



The balanced scorecard's missing link to compensation

A literature review and an agenda for future research

The balanced scorecard's missing link

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Oana Alexandra Albertsen and Rainer Lueg

Department of Economics and Business, School of Business and Social Sciences, Aarhus University, Aarhus, Denmark

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Abstract

Purpose – This paper aims to review the literature on the balanced scorecard (BSC) system. The BSC may well be one of the most popular performance measurement systems, but this is not synonymous with successful. The inventors of the BSC, Kaplan and Norton, actually emphasize that a BSC can only really impact the organizational performance if it is linked to the actors' intrinsic and extrinsic incentives. As BSC has existed for more than 20 years, the authors find it relevant to survey the extant literature which elaborates on the BSC-incentives link within organizations.

Design/methodology/approach – This paper identifies 117 empirical studies from leading academic journals published between 1992 and 2012 and then assesses 30 of these studies, which present the BSC-compensation link within the BSC literature. The authors analyze both research design (authors' perspective) and the actual findings in the field (organizations' perspective).

Findings – First, it was found that only 30 of 117 empirical studies have a research design that is comprehensive enough to capture a full BSC as suggested by Kaplan and Norton, and only six of these studies elaborate on the link between the BSC and compensation. Second, extant research lacks valid constructs for the BSC and focuses too much on planning (*ex-ante*) with the BSC and not sufficiently on evaluation and control (*ex-post*). Third, the authors demonstrate that empirical BSC literature relies very strongly on field research in small and medium enterprises compared to similar research. Overall, the authors claim that the "relevance" of the BSC remains unproven.

Originality/value – The authors synthesize the empirical BSC literature and derive a future research agenda.

Keywords Literature review, Adoption, Balanced scorecard, Implementation, Reward, Compensation, Remuneration, Motivation, Performance measurement system, Construct validity, Incentive, Bonus

Paper type Literature review

1. Motivation: BSC – What's in this acronym?

For the past 20 years, Kaplan and Norton's (1992) balanced scorecard (BSC) has attracted tremendous interest from both researchers and organizations (Hoque, 2013). The BSC is a performance measurement system (PMS) that builds on a mix of financial and non-financial measures and supposedly assures that organizations can measure, manage and evaluate their success. One of the most prominent features of the BSC is its

JEL classification – M10, M4

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ability to “translate strategy into action”. The first step to achieve this strategic alignment is a strategy map that explicates the assumed cause-and-effect chains of an organization. Next, the BSC identifies a relevant and comprehensive set of leading and lagging key performance indicators (KPIs) across the financial and various non-financial perspectives, e.g. customers, processes and learning (Atkinson *et al.*, 2011). Most importantly, Kaplan and Norton (1996a, p. 217) emphasize that any given PMS may only be called a “BSC” if its (non-)financial perspectives are linked to the incentive system of the organization:

Ultimately, for the scorecard to create the cultural change, incentive compensation must be connected to achievement of scorecard objectives. The issue is not whether, but when and how the connection should be made.

Kaplan and Norton provide examples of how this linkage is supposed to be made (e.g. cf. Pioneer Petroleum case: Kaplan and Norton, 1996a, p. 218), and they are in line with the guidelines for contemporary PMSs that see planning, control and compensation as an integrated package (Malmi and Brown, 2008). Based on their own experience and research, Kaplan and Norton (2000b, p. 253) claim that this link exists and works for BSCs in the field:

88 per cent of the responding companies considered the linkage of the BSC measures to rewards systems to be effective.

Existing literature reviews on PMS in general do, however, conclude that linking PMSs to compensation is still an unresolved issue for organizations. In his across-the-board review on 114 empirical and conceptual papers on the BSC, Hoque (2013, p. 14) highlights that:

Although many of the articles reviewed here have reported on organizational effectiveness of the balanced scorecard, little is known about how balanced scorecard measures can be used to consider incentives to agents (and employees).

To shed light on the link from the BSC to compensation, we review the empirical literature with a focus on compensation, which allows us to compare the in-the-field-BSCs to the original concept. As Kaplan and Norton (1996a, p. 217) make the link to incentives the litmus test for a “full” BSC, we pose the research question: *How is the link between BSC and compensation presented and detailed within empirical BSC literature?*

We identify 117 empirical studies from mostly leading academic journals from the BSC’s inauguration in 1992 until 2012. We synthesize the literature with a framework by analyzing:

- the context of the studies;
- the researchers’ study designs; and
- the findings within organizations.

These analyses lead to two major findings: First, we discover that only 30 of these 117 empirical studies use a sufficiently comprehensive research design that considers compensation. Among these 30 studies, only six present details on how organizations link the BSC to compensation. Second, we find that even among these 30 studies, only six studies report that the organizations actually follow the advice of Kaplan and Norton to

link *all* of their chosen BSC perspectives to compensation and not just the financial one. We then discuss open issues in BSC-compensation. Thereby, our literature review makes several contributions. First, it synthesizes the existing findings on BSC compensation. We find general similarities across organizations in the formulaic design of incentive systems and in the fact that assumed cause-and-effect chains do not always hold. Differences include the organization-specific adjustment of BSC perspectives and strategy maps, as well as various problems with the application of BSC-compensation such as controllability and weighting of indicators, the motivational impact of incentives, common measure bias or subjectivity. Second, the review demonstrates that our understanding of the relevance of “full” BSCs is indeed underdeveloped: only 6 of 117 studies elaborate on the link from strategy to action (i.e. compensation). Third, we discuss the non-existence of a BSC construct, which prevents the establishment of a consistent body of empirical knowledge on the BSC. Fourth, we make suggestions for improving the current neglect of control and evaluation with the BSC (especially by addressing issues of *subjectivity* and *balance*). Fifth, we discuss possible advancements in methodology, particularly challenging the overreliance on case studies on small and medium enterprises (SMEs).

The remainder of this literature review follows established guidelines (Cooper, 1982; Denyer and Tranfield, 2008; Rousseau *et al.*, 2008). Section 2 elaborates on the theoretical background of the BSC to set a framework for the reviewed studies. Section 3 documents how we selected empirical studies. We organize and interpret the studies in Section 4. Section 5 synthesizes our most important findings and derives empirical research agendas. It also highlights the limitations of our work.

2. Theoretical background: when is a PMS a “balanced scorecard”?

We build upon the classification suggested by Speckbacher *et al.* (2003) – who refer to Kaplan’s and Norton’s writings – to categorize BSCs found in the field. Speckbacher *et al.* (2003) propose three BSC types that build incrementally on each other.

Type I is the “minimum standard BSC” (Speckbacher *et al.*, 2003, p. 362). It describes a PMS that does not only rely on financial KPIs (financial perspective), but also on non-financial KPIs that pertain to further perspectives. By default, these perspectives relate to customers, internal processes and to learning and growth; perspectives must be added or deleted as appropriate (Kaplan and Norton, 1996a, p. 34). By having more perspectives than traditional PMSs, the type I BSC is a measurement system that accounts not only for physical but also for intangible assets. As the BSC includes strategic, qualitative KPIs, it is a non-linear, non-additive accounting model. This differentiates the BSC from most other PMSs (Kaplan and Norton, 2001d; Malmi, 2001).

Type II builds upon these minimum requirements. It does not necessarily include more KPIs. But in addition, it depicts inductive cause-and-effect relationships among strategic objectives across the chosen perspectives, which is called a “Strategy Map”. Type II is thereby superior to type I because the latter could be an eclectic, non-comprehensive selection of arbitrary perspectives and KPIs without any inherent causality or link to the strategy. Cause-and-effect relationships also distinguish a type II BSC from many other PMSs such as the deductive, logic-based value driver trees of value-based management (VBM; Jensen, 2010; Kaplan and Norton, 2001b, p. 26; Nørreklit, 2000, p. 70). Type II is still a descriptive PMS for measurement and decision making that does not affect the majority of organizational actors. It represents a “wait

while we learn” approach, signaling that the type II BSC is not an operating PMS (Epstein and Manzoni, 1998, p. 200; Speckbacher *et al.*, 2003).

The type III BSC advances from a measurement system to a management system that also exerts control (Speckbacher *et al.*, 2003, p. 367). It builds upon the type II BSC by defining measures and targets for the strategic objectives that have a “balanced” link – i.e. involving all perspectives – to compensation (Kaplan and Norton, 1996a, p. 217). According to Kaplan and Norton (1996c, 2008), only type III constitutes a fully implemented BSC and they generally refer only to a type III BSC, as they acknowledge that any BSC eventually needs to be linked to the compensation of every relevant actor (Dilla and Steinbart, 2005; Kaplan and Norton, 1996a, p. 217, 1996c, 2001b, p. 13, p. 253, 2006, p. 263). Managers must select KPIs for each BSC perspective and assign weights to the set targets to achieve balance (Kaplan and Norton, 1996a, pp. 218-220, 2001b, p. 259). Kaplan and Norton (1996a, p. 283) acknowledge that some organizations might “wish to get some experience in managing the BSC before explicitly tying compensation to it” but also alert that:

Unless, however, reward and punishment are eventually tied, implicitly or explicitly, to the balanced set of objectives, measures, and targets on corporate and business scorecards, the organization will not be able to use the Balanced Scorecard as the central organizing framework for its management systems.

