UNIVERSITY OF GHANA

SMALL AND MEDIUM-SCALE ENTERPRISE (SME) SURVIVAL IN GHANA: A SOCIAL NETWORK THEORY PERSPECTIVE

BY

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THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF DOCTOR OF PHILOSOPHY MARKETING DEGREE

JULY 2015

DECLARATION

I, George Acheampong, the author of the thesis titled "Small and Medium-Scale Enterprise Survival in Ghana: A Social Network Theory Perspective" do hereby declare that, except for references to studies duly cited, this thesis is the result of my original work. This thesis has never been presented in whole or in part to another university for any other degree.

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CERTIFICATION

I hereby certify that this thesis was supervised in accordance with procedures laid down by the University.

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ABSTRACT

Small and medium-scale enterprises (SME) are significant contributors to the development efforts of developing nations like Ghana. Yet their high failure rate continues to intrigue academics, policy makers, SME owners and managers. Scholars have used many approaches and their associated theories to understand the phenomenon yet one theory that has received little attention regarding the survival of SMEs is the social network theory. This thesis focuses on four network mechanisms of resource access, structural capital, isomorphism and diffusion and how they serve as antecedents to SME survival. Data was collected from the Dormaa poultry cluster in the Brong Ahafo region of Ghana in 2014 and 2015. A network survey using multiple name generators was used to solicit information relating to financial, distribution and cluster networks from which network effects were generated. Other firm level attributes such as owner characteristics, SME characteristics, managerial orientations and capabilities, technical competencies and investment climate constraints was also collected. Survival is modelled as persistence from 2014 to 2015 using lagged independent network effects and their corresponding attributes as covariates. The results indicate that approximately forty percent of the SMEs failed. Specifically, market resource access through distribution ties are seen to lead to negative survival outcomes and when moderated with SME characteristics the negative effects still persist for age and resource partition but not for size. Structural capital in financial networks in the form of prestige of financiers is associated with positive survival outcomes. When the specific type of financier is considered, universal banks and cooperative credit unions lead to positive outcomes while savings and loans companies are associated with negative outcomes. Descriptively, SMEs with prestigious financiers and ties to universal banks were less likely to be credit constrained. Network isomorphism measured as structural equivalence is seen to be positively linked to SME survival and useful in overcoming the general investment climate constraints. However, the benefits of this isomorphism reach a threshold and returns negative results. Finally, SME alter attributes in both technical and market forms are seen to be useful for SME survival. The direct and indirect mechanisms through which the resources reach SMEs are both associated with positive outcomes. The study makes a contribution to the issue of SME survival by attempting an explanation with relational network effects instead of the attribute-based approach that has been adopted by earlier scholars.

DEDICATION

This thesis is dedicated to my parents, Kwaku Otuo Acheampong and Vida Sarfo-Yeboah and my dear wife, Linda.

ACKNOWLEDGEMENTS

I thank the Almighty for His Grace and Mercy in the course of the PhD research. I wish to express my profound gratitude to my advisors: Prof. Robert E. Hinson, Dr. Bedman Narteh and Prof. John Rand for their time and guidance that has resulted in the completion of the thesis project. I am very grateful to the DANIDA Building Strong Universities - Growth and Employment Platform (BSU/GEP) for funding the PhD research. In this direction, I express my gratitude to the administrative team at Office of Research, Innovation and Development (ORID) especially, Prof. Adjei, Mr. Amofa, Miss Baryeh and Mrs Agamah. I am thankful for the varied advice of senior members of the Department of Marketing of the University of Ghana Business School. I wish to express my appreciation to the members of the Global Development Unit and Department of Economics all of University of Copenhagen especially Christian Lund, Henning Tarp Jensen, Thi Minh Thai, Neda Trifkovic and Snorre Ralund for their support. I am also grateful to Finn Tarp, Smriti Sharma, Andy McKay, Bruck Tadesse and Lay Poh Allonen for their support during my PhD internship at United Nations University- World Institute for Development Economics Research (UNU-WIDER). I am also thankful to the executives of the Dormaa Poultry Farmers Association (DPFA) especially Mr. Deku, Mr Ampofo, Nana Atosi, Adama Musah and Charity for their support during the data collection exercise. I am very grateful to members of my data collection team (Prince, Foster, Daudi, Clement, Vera, Felix, David and the late Nana Yaw Kyeremeh) for their effort. Finally, I want to thank my wife, Linda, for the tireless nights we spent entering, cleaning and checking the data.

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CHAPTER ONE

INTRODUCTION

1.1 Background

The global financial crisis that started in 2007 and the threat of collapse of many firms across several industries have brought to the fore again the concept of organizational failure. One form of such failure that continues to baffle practitioners, policy makers and academics is enterprise failure. Approximately ninety percent of SMEs are reported to fail by their second year of operations (Okpara, 2011). In an attempt to explain organizational failure there have been many approaches. These approaches have included the ecological view (Hannan & Freeman, 1986), the institutional view (Bianchi & Mena, 2004; Yildirim, 2010), the organizational view (Hage, 1999: Analoui & Karami, 2002;) and the integrativists view (Mellahi & Wilkinson, 2004). The ecological and institutional views that form the deterministic approach asserts that organizations can do little to affect their survival emphasizing the role of the environment in their failure or survival (Hannan & Freeman, 1986; Barnett & Carroll, 1987; Baum & Oliver, 1991; Geroski, Mata, & Portugal, 2010). This approach also views firm survival purely from a population and market perspective. The organizational view sees firm survival from the managerial perspective and with a focus on internal factors under the control of managers (Hage, 1999; Teece, 2007; Tsai, 2010; Vakola & Rezgui, 2011). The integrativists propose that all approaches be used in tandem to understand organizational survival since one approach cannot do a good job (Mellahi & Wilkinson, 2004).

