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Corporate Budgeting Practices: Empirical Evidence from the Czech Republic*

Lenka Stryckova [a]

a Technical University of Liberec, Faculty of Economics, Department of Finance and Accounting, Liberec, Czech Republic

Email: lenka.stryckova@tul.cz

Abstract

This paper investigates current budgeting practices of Czech companies. The article aims to provide recent empirical evidence on the impact of business complexity on budgeting in the Czech Republic, with the main focus on modern budgeting methods. Despite the plethora of critical voices against traditional budgeting, budgeting remains an essential part of most companies' corporate governance. The empirical investigation is based on a questionnaire survey and its statistical evaluation using tests of goodness of fit and cluster analysis. Fundamental research questions of the paper include the influence of business complexity on Czech companies' budgeting practices, factors that currently play an essential role and their importance, and the approach of Czech companies to modern budgeting practices. The results indicate that Czech firms use various financial management tools, including budgets. Traditional budgeting methods are still dominant in most companies; empirical data evaluation confirmed mild differences between companies financed by domestic and foreign capital; nevertheless, those distinctions were not confirmed by statistical testing. Essential factors in the budgeting practice of the respondents are the connection of budgets to strategic planning and the possibility of using budgets as a tool for business performance evaluation.

Keywords: budget, budgeting, business company, Czech Republic, domestic capital, foreign capital

JEL Codes: G31, G32, G39

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Introduction

Budgeting is used across all types of organisations (and, in fact, all types of human activities) and is an essential topic of accounting and business management research. Budgets are the primary accounting tool used by organisations to implement strategies. Although the budgeting literature offers numerous theories, the specific views are very diverse and complex, and a single cohesive approach to budgeting still does not exist today (Kenno et al., 2018).

The corporate budgeting literature has been devoted to many discussions and empirical testing of the pros and cons of traditional budgeting systems in contrast to modern methods. Even in the Czech environment, several empirical studies have been conducted lately. The aim of this article is to provide the most current empirical evidence on the impact of business complexity on budgeting in the Czech Republic, with the main focus on modern budgeting methods.

To achieve the goal, the study uses statistical methods to detect factors significantly influencing the financial and, especially, budgeting decisions of companies in the Czech Republic. The empirical investigation is based on a questionnaire survey focused on Czech companies' budgeting principles. The article first reviews the literature on the topic; the methods and collection of responses are introduced in the next section. The section with research results is structured according to the established research questions. The results are summarised in the conclusion section, including possible future research directions in the field and study limitations.

1. Theoretical Background

Budgeting systems emerged in the 1920s and 1930s as a tool to help companies overcome a critical situation caused worldwide by the Great Depression, characterised by a drop in consumption, deflation and reduction of profits (Ionescu, 2014). Traditional corporate budgets became an essential tool for management control gradually. Budgeting is currently used worldwide, not just in the business world.

Budgeting research has developed in several perspectives, the most fundamental of which are three theoretical perspectives: sociology-based, psychology-based and economics-based literature and theories. Initially, budgeting was praised for its benefits: it could increase efficiency through planning and coordination and support control and learning by comparing actual results to the plan. Later, however, the first criticism of budgeting began to appear. It can create rigidity, limit cooperation and creative response, overemphasise short-term cost control and top-down authority, encourage gaming and demotivate employees (Hansen et al., 2003).

The primary research question of sociology-based budgeting theories was how budgeting influenced decision-making and bargaining among various interests in planning and controlling social and organisational resources (Covaleski et al., 2003).

The psychology-based budgeting research perspective investigated the effects of budgeting on various potentially conflicting mental states and behaviours, primarily motivation, stress, satisfaction, commitment, relations with peers and superiors, and individual managerial performance. This research also examined the association of these effects with specific budgeting practices, such as the difficulty of budget targets, the supervisors' budget-related performance-evaluation style, and the extent to which employees' compensation depends on meeting budget targets (Hartmann, 2000; Luft and Shields, 2003).

The economics-based perspective considered budgeting as a component of the organisation's management accounting system and investigated the roles of budgets in coordinating activities and providing appropriate incentives within organisations (e.g., budget targets, budget performance measures). The economics-based approach implies that benefits of budgeting should exceed costs; otherwise, organisations would be better off without budgeting (Lambert, 2001).

Since the 1990s, more and more criticism of traditional budgeting systems has appeared in the budgeting literature (Neely et al., 2003; Eckholm and Wallin, 2000). Among the most significant critics of traditional budgeting models were Hope and Fraser (2003), who laid the foundation for a management model known as "Beyond Budgeting". Their arguments consisted of the costs of preparing and negotiating budgets and following upon them. They also pointed to the risk of gaming, which consists of achieving success only by meeting a given goal, so the plan must be the easiest possible. According to them, traditional budgeting practices also were not suitable for changing competitive environments because they originated under different conditions.

Subsequently, more authors have emphasised the necessity to abandon the traditional budgeting approach with an argument of increasing environmental uncertainty. Bogsnes (2009) argued that detailed budgeting was meaningless in uncertain business environments where it is impossible to predict each line item a year (or more) in advance. Comparable critiques are found in other Beyond Budgeting research (Bunce, 2003; Player, 2003; Nguyen, 2018).

However, budgeting remains an essential part of corporate governance despite these critical voices and opinions, which might be proved by the reality of today's companies and by conducted studies. For example, Libby and Lindsay (2010) reported that respondents to their questionnaire still considered budgeting an essential means for implementing strategy. According to them, the question is not whether traditional or "Beyond Budgeting" is better for a company's success; to move the budgeting research agenda forward, it is necessary to utilise both approaches.

Besides Beyond Budgeting, new management control and budgeting approaches are represented by activity-based budgeting, flexible budgets, rolling budgets and forecasts, zero-based budgeting, indicative budgets, etc.

Since budgeting involves many repetitive process steps, the effects of budgeting digitisation have become an issue in the literature lately. According to Warren et al. (2015), the effects of digitisation could be integrated into companies' budgeting processes comparatively quickly. Using business analytics in the budgeting process represents a promising improvement in budgeting. Especially in a volatile business environment, more accurate forecasts could prove a tremendous competitive advantage (Hofer et al., 2015).

Grover et al. (2018) found that while business analytics in the budgeting process cannot eliminate all problems, it increases the budgeting process automation because it requires fewer resources. In addition, they expected that the increased use of business analytics in the budgeting process would lead to higher satisfaction with the budgeting process.

As traditional budgeting systems are criticised for being too time-consuming, costly, and inflexible, Bergmann et al. (2020) surveyed German companies to prove that modern business analytics may overcome these problems and increase satisfaction with the budgeting process. Their study examined the determinants of the use of business analytics in the budgeting process and its effect on satisfaction with the process. The authors concluded that business analytics could help overcome dissatisfaction with traditional budgeting systems.

In the recent decade, the corporate budgeting literature has been naturally devoted to discussions and empirical testing of the pros and cons of traditional budgeting systems (Asogwa and Etim, 2017; Klimaitienė and Ramanauskaitė, 2019; Nikodijević et al., 2021; Liyanage and Gooneratne, 2021), the Beyond Budgeting approach and other modern budgeting tools (O'Grady et al., 2017; Samudrage and Beddage, 2018; Becker et al., 2020; Matějka et al., 2021), or the perceived importance of budgeting to business complexity (Rickards, 2008; Arena and Arnaboldi, 2013; Ax, 2016).

The financial management literature in the Czech Republic has also devoted considerable attention to budgeting. Due to the socialist history of a planned economy, the Czech environment has its specifics compared to other countries. Even if it is now an open economy with a significant influx of foreign capital, there are many differences and specifics compared to countries where budgets were traditionally used within a market economy.

Fibírová and Šoljaková (2009) investigated the use of budgets in Czech companies and, at the same time, the attitudes of financial and non-financial managers towards budgets. Their conclusions indicated that Czech companies continue to consider the traditional budgeting processes very important, and the "Beyond Budgeting" movement has had little impact on their approach. Changes have led to additional techniques or analytical detailing rather than a reduction in traditional budgeting.

Popesko et al. (2015) examined the most common limitations of traditional budgeting in Czech companies. The authors did not reveal any significant issues with budgeting flexibility, which confirmed a higher level of stability in the Czech business environment. The authors observed a strong connection between the budget and corporate strategy. They also reported the frequent use of budgets as performance targets, a practice often criticised in the literature. This finding might suggest little awareness of the limitations of traditional budgeting practices and limited knowledge of alternative performance measurement methods. Czech firms seem to follow only a limited scope of current budgeting trends, while most trends discussed in modern budgeting literature, such as issues regarding the flexibility of budgeting or the time spent preparing budgets, were overlooked entirely.