3. Methodology

We applied a five-step procedure to systematically identify relevant articles for our review (Denyer and Tranfield, 2008; Rousseau *et al.*, 2008).

First, we opted to search large scientific databases (ABI Inform, EBSCO and ScienceDirect) instead of searching only in a pre-selected set of journals. This way, we initially ensured a broad coverage of literature.

Second, we searched these databases for articles in English that contained the string “Balanced Scorecard” anywhere in their text body to capture all articles that related – in an approving or critical way – to the BSC. Starting in the year of Kaplan and Norton’s (1992) first BSC publication, our search investigated the time frame from 1992 to 2012. This initial search yielded 1,031 articles.

Third, we scanned the titles, abstracts and key words of these 1,031 articles. We only targeted empirical studies because we were interested in field evidence on the BSC. This allowed us to extract 315 empirical studies with explicit focus on the BSC.

Fourth, we focused on studies from journals ranking at least 2 out of 4 in the ABS Quality Guide (Harvey *et al.*, 2010). We checked the references in all of these relevant studies, and considered related articles that were suggested to us by the databases we searched to ensure that we did not omit any other empirical work that had been cited by our already identified studies (the ancestry approach of Cooper, 1982). This reduced the relevant number of empirical studies from 315 to 117.

Fifth, we wanted to identify only those studies that deal with BSC and compensation. Therefore, we searched the remaining 117 studies for the terms “incentive”, “motivation”, “compensation”, “reward”, “salary” or “bonus”. In total, 30 of these 117 studies referred to some kind of BSC-compensation, and these 30 articles constitute the data set for this literature review. Appendix 1 splits all 117 identified studies into 30 that relate to BSC-compensation and 87 that do not.

4. Organization and interpretation of the literature

4.1 Framework and publication patterns

We organize our literature review by three categories:

- (1) the general context of the study;
- (2) the BSC-specific choices of the researchers for their study design (authors' perspectives); and
- (3) the observed organizational practice (organizations' perspectives).

This structure of categories and sub-categories was inspired by [Katsikeas et al. \(2000\)](#) and [Lueg \(2008\)](#). First, we read all 30 studies and used the knowledge gained from reading the conceptual BSC literature to choose the discriminant factors to conduct a meaningful review. We then reread the studies and used a coding protocol to document the applicability (indicated by "1") or non-applicability (indicated by "0") of the (sub-) categories and thereby how many studies actually include a link from the BSC to compensation. We depict our framework in [Figure 1](#) and present an extract of our coding protocol in [Figure 2](#)[1].

We found it necessary to differentiate between the perspective on the BSC by the authors and the BSC by the organizations, because they can disagree. For instance, we found cases where the organizational actors saw the implementation of the BSC as a success, while the authors of the study were critical ([Ittner et al., 2003](#)). And there can be two reasons why only scarce evidence on BSC-compensation exists: it could be that organizations do not establish this link or it can be that the researchers do not ask for it in detail, e.g. if a questionnaire only enquires about the existence of a general BSC with a "yes-or-no?" item.

Before analyzing the contents of the studies, we describe the patterns of empirical publications on the BSC over time and describe the parallel development of the conceptual literature written by the BSC inventors Kaplan and Norton.

The dark bars in [Figure 3](#) depict the appearance of the 30 empirical studies which present the BSC-compensation link between 1992 and 2012 and the white bars on top of the black bars display the remaining 87 empirical studies. We see an identical pattern in the relative frequency of BSC compensation studies and other BSC studies. Therefore, the compensation studies selected for this review are not biased by being more recent

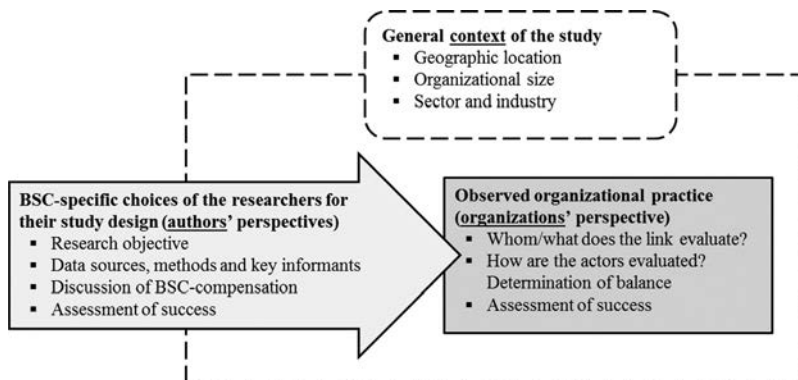


Figure 1. Framework for analysis

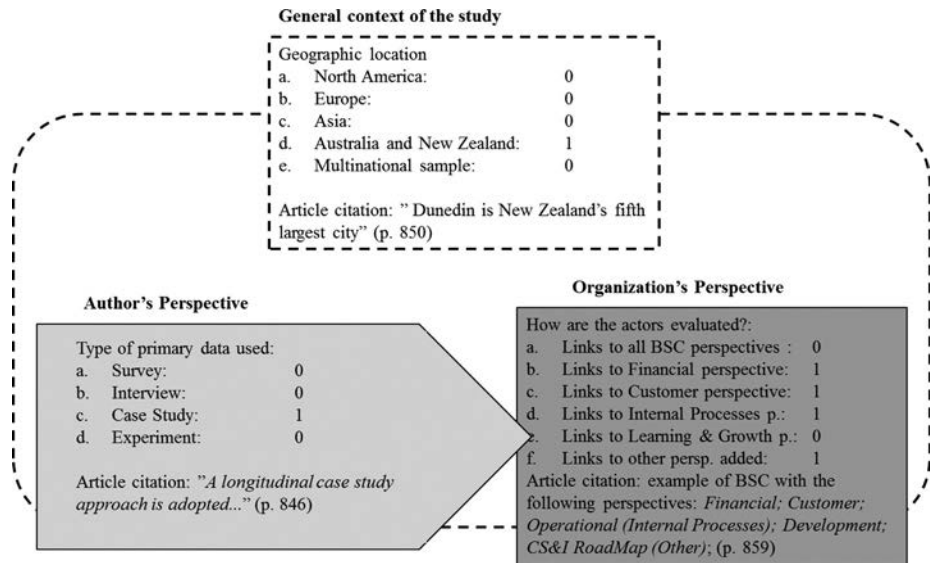
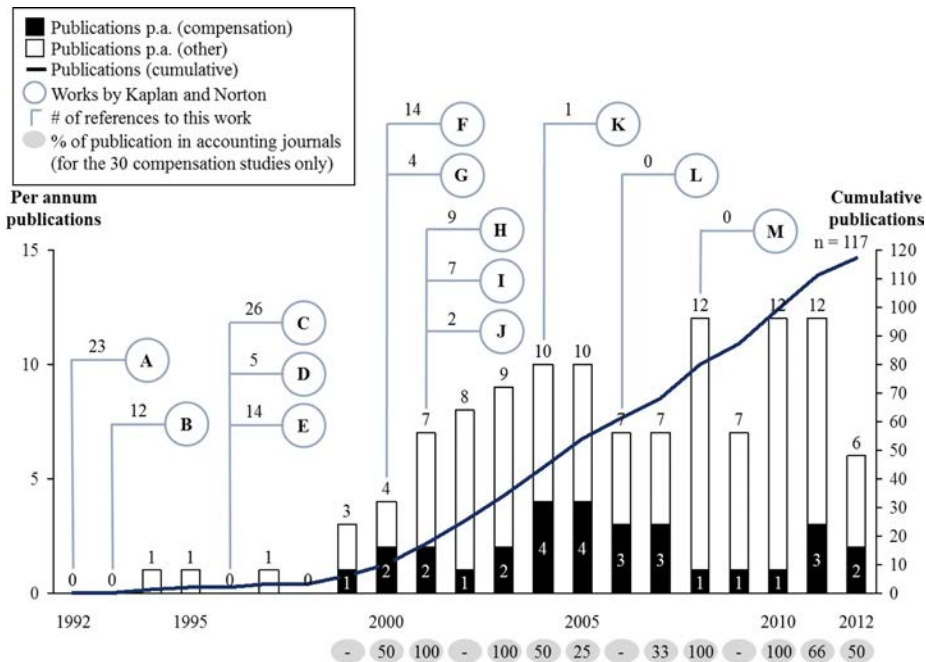


Figure 2. Partial example of coding procedure for the study of Greatbanks and Tapp (2007)

and better informed. Empirical studies on the BSC first appeared in 1994, but the first study on BSC-compensation was not published until 1999 (Mooraj *et al.*, 1999). The solid, ascending line indicates the cumulative number of empirical studies ($n = 117$). The number of BSC-compensation studies published in accounting journals per year is shown in bubbles below the chart and amounts to a total of 14 out of 30. Thus BSC seems to be a favorite subject for accounting research compared to the numerous other fields of business administration. Non-accounting journals that published on BSC-compensation mostly belong to the field of operations management (Appendix 2). This is interesting, as the content of the BSC would suggest more applications in marketing (customer perspective), human resources or innovation (learning and growth perspective) or strategy and general management (strategy maps). Thus, the BSC has established itself as a mainstream management practice only in few research fields of business administration, particularly accounting and operations. A reading example of Figure 3 for the year 2000 is: there were a total of four empirical studies on the BSC, two of these describe BSC-compensation, and one was published in an accounting journal.

