QUANTITATIVE CRITERIA DETERMINING THE SELECTION OF MULTIPLIER METOHODS IN VALUING A SMALL ENTERPRISE BASED ON DENTAL SERVICES

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Purpose: The main purpose of this article was to present the key factors determining the valuation of a small business. As part of the research conducted, quantitative criteria determining the economic value of small businesses were defined and evaluated. The article presents the most commonly used multipliers and their importance from the perspective of determining the value of a small business. The key factors shaping the value of a small business taken into account in determining the weights necessary for the preparation of a valuation are included in the analysis. Small entities are defined as enterprises whose competitive advantage and high profitability is conditioned by the specialised knowledge and education of their owners, who usually practice the so-called liberal profession. The choice of dental services was dictated by the specificity of the business to be valued, the fact that one business can be run by people with similar specialisations.
Design/methodology/approach: In order to answer the research question posed, an analysis of the financial statements for the years 2016-2020, i.e. a period of 5 years, was carried out. Due to the COVID-19 pandemic, the financial situation of enterprises before the pandemic was also taken into account, with the assumption of a period of stabilisation of the financial situation in 2016-2019. The structure of current and non-current assets and its impact on shaping the financial result of the enterprise was assessed. The research was based on the financial data of 15 enterprises operating in the dental services industry located in the capital city of Warsaw.
Findings: Preliminary results of the study showed that the value of a dental practice is most strongly shaped by factors such as the stability of staff employment and investment in facility equipment. The performance of businesses related to the COVID-19 pandemic did not significantly affect dental businesses.
Originality/value: The topic addressed is a new issue from the quantitative side. It combines a very diverse range of issues, taking into account both a quantitative approach focused on financial analysis and a qualitative approach relating to the assessment of the situation by consumers of medical services. The essence of the issue taken up is that it relates to the specifics of the liberal professions, the way of valuation of which differs from other businesses.
Keywords: business valuation, freelance, multipliers, financial performance.
Category of the paper: Scientific paper.

Introduction

In the practice of business valuation to date, the defined, accepted and commonly used methods for determining the value of companies are the income, asset and comparative methods. Guidelines for their application have been adopted in Interpretative Note No. 5 - General Principles of Business Valuation and the RICS International Valuation Standards. The adopted standards have been developed by the professional business valuation community and their purpose is to set out principles of good professional practice in business valuation. These standards do not impose on analysts the need to use selected valuation methods, the appropriate selection of which affects the outcome of the valuation and depends on many factors both tangible and intangible taking into account the nature of the business. The state of knowledge to date indicates that there is little interest in the issue of determining the value of a small company, and many researchers apply the same standards for determining the value of small companies as for large companies, using only simplifications resulting from the lack of obligation to use full financial reporting. Data from the Central Statistical Office shows that the number of non-financial enterprises has been steadily increasing over the last several years. Data from the Central Statistical Office shows that the number of non-financial enterprises has been systematically increasing over the last several years (from 1,727,000 in 2010 to 2,262,000 in 2020), of which the vast majority were SMEs. In 2022, the share of micro-enterprises accounted for 97%, while small companies accounted for 2.2% (Raport PARP, 2022, p. 12).

The increase in the number of companies, the scale of mergers and acquisitions, changes in capital, tax, civil, insurance and compensation proceedings require research to focus more on highly specialised companies providing services to the general public.

The choice of the right method, which in turn depends on a correct assessment of the factors that make up the value of a business, leads to a division in the valuation process between 'traditional businesses' and 'specialised professional practices'. Specialised professional practices are defined as enterprises whose competitive advantage and high profitability are determined by the expertise and training of their owners, who are usually self-employed. At present, both academic output and practice in determining the value of a business have been little directed towards developing appropriate valuation methodologies for small businesses. Nor have the value-creating factors of small enterprises, whose source of competitive advantage lies in the role of endogenous factors, both tangible and intangible, been identified. The available results from studies carried out in other countries indicate that there are no homogeneous factors that shape the value of all small enterprises without taking into account their business profile. The literature points to specific valuation standards for individual activities (Table 1).

