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Intellectual capital in Ugandan service firms as mediator of board governance and firm performance

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Abstract

Purpose – The purpose of this paper is to examine the mediating effect of intellectual capital on the relationship between board governance and perceived firm financial performance.

Design/methodology/approach – This study was cross-sectional. Analyses were by SPSS and Analysis of Moment Structure on a sample of 128 firms.

Findings – The mediated model provides support for the hypothesis that intellectual capital mediates the relationship between board governance and perceived firm performance. while the direct relationship between board governance and firm financial performance without the mediation effect of intellectual capital was found to be significant, this relationship becomes insignificant when mediation of intellectual capital is allowed. Thus, the entire effect does not only go through the main hypothesised predictor variable (board governance) but majorly also, through intellectual capital. Accordingly, the connection between board governance and firm financial performance is very much weakened by the presence of intellectual capital in the model – confirming that the presence of intellectual capital significantly acts as a conduit in the association between board governance and firm financial performance. Overall, 36 per cent of the variance in perceived firm performance is explained. the error variance being 64 per cent of perceived firm performance itself.

Research limitations/implications – The authors surveyed directors or managers of firms and although the influence of common methods variance was minimal, the non-existence of common methods bias could not be guaranteed. Although the constructs have been defined as precisely as possible by drawing upon relevant literature and theory, the measurements used may not perfectly represent all the dimensions. For example board governance concept (used here as a behavioural concept) is very much in its infancy just as intellectual capital is. Similarly the authors have employed perceived firm financial performance as proxy for firm financial performance. The implication is that the constructs used/developed can realistically only be proxies for an underlying latent phenomenon that itself is not fully measureable.

Practical implications – In considering the behavioural constructs of the board, a new integrative framework for board effectiveness is much needed as a starting point, followed by examining intellectual capital in firms whose mediating effect should formally be accounted for in the board governance – financial performance equation.

Originality/value – Results add to the conceptual improvement in board governance studies and lend considerable support for the behavioural perspective in the study of boards and their firm performance improvement potential. Using qualitative factors for intellectual capital to predict the perceived firm financial performance, this study offers a unique dimension in understanding the causes of poor financial

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performance. It is always a sign of a maturing discipline (like corporate governance) to examine the role of a third variable in the relationship so as to make meaningful conclusions.
Keywords Intellectual capital, Uganda, Mediation, Firm performance, Board governance
Paper type Research paper

Background of the study

The aim of this study is to examine the mediating effect of intellectual capital on the relationship between board governance and perceived firm financial performance. Over the past few years, there has been a growing interest in board governance and its predictive potential of firm performance. This is considerably because boards have been criticised and accused in the wake of unprecedented failures of significant companies around the world for their (boards) failure to avert such "meltdowns". At the same time, the changes in the global economy have differentiated the modern approach to value creation and the traditional way of monitoring operations (Ting and Lean, 2009). Moreover the current technological changes, sophisticated customers and the importance of innovation have shifted the bases of competition away from traditional physical and financial resources to intellectual capital assets (Cuganesan, 2006). Indeed, the importance of board governance and intellectual capital to firm financial performance is typified by a number of researches. The meta-analysis by DeRue *et al.* (2009) reveals significant research that has investigated the link between the structural variables of the board and firm financial performance. In addition, some studies (e.g. Kamukama *et al.*, 2010) have begun to suggest that current and future managers must know that a modern company changes so rapidly that everything is dependent on human capital, structural capital and relational capital – dimensions widely accepted as intellectual capital (F-Jardón and Martos, 2009). Such suggestions are consistent with previous studies (Riahi-Belkaoui, 2003; Chen *et al.*, 2005; and Cleary, 2009) which have found significant relationships between intellectual capital and firm performance and the conclusion that the profitability of a firm can significantly be improved by managing intellectual capital (Ghosh and Mondal, 2009).

The current empirical evidence on the explanation of firm performance via board governance and intellectual capital is, however, ambivalent. For example, Dalton and Dalton (2011) noted four meta-analytic studies (Dalton *et al.*, 1998; Wagner *et al.*, 1984; Rhoades *et al.*, 2000; DeRue *et al.*, 2009) and concluded that there is no evidence of systematic relationships between board composition and firm financial performance. Hang (2009) also noted mixed results of the relationship between intellectual capital and firm performance. A closer scrutiny of these studies indicates that most of them overlooked the issue of mediation. We argue that drawing insights from such studies can prove futile because to have a meaningful interpretation of the results showing relationships between study variables, assessing the role of a third variable in the relationship is always fundamental (Kamukama *et al.*, 2011). Majorly, a relationship study that does not address the mediating mechanism ends up with facts but with incomplete understanding (Rosenberg, 1968) and that which fails to consider the possibility of a mediator effect in the data may miss more explanation for an outcome (Bennet, 2000). Thus, while Nkundabanyanga *et al.* (2013) and Nkundabanyanga and Ahiauzu (2012) proposed a model of effective board governance that would act as a benchmark for service firms quest for firm performance improvement, to our knowledge and from a conceptual perspective, scanty research has explained why the relationship between board governance and firm performance might exist. In this study we posit some explanation in terms of a mediating variable (intellectual capital).

As such intellectual capital clarifies or explains the relationship between board governance and firm financial performance. Hence our study contributes to management practice and extant literature on board governance and intellectual capital in a sense that firm performance has largely remained inadequately explained especially in the context of third-world countries and this daunts performance improvement in firms. The study also adds to the conceptual improvement in board governance and intellectual capital studies and lends considerable support for the behavioural perspective in the study of boards and their firm performance improvement potential. Using qualitative factors for board governance and intellectual capital to predict the perceived firm financial performance, this study offers a unique dimension in understanding the causes of poor financial performance.

The rest of the paper proceeds as follows: The next section is theoretical background immediately followed by hypothesis development, research setting and then research methodology. The penultimate section is the results section and discussion. The final section contains the conclusion, implications, limitations and future directions of research.

Theoretical background

In this study, the relationship between board governance and firm performance as mediated by intellectual capital is investigated through agency theory (Alchian and Demsetz, 1972; Jensen and Meckling, 1976) with its competitor, stewardship theory (Donaldson and Davis, 1991) and resource-based view (RBV) (Barney, 1991). A number of features make these theories attractive to the present investigation. Daily *et al.* (2003) argued that two factors might influence the prominence of agency theory. In the first place, the theory is conceptually a simple theory that reduces the corporation to two participants: managers and shareholders. Second, agency theory suggests that employees or managers in organisations can be self-interested. Accordingly, board governance has been empirically found to be crucial for firm financial performance because the board of directors can act as an efficient internal mechanism for controlling the presumed egocentricity of managers or employees in the absence of external governance mechanisms in developing markets (Kumar and Singh, 2012). In contrast the management's stewardship function (stewardship theory) has been found important for firm performance. Stewardship theory does not stress the perspective of individualism (Donaldson and Davis, 1991), but rather the role of top management being as stewards, integrating their goals as part of the organisation. This perspective suggests that stewards are satisfied and motivated when organisational success is attained. In this aspect board governance should be aimed at enabling stewards to perform their functions but not to control them. This suggests an indirect role of the board of improving firm financial performance through an appropriate human capital base. RBV suggests that variances in firm performance are primarily the result of intellectual capital heterogeneity across firms. Thus, in this paper we employ a multi-theoretic approach in providing a meaningful trajectory for improving firm financial performance. The next paragraphs in this section provide a brief overview of these theories.

Agency theory which has roots in economic theory was exposited by Alchian and Demsetz (1972) and further developed by Jensen and Meckling (1976). Agency theory rests on the premise that there is a relationship between the principals, such as shareholders and agents such as the company executives and managers. According to this theory, shareholders who are the owners or principals of the company, hire the gents to perform work. Principals delegate the running of business to the directors, who are the shareholder's agents (Clarke, 2004). Agency theory indicates that when the

interests of owners and managers of firms are not aligned, the performance of such firms suffers because the theory suggests that the separation of firm ownership and control potentially leads to egocentric actions by managers (Jensen and Meckling, 1976). Consequently board governance (Nkundabanyanga *et al.*, 2013) is considered an efficient internal behavioural mechanism for ensuring firm's managers deliver desired results on behalf of investors. Presumably, effective board governance ensures maximisation of shareholders' wealth, evaluation of the CEO and company performance, and also participation in the strategic decision process and control (Kamardin and Haron, 2011). The decision control function of the board can include encouraging management to present the firm with an opportunity set of endeavours that is as rich as possible, and to act on the opportunities that make sense for the firm and its shareholders (Murphy and Mclntyre, 2007). But the theory's focus on the board of directors ignores other resources central to firms' performance like intellectual capital residing in people (e.g. managers), structures and relations. Similarly, the control function of the board as the theory advocates ignores the importance of the board to firms' intellectual capital utilisation and development. In this sense, the theory is insufficiently real given the importance of intellectual capital. For purposes of this study, therefore, stewardship theory has been considered complimentary to agency theory in explaining firm financial performance.

Stewardship theory is rooted in psychology and sociology (Knapp *et al.*, 2011). A steward protects and maximises shareholders wealth through firm performance, because by so doing, the steward's utility functions are maximised (Davis *et al.*, 1997). Viewed in this way, stewards are company executives and managers working for the shareholders and protect and make profits for the shareholders. Agyris (1973) argues that agency theory views employees or people as economic beings, and this suppresses individuals' own aspirations. While agency theorists see managers as self-seeking, supporters of stewardship theory argue that it is possible that managers' interests are similar to those of shareholders (Davis *et al.*, 1997). Thus managers need authority and desire recognition from peers and bosses; their motivation transcending mere monetary considerations. This means that stewardship theory recognises the importance of structures empowering the steward and offering maximum autonomy built on trust (Donaldson and Davis, 1991) – stressing on the position of employees or executives to act more autonomously so that the shareholders' return is maximised. In this way the costs aimed at monitoring and controlling behaviours are minimised (Davis *et al.*, 1997).

Daily *et al.* (2003) have argued that in order to protect their reputations as decision makers in organisations, executives and directors are inclined to operate the firm to maximise financial performance as well as shareholders' profits. In essence Fama (1980) contends that executives and directors are also managing their careers in order to be seen as effective stewards of their organisation, whilst, Shleifer and Vishny (1997) insists that managers return finance to investors to establish a good reputation so that they can re-enter the market for future finance. Stewardship theorists accordingly suggest a collaborative approach between directors and managers (Ong and Wan, 2008). Such an approach stresses service, calling for boards to advise the managers (Sundaramurthy and Lewis, 2003) and empower managers and employees to deliver better firm performance. Thus, board governance in matters of strategy is seen as contributing to this intellectual capital to deliver appropriate firm financial performance.

RBV suggests that variances in firm performance are primarily the result of resource heterogeneity across firms (Wernerfelt, 1984). This implies that the different levels of intellectual capital in different firms can explain differences in those firms'

performance. These different levels of intellectual capital are arguably dependent on appropriate board governance. While most intangible assets do not qualify as strategic assets, intellectual capital is generally considered to be a very important strategic asset (Mouritsen, 1988). This qualification of intellectual capital as a strategic asset is because of a likely link between intellectual capital and firm performance (Riahi-Belkaoui, 2003).

