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Firm characteristics, innovation, financial resilience and survival of financial institutions

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Abstract

Purpose – The purpose of this paper is to examine the relationship among firm characteristics, innovation, financial resilience and survival of financial institutions in Uganda.
Design/methodology/approach – This paper employs a cross-sectional research design, and responses from 143 officers of 40 financial institutions are analyzed using Statistical Package for the Social Sciences. The authors used ordinary least squares regression in testing the hypotheses.
Findings – The authors find that firm characteristics of size, age, innovation and financial resilience have a predictive force on survival of public interest firms such as financial institutions.
Research limitations/implications – The implication drawn here is that a combination of firm characteristics, firm innovation and financial resilience explains a significant contribution in the survival chances of financial institutions. However, as much as firm characteristics and financial resilience are significant, innovation explains more of the variances in financial institutions' going concern appropriateness.
Originality/value – This paper adds to the limited financial institutions literature and provides the first empirical evidence of the efficacy of innovation and financial resilience on financial institutions survival. The auditing profession could consider more seriously the innovation activities and financial resilience of financial institutions in their test for the going concern assumption of such firms.

Keywords Survival, Firm characteristics, Innovation, Going concern, Financial resilience
Paper type Research paper

1. Introduction

This paper focuses on public interest firms than on public firms generally and examines the relationship among firm characteristics, innovation, financial resilience and survival of financial institutions. According to accounting theory, the survival of firms is more evident with the going concern principle where companies are presumed to survive in the nearby future to create a value for key stakeholders of a firm (Liao *et al.*, 2008). Firm survival is the ability of an enterprise to perform consistently and exist for a long period (Liu and Pang, 2013). It is a proactive concept determined to ensure that an enterprise thrives despite the anticipated and unforeseen challenges that can emerge during its existence. More broadly, Geroski *et al.* (2007) assert that business survival creates goodwill, boosts wealth and

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provides continuous flow of GDP to economies. Yet, several giants such as Lehman and Enron have failed to survive (Ashraf, 2011). Global statistics indicate a declining survival rate for firms. According to the Global Entrepreneurship Monitor (2014) Report, the number of business failures rose from 90.2 percent in 2011 to 91.9 percent in 2012. In Uganda alone, instances of failing institutions are widespread (Mutebile, 2016; Muhumuza and Adengo, 2016; Ahaibwe *et al.*, 2014; Tushabomwe-Kazooba, 2006).

Academia has found that the length of existence (Dunne *et al.*, 2010), firm characteristics (Madhoushi and Nasiri, 2011), level of innovation and technology adoption (Cefis and Marsili, 2005), firm diversification (Ramanujam and Varadarajan, 1986) and firm size and performance (Liu and Pang, 2013) have a predictive force on firm survival. At the same time, the evidence relating the survival of firms to these measures is inconclusive. For instance, a study by Huynh *et al.* (2008), in Denmark, concluded that the initial size of the firm is negatively associated with the company's likelihood of exit. Besides, Audretsch and Mahmood (1995) in their study in the USA reported a negative effect of firm size on survival of new firms, but Romanelli (2009) found that this effect is not significant among Portuguese firms. Studies too that have analyzed the relationship between technological innovation and firm survival have presented more ambiguous results, revealing either no relationship, a negative one or a mixture (Wagner, 2009; Segarra and Callejon, 2002). This paper contributes to this stream of literature by examining the contribution of financial resilience and innovation to variances in firm survival. We argue that since auditors have to confirm whether there are events or conditions that may cast significant doubt about the going concern assumption to make their opinion, such conditions should include a firm's innovative and resilience capacity at the time. As to whether this is a plausible consideration has hitherto remained an empirical question we seek to answer.

Except for Bovaird and Quirk (2013), a great deal of firm survival literature has concentrated on predictors of survival of firms excepting financial resilience. Yet according to (Brassett and Holmes, 2016), a crucial trend in post-crisis worldwide financial governance has been the spread of policy agendas and theoretical models designed to build a resilient financial system. According to Cooper (2011), insights from complexity science have been a crucial beginning point for on post-2008 financial regulation at institutions such as the Bank of England. Also in the face of financial uncertainties, Bank of Uganda and Insurance Regulatory Authority, Uganda: Annual Insurance Market Report (2015) required financial institutions under their regulatory mandate to early adopt International Financial Reporting Standard – 9 (IFRS 9). These initiatives accentuate the turn toward resilience as a policy goal of these institutions and broadly suggest that financial institutions are complex systems, so they exhibit uncertainty, unpredictability and the potential for crisis. This is a nature, as Brassett and Holmes (2016) have put it, which helps to enable a policy alignment toward producing resilient subjects capable of surviving and thriving within that context. However, resilience as "adaptive ability" (Simmie and Martin, 2010), i.e. as adaptation that supports successful achievement of goals and objectives, and learning for future planning and preparation (Edson, 2012) has been studied in the contest of improving public resilience (see e.g. Bovaird and Quirk, 2013) and not explicitly as financial resilience. Moreover, the effects of resilience policy responses by financial institutions remain, as earlier indicated, an empirical question.

The other stream of firm survival literature (see Keasey and Watson, 1987; Pittiglio and Reganati, 2015) has sought to answer the question of why some companies (foreign or domestic) exit (or survive) in markets over a given period. This study differs from such research endeavors that address survival as a long-term issue and instead addresses the issue of proxing survival with factors known to indicate going concern problems such as higher gearing, limited profitability and liquidity. Previous studies have measured firm survival as the survival rate (or exit rate) – the number of firms still in existence as a

percentage of the total number of new firms established in that industry in a given base year (see Audretsch, 1991; Pittiglio and Reganati, 2015). The plausible attraction to such a measurement by previous researchers is that it allows the analysis to take a longitudinal stance and making the dependent variable a binary indicator and hence, sometimes, using discrete choice models (logit or probit). While such studies have served readers well, our approach provides readers with a more nuanced approach by looking at survival propensity in terms of its varied indicators as going concern problem indicators. In accounting parlance, going concern is said to be appropriate when a company is presumed to exist in the near future, usually understood as "the next 12 months" in operation. Longitudinal analysis may therefore be less amenable to going concern analysis. Thus, while a financial institution in receivership may be in its exit mode, a highly geared financial institution may indicate that its going concern is in doubt. Establishing factors that may predict the (un) likelihood of going concern problems add to the growing body of literature explaining survival of firms and maybe readily appreciated by accounting and finance connoisseurs. For example, because failure may affect stakeholders such as investors, creditors, shareholders or employees, these stakeholders should be able to predict early potential business failure (Horta and Camanho, 2013). Companies have several responsibilities in terms of producing performance results. According to Argenti (1976), firms have to achieve certain market performance results such as sales volume, financial performance results in terms of, say, profitability and liquidity, and a variety of other stakeholders in the business, such as employees, suppliers and the community, expect certain performance results in terms say, creditworthiness. A firm may be regarded as a failure if it cannot meet one or more of its responsibilities (Sharma and Mahajan, 1980). Much of the available literature has proposed strategic variables like firm size to capture financial institution's positioning within the sector; the same literature also enlists financial ratios that can give early warning signals about the financial health of firms heading toward failure (Maricica and Georgeta, 2012). Clearly, these models do not incorporate a firm's innovation and resilience, a void this study fills.