Table 1.
General valuation standards in different industries

Type of business	Practical principle applied in valuation
Accounting firms	100-125% of annual revenue
Car sales	0-10% of annual sales + inventories
Bookshops	15% of annual sales + stock
Cafes (exquisite)	40% of annual sales + stock
Day care centres	45-50% of annual sales including stock
Dental practices	60-65% of annual revenue including inventories
Dry cleaners	40-45% of annual revenue
Engineering services	30-35% of annual sales + inventory
Florists	30% of annual sales + inventories
Grocery shops (delicatessens)	15-20% annual sales + stock
Petrol stations (excluding shops)	35% of annual sales including stock
Gift shops	45% of annual sales including inventory
Hardware shops	125-150% of annual revenue
Insurance agencies	45% of annual sales
Landscape companies	90-100% of annual revenue
Law practices	40-45% of annual sales + inventory
Liquor shops	30-35% of annual sales + inventory
Full service restaurants	30-40% annual sales + inventory
Restaurants (limited portions)	25% of annual sales + inventory
Sports equipment shops	40% of annual sales + inventory
Taverns/bars	35-40% of annual commissions
Travel agencies	70% of annual revenue + inventory
Veterinary practices	

Source: Alhabeeb, 2014, p. 307.

Difficulties associated with establishing the value of small businesses whose activities can be recognised as a specialised professional practice include: the lack of diversification of activities due to the high level of specialisation and unique skills of the business owner, the high correlation between the specificity of the services provided and the level of intellectual capital of both the owner and employees, and the high proportion of intangible assets in total assets. Current value standards in business valuation refer to very generally formulated values and concern: fair market value, fair value, investment value and intrinsic value. However, there is a lack of any standards or research results in the area of standards relating to specialist practices. The literature explicitly points out that in the theory and practice of business valuation no standards have so far been developed for the valuation of goodwill (the intangible aspects of a company) (Zarzecki, 2010, pp. 89-98) and the research results presented in the studies refer to the American experience, which is of little use from the perspective of Polish economic realities. The factors shaping the value of specialised practices have not been sufficiently verified on the basis of data and financial results of companies operating in the Polish economic reality. Generally, the factors characterised and quoted in the literature do not include weights and are not classified according to the legal form of the business, the type of services provided or the location of the business. The methods currently used to determine the value of a small enterprise (without distinguishing its specifics) focus on the use of comparative methods, as defined in Interpretative Note No. 5. This is one of the methods that allow the value of intangible assets including goodwill of a company to be determined. Within the comparative

approach, three methods of valuing intangible assets are distinguished: the method of comparable uncontrolled transactions, the method of comparable profit margin, the method of exemptions from fees for the use of intangible assets. However, available studies indicate that these cannot be the only approaches used in practice (Szymański, 2021, p. 303).

Results of research carried out to date

The results of the completed research indicate the high importance of tangible (financial) as well as intangible (reputation) factors in shaping the value of dental practices. The development of appropriate multipliers to be taken into account in the valuation focuses on determining the importance of the individual factors. 'Dental practices are mainly differentiated by the amount and modernity of equipment. In addition, the number of dental practices is greater than practices of other medical specialities. Therefore, special valuation standards are developed for them (Kuczowic, 2012, p. 194).

As indicated in the literature, the value of a dental practice is shaped by the following factors: local economic conditions, age and condition of equipment, location, types of procedures, staff competence and experience, size of the practice, staff specialties and medical procedures used, as well as the terms of the facility lease (Michael, 2022, pp. 1-35).

Valuation of a dental practice taking into account the specifics of the activity requires not only taking into account the appropriate determinants but also requires knowledge of the industry in preparing the valuation, which clearly indicates the lack of possibility of developing uniform standards that could be included in the valuation of small specialist enterprises. Currently, there are two approaches used in the world in the valuation of dental practices. The first is the market approach. The market approach to valuation uses comparable previous sales transactions of similar practices to determine the value. The second commonly accepted valuation method is the profit capitalization approach. The profit capitalization approach uses the concept that a multiple of profits or capitalization of profits is a justified return on investment and therefore a justified value. This method is considered to be too often overused. The method based on the financial results of the practice is called the industry rule of thumb method. The disadvantages of this method include the number of different multiples that are used for the same type of practice (Trugman, 2018).

