



Management accounting practices, governing boards and competitive advantage of Ugandan secondary schools

Journal:	<i>International Journal of Educational Management</i>
Manuscript ID	IJEM-02-2017-0034.R2
Manuscript Type:	Original Article
Keywords:	Management accounting, governing boards, competitive advantage, Secondary schools, Uganda

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Abstract

Purpose - This paper reports on the results of a study carried out to determine the use of Management Accounting Practices (MAPR) in Ugandan secondary schools. The study also sought to determine whether MAPR and governing boards (board size, gender diversity and frequency of board meetings) influence the perceived competitive advantage.

Design/methodology/approach - This study is cross-sectional and correlational. Data were collected through a questionnaire survey of 200 secondary schools. The data was analysed through ordinary least squares regression using Statistical Package for Social Scientists.

Findings - There are wide variations in MAP in terms of the extent to which the schools employ management accounting techniques. Also, MAP and governing boards have a predictive force on the schools' competitive advantage. However, governing board's size has no effect on competitive advantage. In terms of the control variables, the results suggest that while government school ownership has a positive effect on competitive advantage, the school's size has no effect. There are intertwining relationships of frequency of board meetings, board size and school size.

Result limitations/Implications- The present study was limited to the secondary schools in Uganda which limits generalizability. Still, the results offer important implications for secondary schools' governing boards, owners and for similar African governments who are a major stakeholder in the secondary school education system. The exact mechanism by which intertwining relationships of frequency of board meetings, board size and school size impact competitive advantage is not been explored in this paper. Future researchers may direct research effort in this endeavour.

Originality/Value-To our knowledge, this is the first study to investigate use of MAPR in secondary schools and to provide evidence of their efficacy.

Type of paper: Research paper.

Key words: Management accounting practices, governing boards, competitive advantage

1. Introduction

The focus on education and managing of educational process is an important element of the public sector management reforms that have been implemented in a significant number of countries. For example, the government of Uganda liberalised the education sector through the Education Act of 2008 to allow private individuals to provide education services. Often, the official rhetoric of public sector reforms emphasises efficiency, choice, competition and accountability, among others (Tooley and Guthrie, 2003). Indeed, Wikström and Wikström (2005) have noted studies of competition in the educational system that reveal evidence for the

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3 supposition that competition from private schools increase student achievement in public
4 schools. The reasoning behind such a hypothesis is that parental school choices increase the
5 demand for high achieving schools, while the demand for low-achieving schools fall - so to
6 improve school achievement the low achieving schools must take measures to increase their
7 achievement (Wikström & Wikström, 2005). Given this understanding and the liberalised
8 education sector **that now (see Education Act of 2008) allows private investment in education**
9 **services' provision**, it is possible to suggest that government-aided schools have to compete with
10 private schools for students in Uganda consistent with what is considered a sign of the times of
11 the heightened competition among the educational institutions (von Alberti-Alhtaybata el al.,
12 2012).

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27 But, the persistent hikes in school fees by both government-aided schools and private
28 secondary schools have been (*wrongly*) perceived as a means to sustain competitive advantage in
29 Uganda. In particular, those private schools charging higher fees have increased their market
30 share, measured in terms of student numbers, riding on parents' perception that higher fees lead
31 to better facilities and hence better quality education. Yet, Ugandan secondary schools' frequent
32 school fees' hikes signals a lack of exploitation of MAPR to their competitive advantage. For
33 example according to the Ministry of Education, Science, Technology and Sports statistical
34 abstract of 2014, a total of 27,706 classrooms were recorded out of which 26,779 classrooms
35 were in use. While it may be argued that the higher the fees , the more facilities and quality
36 education offered, it may equally be argued that secondary schools fail to appreciate MAPR that
37 create pressure to reduce costs (including waste) and attract high quality students from poorer
38 families unable to afford the more exorbitant fees.
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3 Furthermore, Ugandan secondary schools believe that pursuing academic excellence is
4 the only viable way to attract students. However, competition based on academic performance
5 has led schools into Uganda National Examinations Board exams' malpractices in order to
6 improve their standing (see Businge and Bwambale, 2013; Musisi, 2013). Besides, as
7 government and private schools in Uganda respond to competition by frequently increasing
8 school fees (as proxy for quality education), Businge (2016) has noted numerous studies on
9 Uganda's education sector with a consistent finding that parents were suffocating under high cost
10 of education. Businge (2016) reported that some public schools were more expensive than
11 private ones and questioned whether it was not surprising that government-aided schools almost
12 charged the same amount of fees as private ones even when government offered subventions to
13 public schools.
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29 Aside from that, the Ugandan Education Act 2008 puts governing boards at the centre
30 stage (Nkundabanyanga, Tauringana and Muhwezi, 2016). In terms of secondary schools'
31 governing boards, Nkundabanyanga et al (2016) note the emphasis for many years on the
32 importance of corporate boards as the ultimate control mechanism for managerial actions in the
33 private sector. Larcker et al (2007) also suggest inconceivability of situations where corporate
34 boards are irrelevant for understanding organisational outcomes. Sustainable competitive
35 advantage is, we argue, one such secondary schools' outcome. In this context, governing boards
36 should be responsible for monitoring managerial performance regarding competitive advantage.
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48 Taken together, the role of accounting and governance in the education reform process
49 along with the competition dynamics in Uganda and such similar settings, is a crucial question.
50 This paper is a response to this challenge as its aim is to establish the influence of perceived
51 management accounting practices (MAPR) and governing boards on perceived competitive
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3 advantage of secondary schools. Of interest is whether or not MAPR in secondary schools
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5 explains significant variances in secondary schools' competitive advantage beyond what is
6
7 accounted for by other relevant explanatory factors of competitive advantage. The need to
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9 elevate the role of management accounting in secondary schools in Uganda and probably
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11 elsewhere is partly because Durand (2003) noted that management accounting remained largely
12
13 unexploited as a powerful approach to accounting for a competitive advantage. We expect
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15 MAPR to provide the necessary route in the rational pursuit of competitive advantage or
16
17 sustenance of competitive advantage. This is possible with secondary schools' embracing of the
18
19 doctrinal components of new public management identified by Hood (1991): financial
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21 devolution to service providers; explicit standards and measures of performance; differentiation
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23 between inputs, outputs and outcomes; increased accountability of service providers; private
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25 sector styles of management practice; increased competition and contracting between service
26
27 providers; and greater emphasis on efficiency, economy and effectiveness of resource usage.
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29 Essentially, government and private schools alike, need to apply what Tooley and Guthrie (2003)
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31 called 'market discipline' and 'best commercial practices' into the management of public school
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33 services – a worthwhile endeavour given the changing competition landscape in the Uganda's
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35 education sector.

