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EXPLORING THE IMPACT OF ORGANIZATIONAL CONTEXT ON BUDGETING

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Abstract

Most organizations use budgeting and describe it as an institutionalized management accounting system, but it is also criticized for being unsuitable in today's uncertain business environment. This paper explores how sudden changes in organizational context impact the importance of budgeting. Earlier studies have reported less importance given to budgeting following a crisis and a need for more interactive approaches. Our study is based on a survey of CFOs of the 300 largest companies in Iceland, according to the dataset *Frjáls Verslun*, following the financial crisis of 2008. A total of 191 (63.6%) responded to the survey. The results show widespread use of budgeting, regardless of the size of the organization. The results also show that uncertainty and organizational complexity do not impact the perceived importance of budgeting. Contrary to prior studies, this indicates that budgeting remains an important management tool during a sudden change in the organizational context.

Keywords: Budgeting, Management Control, Financial Crisis, Uncertainty, Iceland

Authors' individual contribution: Conceptualization — C.E.B. and P.R.; Methodology — C.E.B. and T.K.; Formal Analysis — C.E.B. and T.K.; Resources — C.E.B. and T.K.; Writing — Original Draft — C.E.B. and P.R.; Writing — Review & Editing — C.E.B.; Supervision — P.R. and T.K.; Project Administration — P.R.; Funding Acquisition — P.R. and T.K.

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1. INTRODUCTION

Contingency theory states that there is no one way of managing or organizing and that context determines the most effective ways of doing so (Donaldson, 2001, 2006). Similarly, context determines the most appropriate form of managerial control (Chenhall, 2006). Changes in the organizational context are a potential impetus for changes in management control (Becker, 2014; Becker, Mahlendorf, Schäffer, & Thaten, 2016; Ezzamel, 1990; Rikhardsson, Rohde, Christensen, & Batt, 2021). For example, increasing environmental uncertainty causes plans to become outdated more quickly, and performance measurement becomes challenging (Berland, 2001; Bhimani, Sivabalan, & Soonawalla, 2018). Increasing size, spans of control, and diversity of ownership necessitate different approaches to budgeting (Ezzamel, 1990; Sandalgaard & Nielsen, 2018). Otley (2016) stated that today's

business environment is more dynamic and uncertain than ever before, and organizations face various types of uncertainties (Otley & Soin, 2014). Events leading to high uncertainty are more likely to happen than before, and we cannot exclude that their impact will be more global and important. Nevertheless, how does environmental uncertainty affect established management control methods like budgeting?

Budgeting has historically taken center stage in most organizations (Otley, 1994). The literature has established budgeting as an institutionalized practice within organizations, or a formal control routine and procedure in organizations (Simons, 1994). Hansen, Otley, and Van der Stede (2003) described budgeting as the cornerstone of the management control process. Covaleski, Evans, Luft, and Shields (2003) mentioned that "virtually every aspect of management accounting is implicated in budgeting" (p. 3). Also, budgeting has different functions in organizations (Becker et al., 2016; Samuelson, 1986), with the most prominent being planning the year, taking organizational strategy into account, the second being the communication of goals and plans throughout the organization. And the third being control of the achievement of those goals and plans.

Despite its stated importance, both practitioners and academics, as far back as Argyris (1952, 1953) and Hofstede (1969), have criticized budgeting for being cumbersome and hampering innovation. In the last decades, academics and practitioners have criticized budgeting for being unadaptable to environmental change, thus destroying business value (Hansen et al., 2003; Neely, Sutcliff, & Heyns, 2001; Selto & Widener, 2004; Wallander, 1999). Some of these critiques come with suggestions to abandon budgeting altogether (Bogsnes, 2008; Hope & Fraser, 2003). Today, the Beyond Budgeting Round Table[1], one of the main advocates of radical changes in budgeting, has attracted numerous international organizations to their network, according to their webpage. However, it is still an open question to what extent these organizations have radically changed their budgeting practices or abandoned budgeting altogether, as few academic studies of this topic exist (Bourmistrov & Kaarbøe, 2013; Nguyen, Weigel, & Hiebl, 2018). Studies have repeatedly shown that budgeting is the most widely used management control in organizations (Libby & Lindsay, 2010; Ross & Kovachev, 2009; Umapathy, 1987) and that budgeting "is still going strong" (Ekholm & Wallin, 2000, p. 537). The results of these studies seem contradictory with claims that budgeting is unsuitable to today's uncertain environment (Bogsnes, 2008; Hansen et al., 2003; Hope & Fraser, 2003). Advocates of changed budgeting practices claim that the current environment calls for more decentralized approaches to management and budgeting as how it is practiced in most organizations hampers the benefits of decentralization. Thus, in order to decentralize, one should abandon budgeting and use other methods of control (Hope & Fraser, 2003). Based on the importance given to budgeting in earlier studies, it is also an open question if companies are changing their budgeting practices in today's environment.

To sum up the motivation for this paper, there seems to be some controversy regarding the importance of budgeting in today's uncertain environment. The purpose of this study is to provide additional empirical evidence on the impact of organizational context on budgeting. It aims to answer the research question:

RQ1: What is the impact of environmental uncertainty and organizational complexity on budgeting characteristics?

The study investigates this in a survey of Icelandic companies that have gone through a period with rising environmental uncertainty during the financial crisis in 2008. The sample includes various types of organizations in terms of size, industry, and ownership.

This study has two main contributions. First, it analyzes budgeting in an environment that has gone through periods of high uncertainty. Second, as most studies of the impact of the environment on budgeting are somewhat dated, it updates the literature with a focus on today's environment.

The organization of the paper is as follows. The following section presents the theoretical background. Section 3 explains the research context and the methodological approach. Section 4 presents the results of the study and Section 5 discusses the results. Section 6 concludes the paper.

2. THEORETICAL BACKGROUND

2.1. Budgeting

Budgeting is an institutionalized practice in organizations (Becker, 2014) and constitutes a formal control designed to provide managers with a tool for influencing the behavior of employees (Simons, 1994). Budgeting is the most widely used management accounting control tool (Ross & Kovachev, 2009), and Hansen et al. (2003) described budgeting as the cornerstone of the management control process.

Budgeting refers to a set of functions: planning, communication, and control (Becker et al., 2016; Samuelson, 1986), that results in an annual plan (the budget) based on proposed activities; the potential resource consumption of these activities; and how they will impact the profit and loss (Becker et al., 2016; Bourmistrov & Kaarbøe, 2017; Ekholm & Wallin, 2000, 2011; Hansen et al., 2003; Sandalgaard, 2012; Sandalgaard & Bukh, 2014). The plan focuses on the year ahead but can also look several years into the future. The planning can be done with varying levels of granularity regarding activities, resource consumption, and financial impact, which can be broken down on a monthly, quarterly, or annual level. Ideally, the plan is a financial roadmap showing where the organization is heading and a map of the firm's strategic goals. The work of budgeting usually draws on an analysis of past, actual, and planned performance and forecasting future developments based on statistical or judgmental forecasts of varying complexity (Green & Armstrong, 2015). Once the plan is prepared and approved, managers often use variance analysis to evaluate performance against the budget (Armitage, Webb, & Glynn, 2016). In many cases, the approval of the budget triggers financial rewards or is linked to a variable salary component (Libby & Lindsay, 2003).

[1] https://bbrt.org

One of the primary functions of budgeting is to provide managers with the time and opportunity to develop and communicate their long-term vision and goals for the organization and to foresee and pre-empt problems that could occur in the future (Atkinson, Kaplan, Matsumura, & Young, 2011; Becker et al., 2016; Samuelson, 1986). It can also assist managers in deciding in advance whether their goals and objectives are feasible (Becker et al., 2016; Samuelson, 1986). Even if not all the goals are attained within the period, the budgeting process should motivate both managers and employees to reach them. Budgeting, therefore, connects the strategic plan with the allocation of resources and sets financial and non-financial targets to improve control and ensure that the organization achieves its overall objective (Hansen & Van der Stede, 2004).