Therefore resource-based, stewardship and agency theories are appropriate to the study of firm financial performance especially in the context of service sector firms in a number of ways. Services sector in developing economies are human capital-laden. Human capital has been studied as a component of intellectual capital understood to be intangible but significant for competitive advantage. This study therefore applies the resource-based theory (Barney, 1991) to explain firm financial performance. Similarly, the owners of businesses may not be the ones to manage them. As such, the owners (shareholders), delegate this duty to managers. But the managers might want to maximise their utility at the expense of shareholder's utility. That way, the practice is to have boards in place to monitor management so as to align both the interest of managers and shareholders. While the governance prescription of agency is to design controls that enforce compliance, that of stewardship is to empower stewards through trust, collaboration and service (Knapp *et al.*, 2011). It has been argued that the ability of organisations to cope, survive, grow and otherwise attain and maintain business successes is related to their abilities to use various "capitals" in order to create and leverage value, and to accomplish their visions especially financial goals (Keenan and Aggestam, 2001). Arguably, appropriate board governance should develop and leverage the use of intellectual capital to deliver acceptable firm financial performance. For the examination of this practice in predicting firm financial performance this study invokes agency theory, RBV and stewardship theories. Indeed Abdullah and Valentine (2009) recommended a multi-theoretic approach for studies of this nature.

Board governance

The epistemology of effective board governance shows that it is derived from governance. There are, however, various qualifying adjectives of governance: corporate governance (Barrett, 1997), organisational governance (Sharp, 1999), polity governance (Sharp, 1999), policy governance (Carver, 1999), among others. The adjectives attendant to governance that different authors use in order to operationalise governance indicates that there is no global consensus on the definition of governance. Accordingly this research conceptualises effective board governance in line with the definition provided by Barrett (1997), Sharp (1999) and Carver (1999) and defines a board according to Conger *et al.* (1998, p. 140): "A board is a team of knowledge workers, and to do its job, the board needs the same resources and capabilities that any other successful team of knowledge workers needs. Research […] indicates that to do their jobs effectively, such groups need knowledge, information, power, motivation, and time". Thus, according to Cornforth (2001) board inputs and three process variables are important in explaining effective board governance, namely: board members have the time, skills and experience to do the job, clear board roles and responsibilities, the board and management share a common vision of how to achieve their goals; and the board and management periodically review how they work. The other processes involved in his study were communication, in particular, that communication between the board and management is good and there are rare misunderstandings between them; meeting practices, specifically that members have adequate notice of important issues to be discussed at board meetings; meetings have a clearly structured agenda; important items are prioritised on board agendas and it is clear who is responsible

for follow up actions agreed by the board. Therefore, the study by Cornforth (2001) identified process factors, which are essentially qualitative in nature, that provide an explanation of the variance in effective board governance. This precedent was later followed by Nkundabanyanga *et al.* (2013).

Intellectual capital

According to Martí (2003), intellectual capital issues have undergone extraordinary development since the beginning of the 1990s and this development is guided by the ideas and thoughts of influential practitioners (Sveiby, 1997; Edvinsson and Malone, 1997). Their respective models – "Intangible Assets Monitor" (Sveiby, 1997) and "Skandia Navigator" (Edvinsson and Malone, 1997) – are representative of the assumptions, principles and foundations of the intellectual capital standard theory. This theory is the superlative guide to the management of intangible assets, and has facilitated success through sustainable competitive advantage for leading companies and organisations (Martí, 2003). By and large, intellectual capital literature defines intellectual capital as an aggregate expression of the intangible assets possessed by the organisation. Sveiby (1997) proposed the classification of intellectual capital as employee (individual) competence, internal structure and external structure. Edvinsson and Malone (1997) adopted the three categorisations of Sveiby, but termed them as: human capital, organisational capital and customer capital, respectively. Later, Pablos (2003) termed "customer capital" as "relational capital". Thus, intellectual capital can also be viewed as a mix of human capital, structural capital and customer capital (Riahi-Belkaoui, 2003). The relevant dimensions of intellectual capital are discussed in turn.

Human capital. According to Moon and Kym (2006) human capital is the main body of intellectual capital and includes knowledge, experience and special skills of the personnel of a business entity employed in order to create economic value (Cohen and Kaimenakis, 2007; Roos *et al.*, 2005). Abeysekera (2007) conceptualised human capital as training and development, entrepreneurial skills, equity issues, employee safety, employee relations and employee welfare. Moreover, the concept of human capital is the purchase of health care and education, the spending of time searching for a job with the highest possible rate of pay (welfare) instead of accepting the first offer that comes along and, choice of jobs with low pay but high learning potential in preference to dead-end jobs with high pay (skills acquisition) (Becker, 1964 and Blaug, 1976). According to Schiuma *et al.* (2008) it can be considered as the knowledge, skills, intellect, relationship, attitude, talent and behaviour of employees. Accordingly, human capital holistically denotes the firm's resources and assets related to a firm's people (Mohammad, 2012).

Organisational capital. According to Roos and Roos (1997), organisational capital includes production or other processes, specialisation and information flow. It is the set of intangibles characterised as social or collective knowledge (Bueno *et al.*, 2006) which structures and develops the effective and efficient activity of the organisation (Canizares *et al.*, 2007). Organisations establish patterns of behaviour and interpretation systems that guide knowledge acquisition (Crossan *et al.*, 1999; Kim, 1993) and provide pivotal mechanisms for integrating and combining that knowledge into organisational knowledge (Grant, 1996).

Structural capital . According to Chu *et al.* (2006), structural capital is a general system and procedures for solving problems and innovation. It consists of organisational capital and technological capital according to intellectus model (CIC, 2002) cited by Bueno *et al.* (2004) and it is sometimes referred to as organisational capital (Mouritsen *et al.*, 2001).

According to Roos *et al.* (2005) organisational capital in firms is perceived to include documented systems and processes, customer lists and contracts, supplier contracts, formal alliances and organisational culture. Thus, structural capital includes the processes or infrastructures owned by the firm (Watson and Stanworth, 2006) and describes the knowledge that has been captured and institutionalised within the structure, process and culture of an organisation – a subset of its explicit knowledge (Mohammad, 2012).

Relational capital/customer capital. Relational capital generally consists of relations between organisations and the society (Grasenick and Low, 2004; Chu *et al.*, 2006). The quality of the relationships and the ability to create new customers are critical factors for the success of a company (Montequin *et al.*, 2006). Within this strand of customer capital it is conceivable to find social capital which recognises the importance of social relationships and is understood as "networks together with shared norms, values, and understanding that facilitate cooperation within or among groups" (Organisation for Economic Cooperation and Development 2001, p. 41). It is an "invisible force" embedded in the relationships of individuals, organisations, communities or economic players which supports growth (Schiuma *et al.*, 2008) and provides a medium for knowledge exchange and combination within the organisation (Kang and Snell, 2009). According to Manning (2010) social capital can be understood as being complementary to and parallel with other intangible capitalisations such as human capital and structural capital.

Stakeholder capital. From a stakeholder perspective, if intellectual capital is decomposed into its dimensions of structural capital, human capital, relational capital, the role of structural capital in value creation is mainly related to the fact that this specific form of structural capital is a primary means through which organisations import external knowledge into the firm (Schiuma *et al.*, 2008). This makes stakeholder capital a subset of structural capital and is about some forms of structural capital that, due to their importance for a firm's success, have been addressed separately from the broader concept of structural capital (Schiuma *et al.*, 2008).

Hypothesis development

Board governance and firm financial performance

There have been a number of studies focused on board of directors (their attributes, CEO duality and composition and so on) and their relationship with firm performance. Guest (2009) found that board size has a negative impact on firm financial performance. Until that time, Coles *et al.* (2008) had suggested several transaction costs which could prohibit firms from moving to an optimal size within a short time frame such as removing a director purely for downsizing reasons could damage the firm's reputation for honouring implicit contracts, and therefore its ability to recruit in future. In the same vein the results of a meta-analytic study about corporate governance and earnings management by García-Meca and Sánchez-Ballesta (2009), suggested that board independence, board size and audit committee independence can improve investor confidence by constraining earnings management – especially important as corporate governance may be used as a key to help restore investor confidence in markets that have experienced financial problems, at the present a real problem in most of the world economies. Knapp *et al.* (2011) have argued that current governance scandals are costly illustrations of unconstrained managerial opportunism that demonstrate the need for vigilant control but also argue that a control approach to governance, does not consistently improve firm performance.

Most of these studies draw from agency theory's control paradigm and seem to provide ambivalent results and conclusions. Drawing from his notes on a number of

authors that suggested that the better the board governance, the better the firm performance, Sharp (2005) critiqued the evidence that is normally adduced for this claim as it is normally based on empirical evaluations and flawed surveys that fail to define effective governance and establish whether the implicit understanding of effective board governance that forms the basis of the survey is the same as that of survey respondents. His critique continues to indicate that the surveys relying heavily on market valuation of performance and failing to establish how representative the sample of survey respondents is of the intended audience should be regarded as possibly anecdotal and/or unreliable. Nevertheless, it is still possible to expect effective board governance to contribute significantly to firm performance. Vafeas (1999) for example found that increased frequency of meetings was important for firm performance improvement. Kula (2005) found that the performance of the board's role of resource acquisitions had a positive relationship with firm performance and that among board process attributes, perceived effectiveness of board meetings and board access to information was positively related to performance evaluation by the board of itself and of top management. The study by Green and Griesinger (1996) which developed a model and programme logic for their study of not-for-profit developmental disability workshops and residential facilities in the USA suggested a correlation between the effective board governance and firm performance. Okpara's (2011) conceptual paper and the results of Green and Griesinger (1996) although from a small sub-sector of not-for-profit organisations in the USA, confirm an impression from other literature and anecdotal experience that there is some expectation of a relationship between effective board governance and firm financial performance. This leads to the following hypothesis:

H1. Board governance will have a positive and significant relationship with firm financial performance.

Intellectual capital and firm financial performance

Many of the studies (Bontis *et al.*, 2000; Hurwitz *et al.*, 2002; Chen *et al.*, 2004, 2005; Wang and Chang, 2005; Huang and Liu, 2005; Tseng and Goo, 2005; Do Rosario Cabrita and Landeiro Vaz, 2006; Tan *et al.*, 2007; Ghosh and Mondal, 2009; Ting and Lean, 2009; Zeghal and Maaloul, 2010) support the hypothesis that intellectual capital has a positive impact on firm financial performance. For example, Chen *et al.* (2004) established a significant relationship between intellectual capital elements and firm performance. Similarly, to investigate the inter-relationship among elements of intellectual capital, Chen *et al.* (2005) adopted a regression analysis to understand such dynamic relationships and their impact on market-to-book value ratios and future financial performance. Huang and Liu (2005) used a comparable approach in understanding the impact of innovation capital and information technology capital on firm performance and concluded that investments of innovation capital produced a positive effect on performance before an optimal point, beyond which the influence of innovation capital on performance could become negative. In addition, it was shown that the interaction between innovation capital and information technology capital would create a positive influence on firm performance. For the information technology industry in Taiwan, Wang and Chang (2005) also found that intellectual capital elements directly affect business performance, with the exception of human capital – which indirectly affects performance through the other elements. Connecting the RBV with an intellectual capital perspective, Fernstorm *et al.* (2004) demonstrated how the intellectual perspective augmented the strategic focus of the research and development

department through a market orientation that utilised external relational resources for firm performance.