The bubbles within the chart mark the publication years of the normative BSC-publications of Kaplan and Norton. The numbers of references in the 30 empirical studies on BSC-compensation to these normative works are shown on the connectors. A reading example is: bubble C stands for Kaplan and Norton's (1996a) publication "The Balanced Scorecard: Translating Strategy into Action" that was published in 1996, and of the 30 relevant studies, 26 made a reference to this work. It might seem normal that the two most cited works (Kaplan and Norton, 1992, 1996a) with 23 and 26 citations, respectively, are among the oldest: the earlier a work was published, the more opportunities for it to get cited over time. Yet, we find this citation pattern quite striking. Kaplan and Norton made important extensions to the original BSC system much later, e.g. the BSC's link to strategy (Kaplan and Norton, 2004, 1 citation), compensation (Kaplan and Norton, 2006, 0 citations) or managing synergies (Kaplan and Norton, 2008, 0 citations). We were very surprised to see



Source: The 30 empirical articles accounting for compensation cite the following references from Kaplan and Norton (indicated by the number on the connector line, major books are shown even if not cited): (A) Kaplan and Norton (1992); “*The Balanced Scorecard - Measures That Drive Performance*”: 23 times cited; (B) Kaplan and Norton (1993b); “*Putting the Balanced Scorecard to work*”: 12 times cited; (C) Kaplan and Norton (1996a); “*The Balanced Scorecard: Translating Strategy into Action*”: 26 times cited; (D) Kaplan and Norton (1996b); “*Linking the Balanced Scorecard to strategy*”: five times cited; (E) Kaplan and Norton (1996c); “*Using the Balanced Scorecard as a strategic management system*”: 14 times cited; (F) Kaplan and Norton (2000b); “*The Strategy Focused Organization*”: 14 times cited; (G) Kaplan and Norton (2000a); “*Having trouble with your strategy – Then map it*”: 4 times cited; (H) Kaplan and Norton (2001c); “*Transforming the Balanced Scorecard from performance measurement to strategic management: part I*”: 9 times cited; (I) Kaplan and Norton (2001d); “*Transforming the Balanced Scorecard from performance measurement to strategic management: part II*”: 7 times cited; (J) Kaplan and Norton (2001a); “*Leading change with the Balanced Scorecard*”: 2 times cited; (K) Kaplan and Norton (2004); “*Strategy Maps*”: 1 time cited; (L) Kaplan and Norton (2006); “*Alignment: Using the Balanced Scorecard to Create Corporate Synergies*”: 0 times cited; (M) Kaplan and Norton (2008); “*The Execution Premium: Linking Strategy to Operations for Competitive Advantage*”: 0 times cited

Figure 3. Frequency of empirical BSC articles 1992-2012 in leading academic journals ($n = 117$)

that even recent studies still refer to the very early and thus basic concepts of Kaplan and Norton (1992, 1996a). For example, the book *Alignment* from 2006 (bubble L) deals specifically with compensation. Most likely, it could have been cited by at least the 11 studies published after 2006, but we found no references to it at all. What could possibly explain this low number of citations? First, this observation is in line with Kaplan’s (2012, p. 540)

complaint that the BSC is still viewed as a measurement system instead of a management system. Second, more recent studies might have replicated the citation patterns from earlier studies that refer to the earlier works of Kaplan and Norton, but in any case, the empirical literature appears to ignore the more recent developments in the normative literature.

4.2 Findings on the general contexts of the studies

Inspired by the literature review of Gosselin (2007), we document the geographic locations and the sectors in Figure 4, as well as the organizational sizes and industries in Table I. We benchmark the 30 BSC-compensation studies against the 87 other empirical studies to detect possible differences in their general contexts.

As to the geographic location of studied organizations, the majority of the 30 studies on BSC-compensation have been conducted in Europe (43 per cent) and North America (40 per cent). Except for Lee and Lai (2007), there is little evidence on compensation from Asia compared to the other 87 empirical studies. Studies normally focus on one country only. One exception for the North American group is Chan (2004), who conducted the research within the public municipalities of the USA and Canada. In the European group, Speckbacher *et al.* (2003) conducted their research across German-speaking countries (Austria, Germany and Switzerland); Kald and Nilsson (2000) investigated several Nordic countries (Denmark, Sweden, Norway and Finland), but no study compares countries across the main geographic regions, e.g. the USA with the UK or Australia.

As to the sizes and types of studied organizations, roughly half of the research on BSC-compensation has been conducted on either SMEs (13 studies) or smaller local/municipal governments (four in total). We only record ten large and four multinational

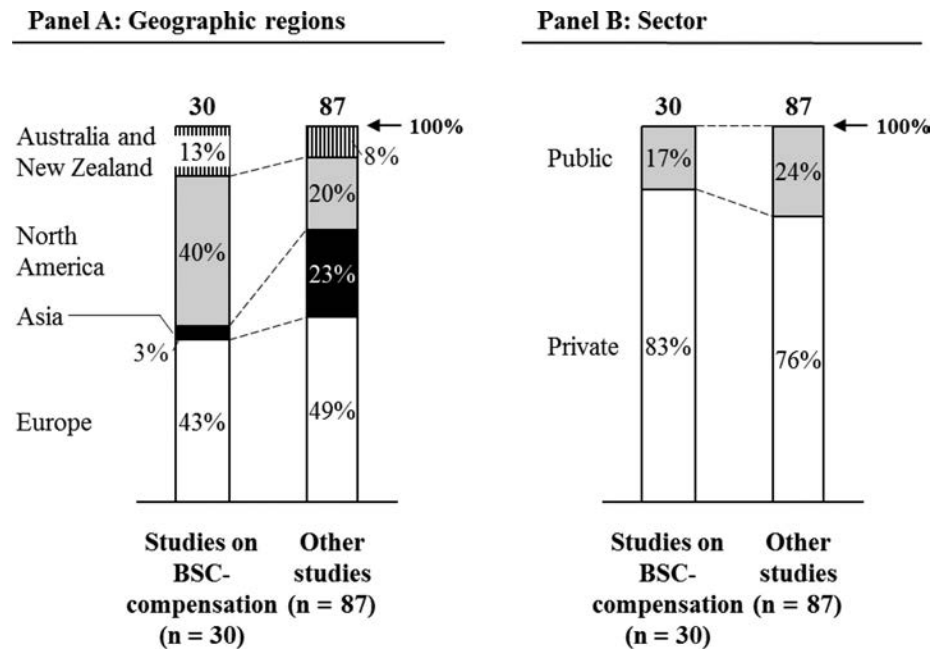


Figure 4. Comparison of geographic regions and sectors among empirical studies (n = 117)

	30 compensation studies (%)		Other 87 studies (%)	
<i>Organizational size/type</i>				
SME (priv.)	13	43	34	39
Large organization (priv.)	10	33	27	31
Multinational organization (priv.)	4	13	7	8
Hospitals and universities	1	3	10	11
Local government (pub.)	2	7	8	9
Municipal government (pub.)	2	7	2	2
Total (not a SUM, several specifications possible)	30	n/a	87	n/a
<i>Industry (SIC divisions)</i>				
Construction	1	3	4	5
Manufacturing	28	93	37	43
Telecommunications	8	27	6	7
Retail trade	8	27	17	20
Finance	8	27	8	9
Services	6	20	17	20
Public administration	4	13	12	14
Not specified	0	0	5	6
Total (not a SUM, several specifications possible)	30	n/a	87	n/a

Table I.
Comparison of
organizational sizes and
industries among
empirical studies
($n = 117$)

organizations (according to the description by the authors of the studies). We were surprised about such sample selections, as we expected the vast majority of research to be conducted in large, multinational organizations: first, the sophistication of PMSs – and hence the interest for exemplary research – generally increases with organizational size (Chenhall, 2003). Second, Speckbacher *et al.* (2003) find that larger organizations exhibit higher BSC-sophistication (type III BSCs). Third, most anecdotal evidence from Kaplan and Norton stems from large or multinational organizations (Kaplan and Norton, 1996a, 2001b, 2006, 2008). As a possible reason for this *relative* bias toward rather small organizations, we conjecture that researchers might have picked these smaller organizations due to easier access (convenience sample). Yet, this choice might be problematic because Kaplan and Norton build their normative arguments on multinational organizations. Additionally, Rompho (2011, p. 43) argues that the BSC is more prone to fail within SMEs due to their “*frequent strategy changes*”. We acknowledge that “non-normal” case studies on the BSC in SMEs are highly desirable additions to our “standard” body of knowledge, but we may have to admit that this “standard” body of knowledge might not exist yet.

When we look at the organizations with regard to sectors and industries, we note that the BSC has been widely adopted and researched across the private and the public sector. Private sector studies amount to 83 per cent of the 30 studies, a percentage that is in line with the 87 studies that do not address BSC-compensation (76 per cent). It is striking that 28 of the 30 studies include (among others) organizations from the manufacturing industry. Kaplan and Norton claim that the BSC is especially suited for non-traditional, knowledge-based industries, and the authors’ choice therefore seems either to contradict this claim or to indicate that the BSC is not as widely applicable

across industries as is usually claimed. One weak indicator for this might be that 10 of the other 87 BSC studies (11 per cent) have found samples involving hospitals and universities, but only 1 of the 30 BSC-compensation studies did (3 per cent). A reason for this underrepresentation in the compensation studies might be that regulation lowers the impact of standard incentive systems (money and promotions) for medical personnel, public servants, educators and researchers more than for top managers in the often researched manufacturing industry. Regulation and lack of impactful incentive systems might prevent the diffusion of “full” BSCs in such industries.

