally, Portuguese Order of Statutory Auditors expressed the preoccupation where there might be a lack of required information, omissions or if auditors do not justify the companies' valuation models, which they have adopted. The auditors' professional body was

concerned for projects of merger, regarding possible legal and professional responsibility besides the weak view shown to those to whom the auditors' opinion is sent[3].

According to Portuguese Companies Business Code, in line with EU directives, the official auditors must be active part in the process of companies' valuation for specific situations such as verification of non-monetary entries for the equity in companies, determining the value in view of shares' issues for increases in capital, splits, mergers, acquisitions, spin offs, and transmission of shares or quotas on death of the owner.

Valuation rules in the Portuguese Companies Business Code exclusively refer to assets, or balance sheet, as a basis for valuation. This may be interpreted as a preference by models which do not depend upon the judgement of the valuator. The three following examples support this conclusion:

- Merger agreement should at least mention the information required to understand the operation, both in legal and economic view, this including the balance sheets of the embraced companies giving the value of assets and liabilities which will be transferred to the merged company or to the new company, depending on the modality of merger; the project of merger should mention the criteria adopted in the valuation, as well as the basis for exchanges of capital, shares or quotes to be attributed to the shareholders of the company that will disappear after the merger (Portuguese Companies Business Code, art. 98th);
- Spin off agreement should include the complete list of assets and liabilities to be transmitted to the remaining firm or to the new company just formed for the purpose and the values, which will be attributed to them (Portuguese Companies Business Code, art. 129th);
- The board of directors will be responsible for organising a report with the justification for the change in the legal form of the firm; the report will be attached to the most recent balance sheet approved by the general meeting of shareholders when this balance sheet was approved within the six months before the transformation of the company, otherwise a special balance sheet shall be prepared for the purpose (Portuguese Companies Business Code, art. 132nd).

Nevertheless, the regulation in force does not specify the methodology to be followed, and so auditors are free to choose among the available models and methods. Once it not completely known which models are being used, thus, the present paper aims at analysing the practice of companies' valuation by Portuguese official auditors.

3. MODELS AND METHODS FOR COMPANIES' VALUATION

Before selecting the appropriate model, the valuator must be aware of the context and the purpose of the appraisal, and the business interest to be appraised. The valuator should consider the available data: (1) both historical and prospective; (2) financial and non-financial, and (3) quantitative and qualitative. On the basis of these factors, the auditor should ultimately rely upon experience and professional judgment to select the appropriate valuation models.

Models of valuation[4] fall into seven categories, which are: (1) assets-based valuation; (2) earnings valuation; (3) dividend valuation; (4) discounted cash flow valuation; (5) residual income valuation; (6) relative valuation, and (7) options valuation.

The *asset-based valuation models* assign a value to the company based on the current value of the individual component assets. To arrive at the value of the companies' equity, liabilities should de deducted. The total accounting assets and the equity book value are the simplest

[3] Cf. Portuguese Institute of Statutory Auditors, Letter to members, and ref. 3 dated from July 1, 1992.
[4] This classification of valuation models does not include models of managing value, such as the EVA(Economic Value Added), MVA (Market Value Added) and others models.

methods to compute the assets-based value, respectively for the company, and for the shareholders or quota-holders. Since book value is based on historical cost, it does not reflect increases in value caused by inflation. Moreover when there are adjustments to historical cost, only depreciation and not mark-ups are permitted. Thus, book value is viewed as a conservative estimate of the companies' value. It relies in the cost as a source for value. These reasons justify that book value must be adjusted when valuating a company. The shares and quotas of a company in prospect of liquidation or already in liquidation should be valued on the assets base. In a going concern context, the asset-based valuation of a company is not appropriate for minority interests because the assets are out of reach of the minority shareholders. Book value is a function of management's financial reporting choices that affect the allocation of revenues and expenses across time periods and, as a result, determine reported asset and liability balances. In some cases, these choices result in non-recognition of economic obligations