However, the aftermath of the global financial crisis has shown that survival or failure may not be organizational or purely environmental or integration but rather a social decision involving many actors both within and outside the firm, industry and/or country. Failure

can be a result of social structure and its underlying relational systems and the social capital that they confer on individuals and organizations. Scott and Carrington (2011) have mentioned that relational systems of firms connecting and interacting has a huge influence on their performance and survival (Allen, Dawson, Madsen, & Chang, 2008). Since organizations operate in social systems, it will therefore be critical to consider enterprise failure or survival from a network theory perspective. This is in no means to supersede the current variable approach but to serve as a complementary explanation to enterprise failure especially in the developing world where social relations and trust have a stronger influence on business operations than weak formal institutional structures that exist in the developing world (Biggs & Shah, 2006).

The aim of this study is to understand why SME organisational forms fail from a social network theory perspective. This theory, according to Borgatti and Foster (2003), offers an opportunity for the integration of many other theories in the explanation of organisational outcomes. The study will more specifically investigate how social capital, power relations, mimetic behaviour and diffusion in networks all influence the survival of SMEs in Ghana. In the following sections, the problem statement and research questions are formulated as well as a discussion of the literature review along the three broad approaches that have been discussed in the literature focusing on the theories utilized while presenting a touch of the emerging issues in the explanation of SME failure. I also develop a conceptual framework that binds all the empirical chapters together by briefly introducing social network theory and how other theoretical concepts can be used to explain SME failure. I also present issues relating to the context of the study, overview of methods used, the significance of the study and the structure that the thesis will take.

1.2 Problem Formulation and Research Questions

Small and medium-scale enterprises (SMEs) are significant contributors to the development efforts of many Africa countries. Abor and Quartey (2010) have argued that SMEs are a major source of employment in many developing countries due to the fact that they are labour intensive and hence employ a lot of people. They specifically note that SMEs represent about 92% of Ghanaian businesses and contribute about 70% to Ghana's GDP and over 80% to employment. This assertion had been corroborated earlier in the decade (Kayanula & Quartey, 2000b). However, one major problem that continues to plague SMEs is the high mortality rate with many SMEs failing before their second birthday (Okpara, 2011). Academics have studied and attempted to explain this problem of SME survival and mortality with three main approaches - deterministic, voluntaristic and integrativist (Mellahi & Wilkinson, 2004). The deterministic approach comes from the organisational ecology theory of sociology and industrial organisation in economics. Organisational ecology theory is motivated by the fact that under similar environmental conditions organisations, including SMEs, must have certain characteristics and it is the differences in these characteristics that explain failure of some in the population of organisations (Hannan & Freeman, 1993). Scholars of industrial organisation believe that failure of firms is due to changes in market preferences leading to exit (Jovanovic, 1982; Hopenhayn, 1992). Although the deterministic approach comes from different disciplines they both suggest that firms fail due mainly to market and environmental reasons rather than managerial reasons. The voluntaristic approach suggests that managerial factors explain why some firms fail while others survive under similar environmental conditions (Hambrick & Mason, 1984). Some of the voluntaristic factors that have been found to influence organisational outcomes are top management characteristics (Patzelt, zu Knyphausen-Aufseß, & Nikol, 2008); absorptive capacity (Lund-Vinding, 2006); dynamic

capabilities (Wu, 2006); and strategic orientation (Acquaah, 2007). The integrativists perspective brings the two perspectives together to explain the survival or failure of organisations (Mellahi & Wilkinson, 2004).

Despite the plethora of theories that have been proffered to explain why organisations (for the purposes of this thesis, SMEs) fail, social network theory has remained largely ignored even with the explosion of its usage (Zaheer, Gozubuyuk, & Milanov, 2010). This may be largely because of the assumption that firm performance will lead to its survival (Kang, Heshmati, & Choi, 2008). However, recent empirical evidence is beginning to prove that this relationship is complicated (Coad, Frankish, Roberts, & Storey, 2013; Delmar, McKelvie, & Wennberg, 2013; Gudmundsson & Lechner, 2013). Their argument stemming from the fact that growth and performance does not always lead to survival, especially when a firm's survival is conceptualised to mean exit, which can include mergers and acquisitions. In such a conceptualisation, performing firms can fail because they are acquired. Also, small business studies have established for instance that poor succession leads to failure of some SMEs and hence performance may not always be the reason. Again, studies have shown that firms do not necessary survive due to their technical competence but because of structural forms that are legitimated by the relevant stakeholders (DiMaggio & Walter, 1991). Consequently, it is important for the academic literature to have space for the effects of social networks on enterprise survival especially in the developing world where social relations and connections are critical for business success (Buame, 1996; Akuetteh, 2009). This study therefore contributes to both the network theory and small business management literature in this direction.