We adopt a cross-sectional research design, use self-report measures (now gaining considerable traction for similar studies – see Wojan *et al.*, 2018) and a sample of 40 financial institutions in Uganda analyzed using ordinary least squares (OLS) regression in investigating the effect of firm size, innovation and financial resilience on survival of financial institutions. The preference for OLS is dictated by the nature of the outcome variable – the OLS estimator does not produce biased estimates. Similar to earlier research, we find that firm survival (going concern) is influenced by age and size of the firm. In particular, we find that gross earnings explain a financial institution's profitability, gearing and liquidity, which are important indicators of survival, in this case, the going concern appropriateness of financial institutions. Moreover, the nature of firm innovation and financial resilience also shapes the likelihood of survival consistent with Christensen's (1997) theoretical framework for addressing differences in survival rates of companies.

These results have important implications. Theoretically, a combination of firm characteristics, firm innovation and financial resilience explains a significant contribution in the survival chances of financial institutions. Firm innovation and financial resilience appear to be the defining ambition of most financial institutions facing uncertainties and assure survival through driving efficiencies and creativity. In practice, the results are significant for financial institutions' managers wishing to leverage on their financial institutions age and incomes, innovation and resilience for survival and to auditors who may wish to include firm innovation and financial resilience (as with IFRS 9 disclosure requirements) to gauge the going concern assumption. The results further offer another angle for understanding variances in firm survival from the accounting viewpoint using perceptions and using the questionnaire that enlists primary data. The questionnaire is novel because the

results show whether the respondents' views on survival and its predictors are mirrored in the relative importance of financial resilience and innovation thereby allowing for the examination of the relative importance of manifest variables.

The remainder of this paper is structured as follows: the next section is literature review and is followed by the methodology adapted for the study. The penultimate section is results and discussion and the last section is concluding remarks.

2. Literature review

Theoretical review

This study's conceptual framework comprises of disruptive innovation in conjunction with disruptive susceptibility. In 1997, Christensen developed the theory of disruptive innovation to evaluate innovation and choose business strategies to respond to technological changes (Dombrowski and Gholz, 2009). Previous researchers use the theory of disruptive innovation in addressing the importance of differences among innovative customers (Christensen, 1997). According to the theory, when established business managers listen to the opinions of their current customers regarding new products, the managers allocate resources to insufficient or unsuitable technologies. Technologies that current customers of such firms reject will later displace these technologies (Reinhardt and Gurtner, 2015). The concept of disruptive susceptibility specifies the readiness of established value networks for a successful market entry of disruptive innovations (Klenner *et al.*, 2013). Firm leaders should use disruptive susceptibility both *ex post* and *ex ante* to forecast the market and develop new strategies to retain existing customers and gain new customers (Klenner *et al.*, 2013). Disruptive innovation and susceptibility theory directly relate to this study by being suitable for financial institutions to forecast market-changing conditions before disruptive innovations enter the market. The potential for financial institutions' leaders (apparently, larger-sized financial institutions) to identify possible threats and strategize may minimize financial institutions failures and increase the survival rate of financial institutions in the Uganda.

Christensen's (1997) study of technological change over the history of the disk drive industry revealed two types of technology change, each with very different effects on the industry's leaders. Technologies of the first sort sustained the industry's rate of improvement in product performance (total capacity and recording density were the two most common measures) and ranged in difficulty from incremental to radical. The industry's dominant firms always led to developing and adopting these technologies. When applied to this study, resilience is "adaptive" ability for financial institutions to survive in such a context. In contrast, innovations of the second sort disrupted or redefined performance trajectories – and consistently resulted in the failure of the industry's leading firms. The present study assumes that firms in constant research and development (R&D), for example, are likely to redefine performance trajectories and hence continue to survive.

Firm characteristics

Firm characteristics are distinguishing attributes that describe the physical, functional and operational dimensions of a firm (Madhoushi and Nasiri, 2011). Several scholars (Klapper and Richmond, 2011; Geroski *et al.*, 2007; McMahon, 2001; Dean *et al.*, 2000; Usman and Zahid, 2011; Argenti, 1976; Yasuda, 2005; Palich *et al.*, 2000; Berger *et al.*, 2005) have indicated that firm characteristics such as size, length of existence and firm diversification explain the variations in survival rates among firms. Firm size is one of the most influential characteristics in organizational studies, and in the context of financial institutions, the gross income, number of employees or number of branches may denote it. A study by Klapper and Richmond (2011) concluded that firm size is a driving factor in the survival of firms, arguing that larger firms have a higher probability of survival than smaller ones. This is because bigger firms have production economies that smaller firms do not have, and

this helps them generate more revenue to finance future operations. In the same way, Geroski *et al.* (2007) argued that bigger firms are presumed to be more efficient than smaller ones. Moreover, the market power and access to capital markets of large firms may give them access to investment opportunities that are not available to smaller ones and this helps them in achieving economies of scope. McMahon (2001) found that enterprise size is significantly linked to better survival and performance outcomes with larger enterprises found to have a higher level of survival than small firms. In addition, firm size relates to the control of industry-sunk costs, concentration and overall profitability (Dean *et al.*, 2000). Likewise, Usman and Zahid (2011) found that larger firms have higher solvency, profitability and operational self-sufficiency, attributes that measure survival of firms. Small firms not only find it difficult to compete with larger firms in the market, but they also face problems in obtaining finance, thereby hampering their ability to survive. Indeed, Argenti (1976) saw size of companies as an important determinant of firm failure. Therefore:

H1a. Larger financial institutions (measured by gross incomes, number of employees or number of branches) have more chances of survival than smaller financial institutions.

In terms of length of existence, firm age (measured as the number of years a financial institution is operating in the market since it was founded) is an important determinant of firm survival. Past research shows that the probability of firm survival and firm failure varies with a firm's age (Yasuda, 2005). As with size, Argenti (1976) found age of companies as an important determinant of firm failure. Therefore, we can predict that:

H1b. Older financial institutions have more chances of survival than newer ones.

In terms of diversification (e.g. product offerings), Palich *et al.* (2000) affirm that diversification is positively connected with firm survival. Berger *et al.* (2005) support this view by explaining further that if related diversification were continued over a period of three to five years, the survival levels would stabilize:

H1c. A diversified financial institution (measured by number of products offerings) is more likely to survive than one less diversified.

Innovation

Firm innovation is an organization's process for introducing or creating methodologies that are more effective: processes, new ideas, workflows, products and services (Floyd, 2016). Floyd (2016) gives the critical aspects of firm innovation: R&D, technology intensity and patents and intellectual property. Several studies (Floyd, 2016; Lilischkis, 2011; Fontana and Nesta, 2009; Cole and Tatyana, 2014; Freel, 2000; Roper, 2007) show that the intensity of R&D expenditure increases the survival probability; the effect of R&D intensity is positive on firm survival. For example, a study by Floyd (2016) among 4,928 American start-ups from 2004 to 2011 revealed that firms that invest in R&D are more likely to survive than those that do not. Similarly, other studies (Helmert and Rogers, 2008; Garnsey *et al.*, 2006; Buddelmeyer *et al.*, 2006) suggest that intellectual properties such as patents and trademarks relate positively to survival of firms. Helmert and Rogers (2008), for one, analyzed the survival of approximately 162,000 British firms in 2001 over a five-year period and noted that intellectual property is positively associated with a higher probability of firm survival. Earlier, Garnsey *et al.* (2006) argued that intellectual property is an extension of innovation and suggested that it was important to understand any potential relationships between intellectual property and survival. Buddelmeyer *et al.* (2006) pursued this line of thinking and studied at 300,000 Australian firms. They found out that the stock of patents and trademark applications are associated with higher firm survival rates. Nevertheless, other empirical studies show that R&D investment has a

negative effect on firm survival (Bottazzi *et al.*, 2001) and innovation in some markets might not be appreciated and adopted quickly by consumers (Hyytinena *et al.*, 2015). How a firm's research activities are organized and how they are integrated with the other activities of the firm affect the firm's likelihood of survival (Geroski and Machin, 1992). That is the process of doing R&D, the financial institution's activity of translating breakthroughs into new services transforms it, building up its internal capabilities, and makes it more perceptive, more flexible and more adaptable. This transformation in the internal capabilities of an innovating firm creates virtually permanent generic differences between it and non-innovating firms, hence higher profits.