The *income approach to valuation*[5] includes earnings models, dividend models, and discounted cash flow models. It is founded in the present value rule and calculates the value of a company as the present value of the stream of future income flows. Thus, the value of the company is given by the following formula:

$$V=\sum_{t=1}^{t=n}\frac{F_t}{(1+r)^t}+\frac{V_n}{(1+r)^n}$$

where F_t represents the expected income flow in the period *t*, and *r* is the discount rate, e.g. the company's required rate of return[6]. Income valuation models vary as to the appropriate measure of income flow *F* defined alternatively as future dividends, earnings or cash flows. Thus, leading to the earnings valuation models, dividend valuation models, and discounted cash flow models. Additionally, there are several assumptions regarding the evolution of income flows, the period of explicit forecasts, and the discount rate, namely the following:

- income flows can be constant $(F_i=\ldots=F_j=\ldots=F)$ or vary from period to period $(F_i\neq\ldots\neq F_j \ \forall\, i\neq j)$, growing at one or more constant rates (g_i);
- the eriod of explicit forecasted income flows can be infinite $(n\rightarrow+\infty)$ or limited to a fixed number of periods $(n=k)$, and in this situation terminal value (V_k) should be calculated;
- discount rate can be constant $(r_i=\ldots=r_j=\ldots=r \ \forall\, i\neq j)$ or vary from period to period $(r_i\neq\ldots\neq r_j \ \forall\, i\neq j)$.

Possible mix of the above assumptions will originate different valuation models in practice. In the simplest form of the income valuation model, the company's value for its equity-holders is given by *F/r*, which considers the assumptions of an infinite forecasting period and a constant income flow. Another well-known model assumes an infinite income flow, which grows at a constant rate *g*. In this model, the value of the company for its equity-holders is given by $V=F/(r-g) \ \exists\, r>g$.

Other models establish forecasts of income flows during a limited period, and need to add a terminal value, which represents the remaining value after that period.

[5] In theory, assets-based valuation and income valuation define value equivalently. Assets-based and income valuation models are related through the actual return *r'* earned by a company on its equity capital. Considering an infinite and constant stream of income flow, the value of a company, using the income valuation model leads to $V=F/k$. If the company earns the actual return *r'*, the annual flow of income will be equal to $F=r'xB$, where *B* is the book value of the company. If the company earn the required return *r*, the periodic flow of income *F'* will equal $F'=rxB$. Thus, the value of the company will be $V=F/r=rxB/r=B$. This equation suggests that value can equivalently be defined as either a stock of assets or the flows those assets generate. However, in practice the two approaches to valuation lead to different values, the differences either being reported as goodwill or attributed to the lack of relevance of the accounting information which forms the basis for assets valuation.

[6] The discount rate is based on the opportunity cost of capital, which is the return that one can earn by investing money elsewhere, and is also based on the business risk.

Earnings valuation models[7] consider earnings as the appropriate income flow. These models can be used to valuate the equity of the company or the business, e.g. debt plus capital. To measure the latter the income flows to discount are the net operating income, e.g. earnings before the payment of interests, while to value equity, the choice will be the earnings after payment of interest, e.g. net income. In the theoretical development of these models, earnings are defined as being cash flows after the replacement of depreciated assets. The former calculates the value of a company by discounting the stream of future earnings after taxes. Net income, as defined in the accounting rules and reported by companies in the annual accounts is not the appropriate input for earnings valuation models.

Dividends valuation models require forecasting dividends to infinite or making assumptions about the terminal value. A well-known dividends valuation model is Gordon's model, which assumes an infinite income flow, which grows at a constant rate *g*. In this model, the value of company's value for its equity-holders is given by $V=F/(r-g) \quad \exists \ r>g$. Although the dividend model is easy to use, it presents a conceptual dilemma: Modigliani-Miller's finance theory states that dividend policy does not matter, or the pattern of dividends is irrelevant. Future dividends depend on the earnings stream, which the company will be able to generate. Thus, the company's expected future earnings are fundamental to such a valuation. Some companies, such as high-growth companies, often do not pay dividends, as they reinvest all the funds available. When dividends are not paid out, the company accumulates value in the form of reinvested earnings. Alternatively, if a company pays dividends, the level of dividends may be a management's discretionary choice, constrained by available earnings and legal biding. In another extreme, companies sometimes pay dividends right up to bankruptcy.