Also, current studies on enterprise performance and survival using network theory has a narrow focus on the social capital emanating from the competition networks only (see Uzzi, 1996; Pennings et al., 1998; Hite & Hesterly, 2001; Zaheer & Bell, 2005; Rooks, Szirmai, & Serwanga, 2012). These studies focus on the ties between competitors in a sector (network). However, from stakeholder and resource dependency theory, we glean that there are other stakeholders other than competitors that own resources that firms need for survival (Pfeffer & Salancik, 2003; Pajunen, 2006). For example, employees own labour resources; investors have financial resources; promoters have entrepreneurial resources; while local communities own natural resources. Firms interact with all these stakeholders to gain resources that are critical in that case. The ties among these stakeholders (competitors, unions, investors, regulators and local communities) can represent some kind of stakeholder networks. Therefore, for firms to survive they require capital from these networks, and for the purposes of this study, social capital. In order to contribute to bridging the gap in literature in this direction; two of the empirical papers focus on financial stakeholders that own financial resources and distributors that own market resources. The study focuses on how relational capital in distribution networks influences the survival of SMEs; and the role of structural capital in financial networks influence on SME survival.

Furthermore, social network and capital studies are conducted based on relationships between actors in a given network (Wasserman & Faust, 1994). These relationships and the pattern of the relationships can directly have an effect on enterprise outcomes or the social capital embedded in them can have an effect on these outcomes. Social capital is the 'resources embedded in a social structure which are accessed and/or mobilized in purposive action' (Lin, 1999), or as 'a collective resource that arises from (and is shaped

by) social relations between actors within a network' (Tomlinson, 2011). However, many studies in enterprise research do not use the relationship between actors as the basis for social capital and network effects, but instead use the attributes of the actors (see examples in Biggs & Shah, 2006; Boso, Story, & Cadogan, 2013; Kinghan & Newman, 2015). These studies therefore do not effectively capture the underlying social structure that confers social capital to particular actors or components of the network in which the enterprises are embedded. In these studies, members of a particular social group can be thought of as having social capital, or members can be asked to report how they consider their use of social capital from stakeholders relative to the competition. These approaches do not capture the effect of another member of the group on how much social capital can be appropriate by the actor they interview. Consequently, they assume the social group has unlimited resources to support all ties but this is most often not the case (Borgatti & Halgin, 2011). In order to contribute to the literature in this direction the study attempts to capture the whole network in which SMEs in the study are embedded, and compute the network effect for all actors that are of interest and the effect on survival.

Finally, the study makes a contribution by bridging a few context-based gaps in the literature. Studies in enterprise survival have had less emphasis on the Africa region with less than six studies emerging[1] (Mambula & Sawyer, 2004; Sam, 2007; Akinbogun, 2008; Bekele & Worku, 2008; Okpara, 2011; Ali & Peerlings, 2012). These studies employ data from Nigeria and Ethiopia only. There is only one study that focuses on the agricultural sector (Ali & Peerlings, 2012), while the other three do not specify the sector of study while there is a lack of focus on rural contexts. The study by Ali & Peerlings (2012) explored the effect of clustering on the exit and entry decisions of household farm and

[1] This is based on systematic literature search and review. See the keywords for search and codebook in the appendix.

non-farm enterprise activities in Ethiopia. The authors find that household enterprises located in clusters are less likely to exit than those not operating in clusters. In this study, I attempt to contribute to the literature by providing evidence from rural agricultural enterprises. The departure from the Ali and Peerlings (2012) study is that while it focuses on just clustering effect this study focuses on the specific clustering effects like alter and isomorphic effects and moves beyond just clustering in competition networks to distribution and financial network effects. This study also helps to understand if the issues that are raised in urban studies are likely to vary in a rural context and provide a critical test of falsification of the underlying theories in these studies (Popper, 2005; Flyvbjerg, 2006).

1.2.1 Research Objectives

Based on the research problem the study objectives are as follows:

1. To determine the impact of structural capital of bipartite[2] finance networks on enterprise survival in Ghana;
2. To assess the role of resource access mechanisms of bipartite distribution networks on enterprise survival in Ghana;
3. To explore the role of industry collaboration network isomorphism on the survival chances of enterprises in Ghana;
4. To evaluate the usefulness of alter attributes in collaborative network matters for the survival chances of enterprises in Ghana;
5. To explore the moderating mechanism of enterprise characteristics on the relationship between network effects and enterprise survival; and

[2] Bipartite refers to a two-party network. In a finance network it makes reference to financial institutions and their clients and in the distribution network it refers to manufacturers and their distributors.

6. To explore the moderating role of investment climate constraints on the relationship between network isomorphism and SME survival.

1.2.2 Research Questions

The main question this thesis seeks to answer is: how do the social networks (industry, finance and distribution) of small businesses (poultry farms) influence their survival? This question, however, is framed into much more specific questions for empirical testing. These specific questions are as follows:

1. What is the impact of the structural capital of bipartite finance networks on enterprise survival in Ghana?
2. What is the role of the resource access mechanism of bipartite distribution networks on enterprise survival in Ghana?
3. Does industry collaboration network isomorphism influence the survival chances of enterprises in Ghana?
4. Does alter attributes in a collaborative network matter for the survival chances of enterprises in Ghana?
5. Do enterprise characteristics moderate the relationship between network effects and enterprise survival?
6. Do network effects help SMEs overcome investment climate constraints?