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43 This study finds that MAP and governing boards have a predictive force on secondary
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45 schools' competitive advantage. It thus contributes to our understanding of various management
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47 accounting practices in the education sector. While extant studies (Coulter, 2010; Jones and
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49 George, 2010; Horn grenet al, 2009; Iyengar, 2007) suggest a positive connection between
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51 MAPR and competitive advantage, this study potentially fills an important void in this MAPR
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53 literature: except for Tooley and Guthrie (2007), Agasisti et al (2008), Hutaibat et al (2011) and
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Fowler (2009), there has hitherto been no other studies on management accounting practices in the education sector (see a review by Zawawi & Hoque, 2010). Moreover, the focus of those few studies in the education sector has not been on secondary school's competitive advantage. This paper also provides evidence of the efficacy of governing boards in the attainment of competitive advantage by Uganda secondary schools. This is especially important given that the Uganda Education Act (2008) puts the governing boards at the center stage by identifying strategic direction of the school as one of the school board's responsibilities (e.g., Kaufman and Herman, 1991; Axelrod, 1994; Korac-Kakabadse et al., 2001; Jackson et al., 2003; McCormick et al., 2006). Therefore, how secondary school boards assist schools gain and sustain competitive advantage should be of interest to stakeholders.

The rest of our paper is organized as follows. The next section is the literature review. In Section 3 we explain our research methodology. The findings are presented in Section 4. The results are discussed in section 5 that carries the implications of the study.

2. Literature review

The concept of competitive advantage

Literature does not provide any clear definition of competitive advantage (Sigalas, Pekka Economou & Georgopoulos, 2013). Sigalas and Pekka Economou (2013) find multiple meanings of competitive advantage and categorize them into two streams: the first stream defining competitive advantage in terms of performance and the second in terms of its sources or determinants. Hence, even though statements about competitive advantage abound in literature, its conceptually precise definition is still elusive and has thus remained tautological in propositions that employ it. Because secondary schools serve a broad range of students (or parents) we define competitive advantage as the ability of a secondary school to differentiate

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3 itself and be a cost leader than the average competition secondary school consistent with the
4 taxonomy provided by Porter and Miller (1985) but then indicated by competitive priorities
5 (cost, flexibility, quality and delivery) consistent with Boyer and Lewis (2002).
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11 12 13 14 15 ***Management accounting practices and competitive advantage*** 16

17 While the study by Tooley and Guthrie (2007) indicated a diminutive connection between
18 improvements in the quality of education and financial monitoring, several later studies suggest a
19 positive connection between MAPR and competitive advantage (Coulter, 2010; Jones and
20 George, 2010; Horngren et al, 2009; Iyengar, 2007). Coulter (2010) argues that sustainable
21 competitive advantage is attained if the market and the customers are willing to pay for the
22 developed products and services. The modern MAPR provide techniques that may assist in the
23 identification and implementation of the necessary competitive strategies. Similarly, the defender
24 strategy which is characterised by the exploration for stability and concentrates primarily on a
25 limited product line directed at a narrow segment of the total potential market (Coulter, 2010) is
26 especially important in the education industry where services offered are similar in the majority
27 of schools. Defenders fight to defend their well-established business and when their success is
28 attained their services remain competitive over time. Therefore, secondary schools need to
29 defend their key policies against competitors so that they can remain competitive and unique.
30 Competitive advantage may also to a large extent be achieved by pursuing cost leadership. An
31 organisation that is pursuing a cost leadership strategy focuses much of its effort on reducing its
32 economic costs below those of competitors in its industry (Jones and George, 2010). Hence, the
33 school is able to compete on price with other schools in the industry and attract more students
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3 which mean more money and prestige. According to Horngren et al (2009) customer profitability
4 analysis – as a procedure for analysing the profitability of existing account relationships of
5 customers (Koch and MacDonald, 2006) - makes it possible for an organisation to report and
6 analyse revenues earned from customers and the costs incurred to earn those revenues.
7
8 Innovative MAPR in schools provide the necessary tools for performing and analysing profit
9 generated by the various categories of students and help in identifying the most productive ones.
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11 Iyengar (2007) has noted that in today's challenging and competitive market era, business
12 organisations anticipate the needs of clients and provide products that create positive responses
13 from customers noting that satisfied customers may be a source of free publicity for an
14 organisation such as a school. According to Iyengar (2007) customers have become more
15 demanding as they balance cost and quality. In essence, the services offered by schools today
16 may be a result of customer needs. Based on the foregoing literature discourse, the following
17 hypothesis will be stated:
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34 ***H₁:*** *There is a significant positive relationship between MAPR and competitive advantage of*
35 *Ugandan secondary schools*
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38 ***Governing boards and competitive advantage***