Discounted cash flow valuation models[8] relate the present value of expected future cash flows to the equity-holder or to all those who finance the business, debt-holders included. Cash flow is usually defined as earnings before interest, taxes, depreciation and amortization. The reasons of analysing earnings before interest, taxes, depreciation and amortization are that cash flow is designed to focus on the operating business, that is free cash flow. Taxes, for example, are directly affected by the laws in force and can cause fluctuations in earnings power. Estimated free cash flows, as well as terminal value, are discounted to present using an appropriate discount rate. To value the business, free cash flow is defined as the cash available to debt-holders and equity-holders after investment. Free cash flow is the net operating income before replacement of depreciated assets minus replacement of depreciated assets and new investment[9]. The free cash flow approach calculates the estimated value for the business. There, the discount rate reflects the risk of the estimated cash flows for both equity-holders and debt-holders. It is defined as a weighted average of the cost of equity and the cost of debt. Equity value can be obtained by subtracting the value of debt from the business value. It is derived from the sum of the functional enterprise value and of the non-operational assets less interest-bearing debt.The terminal value is computed on the basis of a realisable sustainable company's performance.

The free cash flow has the advantage that differences in accounting policies and of income versus cash flows disappear. Two examples can illustrate this conclusion. First, it does not matters whether or not a cash flow is treated as principal or interest, as all payments to creditors are excluded from free cash flow. Secondly, whether accounting recognizes one item as cash from cash from investment or cash from the operations (e.g., capitalizing versus expensing) does not make any difference as the focus is on free cash flow.

A recent variant of discounted cash flow valuation is the *adjusted present value* model. It is based on discounted future free cash flows but the operating enterprise value is strictly separated from the financing and tax impacts. The adjusted present value model is especially suitable when valuing companies with a large and substantially varying proportion of debt.

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[7] *Earnings valuation model* is also known as *capitalised earnings value model*.

[8] *Discounted cash flow valuation* is usually known by the abbreviation DFC.

9 The free cash flow is equivalent to adjusted cash flow to operations, e.g., net operating income plus adjustments minus cash for new and replacement investment.

The *residual income valuation models*[10] calculate the value of a company as a sum of the capital currently invested and the present value of future economic profits. The capital currently invested is calculated on an assets basis, while the economic profit, or goodwill, represents the part of the income that remains after deducting a normal return rate on the invested capital (discounted value of abnormal earnings generated by these assets). In other models, which do not compute the goodwill separately, it should appear through an indirect via, as the positive difference between the results obtained when applying the income approach valuation and assets valuation models. Although residual valuation models were important in the past, especially after UEC (1961), they had lost importance until the appearance of the economic profit concept developed by Stewart (1991). Stewart's model is playing an increasingly important role as a performance measurement and management instrument.

Relative valuation models[11] calculate the value of a company through the application of current market prices for comparable companies. The value of the equity in a firm is based upon the pricing of comparable firms relative to earnings, cash flows, book value, or sales (Damodaran, 1996). Two models of relative valuation are comparable company analysis and comparable transaction analysis. The former, which is called multiples valuation, consists of deriving multiples from comparable quoted companies and then applied to the company being valuated, which is a non-listed company. The latter is performed in a similar way, but the calculation of multiples is based on data from historic transactions of private and non-quoted companies. Common forms of multiple valuations include comparisons of price-to-earnings (P/E), ratio price-to-book-value (P/B) ratio, price-to-dividends (P/D) ratio, price-to-cash flows (P/CF) ratio, and price-to-sales (P/S) ratio. Application of any of the forms involves using the current stock price and recent accounting data. The resulting ratio is then compared to an estimate of the appropriate ratio based on company fundamentals, results for comparable companies or the comparable industry, or results from another time. One illustration of this kind of approach is the use of an industry-average price-to-earnings ratio to value a company, assumptions in this case being that the others companies in the industry are comparable to the one being valued and that the market, on average, prices these companies correctly. An objection to relative valuation is the fact that management's financial reporting choices affect reported book value from period to period for a given company, and at, any given point in time, they affect comparisons of book value across companies.

Options valuation models, and specifically, real option valuation combines the investment, decision and option pricing theories with methods of strategy evaluation, such as SWOT analysis and scoring models. These models have been applied more in strategic consulting than in companies' valuation. There, decision-making processes improve because real option valuation identifies and quantifies the strategic courses of action better than other models. Although option valuation models have been known since Black and Scholes (1973), they are still used in a limited basis. One must admit that papers and main text book on option pricing, such as Dixit and Pindyck (1994) and Trigeorgis (1996) have been restricted to academics and scientific community perhaps due to the fact that they are hard to read. More readable books, such as Copeland and Antikorov (2001), only appeared later.

