Financial control and business strategy in start-up companies: An empirical analysis

*Franco Cescon, Luca Grassetti**

Abstract

This article focuses on the relationship between financial control (FC) techniques and business strategies (BSs). The context of the study is start-up companies in Italy, and the main motivation to consider this context is the very limited extant literature. The authors performed a survey to collect quantitative data from start-up companies, and they also complemented the survey with a series of interviews to collect qualitative data. Results show that the use of different FC techniques does not depend on BSs.

As a strategic risk factor, the authors also show that reputation risk differs significantly between the two strategy-based groups, differentiation strategy group and focus strategy group.

The interviews conducted with expert entrepreneurs aimed at determining the importance of specific FC techniques and the benefits of adopting them in start-up companies.

Overall, the article provides new evidence for the debate about the role of FC techniques in the BSs of the firm.

Keywords: Start-up company, Business strategy, Financial control, Strategic risk.

* University of Udine, Department of Economics and Statistics. Corresponding author: franco.cescon@uniud.it.

1. Introduction

We examine the relationship between financial control (FC) techniques and business strategies (BSs). The context of the research study is start-up companies in Italy, and the main motivation to consider this context is the very limited extant literature.

Regarding start-up companies, Johnson et al. state the following: "*Given the difficulties of large incumbent firms in fostering innovation, many would conclude that the best approach is to start up a new venture from scratch*" (2014, p. 312).

Nicotra et al. (2018) report empirical evidence from Spain and Germany that has reasserted that numerous countries are promoting start-ups for several different aims and policies[1]. However, Bhimani (2017, p. 3) notes the following: "*Inadequate financial understanding is seen as a key reason for start-up failure across Europe (European Union, 2016), the Middle East and North Africa (Economist, 2017) and other countries like India (Imorphois, 2016), China (Liu, 2016), Australia (Swan, 2015), Malaysia (Rahman et al., 2016) and Brazil (Cheston, 2016). So, investors will set targets for you, and they'll want financial information about your start-up's progress*".

While many investors are seeking risk reduction opportunities in the earlier stages of firms by using FC, it is recognised that FC support systems emerge as a lesson from leading international start-up companies. In the FC's philosophy, "*the principal objective of financial controls was to assist organizations plan their future and to monitor performance to ensure that objectives were achieved*" (Bhimani, 2013, p. 2).

Many previous studies have examined the role of management control systems (MCSs) in start-up companies (e.g., Davila & Foster, 2007; Davila, Foster & Oyon, 2009; Cassar 2010; Davila, Foster & Jia, 2015). These studies have proven the importance of MCSs in start-up growth, even if Simons (2014, p. 308) states that there is little need to install a complete MCS during the early stage of start-up companies.

Following the main motivations, particularly the extant literature, our study focuses on FC rather than MCSs.

The question "Why is FC crucial in early-stage firms"? is answered, for

---

[1] In Italy, often with the financial contributions of the state, we can observe that many young companies propose different types of start-ups based on new business models and different strategies. Recognizing this, the Foreign Commerce Institute (ICE) promotes a series of courses to build start-ups' foreign incubators and start-up districts. Moreover, the confederation of industry and the foundation of universities, such as Bocconi University (Milan) and Polytechnic University (Milan), created some incubators.

example, by the consideration of Nixon (1998). He suggests that the role of FC enhances its potential to facilitate the attainment of organisational performance.

The design of FC systems is a source of internal reports. However, these support systems are costly. Often, the start-up companies in the short term probably did not anticipate their limited cash reserves and selectively choose some internal financial information, but remain under fire for several reasons.

Our contribution to the extant literature is that we document evidence that provides a better understanding of the relationship between FC techniques (*stricto sensu*) and BSs in the context of start-ups in Italy with a survey. The interviews with expert entrepreneurs aim to determine the importance of FC techniques and the benefits of adopting them in start-up companies.

The paper comprises six sections. The next section illustrates the theoretical constructs (the definitions of the constructs) in which the study presents the content of the article. Section three develops the hypotheses. The description of the research method is given in section four. Section five presents the survey results, hypothesis testing, and findings of the interviews. The paper concludes with a discussion about the results and the limitations of the study and offers potential avenues for future research.

2. Definition of constructs

This section illustrates the theoretical constructs. The definition of constructs aims to communicate the theoretical content of the paper. We focus the constructs on two specific aspects of the start-up companies: (1) the business strategy (BS), in the form of generic strategies, concerning how an organisational unit can compete in a given marketplace; and (2) the financial control (FC) techniques to evaluate the economic and organisational performance in the early stage.

2.1 Business strategy

To form a strategy to understand the attractiveness of a particular industry and the threats from competitors, the analysis of five forces is particularly useful. In the context of start-up companies, it is essential to provide new innovation activities in the marketplace. This means that start-up companies should be able to combine industry factors with new business-specific factors

to define the attractiveness of the firm in the market. Often following the concept of the market segment, the business strategy plays a strong role because each start-up activity has its unique sources of competitive advantages.

Different types of strategies presented by Miles & Snow (1978), Gupta & Govindarajan (1984) and Porter (2004) have attracted considerable attention in academic research (see Invernizzi, 2005). The literature distinguishes among three different levels of strategy: corporate, business and operational strategies.

In this study, we focus on business strategy (BS) in terms of the generic strategies of cost leadership, differentiation and focus (see Porter, 2004, p. 11). We decide to consider this level of strategy (BS) in the analysis because it is relevant to the business sectors, provides distinct strategic choices for standalone small businesses and can be a (temporally) medium-term direction of organisations such as start-up companies.