39 *Board size*

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43 The link between board size and performance has been investigated by several
44 researchers (e.g., Kanak and Boeker, 1994; Van den Berghe and Levrau, 2004; Dalton and
45 Dalton, 2005, Tauringana and Mangena, 2014).The reasoning behind the relationship is that a
46 larger board can bring more experience and knowledge from which the CEO may draw high-
47 quality advice (Dalton *et al.* 1999). It has also been suggested that having a larger board can help
48 to provide wider and important linkages for the company (Dalton *et al.*, 1999; Mangena,
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3 Tauringana and Chamisa, 2012). Those who take the contrary view, however, argue that larger
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5 boards are less effective in monitoring managers, since they are difficult to co-ordinate and it
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7 becomes very difficult to process problems due to the large number of people involved
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9 (Kyereboah-Coleman and Biekpe, 2007; Kajola, 2008). Also the costs of a larger board may
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11 outweigh the benefits (Nkundabanyanga et al., 2015), particularly in private schools, where
12
13 agency problems are minimal and there is no need for the extensive monitoring achieved by a
14
15 larger board. We therefore posit that:
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20 *H₂: There is a significant relationship between board size and competitive advantage of*
21 *Ugandan secondary schools*
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24 *Gender diversity*

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27 Greater board diversity increases a secondary school's competitive advantage relative to
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29 those with less diversity. This is based largely on intuitive reasoning and which is articulated by
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31 Robinson and Dechant (1997). For example, Robinson and Dechant (1997) suggest that
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33 heterogeneous teams produce more innovative solutions to problems because differences among
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35 team members allow them to see the problems from a variety of perspectives based on a range of
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37 experiences. Specifically, Robinson and Dechant (1997, p. 27) state that 'the variety of
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39 perspectives and natural conflict that surfaces from their interaction ensure that differing views
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41 surface and are discussed. It has also been suggested that men and women generally think
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43 differently from each other in the work place (Kanter, 1977; Tannen, 1992) and therefore
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45 increasing gender diversity at most levels is mostly welcomed (Sweetman, 1996; Raggins et al.,
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47 1998). Also the presence of women is likely to enhance board independence. For example, it
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49 facilitates more informed decisions, enhances the decisions making process, and improves
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51 communication among board members (Daily and Dalton 2003; Bear, Rahman and Post 2010).
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3 Consistent with this argument Campbell and Minguez-Vera (2008) found that gender diversity
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5 has a positive effect on firm value. Applying these beliefs to the education sector:
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8 *H₃: There is a significant positive relationship between board gender balance and*
9 *competitive advantage of Ugandan secondary schools*
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12 *Frequency of board meetings*

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15 Vafeas (1999) suggest that the link between frequency of board meetings and firm value
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17 is not a priori clear. This is because, there are costs associated with board meetings, including
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19 managerial time, travel expenses, and directors' meeting fees. Vafeas (1999), however, suggests
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21 that there are also benefits, including more time for directors to confer, set strategy, and monitor
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23 management. If firms have fewer board meetings than are necessary, overemphasizing costs,
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25 board meeting frequency will be positively associated with firm value. Evidence in this direction
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27 would suggest that increasing meeting frequency is one fairly inexpensive way for firms to
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29 increase value. If, by contrast, benefits are overemphasized, board meeting frequency will be
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31 negatively related with firm value. Frequency of board meetings has been found to be associated
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33 with firm performance. For example, Evans and Weir (1995) suggest that regular meetings allow
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35 potential problems to be identified, discussed and avoided and should therefore lead to a superior
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37 level of performance and hence higher profitability. Their findings suggest that weekly meetings
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39 were associated with superior performance compared to monthly meetings. The influence of
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41 frequency of board meetings on firm performance was also investigated by Desai (1998) who
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43 found that increased number of board meetings was positively related to subsequent firm
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45 performance. Vafeas (1999) also found that operating performance of firms improved following
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47 years of abnormal board activity in terms of number of board meetings. The improvements were
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49 most pronounced for firms with poor prior performance. Further, Tauringana, Kyeyune and Opio
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3 (2008) found that the frequency of board meetings in Kenya was associated with timely release
4 of the annual reports supports the notion that regular meetings help improve performance. Recent
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6 of the annual reports supports the notion that regular meetings help improve performance. Recent
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8 researchers (e.g., Nkundabanyanga et al., 2013) that have developed plausible models for
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10 effective board governance in the services sector, have found that control and meetings'
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12 organisation is a significant indicator of proper board governance. We therefore hypothesize as
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14 follows:
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17 *H₄: There is a significant relationship between frequency of board meetings and*
18 *competitive advantage of Ugandan secondary schools*
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20 21 22 *Control variables* 23