Previous innovation research has focused on technological innovation by manufacturing firms (Drejer, 2004; Toivonen and Tuominen, 2009; de Vries, 2006). It has thus focused on product (e.g. goods) and process (e.g. production systems) innovation (see Utterback and Abernathy, 1975) largely ignoring innovation in service organizations. Well, we expect that in technologically driven firms such as financial institutions, the level of technological intensity of the focal financial institution, the proactive use of R&D and leveraging on patents and intellectual property should help firms offer profitable and cash-generating products and services. Using technological innovation solutions should reduce possible gearing. These cahoots to ensure that financial institution stays afloat. On the balance and as "no one doubts that innovating firms outperform non-innovators" (Geroski and Machin, 1992, p. 79), we therefore hypothesize as follows:

H2. Innovation and firm survival of financial institutions are positively related.

Financial resilience

Academia has attached diverse meanings to the concept of financial resilience as a management strategy in business. However, in the view of Acquaah *et al.* (2011), financial resilience is the ability of an organization to anticipate, prepare for, respond and adapt to incremental change and sudden unforeseen disruptions to survive and prosper by formulating suitable economic policies aimed at reducing budget deficits. Taylor (2013) suggested that adaptability, flexibility and financial robustness are indicators of financial resilience. Thus, consensus is building among academic scholars (see Taylor, 2013; Nkonoki, 2010; Audretsch and Lehmann, 2005; Geroski *et al.*, 2007) that, in this ever-changing business environment, firms must be resilient and austere to survive. This is because resilient firms have financial robustness, anticipatory capacity, awareness, flexibility and recovery ability, attributes that determine the survival of firms in the unpredictable market place and stimulate responses to financial shocks (Taylor, 2013). In the same way, Nkonoki (2010) indicated that organizational resilience could help a business to harness the competition, embrace opportunities and pass the test of time. Furthermore, Audretsch and Lehmann (2005) articulated that to ensure lasting success and protect themselves from growing threats, firms must become resiliently austere. Likewise, Geroski *et al.* (2007) also noted that risk and uncertainty create distinct challenges for the survival and effectiveness of firms. Hence, firms must be adaptive in their operating environment to survive and to remain fit for purpose. In this way, organizational resilience underpins enviable business health prospects and priceless risk management benefits that boost business survival. Since small- and medium-sized firms characterize developing countries such as Uganda, it is expected that they may seek to build financial resilience and capabilities to cope with challenging and prolonged environmental shocks (Smallbone *et al.*, 2012), for example, through cost-cutting measures when facing distress (Ferreira and Saridakis, 2017). Such firms may be proactive and exploit new market opportunities, such as through foreign alliances, and adjust their product/service portfolio, business and labor market strategies to minimize risk and sustain competitive advantage to withstand times of economic turmoil and instability.

Besides, early adopters of resilience have demonstrated how they can augment traditional risk management practices with new competencies that help them anticipate, prepare for and recover from disruptions and, sometimes, treat disasters as an opportunity for gaining advantage by responding faster than their competitors (Acquaah *et al.*, 2011). In a turbulent world, consistent firm profitability is not from a smooth trajectory, but rather from continuous adaptation to changing conditions, which makes the aspect of financial resilience a crucial one. A study by Gibb and McNully (2014) concluded that financial resilience is one of the rare business phenomena that firms seek to survive – confirming Berman *et al.*'s (2012) findings that suggested that financial resilience is associated with established activities like risk and crisis management and business continuity planning, which are vital in firm survival. Therefore:

H3. Financial resilience and firm survival are positively related.

3. Methodology

Study setting

In Uganda, instances of collapsing institutions are widespread, as the country has seen its own indigenous firms failing to survive, put under receiverships, forming mergers and others sold off. With reference to the financial institutions sector, Nile bank was taken over by Barclays, while Barclays bank reportedly planned to wind up its operations in Africa (including Uganda) by close of 2016 (Semakula and Adengo, 2016). In the same way, Bank of Uganda closed Greenland bank, and more recently, Crane bank. Signs of financial squeeze are evident by several companies causing staff downsizing (e.g. Orient Bank), and many applying for government bailout (Muhumuza and Adengo, 2016), this signifies their inability to survive (Ahaibwe *et al.*, 2014). Such an environment suggests that there are problems of going concern bedeviling financial institutions. The insurance sector is not any better. The penetration rate is a paltry 1 percent and is not anywhere closer to its regional peers such as Kenya that has about 2.8 percent penetration. This is largely because the Uganda economy is small and does support larger insurance penetration. It means for Uganda's Insurance firms to survive, they must be highly innovative and resilient. Moreover, the rise and increasing ascendancy of mobile money in Uganda has triggered the development of digital financial services. A new development – FinTech activities – also goes beyond mobile money aggregation services and includes broader technology solutions that potentially deliver affordable and high-quality financial products and services, hence the potential to increase competition. The agility and innovativeness of FinTechs places them in good stead to drive down the cost of digital financial services. These new developments also suggest that only innovative and resilient financial institutions potentially stay afloat.

Design and sample

This study adopts a cross-sectional survey research design on a population of 51 financial institutions operating in Uganda, headquartered in Kampala and comprising of 25 commercial banks and 4 micro-deposit-taking Institutions (MDIs) according to the Bank of Uganda (2015) and 22 insurance firms according to Insurance Regulatory Report (2015). We then selected 44 institutions among these according to Krejcie and Morgan's (1970) table for determining the sample size proportionately as follows: 21 commercial banks, 4 MDIs and 19 insurance companies. The results in this paper came from 24 deposit-taking institutions (commercial banks and MDIs) and 16 insurance companies. In total, 60 percent of the institutions had existed for over 10 years, whereas 40 percent were 10 years or less old. In all, 57.5 percent of the firms employed 100 or less staff and we considered these as small financial institutions. Firms with at least 101 staff are considered as large financial institutions (about 42.5 percent).

Moreover, 62.5 percent of the firms had a network of 15 branches and below affiliated to them compared to 37.5 percent that reported a network of over 15 branches. In terms of products offering, 30 percent had a maximum of 10 products offered to their clients compared to their counterparts offering over 10 products (about 70 percent).