Popesko and Šocová (2016) presented the initial results of a more complex survey on current trends in budgeting and planning. The overall aim of this initial study was to analyse the budgeting practices of the Czech organisations and compare the results with a similar survey conducted in North America by Libby and Lindsay (2010). The research group's preliminary findings revealed a remarkable similarity between Czech and North American budgeting practices – most firms in the sample planned to improve their budgeting systems but did not plan to abandon them.

Popesko et al. (2017) focused on a firm's ability to forecast the behaviour of the external environment and its influence on the firm's budgeting processes and its dependence on GDP fluctuations. The study results showed a relatively high level of predictability of changes in the business environment identified by Czech companies compared with companies from the USA and Canada. On the other hand, the study did not show a stronger relationship between GDP fluctuations and the level of predictability of the budgetary process.

The study by Šiška (2016) aimed to empirically verify whether significant contingency factors influencing management accounting techniques applied abroad are also used in companies in the Czech Republic. The author revealed that classifying the costs of activities is not frequently used by Czech companies, evidenced by the low percentage of companies (20.8%) that used activity-based techniques (including activity-based budgeting). The most commonly used budgeting method was flexible budgeting, differentiating variable and fixed cost behaviour in budget drafts, especially during budgetary control, followed by incremental budgeting. The least frequently used methods were activity-based budgeting (ABB) and rolling budgets.

In 2017, Popesko et al. (2017) published the results of a research project on the determinants of budgeting and performance measurement system design. Despite the criticism of traditional budgeting systems, the authors concluded that budgeting still represented an irreplaceable tool in the surveyed companies and played a significant role in enterprise performance.

Dokulil et al. (2017) examined the specifics of budgeting in the current Czech environment. According to the authors, budgeting is predominantly applied by medium-sized and large companies in the Czech Republic. Budgets are primarily compiled for the calendar year, and unexpected events and customer behaviour were considered the most common reasons for the differences between reality and budget.

Dokulil et al. (2020) further examined specific aspects of preparing budgets in Czech companies. They found out that the budgeting process is affected by the ownership structure in most companies. The extent of foreign capital proved to have a statistically significant impact on the autonomy of a company during budgeting. However, the share of foreign capital is not a statistically significant factor affecting the time devoted to budget preparation.

Petera and Šoljaková (2020) investigated strategic management accounting (SMA) techniques in the Czech Republic. They found out that the three most-used SMA techniques are (in descending order): strategic planning and budgeting, customer accounting, and target costing. The findings confirm that budgeting still has a solid position in companies in the Czech Republic.

The latest research by Dokulil et al. (2022) aimed to investigate real-world attempts to enhance traditional budgeting in Czech companies and to identify factors influencing choices made during these attempts. Based on the questionnaire survey, the authors concluded that a significant number of Czech companies had implemented traditional budgeting methods. More than 80% of their survey respondents monitored any variation within the budgets. Over half of the firms regularly adjusted budgeting objectives to reflect the progress of associated indicators; the budget revisions were primarily monthly. The share of foreign capital was identified as an essential factor influencing choices in budgetary control.

2. Methodology and Data

This study includes the results of an empirical investigation based on a questionnaire survey focused on the budgeting practice of Czech companies. First, expert publications and scientific papers were analysed to elaborate on the theoretical background and synthesise the obtained knowledge. The empirical study was conducted in several phases. The first phase involved the determination of the population and the representative sample. The MagnusWeb database of companies and institutions (Bisnode MagnusWeb, 2021), which contains an overview of all registered business entities in the Czech Republic, was used to collect data and contact information on the subjects. All economically active business companies in the Czech Republic served as the investigation population; the sample consisted of 2,255 randomly selected companies (using a random number generator) and was addressed by the questionnaire.

The next phase included the formation and distribution of the questionnaire. The questionnaire was distributed to the management and financial departments of selected sample companies. The questionnaire contained questions focused on the specification of basic budgeting instruments used in the company, determining responsibility for drawing up budgets, factors that play a role in the budgeting process, budget implementation control, and modern budgeting methods. The questionnaire answers were collected via a web-based form from October 2021 to January 2022. In total, 2,255 companies were addressed and 84 completed questionnaires were obtained; the total return rate of the questionnaire survey was 4%. The data evaluation was carried out using statistical methods.

The questionnaire also contained demographic information about the sample firms. Table 1 shows the demographic specification of the respondents according to company size in terms of the number of employees and EU standards, legal form of business, ownership structure, and the business sector. Eighty-four respondents took part in the questionnaire survey.

Table 1: Demographic specification of respondents (N = 84)

		Total	
		N	%
Company size (number of employees)	0–9 employees (micro-sized enterprise)	25	*30*
	10–49 employees (small-sized enterprise)	23	*27*
	50–249 employees (medium-sized enterprise)	16	*19*
	250 and more employees (large-sized enterprise)	20	*24*
Company size (EU standards)	micro (balance sheet total or turnover ≤ 2 mil. EUR)	31	*37*
	small (balance sheet total or turnover ≤ 10 mil. EUR)	22	*27*
	medium-sized (balance sheet total ≤ 43 mil. EUR or turnover ≤ 50 mil. EUR)	12	*14*
	large (balance sheet total ≥ 43 mil. EUR or turnover ≥ 50 mil. EUR)	18	*22*
Legal form of business	Joint-stock company	14	*17*
	Limited liability company	56	*67*
	Other	14	*17*
Ownership	Domestic capital	60	*71*
	Foreign capital (wholly or partly)	24	*29*
Business sector	Agriculture	2	*2*
	Manufacturing	19	*23*
	Construction	10	*12*
	Services	42	*50*
	Other	11	*13*
Type of accounting	Czech system	80	*96*
	IFRS	17	*21*
	US GAPP	1	*1*

Source: own research

Limited liability company was statistically the most frequent legal form of business (67% of the respondents). There was no statistically significant difference in the frequency of respondents according to the total number of employees or EU standards concerning the company size. The sample of all the companies ranged from micro-sized firms to large enterprises. The distribution of the respondents according to ownership confirmed the low internationalisation of the Czech firms; 71% of the respondents were owned by domestic capital. Only 29% of the respondents were owned by foreign capital (wholly or partly). Statistically, services was the most frequent business sector in the sample (50%). The respondents often used the Czech accounting system (96.4%). One-fifth of the companies (20.5%) used International Financial Reporting Standards. Only one respondent indicated application of the US GAAP. As respondents could have provided more than one answer, the sum of relative frequencies did not equal 100%.

For statistical evaluation of the empirical results, contingency tables were used. A contingency table is a tool with which it is possible to combine and process large amounts of data (Hindls et al., 2007). Most tables are two-dimensional and contain verbal variables. If there are numeric variables in the table, it is a correlation table. With the help of two-dimensional tables, the dependency between the variables is tested. The tests used to verify the independence in the contingency tables are called chi-square tests of independence or tests of goodness of fit. They compare the frequencies obtained with the theoretical ones expected in the case of independence. The chi-square test of independence, and Fisher's exact test if the first condition was not met, were used to search for dependencies between the two nominal variables. A significance level of 5% was defined to assess the hypotheses (i.e., the probability that the null hypothesis will be rejected). P-values were adjusted for multiple comparisons. P-values lower less than 0.05, indicating a significant relationship between the variables, were marked in bold. The results were calculated using MS Excel and R Studio.

Based on the literature and empirical studies, the following research questions were formulated for this study:

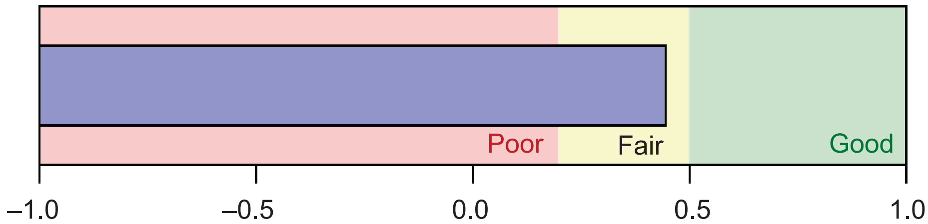
RQ1: What is the influence of business complexity on the budgeting practices of Czech companies?

RQ2: What factors currently play an essential role in the budgeting practice of business companies in the Czech Republic, and what is their importance?

RQ3: Do Czech companies still prefer traditional budgeting methods, or is it possible to monitor tendencies towards modern budgeting approaches?

To refine the research results, a cluster analysis was applied as well. Cluster analysis is a data analysis technique that explores the naturally occurring groups within a data set known as clusters. The goal is to partition the data into groups so that objects within a group are as similar as possible and objects in different groups are as dissimilar as possible. Since all three variables were nominal (company size, legal form and foreign ownership), a two-step cluster analysis was used. The clustering was processed in the SPSS (IBM Corp, 2021). The criterion used for clustering was Schwarz's Bayesian criterion. The summary model divided the variables into two clusters, as illustrated by Figure 1, confirming that dividing the data into two clusters is adequate.