2.2. The budgeting critiques and the organizational context

Given the description above, one might think that every business would perceive budgeting as a helpful and efficient management tool and that most would have implemented it. However, since the studies of Argyris (1952, 1953) and Hofstede (1969), researchers (Hopwood, 1986, 2009) and practitioners (Bogsnes, 2008; Jensen, 2001, 2003) have raised concerns about budgeting. Based on a survey among 100 academics and practitioners, Neely et al. (2001) generated a list of the 12 most commonly cited complaints about budgeting. Hope and Fraser (2003) go in the same direction as they claim that the budgeting process is too expensive and adds little value. Along with Bogsnes (2008), they assert that as organizations become more complex, annual budgeting methods add less value to their management due to the inflexibility and inertia built into the annual budgeting process (Bogsnes, 2008; Hope & Fraser, 2003).

Throughout the years, various methods and tools have been proposed and implemented in efforts to improve the budgeting process and make budgets more valid as management controls and respond to the budgeting critiques (Bogsnes, 2008; Drury, 2016; Hansen et al., 2003; Hope & Fraser, 2003; Sandalgaard & Bukh, 2014). One of these methods is the rolling forecast (Ekholm & Wallin, 2000). It differs from traditional forecasting, which includes methods for estimating future developments, such as statistical forecasts and judgmental forecasts. The rolling forecast represents a break with the annual planning horizon in favor of revising plans and objectives on a more frequent basis (e.g., quarterly or monthly). It is not a budgeting method per se but is often used in conjunction with the annual budgeting process (Ekholm & Wallin, 2000). There are variations in the implementation of rolling forecasts in practice. Some companies use this method to measure, more frequently, actual performance against plans and to change and respond to changes in time (Henttu-Aho & Järvinen, 2013; Simon, 2017). Others use this method to supplement the annual budgeting process for specific areas where rapid changes, such as cash management and day-to-day decision-making (Lorain, 2010). Used in these ways, the rolling forecast can reflect changes in the environment and facilitate the development of new scenarios while keeping in touch with the organization's strategy (Lorain, 2010).

Another proposition is to link budgeting to activities and resource-consumption drivers (Hansen, 2011). Activity-based budgeting involves using an activity-based costing approach to estimate future requirements in terms of resources, need for activities, and capacity use. Cooper and Slagmulder (2000) stated that activity-based budgeting has two main advantages over annual budgeting. First, it has the potential to be more accurate, as resource consumption and activity planning are prepared "bottom-up". Second, it provides more significant insights into why the demand for resources is not linear with production volume, enabling planners to vary demand based on, for example, seasonality and production schedules. Therefore, there is a close link between activity-based budgeting and operational planning and capacity dispositions (Hansen, 2011). According to several studies, the use of activity-based budgeting is limited, although there is some evidence of the benefits of this approach in both the public and private sectors (Ax & Greve, 2017; Bjørnenak, 1997; Hansen et al., 2003; Jackson & Lapsley, 2003; Searcy, 2004).

Third, there is Beyond Budgeting. This approach focuses on separating the functions of budgeting — on the assumption that the annual budget cannot fulfill target setting, performance measurement, and resource allocation functions at the same time (Hansen, 2011; Hope & Fraser, 2003). It might be called more of a management approach rather than a new budgeting method, as it focuses on both leadership and management processes in what its proponents call "the principles of Beyond Budgeting" (Østergren & Stensaker, 2011). The implementation of these principles rests on two primary tenets (Bogsnes, 2008). The first is abandoning the annual budget and the budgeting process, and the second is radical decentralization. However, abandoning the annual budget is the element that has received the most attention, even though it is only one part of the Beyond Budgeting approach. The Beyond Budgeting Roundtable (bbrt.org) has attracted several high-profile companies, and many companies have stated that they are experimenting with Beyond Budgeting (Bourmistrov & Kaarbøe, 2013; Sandalgaard & Bukh, 2014). However, research has found little evidence of widespread abandonment of the annual budget (Ekholm & Wallin, 2000, 2011; Libby & Lindsay, 2010; Sandalgaard & Nielsen, 2018; Sponem & Lambert, 2016).

2.3. Budgeting and the organizational environment

Contingency-based research proposes that there is no single management control system (MCS) suitable for all businesses. Instead, organizational effectiveness results from how characteristics of the MCS fit with the characteristics of the organizational context (Child, 1972). Organizational context includes, for example: 1) technology, 2) structure, 3) size, 4) strategy, 5) national culture, and 6) environmental characteristics such as uncertainty (Burns & Stalker, 1961; Chenhall, 2003;

Lawrence & Lorsch, 1967). Claims that budgeting is not suitable for today's environment revolve around decentralization and environmental uncertainty. First, the budgeting critiques claim that the budget becomes unreliable in today's business environment (Bogsnes, 2008; Hope & Fraser, 2003). Second, the critiques claim that to decentralize, organizations should abandon the budgeting process (Berland & Boyns, 2002; Hope & Fraser, 2003). This means that size, structure, and level of environmental uncertainty are seen as important influencers on budgeting.

2.3.1. Size

Organizational size has been identified as a decisive contextual variable with a substantial effect on the design of management control (Burns & Stalker, 1961; Bruns & Waterhouse, 1975; Dugdale & Lyne, 2010; Merchant, 1981). Size can be measured in terms of the number of employees, turnover, profit, and number of products and services offered by the company. The size of the organization often reflects its complexity and the availability of resources. It has also been argued that the complexity and the availability of resources increase when organizations become larger (King, Clarkson, & Wallace, 2010).

Bruns and Waterhouse (1975) identified two types of control associated with company size: "administrative controls" are the formalized processes and control systems that tend to be implemented by larger firms, while "personal controls" are the informal control systems and processes that tend to be implemented by smaller organizations. A small organization can manage itself with informal procedures and controls, while a large organization will need rigor and structured control systems. As budgeting is a communication and control management tool (Merchant & Van der Stede, 2011; Seal, Rohde, Garrison, & Noreen, 2015), the organization's size should impact these different budgeting functions.

Several authors have examined the effect of organizational size on the design of management accounting systems and budgeting characteristics (Dugdale & Lyne, 2010; Ezzamel, 1990; King et al., 2010; Merchant, 1981; Sandalgaard & Nielsen, 2018). However, Ezzamel (1990) found that the characteristics of the budget vary with the contextual variables, such as perceived environmental uncertainty (PEU), but he did not found any significant correlations between organizational size and budget characteristics. King et al. (2010) studied the impact of organizational contexts, such as size, on budgeting practices and performance in small entities. They reported a positive relation between the size of the entities and the use of budgets. These results are not aligned with studies among large organizations that used budgeting extensively (Ross & Kovachev, 2009). Sandalgaard and Nielsen (2018) found that the emphasis on budgets in performance measurement is related to size, decentralization, and interdependence and that, regardless of size, focus on budget targets has a positive influence on a company's performance. They also found that the more decentralized a company is, the more emphasis there is on using budget targets to measure performance. Although not conclusive, this evidence suggests that larger, more decentralized organizations tend to favor annual budgets, tend to use budgets to benchmark performance, and are generally less likely to change budgeting processes incrementally or radically.

2.3.2. Structure

Organizational structure is considered a contextual variable in management accounting (Chenhall, 2006). A more extended scope of operations in the form of subsidiaries and divisions implies a higher level of complexity in the form of the geographical spread of the organization, more extended lines of authority and communication, increased formalization of management, and a greater range of cultural influences on management styles (Chenhall & Morris, 1986).

Burns and Stalker (1961) studied the implications of organizational decentralization on management. They distinguished between "mechanistic" and "organic" systems. While "mechanistic systems" rely on formal rules, standardized operations, and routines, "organic systems" are flexible, responsive, and with few rules and standardized procedures (Burns & Stalker, 1961). Later, Khandwalla (1977) found a relation between structure and size, with mechanistic structures better fitting large organizations than smaller ones. Chenhall (2003) claimed that it is generally believed that organic structures are better suited in uncertain environments.

Merchant (1981) found that larger, more diverse, decentralized firms tend to use budgeting in an impersonal, "administrative" manner, emphasizing the achievement of budget plans. He also found that larger firms that take a more administrative approach to budgeting perform better than those that do not. Correspondingly, smaller and more centralized firms, according to his study, rely more on direct supervision and frequent interaction and less on formal budgets. However, this study was conducted about 40 years ago, using a sample of 19 firms in the electronics industry that had from 400 to 95,000 employees.