2.2 FC techniques

The key FC techniques identified in this study are inspired by some previous work (e.g., Sandino, 2007; Davila et al., 2015; Tervala et al., 2017). However, our reinterpretation is more coherent with the aim of the present research. The reinterpretation consists of an integrated set of performance measures that support a company's strategy and, therefore, can be used by organisations to develop and control strategy through a balanced set of financial and non-financial indicators. Furthermore, firms translate their strategies into performance.

The four categories of FC techniques are as follows: (1) basic financial analysis, (2) profit planning, (3) financial forecasting, and (4) Simons's strategic risk factors. The 20 FC techniques are categorised as reported in Table 1.

While the survey measures the level of use for the first 16 FC techniques (*stricto sensu*) on 7-point Likert scales, Simons's strategic risk factors are collected on a dichotomic measurement scale.

Each of the 4 categories of FC techniques is briefly examined.

- Basic financial analysis

When considering the basic approach to performance in terms of economic outcomes, financial analysis based on accounting statements can be relevant. This financial analysis aims to consider whether new business

initiatives meet desired organisational targets and compare them with other comparable organisations.

The basic financial analysis documents and analyses the economic performance measures, such as cash flows and financial ratios. In this study, we include the following seven financial ratios: (1) liquidity ratios, (2) leverage ratios, (3) activity ratios, (4) profitability ratios, (5) growth ratios, (6) valuation ratios, and (7) trends over time ratios.

Table 1 – Summary of the FC categories and techniques

FC techniques categories	FC techniques
Basic financial analysis	Cash flows
	Liquidity ratios
	Leverage ratios
	Activity ratios
	Profitability ratios
	Growth ratios
	Valuation ratios
	Trend (over time) ratios
Profit planning	Operating plan
	Cost behavior
	Cost-volume-profit (CVP)
	Operating leverage
Financial forecasting	Cash budget
	Cash break-even point
	Cash flow cycle
	Expected financial results
Simons's strategic risk factors	Operations risk
	Asset impairment risk
	Competitive risk
	Reputation risk

- Profit planning

Profit planning refers to direct measures of different dimensions of expected net income outcomes. Here, the study emphasises the operating profit plan that reflects the combined influence of the sales plan and the product and period cost plan considering capacity productivity and inventory policies. The operating profit plan refers to direct measures of (expected) operating income. Three analyses are fundamental for understanding operating

193

income performance. The first relevant analysis is cost behaviour. The second, which involves projections, is cost-volume-profit (CVP) analysis, which can help anticipate problems and better understand operating income performance. The third analysis is operating leverage analysis, which can help support decision making with management accounting information.

The fascinating feature of the operating profit plan and its analysis is the possibility of what-if sensitivity exercises.

- Financial forecasting

Financial forecasting refers to a broader set of measures in terms of relevant financial outcomes. These financial outcomes consider the simulation of overall financial planning. Then, financial forecasting provides the ability to compare the projected performance to evaluate new initiatives using the criteria of suitability, acceptability and feasibility.

In our study, financial outcomes have four main dimensions. The first dimension is the cash budget performance, and the second dimension is the cash break-even point performance. The third dimension considers the cash flow cycle performance, which refers to the consequences of the business transaction cycle on the (pick) financing requirements over some interval. The fourth dimension of financial forecasting reflects the performance with respect to the expected financial results, such as the projected income statement, balance sheet and expected cash flow statement.

- Simons's strategic risk factors

Strategic risk factors are relevant in pursuing a BS. Here, the identification of potential losses (and harm) is based on the strategic risk approach considering Simons's strategic risk factors. These risk factors affect BSs; and they are essential in the start-up stage because after identifying the sources of strategic risk (operating risk, asset impairment risk, competitive risk, and reputation risk), managers need control tools and techniques to manage the risks (see Simons, 2014, p. 249).

3. Hypotheses development

- **Strands**

Past work on FC in start-up companies is limited and basically follows two major strands.

One line of research focuses on the preparation of financial statements and projections in start-up ventures (Cassar, 2009). The work of Rockness and Shields (1988) can be included in this line of research. This study focuses on financial measures. It suggests that the perceived importance of budgets in R&D "*decreases monotonically from planning to monitoring, monitoring to evaluating, and evaluating to rewarding*" (1988, p. 571).

In line with the alternative interpretation of financial control systems as tools to manage innovation activities, studies on product development all concur on the significant role of FC in assisting engineering during product development (Nixon, 1998) and supporting new product development (Tervala, et al., 2017).

The second line of research adopts a broader view of control systems. While Kim et al. (2011) study the association between control and debt financing; Sandino (2007), focusing on a sample of US retailers, identifies four categories of controls (basic, cost, revenue and risk) and studies the first investment in controls in the early stage of start-up companies.

- **Hypotheses**

We develop five hypotheses that postulate the relationship between several FC techniques and BSs (independent variable) in start-up companies.

When start-up companies assess organisational performance in terms of direct economic outcomes, the first hypothesis (H1) concerns basic financial analysis. This FC technique, based on accounting statements, reflects two categories of FC techniques: cash flow analysis and financial ratio analysis. The main conclusion of Sandino (2007) and the suggestions of Bhimani (2017) lead to the following hypothesis:

H1: All start-up companies adopt basic financial analysis to evaluate economic performance, but their use is different among the BSs in terms of generic strategies.

Now, we consider the hypothesis relating the BS in terms of generic strategies of cost leadership, differentiation, and focus and FC technique usage on specific start-ups.