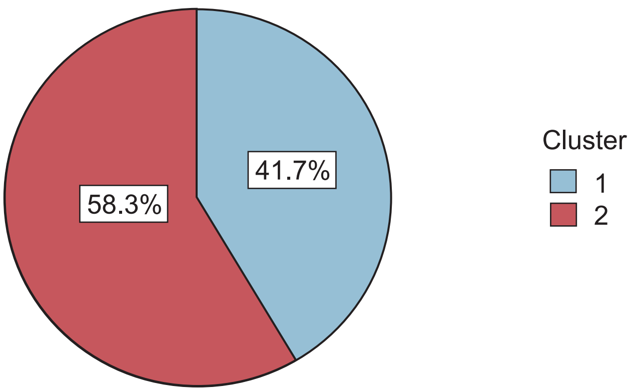
Figure 1: Silhouette measure of cohesion and separation



Source: own elaboration

The composition of the clusters is specified in Figures 2, 3 and 4. The smaller cluster (cluster 1) contained 35 objects (41.7%), and the larger one (cluster 2) – 49 objects (58.3%). The ratio between cluster sizes is 1.4.

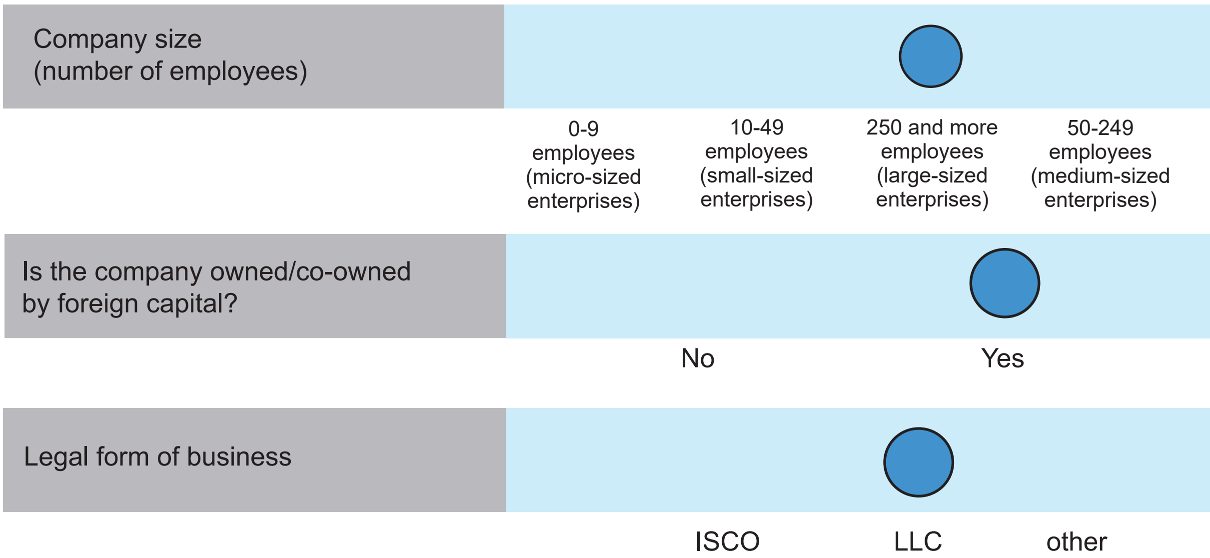
Figure 2: Cluster sizes



Source: own elaboration

Cluster 1 consisted of 57.1% of large enterprises, 68.6% of enterprises owned by foreign capital, and 65.7% of companies with the legal form of a limited liability company.

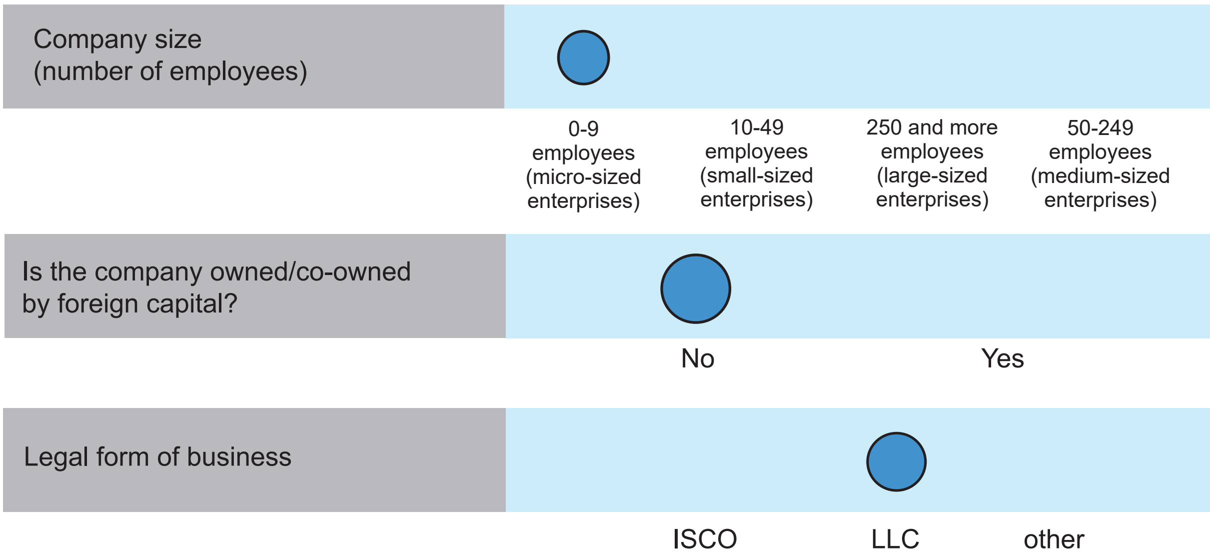
Figure 3: Specification of cluster 1



Source: own elaboration

Cluster 2 included 51.0% of micro-enterprises, no company owned by foreign capital, and 67.3% of companies with the legal form of a limited liability company.

Figure 4: Specification of cluster 2



Source: own elaboration

For predictions, it is most reliable to use company size (predictor importance = 1.00), followed by ownership by foreign capital (predictor importance = 0.74); the legal form of business has a minor benefit for predictions (predictor importance = 0.13).

3. Empirical Results and Discussion

The survey included specific questions about budgeting practice, budgeting instruments used, budgeting preparation, implementation and control, factors that generally affect company budgeting, and the approach to modern budgeting methods. All survey responses were tested for statistically significant differences from the perspective of legal form of business, company size and the origin of capital. However, due to the low frequencies in some categories, statistical tests could have been performed only in the category of the origin of capital.

Table 2 provides the quantitative assessment and statistical test results for the survey responses to the question: *"What financial management tools are used in your company?"* Most respondents generally use all traditional financial management tools, such as financial accounting, cost management, annual budgeting and managerial accounting. Surprisingly, only 56% of the respondents plan for more than two years and prepare strategic budgets for 2 to 5 years. Less than half of the respondents use modern tools, such as analysis of variances, flexible budgets and a balanced scorecard.

Table 2: Financial management tools used by companies in the Czech Republic (N = 84)

	Total	Domestic capital	Foreign capital	P-value*
	N=84	N=60	N=24	
	%	%	%	
Financial accounting	96%	95%	100%	>0,9
Managerial accounting	73%	67%	88%	0.200
Cost management	83%	78%	96%	0.300
Annual budgeting (for one year)	77%	68%	100%	**0.014**
Strategic planning and budgeting (2 to 5 years)	56%	47%	79%	0.081
Analysis of variances	43%	33%	67%	**<0.001**
Flexible budgets	32%	33%	29%	0.081
Balanced scorecard	12%	5%	29%	**0.002**

Notes: % is the percentage of concordant answers to the question: "Are the listed financial management tools used in your company?"; * indicates significance at the 5% level.
Source: own research

Statistically significant differences between companies owned entirely by domestic and foreign capital (wholly or partly) were confirmed by three financial management tools: annual budgeting, analysis of variance and balanced scorecard. While all enterprises with foreign capital ownership (100%) use annual budgeting as a tool, only 68% of the enterprises owned by domestic capital do so (p-value of 0.014).

A statistically significant difference (p-value < 0.001) between domestic and foreign capital ownership was identified using the financial management tool "analysis of variances". Only about 33% of the firms with domestic capital ownership use analysis of budget variances, whereas about 67% of the firms owned by foreign capital analyse the differences between planned and actual values of budget items.

The balanced scorecard is the least popular managerial tool by both groups of respondents; it is used only by 5% of the respondent firms with domestic ownership and 29% of the respondent firms with foreign ownership. The difference is statistically significant, with a p-value of 0.002.

No statistically significant differences were identified between companies owned by domestic or foreign capital using other financial management tools.