4.3 Findings on the authors’ perspectives

We now present the study designs chosen by the authors (cf. Table II).

4.3.1 Choice to make compensation a research objective. We first investigate if the link to compensation is the main, an equally ranked or a subordinate *research objective* in these 30 studies. Six studies set BSC-compensation as their *main* research question (Decoene and Bruggeman, 2006; Ding and Beaulieu, 2011; Griffith and Neely, 2009; Ittner *et al.*, 2003; Lee and Lai, 2007; Lipe and Salterio, 2000) and focus directly on the BSC-compensation link by investigating its main characteristics. For example, the

Category	Total <i>n</i> = 30	(%)
<i>Research objective: link to compensation is [...]</i>	30	100
[...] the main research objective	6	20
[...] a coequal research objective	16	53
[...] a subordinate research objective	8	27
<i>Type of data used</i>	36	<i>n/a</i>
Types of primary data	30	100
Case study	16	53
Survey	6	20
Only interviews	3	10
Experiment	5	17
Types of secondary data	6	<i>n/a</i>
Data base	4	13
Financial statements	1	3
Other types of sources	1	3
<i>Actors involved in the research</i>	38	<i>n/a</i>
Top management	17	57
Middle management	8	27
Employees	8	27
Students (experiment)	5	17
<i>Detail concerning the link</i>	30	100
Well-presented and detailed	6	20
Not well-presented and detailed	24	80
<i>Success of BSC implementation (AP)</i>	30	100
Coding protocol for the authors’ perspectives (AP) Successful	22	73
Lacking aspects	8	27

study of [Ittner et al. \(2003\)](#) investigates the use of subjectivity in rewards systems based on the BSC according to six categories of (non)-financial measures.

Sixteen studies have BSC-compensation as a *coequally* important research objective that prominently included the BSC-compensation link ([Speckbacher et al., 2003](#)). [Feliniak and Olezak \(2005\)](#) investigate the applicability of the BSC within the human resource department, and [Greatbanks and Tapp \(2007\)](#) illustrate the interplay of strategic planning, team management and individual staff performance and the link to compensation for the staff. Another example is the investigation of [Bassen et al. \(2006, p. 435\)](#) in a corporate venture capital organization that finds that performance measurement with the BSC “may serve as a base for result-oriented incentive systems”.

Eight studies do not set BSC-compensation as an objective at all and only mention its (non)-existence without further explanation. These “testimonial studies” somehow reflect the existence of the BSC-compensation link within the organizations investigated, but the authors do not elaborate upon it in detail or at all. In some cases, the BSC-compensation link can be identified in just one sentence or paragraph:

In the follow-up interviews, all three BSC users noted its usefulness for measuring the performance of staff as well as unit/divisional performance. Some questionnaire responses also indicated that staff performance measures are built into LGO BSCs ([Northcott and Taulapapa, 2012, p. 174](#)).

Despite the importance that Kaplan and Norton attribute to the BSC-compensation link, research designs of most empirical studies have ignored the link.

4.3.2 Choice of data sources, methods and key informants. The type of data used elucidates the evidence on which the conclusions of the studies are based and may be primary or secondary sources. Strikingly, all 30 studies rely on primary data. The relative frequency of the research methods used is almost perfectly consistent across the 30 compensation studies and the other 87 BSC studies. Case studies with multiple sources of evidence are the most popular (53 per cent of the 30 BSC-compensation studies/55 per cent of the other 87 empirical studies), followed by surveys (20 per cent/21 per cent). The number of survey respondents ranges from 50 ([Hoque and Adams, 2011](#)) to 236 ([Kald and Nilsson, 2000](#)). These participant numbers are low given that [Van der Stede et al. \(2005\)](#) find that – for the time frame 1992-2001 – the average sample size in leading academic journals is 261. The surveys among BSC-compensation studies have response rates that vary from 11 to 87 per cent ([Chan, 2004](#) – 20 per cent; [Hoque and Adams, 2011](#) – 47 per cent; [Kald and Nilsson, 2000](#) – 30 per cent; [Lee and Lai, 2007](#) – 11 per cent; [Northcott and Taulapapa, 2012](#) – 66 per cent; [Speckbacher et al., 2003](#) – 87 per cent). [Van der Stede et al. \(2005\)](#) report an average response rate of 48 per cent for surveys in leading academic journals, so the numbers seem to be within standard response rates. Some researchers based their studies only on interviews (10 per cent/9 per cent), while another group (17 per cent/15 per cent) used an experimental design mostly involving MBA students who assume the role of a CEO ([Lipe and Salterio, 2000](#)).

It is noteworthy that no study has exclusively used publicly available data over several years for a large-scale sample. Most of the BSC research is qualitative, and only seven studies corroborated their findings with other available, secondary data ([Banker et al., 2004a](#); [Decoene and Bruggeman, 2006](#); [Greatbanks and Tapp, 2007](#); [Griffith and Neely, 2009](#); [Gumbus and Lyons, 2002](#); [Ittner et al., 2003](#); [Malina et al., 2007](#)). This is a low number compared to research on other PMSs, e.g. VBM, where researchers make more

extensive use (62 per cent) of secondary data sources (Lueg, 2008, p. 25). While acknowledging that archival data are often not available in management accounting research (Ittner and Larcker, 2002a), we argue that archival data like annual reports or press releases could provide insightful evidence of BSC-compensation.

The variables on *actors involved in the research* show the number of studies that focused on (combinations of) key informants like top managers, middle managers, lower-level employees or students in laboratory experiments. Top managers were often seen as knowledgeable key informants and of primary interest to the researchers (17 studies). This focus is in line with Kaplan and Norton's (2006, 2008) idea that the BSC is mainly a top management PMS that is rather autocratically cascaded to lower levels of an organization. Only eight studies have investigated what a fully implemented BSC looks like at the levels of middle managers and employees. This number appears to be low given the critique that the BSC will lose many of its presumed benefits when cascaded throughout an organization (Nørreklit *et al.*, 2012).

4.3.3 Choice to discuss the (non)-existence of BSC-compensation. We then assessed the level of *detail concerning the link* for the 30 studies that focused on BSC-compensation. Just six of them provide detailed explanations on how the link from the BSC to compensation is made ("well-presented and detailed"). We had expected more illustrations similar to the ones used by Kaplan and Norton such as the "CIGNA" case (Kaplan and Norton, 2001b, p. 259) or the "Pioneer Petroleum Case" but interestingly, only three of these six studies stem from the group that has BSC-compensation as its main research question (Decoene and Bruggeman, 2006; Griffith and Neely, 2009; Ittner *et al.*, 2003). The other three stem from studies that see the link as a coequal or subordinate research goal (Feliniak and Olezak, 2005; Greatbanks and Tapp, 2007; Gumbus and Lussier, 2006). The six studies are the core of our findings and the ones which offer a proper answer to our research question. We will analyze and discuss their characteristics in detail in Section 5.1 (*synthesis*).

In the remaining 24 studies, BSC-compensation is only mentioned or summarized. For instance, Jazayeri and Scapens (2008) find that 80 per cent of the targets in their organization are directly linked to the personal objectives of each manager, but do not further elaborate on how this is done.

4.3.4 The authors' assessments on BSC-compensation. We then record if the authors see BSC-compensation as a success. Eight studies conclude that the BSCs in the studies cannot be deemed successful, as a number of aspects have not been included and they relate this to the researched organizations, the environment or methodological limitations in measurement. We provide two examples:

Also, a perceived lack of strategic orientation may be more common in the public sector, [explaining] why BSC implementation may be perceived as less beneficial in public sector contexts (Northcott and Taulapapa, 2012, p. 173).

[...] the balanced scorecard is a fairly new management tool in municipal governments and it may be premature to assess its usefulness in the management of municipal governments (Chan, 2004, p. 220).

Following Nørreklit *et al.* (2012), we see such assessments as critical: Kaplan and Norton (2006, 2008) claim that the BSC has many benefits, most prominently the achievement of strategic goals and superior performance. If these are the goals of the BSC, then a successful BSC should achieve them. A positive example that relates these

compensation-relevant BSCs to actual performance is [Jazayeri and Scapens \(2008, p. 62\)](#), who quote a manager as saying that the BSC is:

[...] embedded in the business. It's fully recognised as one of the main reporting tools within the business and it's fully recognised as providing a very strong indication of the state of the business.

Likewise, [Davis and Albright \(2004, p. 150\)](#) affirm the "ability of the BSC to improve financial performance".

The high number of explicit and implicit positive assessments might be related to the publication bias that editors prefer significant results like success stories over inability to find relationships. Also, the researchers' possibilities to use data from the investigated organizations may depend on how positive the organization is depicted. This confusion about *popularity* versus *success* is quite common in research on PMSs, as demonstrated by [Lueg \(2008\)](#) in his review of 120 empirical studies on VBM.

4.4 Findings on the organizations' perspectives

We now present the findings on the organizations in the field. [Table III](#) gives an overview of what we are going to discuss in the following.