"*Cost leadership is perhaps the clearest of three generic strategies. In it, a firm sets out to become the low-cost producer in its industry*" (Porter 2004, p. 12).

Such characterisation focuses on cost objectives, should introduce cost control and should emphasise quality control to guarantee product/service competitiveness in the market. However, especially in start-up companies, if timely cost control is fundamental to being successful in low-cost strategies, a young firm cannot ignore the operating risk. Considering the literature on strategic management accounting (e.g. Seal et al., 2009) and the suggestions of Sandino (2007) on enhancing operating efficiencies (focused on costs) to reflect a cost leadership strategy in start-ups, we believe that a particular challenge is to develop an FC approach based on profit planning. This approach includes an operating profit plan. The analysis of the operating profit plan can be used for the following: (i) cost behaviour analysis, (ii) cost-volume-profit (CVP) analysis and (iii) operating leverage analysis[2]. The following hypothesis (H2a) is used to test low-cost strategies:

H2a: Cost leadership start-up companies use more profit planning than differentiation and focus companies.

A working consideration of differentiation is the following: *"In a differentiation strategy, a firm seeks to be unique in its industry along some dimensions that are widely valued by buyer* [...] *The logic of differentiation strategies requires that a firm choose attributes in which to differentiate itself that are different from its rivals"* (Porter, 2004, p. 14). One successful differentiation strategy does not set out to become the low-cost producer in an industry, but rather, the strategy chooses some attributes to meet the needs perceived as necessary in the industry. Consumers value these attributes and reward them with a premium price. A differentiation strategy can be seen as a type of sophisticated BS in terms of strategic management because it must respond continuously to key competitors and environmental change.

Some authors (e.g., Govindarajan and Gupta, 1985) found that differentiators use selected non-financial information to evaluate organisational performance. Davila et al. (2015. p. 236) report that "(start-up) *companies following a differentiation strategy and companies following a cost-leadership strategy do not differ significantly on their adoption of basic MCS"*. To the best of our knowledge, there is a lack of consideration of the FC techniques that use measures to assess economic performance in the literature. We hypothesise that these considerations reflect the firm's strategy and that start-ups that choose the differentiation strategy are aware of a type of BS more

---

[2] These considerations, which include other analysis such as pricing, are taken from Seal et al. (2009).

sophisticated than cost leadership in terms of strategic management and accounting information for decision making. These considerations lead to the following hypothesis:

H2b: Start-up companies pursuing a differentiation strategy make greater use of financial forecasting than other types of companies.

A working definition of focus is the following: "*The focus strategy has two variants. In cost focus a firm seeks a cost advantage in its target segment, while in differentiation focus a firm seeks differentiation in its target segment*"(Porter, 2004, p. 15). A crucial question for a firm is where to compete and in what segment orient the focus strategy. In this context, in particular, we believe that the accountant's involvement in justifying different and alternative expending resources and accountant participation in strategic decision-making are very important. However, as reported by Cadez and Guilding (2008, p. 844), "*Prior works investigating participation in strategic decision-making and organizational performance are few*". Even though the literature on participation and performance is sparse, some empirical evidence supports such expectations[3]. While Baines and Langfield-Smith (2003) report greater use of non-financial management accounting information, Chenhall and Langfield-Smith (1998, p. 258) suggested that "*strategic planning techniques are important in ensuring a holistic approach under which different approaches to management and accounting are coordinated and consistent with the long-term goals of the organization*".

To the best of our knowledge, there is a lack of research studies that conduct an empirical analysis of FC techniques related to the focus strategy in start-up companies. However, considering Chenhall and Langfield-Smith's suggestions (1998) and the study of Cescon et al. (2019) on strategic management accounting, the following hypothesis has been informed by what appears to be the conventional normative view.

H2c: Start-up companies pursuing a focus strategy rely more on a holistic approach to FC techniques (*stricto sensu*) than companies following cost leadership and differentiation BS.

Now, we consider a hypothesis regarding all start-up companies in the

---

[3] See Wooldridge and Floyd (1990) and Scott & Tiessen (1999) for discussions on involvement in strategy and performance.

evaluation of strategic risk. In the evaluation of economic performance[4], strategy plays a strong role in strategic risk. Simons emphasises that "*to effectively manage their business, all managers must assess strategic risk, which is an unexpected event or set of condition that significantly reduces the ability of managers to implement their intended business strategy*"(2014, p. 249). The three basic sources of strategic risk include (a) operating risk, (b) asset impairment risk, and (c) competitive risk. Reputation risk represents Simons's fourth strategic risk factor that can be considered the consequence of one or more basic sources of strategic risk.

Following the above literature, we hypothesise that strategic risk factors potentially affect every business, including start-up company growth. The following hypothesis (H3) is set to consider the applicability of Simons's suggestion:

H3: Most start-up companies adopt strategic risk assessment to meet the acceptable risk in evaluating strategies, but the level of adoption is different between BSs.

4. Research Method

This section describes the method, sampling procedures and data analysis used.

4.1 Method

The adopted research methodology combines a survey (quantitative information) with in-depth interviews (qualitative information). While the hypotheses were tested using the survey data, a series of interviews on the importance of FC techniques and the perceived benefits of adopting them in start-up companies were undertaken with expert entrepreneurs.

4.2 Sampling Procedures

- **Survey sample**

The survey sample examined in this study included Italian start-up companies, and these young organisations were analysed in the period from

---

[4] We do not consider social and environmental aspects of organizational performance.

