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ACTUAL PAID COST OF EQUITY IN CONSTRUCTION*

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Abstract. The value of the cost of equity capital is very important, both for all businesses and for investors, as it expresses the return on invested funds and is one of the most important factors in decision-making. The aim of the article is to determine the value of the actual paid costs of equity capital in the construction industry in 2016-2019. The used data from the Cribis / Albertina databases were processed using changes in the undistributed economic result of previous years and the economic result of the current accounting period. The results found show that the average cost of equity in the years 2016 - 2019 ranges from 29.35 % - 37.81 % and the median values range from 16.43 % - 24.24 %. The benefit of the presented results is primarily seen in their possibility of subsequent prediction of future costs of equity capital. A limitation of the research may be in the data used, for which it is appropriate when it is the most recent.

Keywords: economics result; costs on own capital; share on profit; average; median

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1. Introduction

Not only in the Czech Republic, construction is one of the most important industries that have a significant impact on the economy of the entire country. The construction industry is one of the leading sectors in direct and indirect job creation and can respond very quickly and flexibly to various changes in the behavior of investors and others (Busina and Sikyr, 2014).

The construction industry is therefore the main developer of various buildings, which are among the essential components of investments or the creation of gross fixed capital in the entire economy (Vochozka et al., 2015).

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Vochozka (2018) further states that the construction industry has an optimal amount of assets, an acceptable financing structure and an adequate economic result.

The topic of the cost of equity capital applies to every business, as the cost of equity capital refers to the returns that are required by the owner for a given investment or project. It is therefore necessary information needed to make the right decision, and this is one of the most important activities that owners or managers do (Váchal et al., 2013; Valášková et al. 2020). The importance of monitoring business processes in terms of their production value has been pointed out by many authors such as Straková (2020, 2021c), Gavurova (2012) and Tkacova et al. (2017). A properly organized decision-making process is the basis of success. Managers or owners are aware of the seriousness of the consequences of their decisions. (Vrbka and Stehel, 2019). Therefore, investors primarily monitor the level of risk and returns on invested capital (Vochozka, 2012). The invested capital, i.e. the funds provided, is also affected by the time factor, which reduces the purchasing power of the invested funds and it is therefore necessary to include it in the calculation of expected returns (Vochozka and Hašková, 2019). These invested funds, from which their owner requires a certain return, can serve, for example, as an investment in a project that will expand the company's production capacity, improve its competitiveness or provide a material basis for long-term development (Vochozka et al., 2021).

The article thus responds to the social demand for the determination of adequate required revenues from an investment, in this case in the construction industry, and how to determine these required returns. The cost of equity capital is mostly only predicted to the future and just little authors deals with their historical value, which can be more beneficial for future prediction than commonly used methods, and this is exactly what the present article will deal with.

The objective of the article is to determine the value of the actual paid-up cost of equity capital in the construction industry in 2016-2019. To this end, several research questions are set:

1. How high is the cost of equity in each year?
2. How much was actually paid out in profit shares in each year?

2. Literature research

An important decision of the company is the determination of the dividend policy, which can affect the value of the company. Above all, the variability of the dividend policy is very important in determining the future development of the company, while the owners expect that the management of the company's finances will be performed well and will be able to adapt to environmental influences (Sari and Patrisia, 2019; Straková et al., 2018).

The creation of profit is one of the fundamental motivational stimuli of every business, as it is financial resources that, after being withdrawn from the business, do not threaten its further activity and can therefore be considered as income for the owner (Vochozka et. al., 2012; Sinicakova et al. 2017). Profit is one of the main factors of economic growth (Dementyev and Scherbakov, 2017). Profit therefore represents the prevailing economic quantity used by external and internal users in the decision-making process (Ermacor, 2018; Gavurova et al. 2017a,b). Vochozka and Machová (2017) identified the company's profit or loss as one of the most important generators of business value in the construction industry in the Czech Republic. The same conclusion was also reached by Machová and Vrbka (2018), who investigated value generators in enterprises in the agricultural sector in the Czech Republic. Identifying value generators is very important for businesses, because these are business-economic variables that contribute the most to the creation of business value (Vochozka et. al., 2017).