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25 The work of Bartov et al. (2000) suggest that failure to control for confounding variables
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27 could lead to falsely rejecting the hypothesis when in fact it should be accepted. Guilding et al.
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29 (2000) reported firm size as measured by sales to be a confounding variable for a majority of the
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31 MAPR studied in an international comparative study of New Zealand, the United Kingdom, and
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33 the United States. In terms of governance, secondary schools in Uganda can be categorized into
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35 one of the three categories: Government secondary schools, religious founded schools and
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37 independent schools operated purely for commercial reasons. It is of interest to establish any
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39 significant differences among these types of schools. The school's respective state/government
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41 or religious bureaucracies ultimately govern schools in the first two categories, whatever the
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43 extent of systemic decentralization or devolution of decision-making (McCormick et al. 2006).
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45 These authors argued that even if considerable power were devolved to a systemic school board,
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47 one could confidently predict bureaucratic intervention if the school board were perceived to be
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49 ineffective with negative consequences for the school or system. As a result, in this study we
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51 control for school size and whether the school is government owned or not.
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3. Methodology

Design and Sample

The research design for this study is cross-sectional. The study population is 3,645 secondary schools in Uganda of which 841 secondary schools are in Kampala (303), Wakiso (383) and Mukono (155) districts (School Guide Uganda Ltd, 2012). Our survey of 271 secondary schools is from these districts because these have traditionally dominated the education sector in Uganda. For example, out of 18,286 students who scored division one in year 2012 ordinary level examinations, 8,695 were from those three districts. This means that while there are about 112 districts in Uganda, the three districts accounted for about 48 per cent of the students passing in division one in the whole country for ordinary level examinations – 2012 (Ssenkibirwa, 2013; Businge, 2013). Secondary schools are the units of analysis. The 271 schools were generated using Yamane's (1973) sample selection approach. We selected the 271 secondary schools proportionately as follows: Kampala – 98, Wakiso – 123 and Mukono – 50 and collected the data through a survey questionnaire targeting school bursars or headteachers. The Likert scale questionnaire was designed to measure the opinion or attitude of a respondent (Burns and Grove, 2009) and utilised to obtain information from the school bursars or head teachers on their schools' competitive advantage. As previous research supports the reliability and validity of the self-report measures (Brush and Vanderwerf, 1992; Lechner et al., 2006), we selected the respondents by virtue of their position and knowledge (McEvily and Marcus, 2005). Each questionnaire was accompanied by a cover letter providing explanations and assurances that all individual responses would be treated confidentially. A number of call backs to the

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3 respondents were made to ensure maximum retrieval of the questionnaires. A total of 200 usable
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5 responses were realised.
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10 *Questionnaire and variables measurement*

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12 Management accounting practices (MAPR) is assessed through perceived usage of
13 management accounting practices. These practices are those identified by Maqbool-ur-Rehman
14 (2011) but we pick those we think are most relevant to a secondary school environment such as
15 budgeting, material resource planning, capital budgeting techniques such as pay back.
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17 Additionally, we measure MAPR consistent with Chenhall and Langfield-smith (1998), as
18 traditional accounting techniques (budgeting systems for controlling costs, evaluating
19 performance, planning cash flows and planning financial position); benchmarking
20 (benchmarking product characteristics, operational processes); strategic planning techniques
21 (long-range planning, benchmarking strategic priorities). We used factor analysis based on
22 (principal components) and Cronbach's α to examine the validity and reliability of the scales as
23 measures of MAPR. Cronbach's α coefficient for MAPR was found to be an acceptable .89. To
24 establish convergent validity, the principle components were extracted by running principle
25 component analysis using varimax rotation method and factor loadings below 0.5 coefficients are
26 suppressed to avoid extracting factors with weak loadings. Prior to performing the principal
27 component analysis for our scales we assess the suitability of the data for factor analysis based
28 on sample size adequacy, the Kaise-Meyer-Olkin (KMO) and Bartlett tests. The results show the
29 KMO value of .77 and Bartlett's test of sphericity reaching statistical significance ($p < .05$). This
30 result supports the factorability of the correlation matrix because our correlation matrix is
31 significantly different from the identity matrix in which the variables would not correlate with
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3 each other. The determinant was greater than 0.01 implying that there was no multicollinearity or
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5 singularity between variables.
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8 **[Insert Table I about here]**
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10 The dependent variable which is competitive advantage is operationalised by competitive
11 priorities consistent with Boyer and Lewis (2002) and Chenhall and Langfield-smith (1998).
12 While Boyer and Lewis (2002) conducted their study on a sample of manufacturing firms, we
13 applied the measures with modifications to secondary schools. We operationalized the
14 competitive priorities of these schools using 16 Likert scale questions averaged for each scale to
15 form constructs that measure the relative importance of cost, flexibility, quality and delivery to
16 each of the participating schools. Some indicators dropped because of measurement variance so
17 this study retains 12 indicators. The cost construct comprises of how important is the ability to
18 (rated on a 7-point scale with 1 - not important, 4 - very important, and 7 - absolutely critical)
19 reduce inventory, increase facilities utilization, reduce teaching costs, increase labor
20 productivity. In the same vein, the construct of quality comprises of how important is the ability
21 of the school to provide high-performing students, offer consistent, reliable performance and,
22 improve conformance to Uganda National examinations regulations/requirements. The construct
23 of delivery comprises of how important is the ability of the school to provide fast learners, meet
24 syllabus completion deadlines and reduce on repetition rate/or dropout rates. Flexibility
25 comprises of how important is the ability of the school to make rapid changes in the design of
26 syllabus, adjust capacity in form of facilities quickly, make rapid volume (in form of e.g. student
27 numbers) changes, offer a large number of teaching service features, offer a large degree of
28 product variety (e.g. subjects on offer) and adjust product mix (in form of e.g. sciences and arts
29 subjects). Similar to MAPR, we also conducted a test for factorability, reliability and validity for
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3 competitive advantage. The results showed a cronbach's $\alpha = .82$; the Bartlett sphericity test χ^2
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5 (105) = 661.1, $p < 0.001$; KMO Index = 0.82 and the determinant is greater than 0.001 (in this
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7 case= .033).
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11 **[Insert Table II about here]**