Table 3: Financial management tools: Comparison of clusters

	Cluster 1		Cluster 2	
	N=35	%	N=49	%
Financial accounting	35	100	46	94
Managerial accounting	32	91	29	60
Cost management	33	94	37	76
Annual budgeting (for one year)	35	100	30	61
Strategic planning and budgeting (2 to 5 years)	28	80	19	39
Analysis of variances	20	57	16	33
Flexible budgets	12	34	15	31
Balanced scorecard	8	23	2	4

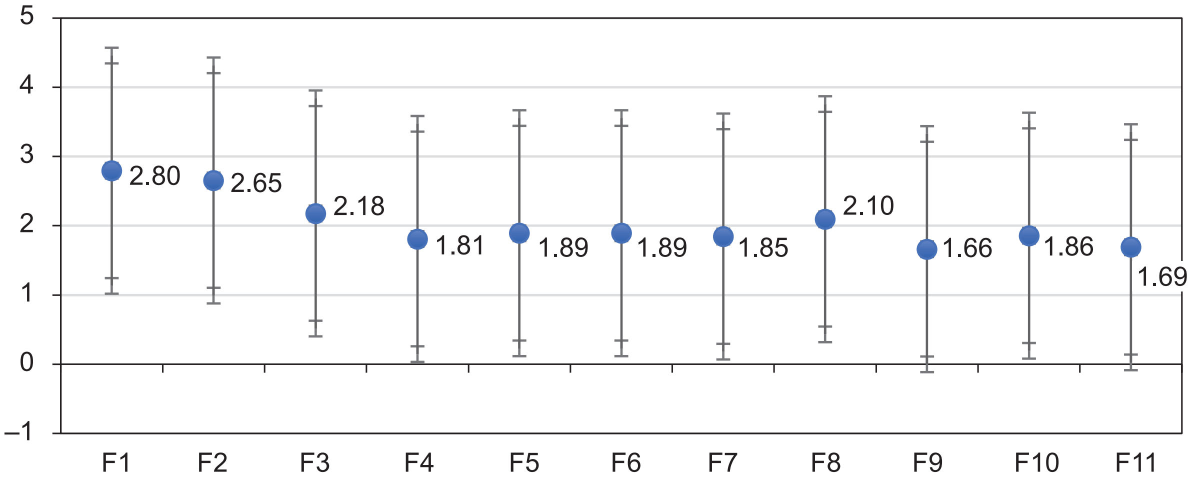
Notes: % is the percentage of concordant answers to the question: "Are the listed financial management tools used in your company?"

Source: own research

Employing the clustering method, Table 3 illustrates significant differences between the clusters: cluster 1, which includes large LL companies with foreign capital, and cluster 2, which includes micro LL companies without foreign capital. The clustering revealed typical patterns in the use of financial management tools in both groups. To conclude, the approach of firms from cluster 1 seems more organised and responsible because the percentage of respondents using listed tools is always higher in this cluster.

Figures 5 and 6 illustrate responses to the question: *"What factors play an important role in the budgeting of your company?"* The respondents rated the importance of factors on a scale from 0 = factor is not important to 4 = factor is very important.

Figure 5: Survey responses to the question: "What factors play an important role in your company's budgeting?"

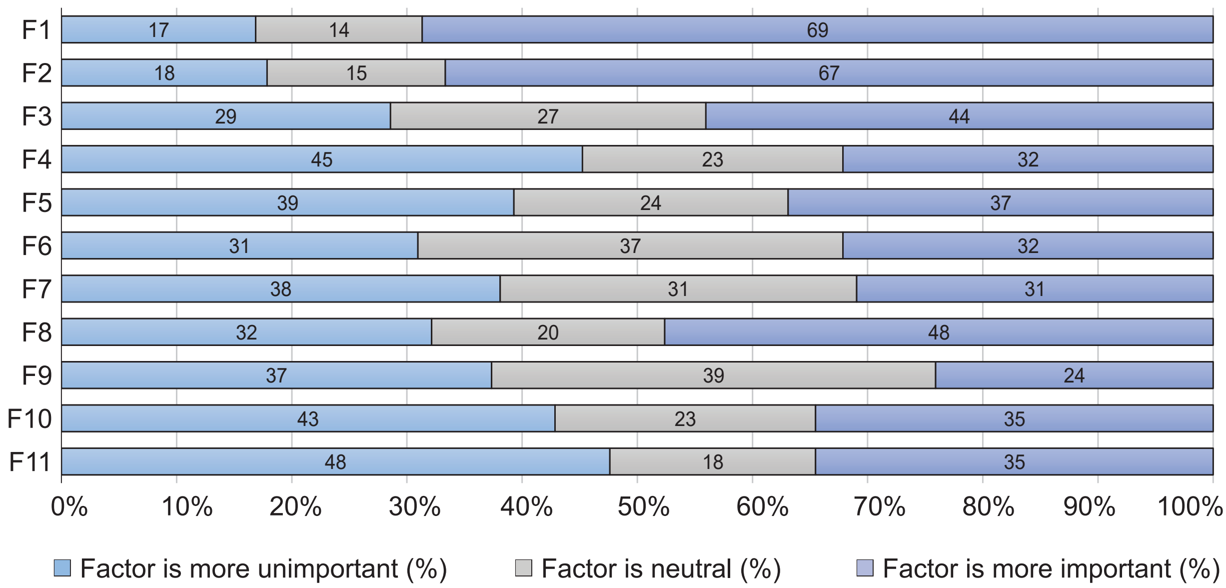


Notes: Responses on Likert scale 0 – 4 (0 = not important, 4 = very important). Factors:

F1: Budgets are linked to strategic planning.
F2: Budgets help evaluate business performance as a whole.
F3: Changes in customer demand.
F4: Labour market situation (employees).
F5: Government and legislative interventions.
F6: Development of customer preferences over time.
F7: Changes in the market for competing products/services.
F8: Budgets help coordinate activities of cost centres involved in creating and implementing the budget.
F9: Technological developments in the area of provided products or services.
F10: The budgeting process motivates managers of cost centres to achieve the objectives set by the budget (managers are involved in preparing the budget).
F11: Availability of materials and other resources for production.

Source: own research

Figure 6: Aggregated survey responses to the question: "What factors play an important role in your company's budgeting?"



Notes: Responses on Likert scale 0 – 4 (0 = not important, 4 = very important). Aggregated responses: 0+1 = more unimportant, 2 = neutral evaluation, 3+4 = more important. Factors:
F1: Budgets are linked to strategic planning.
F2: Budgets help evaluate business performance as a whole.
F3: Changes in customer demand.
F4: Labour market situation (employees).
F5: Government and legislative interventions.
F6: Development of customer preferences over time.
F7: Changes in the market for competing products/services.
F8: Budgets help coordinate activities of cost centres involved in creating and implementing the budget.
F9: Technological developments in the area of provided products or services.
F10: The budgeting process motivates managers of cost centres to achieve the objectives set by the budget (managers are involved in preparing the budget).
F11: Availability of materials and other resources for production.

Source: own research

Factors "F1: Budgets are linked to strategic planning" and "F2: Budgets help evaluate business performance as a whole" are supposed to be the most important, according to the mean ratings (F1: 2.8; F2: 2.65). This finding supports the hypothesis of the prevailing traditional approach to budgeting by Czech companies. Some evidence of the modern budgeting approach could be indicated by ratings of the factors "F3: Changes in customer demand" (mean rating 2.18) and "F8: Budgets help coordinate activities of cost centres involved in creating and implementing the budget" (mean rating was 2.10); both scores being higher than 2. Certain companies may perceive budgets as an important tool that helps coordinate activities within various cost centres and also as a tool that might be adjusted according to changes in customer demand. It turned out that the two least important factors are expressed by: "F11: Availability of materials and other resources for production" (mean rating 1.69) and "F9: Technological developments in the area of provided products or services" (mean rating 1.66). This finding can be interpreted by the low direct influence of the production resources and technological development on the financial decisions of enterprises.

In Figure 6, the ratings were aggregated only into three categories: Factor is more unimportant (sum of the number of respondents who chose a score of 0 or 1); Factor is neutral (score 2); Factor is more important (sum of the number of respondents who chose a score 3 or 4). The diagram provides graphical illustrations of the perceived importance of individual factors. Factors F1 and F2 are confirmed to be dominant.