As well, there are contradictory results which suggest that more investment in intellectual capital is not always better (Huang and Liu, 2005) and that not all elements of intellectual capital have a positive impact on firm's financial performance (Firer and Williams, 2003; Wang and Chang, 2005; Cohen and Kaimenakis, 2007; F-Jardón and Martos, 2009). According to F-Jardón and Martos (2009) contradictory results may arise from the fact that the majority of those studies concentrated on large companies and those that analysed smaller size companies were oriented towards developed countries. Moreover, the results of a meta-analytic study of Veltri (2009) on the impact of intellectual capital measurement on the financial markets, indicated a true effect size showing a positive but a medium intensity effect which was attributed to the limited number of studies in the relatively novel area of research. Veltri's study led to a conclusion that to operate in an economically advanced context (Europe and America) rather than in emerging economies, strengthens the association between intellectual capital and financial performance and theoretically, the effect finds its justification in the consideration that a more advanced context registers a greater consciousness of investors. It also led to a conclusion that to operate in financial and technological services rather than in other industries strengthens the association between intellectual capital and financial performance and theoretically, the effect finds its justification in the consideration that these sectors are intellectual capital intensive ones. Although Cohen and Kaimenakis (2007) demonstrated that there is a significant positive relationship between some of the components of intellectual capital and firm performance in small and medium-sized enterprises of Greece, it was observed that the interaction of some of the intellectual assets which were measured using questionnaires was different in some aspects from the methods and models of researches carried out on large companies. Thus, in this study we try again to verify that relation in service firms of developing countries with a unique methodology (see methodology section), hypothesising as follows:

H2. Intellectual capital will have a positive and significant relationship with firm financial performance.

Board governance, intellectual capital and firm financial performance

Organisations should deploy and manage their intellectual capital resources in order to maximise value creation (Peng, 2011). Literature indicates (see Seleim and Khalil, 2011) that the intellectual capital term was first introduced by Galbraith (1969) as a form of knowledge, intellect and brain power activity that uses knowledge to create value. Ever since, different views of intellectual capital have emerged (Cortini and Benevene, 2010). For instance, intellectual capital is knowledge that can be converted into value (Edvinsson and Sullivan, 1996). This literature suggests that intellectual capital must be harnessed in organisations. It can then be argued that effective board governance should direct its efforts towards proper harnessing and utilisation of intellectual capital for firm performance improvement. This view is consistent with agency theory which predicts that the board of directors should be concerned with firm financial performance improvement potential for the benefit of stake holders. We can then predict that since intellectual capital is knowledge that can be converted into profit (Sullivan, 2000) appropriate board governance determines intellectual capital content in firms. Thus, consistent with stewardship theory, in order to protect their reputations as decision makers in organisations, executives and directors are inclined to operate the firm to

maximise financial performance as well as shareholders' profits (Daily *et al.*, 2003). In essence and consistent with RBV theory, intellectual capital being intangible resources of a firm, they fall squarely within the control of the directors who must then make use of such assets in the achievement of their objectives as a board. But if intellectual capital residing in people (employees and managers) for instance is not appropriate, we can argue that the performance of the firm will not be satisfactory.

We can then build on the work of Keenan and Aggestam (2001). Keenam and Aggestam examined two topics receiving increased, but separate, interest by researchers: intellectual capital and corporate governance (from where the board governance concept emanates). These authors argued that the connectedness of corporate governance and intellectual capital is apparent owing to the fact that managerial decision-making is focused on creating value for the stakeholders through adroit uses of capital and as such corporate governance uses financial, physical plant, and *intellectual capital* to create and leverage value. So, little or no formal attention by the board to the intellectual capital of the firm can be construed a failure of board governance, consistent with RBV, agency and stewardship theories to direct and participate in executive action, supervision, or accountability for the business entity. Stakeholder perceptions and judgements are directly or indirectly, we argue, about the firm's use of assets that we include here in the holistic intellectual capital construct. Board governance would do well to direct and influence the development and management of a firm's intellectual capital. Moreover, while the meta-analytic study of Van Essen *et al.* (2012) on corporate boards and the performance of Asian firms found no direct relationship between board attributes and the performance of Asian firms, it did point at the somewhat derivative role of the board in Asian firms, on the one hand, and at least one concrete mechanism through which board attributes do indirectly affect firm performance, on the other and advised that findings were telling that could inspire future research. This view is reinforced by Ruigrok *et al.* (2006) who argued that the board performs multifaceted tasks and according to Kumar and Singh (2012), has a direct or indirect effect on firm financial performance. We believe this indirect effect is through intellectual capital. Consequently it is hypothesised in this study that:

H3. Board governance will have a positive and significant relationship with intellectual capital.

H4. Intellectual capital mediates the relationship between board governance and firm financial performance.

Research setting

This study was done in Uganda. Uganda/the Republic of Uganda is a land-linked country in East Africa. Uganda is bordered on the east by Kenya, on the north by South Sudan, on the west by the Democratic Republic of the Congo, on the southwest by Rwanda and on the south by Tanzania. The southern part of the country includes a substantial portion of Lake Victoria, shared with Kenya and Tanzania. Uganda gained independence from Britain on 9 October 1962. The period since then has been marked by intermittent conflicts, most recently a civil war against the Lord's Resistance Army. These conflicts have often had wide-ranging effects on governance, intellectual capital (mostly human) and generally firm performance. Nevertheless, since the mid-1990s Uganda has experienced consistent annual increase in economic growth (6.9 per cent), higher than the African average of 5.4 per cent (World Bank, 2007), although in 2005/2006 growth slowed to 5.5 per cent and in 2010, it was 5.1 per cent (UN Economic

Commission for Africa (2011). This recent economic decline is mostly attributed to the global economic slowdown since the first half of 2010 to-date (Bank of Uganda, 2012). The "*CIA –The World Fact Book*, January 2012" indicates that services account for 52.1 per cent of GDP. Also, the ease of doing business in Uganda dropped by four, from 119 in 2011, to 123 in 2012 out of 183 economies (Doing Business, 2012). This is an indication that some critical elements and issues have to be dealt with especially intellectual capital and board governance.

The research setting for this particular study is unique because the concept of intellectual capital has not been given serious attention in Uganda (Kamukama *et al.*, 2010). In addition, the services sector in Uganda remains the sector with the highest demonstrated potential than any other sector in Uganda's economy including the agricultural sector. The Ugandan services sector has since early 2000s gained a significant share of Uganda's GDP growth and in 2009/2010 contributed 49 per cent to GDP and to its growth by 13 per cent up from 42.2 and 7.9 per cent in 2004/2005, respectively. But this potential can be endangered because services firms in Uganda have been vulnerable to ineffective board governance and so the importance of this sector as shown by its contribution to Uganda's real GDP creates much of the interest by the Uganda government especially with regard to board governance of the firms forming the services sector (Nkundabanyanga *et al.*, 2013). Government and other stakeholders need to gain reasonable assurance that the sector's firms continue to register impressive performance. This potential can be harnessed by board governance through the mediation of intellectual capital. Moreover, there have been consistent reports of poor financial performance by companies in Uganda and this poor performance has often led to some of these companies closing business (Brownbridge, 1998; Habyarimana, 2003; Among, 2009; Kasita and Emojong, 2010; Tentena, 2010). According to Sharp (2005), there are numerous reasons for firms' poor performance, governance responsibilities and practices being a significant part of the problem. More so, between September 1998 and May 1999 four Ugandan banks were closed for imprudent banking practices (Habyarimana, 2003) and poor internal governance (Brownbridge, 1998; Bank of Uganda, 1999). Subsequently, the Ogoola commission report (Government of Uganda, 2000) indicated that none of the closed banks had at any one time a team of well trained, experienced and proven commercial bank managers and strong willed board of directors that knew what it was doing besides a poorly thought out system of internal controls like internal audit.

There are two major sources of features of board governance in Uganda: The Companies Act Cap.110 and the Institute of Corporate Governance of Uganda (ICGU, 2001) Manual on Corporate Governance. Board governance in Uganda can be traced from the commencement of The Companies Act (1961) Cap.110, Laws of Uganda. Board governance is explicitly stated under Part V of the said Act. Among the provisions is included the number of directors, appointment and removal of directors and age limit, directors' duties and assignment of duties by directors. According to the Uganda Country Self-Assessment Report and Programme of Action (2007) unitary boards are the dominant structure for public corporations, public and private limited liability companies in Uganda. In order for both public and private companies to be registered, the Act stipulates a minimum of two directors.

This unique setting provided the ground for testing the hypothesis that intellectual capital mediates the relationship between board governance and firm financial performance. This was against the argument that although previous studies have provided evidence that intellectual capital has a positive impact on firms' financial

performance and we have encountered similar findings for the predictive potential of board governance on firms' performance, these studies are from developed nations – Abor and Biekpe (2007), Okpara (2011) and Kamukama *et al.* (2010, 2011) are notable exceptions – and cover mostly large and listed firms. Moreover, there are contradictory results as well (Huang and Liu, 2005; Ong and Wan, 2008). As a result poor firm performance had largely remained ambivalently explained especially in the context of third world countries with SMEs largely taking the mosaic of firms in these nations.

Methodology

Population and sample

The study population consists of 6,534 formal service firms in Kampala region (Uganda Bureau of Statistics – Uganda Business Register 2006/2007), which firms are the units of analysis. A total sample of 377 service firms for this study was generated using Yamane's (1973) sample selection approach. In total, 128 questionnaires were received from respondent firms indicating a response rate of 34 per cent. For the unit of analysis, trade and other business services were 64 (or about 50 per cent), hotels and restaurants were 17 (or about 13 per cent), transport storage, posts and telecommunications were 21 (or about 16 per cent) and financial services were 26 (or about 20 per cent). For the unit of enquiry, the male respondents were 97 (about 76 per cent) and the female respondents were 31 (or about 24 per cent). About 60 per cent of the respondents had postgraduate education; meaning they were able to comprehend the questions asked in the questionnaire. It also implies that the managers and directors of service sector organisations in Uganda are fairly educated. More than half of the respondents were above 36 years of age which corroborates the qualification that would normally have been acquired in Uganda by such an age bracket.

Measures

The item scales for board governance were developed in line with the ICGU's (2001) manual on corporate governance, The Companies Act (1961) Cap.110, Laws of Uganda, the works of Cornforth (2001), Huse (2005), Heuvel *et al.* (2006), Murphy and Mclntyre (2007), Petrovic (2008) and practitioners like Jacobs *et al.* (2007). A Likert scale type questionnaire, designed to measure the opinion or attitude of a respondent (Burns and Grove, 2009), was utilised to obtain self-reported information on selection criteria, performance evaluation of the board, meetings-structure and decision making, board roles and nature of Ugandan boards. The questions were later factor analyzed and components were interpreted as conduct and meetings' organisation, board performance evaluation, board activity, effective communication and board roles as components of board governance in Uganda. In total 19 questions from the original 88 relating to control and meetings organisation, board performance evaluation, leadership board, effective communication and board activity explained 66.77 per cent of the variance in board governance. Confirmatory factor analysis (CFA) finally retained control and meetings organisation, effective communication and board activity in an effective board governance model and nine items scales. Therefore ten items were dropped, at this stage, because of measurement variance.

Similarly, this study utilised the measurements as developed by Indra (2007) and Subbarao and Zeghal (1997). The intellectual capital items in the human capital category are clustered into seven sub-categories: training and development, entrepreneurial skills, equity issues, employee safety, employee relations, employee welfare, employee-related measurements. In measuring structural capital consisting of organisational capital and

technological capital according intellectual model (2002) cited by Bueno *et al.* (2004), the ideas Roos *et al.* (2005) and Bueno *et al.* (2004) were utilised. Performing principal component analysis resulted in components that were interpreted as employee safety, entrapreneurial skills, employee recognition, employee welfare, entrapreneurial development, organisational capital and structural capital. In total 36 questions from the original 103 explained 67.75 per cent of the variance in intellectual capital. CFA retained all the seven components in a model of intellectual capital and 22 items scales. Therefore, 14-item scales were dropped at this stage because of measurement variance.