12 13 *Model*

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15 To examine the association between MAPR, governing boards (board size, gender
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17 balance, frequency of meetings), school ownership, size of the school and competitive advantage
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19 we specify the following multiple regression models:
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$$22 \quad COAD = \beta_0 + \beta_1 MAPR + \beta_2 BOSZ + \beta_3 GEBA + \beta_4 FRME + \beta_5 OWNP + \beta_6 SIZE + \epsilon_j$$

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25 **[Insert Table III about Here]**
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30 31 **4. Empirical findings**

32 33 *Descriptive statistics*

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35 The summary descriptive statistics for competitive advantage, management accounting
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37 practices, corporate governance variables and control variables included in the analyses are
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39 presented in Table IV. In terms of the dependent variable, the results show that the mean for
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41 competitive advantage is 3.9947, with a minimum of 2 and a maximum of 6. The results also
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43 show that for management accounting practices, the mean is 3.5816 with a standard deviation of
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45 1.1242. The large standard deviation suggests that there is a wide variation in perceived use of
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47 MAPR. The board size statistics show that the average board size is 13.655 which is slightly
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49 above the 12 members that are stipulated by the Uganda Education Act 2008. The minimum of 2,
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51 however, suggest that some schools do not comply with the requirements of the Education Act
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53 2008. However, this may be due to the fact that the schools concerned are very small and see no
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3 need for a large number of people on the governing boards. The maximum number of governors
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5 of 23 also suggests that some schools have almost twice the number of governors recommended
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8 by the Education Act 2008.
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10 In terms of gender balance, the results suggest that on average, 31 per cent of the
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12 governors are female. The minimum of 0 per cent and a maximum of 100 per cent, however,
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14 suggest that there are some boards where there are no females at all and some other boards which
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16 are entirely female in composition. The frequency of meetings results suggest that the boards
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18 meet on average, 5.54 times a year. However, there is a wide variation since some meet just once
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20 and the others ten times a year. In terms of ownership, the statistics suggest that only about 13.5
21
22 per cent of the schools in the respondent sample are wholly owned by the government and the
23
24 rest are either religious or privately founded. However in Uganda almost all religious founded
25
26 schools are government aided. Finally, the size statistics suggest that 63 per cent of the school
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28 have over 840 pupils which suggest that most of the secondary schools are large.
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34 **[Insert Table IV about here]**
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37 *Correlation results*

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39 We use the zero-order correlation to establish whether or not there were associations (Field,
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41 2009) between the study variables as hypothesised from the literature review. The correlation
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43 results in Table V indicate bivariate association of MAPR with competitive advantage (COAD),
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45 board size (BOSZ) with COAD and frequency of board meetings (FRME) with COAD, which
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47 association does not imply causality between the variables. Causality is not assumed because the
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49 coefficients do not show cause– effect direction but simply the strength of associations (Field,
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51 2009). The correlations reveal that COAD is positively associated with MAPR at 1% level or
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53 better. Board size is negatively related to MAPR at 1% level or better, whilst gender balance is
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not. COAD is also negatively related to frequency of board meetings at the 1% level and positively with school ownership at 5% level, but not with school size. Moreover, board size is positively related to school size and meetings frequency at 1% level or better. Board size is also positively related to the ownership of the school. These results provide evidence ($r = .189, p < 0.01$) in support of H_1 which stated that “there is a significant positive relationship between MAPR and competitive advantage of Ugandan secondary schools”. H_2 which stated that “there is a significant relationship between board size and competitive advantage of Ugandan secondary schools” is also substantiated ($r = -.213, p < 0.01$). H_4 which also stated that “there is a significant relationship between frequency of board meeting and competitive advantage of Ugandan secondary schools” is supported ($r = -.274, p < 0.01$). However H_3 which states that there is a significant positive relationship between board gender balance and competitive advantage of Ugandan secondary schools” is not substantiated. Other findings of interest are that school size is positively associated with board size ($r = .308, p < 0.01$), frequency of board meetings ($r = .340, p < 0.01$) and ownership of the school ($r = .151, p < 0.05$).