198

2012-2018. Contacts and company characteristics fundamental for the survey were obtained from the start-up database of the Italian Industry, Commerce, and Agriculture Confederation (CCIAA) and the start-ups' districts and incubators created by four Industry Confederation units and two university foundations. This database typically does not provide the names of the possible respondents and their direct e-mail addresses. Therefore, we sent an introduction letter asking for names and contacts of the potential respondents, such as the founder, cofounder, president, CEO or senior accountants. The letter explained the research objectives and asked whether they would be interested in participating in the initial pilot test. As a result of the pilot testing step, some survey questions were revised before the final questionnaire.

A sample of 452 start-ups was randomly selected from the CCIAA's database, and 99 firms were selected from the start-up district and incubator database. Sixty-eight (68) companies agreed to respond to the questionnaire, and an e-mail was sent to the respondents. The e-mails included the following information: (a) a specific link to the web questionnaire and (b) a glossary of terms. Fifty-three (53) complete questionnaires were returned, indicating a global response rate (approximately) of 10% (53/551).

A section of the survey was devoted to the study of the use of FC techniques over five years, starting from the year from the foundation of the company. In particular, we asked the respondents to indicate the calendar year of formalisation for the FC techniques. Table 2 shows the percentages of firms that formalised the use of FC techniques (*stricto sensu*) by the end of their first year of activity.

The most widely adopted FC techniques at the end of the first year are cash flows and cash budgets. We can argue that FC techniques are the results of a large number of policies and decisions.

Table 3 presents a summary of the main descriptive statistics of the survey sample. Panel A presents the distribution of the sample by the founding year. It is essential to reflect that in the period from 2012-2018 the number of companies founded in the last three years was very high (83%)[5]. Panel B presents the number of start-up companies by size and industry. Panel C presents the number of start-up companies by BS in terms of generic strategiesx.

---

[5] The implication is that the (young) age, which is based on the founding year, is a factor that influences managerial practices (see Greiner, 1998).

Franco Cescon, Luca Grassetti

Table 2 - Evolution of FC techniques (*stricto sensu*) usage by the end of years 5

FC Categories	FC Techniques	Percentage of companies that adopted the techniques by the end of the i-th (first) year of activity				
		1	2	3	4	5
Basic financial analysis:	Cash Flows	50.9%	64.2%	71.7%	75.5%	75.5%
	Liquidity ratios	43.4%	49.1%	60.4%	62.3%	64.2%
	Leverage ratios	20.8%	28.3%	30.2%	34.0%	35.8%
	Activity ratios	41.5%	45.3%	49.1%	52.8%	54.7%
	Profitability ratios	41.5%	52.8%	60.4%	67.9%	69.8%
	Growth ratios	30.2%	35.8%	39.6%	43.4%	45.3%
	Valuation ratios	30.2%	34.0%	39.6%	43.4%	45.3%
	Trend ratios	28.3%	37.7%	45.3%	52.8%	54.7%
Profit planning:	Operating profit plan	47.2%	56.6%	62.3%	69.8%	73.6%
	Cost behaviour	24.5%	35.8%	39.6%	43.4%	47.2%
	Cost Volume Profit	35.8%	52.8%	54.7%	60.4%	64.2%
	Operating leverage	20.8%	34.0%	35.8%	39.6%	45.3%
Financial fore-casting:	Cash budget	49.1%	58.5%	62.3%	73.4%	77.4%
	Cash breakeven point	37.7%	54.7%	62.3%	67.9%	73.6%
	Cash flow cycle	49.0%	54.7%	60.4%	69.8%	73.6%
	Expected financial results	24.5%	35.8%	39.6%	41.5%	45.3%

Table 3 - Summary statistics on the final sample of start-ups

Panel A: Number of companies by founding year

Founding year	2012	2013	2014	2015	2016	2017	2018
Number of companies	1	1	4	3	10	12	22

Panel B: Number of companies by size and industry

	Revenues (€)	Industry			To-tal
		Manu-facture	Services	Others	
Size	1,000,000 +	1	1		2
	500,001 - 1,000,000	1	1		2
	100,000 – 500,000	31	14	4	49
Total		33	16	4	53

Panel C: Number of companies by business strategy (BS)

	BS			Total
	Cost Leadership	Differentiation	Focus	
	1	35	17	53

- **Interview data**

For each company, we ask the following: (a) describe the principal characteristics of the firm, and (b) identify an authoritative person to assure the responsibility and competence of the start-up. Then, we sent the research questions, with a list of the FC techniques and a glossary of terms, to the people indicated as acknowledged experts in the field of start-ups. We asked for their comments on the importance (ranging from one to seven) of the 20 FC techniques and the benefits of adopting them.

The interviews were conducted during autumn 2019 in ten organisations. The semi-structured interviews were collected using face-to-face (from 1 to 1,5 hours) or online interviews by e-mail (depending on the respondents' availability and preferences). Information on companies and their acknowledged experts involved in the interviews is summarised in Table 4. The strategic information of the ten interviews with acknowledged experts was collected by e-mail using a standard report.