4.4.1 Whom/what does the link evaluate? We first identify "whom/what does the link evaluate?" to understand whom the organization intends to address with the BSC (several specifications possible). We find that compensation for employees is evaluated in 17 studies plus three in group compensation ([Bassen et al., 2006](#); [Phillips and Louvieris, 2005](#); [Thompson and Mathys, 2008](#)). Middle managers are evaluated in ten studies. This appears to be an appropriate focus, as these two groups comprise many actors that can influence the implementation of the strategy. But we find it peculiar that

Category	Total <i>n</i> = 30	Relative use (%)
<i>Whom/what does the link evaluate?</i>	39	<i>n/a</i>
Individual employees	17	57
Groups of employees	3	10
Middle management	10	33
Top management	5	17
SBUs	4	13
<i>How are actors evaluated? Determination of balance</i>	32	<i>n/a</i>
Links to all classic BSC perspectives	4	13
Links to financial perspective	8	27
Links to customer perspective	8	27
Links to internal processes perspective	3	10
Links to learning and growth perspective	1	3
Links to other perspectives added	8	27
<i>Efficiency of BSC evaluation (OP)</i>	30	100
Not mentioned	19	63
Efficient (targets set in all BSC perspectives– <i>balance</i>)	8	27
Partially efficient (targets not set in all BSC perspectives)	3	10

Table III.
Coding protocol for the organizations' perspectives (OP)

only five studies have looked at the link from the BSC to compensation in respect to top management (Davis and Albright, 2004; Feliniak and Olezak, 2005; Jazayeri and Scapens, 2008; Kald and Nilsson, 2000; Tuomela, 2005), specifically as 17 studies cited top managers as their key informants (cf. Section 4.3.2). Given this, we find it unlikely that only five organizations tie top management compensation to the BSC and believe that the researchers have probably omitted this information. Moreover, financial statements give good insights into top management compensation, which makes top management a natural target group of interest for any type of compensation research. Organizations in four studies used the BSC to evaluate SBUs/branches (Griffith and Neely, 2009; Malina and Selto, 2001; Malmi, 2001; Speckbacher *et al.*, 2003).

4.4.2 How are the actors evaluated? Determination of balance. We then gained an understanding of *how these actors are evaluated*. Only four studies report that their organizations use a balanced approach that links the BCS's KPIs across all four *classic* perspectives with compensation (Table III) as suggested by Kaplan and Norton (Feliniak and Olezak, 2005; Lee and Lai, 2007; Lipe and Salterio, 2000; Malina and Selto, 2001).

In addition to this, further studies reveal a balanced approach and also add other perspectives to BSC compensation (Greatbanks and Tapp, 2007; Griffith and Neely, 2009). For example, Greatbanks and Tapp (2007, p. 859) disclose links between the BSC and compensation across the financial, the customer and the internal processes' perspectives, as well as two further perspectives ("*Development*" and "*C&IS Roadmap*"). After 20 years of BSC, it is disheartening to find that only six teams of authors have scholarly documented evidence on organizations that have implemented the BSC according to Kaplan's and Norton's suggestions.

Other authors discover that organizations take an unbalanced approach to BSC-compensation by linking it to a limited number of existing BSC perspectives. Links to the financial perspective are found in eight studies: Banker *et al.* (2004a), Chan (2004), Davis and Albright (2004) and Kald and Nilsson (2000) only found this link, while Greatbanks and Tapp (2007), Griffith and Neely (2009), Gumbus and Lussier (2006) and Ittner *et al.* (2003) found links to additional perspectives. Furthermore, eight studies uncover links to the customer perspective; two of them only have this link (Banker *et al.*, 2004a; Chan, 2004). The other six balance by having links to other perspectives as well (Decoene and Bruggeman, 2006; Greatbanks and Tapp, 2007; Griffith and Neely, 2009; Gumbus and Lussier, 2006; Ittner *et al.*, 2003; Jazayeri and Scapens, 2008). Besides Greatbanks and Tapp (2007) and Griffith and Neely (2009), only one further study finds that organizations establish links to compensation from the internal process perspective (Phillips and Louvieris, 2005). Only Gumbus and Lussier (2006) provide evidence that organizations use KPIs from the learning and growth perspective as a basis for compensation despite the fact that Kaplan and Norton (1996a, p. 126) highlight the fundamental importance of this perspective. Eight studies illustrate how organizations link compensation to a range of one to four new BSC perspectives[2]. Only one of these eight studies reports an unbalanced approach of the BSC (Gumbus and Lussier, 2006) by referring only to two perspectives: financial health and quality and process improvement.

The remaining 14 studies cannot (or do not) provide evidence on the link to the specific perspectives at all; Thompson and Mathys (2008) only name individual KPIs which are yet unrelated to specific perspectives.

4.4.3 *The organizations' assessments on BSC-compensation.* Last, we look at the “efficiency of BSC evaluation” as assessed by the implementing organization. We do so because a “successfully” implemented BSC does not need to be performance-optimal in the view of the researchers or of all of the involved actors. For example, the study of [Ittner et al. \(2003\)](#) documents how an organization implements BSC-based compensation. From an organizational perspective, this was initially considered a success because the BSC was implemented as suggested by Kaplan and Norton. Yet, [Ittner et al. \(2003\)](#) did not see this as a success due to problems regarding the subjectivity of weighting the compensation-relevant factors. The – almost perfect – BSC was then discarded because its intrinsic characteristic of subjectively weighting goals led to a feeling of unfairness among branch managers. We find that 19 studies do not discuss the organizations' views on BSC efficiency, as this is not their primary research objective ([Ding and Beaulieu, 2011](#); [Lee and Lai, 2007](#); [Lipe and Salterio, 2000](#)). Other studies are surveys that focus on the mere existence of the link ([Speckbacher et al., 2003](#)), and some researchers made the discoveries on compensation in the course of their research and do not elaborate on it further ([Kald and Nilsson, 2000](#); [Phillips and Louvieris, 2005](#); [Tuomela, 2005](#)). We conjecture that some of these researchers had a gut feeling from their study that the adoption of the BSC (*popularity*) could be seen as synonymous with efficiency (*relevance*).

Eight studies report that the organizational actors themselves saw the BSC as a success ([Bassen et al., 2006](#); [Davis and Albright, 2004](#); [Feliniak and Olezak, 2005](#); [Greatbanks and Tapp, 2007](#); [Griffith and Neely, 2009](#); [Ittner et al., 2003](#); [Jazayeri and Scapens, 2008](#); [Malina and Selto, 2001](#)). Illustrative quotations are:

Relative performance evaluation allows each distributor to know his relative standing and what others are doing, and thereby motivates distributors and gives them a tool for improvement ([Malina and Selto, 2001](#), p. 20).

The linkage between the SVC (Siemens Venture Capital) Scorecard and the personal incentive system made the scorecard a highly effective tool because it motivated everybody to participate and to contribute as much as possible to the achievement of the goals ([Bassen et al., 2006](#), p. 434).

Three author teams demonstrate that their investigated cases are just partially efficient ([Decoene and Bruggeman, 2006](#); [Gumbus and Lussier, 2006](#); [Gumbus and Lyons, 2002](#)). For instance, [Gumbus and Lussier \(2006, p. 413\)](#) show that the targets in one of their cases only cover the financial and customer perspectives. Therefore, the condition of “balance” is just partially achieved.

5. Discussion

The discussion makes two major contributions: we start with synthesizing the knowledge that we have gained on the BSC within the researched organizations based on the six seminal studies (Section 5.1, organizational perspective). We continue by suggesting improved research designs for future studies based on the best practice of the six seminal studies (Section 5.2, authors' perspective). Before we conclude (Section 5.4), we discuss the limitations of our own study.

5.1 *Synthesis: what have we learnt about the BSC and compensation in the field (organizations' perspectives)?*

We emphasize the specific highlights of each study before comparing them.

5.1.1 *Highlights of the seminal studies.* The first representative study was by [Ittner et al. \(2003\)](#) and was published in *The Accounting Review*. Thereby, it is the only study from the field of accounting and by far the most critical one. The other five relevant studies were published within other fields.

[Ittner et al. \(2003\)](#) investigate problems of subjective weighting in BSC-compensation in a large US financial service organization. They describe a compensation plan used for evaluating branch managers that is linked to all perspectives of a BSC, i.e. financial (three measures), strategy (7-18 measures), customer (two measures), control (three audit judgments), people (five qualitative assessments) and standards (five qualitative assessments). Managers are evaluated based on three levels (below/at/above par), and the combination of these assessed measures forms the basis for the quarterly bonus. The evaluation plan differs from the weights system suggested by [Kaplan and Norton \(2000b, p. 259: CIGNA case\)](#), but the measures from all BSC perspectives contribute to the achievement of *balance* within performance evaluation of the middle management. Despite the well-defined BSC, [Ittner et al. \(2003\)](#) document dysfunctional aspects in the evaluation, such as overemphasizing financial KPIs, introducing non-related or irrelevant KPIs and constant switching of rating schemes. The authors also highlight the opinions of the actors being evaluated by this system, most of them being unsatisfied with the evaluations. [Ittner et al. \(2003\)](#) voice the concerns of an actor:

It is too subjective and not objective. I'd prefer an objective rating where everyone concerned knows what to expect when certain levels of performance are achieved ([Ittner et al., 2003, p. 753](#)).