Table 4: Importance of budgeting factors according to ownership structure (domestic vs foreign capital; N = 84)

		Domestic capital		Foreign capital		P-value*
		N=60		N=24		
		%	Mean	%	Mean	
F1	Budgets are linked to strategic planning.	60.00%	2.66	87.50%	3.13	0.120
F2	Budgets help evaluate business performance as a whole.	60.00%	2.48	83.33%	3.13	0.600
F3	Budgets help coordinate activities of cost centres involved in creating and implementing the budget.	41.67%	1.82	62.50%	2.79	0.078
F4	The budgeting process motivates managers of cost centres to achieve the objectives set by the budget (managers are involved in preparing the budget).	26.67%	1.52	54.17%	2.71	**0.007**
F5	Changes in customer demand	40.00%	1.98	54.17%	2.67	0.090
F6	Development of customer preferences over time	31.67%	1.90	33.33%	1.88	0.600
F7	Changes in the market for competing products/ services	31.67%	1.87	29.17%	1.79	>0.900
F8	Technological developments in the area of provided products or services	23.33%	1.55	25.00%	1.96	0.065
F9	Government and legislative interventions	35.00%	1.77	41.67%	2.21	0.600
F10	Labour market situation (employees)	28.33%	1.68	41.67%	2.13	0.700
F11	Availability of materials and other resources for production	23.33%	1.35	62.50%	2.58	0.067

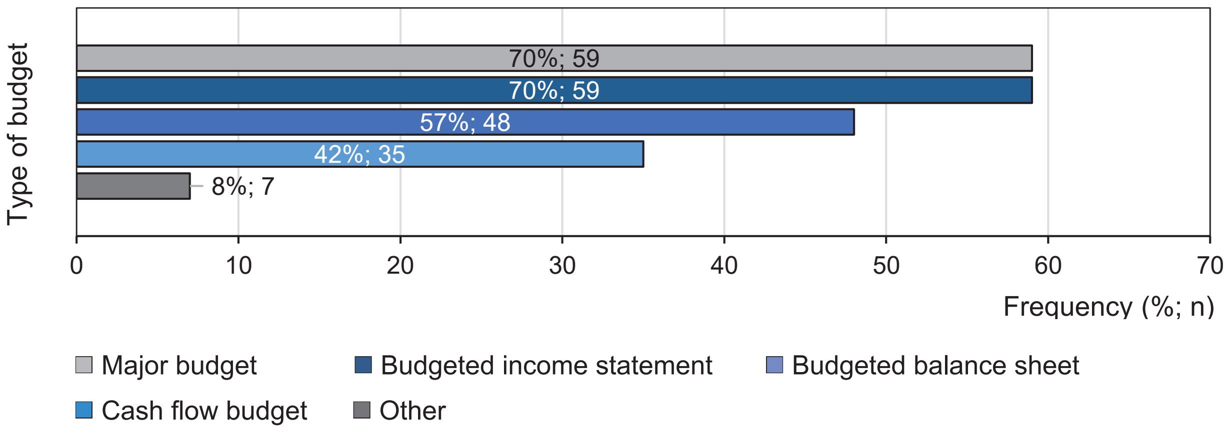
Notes: % is the percentage of scores 3 – important and 4 – very important. Mean is the average score for each question. Responses on the Likert scale 0 – 4. * indicates a significance at the 5% level.

Source: own research

Table 4 provides a quantitative assessment and statistical test results for the survey responses to the question: *"What factors play an important role in the budgeting of your company?"* A statistically significant difference (p-value of 0.007) between companies owned by domestic and foreign capital was identified by the factor "The budgeting process motivates managers of cost centres to achieve the objectives set by the budget (managers are involved in the preparation of the budget)". While only 26.67% of companies financed solely by domestic sources motivate managers of cost centres to achieve the target set by the budget, about 54.17% of foreign capital firms involve managers in the preparation of budgets. The results of mean ratings in Table 4 (domestic capital: mean rating 1.52; foreign capital: mean rating: 2.67) also imply that firms owned by foreign capital (wholly or partly) perceive the motivation of managers to reach the goals set in the budgets as more critical.

Figure 7 illustrates the structure of answers to the question *"What types of budgets are compiled in the company? (Select from the menu, multiple answers are possible.)"* The findings show that most respondents use major budgets and budgeted income statements (with 70% scores for both). The budgeted balance sheet is used only by 57% of respondents, and the cash flow budget only by 42%.

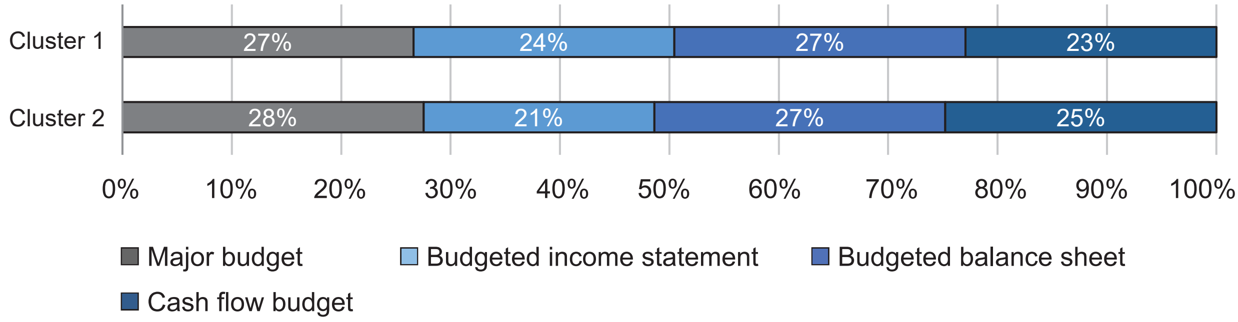
Figure 7: Types of budgets used by survey respondents



Source: own research

The cluster analysis in Figure 8 did not reveal significant differences in the structure of the budgets used between the two observed clusters.

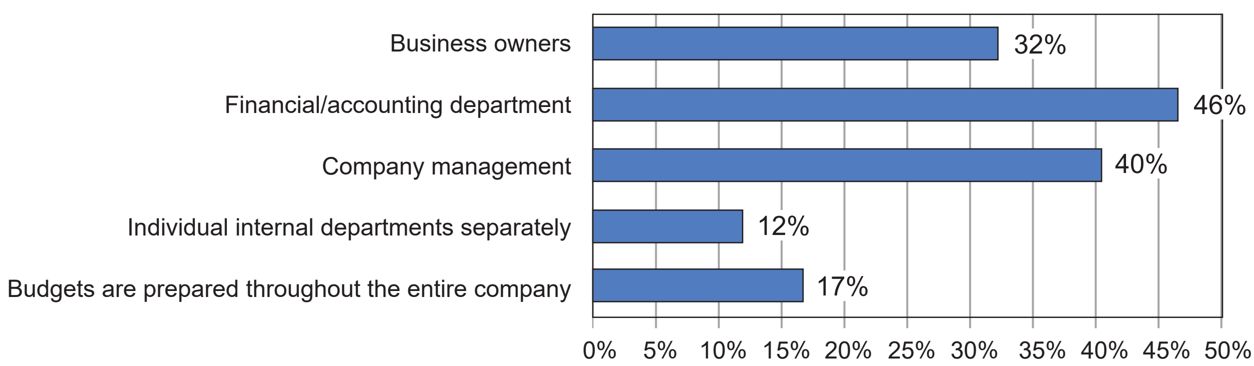
Figure 8: Types of budgets: Comparison of clusters



Source: own research

The observations in Figure 9 illustrate the responsibilities for budget preparation in the surveyed companies. It should be noted that respondents could choose more than one answer option. The responsibility for budget preparation lies primarily on the financial or accounting departments (chief financial officer; stated by 46% of the respondents) or the company management (40% of the respondents). A surprisingly considerable number of companies let the business owners prepare the budgets (32% of the respondents); it is probably because many family-owned companies answered the questionnaire (29.76% of the respondents were family firms). One of the fundamental principles of family firms is that the company owners make all essential financial and business decisions. The answers that budgets "are prepared throughout the entire company" (17% of the respondents) and "by individual internal departments separately" (12% of the respondents) suggest, to a large extent, a liberal approach in companies and a considerable degree of autonomy of individual company segments.

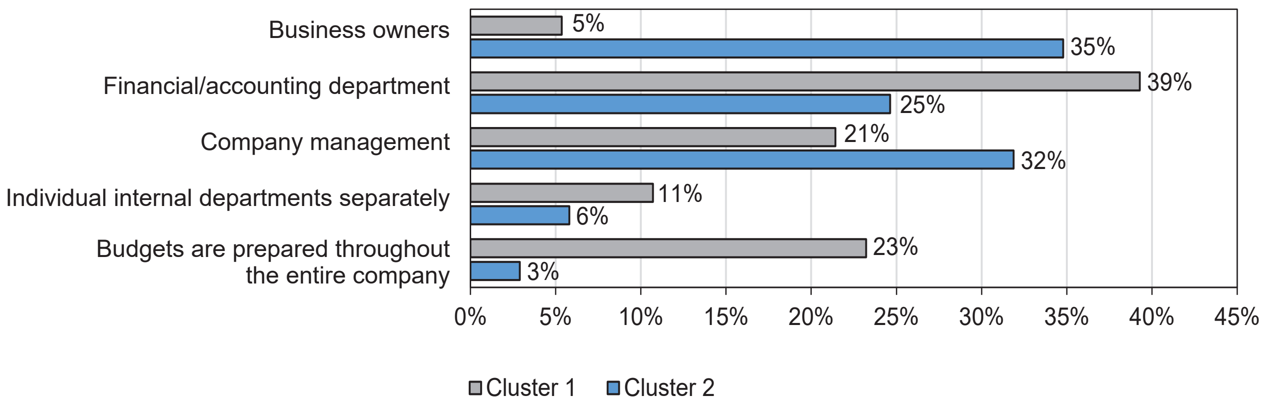
Figure 9: Responsibility for budget preparation according to survey respondents



Source: own research

Figure 10 shows the differences in the responsibility for budget preparation between the two identified clusters. Cluster 1, which includes large LL companies with foreign capital, relies primarily on financial/accounting departments. On the other hand, cluster 2, which includes micro LL companies without foreign capital, allows budgets to be compiled preferably by business owners and company management.