[Insert Table V about here]

Regression results

The difficulty with univariate analyses is that they do not control for other factors, thus making the interpretation of the results difficult. We, therefore, extend the analysis to a multivariate setting. We first examine the correlations among our independent variables to determine whether multicollinearity problems exist. Field (2009) suggests that multicollinearity becomes a problem only when the correlations exceed 0.80 or 0.90. As Table V shows, none of the correlations between independent variables is close to these threshold values. Nevertheless, Myers (1990) suggests that some degree of multicollinearity can still exist even when none of the

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3 correlation coefficients is very large. Therefore, we also examine the variance inflation factors
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5 (*VIFs*) in our models to further test for multicollinearity. The highest *VIF* was 1.5 in respect of
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7 frequency of board meetings. This is well below the threshold value of 10 suggested by Field
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9 (2009) indicating that multicollinearity does not pose a problem to the regressions. Therefore we
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11 proceed with regression analysis to further test the validity of the hypotheses. We use the
12
13 regression coefficients as indicators of whether or not the contribution of each variable is
14
15 significant, and the overall contribution of the variables is indicated by the variance explained
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17 (R^2) that also shows the explanatory power of the variables. Table VI, shows that the adjusted R^2
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19 is 15.5% and the F -ratio ($F = 7.091$) is significant. The results in Table VI show that MAPR,
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21 gender balance, frequency of board meetings and ownership of the school are significantly
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23 associated with competitive advantage at 5% level or better. Thus hypotheses 1 (H_1) and 4 (H_4)
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25 are further supported and, at this level of analysis, also 3 (H_3). The board size variable is,
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27 however, not a significant predictor of competitive advantage, which also appears to suggest that
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29 hypothesis 2 (H_2) is not supported at this level of analysis. The regression results in Table VI
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31 indicate that variables entered in the regression explain up to an overall 15.5% per cent of the
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33 variance in competitive advantage of secondary schools ($R^2 = 0.155, p < 0.01$)
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41 **[Insert Table VI about here]**
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43 **5. Discussion**

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45 All the substantiated hypotheses are consistent with literature other than Hypothesis H_3 ,
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47 which was not supported as per the correlation analysis results. The first finding of this study
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49 (H_1) suggest that perceived usage of MAPR in secondary schools predict their competitive
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51 advantage; indicated by cost efficiency, effective delivery and flexibility which in turn means
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53 that competitive strategies are informed by sound MAPR (benchmarking, budgeting and
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3 planning) of secondary schools. Therefore secondary schools should leverage the use of MAPR
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5 to translate cost efficiency; effective service delivery and flexibility into consistent patterns of
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7 decisions that help develop the school's capability into a competitive advantage. For example,
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9 we find in this paper that benchmarking is a critical observed variable for MAPR of secondary
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11 schools; which is consistent with previous findings and arguments that suggest that MAPR
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13 accentuate competitive advantage, for example cost advantage or defending key policies against
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15 competitors, via sound MAPR. As an example, Green and Davis (2010) argue that benchmarking
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17 can be essential to identifying new strategies and structure, new services, better teaching
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19 techniques, better marketing of results-oriented education themes, and ultimately the adoption of
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21 more results-oriented education school programs.
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27 More so, as this study indicates that benchmarking should be on students' characteristics
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29 and operational processes - schools need to constantly identify best practices in these areas
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31 because some of the definitions of benchmarking are related to key themes of identification of
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33 best practices, implementation, and improvement (Anand & Kodali, 2008). A budgeting system
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35 for planning financial position is also identified as one of the key management accounting
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37 practices that secondary schools should embrace. This suggests that the management accounting
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39 practice of budgeting is considered important in the current educational environment. The
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41 requirement to use this type of business accounting technique was a tenet of the 1990s New
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43 Zealand public sector reforms including those relating to the state primary education system
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45 (Butterworth and Butterworth, 1998; Tooley and Guthrie, 2007). Secondary schools should
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47 refocus their strategies. In order to do so, they must benchmark in an agile environment. Agility
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49 is the ability to thrive in an environment of continuous and often unanticipated change.
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51 According to Sarkis (2001), agility benchmarking was set forth by diverse firms for improving
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3 and maintaining competitive advantage. Benchmarking in this light becomes a secondary school'
4 ability to move beyond its initial strategy (desegregation) to recent strategy as it experiences
5 change and a need for improvement.
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10 The second set of results (H_2 and H_3) are not a priori clear. While board size is
11 significantly associated with competitive advantage (H_2) and also school size (serendipitous
12 finding), it is not a significant predictor of competitive advantage of secondary schools in
13 Uganda. These results mean that school size affects competitive advantage in many ways. First,
14 as large secondary schools are associated with government ownership and large-sized boards
15 (serendipitous finding), this school structure sets the path in terms of its choice of competitive
16 arena as well as the overall strategy for achieving its mission and purpose. Thus, ownership
17 structure sets the directions and the governance mechanisms within which a secondary school
18 operates. However if board size and school size are not significant predictors for a school's
19 competitive advantage it means that school boards are not performing their duties in identifying
20 consistent patterns of competitive priorities that accentuate competitive advantage. Moreover, the
21 large sized boards (average is 13.665) could be the cause of the negative relationship with
22 competitive advantage as indeed Nkundabanyanga et al (2015) have argued that costs of a larger
23 board may outweigh the benefits. This particularly so in private secondary schools, where
24 agency problems are minimal and there is no need for the extensive monitoring achieved by a
25 larger board. The results therefore indicate that there is no need to have a larger board for a
26 secondary school in Uganda, as although board size is not a significant predictor of competitive
27 advantage in the model, the sign of its coefficient is negative. Secondly, while frequency of
28 meetings is a significant predictor of competitive advantage (H_4), its coefficient is also negative.
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It can then be said that when large-sized boards meet frequently, this will significantly predict