2.3.3. Environmental uncertainty

Another contextual factor that has been examined is the uncertainty managers perceive in the environment in which they operate. Uncertainty has been described as a lack of information that makes it difficult to accurately plan various elements of the business and that affects management control systems (Chenhall, 2003; Otley & Soin, 2014). Otley and Soin (2014) have pointed out that uncertainty emerges from many different sources, both internal and external to the organization, that reflect changes in the organizational environment. Research shows that when uncertainty increases, managers need more information for planning and budgeting (Gordon & Narayanan, 1984; Khandwalla, 1977). Studies also show less use of annual budgets when uncertainty levels are relatively high (Hoque, 2004).

There is extensive research on the effect of perceived environmental uncertainty on MCS (Bastian & Muchlish, 2012; Chenhall, 2003; Hoque, 2005;

Otley & Soin, 2014). Chenhall and Morris (1986) found that organizations tend to use non-financial information in the context of high environmental uncertainty, indicating that the importance of financial budgets is reduced. This suggests that when the degree of uncertainty changes, coherence between elements of management control changes in response. Abernethy and Browell (1999) found that when a firm undergoes strategic redirection, performance is enhanced if budgeting is used interactively. Ekholm and Wallin (2011) found that PEU has a significant negative relation with the perceived usefulness of traditional annual budgets, but they did not found any relation with flexible budgets.

Some studies have focused on changes in budgeting practices following a financial crisis. Collins, Holzmann, and Mendoza (1997) studied the relation between business strategy and perceived budgetary usage in Latin America following a financial crisis. The results of their study show that following a financial crisis, a higher uncertainty impacted the budgeting process, leading to reduced importance of budget use during a crisis. Shih and Yong (2001), following the recession of 1997–1998, found a decreased emphasis on budgetary control under such circumstances. Focusing on the financial crisis of 2008, studies report changes in management accounting practices. Endenich (2014) investigated change processes in German and Spanish management accounting during times of economic crisis. He observed an emphasis being placed on increased frequency, with more extended use of rolling forecasts. Janke, Mahlendorf, and Weber (2014) demonstrated that the perception by the management of a crisis leads to more interactive use of management controls, echoing conclusions made regarding the use of controls in uncertain environments. Pavlatos and Kostakis (2015) studied the impact of the Greek economic crisis on management accounting practices and examined the shift in trends of different accounting techniques. The results revealed more importance in strategic and planning tools during the crisis. After the crisis, the importance and usage of long-term planning techniques increased. Same with strategic plans developed with budgets and strategic plans developed separately with budgets. Finally, Becker et al. (2016) studied the impact of an economic crisis on budgeting. The study results show that companies impacted by the financial crisis of 2008 placed more importance on planning and resource allocation than performance measurement.

The evidence above is mixed. There is evidence that increasing uncertainty leads companies to adopt more interactive budgeting processes, while it seems that a crisis leads to more emphasis on budgeting and cost accounting. As a crisis, such as the financial crisis, is a source of increasing environmental uncertainty, the evidence is inconclusive regarding what to expect from our study.

3. METHODOLOGY

3.1. Research context

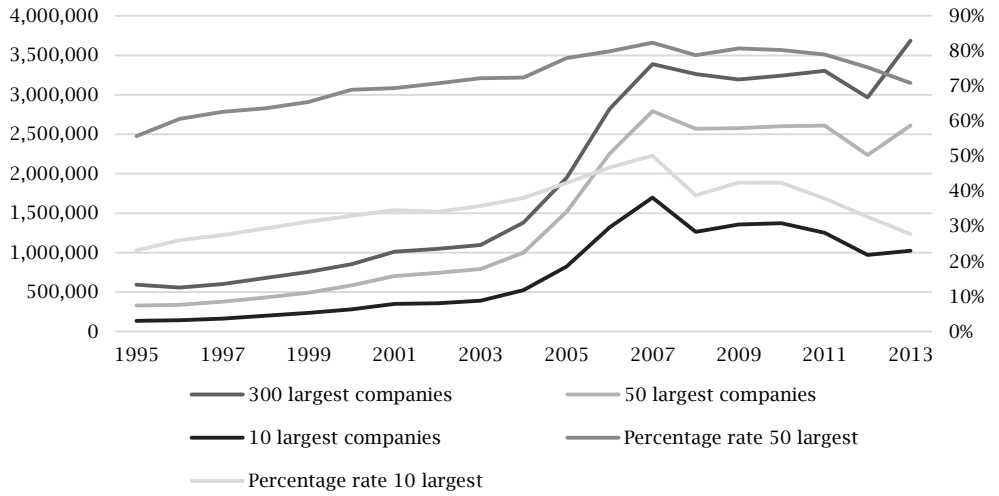
The study took place in Iceland for three main reasons. First, as argued below, Iceland has gone through periods of uncertainty in the past decades. In particular, the Icelandic economy went through extensive growth, followed by a severe financial crash in 2008. Second, the survey population of the 300 largest companies in Iceland includes all publicly listed companies with a wide range of companies in terms of size, ownership, and industry. Third, by focusing on Iceland, we were able to control for cultural and institutional differences (Ahrens & Chapman, 2000; Granlund & Lukka, 1998), affecting budgeting.

Iceland is a small island of 103,000 square kilometers. When the study took place, the population was 325,671 inhabitants, of which more than half live in the capital area of Reykjavik (Statistics Iceland, 2015). The official language is Icelandic, and its currency is the Icelandic krona (ISK). Iceland became a member of NATO in 1949, the European Free Trade Association (EFTA) in 1970, and the European Economic Area (EEA) in 1994. Iceland is not a member of the European Union (EU) but has strong business and cultural ties to both Europe and the US.

In 2003, the government finalized the privatization of many state-owned enterprises, most notably the banks and other fiscal changes that, combined with the general world economic development, led to a period of unparalleled expansion and growth in the Icelandic economy. Then in 2008, Iceland experienced the worst economic crisis in its 64 years as an independent republic. Within a few days, the three largest commercial banks went into receivership (Christensen, Rikhardsson, Rohde, & Batt, 2018), and the stock market lost about 90% of its market value (Mixa & Sigurjónsson, 2013).

Figure 1 illustrates this history vividly. The left side of the graph shows the annual turnover of the 300 largest companies in Iceland from 1995 to 2013. The right side of the graph, illustrated by the dashed lines, represents the percentage rate. The development shows that after a long period of relative stability, companies' turnover around 2003 began to increase with increased sales, internationalization, and investments abroad. Until 2008, the turnover of the 300 largest companies had almost quintupled in size. Then, after the economic crisis hit in 2008, the turnover fell and has been fluctuating since.

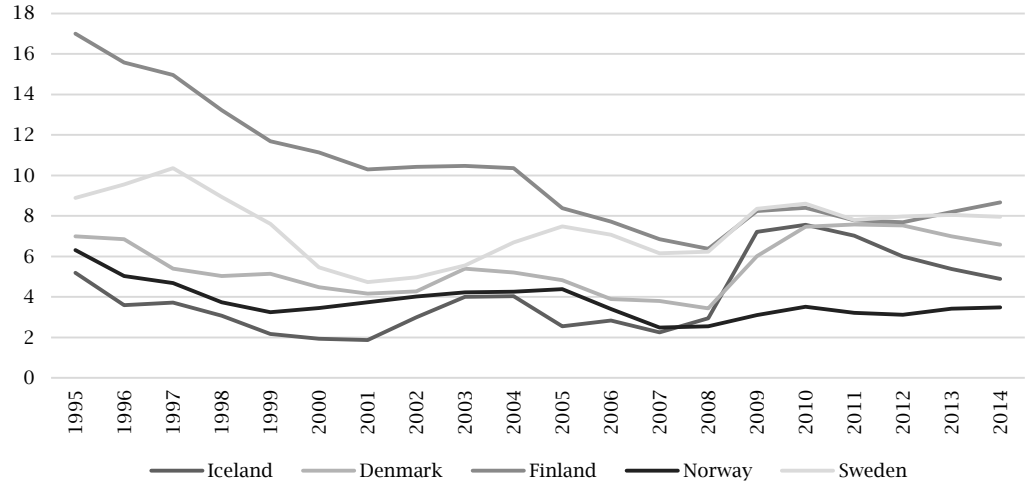
Figure 1. Turnover of the largest Icelandic organizations in millions of ISK



Source: Frjáls verslun 1995–2013 (Frjáls Verslun, 2017).