1.3 Literature Review

This section reviews literature on SME survival. The review is conducted on the basis of three broad categories suggested by Mellahi and Wilkinson (2004) on the failure of organisations. These are the deterministic, voluntaristic and integrativists approaches. The

section will focus its efforts on exploring and discussing the key issues and evidences that have been found under these different approaches. I, however, start by defining briefly what an SME is and its survival or failure.

1.3.1 Defining an SME and Its Survival or Failure

The definition of the word SME (herein referred to as enterprise) is as complicated as the sector itself (Senderovitz, 2009). He notes that in many articles it is difficult to see whether the researcher has considered what a small firm actually is, whether the particular definition is appropriate, or what the consequences for the conclusion might be if other definitions were used. The National Board for Small Scale Industries defines SMEs as "any business employing 29 or fewer workers. Micro enterprises are those that employ between 1-5 people with fixed assets not exceeding 10,000 USD excluding land and building. Small enterprises employ between 6 and 29 or have fixed assets not exceeding 100,000 USD, excluding land and building". The Brookings Institute defines an enterprise as "an organisation with annual turnover, in U.S. dollar terms, of between 10 and 1000 times the mean per capita gross national income, at purchasing power parity, of the country in which it operates" (Gibson & van der Vaart, 2008). However, this study will not use this definition because it requires information on enterprises in the developing world that may not be readily available due to the high level of informality in the enterprise sector in Ghana (Yusuf & Saffu, 2005). In order to avoid the definitional debates and complexities in defining an enterprise, the study focuses on a context-based definition of enterprises that has been used by many Ghanaian authors which uses employee numbers as a basis (Kayanula & Quartey, 2000a; Yusuf & Saffu, 2005; Hinson & Sorensen, 2006; Abor, 2007; Kyereboah-Coleman & Amidu, 2008; Saffu, Walker, & Hinson, 2008; Abor & Quartey, 2010; Abor & Biekpe, 2012). An enterprise is defined as any business

employing less than 30 people (Kayanula & Quartey, 2000a). This definition notes that enterprises can be divided into three broad categories: micro, small and medium with categorization based on micro enterprises having less than 6 employees; small enterprises having less than 30 employees while medium enterprises have less than 99 employees. This definition no doubt has its inefficiencies (does not account for turnover, assets, capital and balance sheet) but so far seems accepted by Ghanaian scholars and practitioners as a fair reflection of the Ghanaian enterprise sector.

Enterprise survival and failure are two different sides of the same coin. An enterprise that has failed has not survived and an enterprise that has survived has not failed. For the purposes of this paper, the focus will be on defining failure with the reverse being true for survival. Enterprise failure has been called different names in the management literature to include bankruptcy, decline, retrenchment, enterprise death, downsizing and exit (Mellahi & Wilkinson, 2004). They, however, propose that I exclude retrenchment and downsizing as failures since they are management tools used by managers in recent times to turnaround the fortunes of ailing organizations. Their view of enterprise failure is that of the reduction in the adaptive ability and resources of an organization. Another definition that has been offered of a failed enterprise is "*when an enterprise involuntarily becomes unable to attract new debt or equity funding to reverse decline; consequently, it cannot continue to operate under the current ownership and management. Failure is the endpoint at discontinuance (bankruptcy) and when it is reached, operations cease and judicial proceedings take effect*" (Pretorius, 2009; pp 8). Hannan and Freeman (1986) also defined failure as "when an enterprise ceases to carry out routine actions that sustain its structure, maintains flows of resources and secure allegiance of its members". They, as part of their definition, note four kinds of mortality - disbanding, acquisition, merger and radical

change. This paper also operationalizes organizational failure in the manner proposed by Hannan and Freeman (1986) but do not see acquisitions, mergers and radical change in this form as a failure. Enterprises do not lose the allegiance of their members when they are acquired, merge or changes form (Jones, 2005). Those are managerial manoeuvres to enable the enterprise to adapt to its environment and maintain functional utility for its members (Young, 1988; Greenwood & Suddaby, 2006). This study therefore defines enterprise failure as when an enterprise can no longer meet the utility of its stakeholders. This operationalization therefore is in line with the traditional closure of firms approach.

1.3.2 SME Survival: Key Approaches, Issues and Evidence

1.3.2.1 The Deterministic Approach

This view considers the ecological view of survival and failure. The major underlying theory has been the organizational ecology theory. This approach suggests that firms can do little in the face of environmental factors affecting its survival. The approach notes some of the factors affecting survival as density, size, age, imprinting, linkages with environmental institutions and resource partitioning.

Density Dependence

There is a strong belief among organizational ecologists that the survival of a firm is highly dependent on the number of firms in a particular industry (Hannan & Freeman, 1986; Barnett & Carroll, 1987; Amburgey, Kelly, & Barnett, 1993;). Density dependence is the term used to describe this phenomenon. Barnett and Carroll, (1987) suggests that the survival of firms in an industry and the number of firms in that industry follows a U-shape. This is because initially firms in an industry are few and gain a taken-for-granted view from society thereby gaining legitimacy. This legitimacy however draws more firms into

the industry and soon a keen competition emerges for resources for survival and ultimately some firms are starved of resources and hence put out of business. This approach is, however, an imperfect way of measuring survival because different organizations have different resource needs due to organizational niching in the same industry; competition from same type of industry but in a different location; and firms can migrate into other niches due to competition or firms that are part of the industry but also belong to another industry due to having more than one business unit (Delacroix, Swaminathan, & Solt, 1989; Dobrev & Carroll, 2003; Nickel & Fuentes, 2004). This view has, however, provided the inspiration for other density based models such as cross-effects of density model; delay density model; direct competition model; and density relational model (Nickel & Fuentes, 2004). These new models provide a much more improved approach to understanding the effects of density on survival.