201

Table 4 - Information on the expert entrepreneurs involved in the interviews

Start-up companies	Ownership Models	Nature of company	Primary's technological innovation	Interviewee
A	Entrepreneurial business	Software development for fitness sector	Digital transformation	President & Co-Founder
B	Entrepreneurial business	Production of materials for Soundproof	Tri-dimensional structure with soundproof properties	CEO
C	Entrepreneurial business	Production of inspection systems for quality control in real-time	Quality product control in each work-piece	CEO & Co-Founder
D	Entrepreneurial business	Technology integrator systems for industry 4.0	Interconnection between O.T and I.T levels	Co-Founder
E	Family Business	Consulting and design of new technologies	IOT's product development connected with digital platform	Founder
F	Entrepreneurial business	Information technology systems for e-commerce	Dynamic pricing's e-commerce managers	Co-Founder
G	Family Business	Development of an application for forecasting water-works	Software programme of artificial intelligence using satellite computer	Founder
H	Family Business	Software development for industrial firms.	Using machine learning by different external sources of data	Founder

202

| I | Entrepreneurial business | Consulting development for new technologies and products. | Digital Knowledge | CEO |
| L | Entrepreneurial business | Education and software supply for the high technology sector | Training course in the sector Blok chain-based technologies | Co-Founder |

4.3 Data Analysis

An inferential approach was adopted to study the survey data. In particular, the proposed hypotheses were tested in a nonparametric framework. In particular, chi-squared and Wilcoxon tests were adopted depending on the comparison being made[6]. To address low sample size issues, the p-values for the chi-squared tests are obtained considering the Monte Carlo test procedure proposed in Hope (1968).

To test hypothesis H1, we adopted a two-sided Wilcoxon test. The same procedure was used to study hypotheses H2a, H2b and H2c relating the different types of BSs and FC techniques (*stricto sensu*) but with a one-sided approach. The chi-squared nonparametric procedure was used to check hypothesis H3. All the analyses were developed in R (R Core Team, 2021).

The appendix (www.sidrea.it/control-strategy-start-up) reports the questionnaire used to collect start-ups' information to develop the quantitative data analysis. The research questions used to collect experts' comments to develop the qualitative data analysis regarded the following topics: (1) the opinion on the level of importance of FC techniques in the context of start-up companies and (2) the reasons to adopt some FC techniques in the start-up stage.

5. Results

5.1 Survey

- **FC techniques for kinds of BS**

As indicated in Panel B of Table 3, fifty-three (53) start-ups were

---

[6] See Agresti (2007) for a full review of these statistical methods.

categorised according to their size and industry, and panel C of Table 3 shows that they pursue different types of BSs. In particular, panel C shows that differentiation strategies were the most prevalent, followed by a focus strategy, and only one company considered the cost leadership strategy. The responses, based on 7-point Likert scales ranging from 1 to 7, are summarised in Table 5, which reports the mean score for the level of usage of each FC technique (*stricto sensu*) for the three groups of companies separately (the observed value for the cost leadership is reported in the table.

This descriptive analysis facilitates the interpretation of the hypothesis testing results.

- **Hypothesis Testing**

To determine whether there is a statistically significant difference in the practices of the group of companies, we use nonparametric analysis to test H1. Remember that the survey sample included three strategies to obtain a competitive advantage, but only a single start-up company adopts the cost leadership strategy. Therefore, we adopted two groups of companies when testing H1 (differentiation and focus companies). The results of the nonparametric Wilcoxon test of H1 are summarised in Table 6.

*Table 6 – Results of non-parametric Wilcoxon test **of H1** for the two groups of companies*

	Median Rank		Test Statistic	P-Value (two sided)
	Differentiation	Focus		
Basic financial analysis:				
Cash flow	4.0	5.0	233.5	0.204
Liquidity ratios	4.0	3.0	306.0	0.875
Leverage ratios	1.0	2.0	238.0	0.241
Activity ratios	3.0	3.0	264.0	0.515
Profitability ratios	4.0	4.0	247.5	0.328
Growth ratios	3.0	2.0	329.0	0.541
Valuation ratios	3.0	3.0	243.5	0.290
Trend ratios	4.0	3.0	306.5	0.867

Table 5 – A comparisons of FC techniques (stricto sensu) for the three groups of companies

	Cost Leadership (n = 1)	Differentiation (n = 35)	Focus (n = 17)
	Observed value	Mean	Mean
Basic financial analysis:			
Cash flows	6	4.314	5.059
Liquidity ratios	5	3.714	3.529
Leverage ratios	3	2.257	3.118
Activity ratios	5	3.143	3.588
Profitability ratios	5	3.571	4.235
Growth ratios	3	3.114	2.706
Valuation ratios	3	2.686	3.412
Trend ratios	6	3.429	3.294
Profit planning:			
Operating profit plan	6	4.029	4.235
Cost behaviour	6	2.600	3.059
Cost-volume-profit (CVP)	6	3.457	3.941
Operating leverage	5	2.457	2.882
Financial forecasting:			
Cash budget	7	4.000	5.000
Cash breakeven point	3	2.714	3.824
Cash flow cycle	6	4.143	5.118
Expected financial results	6	2.571	2.941

The results do not support (at a 10% significance level) hypothesis 1 (H1): all start-up companies adopt basic financial analysis to evaluate economic performance, but their use is different among the BSs in terms of generic strategies. The mean comparison for the two groups of companies (differentiation and focus) provides evidence of a weak association.

We also tested hypotheses H2a, H2b, and H2c relating the use of different types of BSs and FC techniques (*stricto sensu*) considering two groups of companies (differentiation and focus).

Hypothesis 2a (H2a) related to the cost leadership strategy cannot be tested because there was only one company in this group.

The results of the nonparametric Wilcoxon (one-sided) tests show that H2b is not supported because there is no significant association between the specific FC technique (financial forecasting) and the type of BS (differentiation). The results of the specific tests are redundant, and they are omitted for this reason.