We initially targeted a finance officer, an operations manager, a risk manager and a chief executive officer/general manager, bringing the total of potential units of enquiry at 176. We targeted these officers because they design strategies for innovation and formulating policies that ensure the long-term survival for their firms. As such, they were deemed suitable to provide objective responses to the questions in this study. Of the 176 targeted officers, 143 (about 81 percent) responded including 73 males (51 percent) and 70 females (49 percent). The contribution of responses from the commercial banks and insurance companies was 95 (about 66 percent) and 48 (about 34 percent), respectively. Respondents in the study were operations officers (39), CFOs (39), CEOs/general managers (32) and risk officers (33) in their respective institutions. The findings also revealed that the majority of respondents in the study were aged between 25 and 34 years (39.1 percent), followed by 35 and 44 years (37.1 percent), 45 and 54 years (19.6 percent) and 55 years or more (3.5 percent), only 0.7 percent were aged 24 years or less. In terms of education qualification, the majority (45.5 percent) had attained a degree, 41.2 percent had attained master's degree, 11.2 percent were diploma holders, while PhD holders and other qualifications were 1.4 and 0.7 percent, respectively. In total, 29 firms had an average gross turnover of UGX600m or less, while 11 firms had above UGX601m average gross turnover.

Measurement of variables, instrument, data management and analysis

The study used only primary data with a questionnaire filled by respondents because such data are original and provide a better understanding of the current trends on firm characteristics and survival of financial institutions. As Amin (2005) has indicated, the use of primary data is relevant in minimizing duplication and helps to gather enough information to explore a topic. We validated questionnaire items at pilot-level consistent with the suggestions by Amin (2005). The reliability threshold was based on a Cronbach coefficient, a coefficient of 0.7 being adequate (Tables I–III).

Consistent with Madhoushi and Nasiri (2011), firm characteristics were in terms of firm age, firm size and diversification. These were coded as follows. For the age of a firm,1 was given to a firm in existence for over 10 years, and 0 otherwise. For firm size was determined by gross earnings, number of employees and number of branches. These were coded as 1 for firms with gross annual incomes of more than UGX600m, and 0 otherwise; 1 for firms with over 100 employees, and 0 otherwise; 1 for firms with over 10 branches, and 0 otherwise; and diversification 1 for firms with 10 product offerings, and 0 for firms with less than 10 product offerings. We enlisted responses from two types of financial institutions, i.e. deposit-taking/banking and insurance companies. These were coded 1 for deposit-taking/banking and 2 for insurance firms.

We also used based on the suggestions of Floyd (2016) the measurement of innovation among firms: R&D, technology intensity, patents and intellectual property (Table I and Figure A1). Furthermore, financial resilience was measured using adaptability and financial robustness according to Taylor (2013) (Table II and Figure A2). The analysis dropped flexibility because of measurement variance. On the contrary, survival of firms was measured consistent with what Liu and Pang (2013) considered true attributes: gearing, liquidity and profitability (Table III and Figure A3). All these items were anchored on a three-point Likert scale of 1 (yes), 2 (neutral) and 3 (no). In doing this, we followed the guidance by Jacob and Michael (1971). Using findings from three critical ratio computations, Jacob and Michael (1971) indicated that three-point Likert scales were good

Scale items	Component: Technology intensity	Patents and intellectual property	Research and development
We have a fully fledged IT department in our institution	0.758		
In our institution, we have a software for reporting purposes	0.750		
Some of our processes are manual	0.739		
This institution changes the reporting software system after a specified period	0.706		
Our clients find our products and services easy to use	0.684		
We employ the latest state of the art equipment in our operating procedures	0.567		
We have a registered trademark that symbolizes our products and services		0.759	
Our company is a member of an association that enforces copy rights laws within Uganda		0.736	
Our customers freely associate with our registered trademark		0.686	
Our registered products is known by most customers		0.528	
We have invented new product/service of late			0.968
The percentage of sales from new products/services introduced within the last three years has increased			0.967
Percentage of variance	26.014	18.620	16.554
Cumulative percentage of variance	26.014	44.634	61.188

Table I.
Rotated component matrix for firm innovation

Notes: Kaiser–Meyer–Olkin measure of sampling adequacy = 0.521; Bartlett's test of sphericity approx. $\chi^2 = 974.553$ ($p < 0.000$), determinant = 0.001; Cronbach's $\alpha = 0.706$. Extraction method: principal component analysis. Rotation method: varimax with Kaiser normalization

Item scale	Component: Financial robustness	Adaptability
Management is planning to scale down the number of operational branches in the nearby future	0.823	
We are compliant to applicable laws and regulations	0.802	
We sometimes experience intermittent delivery of services to our customers	0.802	
All our plans in a given financial year are implemented without postponing to other financial periods	0.661	
We deal with financial shocks well	0.589	
Most of our operations are insured against shocks and uncertainties		0.819
We easily adjust our operating procedures in case of need		0.782
We consistently follow similar priorities from year to year		0.624
We are capable of spotting opportunities in our operating environment with ease		0.511
Percentage of variance	34.218	20.178
Cumulative percentage of variance	34.218	54.397

Table II.
Rotated component matrix for financial resilience

Notes: Kaiser–Meyer–Olkin measure of sampling adequacy = 0.579; Bartlett's test of sphericity approx. $\chi^2 = 544.689$ ($p < 0.000$), determinant = 0.019; Cronbach's $\alpha = 0.773$. Extraction method: principal component analysis. Rotation method: varimax with Kaiser normalization

enough as the difference in the validity and reliability of the results was non-significant. According to these authors, regardless of the number of steps originally employed to collect the data, conversion to dichotomous or trichotomous measures does not result in any significant decrement in reliability or validity. We managed the data management

Scale items	Component Profitability	Gearing	Liquidity
Our processes are constantly reviewed to minimize defects in operations	0.873		
Our institution's profits have consistently increased year on year	0.832		
Our institution has registered declining sales revenue over the years	0.808		
We have maintained a constant selling price for our products and services across the years	0.798		
There are no fixed interest obligations to be cleared by our institution		0.902	
Of late, the amount owed to creditors has increased		0.789	
Our institution is able to clear its financial obligations as and when they fall due		0.615	
In recent years, our institution has experienced increased cash outflows from its operations		0.562	
Accrued expenses have increased in recent years			0.790
In our institution, we have adequate liquidity levels to finance day to day activities			0.732
Percentage of variance	39.748	16.285	11.490
Cumulative percentage of variance	39.748	56.033	67.523

Notes: Kaiser–Meyer–Olkin measure of sampling adequacy = 0.701; Bartlett's test of sphericity approx. $\chi^2 = 658.572$ ($p < 0.000$), determinant = 0.008; Cronbach's $\alpha = 0.834$. Extraction method: principal component analysis. Rotation method: varimax with Kaiser normalization

Table III. Rotated component matrix for firm survival

according to the prescriptions of Field (2009) and analyzed them using Statistical Package for the Social Sciences (v20). For example, Table IV shows the results of discriminant and convergent validity – the results of the tests considered tenable. Average variance extracted (AVE) was as follows: firm innovation = 0.37, financial resilience = 0.61 and survival of firms = 0.54.

4. Results and discussion

Descriptive statistics

We performed descriptive statistics for the item scales to ascertain how respondents understood them in relation to survival of financial institutions. We generated means and standard deviations to summarize the observed data. These summary statistics are in Table V. We report the means and standard deviations because according to Field (2009), means represent a summary of the data, whereas standard deviations show how well the means represent the data. Because of small standard deviations relative to the mean, the data and the results therefrom and presented in this paper represent the true reality.