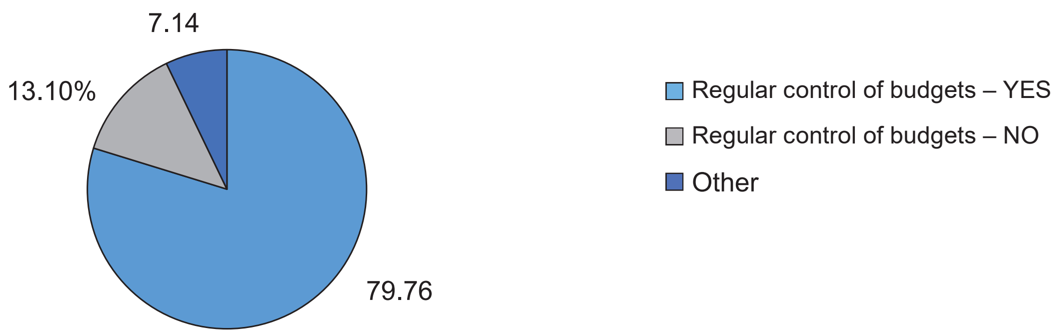
Figure 10: Responsibility for budget preparation: Comparison of clusters



Source: own research

Almost 80% of the questionnaire survey respondents stated that they regularly carry out budget controls, and 13.1% of the respondents claimed they do not. The remaining 7.14% of the respondents could not answer the question or provide other answers. Figure 11 illustrates the survey responses to the question: *"Is there regular monitoring of budget compliance in your company?"*

Figure 11: Regular monitoring and control of budget compliance



Source: own research

Using the cluster analysis, Table 5 shows some differences between the two clusters. The first group, which consists of large LL companies with foreign capital, regularly monitors the budget in most cases. The second group, comprised of LL micro-companies without foreign capital, usually performs this control as well, but a relatively large proportion of companies do not perform it at all (20%). The clustering again helped reveal typical patterns for both clusters.

Table 5: Financial management tools: Comparison of clusters

	Cluster 1		Cluster 2	
	N=35	%	N=49	%
Regular control of budgets – YES	32	91	35	71
Regular control of budgets – NO	1	3	10	20
Other	2	6	4	8

Notes: % is the percentage of concordant answers to the question: "Is there regular monitoring of budget compliance in your company?"

Source: own research

A statistically significant difference between firms owned by domestic and foreign capital (p-value of 0.043) was identified only in the answers to the question "*Is there regular monitoring of budget compliance in your company?*" (Section 1 of Table 6). An overwhelming 100% share of businesses financed by foreign capital reported that they regularly monitor and control compliance with the budget. The ratio of domestic capital-funded companies performing monitoring and control was only about 72%. The results simultaneously imply that almost 18% of the domestic capital-funded companies do not monitor and control budgets at all. The remaining 10% of firms (domestic capital) could not provide a relevant answer to this question.

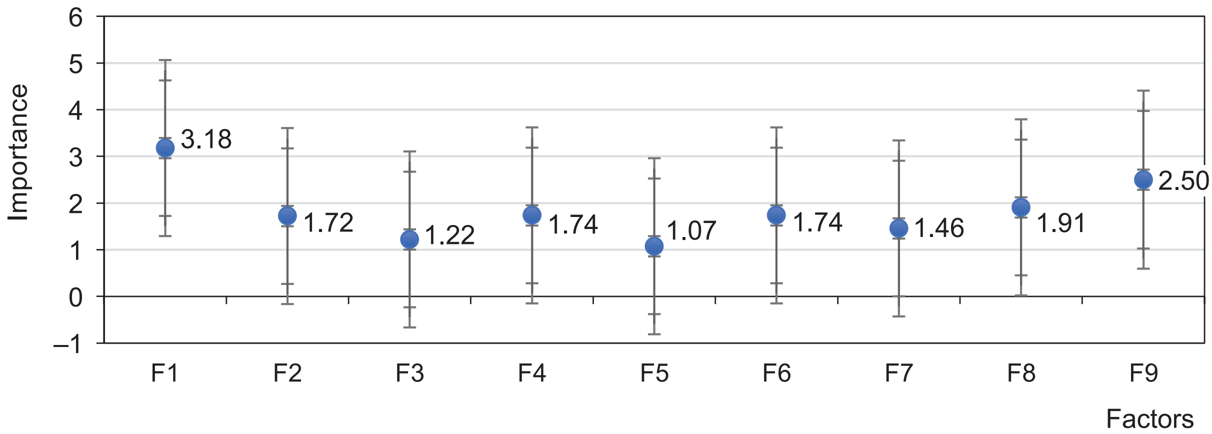
Table 6: Budget monitoring and control (N = 84)

	Total	Domestic capital	Foreign capital	P-value*
	N=84	N=60	N=24	
Section 1 – Regular monitoring and control of compliance with the budget	%	%	%	
Regular monitoring and control of budget compliance	79.80	72.00	100.00	0.043
Section 2 – Frequency of budget adjustments		%**	%**	
Ad hoc – as required	39.29	47.00	21.00	0.200
Annually	15.48	12.00	25.00	
Semi-annually	7.14	6.70	8.30	
Quarterly	11.90	11.70	12.00	
Monthly	10.71	6.70	21.00	
In case of significant changes	10.71	12.00	8.30	
Other	4.76	5.00	4.20	
Section 3 – Reasons for incurred budget variances	**%*** **	**%*** **	**%*** **	**P-value***
Unexpected events	61.90	58.33	70.83	>0.900
Technical problems in production, process, etc.	32.14	25.00	50.00	0.600
Poorly drafted budget-based action plans	8.33	5.00	16.67	0.200
The company did not react flexibly enough to adjust to changes during the reporting period	14.29	10.00	25.00	0.200
Causes on the part of employees	9.52	8.33	12.50	0.600
Customer causes	22.62	15.00	41.67	0.600
Impact of competition	19.05	20.00	16.67	0.700
Government actions	30.95	31.67	29.17	0.700
Other	26.19	25.00	29.17	0.600

Notes: % is the percentage of concordant answers to the question: "Is there regular monitoring of budget compliance in your company?" %** is the percentage of concordant answers to the question: "How often does your company adjust the budgets?" %*** is the percentage of scores 3 – important and 4 – most important to the question: "What factors cause the differences between your company's actual and planned budget?"; responses on Likert scale 0 – 4 (0 = not important, 4 = very important). P-value* indicates significance at the 5% level.

Source: own research

Figure 12: Survey responses to the question: "What factors cause the differences between the actual and the planned budget in your company?"



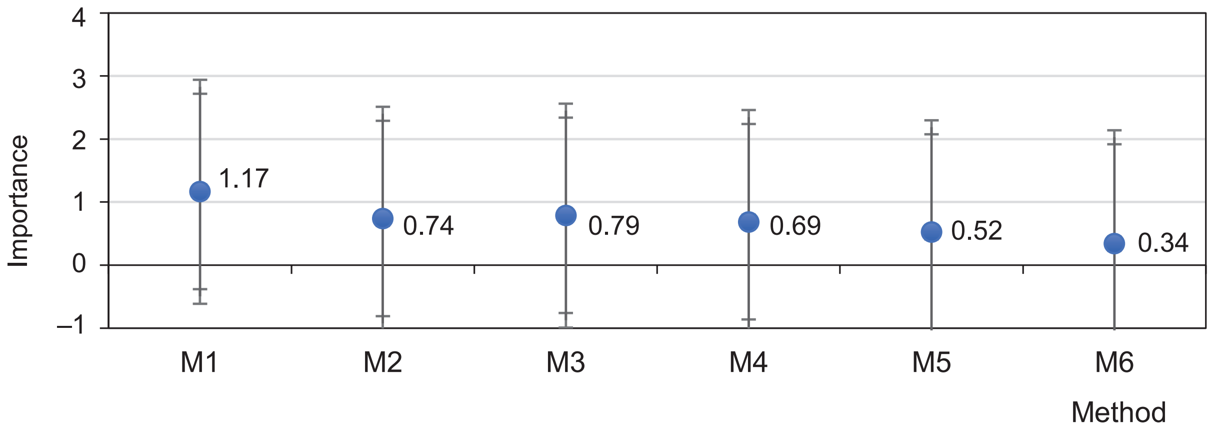
Notes: Responses on Likert scale 0 – 4 (0 = not important, 4 = very important). Factors:
F1: Unexpected events.
F2: Technical problems in production, process, etc.
F3: Poorly drafted budget-based action plans.
F4: The company did not react flexibly enough to adjust to changes during the reporting period.
F5: Causes on the part of employees.
F6: Customer causes.
F7: Impact of competition.
F8: Government actions.
F9: Other.