The development of the unemployment rate in Iceland is another indicator of changes in the external environment of companies. From 1970 until 2013, the average unemployment rate in Iceland was 2.4%, the highest in the country's history had been 9.2% in September of 2010, two years after the economic crisis hit (Statistics Iceland, 2019). Figure 2 compares the unemployment rate for all five Nordic countries. As can be seen from the graph, the unemployment rate was the lowest in Iceland until it went up to 7.2% in 2009, putting Iceland in the third position of unemployment among the Nordic countries after Finland and Sweden, whom both had high unemployment rates before the financial crisis of 2008 (The World Bank, 2020b).

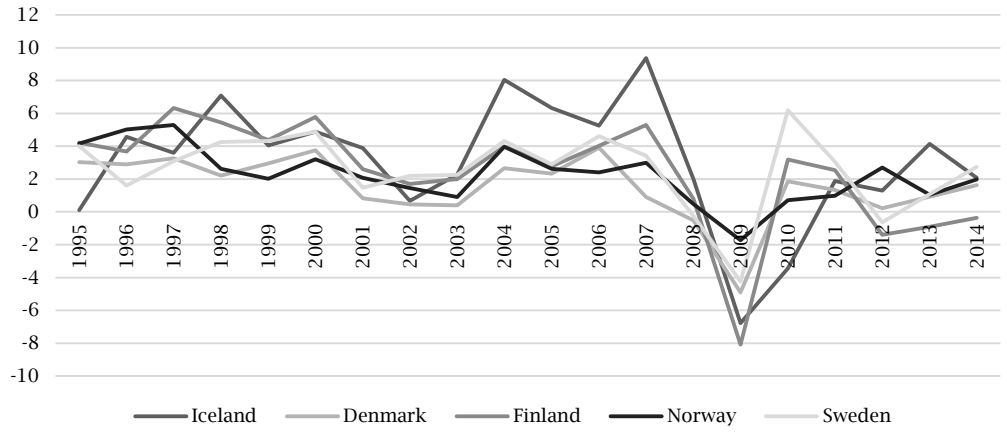
Figure 2. Unemployment, total (% of the total labor force) for Iceland, Denmark, Finland, Norway, and Sweden



Source: The World Bank (2020b).

The third, and perhaps the most striking indicator of the drastic change in the operating environment, is the change in the gross domestic product (GDP) growth, which fell by 10.4% between 2008 and 2010. As seen in Figure 3, of all five Nordic countries, the GDP of Iceland was the highest in 2007, as it was rated 9.3%. In comparison, the GDP of Denmark was the lowest (0.9%), and Finland ranked in the second position with a GDP growth of 5.2%. In 2009, all the GDPs of the Nordic countries ranked below 1, with Iceland (-6.77%) and Finland (-8.07%) with the lowest GDP growth.

Figure 3. Annual GDP growth (annual %) 1995–2014 in Iceland, Denmark, Finland, Norway, and Sweden



Source: The World Bank (2020a).

The above figures show an economy bouncing back from the crisis of 2008 at the time of the survey in 2014, with the country's GDP rising again after initiatives by the government and interventions by the International Monetary Fund. In July 2014, Statistics Iceland (2014) reported a 5.0% increase in new private limited companies compared to the prior 12 months, and at the same time, the number of corporate insolvencies from July 2013 until July 2014 decreased by 21.0%. At the time of the survey in 2014, the unemployment rate was back down to 3.3% (Statistics Iceland, 2019).

3.2. Methodology

The sample consisted of the CFOs (or people in similar positions) of the 300 largest companies in Iceland as measured by turnover. About 78% of the respondents were CFOs, while 10% were CEOs, and 12% had other management titles such as Head of Planning, but all were responsible for the budgeting process in their organization.

We retrieved these companies from the media house list *Frjáls verslun*. For the past decades, *Frjáls verslun* has collected data on Icelandic organizations, such as financial information, number of employees, names of managers, industries represented, etc. This population includes all publicly listed companies, ranging from small companies with fewer than ten employees to international corporations with thousands of employees. It also covers a variety of ownership structures, from family-owned firms to multinational corporations owned by private equity. When the survey took place, these 300 largest companies employed 35% of the employed persons in the country and generated about 80% of the turnover of all Icelandic organizations. The survey was part of the Icelandic Management Accounting (ICEMAC) project that aimed to map management accounting practices in Iceland. It measured a variety of variables related to management accounting, such as costing methods, performance measurement methods, internal control, and budgeting. In this study, we only focus on the survey questions related to the budgeting practices in Iceland. The survey was administered in Icelandic.

Each CFO was contacted personally by phone by the corresponding author to introduce the study and the research team and elicit participation. Each CFO who agreed to participate received an e-mail containing a link to the survey instrument. Those who did not answer the survey received up to four reminders to participate. The survey instrument was administered using the software Survey Gizmo[2], in which the respondents registered their answers anonymously. Participants were informed at the beginning of the survey about the anonymity and confidentiality of their responses and that they could stop answering the survey at any moment. These were saved in a central database and later analyzed using SPSS. A total of 191 questionnaires were answered, giving an overall response rate of 63.6%. In all, 73 women and 118 men answered the questionnaire, and the average length of employment of respondents was 3.9 years. According to the responses, the organizations had from 2 to 4,049 employees with an average of 209 employees. The reported turnover ranged from 650 million to 114,755 billion Icelandic Kroner (424 million to 750 million euros or 5.8 million to 1.024 billion US dollars). A few large organizations and numerous small and medium-sized organizations make up the population. The response rate was independent of company size measured by the number of employees. However, managers of companies that had higher turnovers were more likely to respond than managers of companies with lower turnovers.

Responses with multiple missing values were excluded from the analysis to avoid any artificial skewing. This process resulted in 169 responses (56.6%) being deemed suitable for data analysis. A t-test checked possible response bias between the early and late responses and revealed no significant differences with $t(170) = -0.317$, $p = 0.752$ for the turnover, and $t(171) = 0.133$, $p = 0.894$ for the number of employees.

Table 1 presents detailed information regarding the population in comparison to the respondents in our study. The industry is as given by the database *Frjáls verslun*, and the size corresponds to the EU definition of company size (EC, 2003).

[2] Today *Alchemer*

Table 1. Descriptive statistics regarding population and respondents

	Population		*Respondents*	
	n	***%***	***n***	***%***
Industry	300	100%	169	100%
General industry	79	26%	43	25%
Tourism	15	5%	8	5%
Finance industry	17	6%	9	5%
Transport	15	5%	9	5%
Wholesale and retail shops	45	15%	27	16%
Energy industry	14	5%	10	6%
Specialist services	23	8%	14	8%
Fisheries	31	10%	18	11%
Information technology	22	7%	13	8%
Other services	39	13%	18	11%
Size of the organization*				
Large	67	22%	35	21%
Medium	131	44%	74	44%
Small	102	34%	60	35.5%
Ownership				
Private limited company	143	48%	76	45%
Limited company/listed on the market	16	5%	12	7%
Limited company/not listed on the market	123	41%	71	42%
Cooperative	3	1%	1	1%
Limited partnership	6	2%	3	2%
Other	9	3%	6	4%

*Note: * Size of the organization measured according to the EU definition of company size.*

As seen in Table 1, the sample represents a wide range of organizations, from the general industry to Fisheries and the financial sector. In the table, the organizations have been classified by size. The classification of the organization is based on the classification of the European Union, where a medium-sized organization is defined with less than 250 employees and turnover lower than 50 million euros. A small organization is defined with less than 50 employees and a turnover lower than 10 million euros. Therefore, a company with more than 250 employees and a turnover larger than 50 million euros is considered a large organization.

3.2.1. Variable measurement

The content validity and reliability of the survey were tested. Content validity aims to make sure that the survey and the variables capture the entire scope of the construct (Diamantopoulos & Winklhofer, 2001). Content validity can be tested through literature review or expert interviews. To ensure the content validity of the variable measurement, a thorough literature review was conducted. The survey instrument was pilot tested on two CFOs, two partners in two of the largest auditing firms in Iceland, and academic colleagues of the authors.