While financial performance measures commonly used by empirical researchers and financial analysts are return on assets (ROA) and ROI (Rashid *et al.*, 2003; Wang and Chang, 2005; Abor and Biekpe, 2007; Ghosh and Mondal, 2009; Aluchna, 2009 and Hang, 2009) adjusted return on assets (Wang and Chang, 2005), the financial information provision culture in Uganda is far from desirable. Analysis of Moment Structures (AMOS) is not responsive to data sets with missing data. And because this study used structural equation modelling (SEM) with AMOS in statistical modelling, it was necessary to control for missing data, and so the questions that capture perceived financial performance were used. A typical question was for instance, "Our firm has positive equity returns". When principal component analysis was performed, it resulted in one component that was interpreted as perceived firm financial performance. In total seven questions from the original 13 explained 55.67 per cent of the variance in perceived financial performance. Therefore, six-item scales were dropped, at this stage, because of measurement variance.

Control of common methods variance (CMV)

The influence of CMV has been a pervasively cited concern in organisational research (Podsakoff *et al.*, 2003). A problem of CMV affects questionnaire-based studies in social sciences (Gorrell *et al.*, 2011). This study does not materially have this problem because we performed an exploratory factor analysis where coefficients of 0.6 and above were considered sufficient in determining reliable scales (Neuman, 2006; Dooley, 2004). Podsakoff and Organ (1986) describe the technique that if a substantial amount of common method variance is present, either: a single factor will emerge from the factor analysis, or one "general" factor will account for the majority of the covariance in the independent variable and criterion variables. As has already been indicated, all our variables have several factors explaining a single variable.

Data management and data distribution

After receiving the questionnaire, it was edited. The process started by reverse coding the negatively worded statements. Simple frequency runs were carried out to screen the data so as to identify missing values and it was observed that <1 per cent of all the questions/statements were missing. The missing values were construed a result of inadvertent omissions made by respondents and trivial to suppress the standard deviation (Field, 2006). Corroborating evidence was provided by checking whether values were missing completely at random (MCAR); that is whether the missingness depended on the variables in the data set (Little, 1988). Using the Expectation-Maximisation (E-M), the MCAR was not significant (a. Little's MCAR test: $\chi^2(244) = 213.138$, Sig. $= 0.924$). This means that any missing data were missing completely at random. Because SEM is based on complete cases with AMOS software, the present study used linear interpolation to replace missing values.

Assumptions of normality, linearity of data and homogeneity of variance were then tested for. As Tabachnick and Fidell (2007) maintain that normality of variables

enhances the solution and because the numbers of factors were determined using statistical inference, multivariate normality was assumed. We assessed normality among single variables by skewness and kurtosis as suggested by (Tabachnick and Fidell, 2007) because lack of symmetry and pointedness (Kurtosis) are the two main ways a distribution deviates from normal (Field, 2006; Norusis, 1994). According to Field (2006), the values of kurtosis and skewness should be zero in a normal distribution. Following this guideline some values indicated significant kurtosis and skewness (after conversion to z-scores) at $p < 0.001$. More so as almost all scores indicated a negative skew, we used reverse score transformations to reverse the scores by subtracting each score from the highest score $+1$ for all the variables and thereafter log transformation ($\log(X_i)$) was used to approximate to normality as recommended by Field (2009).

Multivariate normality implies linearity, so "linearity among pairs of variables is assessed through inspection of scatterplots" (Tabachnick and Fidell, 2007, p. 613). With a large number of variables, however, examination of all pair wise scatter plots is impractical. Therefore, to spot check for linearity, we examined "our board makes clear minutes" (with strong negative skewness) and "this company has a clear criteria for evaluating the board" (with a weak negative skewness). The resulting scatter plot indicated a balanced spread of scores and according to Tabachnick and Fidell (2007), when assessing bivariate scatter plots if they are oval-shaped, they are normally distributed and linearly related. The plot showed that this was the case. The assumption of homogeneity of variance assumption was tested for using the levene's test that returned a non-significant result and hence the homogeneity of variance was tenable for the data.

Statistical modelling

According to Child (1990) exploratory factor analysis (principle component analysis (PCA)) is used to explore the possible underlying factor structure of a set of observed variables without imposing a preconceived structure on the outcome. Nevertheless, CFA is needed to verify the factor structure of a set of observed variables in order to test the hypothesis that a relationship exists between the observed variables and their underlying latent construct(s). Having performed PCA – essential to determine underlying constructs for a set of measured variables – using SPSS version 19.0, and in line with our objectives, the present study proceeded to apply SEM using AMOS version 18 to determine the adequacy of model fit to the data.

SEM is a statistical technique for testing and estimating causal relations using a combination of statistical data and qualitative causal assumptions (Wright, 1921; Haavelmo, 1943; Simon, 1953 and Judea, 2000). SEM allows both confirmatory and exploratory modelling, meaning they are suited to both theory testing and theory development. Confirmatory modelling usually starts out with a hypothesis that gets represented in a causal model. The concepts used in the model must then be operationalised to allow testing of the relationships between the concepts in the model. The model is tested against the obtained measurement data to determine how well the model fits the data. The causal assumptions embedded in the model often have falsifiable implications which can be tested against the data. With an initial theory SEM can be used inductively by specifying a corresponding model and using data to estimate the values of free parameters. Among the strengths of SEM is the ability to construct latent variables: variables which are not measured directly, but are estimated in the model from several measured variables each of which is predicted to "tap into"

the latent variables. This allows the modeler to explicitly capture the unreliability of measurement in the model, which in theory allows the structural relations between latent variables to be accurately estimated. Factor analysis, path analysis and regression all represent special cases of SEM.

This study therefore, estimated the models of effective board governance, intellectual capital and firm performance by employing SEM. This study used SEM because it addresses the issue of measurement error, and simultaneously estimates a system of structural equations. SEM is a comprehensive statistical approach to testing hypotheses about relations among observed and latent variables (Hoyle, 1995). According to Rigdon (1998) it is also a methodology for representing, estimating and testing a theoretical network of (mostly) linear relations between variables and according to MacCallum and Austin (2000) tests hypothesised patterns of directional and non-directional relationships among a set of observed (measured) and unobserved (latent) variables. SEM therefore helps in understanding the patterns of correlational/covariance among a set of variables and according to Kline (2011) explains as much variance as possible with the model specified. We used the estimation procedure in AMOS 18 (Arbuckle, 2009) to construct the models. The measurement and structural models were estimated sequentially to reduce interpretational confounding and to limit complexity (Anderson and Gerbing, 1988). The overall fit of our models were tested using the following fit criteria: The χ^2 test which is an absolute test of model fit requires that the model is rejected if the p-value is < 0.05; root mean square error of approximation (RMSEA) should be < 0.06 and Tucker-Lewis Index (TLI) values of 0.95 or higher (Hu and Bentler, 1999). Others like Kim (2007) and Yang (2006) recommend goodness of fit (GFI) > 0.90, adjusted goodness-of-fit index (AGFI) > 0.85, TLI > 0.95, CFI > 0.90, RMSEA < 0.08 as acceptable GFI indices. This study utilised the critical ratio for statistical significance of parameter estimates, which represents the parameter estimate divided by its standard error and as such operates as a Z-statistic in testing that the estimate is statistically different from zero. Based on a probability level 0.05, then, the test statistic needs to be $> \pm 1.96$ before the hypothesis (that estimates equal 0.0) can be rejected.

Results and discussion

Measurement models

Before estimating the hypothesised model, that is the mediating effect of intellectual capital in the relationship between board governance and firm performance, it was necessary to estimate the measurement models for board governance and intellectual capital. Below are the results of this exercise.

Measurement model for board governance. The board governance measurement model in Figure A1 in appendix shows an NFI of 0.952, which indicated strong convergent validity. The χ^2 value of 24.197 is non-significant at the 0.05 level: its p-value is 0.450 suggesting that the model fitted the data acceptably in our population. This was substantiated by other fit indices: RMSEA = 0.008, TLI = 0.999, GFI = 0.958 and AGFI = 0.922. The average variance extracted (AVE) which assesses discriminant validity and should be above 0.5 (Fornell and Larcker, 1981) is 0.60. The observed factor loadings compared with their standard errors revealed evidence of an association between effective board governance and its respective constructs (Koufteros, 1999). As for item reliability, the multiple regressions which are the same as R^2 were used (Koufteros, 1999). In general, an R^2 value above 0.5 is considered an acceptable reliability for each item (Bollen, 1989). Except for tb20 and tb22, the other

items turned out to be well over the criterion of 0.05 and thus each item was a reliable factor for effective board governance.

Measurement model for intellectual capital. Table I shows a summary of statistics for intellectual capital measurement model. In particular, it is noted that there are five models in respect of employee safety, entrepreneurship skills, employee recognition, employee welfare and entrepreneurship development, and their observed variables can be discerned in appendix to this paper (Figures A3-A7). There are also two models denoting organisational capital (O. Capital – Figure A8) and structural capital (S. Capital – Figure A9). The measurement model for these returned an AVE of 0.586. However, literature indicates that the intellectual capital items in the human capital category can be clustered into five sub-categories of employee safety, entrepreneurial skills, employee recognition, employee relations, employee welfare and entrepreneurial development (Indra, 2007). Following this precedent we performed further confirmatory analysis using the global variables for the five subcategories. In Figure A10 in the appendix, you will find the human capital model which shows an NFI of 0.942, indicating strong convergent validity (Mark and Sockel, 2001). The model's χ^2 value of 9.774 is non-significant at the 0.05 level: its p-value is 0.202 suggesting that the model fits the data acceptably in our population. More evidence is provided by the RMSEA = 0.056 which is further supported by the TLI result of 0.975. Additionally, GFI = 0.968 and AGFI = 0.932 are larger than 0.9 which reflects a good fit. Accordingly human capital structure of observed variables consists of five item scales for the Ugandan services firms. In Figure A11 in the appendix you will find a model of intellectual capital consisting of human capital, organisational capital and structural capital. This model shows an NFI of 0.996 indicating strong convergent validity according to Mark and Sockel (2001). The model's χ^2 value of 0.312 was non-significant at the 0.05 level: its p-value was 0.577 suggesting that the model also fitted the data well in our population. More evidence was provided by the RMSEA = 0.0001 which was further supported by the TLI result of 1.026. Additionally, GFI = 0.998 and AGFI = 0.990 were larger than 0.9 which reflected a good fit.

From the results in Table I it is discernible that board governance causes the scores observed on control and meetings' organisation, board activity and effective communication. Similarly, intellectual capital causes the scores observed on the measured variables; human capital, organisational capital and structural capital. The measured variables are the individual dimensions of the model of board governance and intellectual capital. The causal effects for intellectual capital are represented by single-headed arrows in Figure A11. e1 through e3 are residual or error variances that also caused response variation in human capital, organisational capital and structural capital.

Model	df	χ^2	p	NFI	TLI	GFI	AGFI	RMSEA
Three-factor CFA model (safety)	1	0.054	0.817	1.000	1.013	1.000	0.998	0.0001
Three-factor CFA model (skill)	1	0.056	0.812	1.000	1.023	1.000	0.998	0.0001
Three-factor CFA model (recognition)	1	0.024	0.876	1.000	1.022	1.000	0.999	0.0001
Four-factor CFA model (welfare)	2	0.019	0.991	1.000	1.034	1.000	10.000	0.0001
Three-factor CFA model (development)	1	0.314	0.575	0.998	1.013	0.998	0.990	0.0001
Three-factor CFA model (O. Capital)	1	0.023	0.878	1.000	1.027	1.000	0.999	0.0001
Three-factor CFA model (S. Capital)	1	0.422	0.516	0.995	1.023	0.998	0.987	0.0001
Overall three-factor CFA model (IC)	1	0.312	0.577	0.996	1.026	0.998	0.990	0.0001

Table I.
Summary statistics for intellectual capital measurement model

Testing the hypotheses

Before performing the SEM analysis for hypotheses testing, we examined the hypothesised measurement model and it showed an acceptable fit. This enabled us to proceed to SEM. The results of the analysis are depicted in Figure 1.