Due to the use of subjectivity, the organization discontinued the use of the original BSC-based evaluation system for assessment of branch managers.

[Decoene and Bruggeman \(2006, p. 442\)](#) study the motivation of middle managers and employees under BSC-compensation within a subdivision of a large Danish plastics manufacturer in Belgium. Employees and managers are rewarded based on the BSC-compensation plan that includes both financial and non-financial measures across all BSC perspectives (responsible care, manufacturing, customer and people). The non-financial measures are measured in non-monetary terms and represent the drivers of financial performance. The organization uses a formula-based compensation to balance measures. The annual bonus is calculated by multiplying the performance index parameter with the maximum percentage of the variable yearly salary:

Performance index parameter = $\frac{\sum \text{total score on each performance measure}}{\sum \text{result factor X of the performance measure}}$
Total score on each performance measure = $\sum \text{result factor X of the performance measure}$
Result factor = the result factor indicates the extent to which the target on the performance is realized.

The bonus plan is well-established, but it has not been cascaded properly to all the levels within the organization, as it did not reflect the manufacturing performance objectives but the corporate performance objectives. This decreased the intrinsic motivation of managers to improve manufacturing performance. The study highlights the importance of the strategic alignment between the "corporate performance objectives and the functional-level performance objectives" (p. 445), which are supposed to increase the intrinsic motivation of the personnel. At the same time, the study implies that a

BSC-compensation plan can only motivate extrinsically if linked to the performance objectives set particularly for each level within the organization.

Griffith and Neely (2009) study the implementation of BSC-compensation within a subsidiary of a multinational plumbing and heating provider in the UK. The BSC-compensation uses 16 performance targets across five BSC perspectives which contribute to an accumulating point system that forms the basis for semi-annual bonuses. The targets to be achieved are set in all BSC perspectives (financial, customer, internal processes and supplier). Points are given based on the predefined targets on three outcome levels (green 3 points; amber 1.5 points; red 0 points). The main purpose of the BSC-compensation plan is to motivate workers' attention to activities for which they were not previously rewarded. According to the management, those activities represented an essential contribution to the profitability of the organization. The effectiveness of BSC-compensation varied across branches and especially the amount of job experience of the middle manager was a decisive success factor for the new incentives. Griffith and Neely (2009, p. 57) report:

In 2003 a point was worth £1 for branch staff (the value of a point is higher for managers), so the maximum bonus a branch worker could earn in a month was £51, or £612 a year. Salaries for branch workers average around £12,000, so the maximum bonus represents around 5.1 per cent of salary.

The study concludes that if the BSC is correctly implemented, it can significantly improve organizational performance, especially measures such as sales, gross profit and net profit.

The longitudinal study of Greatbanks and Tapp (2007, p. 863) gives a non-numerical example of how compensation is determined by Dunedin City Council in New Zealand, analyzed from three perspectives: strategic planning, team management and individual staff performance. BSC-compensation within the organization positively affected role clarity among actors and fostered strategic goal attainment. The authors attributed this success to the fact that the implemented BSC substantially differs from Kaplan and Norton's original propositions: it is not mainly used for alignment but for operations management and as a basis for feedback to employees. Attainment of any "excellence targets" triggers a bonus. Employee compensation is linked to four BSC perspectives (financial; operational; customer; development); managers and team leaders have an additional perspective. The particularity of the study is that it presents detailed personalized scorecards for employees, team leaders and managers. The actors who have been evaluated with these personalized scorecards are satisfied with the measures; thus, they have easily accepted the system:

Staff also commented that linking the bonus payment to the scorecard excellence measure allowed a clear understanding of bonus performance and therefore expectations (Greatbanks and Tapp, 2007, p. 865).

Feliniak and Olczak (2005, p. 25) focus on the applicability of the BSC within human resource management and assess BSC-compensation as a "motivating instrument that needs to be explored". The study presents the calculation of bonuses for the top management by means of a BSC for a Polish consulting and training agency. The BSC perspectives are the classic perspectives prescribed by Kaplan and Norton, each with weights assigned (financial: 40 per cent, customer: 30 per cent, internal processes: 20 per cent, and learning and growth: 10 per cent). For each perspective, measures were

selected and targets set. The study depicts the four BSC perspectives with assigned weights to each measure, and it offers a practical example of how the incentives are calculated. The basic pay of the deputy president is 234,000 EUR. With a target bonus of 45 per cent of basic pay and an achievement of weighted BSC targets of 92.08 per cent, the annual bonus reaches 96,960.24 EUR ($234,000 \text{ EUR} \times 0.45 \times 0.9208$). The organization calculated bonuses only for the board members at the time of the study, but top management was planning to extend BSC-compensation to all levels.

Gumbus and Lussier (2006, p. 413) research three SMEs in the USA with BSC-compensation. Generally, they identify the BSC as an effective driver of productivity, but also highlight that the original approach of Kaplan and Norton needs to be extended for this, e.g. by explicitly incorporating the personal values of the employees into the BSC (Gumbus and Lussier, 2006, p. 414). For their first example, Hyde Electronics, they illustrate the targets set for employees' bonuses across the financial and customer perspective:

- (1) operating profit – financial metric target 15 per cent;
- (2) cumulative warranty return – customer metric target 1.7 per cent;
- (3) delivery on time – customer metric target 90 per cent;
- and (4) scrap per line – financial metric target 1.8 per cent.

In this example, BSC-compensation links to targets from only two BSC perspectives, inducing a lack of balance. For their second example, Futura Industries, the authors document a 20 per cent increase in plant productivity after the introduction of BSC-compensation:

Employees are paid a base salary and have a quarterly formula for incentives based on hours worked times a point system that generates a financial award linked to the following three metrics: (1) on-time delivery, (2) company-wide first pass yield at 98.9 per cent; and (3) safety and housekeeping (Gumbus and Lussier, 2006, p. 416).

For the third SME, SGC, the authors present the “*bonus scorecard*” which presents targets set in all the BSC perspectives (financial, internal measures, customer, core values, innovation and learning). The actors interviewed in this last SME consider that:

Tying compensation with the balanced scorecard is an excellent way to reward individuals and teams for achieving corporate objectives (Gumbus and Lussier, 2006, p. 420).

5.1.2 Comparison of the seminal studies. In this subsection, we attempt to synthesize similarities and differences across the seminal studies. This helps us to argue for a relevant future research agenda. We present Table IV to compare crucial characteristics of these six studies.

BSC compensations in the investigated organizations have both similarities and differences. On the one hand, the commonalities of the six seminal studies relate mainly to the design of the bonus system (Hilton *et al.*, 2003). All of the bonus schemes in the investigated organizations use absolute and relative as well as financial and non-financial performance measures. Only one local government agency makes constricted use of financial indicators, as it sees finances not as a goal but as a restriction of its operations (Greatbanks and Tapp, 2007). Moreover, all organizations define rather broad responsibilities for the evaluated actors. As to bonuses, all organizations have a relatively short evaluation horizon: bonuses are paid in cash on a quarterly or annual basis. In the long run – well after the researchers may have left – this might lead to conflicts with the long-term strategic goals of the BSC. Last, almost all organizations use

	Itner <i>et al.</i> (2003)	Decoene and Bruggeman (2006)	Griffith and Neely (2009)	Greatbanks and Tapp (2007)	Feliniak and Olezak (2005)	Gumbus and Lussier (2006)
<i>Study context</i>						
Geographic location	USA	Belgium	UK	New Zealand	Poland	USA
Size/type of organizations	Large	SME	Multinational	Local government	Large	SMEs
Industries	Financial services	Manufacturing	Manufacturing	Public sector	Services	Services
Research field	Accounting	Operations	Economics	Operations	Operations	Management
<i>Organizations' perspective</i>						
Whom/what does the link evaluate?	Middle management	Middle management; employees	Middle management	Top management; middle management; employees	Top management	Employees
Balance achieved (compensation links to all BSC perspectives)?	Yes, and subjectivity and weighting are addressed	Yes, and controllability is addressed	Yes, and controllability is addressed	Yes	Yes	Partly (at some organizations)
Cause-and-effect chains hold?	No	No	Partly	Yes	Yes	Yes
Basis for calculation of incentives	Weighted BSC; other competing schemes	Weighted BSC; other competing schemes	Weighted BSC; other competing schemes	Weighted BSC; other competing schemes	Weighted BSC only	Weighted BSC only
<i>Authors' perspective</i>						
Research objective	Main	Main	Main	Coequal	Coequal	Subordinate
Research method	Case study with control group	Case study	Case study with control group	Case study	Case study	Case study
Link is well-presented and detailed	Yes	Yes	Yes	Yes	Yes, incl. example with weighted targets across perspectives	Yes, incl. example with weighted targets across perspectives
Presents personalized BSCs with targets for actors	No	Yes	No	Yes	Yes	Yes
Presents the effect on evaluated actors	Yes, incl. opinions of evaluated actors	Yes	Yes	Yes, incl. opinions of evaluated actors	No	No, but incl. opinions of evaluated actors
BSC successfully implemented? (AP)	Lacking aspects	Lacking aspects	Mostly	Yes	Yes	Yes

Table IV. Synthesis of analysis

a mechanistic formula for determining BSC-based compensations, which is widely appreciated by the evaluated actors due to the high transparency. Only one organization used subjective evaluations which have been changed to a formula-based scheme as well (Ittner *et al.*, 2003). Another similarity is that all investigated organizations only assume cause-and-effect relationships between the BSC perspectives (strategy maps) that ultimately determine bonuses (for a critique, see Nørreklit, 2003). Consistently, the evaluating managers feel that their assumptions hold and that the indicators they try to maximize actually increase performance. This is not necessarily true, and three of the six studies challenge the managers' notions: Griffith and Neely (2009) find that the cause-and-effect chains only hold for those managers who have above average experience in the organization. Decoene and Bruggeman (2006) find that the assumed cause-and-effect chains are non-existent due to measurement error of indicators and because the operative managers' views on cause-and-effect have been ignored. In one organization, the standard assumption that customer satisfaction leads to future financial performance has even sometimes been negatively related to financial results (Ittner *et al.*, 2003). This last finding is consistent with the argument of Lueg and Nørreklit (2012): the effect of customer satisfaction on financial performance can become negative for very high values of customer satisfaction because the marginal cost of satisfying the last customers in the portfolio may exceed its marginal benefits.