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3 competitive advantage but the association is negative. Secondary schools then do not need a
4 large board to gain competitive advantage. This result in the context of our study might be driven
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8 by the large number of board members who if they increase their activity (measured by
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10 frequency of meetings) becomes a negative element in competitive advantage by way of
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12 increasing sitting allowances and other attendant costs to the secondary school; thus eliminating
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14 the cost advantage. The result suggests that a combination of board activity (Nkundabanyanga et
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16 al., 2013) and board size is an important dimension in explaining competitive advantage of a
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18 secondary school.
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23 Furthermore, the results mean that gender balance on the boards of secondary schools
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25 in Uganda does matter to the schools' competitive advantage to the extent it is a required
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27 affirmative action. Indeed, for Uganda, the gender balance on the secondary school's board is
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29 mostly dictated by the Education Act of 2008 in Uganda. The Act requires that a secondary
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31 school should have a management committee whose membership should contain at least two
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33 women without indicating why such women should be there – perhaps explaining the lack of a
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35 significant association of gender balance and COAD. Besides the study by Nkundabanyanga, et
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37 al (2011) concluded that even though there can be increased gender diversity on the board it
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39 could not be stated that it influences good firm performance in Uganda owing to the emphasis of
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41 affirmative action by external actors.
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47 The results in this paper have important implications for both theory and practice. On the
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49 theoretical stance, the results suggest that a combination of board activity, measured by board
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51 meeting frequency and gender balance is an important governance dimension in explaining
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53 competitive advantage of a secondary school. Additionally, sound MAPR significantly influence
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55 competitive advantage of secondary schools. On the practical front, board activity and
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3 governance structure of secondary schools should be improved to set the path in terms of
4 secondary schools' MAPR as a strategy for achieving competitive advantage. Moreover, the size
5 of the school's board should not be determined exogenously as the Act of 2008 suggests, rather
6 these should be endogenously determined to fit the needs of a school. The Act appears to be
7 prescribing too large a board for some schools and when this is coupled with more frequent
8 meetings, it becomes a negative element in competitive advantage of the school.
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17 Like any study, there are a number of limitations with the present study. First, the
18 questionnaire was self-administered and we did not undertake follow up interviews which would
19 have informed us of the reasons why the respondents held certain views. Secondly, the present
20 study was limited to the secondary schools in Kampala, Wakiso and Mukono districts of Uganda
21 and it is possible that the results are only applicable to those districts in Uganda. Thirdly, omitted
22 variables are a pervasive risk in ordinary least-square regressions and this study may not be an
23 exception. Finally, the present study is cross-sectional and this has been critiqued which renders
24 claims regarding the direction of causality tentative (Naqshbandi, 2016) - it is possible that the
25 views held by individuals may change over the years. In spite of the limitations, policy makers of
26 Uganda dealing with the education sector, academicians, secondary school governing boards,
27 secondary school owners and even general readers interested in the role of MAPR to the
28 education sector might find this study useful.
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46 A direction of future research need mention. The relationship of board size and school
47 size is corroborated by the positive relationship between frequency of board meetings and school
48 size. This means that the size of school correlates with both board size and frequency of board
49 meetings besides being correlated with the school's ownership. The exact mechanism by with
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3 such intertwining relationships impact competitive advantage of secondary schools has not been
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5 explored in this paper. Future researchers may direct research effort to this endeavour.
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Table I: Rotated Component Matrix for Management Accounting Practices