Reliability analysis consisted of Cronbach alpha calculations. This statistic provides an indication of the average correlation among all the items that make up the scale. Values range from 0 to 1, with higher values indicating greater reliability (Pallant, 2010). Values ranging between 0.5 and 0.7 are considered acceptable (Ezzamel, 1990; Nunnally, 1978) and have often been accepted in management accounting studies (Auzair & Langfield-Smith, 2005; Ezzamel, 1990; Kruis, Speklé, and Widener, 2016).

The organizational context

The survey instrument developed in the ICEMAC project defined management accounting practices in terms of topics covered in leading textbooks on management accounting (MAC) (e.g., Atkinson et al., 2011; Drury, 2016). It included questions about practices regarding, e.g., costing, budgeting, performance measurement, and internal control. The background variables were designed to also reflect the Icelandic context in terms of firm size, ownership, and structure. In selecting variables for measuring the organizational context, we examined other studies that investigate the link between context and management accounting in general and budgeting in particular (see Section 2 and, in particular, Chenhall and Morris, 1986, Dugdale and Lyne, 2010, Ezzamel, 1990, Pugh, Hickson, Hinings, and Turner, 1968). From this, we adopted six variables that describe the organization and the people working in it as well as respondents' perceptions of the environment and the future. These are defined in more detail below.

Size: According to Chenhall (2003), there are several ways to measure the size of an organization, such as sales in volume, assets, or the number of employees. In this study, to measure the size of the organization, we used the number of employees, like Merchant (1981) and Sandalgaard (2012). As well as the turnover of the organization, which was available from the database *Frjáls Verslun*, and measured in Icelandic krona, and used to classify the organizations in terms of size.

Complexity: To measure the complexity of the organization, we asked about the number of business units (question 1), on a four-point scale on which 1 = *no, the company does not run more than one business unit*; 2 = *yes, the company runs more than one business unit in Iceland*; 3 = *yes, the company runs more than one business unit in other countries*; and 4 = *yes, the company runs more than one business unit in Iceland and other countries*. We assume that an organization with a large number of business units has a more complex structure than an organization with fewer business units. If business units were also located abroad, this would add to the complexity of the organization.

Internationalization: To measure the internationalization (*foreign ownership)* of the organization, managers indicated whether an international group owned their organization with 1 = *no* or 2 = *yes* (question 2).

Tenure of the respondent: Regarding the respondents, we measured the *tenure of the respondent* (question 46) in his or her current position on a scale from less than one year to more than ten years. We also asked each respondent about their highest level of education. On a 7-point ordinal scale, respondents could choose between 1 = *High School education*; 2 = *Diploma*[3]; 3 = *B.Sc./ BA*; 4 = *Cand.oecon.*[4]; 5 = *Master/M.Sc./MABI/MBA*; 6 = *Certified auditor*, and 7 = C*ertified accountant*[5].

Perceived environmental uncertainty: PEU was measured, in the fifth question of the questionnaire, in a similar way as in other studies (Ekholm & Wallin, 2011; Gordon & Narayanan, 1984; Hartmann, 1998; Hartmann & Maas, 2011; Hoque, 2004; Sandalgaard, 2012). Respondents answered on a five-point Likert scale, ranging from 1 = *very predictable* to 5 = *very unpredictable*, to indicate the relative predictability of the firm's external environment with reference to a list of 12 items describing the external environment. The Cronbach alpha of the PEU measurement was 0.786.

Expectations regarding the future: Finally, like Collins, Almer, and Mendoza (1999), question 6 assessed the respondents' *expectations* regarding the impact of future developments on their organizations, we asked them to mark on a five-point Likert scale ranging from 1 = *very little influence* to 5 = *very much influence* their expectations regarding the influence of information technology, globalization, and operational complexity. The Cronbach alpha was 0.705.

Budgeting characteristics

To achieve an overview of budgeting characteristics, we posed several questions related to the budgeting practices in respondents' organizations based on other budgeting studies (see Section 2 and, in particular, Ekholm and Wallin, 2011, Libby and Lindsay, 2010). These are further described below.

Importance of budgeting: Before asking any other question on the budgeting characteristics, we asked respondents about their perceived importance of budgeting. Other studies (Becker et al., 2016; Collins et al., 1997) have asked about the importance of specific functions of budgeting. Inspired by their study, we focused on budgeting in general. To measure the importance of budgeting in the company, inspired by Libby and Lindsay (2007), we asked respondents to gauge the importance on a 5-point Likert scale ranging from 1 = *very unimportant* to 5 = *very important*. There was also an option to mark "*We do not set budgets*".

Data used for budget preparation: Budgets have been criticized for being based on unsupported assumptions and guesswork (Hope & Fraser, 2003; Neely et al., 2001). However, Gordon and Narayanan (1984) argue that more information is needed for planning and budgeting in a changing environment. We asked participants about the data used to prepare the budget and to score on a five-point Likert scale whether the budget was based on historical data only, based on forecasts only, or based on a combination of forecasts and historical data.

Importance of variance analysis: Variance analysis is used as a control function in the budgeting process (Atkinson et al., 2011; Becker et al., 2016; Samuelson, 1986). The importance of variance analysis was measured on a five-point Likert scale ranging from 1 = *very unimportant* to 5 = *very important*.

Budgeting period: The length of the budgeting period was measured on a six-point ordinal scale ranging from one year to more than five years. This was measured to see how far ahead managers were planning. A budget with a 5 years span would be less reliable than a budget with a shorter time span.

Plans prepared: A list was compiled, based on management accounting textbooks such as that by Atkinson et al. (2011), to gather further knowledge on the different plans prepared by the organizations. The plans included were sales, inventory, production, human resources, capital, raw materials, balance sheet, income, and cash flow. For each plan, a four-point ordinal scale was used to measure whether the plan was 1 = *made yearly*; 2 = *made as needed*; 3 = *never made*, or 4 = *not applicable*. The Cronbach alpha for all the different plans was 0.616. This is a little below the threshold of 0.7, but values ranging between 0.5 and 0.7 are considered acceptable (Ezzamel, 1990; Nunnally, 1978).

Budgeting methods: Like Ekholm and Wallin (2011), to assess what types of budgeting methods were in use, we asked respondents to indicate whether they had adopted or had any interest in adopting rolling forecasts, activity-based budgeting, or Beyond Budgeting. The question was based on a six-point ordinal scale ranging from 1 = *I don't know the method*; 2 = *the method has been tried and abandoned*; 3 = *there is no interest in adopting the method*; 4 = *there is moderate interest in adopting the method*; 5 = *there is interest in adopting the method*; 6 = *the method is already in use*. The Cronbach alpha of all the budgeting methods was 0.735.

4. RESULTS

4.1. Organizational context

In terms of the size and scope of their operations, a vast majority (88%; $n = 148$) of the responding organizations were Icelandic, and 82% ($n = 138$) had business units only in Iceland, while 10% ($n = 16$) had business units in more than one country. The respondent companies employed from 2 to 3,452 employees, with a mean of 225. The turnover ranged from 645 to 112,443 million Icelandic kroner[6], with a mean of 11,217.39 million. These results show a large variety of organizations included in our sample.

Table 2 presents the results for the tenure of respondents and organization size. Most respondents had been in the same position for more than 2 years, with 31.5% ($n = 46$) having been in the same position for the last 10 years, 26.7% ($n = 39$) for 5 to 10 years, and 27.4% ($n = 40$) for 2 to 5 years.

[3] A Diploma is a 2-year program or less, after High School, and less than a Bachelor degree.

[4] Cand.oecon. is an academic degree in Danish, Norwegian, and Icelandic Universities. The degree was established in 1964 at the University of Iceland as a 4-year program in Business Administration at the Faculty of Economics and Business Administration. In Iceland the degree was equivalent to the Bachelor program. It remained in effect until 1996, when the current three-year BS (1996) and two-year MS (1997) programs took over.

[5] In Iceland, a certified accountant requires a High School degree and a certification through an open university program.

[6] The exchange rate between the Icelandic krona and the US dollar in 2014 was around 119.27 USD for 1 ISK. The turnover of the organizations ranged from 5.5 to 942.46 million USD.