On the other hand, differences between the BSCs in these organizations are numerous, which makes it hard to draw one final conclusion on BSC compensation. The strategy maps of the organizations differ, too. Some follow the classic cause-and-effect chain from the learning and growth perspective over process and customers to finances. One organization places finances in the middle as a restriction (Greatbanks and Tapp, 2007). In another example, the organization sees customer satisfaction as a driver of financial success, with five further perspectives directly driving customer satisfactions (Ittner *et al.*, 2003). There are also major differences in the effects of the compensations scheme on actual motivation of the evaluated actors. The relative size of the bonus was too small to be relevant in one organization (Decoene and Bruggeman, 2006). In another one, employees were motivated by demonstrating high performance to their colleagues through BSC reports, which let the researchers conclude that the relatively small monetary bonus did not have a major motivational effect by itself (Greatbanks and Tapp, 2007). Yet another difference is that only some organizations make an expedient choice of the compensation-relevant measures for the evaluated actors. Decoene and Bruggeman (2006) and Griffith and Neely (2009) find that actors have problems with unintended breaches of the controllability principle in regard to cascaded BSC indicators (for a conceptual discussion of the BSC and controllability, cf. Lueg and Jakobsen, 2014). Closely related to this, the performance measures for evaluation were simply cascaded from the top in another organization. This leads to evaluations of middle managers based on indicators that are actually only relevant for top managers (*common measure bias*) (Ittner *et al.*, 2003). This shows that problems with BSC-compensation relate to control rather than to planning: the evidence from the field does not suggest that organizations face any relevant obstacles with the *ex-ante* setup of the compensation system (i.e. decision making and planning). Problems arise in the *ex-post* phase (i.e. evaluation and control) due to subjectivity, weighting of KPIs with hindsight or the common measure bias of the evaluators. Kaplan and Norton do not mention these problems at all. Quite to the contrary, they enumerate successful

implementations only. The (partly) critical tone of 50 per cent of these seminal studies should alert managers that the success of the BSC is not as undisputed as its developers claim.

5.2 Contributions to improved study designs: what can be future issues in research (authors' perspectives)?

Our paper contributes to our knowledge on BSC-compensation links in practice and thereby it carries implications for future empirical research.

First, we demonstrate that of 117 empirical studies only 30 consider a full BSC including compensation, and just six of these provide detailed discussions. This is an important finding, as it shows a much thinner basis for generalizing about full BSCs than would be suggested just by a quick literature search. Our analyses show that one of the main reasons for this is that organizations and researchers refer to “the” BSC but do not adhere to the basic requirements defined by Kaplan and Norton. As a result, readers of scientific articles are faced with many different PMSs that are nevertheless all subsumed to be “the” BSC. Looking at the six seminal studies only, we find that the full BSC implementations described in these six studies have some recurring themes. Yet, the contexts where they have been conducted differ substantially and thereby lead to ambivalent conclusions. These may range from strong approval (Gumbus and Lussier, 2006) to encouragements of abolishing the BSC due to practical struggles in the evaluation process (Ittner *et al.*, 2003). To reach more valid findings that advance our knowledge, we suggest that future research should direct more attention to the detail and success of the BSC-compensation link. In that respect, we also urge researchers to start making a clear distinction between the adoption of a BSC (*popularity*) and the measurable success (*relevance*) of a BSC (Nørreklit *et al.*, 2012).

Second, we contribute the related insight that empirical research on the BSC is hard to compare due to the non-existence of an established construct. Researchers can only build a consistent body of empirical knowledge on the BSC if they agree on which criteria a PMS has to fulfill to be a BSC (Malmi and Granlund, 2009, p. 611; Zimmerman, 2001, p. 424). We suggest that future researchers design such a construct. They should take the developments in the more recent works of Kaplan and Norton into account, which have been largely ignored so far (Figure 3). Inspirations for the construct development could be the three BSC types of Speckbacher *et al.* (2003) or Burkert and Lueg (2013), who suggest a first multidimensional construct for VBM. Establishing constructs opens the potential to investigate variations of BSC compensations. Such research could improve our understanding of factors influencing the adoption and diffusion (for VBM: Fiss and Zajac, 2004), the choice of different designs (for VBM: Malmi and Ikäheimo, 2003), the different sophistications among adopters (for VBM: Burkert and Lueg, 2013) and under which circumstances BSC-compensation is inefficient (Nørreklit *et al.*, 2008).

Third, researchers need to address the most pressing issues on the BSC in practice, i.e. subjectivity, weighting of KPIs with hindsight or the common measure bias of the evaluators. While these evaluation issues appear crucial, we could identify only limited empirical evidence on them. Research that does not account for a “full” BSC is very much in line with Zimmerman's (2001, p. 424) conjecture that the absence of a body of empirical knowledge in management accounting stems from a research focus on

decision making instead of control. Hence, we suggest that future empirical studies look at the two crucial issues of:

- (1) *Subjectivity*: To advance our knowledge on subjectivity and the BSC, future research could explore the influence of external factors like environmental uncertainty on the effectiveness of subjective BSC-compensation (Bol, 2011; Hoöppe and Moers, 2011; Ittner and Larcker, 1997). Several internal factors could be of interest as well. One is the perceived role of subjectivity, i.e. if evaluated actors have a positive connotation of the BSC (e.g. flexibility) or a negative one (e.g. unfairness) (Franco-Santos *et al.*, 2012, p. 93). Another one could be the psychological motivation of evaluators in allocating bonuses (Ding and Beaulieu, 2011; Roberts *et al.*, 2004). Last, Ittner and Larcker (2002b) argue that even weighted output controls on (non-)financial KPIs fall short of evaluating the complexity of an actor's achievements, e.g. inputs and adherence to high-quality processes.
- (2) *Weighting/balance in BSC-compensation*: To advance our knowledge on weighting KPIs and the BSC, future research could look into the way actors identify, process and evaluate BSC information for evaluation and control, given their limited cognitive ability. In that respect, Lipe and Salterio (2002) suggest organizing the information into more categories; Kraus and Lind (2010) find that managers prefer simple measures; and Ittner *et al.* (2003) highlight that managers favor outcome measures (lagging) over driver measures (leading). Specifically, future research should look into the *common measure bias* that leads evaluators to focus on measures that are common to the whole organization instead of customized to the evaluated actor (Dilla and Steinbart, 2005). Extant research already shows that this bias increases with insufficient communication on the BSC (Kaplan and Wisner, 2009) and with unfavorable presentation of information (Cardinaels and van Veen-Dirks, 2010). Last, the balance of extrinsic versus intrinsic motivation has only been addressed by Decoene and Bruggeman (2006). An inspiration for future research might be Bonner and Sprinkle (2002), who review the interactions of monetary incentives with working effort and performance, so far an underexplored aspect in BSC research. They also summarize that rewarded employees become intrinsically motivated to improve their skills. This finding could be a starting point for research on the link to the learning and growth perspective.

Fourth, we conclude that existing research methodology on BSC-compensation and the BSC in general is quite homogeneous and thereby our overall picture of the BSC could be biased: about 75 per cent of the research consists of interviews and case studies, and secondary data for corroboration are hardly used. Most of the research has been conducted in one or a small set of SME organizations with a very strong focus on traditional manufacturing. Most of the time, data are cross-sectional and have top managers as key informants, while the evaluated actors (middle managers, employees) are not directly addressed. And among the 30 BSC-compensation studies, there is only one study from Asia. Future research might consider broadening its methodology by at least addressing further key informants than just top managers or by even considering methods other than case studies. The field of compensation in particular generally uses large-scale, longitudinal data from archival sources and so far, not a single such research

design exists for the BSC. While one might argue that these archival data are hard to obtain on a PMS, we point to the fact that studies have assessed the sophistication of VBM across organizations using only annual reports (Fiss and Zajac, 2004; Rapp *et al.*, 2011). Last, considering that Kaplan and Norton's work relates almost exclusively to large organizations, empirical researchers could consider focusing more on larger organizations as well and possibly in a wider range of contexts (industries, geographic locations, etc.).

5.3 Limitations

Our review is subject to several limitations. First, the examination of the studies relied on our subjective evaluation, and much detail from every study was lost by the bold binary yes-or-no coding. We hope that the authors of the original studies will pardon that one literature review cannot do justice to their original, meticulously drafted studies.