The SEM model in Figure 1 indicates a good fit. A careful look at the standardised regression weights indicates that intellectual capital significantly predicts firm performance ($\beta = 0.530$), p (two-tailed) < 0.05 and also board governance predicts intellectual capital ($\beta = 0.807$), p (two-tailed) < 0.001. This means that *H2* which states that "intellectual capital will have a positive and significant relationship with firm financial performance" and *H3* which states that "board governance will have a positive and significant relationship with intellectual capital" are substantiated.

The direct relationship between board governance and firm performance is significant ($\beta = 0.510$), p (two-tailed) < 0.001 (see also the Model in Figure A2 in the appendix which reflects a good fit). Based on this evidence, *H1* which states that board governance will have a positive and significant relationship with firm financial performance was supported. Moreover, this set the stage for testing our *H4* which states that "intellectual capital mediates the relationship between board governance and firm financial performance" (Table II).

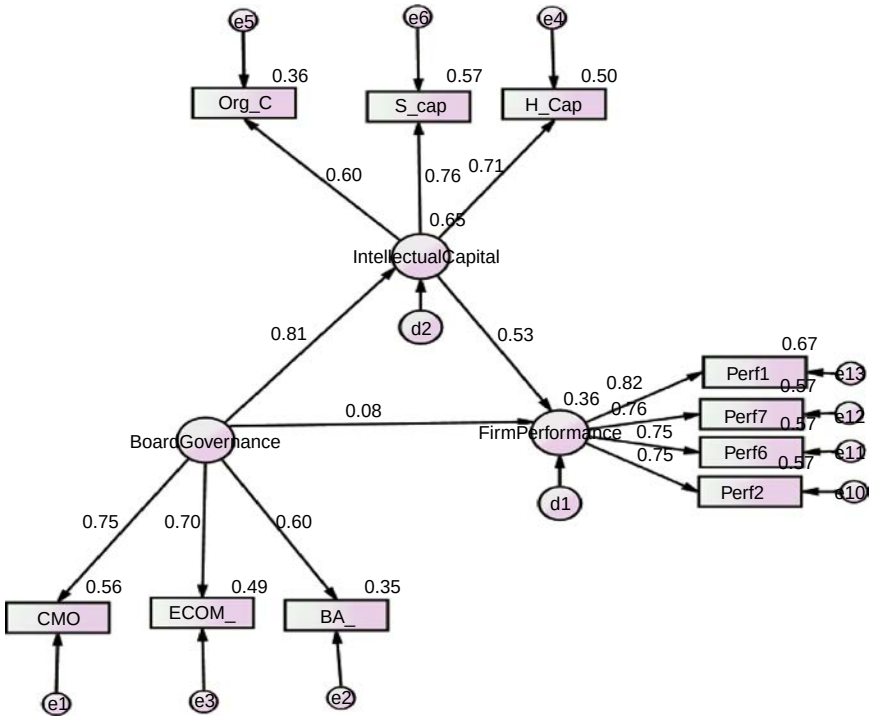

Figure 1.
The mediated SEM model showing the board governance, intellectual capital and firm performance

Notes: CFA for Board Governance, Intellectual Capital, Board Role performance and Firm Performance. CMO, Control and Meetings' organization; ECOM, Effective communication; BA, Board activity/roles; H-Cap, Human Capital; S_cap, Stractural capital; Org_C, Organisational capital; $\chi^2 = 50.096$, df = 32, $p = 0.022$, GFI = 0.931, AGFI = 0.882, RMR = 0.008, TLI = 0.946, CFI = 0.962, NFI = 0.903, RMSEA = 0.067

The position of this study in developing the hypotheses had been that intellectual capital will mediate the relationship between board governance and perceived firm financial performance. From a conceptual perspective, the most common application of mediation is to "explain" why a relationship between two constructs exists. In this paper the intellectual capital clarifies or explains the relationship between board governance and intellectual capital. To understand how mediating effects are shown in SEM model, we examined the model in terms of direct and indirect effects (see Table III). SEM is considered for assessing mediation because it offers a reasonable way to control for measurement error as well as some interesting alternative ways to explore the mediation effect (Baron and Kenny, 1986; Holmbeck, 1997; Hoyle and Kenny, 1999; Judd and Kenny, 1981; Kline, 1998). Models involving latent variables with multiple measured indicators are inherently corrected for measurement error by estimating common and unique variance separately. This, in turn, increases the likelihood that indirect effects, if present, will be discovered. More complicated mediation models, such as those with several mediators linked serially or operating in parallel (or both), can be explored in the context of SEM with any combination of latent or measured variables. The normal theory approach developed by Sobel (1982) has been incorporated in popular SEM software applications (Jöreskog and Sörbom, 1996) and EQS (Bentler, 1997), and it is discussed in the context of SEM by Bollen (1987) and Brown (1997). A bootstrapping approach to assessing indirect effects is implemented in the current version of AMOS (Arbuckle and Wothke, 1999).

Table III and Figure 1 show that the standardised total effect of board governance on firm performance is significant ($\beta = 0.507$). However, when the paths coefficients of the relationship between board governance and intellectual and also that of the relationship between intellectual capital and firm performance are controlled,

Mediated model	Unstandardised coeff.	SE	CR	Standardised coeff.	p
Intellectual Capital ← Board Governance	0.543	0.096	5.649	0.807	***
Firm Performance ← Board Governance	0.101	0.306	0.331	0.080	0.740
Firm Performance ← Intellectual Capital	10.006	0.472	2.134	0.530	0.033
Direct regression					
Firm performance ← Board governance	0.641	0.152	4.205	0.510	***

Notes: p (two tailed) $p^{***} < 0.0001$

Table II.
Regression weights of the mediated model and the unmediated model (direct regression)

	Board governance	Intellectual capital	Firm performance
Standardized total effects			
Intellectual capital	0.807	0.000	0.000
Firm performance	0.507	0.530	0.000
Standardized direct effects			
Intellectual capital	0.807	0.000	0.000
Firm performance	0.080	0.530	0.000
Standardized indirect effects			
Intellectual capital	0.000	0.000	0.000
Firm performance	0.428	0.000	0.000

Table III.
Showing direct and indirect effects of board governance, intellectual capital and firm performance

the original significant path between board governance and firm performance now becomes insignificant ($\beta = 0.080$ as opposed to previous $\beta = 0.507$). The difference is the indirect effect ($\beta = 0.428$). This means that there is full mediation of intellectual capital on the relationship between board governance and firm performance. This result substantiates our *H4*. Overall, the mediated model explains 36 per cent of the variance in perceived firm performance. In other words, the error variance is 64 per cent of perceived firm performance itself.

Discussion

The results indicate that intellectual capital is a significant predictor of firm performance. It is also a significant mediator in the relationship between board governance and firm financial performance. These results are particularly significant because previous studies used market value measures or market-to-book value ratios or simply book value ratios such as ROA as measures of performance to analyse the relationship between intellectual capital and firm performance (Bontis *et al.*, 2000; Firer and Williams, 2003; Riahi-Belkaoui, 2003; Chen *et al.*, 2004; Chen *et al.*, 2005; Wang and Chang, 2005; Huang and Liu, 2005; Tseng and Goo, 2005; Anshori and Iswati, 2007; Ghosh and Mondal, 2009; F-Jardón and Martos, 2009; Ting and Lean, 2009; Zeghal and Maaloul, 2010; Mohammad, 2012). Using qualitative factors for board governance and intellectual capital to predict the perceived firm financial performance by managers and directors, this study offers a unique dimension in understanding the causes of poor performance from the antecedent point of view. The results show that appropriate intellectual capital which causes the scores observed on human capital, organisational capital and structural capital must intervene to cause good firm performance when originally, board governance is effective. Consistent with the original hypothesis, results revealed that the relationship between board governance (which causes the scores observed on control and meetings' organisation, board activity and effective communication) and intellectual capital is significant and strong. This result is consistent with the notion that effective board governance will enhance the quality of intellectual capital in organisations. Indeed the understanding of Edvinsson and Sullivan (1996) that intellectual capital can be converted into value suggests that intellectual capital must be harnessed in organisations by appropriate board governance. The results of this study that show that board governance determines intellectual capital in firms are equally telling. For this reason intellectual capital explains the relationship between board governance and firm performance. Without intellectual capital as a mediator, the direct relationship between board governance and firm performance can possibly be regarded as spurious.

Thus, this study supports those claims that process variables account for significant variations in board governance (Cornforth, 2001). The results of this study agree with Heuvel *et al.* (2006) and Babić *et al.* (2011) who reviewed literature and found that conceptual and methodological improvements could broaden our understanding of board governance. In essence, the proper understanding of board governance would in turn help in the understanding and explanation of firm financial performance. The results of this study therefore add to the conceptual improvement in board governance and intellectual capital studies and lend considerable support for the behavioural perspective in the study of boards and firms' intangible resources and their financial performance improvement potential. They also answer the call by Vafeas (1999) who noted that the quality of board meetings is an important area for further research. Moreover, the findings are consistent with the notion that intellectual capital is the

total stock of human capital or knowledge-based equity that a firm possesses (Bueno *et al.*, 2004) reflecting the special skills of employees (Cohen and Kaimenakis, 2007; Schiuma *et al.*, 2008). Consistent with the taxonomy provided by Roos *et al.* (2005) regarding human capital, the results show that human capital in Uganda is a composite of employee recognition, knowledge, functional skills and experience (in form of entrapreneurial skills and development) and rewards. Similarly, the results of this study do not differ materially from Abeysekera's (2007) identification of the constituents of human capital.

The results are also not at variance with Blaug's (1976) understanding of human capital, over 35 years ago, of welfare and skills' acquisition and this confirms that human capital theory is indeed rooted in the concept that individuals possess knowledge, skills or experiences (Becker, 1964). This together with the employers' need to improve work conditions (employee safety) or work environment (Werhane, 2008) appears to provide further evidence for the beliefs of Barney (1991) and Wernerfelt (1984) that intellectual capital may help firms to develop new competences, resources and capabilities. The study's results indicate managers ensuring compliance using employee safety plans, correct health and safety plan implementation and identification including dealing with potential risk to employees during the employee safety plans are all significant for the general safety of employees. In light of this, this study underlies the importance of investments in employee safety and entrapreneurial skills that should unlock their potentialities. More so, the quality of the relationships and the ability to create new customers are key factors for the success of a company (Montequin *et al.*, 2006) and so this study establishes this as employee skills. Moreover, and still consistent with the works of Roos *et al.* (2005), the results confirm what is perceived to be organisational capital as documented systems that are reproduced and shared within the firm. Specifically, Ugandan service firms' directors and managers perceive organisational capital to be established administrative systems and manuals that are reproduced and shared. Moreover, Nkundabanyanga *et al.* (2011) found eight components explaining intellectual capital in Uganda and concluded that the study of intellectual capital was very much in its infancy and so their study advanced the search for an acceptable definition of intellectual capital. Thus, whereas the development of intellectual concept is still relatively incipient, the overall results suggest that in Ugandan service sector firms, intellectual capital is perceived by managers and directors as a composite of organisational capital, human capital and structural capital.