Table 2. Tenure of respondents

	<1 year		*1–2 years*		*2–5 years*		*5–10 years*		*>10 years*	
	n	***%***	***n***	***%***	***n***	***%***	***n***	***%***	***n***	***%***
Small	3	6	3	6	8	17	17	35	17	35
Medium	2	3	7	11	20	30	15	23	22	33
Large	4	16	2	6	12	38	7	22	7	22
Total	9	6	12	8	40	27	39	27	46	32

*Note: * Size of the organization measured according to the EU definition of company size.*

Regarding the highest level of education, as can be seen in Figure 4, 9.3% (n = 13) did not have a university degree, 33.8% (n = 47) had Bachelor's degree, 21.6% (n = 30) had cand.oecon. degree, 31.7% (n = 44) had a Master's degree in business, and 3.6% (n = 5) had degrees as state-certified auditors. Regarding these results, the Bachelor's or Master's degrees held by the respondent is not necessarily a degree with a specialization in accounting. There was a significant correlation between the size of the company and the level of education, with CFOs in larger companies with a higher degree of education (r = 0.210, p = 0.013).

Figure 4. Highest level of education of the respondents

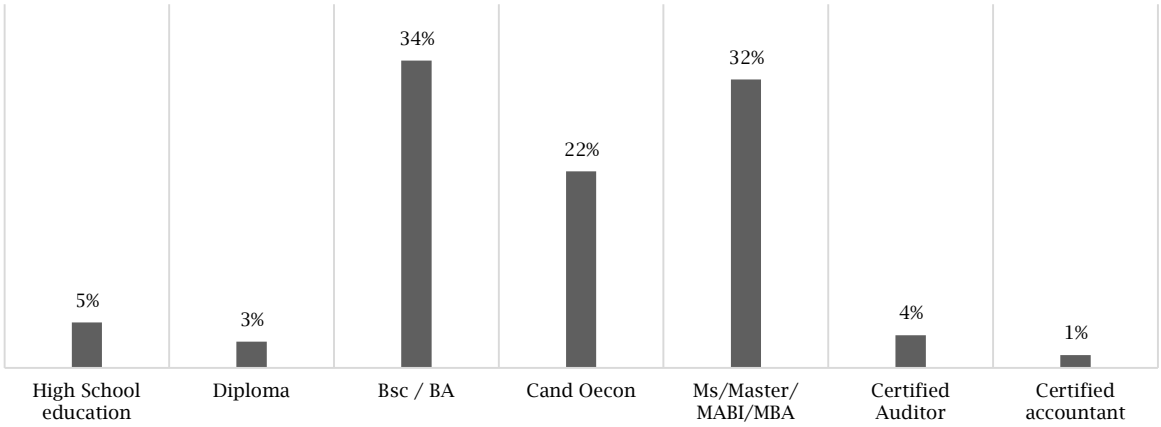


Table 3 presents the results regarding the PEU reported by respondents. A PEU of 1 indicates that the environment is still, and all is predictable, while a PEU of 5 indicates unpredictability. The mean is the average of the distribution for the sample. A mean of 1 or 5 for the PEU measurement would be extreme situations and would likely not happen. The means of the different items measuring PEU range from 2.53 (changes in technology) to 3.18 (commodity market development). The respondents rated commodity market development (M = 3.18), financial environment (M = 2.95), competitor behavior (M = 2.91), and customer behavior (M = 2.90) as the most uncertain of the environmental variables. These results are around average uncertainty.

Table 3. Perceived environmental uncertainty (from 1 = very predictable to 5 = very unpredictable)

PEU variables	***n***	***Mean***	***STD***	***Min***	***Max***
Supplier behavior	158	2.65	0.853	1	5
Customer behavior	162	2.90	0.774	1	5
Globalization and foreign competition	162	2.88	0.942	1	5
Competitor behavior	163	2.91	0.948	1	5
Changes in technology	163	2.53	0.803	1	5
Laws and regulations	163	2.85	1.086	1	5
Financial environment	163	2.95	0.881	1	5
Inter-industry relations	156	2.88	0.904	1	5
New products from competitors	161	2.84	0.905	1	5
New competitors	158	2.80	1.019	1	5
Commodity market development	153	3.18	0.976	1	5
Labor market development	159	2.77	0.731	1	5

Table 4 presents the descriptive statistics regarding respondents' expectations for the future with respect to the developments of several items that might impact the organization and how much influence they would have on the company's activity. With a range from 1 = very predictable to 5 = very unpredictable, 1 means that no influence is expecting to take place regarding that item, while a mean of 5 means that much influence is expecting to take place. With the same logic as with the measurement of PEU, a mean of 1 would indicate no influence and reflect extreme stability, while a mean of 5 would mean high influence and reflect extreme and rapid changes. These situations are rather unlikely. The question was composed of 8 items, out of which one has a mean higher

than 3.5: information technology (M = 3.88), with the lowest mean being 2.16 for development in financial reporting laws. Other items that scored high regarding the influence on the organization's activity are a continuation of capital controls (M = 3.58), EU membership (M = 3.49), operational complexity (M = 3.19), globalization (M = 3.11), and employee further education (M = 3.01). Overall, these results are above the midpoint of the scale and indicate an expectation that these items will have an influence on the organization's activity.

Table 4. Expectations for the future (from 1 = very little influence to 5 = very much influence)

Expectations for the future variables	*n*	*Mean*	*Std*	*Min*	*Max*
IT development	101	3.88	0.94	1	5
Employee further education	91	3.01	1.12	1	5
Globalization	102	3.11	1.28	1	5
Operational complexity	84	3.19	1.18	1	5
International Financial Reporting Standards (IFRS)	87	2.28	1.17	1	5
Development in financial reporting laws	90	2.16	1.10	1	5
Continuation of capital controls*	126	3.58	1.21	1	5
EU membership**	110	3.49	1.34	1	5

*Notes: * At the time of the survey capital controls were in effect in Iceland that were imposed after the financial crisis in 2008. ** At the time of the survey there were negotiations with the EU about a potential application for membership.*

4.2. Characteristics of budgeting practices

4.2.1. Importance of budgeting

About 99% (n = 155) of the companies reported preparing a budget. Of these, 64.1% (n = 100) of the respondents answered that budgeting is a highly important management tool, and 18.6% (n = 29) indicated that it was a rather important management tool. Only one responded that it was a very unimportant management tool, and 3.2% (n = 5) claimed it was rather unimportant. There was a significant correlation between the size of the company and the perceived importance of budgeting, with larger companies placing more importance on budgeting (r = 0.228, p = 0.004). In our sample, 81% (n = 35) of large organizations responded that budgets are a very important management tool, while 63% (n = 50) of medium companies responded the same, as against 44% (n = 15) of small organizations. Those who indicated that budgets are unimportant management tools tended to be from small or medium organizations. The results of correlation analysis show a significant correlation between the level of education of respondents, in terms of the highest education level achieved, and the importance of budgeting (r = 0.199, p = 0.019), indicating that the higher the education level, the more importance is placed on budgeting. However, there is no correlation between the importance of budgeting and the number of business units or the importance of budgeting and the PEU.

4.2.2. Budgeting practices

Regarding the types of budgets and plans prepared by the respondents, the results in Table 5 show that respondents prepared different types of budgets, the most common type being the income statement budget (93%; n = 143), followed by the sales plan (84%; n = 130) and the cash flow (76%; n = 117).

Table 5. Types of plans and budgets made

Frequency of plans and budgets	*Sales*	*Capital investment*	*Production*	*Raw materials*	*Inventory*	*Human resources*	*Income statement*	*Balance sheet*	*Cash flow*
Every year	84%	65%	47%	30%	42%	47%	93%	63%	76%
When needed	12%	24%	18%	16%	22%	33%	6%	28%	16%
Never	1%	6%	5%	8%	7%	13%	1%	7%	5%
N/A	2%	5%	30%	46%	30%	7%	0%	1%	3%

We correlated these budget types with the perceived importance of budgeting. From the above list of budget types, four were significantly correlated with the importance of budgeting (p < 0.01), as seen in Table 6. This correlation indicates that those who prepare these types of plans every year perceive budgeting as an important management tool.