Hypothesis 2c (H2c) relates to focus companies and states the following: start-up companies pursuing a focus strategy rely more on a holistic approach to FC techniques (*stricto sensu*) than companies following cost leadership and differentiation BSs. Table 7 summarises the results of the nonparametric Wilcoxon (one-sided) test. The results show that the hypothesis is valid only for the cash budget (p-value=0.084), the cash break-even point (p-value=0.068) and the cash flow cycle (p-value=0.089) as financial forecasting techniques. However, in general, H2c cannot be supported (at the 10% significance level).

*Table 7 – Results of non-parametric Wilcoxon test **of H2c** for the two groups of companies*

	Median Rank		Test Statistic	P-Value (one sided)
	Differentiation	Focus		
Basic financial analysis:				
Cash flow	4.0	5.0	233.5	0.102
Liquidity ratios	4.0	3.0	306.0	0.570
Leverage ratios	1.0	2.0	238.0	0.121
Activity ratios	3.0	3.0	264.0	0.258
Profitability ratios	4.0	4.0	247.5	0.164
Growth ratios	3.0	2.0	329.0	0.736
Valuation ratios	3.0	3.0	243.5	0.145
Trend (on time) ratios	4.0	3.0	306.5	0.574

Profit planning:

Operating profit plan	4.0	5.0	266.0	0.269
Cost behaviour	3.0	3.0	273.5	0.320
Cost-volume-profit	4.0	4.0	259.5	0.229
Operating leverage	2.0	3.0	269.5	0.293

Financial forecasting:

Cash budget	4.0	6.0	227.5	0.084
Cash breakeven point	2.0	5.0	221.5	0.068
Cash flow cycle	5.0	6.0	229.0	0.089
Expected financial results	2.0	2.0	275.0	0.332

Focusing on hypothesis H3, Table 8 collects the results of the test for the association between strategic risk factors and BSs using the chi-squared test.

Table 8 – Results of Chi-squared test for the association between strategic risk assessment and BSs. The tests are conducted considering the Monte Carlo test p-value

Simons's strategic risk factors	Percentage of Adoption		Test Statistic	P-Value
	Differentia-tion	Focus		
Operations risk	80.0%	88.2%	0.542	0.696
Asset impairment risk	25.7%	29.4%	0.080	1.000
Competitive risk	48.6%	64.7%	1.199	0.386
Reputation risk	8.6%	41.2%	7.831	0.007

The survey results appear to support hypothesis 3 (H3): most start-up companies adopt strategic risk assessment to achieve the acceptable limit of risk when evaluating strategies, but the level of adoption is different between BSs.

The hypothesis testing shows that the reputation risk (p-value = 0.007) is significantly different between the differentiation and focus strategies. In general, a possible explanation of the chi-squared test's result is that young entrepreneurs use strategic risk analysis regularly to appreciate a firm's reputation for different purposes.

For instance, Simons (2014, p. 256) suggests that reputation risk "[…] *is not itself a source of risk. Instead, is a consequence of excessive risk in any one of the three basic risk dimensions*". This theoretical consideration explains the motivation that hypothesis 3 (H3) cannot be rejected. However, caution must be exercised in drawing conclusions regarding hypothesis 3. In

the qualitative part of the paper, we describe this aspect of strategic risk in the analysis of the discussion with expert entrepreneurs.

A summary of the results of the hypothesis testing is reported in table 9.

Table 9 – Summary of the results of hypotheses testing

Hypotheses	Test	Test results
H1: All start-up companies adopt basic financial analysis in evaluating economic performance of BS, but their use is different between BS.	Wilcoxon (two sided)	Not supported
H2a: Cost leadership start-up companies use more profit planning than differentiation and focus companies.	Wilcoxon (one sided)	Cannot be tested
H2b: Start-up companies pursuing differentiation strategy make greater use of financial forecasting than the other kind of companies.	Wilcoxon (one sided)	Not supported
H2c: Start-up companies pursuing a focus strategy rely more on a holistic approach to FC techniques (*stricto sensu*) than companies following cost leadership and differentiation kinds of BS.	Wilcoxon (one sided)	Not supported
H3. Most start-up companies adopt strategic risk assessment to meet the limit of acceptable risk in evaluating strategies, but the level of adoption is different between BS.	Pearson's Chi squared	Supported for reputation risk

5.2 Interviews

The interviews with expert entrepreneurs aimed to determine the importance of some FC techniques and the benefits of adopting them in start-up companies. The validity of the quantitative data findings is not necessarily supported by the qualitative data provided by the interviews. The qualitative information is not complementary to the quantitative data, but it can be integrated, and it can be important for understanding experts' views compared to start-ups' views.

We summarised the experts' comments for each of the 4 FC categories (ranging among low, medium, and high importance) and the benefits of adopting them in start-up companies.

Basic financial analysis

In this FC category, experts' comments were distinguished between three macro-techniques: cash flows, financial ratios, and the trend over time. Most of the experts interviewed (9 out of 10) suggest that cash flows have very high importance. Moreover, they suggest that the trend over time (trend analysis) has medium importance (6 out of 10) and that ratio analysis (5 out of 10) has medium-low importance.

Here, a comment (company G) claimed the following: "*In my view, it is difficult to set up the suggested FC techniques during the start-up stage. In most cases, the founders are technical experts. Rarely does the team of founders include a sales expert, and even more rarely is there a financial expert. Usually, an accountant is involved in dealing with financial/accounting issues. This is an important point; external accountants should be trained to offer a better service to start-ups by using these techniques. Often, accountants are not familiar with the world of start-ups, so they cannot give partners good advice on the risks they are running, and they hardly ever use the FC techniques listed. From a financial point of view, the greatest risk for a start-up is running out of money in the bank, so cash flow is important. The other FC techniques, for example, profitability ratios, are less important*".