Age Dependence

Organizational failure has been seen to fall with organizational aging (Barnett & Carroll, 1987). The explanation that has been offered for this is that it may be a spurious effect of population heterogeneity. If the mortality rate is stable over a period, soon the weak firms will be selected out and only the fit firms are left (Levinthal, 1991). This suggests that age dependence is not a population level issue, but is a firm level issue as the competences are built over time within a particular organization. Some authors have also suggested that organizations learn with time and hence can perfect their business and are less likely to fail (Sleuwaegen & Goedhuys, 1998; Hannan, 2005; Ruiz-Mercader, Meroño-Cerdan, & Sabater-Sánchez, 2006; Zdunczyk & Blenkinsopp, 2007). Learning reduces the likelihood of exit because the firm becomes dependable in the eyes of its stakeholders who continue to give the firm the required legitimacy to exist. The idea that young firms are more likely

to fail is the liability of newness (Geroski et al., 2010). Some other authors also maintain that there is the liability of adolescence (Michael & Kim, 2005; Kasimoglu, 2006; Bradley, Aldrich, Shepherd, & Wiklund, 2011; McKinley, 2011; Oertel & Walgenbach, 2012b). These authors suggest that some firms initially survive the liability of newness but die soon after that initial start-up phase. Some of the reasons that have been offered for this phenomenon is that initially firms start with a stock of resources (financial, human and natural) and after those have been exhausted they are not able to acquire more and cannot continue as a going-concern (Michael & Kim, 2005). There is also the thought that firms go through a period of unconditional trust, and based on their performance, the environment will provide or withdraw its legitimacy (Oertel & Walgenbach, 2012a). Some other authors have also presented the idea of obsolescence (Baum & Mezias, 1992; Perez, Llopis, & Llopis, 2004; Carroll & Khessina, 2005; Hannan, 2005). The idea of obsolescence suggests that, over time, firms become misaligned and have difficulty adapting to the environment (Carroll & Khessina, 2005; Hannan, 2005); there is sometimes challenges with succession among owner-managed firms (Perez et al., 2004) and fixed costs invariability (Baum & Mezias, 1992).

Liability of Smallness

The idea suggests that organizational failure is linked to the size of the organization (Azoulay & Shane, 2001; Sarkar, Echambadi, Agarwal, & Sen, 2006; Box, 2007; Gassmann, Enkel, & Chesbrough, 2010; Burger & Owens, 2013). The bigger the size of the firm the less likely it is that the firm will fail. The reasons are that small firms lack economies of scale, do not have inertia abilities to withstand environmental shocks, lack external legitimization and find it difficult accessing resources (Sarkar et al., 2006; Gassmann et al., 2010). Another way SMEs can fail is the growth path from a small

company to a large company; this is known as *growth-paths*. This refers to the trajectory that a small firm takes in its developmental process. Some of the evidence in the literature suggests that every possible growth-path seems to occur with roughly equal probability. However, growth-paths influence subsequent survival (Coad et al., 2013). Holmes, Hunt, and Stone (2010) also found that increases in initial plant size impact negatively on micro-enterprise survival and positively on SME survival. This finding is closely related to the idea of liability of size where firms begin to face problems of inertia as a result of growth. The evidence also confirms the liability of smallness-hypothesis for a German manufacturing firm while with respect to firm age the results favour the liability of adolescence-hypothesis instead of a pure liability of newness (Strotmann, 2006). Another interesting finding has been the support for the notion that profitability enhances both survival and growth, and growth helps profitability but has a negative effect on survival (Delmar et al., 2013). Business cycles influence survival. Entrepreneurial firms are sensitive to and follow a pro-cyclical pattern of survival likelihood over the business cycle (Ejermo & Xiao, 2014).

Imprinting

Another deterministic explanation for firm failure is the idea of imprinting. Imprinting states that the environmental conditions at the time of founding has implications for the survival or failure of firms (Sorensen & Stuart, 2000; Geroski et al., 2010; Lamberg, Tikkanen, Nokelainen, & Suur-inkeroinen, 2009; Luo & Han, 2009; Zaring & Eriksson, 2009). Geroski et al. (2010) note that firms formed in highly dense environments may face the liability of scarcity and tight niche-packing and may not be able to reposition themselves after that phase and hence fail. In effect, imprinting may prevent firms from taking advantage of opportunities for strategic change. Some authors have also suggested