Correlation analysis

To establish the relationship among firm characteristics, innovation, financial resilience and survival of financial institutions in Uganda, we first examined zero-order correlations coefficients (Table VI) between the variables. At this level of analysis, we find that size indicated by gross income has a significant positive relationship with firm survival ($r = 0.342$, $p < 0.01$). We also find that innovation and firm survival are significantly positively related ($r = 0.485$, $p < 0.01$), Also, as expected, financial resilience and firm survival are significantly positively related ($r = 0.242$, $p < 0.01$). Among firm characteristics, the age of a financial institution and diversification is not significantly related to a financial institution's survival ($r = 0.027$; $r = 0.012$, respectively). However, diversification is significantly and positively related to gross earnings ($r = 0.206$, $p < 0.05$), to number of employees ($r = 0.343$, $p < 0.01$), to financial institution's age ($r = 0.206$, $p < 0.05$) and to

Table IV.
Discriminant and convergent validity tests

Variables and their dimensions	1	2	3	4	5	6	7	8	9	10	11
Technology intensity (1)	1										
Patents and intellectual property (2)	0.149	1									
Research and development (3)	0.015	0.045	1								
Firm innovation (4)	0.564**	0.571**	0.691**	1							
Financial robustness (5)	−0.054	0.306**	0.042	0.145	1						
Adaptability (6)	−0.011	0.122	−0.001	0.051	0.226**	1					
Financial resilience (7)	−0.044	0.282**	0.028	0.130	0.820**	0.743**	1				
Profitability (8)	0.416**	0.472**	0.199*	0.555**	0.316**	0.058	0.251**	1			
Liquidity (9)	0.012	0.216**	0.222**	0.254**	0.293**	−0.282**	0.036	0.181*	1		
Gearing (10)	0.242**	0.105	0.038	0.191*	0.248**	0.111	0.236**	0.440**	0.300**	1	
Survival of firms (11)	0.323**	0.390**	0.219**	0.485**	0.394**	−0.050	0.242**	0.789**	0.651**	0.752**	1

Notes: AVE, average variance extracted: firm innovation = 0.37; financial resilience = 0.61; survival of firms = 0.54. *,**Significant at the 0.05 and 0.01 levels, respectively (two-tailed)

Table V. Descriptive statistics

Variables	*n* Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	SD Statistic	Skewness Statistic	Skewness SE	Kurtosis Statistic	Kurtosis SE
Gross earnings (size)	143	0.00	1.00	0.2867	0.45382	0.953	0.203	−1.107	0.403
Number of employees (size)	143	0.00	1.00	0.4126	0.49403	0.359	0.203	−1.898	0.403
Firm institution's age	143	0.00	1.00	0.6853	0.46602	−0.807	0.203	−1.369	0.403
Branches (size)	143	0.00	1.00	0.4056	0.49273	0.389	0.203	−1.875	0.403
Diversification (products)	143	0.00	1.00	0.7343	0.44328	−1.072	0.203	−0.863	0.403
Type of financial institution	143	1.00	2.00	1.3357	0.47388	0.703	0.203	−1.527	0.403
Technology intensity	143	1.00	2.42	1.7448	0.30263	0.230	0.203	−0.453	0.403
Patents and intellectual property	143	1.00	2.33	1.6696	0.29337	−0.117	0.203	−0.401	0.403
Research and development	143	1.00	3.00	1.7972	0.41444	0.622	0.203	0.031	0.403
Firm innovation	*143*	*1.34*	*2.28*	*1.7372*	*0.20829*	*0.274*	*0.203*	*−0.192*	*0.403*
Financial robustness	143	1.05	2.55	1.7664	0.33535	0.265	0.203	−0.050	0.403
Adaptability	143	1.25	2.58	1.7797	0.28623	0.227	0.203	0.203	0.403
Financial resilience	*143*	*1.36*	*2.38*	*1.7731*	*0.24384*	*0.354*	*0.203*	*−0.979*	*0.403*
Profitability	143	1.00	2.81	1.7832	0.42067	0.555	0.203	0.101	0.403
Liquidity	143	1.13	2.50	1.6748	0.34092	0.516	0.203	−0.431	0.403
Gearing	143	1.19	2.25	1.7168	0.29729	−0.007	0.203	−0.989	0.403
Survival of firms	*143*	*1.19*	*2.25*	*1.7249*	*0.25912*	*0.076*	*0.203*	*−0.560*	*0.403*
Valid *n* (listwise)	143								

Table VI.
Zero-order correlations

Variable	1	2	3	4	5	6	7	8	9	10
Type of financial institution (1)	1									
Gender (2)	0.074	1								
Gross earnings (size) (3)	−0.287**	−0.033	1							
Number of employees (size) (4)	−0.295**	0.060	0.380**	1						
Financial institution's age (5)	−0.284**	0.031	0.063	0.507**	1					
Number of branches (6)	−0.436**	0.017	0.264**	0.754**	0.376**	1				
Diversification (7)	−0.444**	−0.013	0.206*	0.343**	0.206*	0.497**	1			
Firm innovation (8)	0.099	0.048	0.114	−0.095	−0.170*	−0.101	−0.303**	1		
Financial resilience (9)	0.224**	−0.033	−0.076	−0.158	−0.258**	−0.049	−0.158	0.130	1	
Survival of firms (10)	−0.280**	−0.018	0.342**	0.005	0.027	0.146	0.012	0.485**	0.242**	1

Note: *,**Significant at the 0.05 and 0.01 levels, respectively (two-tailed)

number of branches ($r = 0.497$, $p < 0.01$). The number of employees is related to financial institution's age ($r = 0.507$, $p < 0.01$), to number of branches ($r = 0.754$, $p < 0.01$) and to number product offerings ($r = 0.343$, $p < 01$).

Regression analysis

We know that univariate analyses do not control for other factors, which make interpreting of the results grim. For this reason, we extended the analysis to a multivariate setting. The first thing we did was to examine the correlations among our independent variables to determine whether multicollinearity problems exist. Multicollinearity occurs when variables are so highly correlated that it is difficult to obtain reliable estimates of their individual regression coefficients (Cohen and Cohen, 1983). High inter-correlations of predictors increase the standard error of the β coefficients and assess the unique role of each predictor variable difficult or impossible (Green and Salkind, 2005; Tabachnick and Fidell, 2001). We checked inter-correlations and no correlation between predictor variables was found to be greater than 0.90. Nevertheless, Myers (1990) suggested that a certain degree of multicollinearity can subsist even when none of the correlation coefficients is very large. To supplement, we also examined the variance inflation factors (VIFs) (Table VII) to further test for multicollinearity. The highest VIFs were well below the threshold value of 10 suggested by Field (2009) indicating that multicollinearity does not cause problems to the regressions. Therefore, we proceeded with regression analysis to test the study hypotheses. We used the regression (with the enter method) coefficients as indicators of whether the contribution of each variable is significant, and the overall contribution of the variables is indicated by the variance explained (R^2) that also shows the explanatory power of the variables.

The model in Table VII shows that, overall, the predictors explain 46.3 percent (adjusted $R^2 = 0.463$) of the variance in financial institutions' survival in Uganda. The F-ratio ($F = 14.583$) is significant. The results in Table VII show that size and age of a financial institution explain significant variances in survival (going concern) of financial institutions in Uganda providing support for *H1a* and *H1b*, respectively. In addition, both firm innovation and financial resilience significantly explain variance in the survival of financial institutions. This suggests, respectively, that *H2* and *H3* are substantiated at this level of analysis. The regression results, however, show that *H1c* is not supported. Overall, firm innovation is the most significant predictor of survival of financial institutions going by the t-statistics and the largest β values in the model.