The results of this study mean that while proper board governance is important for firm performance, the total effect on financial performance is enhanced by board governance and intellectual capital, which is consistent with the RBV theory and the service role of the board in matters of strategy. It is also consistent with the arguments made by Peng (2011) that organisations should deploy and manage their intellectual capital resources to maximise value creation and the realisation by Sullivan (2000) that intellectual capital can be converted into profit. The results of this study suggest a shift in the paradigm where, consistent with the agency theory's espoused control role of the board, the board often reacts to poor performance by firing the chief executive, for example, to the need to discipline the board by shareholders in case of poor performance of a firm resulting from their (the board) failure to develop and leverage the firm's intellectual capital. This study therefore lends support to those criticisms often against the board that it is not doing its job in case of poor performance. The argument made by Keenan and Aggestam (2001) that there is a connection between

corporate governance (read, board governance) and intellectual is vindicated; but a clarification is made that the latter mediates the connection between board governance and firm financial performance.

The findings of previous studies of no direct relationship between corporate boards and firm performance (Van Essen *et al.*, 2012) might be because of ignoring the mediating role of firm's intellectual capital. Calls for the formulation of a general theory of intellectual capital (Martí, 2003) are supported by the results of this study. This study indicated that human capital is an important leading (observed) factor in the intellectual capital equation. As this study suggests that intellectual capital mediates the relationship between board governance and firm performance, it lends support for Martí's (2003) arguments. This researcher argued that strategy formulation and execution is always a human task and is in the hands of the top management team and the firm's most important technicians and managers who are its key professional people. This is consistent with the stewardship theory. Similarly, the ideas of Martí (2003) suggest that whereas the board should formulate strategy, this strategy must be executed by managers, the technical and professional people in the organisation. This emphasises knowledge and experience of people (human capital), which has to be present if the strategy by the board is to lead to good firm performance.

In sum, this study examined the mediating effect of intellectual capital on the relationship between board governance and firm performance and found that it is a full mediator. We surveyed 128 managers and members of the board (directors). Putting forward and testing a total of four hypotheses, the results showed good model fits. The model of effective board governance in Uganda is comprised control and meetings' organisation, board activity and effective communication; and the nine scales by which to gauge the three conceptual dimensions. The model of intellectual capital comprised of seven dimensions and the 22 scales by which to gauge the three conceptual dimensions of intellectual capital is reported. The mediated model provides support for the hypothesis that intellectual capital mediates the relationships between board governance and firm performance. Overall the model explains about 36 per cent of the variance in perceived financial performance of firms. Thus, the results of this study have provided the reason why the relationship between board governance and firm financial performance exists. In particular, the significant mediation effects of intellectual capital explain how the inputs of board governance translate into outputs, i.e. firm financial performance. As such intellectual capital explains the relationship between board governance and firm financial performance.

Conclusions

Board governance and intellectual capital are true drivers of firm financial performance. However, while the direct relationship between board governance and firm financial performance without the mediation effect of intellectual capital was found to be significant, this relationship becomes insignificant when mediation of intellectual capital is allowed. This concludes that the entire effect does not only go through the main hypothesised predictor variable (board governance) but majorly also, through intellectual capital. This signifies that the connection between board governance and firm financial performance is very much weakened by the presence of intellectual capital in the model – confirming that the presence of intellectual capital significantly acts as a conduit in the association between board governance and firm financial performance. Accordingly, the specific mechanism or pathway by which a relationship occurs between board governance and firm financial

performance is insignificantly direct; nevertheless intellectual capital significantly fully mediates the connection between board governance and firm financial performance. In considering the behavioural constructs of the board, factor analysis revealed that a new integrative framework for board effectiveness is much needed as a starting point, followed by examining intellectual capital in firms whose mediating effect should formally be accounted for in the board governance-financial performance equation.

Implications

Based on the results of this study, a number of issues call for the attention of researchers/academicians and practitioners and/or society. Service firms in Uganda, policy makers, company boards and management could use these findings as a guideline on what to focus on in the context of board governance and intellectual capital in order to improve firm financial performance. Although the board of directors (and board governance, for that matter) is very much emphasised by corporate governance codes and the Companies Act Cap.110 and the manual on corporate governance in Uganda, directors and managers should realise that board governance cannot be completely divorced from intellectual capital. According to Edvinsson and Sullivan (1996), intellectual capital is knowledge that can be converted into value. In essence, boards of directors should strive to improve the intellectual capital content of firms because this will lead to desired firm financial performance. By improving the quality of board governance and intellectual capital, Ugandan boards will demonstrate their relevance in company direction and improvement of company performance to the benefit of all stakeholders. On the academic front, moreover, it is always a sign of a maturing discipline to examine the role of a third variable in the relationship so as to make meaningful conclusions. In doing this, this study tested theories of mediating effects so as to uncover real vs spurious relationships in the phenomenon that addressed firm financial performance in service firms. Since this study demonstrated that the intervention of a third variable (intellectual capital) in the model influences change and is therefore effective, researchers are advised not to underrate its role in the services sector firms literature, especially when dealing with corporate governance predictive potential of firm financial performance. In support of this assertion, we invoke the observation of Rosenberg (1968) and Friedrich (1982) that a relationship study that does not address the mediating mechanism ends with facts although with incomplete understanding. For this reason, researchers are cautioned not to underestimate the intervention of a third variable in research if more explanation for an outcome is desired.

Limitations and future directions of research

As with any study, there are a number of limitations with the present study. The questionnaire was self-administered and we did not undertake follow-up interviews which would have informed us of the reasons why the respondents held certain views. Additionally, the present study was limited to the services sector firms registered and operating in Kampala, Uganda and it is possible that the results are only applicable to this sector in Uganda. More so, the present study is cross-sectional; it is possible that the views held by individuals may change over the years. Finally, although the constructs have been defined as precisely as possible by drawing upon relevant literature and theory, the measurements used may not perfectly represent all the dimensions. For example board governance concept (used here as a behavioural concept) is very much in its infancy just as intellectual capital is. Similarly we

have employed perceived firm financial performance as proxy for firm financial performance. The implication is that the constructs used/developed can realistically only be proxies for an underlying latent phenomenon that itself is not fully measureable.

Future studies may wish to test our model in explaining variances in firm financial performance using hard accounting data rather than board and managerial perceptions of firm financial performance. Additionally, future research could use the same basic hypotheses, but implement the study in terms of a longitudinal rather than a cross-sectional design and, also test the model in other economies. The longitudinal study would be to correct changes in data relative to the time element and, together with testing the model in other economies, also concretise the constructs that may presently seem unsettled.

In spite of the limitations, policy makers of Uganda and perhaps other developing nations dealing with financial markets, academicians, company directors, company owners and even general readers interested in the field of corporate governance and intellectual capital development might find this study useful.

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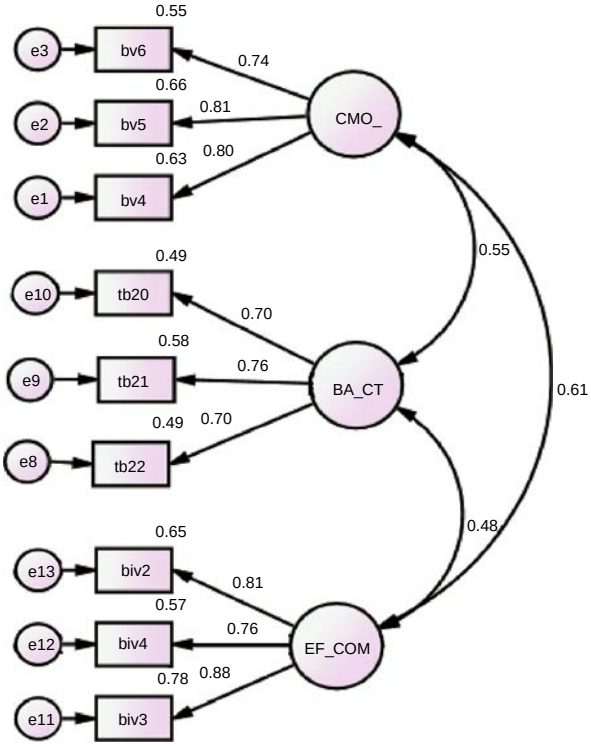
Appendix



Notes: χ^2 = 24.197, df = 24, p = 0.450, GFI = 0.958, AGFI = 0.922, RMR = 0.010, TLI = 0.999, CFI = 1.000, NFI = 0.952, RMSEA = 0.008; COM_ , Control and meetings' organization; BA_CT = Board activity; EF_COM, Effective communication. bv4, There is good time-management for meetings; bv5, There is clear dialogue and communication; bv6, Voting results in full commitment of all decisions; bv3, Board papers are delivered to members in advance; biv4, Notices of board meetings are sent in advance; biv2, Our board makes clear minutes. tb21, Our board is rigorous in delegating operational management to the executive group; tb22, Our board builds stronger controls and processes that ensure that power supports the needs of the company and not the ambitions of individuals; tb20, Our board makes greater use of a management committee, chaired by the chief executive directors and key managers and the deliberations are reported to board in full

Figure A1.
Board governance model with all the observed and latent variables

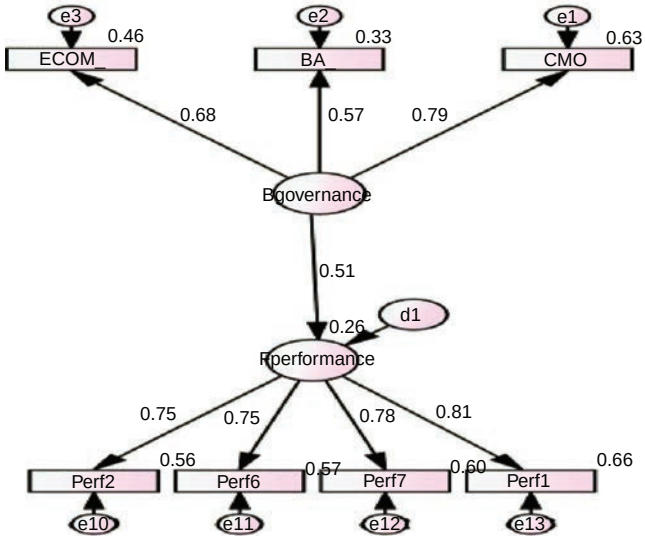


Figure A2.
The direct relationship between board governance and firm performance

Notes: χ^2 = 15.124, df = 13, p = 0.300, RMR = 0.005, GFI = 0.970, AGFI = 0.934, TLI = 0.989, CFI = 0.993, NFI = 0.954, RMSEA = 0.036