Source: own research

Figure 12 illustrates the mean values of evaluation of responses to the question: *"What factors cause the differences between your company's actual and planned budget?"* The respondents rated the importance of factors on a scale from 0 = factor is not important to 4 = factor is very important. The ranking of the most significant factors causing differences between the actual and the planned budget corresponds to the above conclusions (see also Section 3 of Table 6).

Factor "F1: Unexpected events" is supposed to be the most important, according to the mean rating (score 3.18), as it offers the most common explanation for various situations. The evaluation of the factor "F8: Government actions" might be politically affected according to the ruling political representation. It ranked in the third position with a score of 1.91, right after "F9: Other reasons". Interestingly, the least important factor that might cause a disbalance between the actual and the planned budget is "F5: Causes on the part of employees" and "F3: Poorly drafted budget-based action plans". In other words, firms usually do not blame their employees or managers for poorly drafted action plans.

Figure 13: Survey responses to the question: "Do you actively use modern budgeting methods in your company?"



Notes: Responses on Likert scale 0 – 4 (0 = strongly disagree, 4 = strongly agree). Selection of methods:
M1: Flexible budgets.
M2: Activity-based budgets.
M3: Indicative budgets.
M4: Rolling budgets.
M5: Zero-based budgeting.
M6: Other modern methods.

Source: own research

Figure 13 provides a graphical interpretation of the usage of selected modern budgeting methods. The respondents rated the importance of factors on a scale from 0 = strongly disagree to 4 = strongly agree. It is clear from the graph that the average values are very low for all the proposed modern budgeting methods. Even the highest score reached by "F1: Flexible budgets" is just 1.17.

The findings of this research manifest that firms in the Czech Republic have not moved towards using modern budgeting methods yet, and have not abandoned traditional budgeting methods (Figure 13 and Table 7). It should be noted that respondents could have chosen more than one answer option in answering this question. Modern budgeting tendencies are not significantly different for firms with foreign capital, though the percentages of concordant answers are higher among respondents from this group. For the firms with domestic capital, the highest mean score had indicative (1.20) and flexible (1.15) budgets, followed by activity-based budgets (1.10). For the firms with foreign capital, the most often used modern budgeting systems were flexible budgets (mean rating of 1.71), activity-based budgets (1.67), and rolling and indicative budgets (with the same mean score of 1.46). The statistical difference between firms with domestic and foreign capital was not confirmed by the statistical testing; all the p-values were above 0.05.

Table 7: Use of modern budgeting methods by firms in the Czech Republic (N = 84)

	Total	Domestic capital		Foreign capital		P-value*
	N=84	N=60		N=24		
	Mean	%	Mean	%	Mean	
Flexible budgets	1.17	20	1.15	33	1.71	0.600
Zero-based budgeting	0.74	7	0.52	21	1.21	0.200
Rolling budgets	0.79	13	0.85	33	1.46	0.300
Activity-based budgets	0.69	17	1.10	38	1.67	0.200
Indicative budgets	0.52	23	1.20	29	1.46	0.900
Other modern methods	0.34	0	–	13	0.30	>0.9

Note: % is the percentage of scores 3 – agree and 4 – strongly agree. Mean is the average score for each question. Responses on Likert scale 0 – 4 (0 = strongly disagree, 4 = strongly agree). * indicates significance at the 5% level.

Source: own research

Conclusion

The scientific novelty of this study lies mainly in the empirical results gathered through a questionnaire survey among Czech enterprises. The research covered the underlying picture regarding the budgeting processes within companies. Furthermore, the interpretations of the results allowed us to define the essential factors in the budgeting practice, cover the main trends of budgeting in companies and capture several aspects of business complexity affecting the budgeting practices of Czech companies.

The literature and empirical studies in the area of budgeting suggested contradictory findings. There were significant differences between countries, business environments and organisational cultures. Some authors stressed modern "beyond budgeting" trends; however, some results showed that companies did not plan to abandon traditional budgeting methods so fast. The firms seemed to modify the conventional techniques and adapt them to their specific needs rather than use the latest modern approaches (Fibírová and Šoljaková, 2009). This study focused on corporate budgeting practices and tendencies in budgeting in the Czech Republic, explicitly providing current empirical evidence on the impact of business complexity on budgeting practices.

This study pursued three main research questions, and appropriate answers were found to all of them. Research question 1 (RQ1) was concerned with the influence of business complexity on the budgeting practices of Czech companies. The findings of the empirical questioning confirmed that respondent firms use various financial management tools, including financial accounting (96% of the respondents), cost management (83%), annual budgeting (77%), and managerial accounting (73%). However, only 56% of the firms prepared strategic plans and budgets, 43% used analysis of variance, and 32% constructed flexible budgets. The balanced scorecard was used only by 12% of the respondents.

Similarly to Dokulil et al. (2020), statistically significant differences between companies owned entirely by domestic and foreign capital (wholly or partly) were found. A statistically significant difference was confirmed for three financial management tools: annual budgeting, analysis of variance and balanced scorecard. While all the enterprises with foreign capital ownership (100%) used the annual budgeting, only 68% of the enterprises owned by domestic capital did so. Only about 33% of the firms with domestic capital ownership used analysis of budget variances. In contrast, about 67% of the firms owned by foreign capital analysed differences between planned and actual values of budget items. The balanced scorecard was the least popular managerial tool by both groups of respondents; it was used only by 5% of the firms with domestic ownership; by contrast, it was used by 29% of the firms with foreign ownership.

Our findings showed that most respondents used major budgets and budgeted income statements (with 70% scores for both). The budgeted balance sheet was used only by 57% of the respondents, and the cash flow budget only by 42%.

The responsibility for budget preparation lay primarily on financial or accounting departments (chief financial officer; 46%) or the company management (40%). A surprisingly considerable number of companies let the business owners prepare the budgets (32%); it was probably because many family-owned companies answered the questionnaire (29.76% of the respondents were family firms).

Almost 80% of the questionnaire survey respondents stated that they regularly carried out budget controls, and only 13.1% of respondents claimed they did not. A statistically significant difference between firms owned by domestic and foreign capital was identified even in the answers to this question. An overwhelming 100% share of the foreign capital-financed businesses reported that they regularly monitored and controlled compliance with the budget. The ratio of domestic capital-funded companies performing monitoring and control was only about 72%. The results simultaneously implied that up to 18% of domestic capital-funded companies did not monitor or control budgets at ll.

Firms usually adjusted their budgets ad hoc, as required by the situation (39.29% of the respondents). Ad hoc adjustments were more frequent in firms with domestic capital (47%) than in firms with foreign capital funding (21%). If only firms with foreign capital were considered, the most typical periods when those firms adjusted budgets were annually (25%) and monthly (21%).

The statistical method of clustering was used to improve the interpretation of results concerning RQ1. For the analysis, three variables were selected (company size, legal form, and foreign ownership). Since all the variables were nominal, a two-step cluster analysis was used. The first cluster consisted of 57.1% of large enterprises, 68.6% of enterprises owned by foreign capital, and 65.7% of companies with the legal form of a limited liability company. The second cluster consisted of 51.0% of micro-enterprises, no company owned by foreign capital, and 67.3% of companies with the legal form of a limited liability company. The clustering revealed some typical patterns in corporate budgeting practices in both groups of companies. It helped enrich the findings related to the research question on the influence of business complexity on Czech companies' budgeting practices.

Differences between clusters were identified by most financial management tools, as hypothesised. Cluster 1, which included large LL companies with foreign capital, showed a more responsible and sophisticated approach to all financial management tools, including budgeting. Those companies relied primarily on financial/accounting departments to compile the budgets. On the other hand, cluster 2, which included micro LL companies without foreign capital, allowed budgets to be prepared preferably by business owners and company management, regular control of budget compliance was less frequent, and it usually occurred ad hoc.

Research question 2 (RQ2) addressed the factors that played an essential role in the budgeting practice of business companies in the Czech Republic and their importance. The survey respondents selected two essential factors in budgeting decisions: firstly, the connection of budgets to strategic planning, and secondly, the possibility of using budgets as a tool for business performance evaluation. These findings supported the hypothesis of the prevailing traditional approach to budgeting by Czech companies. Some evidence of the modern budgeting approach could have been indicated by the considerably high ratings of the factors "changes in customer demand" and "ability of budgets to help coordinate activities of cost centres involved in creating and implementing the budget". On the other hand, the factor representing technological developments in provided products or services had the least influence.