According to Chen, Leung and Goergen (2017), the gender of the company's highest-ranking employees also has an effect on the payment of dividends. Women pay a larger dividend than men, with the increase being significant

for firms with weak governance. Thus, this finding suggests that women use dividend payment as a management tool. The same result was reached by Almeida, de Moraes and Coelho (2020), who found that the presence of women in the management bodies of a company contributes to a higher probability of higher dividends. The opposite result was reached by Sanan (2019), who shows that women in company management have a negative effect on dividend payouts. Furthermore, the organization of the company's management has a great influence on the payment of dividends, as a well-organized management has a positive effect on the dividend payment policy (Tahir, Masri and Rahman, 2020; Kocisova et al. 2018).

Kovalev and Drachevskiy (2020) looked at the dividend policy of oil and gas companies in emerging markets and identified two main problems in calculating dividends, namely determining the correct discount rate and establishing meaningful predicted dividend payout data. They chose the CAPM model as the most suitable method for calculating the discount rate. A Monte Carlo simulation model was chosen for the dividend forecast. Dividend policy is influenced by profitability, company size, growth, debt and macroeconomic variables (Nur and Karnen, 2014). Ranajee, Pathak, and Saxena (2018) add to these effects that higher dividends are paid by group firms compared to sole proprietorships.

The macroeconomic environment in which the company is located has a significant influence on the functioning of construction companies and their financial results (Baltgailis, 2019; Pavelko et al., 2021). The indisputable importance of the macro environment within the integrated model of the corporate environment is highlighted in the studies of Straková et al. (2021b) and Gavurova et al. (2020). The integrated concept of the environment undeniably contributes to the sustainable development of the enterprise (Straková et al., 2021a; Chehabeddine, Grabowska and Adekola, 2022).

Appropriate profit should always be included in the prices of individual construction works in order to ensure their competitiveness, as profit is important for the survival of the company (Majer, Ellingerová and Gašparík, 2020). The efficiency of construction works has a great influence on the profit of construction companies. Every construction work carried out (e.g. building a house) must be well calculated and subsequently evaluated using suitable methods during the execution of these works. The resulting information is very important for guiding the company to future decisions (Anysz, 2017).

The cost of equity represents the expected rate of return required by the market to obtain the required funds for the investment, with the most complex component of the cost of equity calculation being the capital component (Valaskova and Bakes, 2018). The going concern principle can also be related to the cost of equity capital. This connection was positively confirmed and it was found that the cost of equity capital increased in the range of 3.3-5.7% for companies where the going concern principle was confirmed for the first time (Amin, Krishnan and Yang, 2014). Customers also have an impact on the cost of equity capital, especially for businesses that are more likely to lose key customers or are more prone to lose more when they lose key customers, so the cost of equity capital is higher. While businesses that have more government customers in their customer base have a lower cost of equity capital. Overall, therefore, the customer base affects the cost of financing (Dhaliwal, Judd, and Serfling, 2016).

The cost of equity capital is also affected by social capital because in countries with lower social capital the cost of equity capital is higher and in countries with higher social capital the cost of equity capital falls. However, this relationship is significant only for firms with a relatively low level of competition on the market and also for firms with a good reputation (Gupta et al., 2017). Political corruption also affects the cost of equity capital, as firms operating in states with higher levels of corruption have higher costs of equity capital (Hossain and Kryzanowski, 2021). Corporate social responsibility performance has an impact on the cost of equity capital, as corporate social responsibility performance is significantly negatively correlated with the cost of equity capital (Chen and Zhang, 2021).