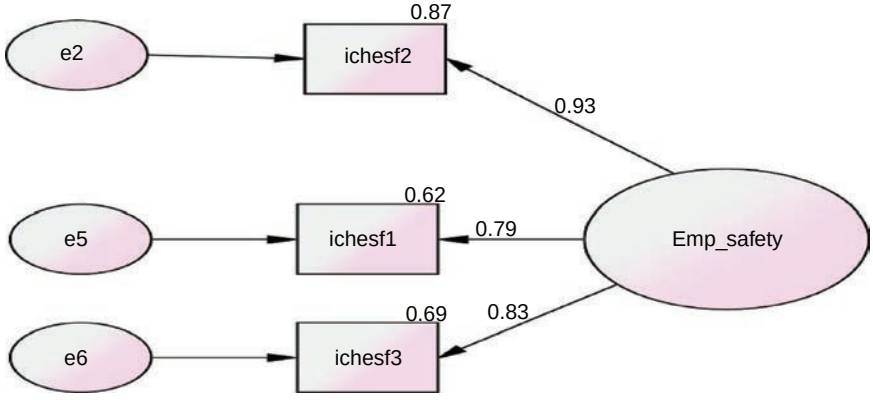
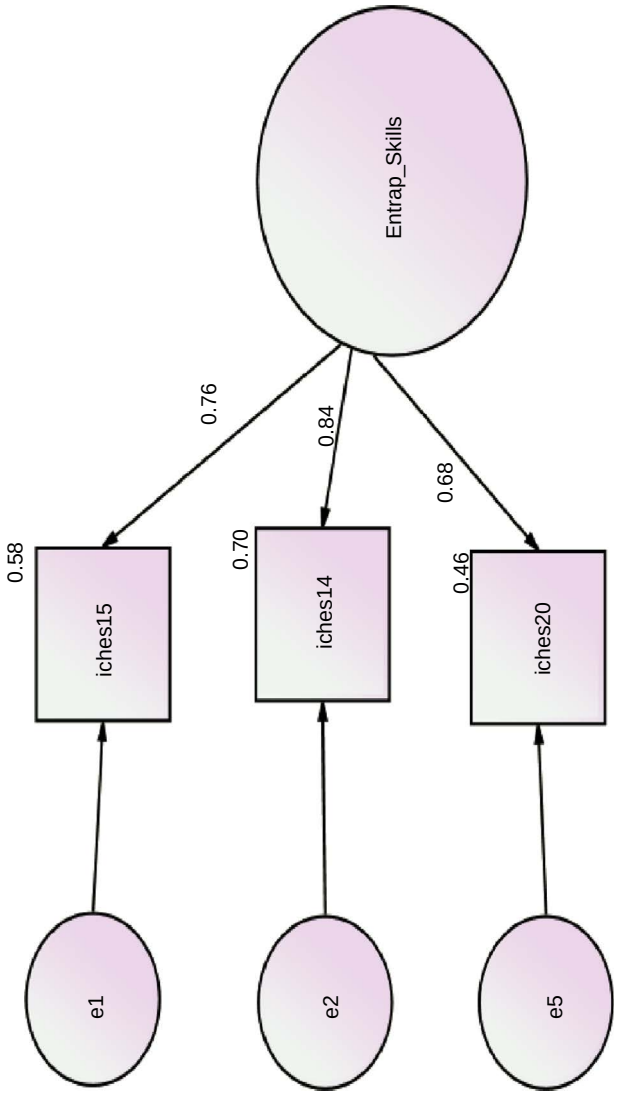


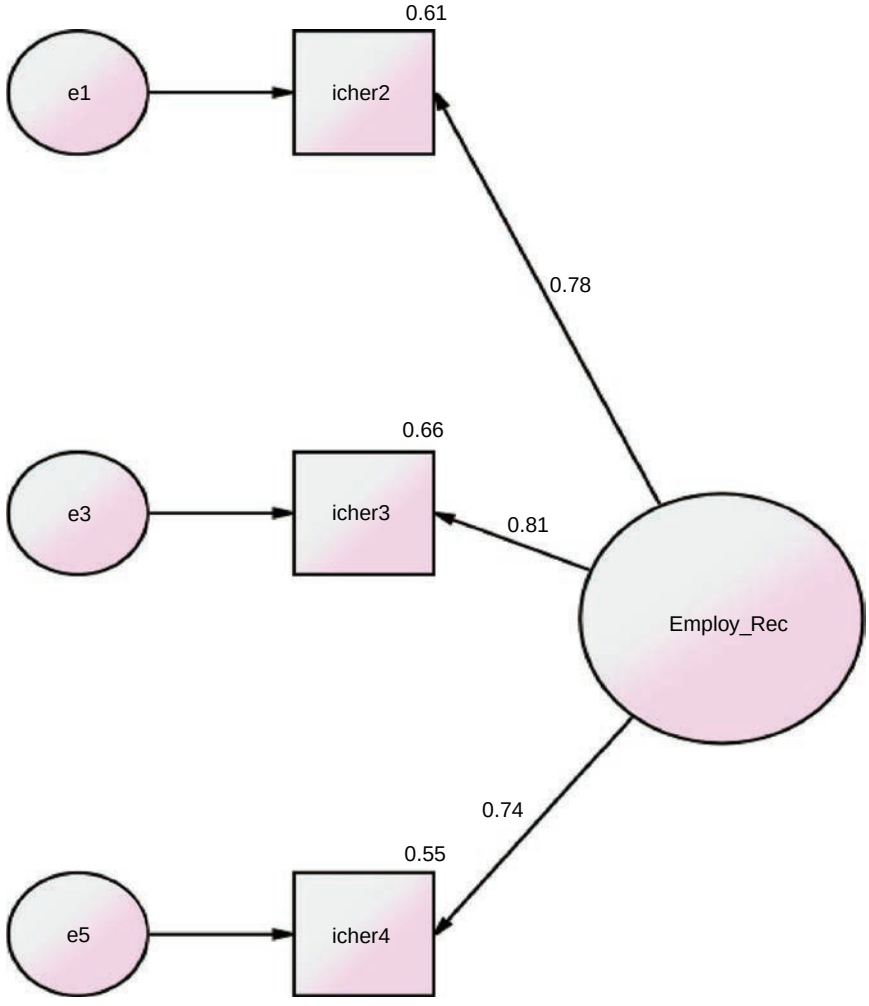
Figure A3.
Confirmatory factor analysis for employee safety

Notes: χ^2 = 0.054, df = 1, p = 0.817, GFI = 1.000, AGFI = 0.998, RMR = 0.002, TLI = 1.013, CFI = 1.000, NFI = 1.000, RMSEA = 0.000; ichesf2, Managers in this organization ensure compliance using employee safety Plans; ichesf1, Managers in this organization ensure correct health and safety plan implementation; ichesf3, Potential risks to employees are identified and dealt with during the employee safety plans



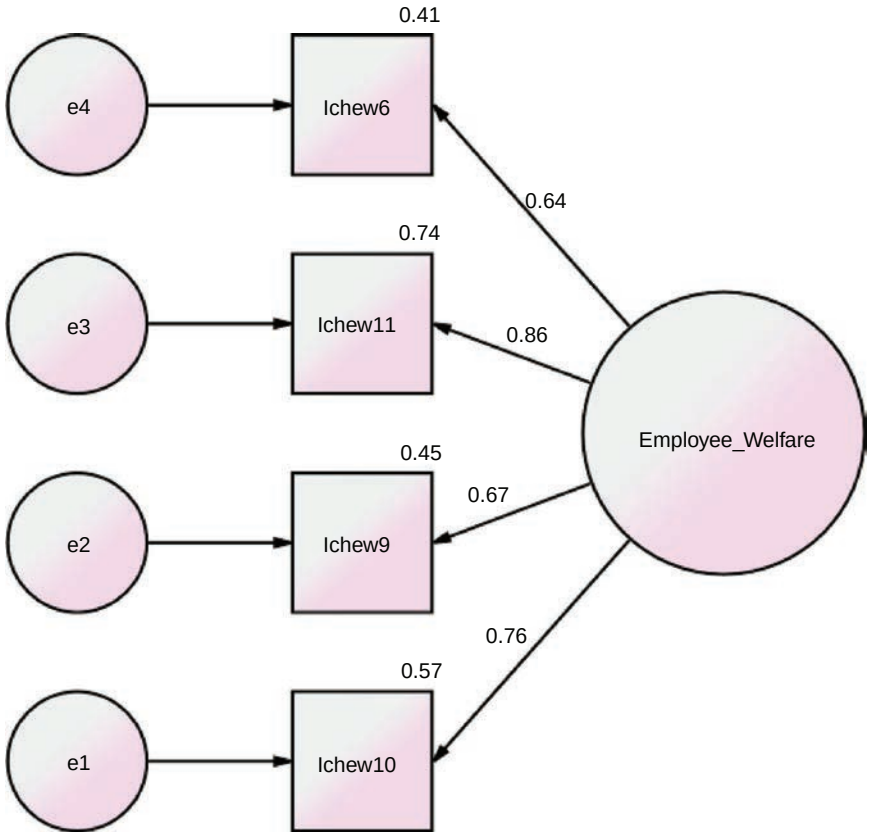
Notes: $\chi^2 = 0.056$, df = 1, $p = 0.812$, GFI = 1.000, AGFI = 0.998, RMR = 0.001, TLI = 1.023, CFI = 1.000, NFI = 1.000, RMSEA = 0.000. iches15, People in this organization communicate across technical boundaries as innovations often start at borders rather than within a set area of expertise; iches14, People in this organization co-operate with other experts such as marketing, R&D, external suppliers, service providers, customers; iches20, People in this organization have high need for achievement

Figure A4.
Confirmatory factor analysis for entrepreneurship skills



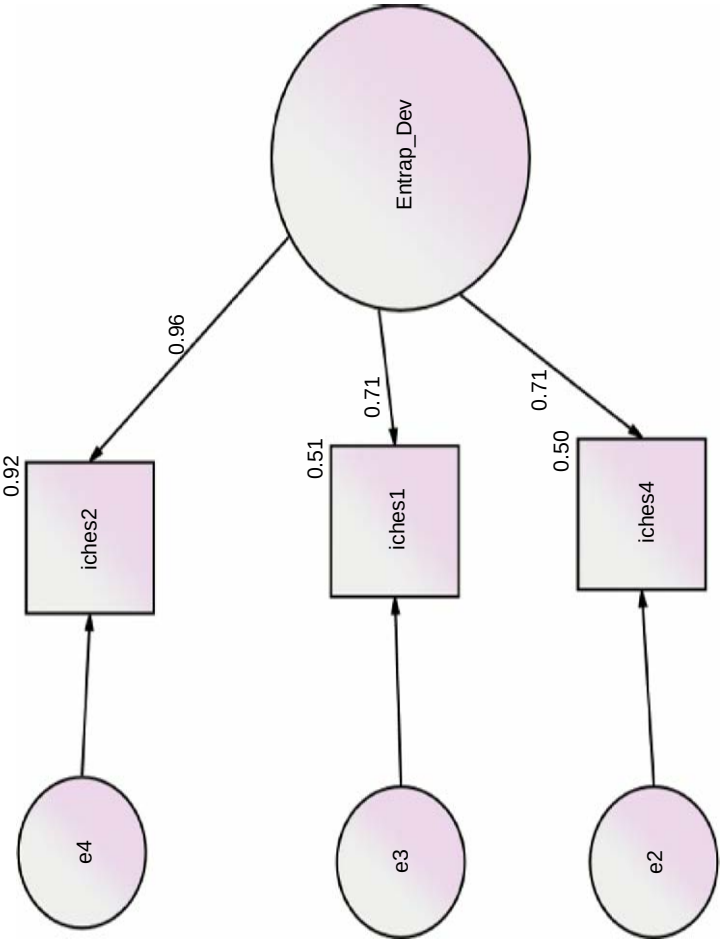
Notes: χ^2 = 0.024, df = 1, p = 0.876, GFI = 1.000, AGFI = 0.999, RMR = 0.001, TLI = 1.022, CFI = 1.000, NFI = 1.000, RMSEA = 0.000. icher2, In this organization, employees get thanked for better performance; icher3, In this organization employees are encouraged to succeed in life; icher4, In this organization employees are featured when they make spectacular contributions to the organization