Important factors such as the possibility of relocating the practice, its size and the numbers of existing and new patients are also pointed out. It should be noted that the valuation methods commonly used and indicated in the literature are not reflected in the Polish reality. 'Some appraisers use the direct market data method in determining the value of a dental practice. This method attempts to determine the value of the practice using market data. This method typically multiplies gross revenues by a multiple derived from one or more

databases that track the price to gross revenue ratio of sold dental practices. The valuator typically attempts to determine whether the practice being valued has more or fewer strengths and weaknesses than a typical or average practice. This assessment is then used to determine whether the multiplier to be used will be more or less than the average multiplier. The choice of multiplier is usually subjective and depends on the valuer (American Dental Association, 2006, p. 48).

In the studies carried out to date, great importance is attributed to location and patient turnover and potential for loss of patients. 'Location factors include town size, location near shopping centres and patient demographics. The potential loss of patients was analysed from the perspective of the sale of the dental practice and accounted for approximately 10% (Dunning, Lange, 2016, p. 91).

It is important to note that secondary data, that is, data on completed transactions and conducted valuations, is currently used worldwide in valuing a dental practice. For example, the 'goodwill registry located in Plymouth Meeting, Pennsylvania, has collected data received from appraisers, auditors, business brokers and lawyers who have sent valuation information over many years. The methods used by the analysts identified in the registers were comparable market sales, gross revenue multiples, discounted cash flow, surplus earnings capitalisation and income capitalisation methods (Rawley, Benton, 2009).

However, the key factor for proper valuation of a company is the significance of the multiplier used in the valuation. "In this method, the valuer multiplies the current gross revenues achieved by the dental company by the company value ratio. According to research, the price to revenue ratio (P/R) for general dental practices, maxillofacial surgeons and orthodontists in 2010 was approximately 60% (Brown, 2020, pp. 36-46).

Currently, the largest database is available in Canada and the US. The appraisers' work uses the 'Private Company Pricing Line Addendum (IPCPL), a resource useful for smaller companies with revenues of less than $10m a year. This database uses private (and some public company) resale statistics to develop a discount rate calculator specifically for private companies by regressing the prices actually paid for 500 private companies over the past few years, the equivalent discount rate and revenue (Feder, Rosoff, 2000, p. 13).

According to the results of research available so far, based mainly on experience from the US market, it is currently not possible to implement multipliers used in other economic realities. It should be noted that sale and purchase transactions cannot be the only point of achievement for determining the value of an enterprise, therefore it is important to determine both financial and non-financial factors determining the value of an enterprise in a specific economic reality, taking into account the specifics of a given small enterprise.

Purpose and research methods

The main objective of the article was to define the factors determining the value of small enterprises operating as a capital company by persons representing liberal professions (according to the definition of liberal professions contained in Article 88 of the CCC).

The research was carried out on the basis of basic balance sheet data and financial results of enterprises in the dental services industry, on the example of 15 treatment entities operating in the central districts of Warsaw. Financial data was obtained from the National Court Register. The years 2016-2020 recorded in the balance sheets and profit and loss accounts of the dental services analysed were analysed. The criterion for selecting the sample for the study was the lack of possibility to diversify the business due to the high level of specialisation and unique skills of the business owner. Only homogeneous and diversified dental services were included in the sample selection. Companies whose business consisted of combining dental services with other medical services and chain establishments were excluded from the study.

The focus of the study was to establish the impact of quantitative financial factors on the formation of company value. It should be noted that the available publications also point out that there are no formal rules for company valuation that indicate the differences between small and large entities (Zarzecki, pp. 261-274).