The literature emphasised the following: "*Although ratios are exceptionally useful tools, they do have limitations and must be used with caution. Ratios are constructed from accounting data, and these data are subject to different interpretations and even to manipulation*" (Weston & Copeland, 1986, p. 195).

In summary, the interviews confirm the emphasis on cash flow analysis and the low importance of ratio analysis. However, the results of the tests do not support H1 as all start-up companies adopt basic financial analysis in evaluating BSs.

Profit Planning

In this FC category, expert entrepreneurs emphasised that several techniques were very important for start-up companies. In particular, very high importance (9 out of 10) was given to operating profit plans, and high importance was given to cost behaviour analysis (8 out of 10) and CVP analysis (7 out of 10).

In particular, experts' comments suggested that the benefits achieved after the introduction of the above FC techniques during the start-up stage provided "*greater control over cost item and better capability to develop*

planning in the medium term" (company B), a "*greater focus on operation management and improved delineation in making strategic choices"* (Company F), and "*making business area budgets as clear as possible, permitting continuous checks, and guaranteeing that the strategy developed received enough fuel to be implemented"* (company L).

A similar perspective can be found in Seal et al. (2009). In fact, they emphasise that "*The budgeted profit and loss account is one of the key schedules in the budget process. It shows the company's planned profit for the upcoming budget period, and it stands as a benchmark against which subsequent company performance can be measured*" (2009, p. 449).

Financial forecasting

The experts interviewed (6 out of 10) suggested that the cash flow cycle had relative importance while 10 out of 10 stated that the cash budget and expected financial results are critical by placing "very high importance" in the preparation of these budgets. Atkinson et al. (2012, p. 421) asserted that, with regard to the budget, "*By considering the interrelationships among operating activities, a budget helps to anticipate potential problems and can serve as a tool to help provide solutions to these problems.*"

We asked respondents to give the benefits that can be achieved from such budgets. For example, the experts claimed the following: "*they support strategic decision making"* (company H), "*derive from planning and control process and support performance evaluation in the short term to achieve medium-term objectives"* (company I), and engage in the "*continuous control of the company with respect to the development and investments planning*" (company C).

Simons's strategic risk factors

The literature suggested the following: "*Young entrepreneurs may have a higher tolerance for risk than established family businesses, for example. Importantly, risks other than ones with immediate financial impact should be included, such as risk to corporate reputation or brand image"* (Johnson et al., 2014, p. 379).

Using Simon's strategic risk factor, most of the experts interviewed (7 out of 10) suggested that operating risk and reputation risk had high importance. Moreover, they asserted that competitive risk had medium importance (5 out of 10). Again, we asked the experts to give the benefits that can be achieved with formal risk assessment. These were the comments of two experts: "*we*

know how much the key factors affect the corporate risk in the context of poor resources" (company E) and "*to become aware of the impact on a company's financial performance*" (company A).

The comments indicatede that the acknowledged experts well understand the importance of strategic risk analysis in managing start-up companies.

6. Concluding Remarks

We examine the relationship between FC techniques and the three BSs to obtain competitive advantages in 53 start-up companies using a survey and conducted interviews with the experts in ten organisations.

We find that the most widely adopted FC techniques (*stricto sensu*) at the end of year 1 are the following: (1) cash flows, (2) cash budgets, and (3) operating profit plans.

The testing procedures into two groups of companies (differentiation and focus strategies) provide evidence of a negative association with the three (3) FC technique categories (*stricto sensu),* such as basic financial analysis, profit planning and financial forecasting.

The experts' view and the start-up companies' view based on the descriptive statistics agreed on the high importance of cash flow analysis and the low importance of ratio analysis. However, based on the testing procedure, the start-up companies' view on basic financial analysis does not agree with the experts' view.

Based on the testing procedure, the start-up companies' views contrast the experts' views on profit planning and financial forecasting as FC category techniques for supporting different types of BSs. In fact, experts suggest the high importance of profit planning (especially operating profit plans and cost behaviour) and financial forecasting (cash budgets and expected financial results) for the potential growth of start-up companies.

Based on the testing procedure, start-up companies' and experts' views basically are not in contrast with strategic risk assessment. While the study documents that reputation risk is relevant (at the 10% significance level), especially in the focus strategy, the experts suggest that operating risk and reputation risk have high importance and provide valuable benefits to those who adopt them in the start-up stage.

We can conclude that the survey results from both descriptive statistics and tests on Simons's strategic risk factors basically do not contrast the semi-structured interviews.

This paper contributes to the extant literature mainly because the analysis

documents evidence for a better understanding of the relationship between FC techniques and BSs in start-up companies in Italy. Overall, the paper provides new evidence for the debate concerning the role of FC.

However, some relevant limitations must be considered when interpreting and generalising the findings. First, our results suffer from a low number of observations in the survey sample. This limitation was mitigated through a qualitative approach using the comments and suggestions of ten experts on start-up companies. Second, we do not examine the usage and effectiveness with other strategic positions, such as the environment, accounting and finance culture and ownership models. Third, a possible direction for future research is to consider cross-national investigations and comparisons in Europe.

Acknowledgements

References

Agresti A. (2007), *An Introduction to Categorical Data Analysis (2nd Ed.)*, New York, NY, John Wiley & Sons.