Financial institutions with larger gross earnings were more likely to survive as opposed to those with lower gross earnings. The higher the annual gross revenue, the more likely a

Model 1	Unstandardized coefficients B	SE	Standardized coefficients β	t	Sig.	VIF
(Constant)	0.339	0.211		1.604	0.111	
Respondent's gender	0.005	0.032	0.010	0.162	0.872	1.021
Type of financial institution	−0.143	0.042	−0.262	−3.443	0.001	1.532
Gross earnings (size)	0.173	0.041	0.303	4.252	0.000	1.339
Number of employees (size)	−0.184	0.058	−0.351	−3.191	0.002	3.198
Number of branches	0.112	0.057	0.212	1.967	0.051	3.083
Financial institution's age	0.099	0.042	0.179	2.362	0.020	1.510
Diversification	−0.005	0.046	−0.008	−0.107	0.915	1.617
Firm innovation	0.570	0.083	0.458	6.861	0.000	1.177
Financial resilience	0.280	0.070	0.264	3.988	0.000	1.156
F-statistic = 14.583					0.000	

Notes: $R = 0.705$; $R^2 = 0.497$; adjusted $R^2 = 0.463$; SE of the estimate = 0.18995; Durbin–Watson = 0.587.
[a]Dependent variable: survival of firms

Table VII. Regression analysis results

financial institution would survive and remain operational. For one, one-way ANOVA results show there were significant differences between large financial institutions (by gross turnover) and smaller ones. Levene's test of homogeneity of variance was not significant ($p = 0.666$) suggesting this assumption was not violated. A one-way between-groups analysis of variance was conducted to explore the impact of size on firm survival. We categorized firms into two groups according to their gross earnings (1 for firms with gross annual incomes of more than UGX600m, 0 otherwise). We find a statistically significant difference at the $p < 0.01$ level in firm survival scores for the two groups ($F(1, 141) = 18.706$, $p = 0.01$). Indeed, by reaching statistical significance, the actual difference in mean scores between the groups was moderate. The effect size, calculated using η^2, was 0.117 and this suggests that gross earnings explained 11.7 percent of the variance in financial institutions survival. Figure 1 also further substantiates.

Sensitivity analysis

To test for whether the study's results are sensitive to potential endogeneity arising from biases of the respondents, we run an independent-samples *t*-test to compare the survival of financial institutions for males and females categories of the unit of enquiry. There were no significant difference in scores for males ($M = 1.7295$, $SD = 0.25725$) and females ($M = 1.7202$, $SD = 0.26284$; $t(140.429) = 0.212$, $p = 0.833$). A one-way between-groups analysis of variance was conducted to explore the impact of respondent's rank in the organization on survival of financial institutions. Subjects were divided into four groups according to their position (Group 1: CEO/general manager; Group 2: operations; Group 3: CFO; and Group 4: risk officer). There was no statistically significant difference at the $p < 0.05$ level in survival of financial institutions scores for the four respondent groups ($F(3, 139) = 0.130$, $p = 0.942$). To test for whether the variance in scores is the same for each of the four groups (homogeneity of variances), Levene's test was used. In this case, the Sig.

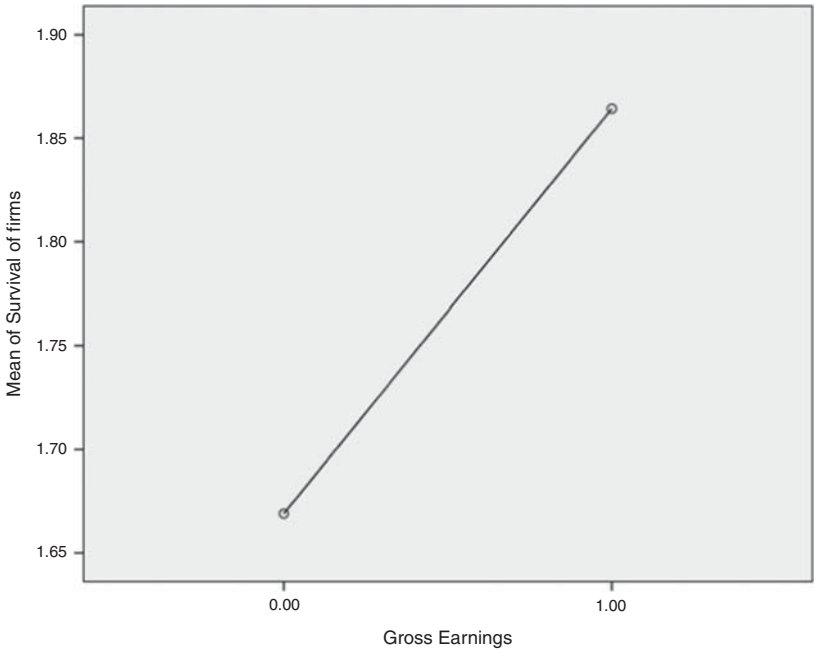

Figure 1.
Mean plots – gross earnings and survival of financial institutions

value was 0.969, which suggested that this assumption was not violated. Robust tests of equality of means using Welsh and Brown–Forsythe tests suggested no significant differences between the groups.

However, there were significant differences in scores for banking (deposit-taking) institutions ($M = 1.7763$, SD = 0.24329) and insurance firms ($M = 1.6233$, SD = 0.26190; $t(141) = 3.462$, $p = 0.001$). Levene's test of homogeneity of variance was not significant ($p = 0.384$) suggesting that this assumption was not violated. There was a statistically significant difference at the $p < 0.01$ level in firm survival scores for the two groups ($F(1, 141) = 11.985$, $p = 0.01$). We then needed to calculate the effect size for independent-samples t-test. Effect size statistics indicate the magnitude of the differences between groups (not just whether the difference could have occurred by chance). There are several different effect size statistics, the most commonly used being η^2 (Pallant, 2010). η^2 can range from 0 to 1 and represent the proportion of variance in the dependent variable explained by the independent (group) variable; we calculated it using the information provided in the output and using:

$$\eta^2 = \frac{t^2}{t^2 + (N1 + N2 - 2)}.$$

Replacing with the appropriate values from the above:

$$\eta^2 = \frac{3.462^2}{3.462^2 + (95 + 48 - 2)}.$$

$$\eta^2 = 0.078.$$

We are guided by Cohen's (1988) proposals for interpreting this value: 0.01 = small effect, 0.06 = moderate effect and 0.14 = large effect. In this case, the effect size of 0.078 is moderate. This means that 7.8 percent of the variance in survival of firms is explained by type of financial institution. This effect potentially confounds our results, and therefore, endogeneity could not be ruled out. Figure 2 also further substantiates. Nevertheless, by taking into consideration the type of financial institution, we still find that financial resilience, innovation and firm size still exert significant influences on firm survival. However, this influence is stronger on the survival of deposit-taking/banking financial institutions than in insurance firms.

Discussion

The ascertained model in Table VII is significant for making conclusions and recommendations in relation to predictors of firm survival (going concern) among financial institutions in Uganda. In this study, we ascertain the following.