The main value factors were developed on the basis of the links between the DCF (income) approach and the specificity of the value of small businesses. However, the terminology used most often refers to 'small enterprises', and in the available studies the authors focus their considerations on an attempt to characterise the factors identifying their value. It should be noted, however, that the term 'small enterprises' does not clearly indicate which group of entities is meant. The definition of a small enterprise appears in many legal acts and is very broad. However, no provision clarifies the essence of a small enterprise from the perspective of the factors affecting its value for both customers and stakeholders. In addition, the factors that build the value of a small business often identified as important in the literature are not the same as those that influence the value of specialist practices run by professionals. The aim of the study was to verify whether the factors indicated in the literature as important from the perspective of value creation of a small enterprise are equally important from the perspective of value creation of a dental practice. A key element in the selection of enterprises for the study was not so much professionalism as specialisation. Entities comparable in size and scope of services were accepted for the study. The study examined the relevance of the factors shaping the value of a dental practice, such as:

- the sustainability of employment (measure: % share of salaries in operating costs),
- the level of investment in the equipment of the establishment (measure: % share of fixed assets in the balance sheet total),

- the ownership status of the real estate on which services are provided (measure: % share of the value of buildings in the value of fixed assets),
- demand for services (yardstick: average level of revenue generated in selected years),
- the position of the service provider in the market (measure: how long the service provider has been operating in the market).

The method used in the study was to analyse the data recorded in the financial statements for the years 2016-2020 in order to establish coefficients such as: % share of fixed assets in total assets, % share of equipment in total assets, % share of salaries in operating costs, % share of building value in fixed assets, number of years on the market, level of revenue (cv).

The study also defined ranges for the relevance of the individual attributes allowing specific weighting to be assigned to the selected company operating in the dental services market. The analyses also determined the impact of the COVID-19 pandemic on the financial performance achieved. The study focused exclusively on financial factors. The results obtained were confirmed in the statistical analyses for which the following methods were used: descriptive statistics, Pearson's correlation coefficient and the t-student's statistical significance test.

Results

As can be seen from the analyses carried out, the market for dental services, despite the homogeneity of the services offered, is differentiated in terms of the relevance of the various attributes to both building the value of the business and the financial results achieved. The analysis of the revenue generated from the core business between 2016 and 2020 showed that the COVID pandemic did not significantly affect the level of sales revenue generated. Relative to the 2016 base year, at the end of 2020, dental companies increased their revenues by nearly 40%. No significant correlation was found between the amount of revenue achieved and the number of years an establishment has been in business.

Table 2.
Structure, quartiles and volatility of dental revenues from 2016 to 2020

Years	Mean	Median	Minimum	Maksimum	Lower quartile	Upper quartile	Standard Deviation	(cv)
2016	3 114 322,96 zł	1 446 322,40 zł	0,00 zł	10 762 979,12 zł	811 121,50 zł	5 738 574,89 zł	3 544 569,42 zł	113,8151
2017	3 488 109,29 zł	1 908 461,12 zł	0,00 zł	10 847 485,59 zł	567 939,20 zł	6 676 120,57 zł	3 627 752,93 zł	104,0034
2018	3 491 425,30 zł	1 748 637,52 zł	0,00 zł	10 941 847,00 zł	573 525,05 zł	6 558 876,33 zł	3 865 365,57 zł	110,7102
2019	4 234 737,13 zł	2 574 392,77 zł	0,00 zł	12 313 462,97 zł	529 262,71 zł	8 356 357,68 zł	4 305 236,09 zł	101,6648
2020	4 871 338,23 zł	4 500 126,46 zł	0,00 zł	11 457 332,50 zł	1 121 430,94 zł	7 621 181,41 zł	4 319 934,71 zł	88,6807

Source: own research.

The group of companies surveyed consisted of those operating in the market for between 2 and 20 years. No significant correlations were found between the amount of revenue generated and the number of years the practice had been operating in the market.

In the literature, an important role is attributed to the constancy of employment in shaping the value of a dental practice. As a financial measure, the share of salaries and its variation from year to year in operating costs is taken as a measure (table 2). The analysis carried out showed a large variation in the level of this measure and a lack of correlation between the amount of sales revenue and payroll liabilities. With regard to the importance of real estate ownership in shaping the value of the company, the % share of real estate value in the value of fixed assets varied greatly, and with regard to the sample analysed, only a few companies reported this balance sheet item in their financial statements. The average share was 38%.