The random nature of cash flows and earnings and the difficulty in assessing whether reported amounts of income are permanent (will persist in the future) or transitory (non-recurring), difficulties in forecasting over a limited horizon, and the fact that the choice of accounting policies and discretionary management policies may affect the measurement of assets, earnings and cash flows result in different valuations when using each one of the valuation models above described.

[10] The *residual income model* or *Edwards-Bell-Ohlson* (EBO) is based on works by Ohlson (1995) and Edwards and Bell (1961). In practice, these models of valuation calculate the goodwill. The so famous economic value added (EVA) and market value added (MVA) are derived from these models.

[11] *Relative valuation models* are also called *market-based business valuation models.*

4. RESEARCH FRAMEWORK

This paper aims at analysing the practice of companies' valuation by Portuguese official auditors[12]. The empirical research is based on an inquiry and submitted to a panel compounded by twenty auditors. The questionnaire includes thirty-two questions and covers several topics of the valuation process, such as the purpose of the valuation, data collection, valuation models, and methods used in practice. The panel of auditors validated the questionnaire in terms of contents, consistency, clarity, accuracy and reliability. Table 1 lists the topics asked to the auditors.

Auditors´ demographic profile (6 questions)

- Gender.
- Age.
- Education (degree and diploma).
- Occupation (professional and academic).
- Organisation (individual auditor or member of a company of auditors).
- Existence of a real or past link to an international consulting or auditing company.

Participation in valuation (4 questions)

- Valuation frequency.
- Purpose of the valuation.
- Size of the valuator' team.
- Composition of the valuator' team.

Preparation of the valuation (3 questions)

- Due diligence process.
- Analyses of the business and industry (SWOT analyses and legal background).
- Type of data (historical versus forecast, and financial versus non-financial data).

Models of valuation (19 questions)

- Frequency of use.
- Assets valuation
  (purpose of valuation, valuation basis, and adjustments to accounting numbers).
- Income valuation approach
  (basis for earnings forecasts, income flows - earnings, dividends and cash flows, basis for estimation of the discount rate, horizon of explicit forecasts, and assumptions on terminal value).
- Residual income valuation
  (direct versus indirect valuation, goodwill estimated life, and amortisation period).
- Relative valuation
  (type of multiples, price, period of data, and comparables).
- Option pricing.

Table 1. Type of questions submitted to the auditors

The next section presents and discusses the most relevant results in the auditors' answers to the questionnaire.

[12] For the present date, this study is the only about the models of companies' valuation adopted by the Portuguese auditors. Using a similar research framework, Ansón Lapeña (1997), submitted a questionnaire to the Spanish auditors with questions about the relevance of accounting information in the process of valuating companies.

5. INTERPRETATION OF RESULTS

Twenty auditors compound the sample. Figure 1 shows the gender and the age of the inquired auditors. Most of them, 90% are men, and only 10% are women. The average age of the auditors in the sample is 47, being the youngest 31 years old and 30% of them over 54.