For financial institutions, size in terms of gross income matters for their survival. This notion is consistent with scholars such as Ferreira and Saridakis (2017), whose findings show that smaller firms are more likely to shut down than larger firms, and Usman and Zahid (2011) show that larger firms have higher solvency, profitability and operational self-sufficiency. These results provide further evidence to support the results of the study by Audretsch and Mahmood (1995) that enterprise-specific characteristics such as size have a predictive force on firm survival even in developing countries and specifically to their financial institutions. In the context of this study, large financial institutions are likely to attract cheap finance in form of fixed deposits at lower interest rates compared to smaller firms who must pay a premium to attract fixed deposits. Because such

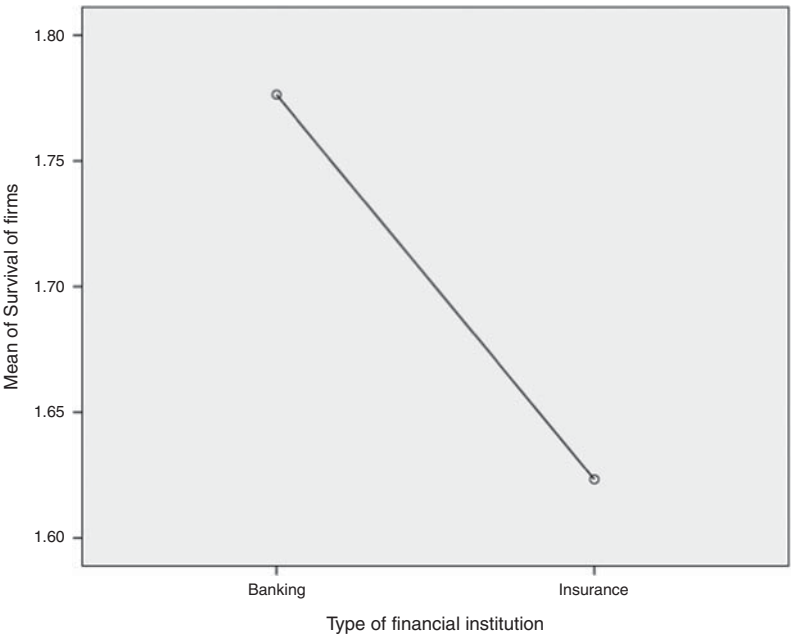

Figure 2.
Mean plots – type of financial institution and survival

debt attracts high interest costs, the profitability of small firms is accordingly affected. An attempt to match the high interest cost with the high interest income is usually hampered by the high loan loss provisions of small banks because they will usually attract high-risk borrowers. Small financial institutions may also suffer from liquidity problems, a direct consequence of lower gross income and/or gross income that may be heavily offset by the larger interest expenditure and lendings that eventually do not crystalize in cash inflows. As previous research has found that small firms have higher exit rates than large firms do (see e.g. DeTienne and Wennberg, 2016), this study too finds financial institutions' size explain significant variances in their going concern. These findings provide further evidence that large revenues can help financial institutions create distinctive capabilities through which they can compete for customers and subsequently firms are in position to operate and survive albeit the existing challenges (see e.g. Chen and Hambrick, 2005). As well, the results reported in this paper provide evidence of the postulation by Madhoushi and Nasiri (2011) that firm characteristics are important facets and attributes that describe the physical, functional and operational dimensions of a firm, subsequently determining liquidity, profitability and gearing level of the firm that are indicators of firm survival.

Age of a financial institution is significant for its survival. The findings of this study signalize that the gearing level, liquidity and profitability would depend on a financial institution's age *per se*. This notion is consistent with Kristiansen *et al.*, who posted that the length of existence is significantly linked to business success and survival. This is because the length of business operation is associated with an increase in level of efficiency and profitability, which are strong pre-requisites for the appropriateness of going concern of a financial institution. The results also support Argenti (1976) who saw several years ago that age of companies was an important determinant of firm survival.

The two themes above taken together suggest that characteristics specific to individual firms influence the exposure to going concern risk (problems). In particular, the evidence suggests that both the size and age can substantially shape the likelihood of going concern appropriateness of financial institutions. An important qualification of Audretsch and Mahmood's (1995) study was that their results applied only to the manufacturing sector; the current results point to the importance of establishment-specific characteristics in shaping the survival of financial institutions too.

Firm characteristics, innovation and financial resilience have a predictive force on survival of financial services firms in Uganda. The results that innovation is a significant predictor of firms' survival are consistent with earlier studies (Fontana and Nesta, 2009; Filippetti and Archibugi, 2011; Roper, 2007). For example, Fontana and Nesta (2009) claimed that because firms compete on technological advances and productivity improvements, it has become increasingly important to engage in innovative activities to enhance their competitiveness in order to survival. Filippetti and Archibugi (2011) emphasized creating a strategy and a culture of innovation as a potential channel through which firms increase their possibility of surviving in business. In this study, a financial institution that periodically conducts customer surveys can identify early enough what its customers want or their changing needs and embark on innovative ways to meet those needs. A financial institution failing to do this may soon find itself without customers and hence failure to survive. The results reported in paper show that employing the latest state of the art equipment in operating procedures is perceived an innovative idea in the financial institutions. This substantiates the claim by Audretsch and Lehmann (2005) that financial institutions that do invest in technology and choose the path of innovation always increase their market share, overall competitiveness and survival of the enterprise. However, products and services are adopted at different paces and companies need to understand how quickly certain products will be adopted to produce the right offerings to their consumers. The present results show that contrary to this belief and that innovation by start-ups in some markets might not be appreciated and adopted quickly by consumers (Hyytinena *et al.*, 2015), for financial institutions, innovation does matter despite age of firm.

The results suggest that firms financially austere can survive for long than their counterparts that cannot operate under conditions of financial resilience. Thus, emphasizing attributes such as compliance to applicable laws and regulations and dealing with financial vulnerabilities are critical aspects that could improve firm survival. The results in this paper concur with earlier studies (Gibb and McNully, 2014; Taylor, 2013; Berman *et al.*, 2012; Geroski *et al.,* 2007). According to Taylor (2013), resilient firms always have anticipatory awareness, flexibility, financial robustness as well as recovery ability and these attributes determine the survival chances for financial institutions. Geroski *et al.* (2007) revealed that resilient firms always reduce risks and uncertainties to create a conducive operational environment for the survival and effectiveness of firms. This study's results show that if financial institutions' operations are insured against shocks and uncertainties, adjust their operational procedures, respond easily to competitive pressure and are capable of spotting opportunities in the operating environment with ease, chances of their going concern appropriateness will continue to be boosted. The results show that for firms to survive, they need to keep adjusting their operating procedures in case of need. This provides further evidence supporting Gibb and McNully (2014) and Berman *et al.* (2012) who claimed that financial resilience is not only associated with established activities like risk and crisis management but also business continuity aspects of planning and resource management. Geroski *et al.* (2007) have observed that most literature on firm survival concentrates upon the effect of environmental conditions and very few studies focus on the impact that strategic choices at founding time may have upon the survival prospects of firms.

Extending this thread of evidence and the pitch by Mugumya (2017), we find that, while the literature has developed the hypothesis that founding conditions matter, the current study shows that a financial institution's innovation and financial resilience are enduring strategic choices for its continued survival.

5. Concluding remarks

The focus of this paper was to examine the relationship between firm characteristics, innovation, financial resilience and survival of financial institutions in Uganda. Using hierarchical regression analysis, the study finds that for financial institutions, size in terms of gross income and not in terms of employee numbers matters for survival. We also find that firm characteristics, innovation and financial resilience have a predictive force on survival of public interest firms such as financial institutions in Uganda. The theoretical implication drawn here is that a combination of firm characteristics, firm innovation and financial resilience explained a significant contribution in the survival chances of financial institutions. The support for this determination is twofold. First, firm innovation and financial resilience define the ambition of most firms worldwide and are considered the principle lever for increasing growth through driving efficiencies and creativity. Second, a combination of firm characteristics, innovation and financial resilience is a critical concept for achieving success among firms as the need for creative problem solving has risen as more management problems require creative insights to find suitable solutions. Overall, the study indicates that as much as firm characteristics and financial resilience are significant, for financial institutions' survival, innovation is bound to explain more why some financial institutions survive while others fail.