Scale item	Component				
	1	2	3	4	5
A system of benchmarking operational processes is	.79				
A system of benchmarking student characteristics is	.77				
A budgeting system for planning financial position is	.72				
A budgeting system for evaluating staff performance is		.80			
A budgeting system for planning cash flows is		.80			
A budgeting system for controlling costs is		.69			
The Modified Internal Rate of Return (MIRR) as a financial measure of an investment's attractiveness and would rank alternative investments of equal size for this school, is			.70		
Profitability index as an investment appraisal technique calculated by dividing the present value of future cash flows of a project by the initial investment required for the project, is			.64		
The technique for benchmarking strategic priorities is			.62		
The job order cost system which is used when students are taught based on specific market requirements, is			.57		
Full cost accounting as a model that provides details on all the costs associated with the teaching service, is				.75	
The long-range planning techniques which give an opportunity to closely examine your school and to determine the role you wish to assume within your community and provides a framework for how you conduct business and helps you stay on course, is				.70	
Payback period which refers to the period of time required for the return on investment by the owners to repay the sum of the original investment, is----- for all this school's investments				.67	
The material requirements planning (MRP) system which provides the school with information about timing (when to order) and quantity (how much to order), generates new orders, and reschedules existing orders as necessary to meet the changing requirements					.68
Variable Costing as a method of ascertaining school overheads incurred in the period that a student is taught, is					.65
Cumulative Variance explained	14.2	28.3	40.7	52.6	61.6
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .77					
Bartlett's Test of Sphericity: Approx. Chi-Square = 670.9; df = 105; sig. = .00					
Determinant = 0.031; Cronbach's α = .89					
Notes on components: 1= Benchmarking; 2= Budgeting; 3 Capital budgeting; 4= Planning; 5= Material resource planning					

Table II: Rotated Component Matrix for Competitive advantage

Scale item	Component		
	Cost	Delivery	Flexibility
Reducing teaching costs is	.69		
Meeting syllabus completion deadlines is	.66		
Providing fast learners is	.60		
Reducing on repetition/or dropout rates is	.58		
Offering consistent and reliable student performance is		.77	
Providing high-performing students is		.72	
Improving conformance to UNEB regulations/requirements is		.60	
Adjusting product mix (e.g. offering both sciences and arts subjects) is		.59	
Striving to reduce inventory is		.51	
Adjusting capacity in form of facilities quickly is			.72
Making rapid volume changes (in form of e.g. student numbers) is			.67
Making rapid changes in the design of syllabus is			.61
Cumulative Variance explained	17.8	34.3	51.5
Kaiser-Meyer-Olkin Measure of Sampling Adequacy = .82			
Bartlett's Test of Sphericity: Approx. Chi-Square = 661.1; df = 105; sig. = .00			
Determinant = 0.033; Cronbach' s α = .82			

Table III: Definition of variables included in the regression model

<i>Variable(s)</i>		<i>Definition</i>
<i>Dependent variable</i>		
COAD	Competitive advantage	Competitive advantage of the school
<i>Independent variables</i>		
MAPR	Management accounting practices	Perception of management accounting practices applicable to a secondary school
BOSZ	Board size	
GEBA	Gender balance of the school	The number of female governors divided by the total number of people on the school board of governors
FRME	Meeting frequency	The number of times the school board of governors meets per calendar year
OWNP	Ownership of the School	Dichotomous variables, 1 if the school is owned by the government; '0' otherwise
SIZE	Size of the School	Dichotomous variables, 1 if the school has over 840 pupils enrolled; '0' otherwise
ε_j	Error term	

Table IV: Descriptive Statistics for Dependent and Independent Variables

Variable	Obs	Mean	Std. Dev	Min	Max
COAD	200	3.9947	0.7668	2.00	6.00
MAPR	200	3.5816	1.1242	1.29	5.00
BOSZ	200	13.6550	4.2599	2.00	23.00
GEBA	200	0.3134	0.1366	0.00	1.00
FRME	200	5.5400	2.4999	1.00	10.00
OWNP	200	0.1350	0.3426	0.00	1.00
SIZE	200	0.6300	0.4840	0.00	1.00

Table V: Pearson Correlations between the Dependent and Independent Variables

	COAD	MAPR	BOSZ	GEBA	FRME	OWNP	SIZE
COAD	1.000						
MAPR	.189**	1.000					
BOSZ	-.213**	-.051	1.000				
GEBA	.134	-.026	.078	1.000			
FRME	-.274**	.137	.477**	.090	1.000		
OWNP	.167*	-.034	.142*	.135	-.097	1.000	
SIZE	-.065	-.017	.308**	.101	.340**	.151*	1.000

** Correlations significant at the 0.01 level (2-tailed).

Table VI: Multiple Regression Results

Number of obs = 200; $F = 7.091$; $Prob > 0.000$; $R^2 = 0.181$; $Adj R^2 = .155$; $MSE = .70485$; $Durbin Watson = 1.276$.

Source	SS	df	MS	95% Con. Interval		VIF	
				Lower Bound	Upper Bound		
Model	21.137	6	3.523				
Residual	95.885	193	.497				
Total	117.022	199					
COAD	Coef.	Std err	t-value	Sig	95% Con. Interval	VIF	
(Constant)	2.986	.461	6.482	.000	2.077	3.895	
MAPR	.258	.076	3.421	.001	.109	.407	1.041
BOSZ	-.021	.014	-1.546	.124	-.049	.006	1.406
GEBA	.842	.372	2.263	.025	.108	1.575	1.033
FRME	-.079	.024	-3.213	.002	-.127	-.030	1.500
OWNP	.318	.154	2.069	.040	.015	.620	1.108
SIZE	.042	.113	.373	.709	-.181	.266	1.200
Mean VIF							1.2147