With regard to the constancy of the sales revenue generated, examined as demand for services, its variability was not related to the level of employment. According to the studies carried out so far, the average share of fixed assets in the balance sheet total was 60%. However, the analyses carried out concerned dental practices in the US market, whose multipliers were established on the basis of actual acquisitions of medical companies in the US. The averages obtained in the study were compared with the results of the US study using the t-student test. The value of the calculated t-student statistic was -2.73 with a statistical significance level of $p = 0.02$.

The study confirmed that among the commonly cited financial factors shaping the value of dental practices, factors related to the level of fixed assets, such as equipment and facilities, as well as the stability of employment, are important. The results obtained only halfway confirm the correct choice of multipliers used in the valuation of this type of business. According to an analysis of the financial statements of dental facilities, the COVID-19 pandemic also did not significantly affect changes in the level of fixed assets held or the stability of employment. Only the level of fixed assets held by the facility, mainly plant and equipment, and the level of salaries showed a relationship with the level of revenue (table 3).

Table 3.
Average share of key financial drivers of dental practice value in total assets

	Mean	Median	Minimum	Maksimum	Standard deviation	CV
% share of fixed assets in total assets	40,40	34,83	9,71	85,59	25,87	64,05
% share of wages and salaries in operating costs	15,97	12,68	1,47	42,39	12,84	80,37

Source: own sources.

Discussion

According to the research conducted, not all aspects relevant to the valuation of a company can be determined on the basis of an analysis of financial statements, which is why it is important to include intangible aspects in the valuation as well; with regard to fixed assets,

an example is the modernity of the medical equipment and apparatus owned, as assessed by both owners and patients.

Despite the large number of buy-sell transactions carried out in the US market, most of the results obtained on the value of businesses in the dental services market need to be continuously updated in terms of price levels, which will change if only with medical advances. In addition, transaction data cannot be used for companies operating in other economic realities exposed to other risk factors. The pilot study showed that for dental practices operating in large cities located in business and commercial districts that are attractive, the equipment owned by the practice and the stability of the workforce are key to creating value for the service. The analysis of revenues shows that customers attach less importance to the location of the practice, which indicates the importance of specialisation and expertise in the choice of services. The analysis of revenue and revenue structure shows that revenue is not only determined by the number of customers, but also by the segmentation of services offered.

These results allow us to conclude that the development of appropriate multipliers for valuation would require a breakdown into specific areas of dental services, which internally prove to be heterogeneous. The research carried out does not fully confirm the results of the US study in terms of establishing the type of factors that create the value of a dental practice in terms of reporting. The lack of correlation between the number of years of operation of the practice and the amount of revenue generated may suggest both a high demand for dental services and indicate other factors of importance to the customer, such as price, qualifications possessed by employees. For the time being, it is necessary to carry out further more in-depth analyses that also take into account the importance of non-material factors involving both medical staff and patients, as well as taking into account facilities located in smaller towns.

Conclusion

The analysis of the available literature results indicates that there is little interest in conducting research on the application of multiplier methods in relation to Polish realities. Also, the available results of foreign research do not report up-to-date research results in the search for appropriate valuation methods for small enterprises characterised by high specialisation and knowledge of the owner and those providing dental services. At present, in Polish business valuation practice, the results of American experience are often used, which does not take into account the risk factors present on the Polish market. Our own research confirms the importance of only some financial attributes in creating the value of a specialised dental practice. So far, no universally recognised business valuation standards specify the methods that should be used to determine the value of a small business. There is also a lack of defined and research-confirmed multipliers that could be used in valuation processes. The lack

of sufficient scientific research in this area does not correspond to the needs and practical implications of using valuations of small businesses, which play an important role in court cases, compensation processes and purchase-sale transactions. With a view to further analysis, further research is planned, both quantitative and qualitative, to assess which factors most determine the value of a company.

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