The CAPM model, which Laghi and Marcantonio (2016), extended by premiums for certain idiosyncratic risks, can be used to value the cost of equity capital. These risks are company size, value factor, operational risks, financial structure and stock market price volatility. With these modifications, it was found that the CAPM model systematically underestimates the cost of equity capital, while with the proposed modifications, the correct estimate of its expected value already occurs. Glova (2015) investigated the CAPM in its dynamically time-varying form. The prediction of future cost of equity capital was also investigated by Momcilovic, Begovic and Živkov, 2015, who investigated the cost of equity capital of the food industry using the CAPM and Downside CAPM models. Ogiugo, Adesuyi and Ogbeide (2020) devoted their study to empirical test of capital asset pricing model on securities return of listed firms in Nigeria.

The relationship between the level of liquidity and risks on the implied cost of equity capital was investigated by Saad and Samet, 2017, who found that the implied cost of equity capital increases with the level of illiquidity and in the covariance between firm-level illiquidity and market illiquidity, but decreases in both the covariance between returns at the firm level and market illiquidity, as well as in the covariation between firms. Furthermore, it was observed that the level of liquidity and risk affect the implied cost of stocks during crisis and non-crisis periods, but this relationship is more pronounced during crisis periods for the most illiquid stocks.

An important role in corporate finance is played by the CEO, who has a great influence on the cost of equity capital, and this influence is affected by his confidence, because there is a non-linear relationship between the overconfidence of the CEO and the cost of equity capital (Aghazadeh et al., 2018). Executive compensation also affects the cost of equity capital (Chen, Truong, & Veeraraghavan, 2015). Information risk is another variable that has a significant impact on the cost of equity capital (Abdollahi et al., 2021). Saleem and Usman, 2021, conducted similar research and reached the same conclusion. Bae, An, and Kim (2020) show that about 42% of the total effect of information quality on the cost of equity capital is due to indirect effects, namely information asymmetry, market risk, and liquidity risk.

Other factors affecting the cost of equity capital include company reputation, as companies with higher reputation scores have lower cost of equity capital and this effect increases with the degree of information asymmetry (Cao et al., 2015). Furthermore, the annual reports that large companies have to publish can also affect the cost of equity capital, as greater text complexity is associated with higher costs of equity capital (Rjiba et al., 2021).

3. Materials and methods

The data used for this article is taken from the Albertina database, which provides information on businesses and individuals. The downloaded data is in an excel data file. It includes companies operating in the construction industry, and for each of them, data from financial statements for the period 2016 - 2020 is presented.

CAPM model or the modular model is most commonly used to calculate the cost of equity capital. These models are suitable for calculating the cost of equity capital, but their calculation determines the future value of the cost of equity capital, which is inappropriate for the purposes of determining the actual paid-in cost of equity capital.

The following methodological procedure will therefore be chosen to answer the research questions: In order to determine the profit shares paid out in a given year for one company, the economic result of the current accounting period will be added together with the undistributed profit of previous years/undistributed profit or unreimbursed loss of previous years, and subsequently the undistributed profit of previous years/undistributed profit or unreimbursed loss of previous years will be deducted from this value.

For the item undistributed profit of previous years/retained profit or unreimbursed loss of previous years, the data that is available in the given period is selected.

After performing these calculations, it is necessary to filter the data to only relevant ones, which means that minus items and percentage items exceeding the value of 100 must be deleted. Subsequently, the resulting value will be divided by the equity of the given year and converted into percentages.

Statistical functions mean, median, variance, standard deviation will be used for the final evaluation.

4. The results and discussion

Table 1. Resulting values of equity costs for the period 2016 - 2019

Year	Average cost of equity	Median cost of equity capital	Paid in total
2016	29,35 %	16,43 %	19 656 223 745,00
2017	36,40 %	23,07 %	49 966 461 785,00
2018	31,64 %	17,84 %	24 212 135 900,00
2019	37,81 %	24,24 %	34 758 034 067,00
Total	135,20 %	81,57 %	128 592 855 497,00

Source: Database Albertina

Table 1 presents the resulting values of the cost of equity capital for the period 2016 – 2019, where the average, median values and overall paid profit shares are listed. The results show that the mean and median values differ by almost half in each observed year. The highest values in the case of the average and median were achieved in 2019 and in the case of the overall paid profit shares in 2017.