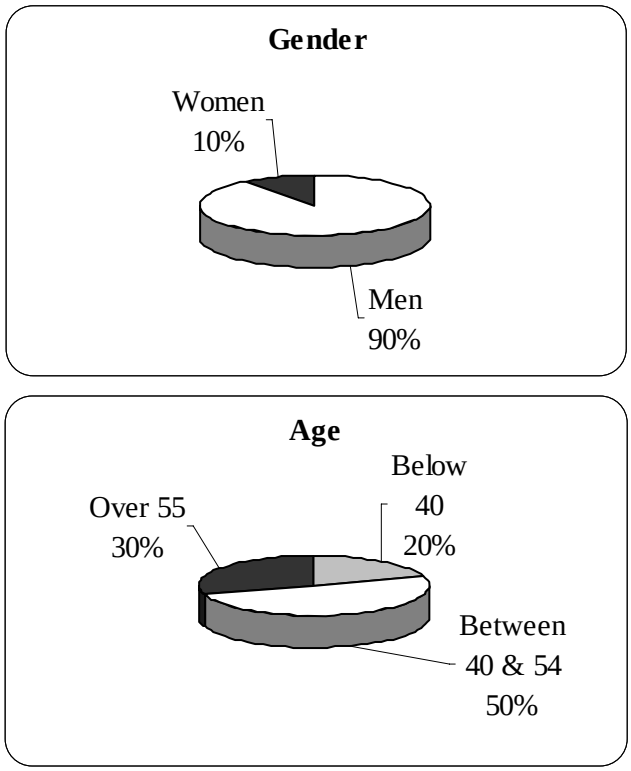
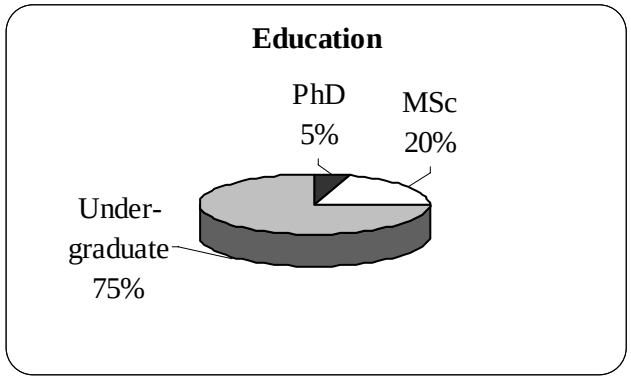


Figure 1. Gender and age of auditors

Figure 2 illustrates education level and the type of diploma. Concerning auditor's education, 5% have got a PhD, 20% obtained a national master's degree diploma at a Portuguese state-owned university, 40% have got an undergraduate degree in accounting or auditing in polytechnic accounting schools, 30% studied business administration at the university and the remaining 5% of auditors, representing 1 auditor, who is the eldest in the sample, have got a degree in law. Only 10% of the auditors benefited from in international education and 90% studied in Portugal.



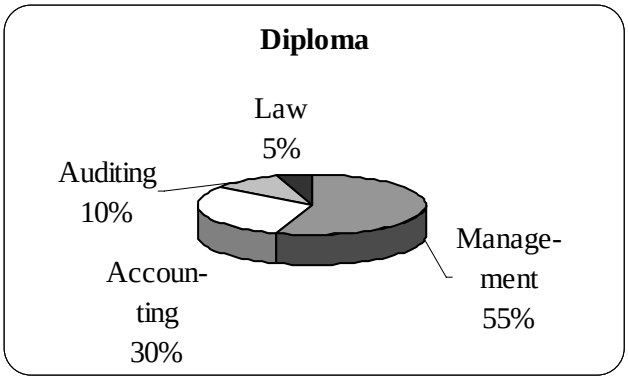


Figure 2. Education level and type of diploma.

Table 1 shows the occupation and type of organisation of the auditors. The majority of the auditors, 70%, have been acting as individual auditors, and 30% are members of an auditors' society. From the latter, 10% had worked or are presently working in one international auditing company. Among the auditors in the sample, 10% are also qualified as external auditors. Out of the total, 35% auditors are professors at Portuguese universities.

Table 1. Occupation and type of organisation.

		Type of organization		**Total**
		Individual	**Society**	
Occupation	**Academic and auditor**	15%	20%	35%
	Auditor	55%	10%	65%
	Total	70%	30%	100%

For typical auditors, valuation of companies may be viewed as a diversion from their main activities and usually occupies little of their time, 85% of them have been active part in process of valuating a company in the last two years, and only 15% responded to have not participated in the valuation of companies in that period, although they did it before. The valuation of companies is a task that the auditors do not perform too often. Among the 85% of auditors who acted as valuators, in the last two years, the majority of them, 70%, say to have valuated companies, on an average, once a year, while 10% valuated companies twice per year and 5% more than two times.

Auditors have valuated companies for several purposes. By decreasing frequency of times, auditors answered to have been active part in valuation of companies within the last two years as follows: 65% of auditors have valuated companies for increases in the nominal capital, 25% of auditors have valuated companies for verification of non-monetary entries for the equity investment, 10% of auditors have valuated companies in view of liquidation, and only 5% of auditors have participated in valuation for merger, this being an auditor who has been working for an international consulting firm in auditing and taxation. None of the auditors in the panel participated in valuation for spin-off. More than 50% commented to have dealt with implications of taxation on equity valuation.