Table 6. Correlation between budgets prepared and the importance of budgeting

Types of budgets	*Correlation with the importance of budgeting*	*p-value*	*n*
Sales	0.394	p < 0.001	154
Capital investment	0.152	p = 0.062	152
Production	0.028	p = 0.728	152
Raw materials	-0.021	p = 0.795	151
Inventory	0.092	p = 0.262	152
Human resources	0.219	p < 0.001	152
Income	0.285	p < 0.001	154
Balance	0.069	p = 0.394	153
Cash flow	0.238	p < 0.001	154

The results of a Spearman correlation show significant correlations between the size of the organization and the different types of budgets prepared, as seen in Table 7. Larger organizations prepare more types of plans compared to smaller organizations.

Table 7. Spearman correlation between size and budget prepared

	Sales	*Capital investment*	*Production*	*Raw materials*	*Inventory*	*Human resources*	*Income*	*Balance*	*Cash flow*
Correlation coefficient	0.313	0.181	0.216	0.065	0.241	0.181	0.212	0.128	0.212
p (2-tailed)	0.000	0.025	0.008	0.429	0.003	0.026	0.008	0.115	0.008
n	154	152	152	151	152	152	154	153	154

There is also a significant relation between the number of business units and the types of budgets ($r = 0.371$, $p < 0.001$), with organizations with a larger number of business units placing more emphasis on preparing different types of business units. However, there is no significant correlation between the types of budgets prepared and PEU.

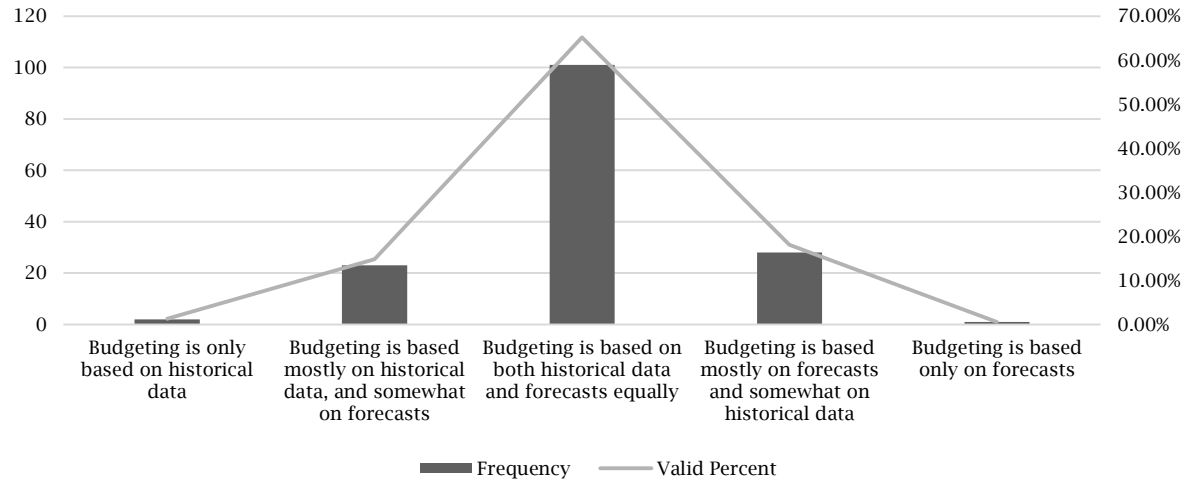
4.2.3. Data used for budget preparation

Regarding the data used for budgeting, 65.2% ($n = 101$) of respondents answered that their budget was based equally on historical data and forecasting, while 1.3% ($n = 2$) responded that their budget was based only on historical data and 18.1% ($n = 28$) answered that their budget was based solely on forecasts. We did not find any correlation between the data used for the budget preparation and other variables used in this study.

4.2.4. Variance analysis

Looking at variance analysis, 42.6% ($n = 66$) of the respondents indicated that it is an important management tool, 31.6% ($n = 49$) saw it as rather important, while 6.5% ($n = 10$) answered that it was unimportant in their organizations. The perceived importance of budgeting is positively correlated with the perceived importance of variance analysis ($r = 0.622$, $p < 0.001$). There was also a significant positive correlation between the size of the company and the perceived importance of variance analysis, with larger companies attaching more importance to variance analysis ($r = 0.181$, $p = 0.024$). CFOs with a higher education level also placed more importance on variance analysis ($r = 0.276$, $p = 0.001$). There is no significant correlation between the number of business units and the importance of variance analysis. There is also no significant correlation between the importance of variance analysis and PEU.

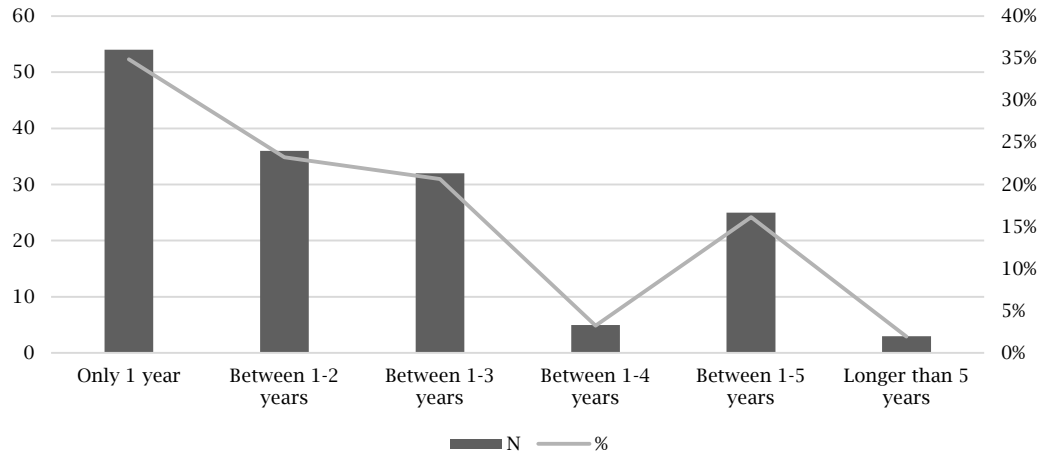
Figure 5. Data used for budget preparation



4.2.5. Time length of the budget

About 80% ($n = 122$) of the respondents prepared a budget for a period of up to 3 years, with 34.8% ($n = 54$) preparing a budget for only one year, 23.2% ($n = 36$) for a period of 1 to 2 years, and 20.6% ($n = 32$) for a period of 1 to 3 years, and 16.1% ($n = 25$) prepared a budget for a period of 1 to 5 years. Only 1.9% ($n = 3$) reported preparing a budget for a period longer than five years. No significant correlation was found between the company size and the time-length of the budget or between the importance given to budgeting and the time-length of the budget.

Figure 6. Time length of the budget



4.2.6. Budgeting methods

Table 8 gives an overview of the budgeting methods in use. The rolling forecast is the method CFOs showed the most interest in adopting in the future, with 23.1% (n = 34) of respondents already using this method. The results also showed that the least known method among participants is Beyond Budgeting; 33.6% (n = 50) of CFOs did not know it, while 24.0% (n = 36) had not heard of activity-based budgeting. In comparison, 22.0% (n = 33) reported having implemented activity-based costing, while 19.5% (n = 29) said they were not familiar with activity-based costing. At the same time, 13% (n = 19) reported having implemented the balanced scorecard, while 25.0% (n = 36) were not familiar with the balanced scorecard.

Table 8. Budgeting methods in use

Budgeting methods	*Already used*	*Interest in adopting*	*Moderate/little interest in adopting*	*No interest in adopting*	*Has been tried but is no longer in use*	*Don't know the method*
Rolling forecast	21.1%	23.1%	23.8%	17.0%	0.0%	14.3%
Activity-based budgeting	18.0%	10.7%	25.3%	22.0%	0.0%	24.0%
Forecasting	34.7%	16.0%	26.7%	12.0%	0.7%	10.0%
Beyond Budgeting	4.0%	14.8%	26.8%	20.8%	0.0%	33.6%

There was a significant correlation between the turnover and the implementation and use of forecasting (r = 0.223, p = 0.006). The larger the turnover, the likelier the organization was to use forecasting. However, Icelandic organizations owned by a foreign group were less likely to have implemented the rolling forecast method (r = -0.220, p = 0.007). Companies with a larger number of business units were significantly correlated with the forecasting method (r = 0.219, p = 0.007).