Table 2. Selected statistical indicators from the resulting values of equity costs for the period 2016 - 2019

Quantity	From the average cost of equity capital	From equity medians	From the total shares paid out
Diameter	33,80 %	20,39 %	32 148 213 874,25
Median	34,02 %	20,45 %	29 485 084 983,50
Dispersion	11,81	11,06	1,36
Standard deviation	3,44	3,32	11 654 744 431,45

Source: Database Albertina

Table 2 presents selected statistical indicators from the resulting average and median values of the cost of equity for the period 2016 – 2019, where the average, median, dispersion and standard deviation are given. The results show that the average and median values for the cost of equity capital do not differ much and for the total profit shares paid out, the difference is only 8.2 %.

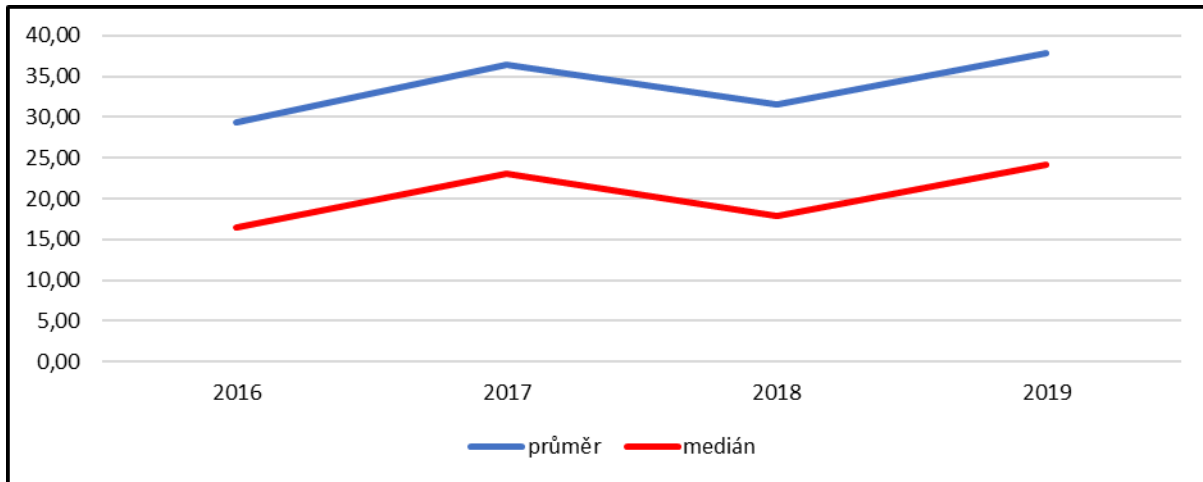


Figure 1. Development of average and median values of the cost of equity capital for the period 2016 - 2019

Source: Own processing

Figure 1 presents the development of the average and median values of the cost of equity capital for the period 2016 – 2019, which clearly shows the development of these values in individual years. It can be seen from the graph that the development of the average and median values in individual years is fluctuating, when in 2017 there is an increase in both values. The following year there was a slight decrease compared to the previous period, when, however, the resulting values are higher than in 2016. In the last monitored year, the average and median value of the cost of equity increased again.