Second, our literature search has made some restrictions on the sources we could use. For instance, we could not pick up on research describing phenomena that are in fact BSCs, but use different names.

Third, we built on Speckbacher *et al.* (2003) and assumed that a type III BSC contains the features of type I and II. We are aware that the construct validity of the BSC is already questionable earlier, and that we could be stricter in our coding: organizations might link KPIs to compensation without having valid cause-and-effect chains in the first place (Malina *et al.*, 2007; Nørreklit, 2000), BSC-compensation could be limited to one organizational level, or organizations could have BSC measures that do not specify targets or action plans (Malmi, 2001). Yet, it is beyond the scope of a literature review to develop a complete set of BSC constructs. On the positive side, our way of determining the (non-)existence of a truly "balanced" BSC-compensation is a very reliable measurement: either a study accounts for the link or it does not. Moreover, even our ample definition does not lead us to find much type III BSC evidence; a stricter research protocol would have reduced even these few findings.

5.4 Conclusion

This paper addresses the research question *How is the link between BSC and compensation presented and detailed within the empirical BSC literature?*, as this link is the prerequisite for a "full" BSC. Based on 1,031 initially identified articles on the BSC from 1992 to 2012, our findings indicate that 30 have dealt with the link from the BSC to compensation and only six of these describe this link in detail. After synthesizing the literature, we point out several issues that future studies should address. First, we acknowledge that the BSC is beyond doubt very popular, but we found only six studies that describe full BSCs and the verdicts on the BSC are quite ambivalent. Thus, there is too little evidence to conclude whether the BSC is *successful* or not. Second, there is still no established construct to measure a "full" BSC according to Kaplan and Norton, which impairs building a consistent body of knowledge. Third, the empirical studies focus too much on planning and decision making (*ex-ante*) and too little on control and evaluations (*ex-post*), which implies that the sum of effects that the BSC has on an organization is not well-documented yet. Fourth, we observe a very one-sided methodology with an over-reliance on cross-sectional case studies in SMEs, which lags behind other fields of research in accounting such as compensation *per se* or VBM.

Therefore, we call for more studies on BSC-compensation as suggested by our research agenda to construct a more consistent body of empirical knowledge.

Notes

1. Following this methodology has three strengths (Katsikeas *et al.*, 2000; Lueg and Schäffer, 2010): our coding protocol is anchored in the conceptual works of the BSC (deductive approach) and in the empirical works (inductive approach), thereby covering the academic field of interest exhaustively. Its direct derivation from the BSC literature makes it easy for future researchers to identify (in-)congruent assumptions between the BSC and other possible PMSs of interest. This increases the comparability of our review to related reviews. The binary coding of our protocol helps researchers to quickly evaluate the quality of the research design of future studies on the BSC.
2. Ittner *et al.* (2003) find four further perspectives in practice: strategy, control, people and standards. Jazayeri and Scapens (2008) also find four: performance, people, partnerships and innovation and technology. Decoene and Bruggeman (2006) find three: responsible care, manufacturing and people. Greatbanks and Tapp (2007) find two: development and C&IS roadmap. Griffith and Neely (2009) find two: people and supplier. Gumbus and Lussier (2006) find two: core values and innovation and learning. Gumbus *et al.* (2002) find two: financial health and quality and process improvement; Malina and Selto (2001) find one: corporate citizenship.

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The 30 studies study included within the BSC-compensation analysis are marked with **; the other 87 empirical studies are marked with *.

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Appendix 1*List of all 117 empirical studies*

In all, 30 of the 117 studies address the link between the BSC and compensation (marked with “**” in the references): Agostino and Arnaboldi (2012), Banker *et al.* (2004a), Bassen *et al.* (2006), Chan (2004), Davis and Albright (2004), Decoene and Bruggeman (2006), Dilla and Steinbart (2005), Ding and Beaulieu (2011), Feliniak and Olezak (2005), Greatbanks and Tapp (2007), Griffith and Neely (2009), Gumbus and Lussier (2006), Gumbus and Lyons (2002), Hoque and Adams (2011), Ittner *et al.* (2003), Jazayeri and Scapens (2008), Kald and Nilsson (2000), Lee and Lai (2007), Lipe and Salterio (2000), Malina and Selto (2001), Malmi (2001), Mooraj *et al.* (1999), Northcott and Taulapapa (2012), Phillips and Louvieris (2005), Roberts *et al.* (2004), Speckbacher *et al.* (2003), Sundin *et al.* (2010), Thompson and Mathys (2008), Tuomela (2005) and Upton and Arrington (2012).

The 87 further studies are (marked with one “*” in the references): Ahn (2001), Aidemark (2002), Akkermans and Van Oorschot (2004), Al-Ashaab *et al.* (2011), Andon *et al.* (2007), Banker *et al.* (2004b), Bhagwat and Sharma (2007), Brown and McDonnell (1995), Bryant *et al.* (2004), Braam and Nijssen (2004), Butler *et al.* (1997), Cardinaels and van Veen-Dirks (2010), Carmona and Grönlund (2003), Chalmeta and Palomero (2010), Chang (2009, 2007), Chang *et al.* (2008), Chen *et al.* (2006), Cheng and Humphreys (2012), Chesley and Wenger (1999), Craig and Moores (2005), Creamer and Freund (2010), De Geuser *et al.* (2009), DeBusk *et al.* (2003), Dias-Sardinha and Reijnders (2005), Edenius and Hasselbladh (2002), Elefalk (2001), Evans (2005), Farneti (2009), Fernandes *et al.* (2006), Garengo and Biazzo (2012), Ghadikolaei *et al.* (2011), González *et al.* (2012), Grando and Belvedere (2008), Grigoroudis *et al.* (2012), Hansen *et al.* (2010), Hoque and James (2000), Hu and Huang (2006), Huang and Hu (2007), Huang (2008), Humphreys and Trotman (2011), Iselin *et al.* (2008), Ittner and Larcker (2003), Kaplan and Norton (1993a), Kaplan and Wisner (2009), Kasperskaya (2008), Kasurinen (2002), Khan *et al.* (2010), Kim and Rhee (2012), Kim *et al.* (2003), Kloot and Martin (2000), Kraus and Lind (2010), Kumru (2012), Lau and Sholihin (2005), Lawrence and Sharma (2002), Li *et al.* (2011), Libby *et al.* (2004), Liedtka *et al.* (2008), Lipe and Salterio (2002), Lohman *et al.* (2004), Luo *et al.* (2012), McAdam and Walker (2003), Modell (2009), Ong *et al.* (2010), Papalexandris *et al.* (2004), Patel *et al.* (2008), Phadtare (2010), Phillips (2007), Rampersad (2008), Reisinger *et al.* (2003), Sandström and Toivanen (2002), Sujatha *et al.* (2007), Tapinos *et al.* (2010), Tayler (2010), Tsai *et al.* (2008), Ukko *et al.* (2007), Van Der Zee and De Jong (1999), Van Veen-Dirks and Wijn (2002), Wang *et al.* (2010), Wiersma (2009), Wisniewski and Dickson (2001), Wong-On-Wing *et al.* (2007), Woods and Grubnic (2008), Wu and Chang (2012), Wu *et al.* (2010), Yan and Wang (2004) and Zimmerman and Seuring (2009).

Appendix 2

Journal list (for all 117 studies)

Accounting (n = 43). *Management Accounting Research* (nine studies); *The Accounting Review* (six); *Behavioral Research in Accounting* (four); *Financial Accountability & Management* (four); *Journal of Management Accounting Research* (four); *Accounting, Organization and Society* (three); *British Accounting Review* (three); *Asia-Pacific Management Accounting Journal* (three); *Critical Perspectives on Accounting* (two); *European Accounting Review* (two); *Accounting Horizons* (one); *Accounting, Auditing & Accountability Journal* (one); *Journal of Accounting Research* (one).

Operations and technology (n = 35). *Total Quality Management* (six); *Journal of the Operational Research Society* (five); *European Journal of Operational Research* (three); *International Journal of Operations & Production Management* (three); *International Journal of Production Economics* (three); *Computers and Industrial Engineering* (two); *Decision Support Systems* (two); *International Journal of Technology Management* (two); *Journal of Management Information Systems* (two); *Production Planning & Control* (two); *Communications of AIS* (one); *Information Systems Management* (one); *International Journal of Logistics Research and Applications* (one); *International Journal of Production Research* (one); *Technovation* (one).

General management/strategy/organization (n = 21)

Long Range Planning (five); *European Management Journal* (three); *Business Strategy and the Environment* (two); *Harvard Business Review* (two); *California Management Review* (one); *International Journal of Management and Innovation* (one); *Journal of Asia-Pacific Business* (one); *Journal of Business & Economic Studies* (one); *Journal of General Management* (one); *Management of Organizations* (one); *Omega* (one); *Organization* (one); *Organizational Dynamics* (one).

Other (n = 18). *Service Industries Journal* (five); *International Journal of Public Sector Management* (three); *Family Business Review* (one); *International Journal of Contemporary Hospitality Management* (two); *Journal of Interactive Marketing* (one); *Journal of Labor Economics* (one); *Journal of Small Business Management* (one); *Journal of Travel Research* (one); *Management International Review* (one); *Public Management Review* (one); *Public Money & Management* (one).

Corresponding author

Rainer Lueg can be contacted at: Rlueg@asb.dk