Figure A5.
Confirmatory factor analysis for employee recognition



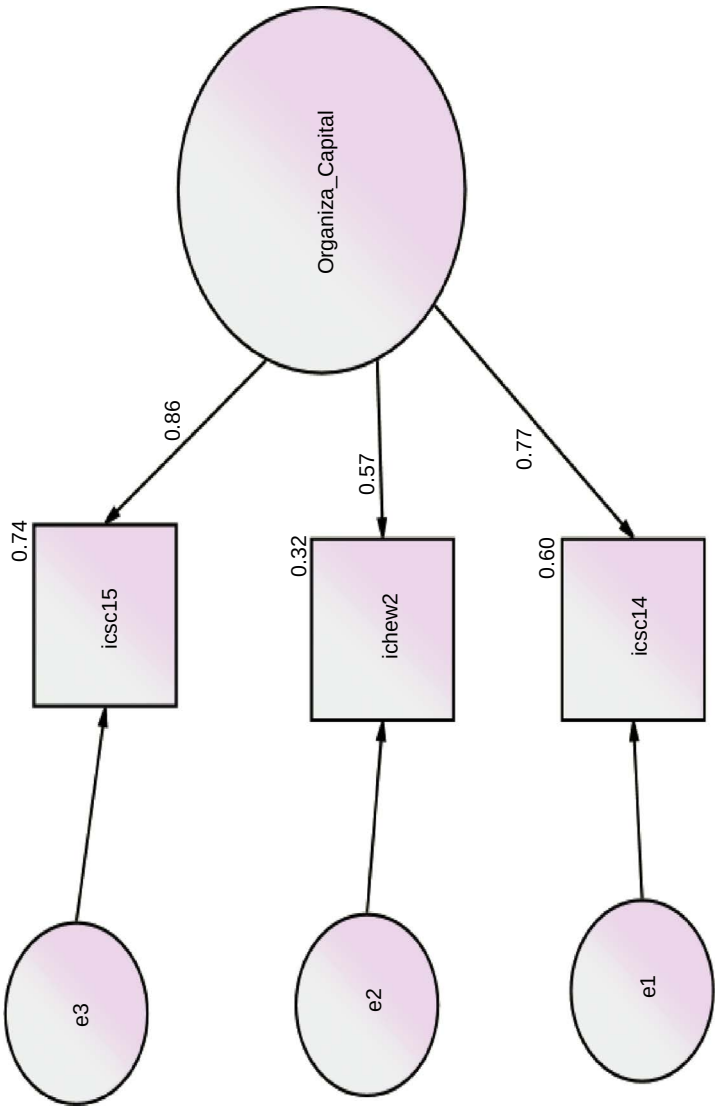
Notes: χ^2 = 0.019, df = 2, p = 0.991, GFI = 1.000, AGFI = 1.000, RMR = 0.000, TLI = 1.034, CFI = 1.000, NFI = 1.000, RMSEA = 0.000. ichew6, This organization encourages socialization events, ceremonies, and corporate events such as the family day and foundation day; ichew11, This organization instigates comprehensive employee welfare; ichew9, This organization has staff canteens or lunch subsidy; staff buses; children scholarships; car loans, housing allowances and wardrobe allowances; ichew10, In this organization, there is always an upward review of salaries \and welfare packages at intervals

Figure A6.
Confirmatory factor analysis for employee welfare



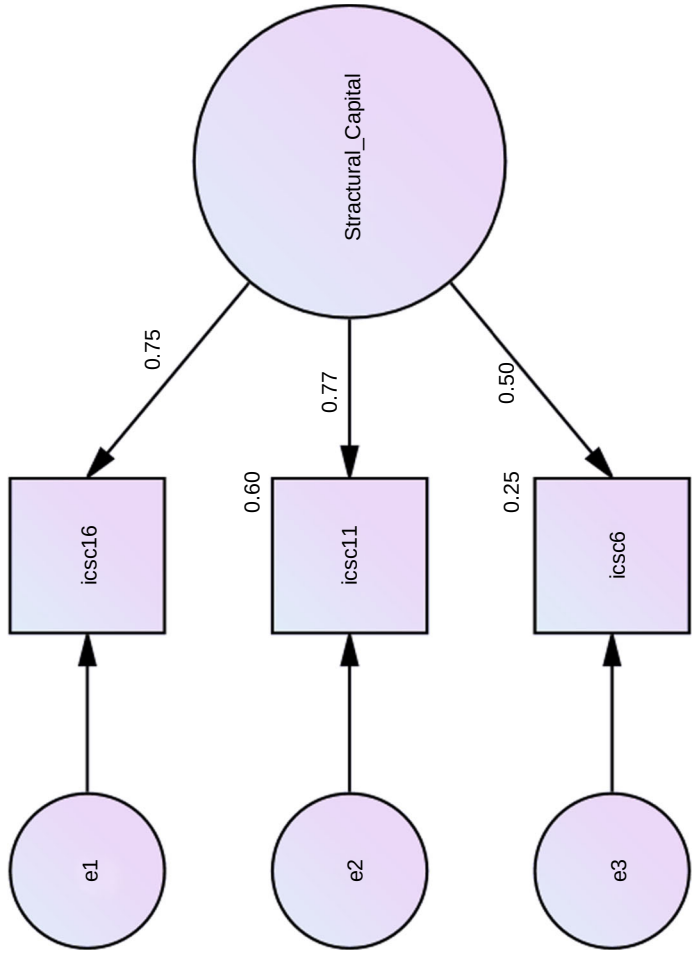
Notes: χ^2= 0.314, df = 1, p = 0.575, GFI = 0.998, AGFI = 0.990, RMR = 0.004, TLI = 1.013, CFI = 1.000, NFI = 0.998, RMSEA = 0.000. iches2, This organization enables the skills development of intrapreneurs; iches1, This organization establishes frameworks to encourage intrapreneurial processes; iches4, The staff in company persist in new ideas and creative thought

Figure A7.
Confirmatory factor analysis for entrepreneurship development



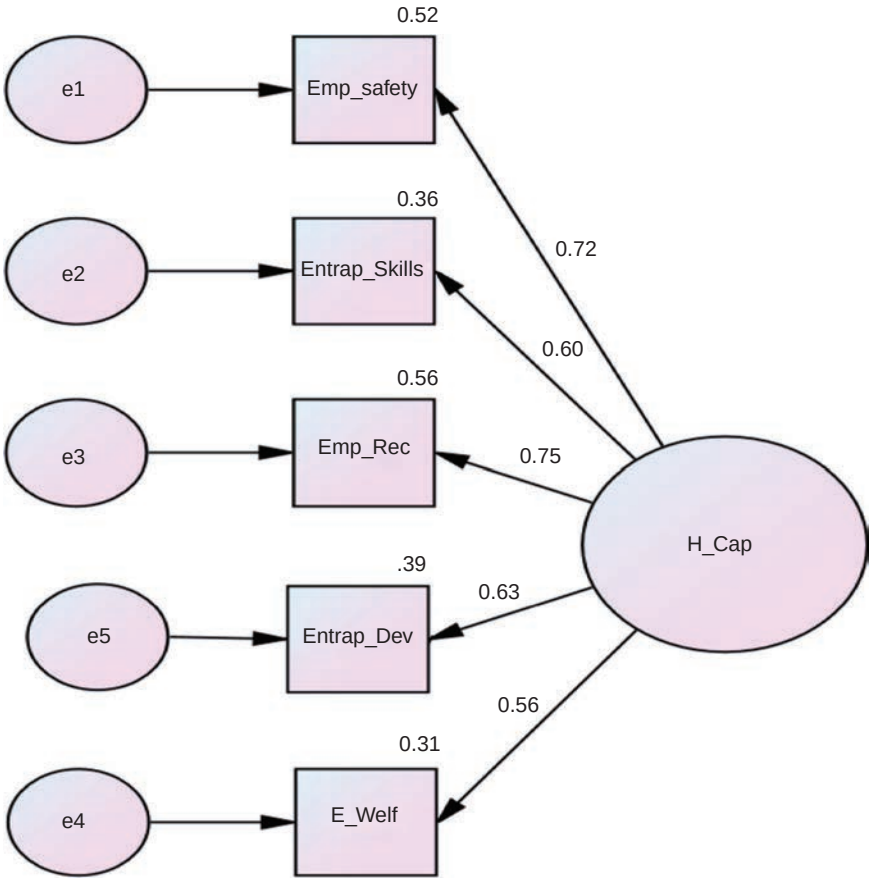
Notes: $\chi^2 = 0.023$, df = 1, $p = 0.878$, GFI = 1.000, AGFI = 0.999, RMR = 0.001, TLI = 1.027, CFI = 1.000, NFI = 1.000, RMSEA = 0.000. icsc15, We have well established administrative systems which are owned by the organization and are reproduced and shared; ichew2, This company offers appropriate maternity leave benefits; icsc14, We have well established manuals which are owned by the organization and are reproduced and shared

Figure A8.
Confirmatory factor analysis for organisational capital



Notes: $\chi^2 = 0.422$, df = 1, $p = 0.516$, GFI = 0.998, AGFI = 0.987, RMR = 0.004, TLI = 1.023, CFI = 1.000, NFI = 0.995, RMSEA = 0.000. icsc16, The technology we use here is up-to-date; icsc11, The organization's investment in databases and management information systems is appropriate; icsc6, This organization encourages suppliar contracts

Figure A9.
Confirmatory factor analysis for structural capital



Notes: χ^2 = 9.774, df = 7, p = 0.202, GFI = 0.968, AGFI = 0.932, RMR = 0.006, TLI = 0.975, CFI = 0.983, NFI = 0.942, RMSEA = 0.056. H_Cap, Human Capital; Emp_safety, Employee safety; Entrap_Skills, Entrapreneurial skills; Emp_Roc, Employee recognition; Entrap_Dev, Entrapreneurial development; E_Welf, Employee welfare

Figure A10.
Confirmatory factor analysis for human capital

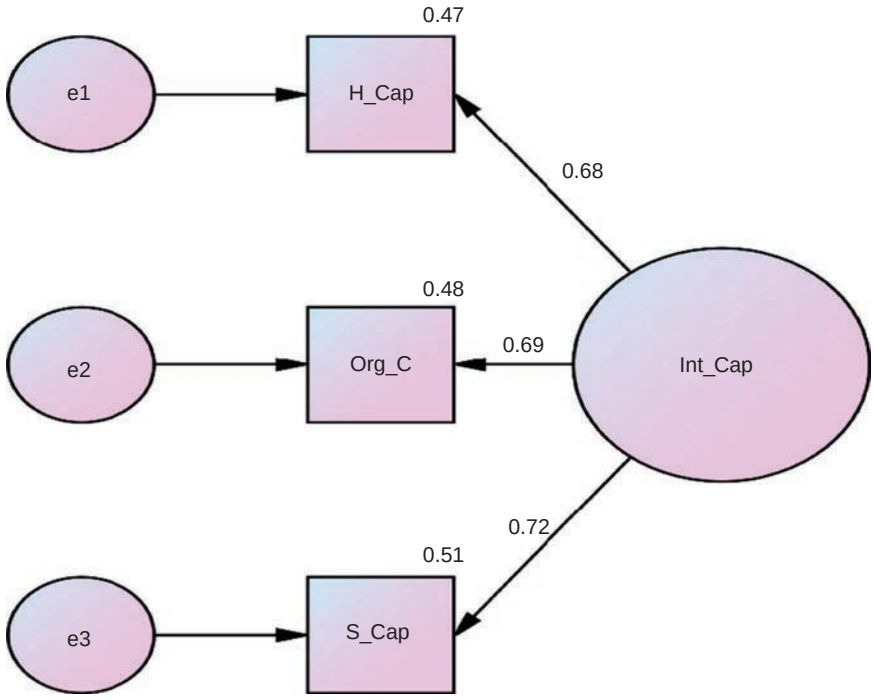


Figure A11.
Intellectual capital with its three dimensions

Notes: H_Cap, Human Capital; Org_C, Organisational capital; S_Cap, Structural capital $\chi^2 = 0.312$, df = 1, $p = 0.577$, GFI = 0.998, AGFI = 0.990, RMR = 0.002, TLI = 1.026, CFI = 1.000, NFI = 0.996, RMSEA = 0.000

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