A statistically significant difference between companies owned by domestic and foreign capital was identified only for the factor "The budgeting process motivates managers of cost centres to achieve the objectives set by the budget (managers are involved in the preparation of the budget)". While only 26.67% of the companies financed solely by domestic sources motivated managers of cost centres to achieve the target set by the budget, about 54.17% of foreign capital firms involved managers in the preparation of budgets. The results also imply that firms owned by foreign capital (wholly or partly) perceive the motivation of managers to reach the goals set by the budgets as more critical.

The questionnaire also included a question concerning the factors that potentially cause the differences between the company's actual and planned budget. The most often stated reasons for incurred budget variances were unexpected events (61%), technical problems in production or other processes (32.14%), government actions (30.95%), and customer causes (22.62). The testing did not reveal any statistically significant difference between the responses of firms with domestic and foreign capital to this question.

Research question 3 (RQ3) focused on possible tendencies towards modern budgeting approaches. We expected considerable resistance to changing budgeting practices from traditional to alternative modern systems in the Czech Republic. This assumption was based on the foundation of the traditionally strong position of annual budgets in firms' financial management, given by the historical circumstances and the centrally planned economy in the past.

Foreign literature (Zeller, 2013; Cardos, 2014) has suggested that companies move away from traditional budgeting methods to modern alternatives due to constant changes among suppliers, competitors, customers and other aspects of the firms' environment. Leading companies were supposed to use rolling forecasts and budgets as a replacement to or in combination with traditional budgets to navigate the business as conditions change. Activity-based budgeting should help improve the focus and accuracy of budget outputs. Each modern concept of budgeting tries to overcome some specific problems of traditional budgeting. Still, the alternative budgeting methods do not provide a standardised solution for the budgeting problems of every organisation.

The findings of our research manifested that firms in the Czech Republic have not moved towards using modern budgeting methods yet, and have not abandoned traditional budgeting methods. Modern budgeting tendencies were not significantly different for firms with foreign capital, though the percentages of concordant answers were higher among respondents from this group. For the firms with domestic capital, the highest mean score, indicating the level of utilisation of a specific type of budget, was achieved by indicative and flexible budgets, followed by activity-based budgets. For the firms financed wholly or partly by foreign capital, the most often used modern budgeting systems were flexible budgets, activity-based budgets, and rolling and indicative budgets with the same mean scores.

The study was based on a questionnaire survey, implying certain limitations of result interpretation of personal opinions. Another limitation of the research was the total return rate of the questionnaire survey, which was only 4%, but the number of respondents was sufficient for statistical evaluation. Nevertheless, foreign empirical research studies are usually based on similar questioning procedures and are generally accepted as relevant.

There is still potential for future research in exploring other aspects of business complexity, especially in comparison with the results of different empirical studies from the Czech Republic or other European countries with similar economic developments. Another possible extension of this study might be a more precise focus on differences between answers of groups of firms from the perspective of the business sector, legal ownership, company size, etc. However, addressing a more significant number of respondents would be necessary to ensure a sufficient frequency in all analysed groups for statistical testing.

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Appendix: Questionnaire

Evaluation of the use of budgets by businesses in the Czech Republic

(for the research project implemented by the Department of Finance and Accounting of the Faculty of Economics of the Technical University in Liberec)

I) Basic information about the business entity

1) Legal form of business:

a) Joint-stock company

b) Limited liability company

c) Other ………………….……..

2) Company size (number of employees):

a) 0–9 employees (micro-sized enterprise)

b) 10–49 employees (small-sized enterprise)

c) 50–249 employees (medium-sized enterprise)

d) 250 and more employees (large-sized enterprise)

3) Please indicate the size of the company according to EU standards:

a) Micro (balance sheet total or turnover ≤ 2 mil. EUR)

b) Small (balance sheet total or turnover ≤ 10 mil. EUR)

c) Medium-sized (balance sheet total ≤ 43 mil. EUR or turnover ≤ 50 mil. EUR)

d) Large (balance sheet total ≥ 43 mil. EUR or turnover ≥ 50 mil. EUR)

4) The dominant business sector by CZ-NACE:

a) Agriculture, fishery, and forestry

b) Mining and quarrying

c) Manufacturing

d) Electricity, gas, steam and air conditioning

e) Water supply; sewerage, waste management and remediation activities

f) Construction

g) Wholesale and retail trade; repair of motor vehicles and motorcycles
h) Transportation and storage
i) Accommodation and food service activities
j) Information and communication
k) Real estate activities
l) Professional, scientific and technical activities
m) Administrative and support service activities
n) Other

5) Is the company owned/co-owned by foreign capital?

a) Yes
b) No

6) What type of accounting system is used in the company? (You can choose more than one option):

a) Czech accounting system
b) International Financial Reporting Standards (IFRS)
c) US GAAP
d) Another system

II) Budgeting

7) Are the following financial management tools used in your company?

		Yes	No	I do not know
a)	Financial accounting			
b)	Managerial accounting			
c)	Cost management			
d)	Annual budgeting (for one year)			
e)	Strategic planning and budgeting (2 to 5 years)			
f)	Budget variance analysis			
g)	Flexible budgets			
h)	Balanced scorecard			
i)	Other:			

8) What types of budgets are compiled in the company? (Select from the menu; multiple answers are possible.)

a) Major budget
b) Budgeted balance sheet
c) Budgeted income statement
d) Cash flow budget
e) Other: …………………

9) What budgets are compiled in the company regarding budget duration? (Select from the menu; multiple answers are possible.)

a) Daily
b) Weekly
c) Monthly
d) Quarterly
e) Semi-annual
f) Annual
g) Two years and more
h) Other: …………………

10) Who in your company deals with the preparation of budgets?

a) Business owners
b) Company management
c) Financial/accounting department
d) Individual internal departments separately
e) Budgets are prepared throughout the entire company
f) Other: …………………

11) What factors play an important role in your company's budgeting? Please rate the importance of factors on a scale from 0 = factor is not important to 4 = factor is very important.

		0	1	2	3	4
a)	Budgets are linked to strategic planning.					
b)	Budgets help evaluate business performance as a whole.					
c)	Budgets help coordinate activities of cost centres involved in creating and implementing the budget.					
d)	The budgeting process motivates managers of cost centres to achieve the objectives set by the budget (managers are involved in preparing the budget).					
e)	Changes in customer demand.					
f)	Development of customer preferences over time.					
g)	Changes in the market for competing products/services.					
h)	Technological developments in the area of provided products or services.					
i)	Government and legislative interventions.					
j)	Labour market situation (employees).					
k)	Availability of materials and other resources for production.					
o)	Other: ……………					

12) Is there regular monitoring of budget compliance in your company?

a) Yes

b) No

c) I do not know

13) If you answered YES to the previous question, please estimate how well your company met the planned budget goal in the last two years. The average deviation between the actual and planned budget was approximate:

		0–5%	5–10%	10–20%	20–30%	More than 30%
a)	Master budget					
b)	Sales budget					
c)	Variable cost budget					
d)	Fixed cost budget					
e)	Targeted operating income					

14) What factors cause the differences between the actual and the planned budget in your company? Please rate the importance of factors on a scale from 0 = not important to 4 = very important).

		0	1	2	3	4
a)	Unexpected events					
b)	Technical problems in production, process, etc.					
c)	Poorly drafted budget-based action plans					
d)	The company did not react flexibly enough to adjust to changes during the reporting period					
e)	Causes on the part of employees					
f)	Customer causes					
g)	Impact of competition					
h)	Government actions					
o)	Other: ……………					

15) How often do budget adjustments occur in your company?

a) Ad hoc – as required

b) Monthly

c) Quarterly

d) Semi-annually

e) Annually

f) In case of significant changes

g) I do not know

h) Other:……………..

16) Do you actively use modern budgeting methods in your company? Please rate the frequency on a scale from 0 = not at all to 4 = regularly.

		0	1	2	3	4
a)	Flexible budgets = budgets prepared for various variants of the future development					
b)	Zero-based budgeting = in each subsequent period, the budget is compiled from a zero basis					
c)	Rolling budgets = a primary budget period is defined (e.g., three years), but at the end of the 1st year, the forthcoming annual period is added					
d)	Activity-based budgets = budgets based on analysis of the relation of costs and benefits to activities					
e)	Indicative budgets = budgets set an estimated, assumed, calculated amount, non-compliance with which can only have consequences for the stimulation system (motivational effect)					
f)	Other: ……………					

17) Please estimate how long, on average, the entire process of drawing up the budget for the next period takes in the company (from the initial proposal by management to the final reports):

a) Less than one week

b) One or two weeks

c) Three to four weeks

d) Five to eight weeks

e) Nine to twelve weeks

f) More than three months

g) I do not know