Auditors usually work in teams when valuating companies. From the total, only 10% have valuated companies alone, 60% of the inquired auditors referred to use a two members' team and the remaining 15% a three or members' team. When asked about the size of the working groups, the auditors referred that they range from 2 to 5 consultants.

The auditors consider that valuation of companies is an interdisciplinary study, as 100% of them answered that it relates to finance, economics, accounting and law. A minority of auditors added

to be necessary some knowledge in engineering and real state appraisals, 20% and 35% of auditors, respectively.

Concerning the models which have been used by auditors to valuate companies, they are, by decreasing order of importance, as follows: assets-based valuation, discounted cash flow, residual income valuation, earnings valuation, relative valuation, dividend valuation, and finally options valuation. The type of data (historical versus forecast and financial versus non-financial data) collected by the valuator varies. Figure 3. is a perceptual chart showing the percentage of use in the valuation models in function of the type of data.

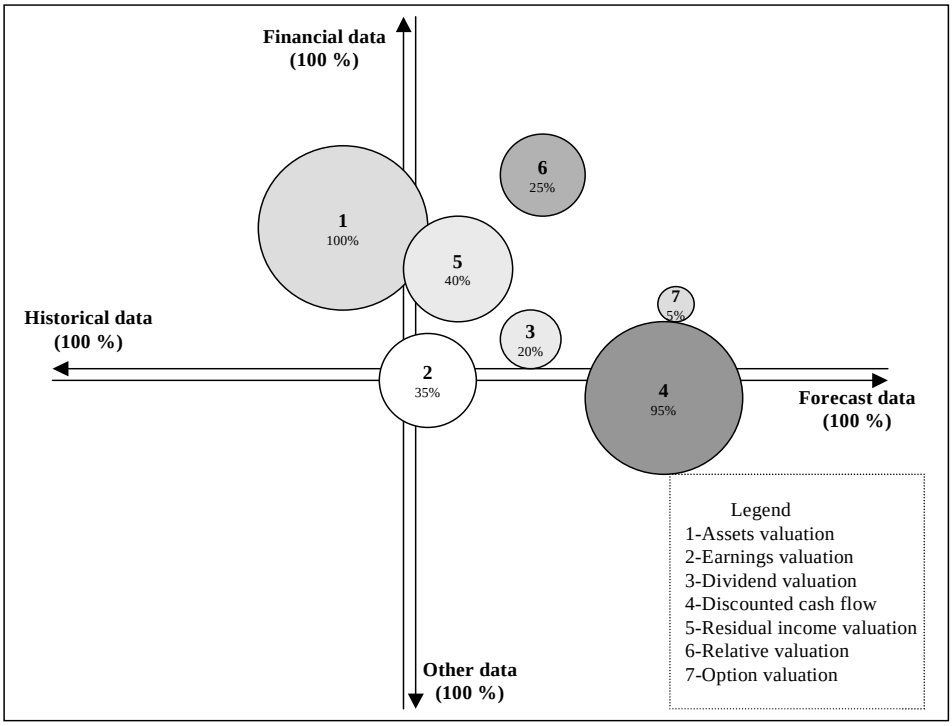


Figure 3. Percentage of use in the valuation models in function of the type of data.

The following paragraphs contain a summary of the answers and comments obtained from the panel concerning the seven models of valuation[13].

Assets-based valuation - All the auditors answered to have used assets-based models of valuation. The auditors' answers suggested that the application of assets-based valuation models in situations of going concern is not limited to the evaluation of whether the substance needed to continue business is present. A majority of auditors, 90%, applied the assets valuation in cases of going concern simultaneously to others models of companies valuation. Only two auditors, representing 10% of the total number of auditors, mentioned to have used the assets-based valuation alone and exclusively when valuating a company, 5% when the company went to liquidation and another 5% in a going concern case, the latter being the auditor in the sample who had got education in law. All the inquired auditors considered the equity book value as the basis to assets valuation, and all of them confessed to have adjusted the value of accounting assets. However, 65% of the auditors answered not to have adjusted accounting values of liabilities. Only 10% of auditors mentioned to separate assets from the operations from other assets non-in use, and to have treated these two groups of assets separately for valuation purposes. Thus, one may conclude that 90% of the auditors are being conservative when

[13] The results concerning the answers to the questions about valuation models are computed considering that all the auditors in the panel, 100%, have already been active part in companies' valuation in any time, not only in the last two years.

applying assets valuation models, as modern approaches to assets valuation recommend the said separation of assets. Regarding the adjustments to accounting book values, the sources of information mostly named by the auditors are the notes to the accounts, the certified statutory audit, the articles of the company, and the external audit. Additionally, 55% of the auditors mention to undergo a special audit for the purpose of valuation, which may be part of the due diligence of the company previous to the valuation.