that the impact of imprinting on failure may be due to the firms' institutional structure, market orientation and capability conditions (Luo & Han, 2009). Overall, firms that do not take advantage of opportunities for strategic change may find they are unfit for the environment and selected out. SMEs that are born in a boom seem to have almost permanently high survival rates as they are able to gain the advantages of economies of scale (Geroski et al., 2010). This point is supported by Chung, Lo and Chen (2011) who found that the founding scale of large, corporate-sponsored new ventures have higher survival rates than independent ventures. However, when the founding scale is smaller, the reverse is true. Resource munificence related to sponsorship can potentially decrease or increase survival rates among new organizations and that these effects are contingent on fit of resource type with its respective geographic-based founding density (Amezcua, Grimes, Bradley, & Wiklund, 2013). Another founding effect that has a positive effect on firm survival is spin-offs. Spin-offs from a surviving parent and, to a lesser degree, industry-specific experience positively affects the likelihood of survival (Dahl & Reichstein, 2007). Related to the spin-off idea is prior experience in the industry. Market experience is positively related to emerging market firms' entry and survival (Thomas, Eden, Hitt, & Miller, 2007). Significant differences also exist between social and business-oriented entrepreneurship in the form and intensity of the independent variables related to survival (Simón-Moya, Revuelto-Taboada, & Ribeiro-Soriano, 2012). Founder's educational background has been found to influence survival chances of SMEs (Saridakis, Mole, & Storey, 2008). This point has been corroborated by Millán, Congregado, and Román (2010) who found a positive impact on survival of formal education and previous experience within the labour market. The expenditure on start-up subsidies decreases the risk of exiting self-employment specifically for the group of individuals entering self-employment from unemployment.

Resource Partitioning

This theory argues that firms survive based on the segments of a market that an organization occupies (Carroll & William, 2004). The theory notes that firms occupy two broad segments that also determine their resource usage. There are specialists that occupy homogeneous segments of the market and survive within limited range of resources. There are also generalist that occupies broad segments of the market and require large resources to survive. Generalists have been found to have a higher survival rate than specialists as they have resources to diversify into other niches in times of crises (Henderson & Mitchell, 1997; Hannan, 2005).

Linkages with Institutions

The pioneering work of Baum and Oliver (1991) suggested that firms with linkages with external institutions receive external legitimacy and are less likely to fail. In the face of intense competition, firms draw on the goodwill that they have with the institutions to avoid failure. Firms are able to gain this goodwill because their ties with the institution mean environmental values are passed to the firm as to accepted behavioural patterns that lead to selection (Alexander, Kaluzny, & Middleton, 1986). This may include preferential treatment from regulators, suppliers and customers (Lyles, 2004). Interactions with government also influence SME survival especially in the developing world where the government has the 'largest' purse. Hansen, Rand, and Tarp (2009) note that enterprises which have the state sector as their main customer perform better at survival than their counterparts. An increase in government payments has a small but statistically significant negative effect on the rate of business failure, and the magnitude of this effect increases with farm size (Key & Roberts, 2006). Businesses that receive funds from the government

at start-up are seen to have close to a minimum of three years survival threshold (Caliendo & Kritikos, 2009). Some authors have also found that generally governmental inefficiencies are to blame for the diminishing survival chances of SMEs (Akinbogun, 2008). General institutional (environmental) factors both industrial and macro have also been seen to affect survival chances of SMEs (Mambula & Sawyer, 2004). Korunka, Kessler, Frank, and Lueger (2010) have found that a larger part of the survival variance is explained by environment/resource interactions. The attractiveness of the country of operations to foreign direct investment (FDI) also influences survival chances of SMEs. Burke, Görg, and Hanley (2007) found a net positive effect of FDI on survival. Limited access to finance, poor market conditions, inadequate staff, and lack of institutional support, as well as co-operation have all been found to limit the survival chances of SMEs (Franco & Haase, 2009). SMEs operating in high-crime niches in urban America appear not to be disadvantaged by crime. Crime's impact may certainly be harmful, with other factors being constant, but the crux of the findings is that other factors are not constant (Bates & Robb, 2008). Ma and Lin (2010) have also found that it is not the 'credit crunch' and the restriction of credit itself that has an impact on SME survival, but rather the consequences arising from the recession.

Industry Life Cycle Theory

This notion states that industries follow a life cycle from fragmentation, through shakeout, maturity to decline. The fate of firms in an industry will also follow the same pattern (Klepper 2005). Agarwal et al. (2002) have also found that industries go through phases in their structures, competition and configurations that have a strong relationship with firms in that industry. There is also empirical evidence to suggest that the timing of entry into an industry has a strong influence on survival and this is linked with the idea of imprinting.

Location Theory

Location is another important factor in the survivability of SMEs. Location theories generally, claim that firms can access resources from customers and suppliers while avoiding competition by virtue of their location and hence enhance survival chances of firms (Fritsch, Brixy, & Falck, 2006). Fertala (2007) for instance, has found that the tax rate leads to a significant increase in the hazard rate, while the population density enhances the survival chances. Support has also been found for the fact that regions vary in human capital competences and those regions with high human capital competencies have a higher survival chance than those who do not (Zhang & Yang, 2006). Industrial localization has a positive influence on new businesses survival while (Renski, 2011) aspects of the local liveability of neighbourhoods and of economic agglomeration are significantly related to individual firm survival and firm growth (Sleutjes, Oort, & Schutjens, 2012). Also in terms of the rural-urban divide, firms located in urban areas are at a higher risk of failure. Firms situated in counties that have achieved a high level of economic development stand a better chance of surviving (Christie & Sjoquist, 2012). Evidence has also been found for non-farm enterprises having higher survival chances when they operate in clusters (Ali & Peerlings, 2012).

1.3.2.2 The Voluntaristic Approach

This view sees organizational survival or failure as a function of internal firm mechanisms and pays little attention to the external environment. Some of the internal factors that have been discussed are leadership, absorptive capacity, innovation culture, firm orientations, resources and capabilities. Some of these are discussed in following sections.