Atkinson A.A., Kaplan R.S, Matsumura E.A., Young S.M. (2012), *Management Accounting, Information for Decision Making and Strategy Execution* (Sixth Edition), England, Pearson Education Limited.

Baines A., Langfield-Smith K. (2003), Antecedents to management accounting change: A structural equation approach, *Accounting, Organization and Society*, 28, pp. 675-698.

Bhimani A. (2017), *Financial Management for Technology Start-ups*, London, U.K., Kogan Page Limited.

Bhimani A. (2013), *Strategic Finance. Achieving High Corporate Performance*, London, UK, Strategy Press.

Cadez S., Guilding C. (2008), An explanatory investigation of an contingency model of strategic management accounting, *Accounting, Organization and Society,* 33, pp. 836-863.

Cassar G. (2009), Financial Statement and Projections Preparation in Start-Up Ventures, *The Accounting Review*, 84(1), pp. 27-51.

Cassar G. (2010), Are Individuals Entering Self-Employment Overly Optimistic? An Empirical Test of Plans and Projections on Nascent Entrepreneur Expectations. *Strategic Management Journal*, 31, pp. 822-840.

Cescon F., Costantini A., Grassetti L. (2019), Strategic Choices and Strategic Management Accounting in Large Manufacturing Firms, *Journal of Management and Governance*, 23, pp. 605-636.

Chenhall R.H., Langfield-Smith K. (1998), The relationship between strategic priorities management techniques and management accounting: an empirical investigation using a system approach, *Accounting, Organizations and Society, 23*(3), pp. 243-264.

Davila A., Foster G. (2007), Management Control Systems in Early-Stage Startup Companies. *The Accounting Review*, 82(4), pp. 907-937.

Davila A., Foster G., Jia N. (2015), The Valuation of Management Control Systems in Start-Up Companies: International Field-Based Evidence, *European Accounting Review*, 24(2), pp. 207-239.

Davila A., Foster G., Oyon D. (2009), Accounting and Control, Entrepreneurship and Innovation: Venturing into New Research Opportunities, *European Accounting Review*, 18(2), pp. 281-311.

Govindarajan V., Gupta A.K. (1985), Linking Control Systems to Business Strategy: Impact on Performance, *Accounting, Organizations and Society*, 10, pp. 51-66.

Greiner L.E. (1998), Evolution and revolution as organizations grow, *Harvard Business Review*, *May-June*, pp. 1-11.

Gupta A.K., Govindarajan V. (1984), Business Unit Strategy, Managerial Characteristics, and Business Unit Effectiveness at Strategy Implementation, *Academy of Management Journal*, 7(1), pp. 25-41.

Hope A.C.A. (1968), A simplified Monte Carlo significance test procedure, *Journal of the Royal Statistical Society Series B*, 30, pp. 582-598.

Invernizzi G. (2005), *Lo Strategic Management Accounting*. In G. Invernizzi (Ed.), Strategic Management Accounting. Una ricerca sui sistemi di supporto alla gestione strategica (pp. 7-18). EGEA, Italy.

Johnson G., Whittington R., Scholes K., Angwin D., Regnér P. (2014), *Exploring strategy. Text and cases* (Tenth Edition), United Kingdom, Pearson Education Limited.

Kim J-B., Simunic D.A., Stein M.T., Yi C.H. (2011), Voluntary Audits and the Cost of Debt Capital for Privately Held Firm: Korean Evidence. *Contemporary Accounting Research*, 28(2), pp. 585-615.

Miles R.E., Snow C.G. (1978), *Organizational Strategy, Structure, and Process*, New York, McGraw-Hill.

Nicotra M., Corrente S., Romano M., Schillaci C.E., Greco S. (2018). The Italian Entrepreneurial Ecosystem: A Comparison with G7 Countries using Stochastic Multicriteria Acceptability Analysis, in C.E. Schillaci (Ed), *Tendenze nuove negli studi economico-aziendali. L'evoluzione dei rapporti azienda-società*, (pp. 79-109), Italy, il Mulino.

Nixon B. (1998), Research and Development Performance Measurement: A Case Study, *Management Accounting Research*, 9, pp. 329-355.

Porter M. (2004), *Competitive Advantage. Creating and Sustaining Superior Performance*, New York, Free Press Export Edition.

R Core Team (2017), *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. -- https://www.R-project.org/.

Rokness H.O., Shields M.D. (1988), An Empirical Analysis of the Expenditure Budget in Research and Development, *Contemporary Accounting Research*, 4(2), pp. 568-581.

Sandino T. (2007), Introducing the First Management Control Systems: Evidence from the Retail Sector. *The Accounting Review*, 82, pp. 265-293.

Scott T,. Tiessen P. (1999), Performance measurement and management teams, *Accounting, Organizations and Society*, 24, pp. 263-285.

Seal, W., Garrison, R.H. & Nooren, E.W. (2009). *Management Accounting*, Thirt Ed., UK, McGraw-Hill Education.

Simons R. (2014), *Performance Measurement and Control Systems for Implementing Strategy*, Pearson Education Limited, England.

Tervala E., Laine T., Korhonen T., Suomala P. (2017), The role of financial control in new product development: empirical insights into project managers'experiences, *Journal Management Control*, 28, 81-106.

Weston J.F. , Copeland T.E. (1986), *Managerial Finance,* , Florida, USA, 8th Ed. The Dryden Press

Wooldridge B., Floyd S.W. (1990), The strategy process, middle management involvement and organizational performance, *Strategic Management Journal*, 11, pp. 231-241,