Earnings valuation - The auditors' answers suggest that, in practice today, this approach plays a minor role. Only 35% of the auditors used earnings valuation models. This is consistent with modern theory, which critics' net earnings as an appropriate income flow due to the fact that they come from accounting and have transitory components. All the auditors who used earnings valuation models indicated that the historical income statement was the basis for the estimates of income flows, does showing conservatism in valuation.

Dividend valuation – 80% of the auditors did not use dividends valuation, arguing that the companies they valuated have not paid any dividends. The remaining 20% of auditors who applied dividends valuation have used the model as complement to other models and because dividends are easy to compute. All these auditors based forecasts of dividends on historical accounting data (proposal of application of results). Auditors also mentioned to consider dividends constant and equal to the average dividend obtained in the past and as perpetuity.

Discounted cash flow valuation - has been one of the most popular models used in the valuation of Portuguese companies by auditors. Only one auditor, representing 5% of the auditors, did not use discounted cash flow valuation, this being the auditor who had got education in law and the eldest in the panel. The majority of auditors, 75%, refer to have adopted one variant of the model presented by Copeland *et al*. (1995). It is worth to say that 20% of the auditors mentioned Copeland's book when justifying their choices concerning the forecasting of future cash flows and the estimation of discount rates. One auditor, representing 5% of the panel, referred to the booklet about valuation published by the Portuguese Order of Statutory Auditors in 1992, which contains an explanation and examples of application of Copeland's methodology on valuation.

In the absence of formal forecasts in the company to be valuated, all the auditors indicated to perform the forecast based on the managers' opinion and other relevant data collected during the SWOT (strengths, weaknesses, opportunities, and threats analysis) analysis period. All the auditors believe that past years accounting numbers and the managers' opinion are relevant to decide trusting in the budgets, as well as where budgets do not exist. Additionally, where the company's managers prepare budgets or corporate plans, 10% of the auditors referred to have examined those reports and checked the underlying assumptions as a basis for forecasting the expected future cash flow. Another 20% of auditors informed to have use past experience and personal judgement as a comparison term where to decide about accepting or reviewing the assumptions.

There is a consensus among auditors in the panel about the estimation of cash flows. All of them have adopted nominal and after taxes cash flows when valuating companies, and accordingly used nominal discount rates, e.g., 95% of the auditors did it.

In what concerns discount rates, all the auditors who adopted discounted cash flow valuation, that is 95% of the auditors in the panel, estimated nominal and after taxes rates, thus the need to estimate inflation rate and adjust for it. Some 55% auditors used the CAPM (Capital Assets Pricing Model) as a basis for estimating the discount rate, 30% asked to company's managers, which rate they expect to gain, and 10% adopted the interest rate that the company under valuation is currently paying over bank loans in the medium and long range. Not all the auditors clarified how they estimated the risk premium, although all referred to adjust for inflation, 35% indicate to adjust for financial and operating risk of the company, and 20% to adjust for industry risk, the latter including the auditors belonging to the lower age level. One may conclude that strategic issues related to SWOT analyses and macroeconomics domestic and international risk

is not in the mind of the older auditors, thus revealing some conservatism in the adopted proceedings.

The total period for explicit forecasts of cash flows differed among the auditors in the panel. A minority of 20% of auditors used the perpetuity model considering a constant cash flow, while 75% of auditors adopted a limited period. The majority of auditors limited the forecasting horizon: 70% to five years, and 5% to 10 years. Thus, five years is the period of forecast most frequently used by auditors in their valuations. Behind this evidence may be the fact that there is a Portuguese law[14] with the recommendation to adopt a five years period, namely when valuating state-owned companies, shares and quotas.