Upper Echelon Theory

Upper echelon theory refers to the ability of top management of organizations to motivate, manage and provide required structures for employees to achieve the goals of the organization and ultimately survive (Crossan & Apaydin, 2010). Two factors noted to influence survival are management heterogeneity and succession (Mellahi & Wilkinson, 2004). On management heterogeneity, firms that have management with the same background values are more likely to lead firms to failure than their heterogeneous counterparts. This, Tsai (2010) notes, is because homogeneous groups are more likely to engage in groupthink, and are less likely to think outside the box for alternative solutions and repeat unsuccessful methods that achieve no results. Again, management teams that have been at post for long periods will more likely fail than new ones. Duncan et al. (2011) notes that this is because such management teams most often have exhausted their ideas and may bring nothing new in the face of crisis or a fight for survival. Another means by which top management, and in the case of SMEs owner managers, influence failure is through partner exit. This is a corporate governance issue. This is usually as a result of disagreement among partners about how the SME should be managed. Oertel and Walgenbach (2012c) have found that partner exit increases the mortality risk of organizations. Community characteristics, family achievements, family processes during change, business and owner characteristics, and business processes during stability affected long-term survival in family-owned businesses (Stafford, Bhargava, Danes, Haynes, & Brewton, 2010). Arribas and Vila (2007) found that specific aspects of human capital that are determinants of a company's survival time are gender, previous work experience in the same activity or as the owner of a firm, and the number of partners. Evidence from Germany also suggests that partners' educational background influences

survival rates. Certificates increase the survival chances of organizations. However, the positive influence of certificates decreases with the age of an organization. Moreover, enterprises without certificates show even better survival chances in the long run (Oertel & Walgenbach, 2011). Coad and Guenther (2012) have also found a positive impact on survival of formal education and previous experience within the labour market. Their results also show that the expenditure on start-up subsidies decreases the risk of exiting self-employment specifically for the group of individuals entering self-employment from unemployment. Bird and Sapp (2004) have also found a gender gap in small business success. They have found that men-owned businesses are more successful in both urban and rural settings. This, the authors attribute to socio-cultural constructions of what women must do and otherwise.

Absorptive Capacity

Absorptive capacity considers the internal ability of an organization to adopt useful information from its external environment (Levinthal, 1991). This information can come from the firm's own research and development activities, mimic other firms, purchase from external sources or learn from its own internal operations (Nobelius, 2004; Vakola & Rezgui, 2000). Absorptive capacity is critical for firm growth and survival as it enables the firm to plan to adapt to its environment by purchasing competitive equipment to boost its production abilities. An orientation towards the market will also enable the firm to produce to meet market requirements (Mavondo & Farrell, 2003; Hou, 2008). The survival of the firm is therefore linked to its ability to assimilate and use environmental information (Tanewski, Prajogo, & Sohal, 2003). However, employees' knowledge abilities are critical for the absorption and use of new knowledge from the environment. Firms with highly skilled employees are more likely to absorb more information from its environment and

help the firm achieve greater growth than their other counterparts. Skilled employees can carefully assess pros and cons of information and how they fit strategically with firm goals (Tanewski et al., 2003).

Innovativeness

There is no 'general theory' of innovation. Many researchers believe a general theory is impossible due to the many complexities of innovation (Read, 2000). However, there is the general belief that it is the adoption of new ideas and methods that enables organisational survival and success (Drucker, 1985). Innovation comes from research and development (R&D) that is mainly organisation knowledge accumulation and imitating the innovations of other firms. There are contrasting empirical findings regarding the role of innovation for the survivability of small businesses. Tsvetkova, Thill, and Strumsky (2014) found that innovation, usually found to be a beneficial factor for the survival of SMEs, appears here, on the contrary, as unfavourable. However, Cefis (2005) found innovation extends firm life especially process innovation. This suggests that the type of innovation employed matters for survival. This is because process innovation reduces the probability of exit by radical restructuring, while product innovation, when not supported by process innovation, especially increases the probability of exit by mergers and acquisitions (M&As), inferring that exit strategies are intimately bound to the nature and synergies of innovative efforts.

Managerial Orientations

Managerial orientations refer to how enterprises are set up culturally. These orientations include market orientation, entrepreneurial orientation and strategic orientation. The study focuses on market and entrepreneurial orientation as small businesses are usually not

complex enough to engage in strategic orientation[3]. Entrepreneurial orientation (EO) refers to an enterprise's strategic orientation, capturing specific entrepreneurial aspects of decision-making styles, methods, and practices (Covin & Miller, 2014). This, therefore, reflects how the firm operates rather than what is does, hence requiring it to be fundamentally proactive, innovative and take risks (Lumpkin & Dess, 1996; Quaye & Acheampong, 2013). Market orientation is derived from the application of a marketing concept suggesting that the key to organisational success is through the determination and satisfaction of the needs, wants, and aspirations of target markets (Mahmoud & Yusif, 2012). MO is therefore a cultural orientation with behavioural implications since it channels organizational efforts towards learning about markets and developing strategies in response to market threats and/or opportunities (Cambra-Fierro, Florin, Perez, & Whitelock, 2011). Parry, Jones, Rowley, and Kupiec-Teahan (2012) found that, for marketing orientation to be useful, small businesses need to balance that with innovation. Criaco, Minola, Migliorini, and Serarols-Tarrés (2013) have found that entrepreneurial orientation improves the survivability of the small business. Their findings, however, are situated within the broader human capital theory within the business. Kim, Knotts, and Jones (2008) used artificial neural networks to establish that firms that use viable organizations to create and market products appealing to the customer are those that are also more likely to survive over a longer period of time. While long-term survival is not the only measure of the success of a small manufacturing firm, survived firms encompass other well-known success measures such as sales performance and profitability.