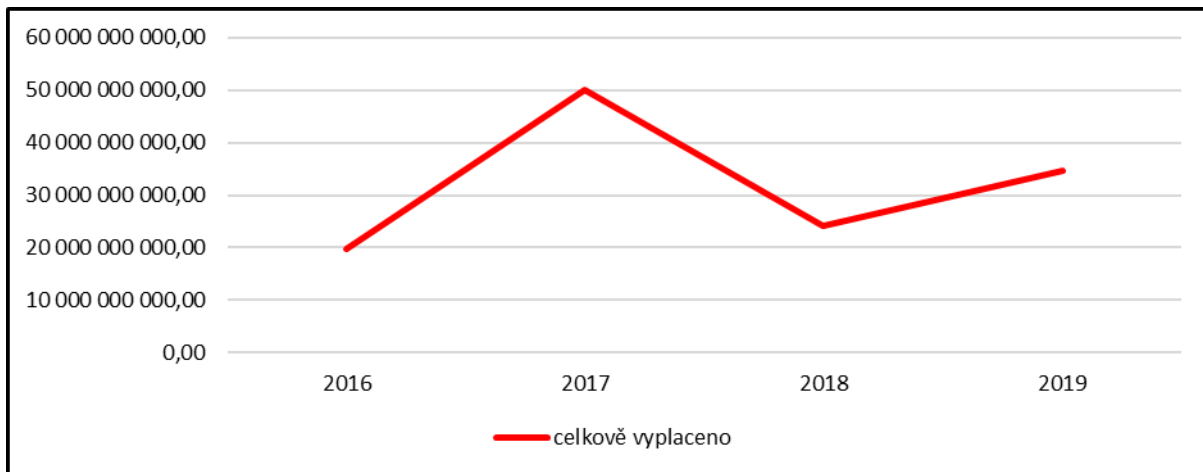


Figure 2. Development of total paid shares of profit for the period 2016 – 2019

Source: Own processing

Figure 2 presents the overall paid-out profit shares for the period 2016 – 2019, which clearly shows the progress of paid-out profit shares in individual years. The course of paid profit shares in individual years copies the development of the average and median values of the cost of equity capital, i.e. it increases in 2017, the following year there was a decrease and the last year it increased again.

Discussion

1. How high is the cost of equity in each year?

In the individual years, the cost of equity in the case of average values is 29.35%, 36.40%, 31.64% and 37.81%. For the median values, the cost of equity was 16.43%, 23.07%, 17.84% and 24.24%. The results show that the difference between the average and median values of the cost of equity capital is almost double. It is therefore very important for the calculation to choose the appropriate indicators, because the resulting values can subsequently differ greatly. Most research on the cost of equity capital calculates the future value of the cost of equity capital, most often using the CAPM method. This article presents a calculation methodology that arrives at actual cost of equity values and thus gives better feedback for calculating the future value of the cost of equity capital.

2. How much was actually paid out in profit shares in each year?

In individual years, CZK 19,656,223,745, CZK 49,966,461,785, CZK 24,212,135,900 and CZK 34,758,034,067 were paid out in profit shares. The results show that their values fluctuate a lot, with the lowest value at the level of CZK 19 billion and the highest value at the level of CZK 49 billion. As already mentioned in the literature review, profit is one of the main generators of the value of enterprises in the construction industry, and it is therefore desirable that its values increase every year and thus the cost of equity capital of investors or owners. And the results show that this trend is not in the construction industry.

5. Conclusion

The objective of the article was to determine the value of the actual cost of equity paid in the construction industry in 2016-2019. The objective of the article was met by creating a methodology for calculating the cost of equity from financial statements from the entire construction industry.

The results found are very different, especially in the case of the average and median values of the cost of equity capital in individual years. The average values of the cost of equity are in the range of 29.35% - 37.81% and the median values are in the range of 16.43% - 24.24%. It is therefore very important to choose appropriately a statistical indicator that will express the value of the cost of equity capital, as large differences between average and median values can cause inaccuracies or misleading results in subsequent calculations.

The conducted research has limits in outdated data, in which data from financial statements for subsequent years is missing. Despite this fact, the usability of the calculated results for practical purposes is high, especially the methodology presented in the article, which describes the procedure for calculating the actual paid out costs of equity capital. The results can be used to predict future costs of equity capital, when this prediction can be more reliable than commonly used methods, as it is based on historical values that can better predict future development, especially in the case of stable market development.

The scope for further research is very wide, as the methodology developed in the presented article is usable for any company or entire industry, as in the presented article.

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