The subgroup of auditors who limit the forecasts to a fixed number of years, were asked about terminal value. The auditors' answers indicate that 40% of them did not calculate the terminal value. This set includes auditors who have not been part in companies' valuation during the last two years. These auditors, however, did adjust neither the discount rate nor the expected future cash flows for risk. Thus, one may conclude that these auditors are conservative, as they used an archaic way of including the risk in the valuation. Another 35% auditors made the calculation on the basis of the assets valuation and after discounted the value using the same rate which was adopted for forecasts of cash flow, but it is not clear, from the answers of the auditors, which premises they used to estimate the terminal value.

Residual income valuation models –Auditors who have applied residual income models represent 40% of the panel. The majority of them, 30%, mentioned to have directly calculated the goodwill, adopting the formula in a law dating back to 1986[15]. According to the legal formula, goodwill is a stream of revaluated accounting earnings, with an estimated life of 5 years and should be amortised. Calculation is made after taxes and the discount rate adjust for inflation. None of the auditors in the panel used the adjusted present value, which is a modern model of valuation. Again, the conclusion is in favour of conservatism of the auditors.

Relative valuation – Auditors in the panel have used relative valuation in a limited basis. Only 25% of them used relative valuation and all in this minority referred to this type of models as being complementary and used to check plausibility of discounting cash flow valuation. All these auditors computed both PER and PBV, but not other multiples. The reasons invoked by the auditors to have applied relative valuation are to check information and value obtained through other criteria. One auditor highlighted the simplicity of relative valuation, namely, the fact that it can be completed with fewer assumptions than a discounted cash flow valuation. Another auditor said that a relative valuation is simpler to understand and easier to present to clients than a discounted cash flow valuation. Auditors who did not adhered to relative valuation, 75%, justified their decision as follows: "one problem in applying relative valuation models in Portugal is the possibility of finding comparables companies" and "it is not possible to assure that the market price reflects a high frequency of trade".

Real option valuation - Concerning option pricing, only one auditor, 5%, who is a professor and is among the youngest in the panel, confessed to have used option pricing (real options) when valuating companies.

Among the auditors' comments to open questions, which may help getting some insight into practices concerning the valuation of companies are the following phrases quoted from their answers, about special cases in valuation, namely, non-listed shares, preference shares and non-voting shares:

– The only difference between listed and unlisted shares is non-tradability and thus, eventual restrictions transfer;

[14] The valuation model is published in a regulation issued by the Ministry of Finance, namely *Despacho Normativo* 1169/86/X, dated of September 9, 1986.
[15] Idem.

– The value of preference shares will be affected by the rights attaching to them under the articles of association of a company;

– The value of non-voting shares will be subject to a discount from the value of a similar voting share, so that where the owner of a non-voting share paying dividends regularly, the discount for non-voting rights tends to be smaller. And when the owner is a member of the board of directors who earns participation in profit as a form of remuneration, this affects the value of such shares.

The majority of auditors, 70%, have simultaneously applied more than one valuation model, with only 15% of auditors mentioned to have used one only model each time they have been evolved in companies' valuation. Considering only those auditors who adopted various valuation models, 55% of them assigned a final value to the company as being the arithmetic average of the values previously obtained from the individual models they used, usually three. The remaining 15% of auditors do not compute a single number as the value for the company, instead, they conclude that the value should be situated in an interval, which boundaries are the values obtained from the individual models adopted.

6. CONCLUSION

Auditors' frequently use several different models when valuating a company, depending on the purpose of the valuation and in order to check the plausibility of other models.

The most widely used is the assets-based valuation (100% of auditors), followed by discounted cash flow valuation (95% of auditors), residual income valuation (40% of auditors), and earnings valuation (35% of auditors). The relative valuation is used only as a complementary method (25% of auditors) and the dividend valuation is exceptional (20% of auditors). Auditors do not apply real options valuation (5% of auditors).

Thus, the conclusion is that auditors generally apply the traditional models, in comparison with dynamic models (option valuation). Possible reasons for the prevalence of conservative models are the average age of auditors being 49, past experience, education and the context. However, when analysing the sample by age levels, it is recognised that they are really innovative once auditors belonging to the age level below 40 years (20% auditors) are those who use options pricing valuation and more modern discounted cash flow valuation. Additionally those auditors (15% of auditors) who have not valuated companies during the two last years are those that are more conservative.

Possibilities of applying more innovative issues to valuate companies depend upon diffusion and training of these modern models. However, other variables may interfere, such as the legal background, the purpose of the valuation and the company itself.

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