Our results are significant for financial institutions' managers wishing to leverage on their financial institutions age and incomes, innovation and resilience for survival. They particularly indicate to the managers on what to focus on for survival of their firms. Managers should put in place mechanisms they believe can boost growth in incomes, such as constant review of operational processes to minimize costs while boosting incomes. In addition, firms should continuously innovate their operations to come up with better ways of serving their customers. This can be achieved through carrying out continuous customer surveys where they can clearly identify customers' unique needs and whether the products on offer satisfy customers' needs. This will help them come up with better products that are attractive and better methods for offering their services. Financial institutions should also devote much effort to increase their level of adaptability and financial soundness if they are to remain in business. Such measures include cost reduction strategies such as downsizing. Such strategies reduce unnecessary spending and reduce financial shocks that strain the firms' operational capabilities.

The results mean that a great deal of care should be taken in preparing a financial institution for survival in particular building the innovation and resilience potential. The choices made by managers in improving the firm's innovation capacity and financial resilience have positive consequences on going concern of financial institutions. For auditors, the results are important because they suggest that the kind of going concern tests that they need in carrying out their audit work should also focus on the innovative and financial resilience capabilities of the focal financial institution.

The present results go cahoots in establishing a relevant framework for explaining the going concern of financial institutions and support the application of Christensen's (1997) theory of disruptive innovation along with disruptive susceptibility to understand and explain survival of financial institutions. Innovation, for one, can explain differences between surviving and failing firms and will normally call for a fully fledged IT department to specify the readiness of established value networks for successful market entry of disruptive innovations (e.g. FinTechs).

Well, the present study is cross-sectional, yet the views held by the respondents may change over several years, which may affect the relevance of the conclusions and recommendations made. As well, the study suffers from well-known limitations of perception studies. We recognize that validation of self-report measures of the variables in this study is in infancy. Further validation is left to those others interested in this area. They also apply to the financial institutions in Uganda; an exciting task for the future would be to construct comparable item scales for other countries to find out to what extent the patterns found here can generalize. Despite this, this paper offers validity to a multivariate approach to understanding variances in survival of financial institutions.

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Further reading

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Appendix

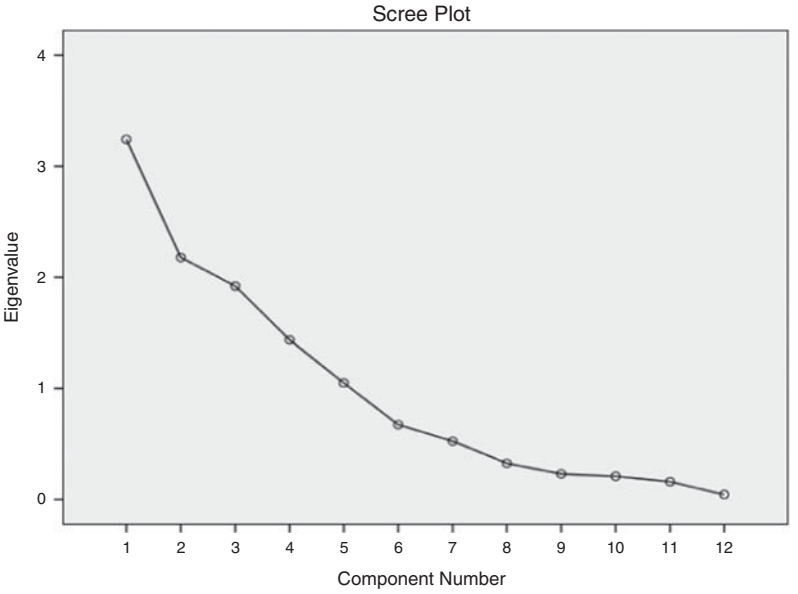

Figure A1.
Scree plot for firm innovation

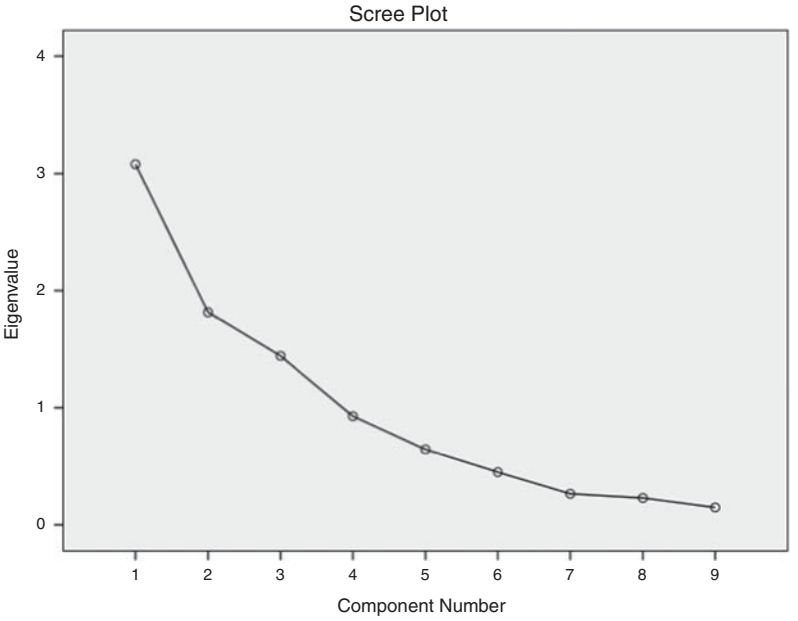

Figure A2.
Scree plot for financial resilience

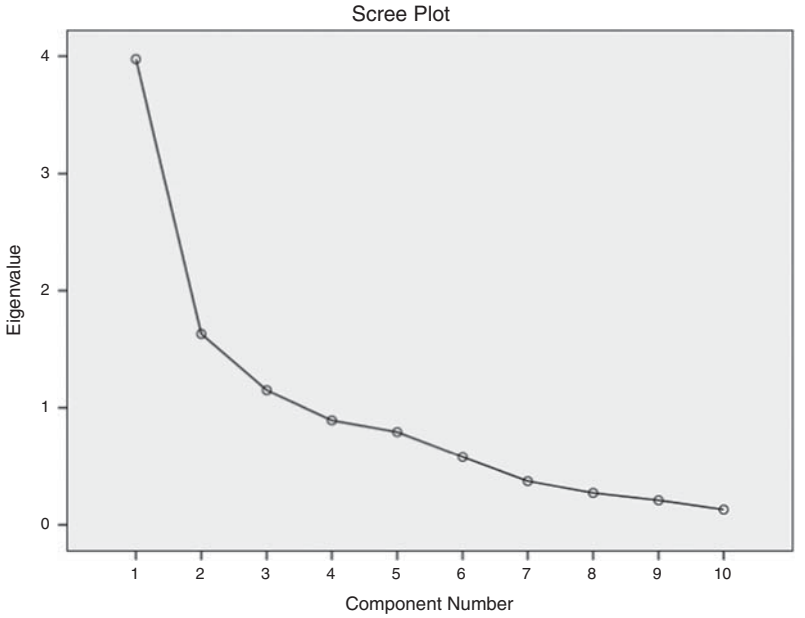

Figure A3.
Scree plot for firm survival

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