5. DISCUSSION

This study was conducted to supplement earlier studies that have investigated the impact of context on management accounting practices within companies (Chenhall, 2003, 2006; Otley, 2016). The contingency theory states that there is no one way of managing or organizing and that context determines the most effective way of doing so (Donaldson, 2001, 2006). Changes in the organizational environment are a motivation for changes in management control (Becker, 2014; Becker et al., 2016), and high environmental uncertainty causes plans to become outdated and challenging. Today's business environment is more dynamic than before (Otley, 2016), and uncertainty has various sources (Otley & Soin, 2014). However, studies on the impact of context on the management accounting practices have not necessarily taken place in a dynamic environment, and they often focus on a single industry or a particular size of organization (Chenhall, 2003). This study took place in Iceland, a country hit severely by the financial crisis of 2008, and it includes a large sample of 300 organizations of various sizes, industries, ownership, and structure. In all, the uncertainty was measured above average in our sample, illustrating how 6 years after the financial crisis, financial managers still perceived uncertainty in their business environment. Based on the result of our study, organizational complexity has little impact on budgeting. This study updates the literature on the impact of context on budgeting and provides additional empirical evidence on the impact of organizational context on budgeting.

The results of our study show that in times of uncertainty, budgeting is still used by a large majority of Icelandic firms. Our results confirm other studies, such as the one conducted by CIMA (Ross & Kovachev, 2009), Umapathy (1987), Ekholm and Wallin (2000), or Libby and Lindsay (2010) that budgeting is "still going strong" and remains the most used management accounting systems used by firms. However, our results do not tend in the same direction as those of King et al. (2010), who reported that 45% of small healthcare entities prepare a budget. The difference in their results and

ours could lie in the differences between the samples, as our sample contains a wide variety of organizations in terms of size and structure, while the study by King et al. (2010) was conducted in a single industry containing almost all micro-entities. As Bruns and Waterhouse (1975) suggested, "administrative controls" tend to be implemented in large organizations, while personal controls in small organizations. Budgeting is a formal routine (Simons, 1994) used to help managers coordinate the operations of large institutions (Berland & Boyns, 2002). Theoretically, our results are not surprising. The extended use of budgeting in larger organizations could also be understood in light of the fact that larger organizations have more resources (financial and non-financial) with which to prepare budgets of all types (King et al., 2010).

Not only are CFOs preparing a budget, but they also consider budgeting to be an important management tool in their organizations, with a positive correlation between the importance of budgeting and the size of the organization. It can be deducted that managers in our study perceive budgeting as an anchor of organizational management, and it remains the cornerstone of management control systems. This is in line with the historical development of budgeting, as when first introduced in the corporate world, budgets were presented as a tool to help managers coordinate the operations of large institutions (Berland & Boyns, 2002), as it was understood at the time that as organizations became larger, better oversight was needed. However, our results contradict the arguments, for example, from the proponents of Beyond Budgeting that during times of high environmental uncertainty, managers place less importance on budgeting practices. As can be seen in our study, even after an event like the financial crisis of 2008, budgeting is still perceived as an important management tool.

Focusing on the relation between financial crisis and budgeting, studies have reported less importance attached to budgeting (Collins et al., 1997), reduced use of budgetary control (Shih & Yong, 2001), and more importance given to planning and less to performance measurement (Becker et al., 2016). Our study refutes the results of Collins et al. (1997) and Shih and Yong (2001), as we report large importance to budgeting, as well as to variance analysis. However, our findings tend in a similar direction to those of Becker et al. (2016). There are some differences in these studies, however. While Becker et al. (2016) studied budgeting after the 2008 financial crisis, the studies by Collins et al. (1997) and Shih and Yong (2001) took place almost 25 years earlier than our study. Their study also took place during a different financial crisis. More importantly, alternatives methods such as activity-based budgeting or Beyond Budgeting had not been introduced. Since their study was conducted, the perception of budgeting has changed to a more dynamic MCS used to help implement strategy (Hansen & Van der Stede, 2004). Nevertheless, these studies are an important contribution to the literature. However, as Otley (2016) stated, the organizational environment changes, and it is important to renew studies on the impact of context on management accounting practices and acquire new knowledge on today's contextual environment.

Budgeting aims to connect the strategic plan with resource allocation and sets financial and non-financial targets to improve control and ensure that the organization achieves its overall objective (Hansen & Van der Stede, 2004). The preparation of various plans and budgets provides managers with the opportunity to develop and communicate their long-term vision and goals and to foresee and pre-empt problems that could occur in the future (Atkinson et al., 2011; Becker et al., 2016; Samuelson, 1986). The results of this study show that various plans and budgets are prepared within organizations. The results also show a positive correlation between the plans prepared and the importance of budgeting, with those who prepare more plans also placing more importance on budgeting and larger organizations place more emphasis on preparing a larger variety of budgets and plans. This is in line with the study of Becker et al. (2016), who reported more emphasis on planning and resource allocation after the financial crisis of 2008. It also confirms the assumption of King et al. (2010) that larger organizations have more resources in hand to emphasize budgeting. The preparation of various plans and budgets can be explained such that budgeting is not only an institutionalized MCS within organizations. It helps managers to improve decision-making and foresee problems. Also, based on the result of our study, organizations with a higher number of business units prepare more types of plans and budgets. This is in line with the historical development of budgeting, but it contradicts the critique that in order to decentralize, organizations should drop the budget altogether (Hope & Fraser, 2003). This is also in line with Khandwalla (1977), that mechanistic structures, as defined by Burns and Stalker (1961), better fit large organizations than smaller ones.

It has been argued that changes in the organizational context are often a motivation for changes in management accounting practices. However, in our study, the results signal a rather stable process that does not change much despite changing environmental context. These results contradict other studies, such as Hoque (2004), who reported less use of annual budgets when uncertainty is high. Endenich (2014) had observed an emphasis placed on increased frequency in budgeting, following the crisis in German and Spanish companies. Pavlatos and Kostakis (2015) also reported the increased importance of advanced systems during the crisis in Greece. We were expecting similar results regarding Icelandic organizations. However, we report 21% of the respondents using rolling forecasts, whereas 17% claim not to be interested in implementing the method. The timing of the study might explain these results. Changes require slack in organizational time and resources. Before the crisis, there was an unprecedented economic boom in Iceland, with organizations expanding their operations in Iceland and abroad. Companies had then the resources to experiment with different management models and could have implemented and experienced with different management accounting systems. After the crisis, other priorities emerged, such as an increase in information flow to outsiders due to

increased regulatory demands for mandatory disclosures (Hreinsson, Benediktsdóttir, & Gunnarsson, 2010; Van der Stede, 2011). Trying out new management accounting systems was, therefore, not a priority.

6. CONCLUSION

The main conclusion of this study is that environmental uncertainty does not seem to decrease the importance of budgeting. In fact, despite relatively high levels of environmental uncertainty, budgeting is still seen as an important instrument of management control. There does not seem to be a tendency to abandon budgeting or experiment with alternative budgeting practices in an uncertain environment. This does seem to refute the claims of proponents of radical changes in budgeting practices with reference to environmental uncertainty.

There are some limitations to our study. First, the budgeting survey was part of a more extensive questionnaire focusing on mapping management accounting practices. The budgeting questions thus had to be carefully selected. Therefore, the possibility of content bias cannot be eliminated as the questionnaire included multiple questions on management accounting practices. Respondents might have answered differently if they had been asked to answer only questions about budgeting. Second, the study was conducted in a specific country and among a specific set of companies in that country. The questions adhered to relevant theories, but it cannot be ensured that the responses would have been the same in another country with a different culture. Third, we asked, as many other studies have done, questions about different methods, such as activity-based budgeting and Beyond Budgeting, that rely on managers knowing about these concepts and understanding them in the same manner. Fourth, we report the results of the CFO's perception at a certain point in time. It cannot be excluded that other managers in the organizations might have a different perception of budgeting.

A future research focus could be to develop the measure of environmental uncertainty further. As pointed out by, e.g., Granlund and Lukka (2017), the established measure of environmental uncertainty used in our survey is a broad scope measure that might not necessarily be relevant to perceptions of uncertainty in different industries. Developing a more applicable measure of uncertainty and combining it with other characteristics of the environment, such as hostility and turbulence, could potentially increase our understanding of the external environment as a contingency factor.

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