[3] This was observed during the field studies. When respondents were asked questions related to strategic orientation it was realised that there were few strategic level issues they could identify with. Hence this construct was dropped. Acquaah (2007) conducted a study of strategic orientation in Ghana but used large industrial firms.

Resources and Capabilities

The resources and capabilities available to a company are critical to its growth and survival. Firms that have valuable, rare, inimitable and non-substitutable resources are more likely to be competitive and survive that of their other counterparts (Barney, 1991). Internal firm capabilities are also critical to growth and survival. Core competences have been noted to be more important than resources because when applied, competences do not get depleted like resources (Prahalad, 1993). Dynamic capability theorists have also noted that firms survive longer if management can build the capabilities of employees through learning from operational routines (Teece, 2007). In all, firms whose management is able to develop key resources build core competences and capabilities have a greater survivability than those firms that do not (Montresor, 2004). McKay and Chung (2005) linked dynamic capability to upper echelon theory and found that cooperation, sharing founder's vision, time management, and developing organizational competencies have a significant effect on the survival chances of firms. Empirical studies suggest that business planning competencies do not confer any survival advantages to small businesses (Fernández-Guerrero, Revuelto-Taboada, & Simón-Moya, 2012). Competence-strategies enhance survival but flexibility-based strategies risk their very survival (Hiebl, 2013). Barbera and Hasso (2013) have found firms that have external accountants perform better at surviving than those that do not. This is because of the competencies that these professionals bring to the business.

Other Voluntaristic Factors

In this subsection, I include other managerial factors that cannot be included in the broad sections mentioned above. Organisational learning has been found to have a positive effect on firms survival chances (Esteve-Pérez, Máñez-Castillejo, & Sanchis-Llopis, 2007). The

evidence supports the existence of a sizeable ‘‘surviving-by-exporting’’ effect. Lee, Kelley, Lee, Lee, and Al (2012) confirm this assertion as they also found that internationalization is associated with better survival prospects, suggesting that failure risk does not increase with cross-border sales. The ethical values of the firm have also been found to support firms that pursue it (Vallejo, 2007). This is because firms that behave in unethical ways lose the social legitimation required to sustain the business. Gudmundsson and Lechner (2013) use cognitive theory to explain why some firms fail and found that overconfidence is the chief negative influence on survival. Optimism bias and distrust are conflicting cognitive biases influencing overconfidence, but showing a directly opposite influence on firm survival respectively.

1.3.2.3 Integrativist Approach

This view seeks to integrate the determinism of the ecological view with the voluntarism of the organizational view. Proposed by Mellahi and Wilkinson (2004, pp. 32), they note that “a fundamental axiom of the integrative framework is the different theoretical assumptions and linkages underlying each perspective are not only reconcilable but that, together, they provide a more comprehensive understanding of organizational failure than any single perspective by itself”. The authors propose that, by integrating the two perspectives, they can provide a much more pragmatic understanding of organizational failure. Since proposing this mechanism for understanding failure it has received widespread attention[4]. The challenge, however, is that there has been little application of the framework proposed with most scholars citing it for literature purposes.

[4] The publication that proposed the mechanism has received 229 citations according to Google Scholar as at April 15, 2015.

1.3.2.4 Emerging Trends

While most of the views espoused above have focused on the reasons for failure or survival, new issues have begun to emerge on the subject matter. These include post-failure behaviour (Cope, 2011); types of failure (Wennberg, Wiklund, DeTienne, & Cardon, 2010); and patterns of failure (Sam, 2007). The evidence from post-failure suggests that the social construction of entrepreneurial failure is driven by the need to maintain positive self-esteem and recover from the loss of the venture (Mantere, Aula, Schildt, & Vaara, 2013). Again, failure's powerful learning outcomes are future-oriented, increasing the entrepreneur's level of entrepreneurial preparedness for further enterprising activities (Cope, 2011). Also, not all entrepreneurs experienced loss of self-esteem and felt grief, thus lending empirical support to the premise that failure of the firm does not always imply failure of the entrepreneur (Jenkins, Wiklund, & Brundin, 2014). The patterns in mortality also indicate that failure is fairly distributed along the life of an SME; with only a small fraction of the closures occurring in the infancy of the firms (Sam, 2007). This may be due to the liability of age effect described under the organizational ecology theory. The argument in the types of failure literature states that; entrepreneurs exit from both firms in distress and firms performing well (Wennberg et al., 2010); hence it will be unscrupulous to describe entrepreneurs as having failed. The literature suggests that the broad name be exit while sub-themes such as closure, failure and mortality are discussed (Wennberg & DeTienne, 2014).

1.4 Conceptual Framework

This section focuses on bringing together the theoretical perspectives required to create a conceptual framework for empirical testing of SME survival in Ghana. The main

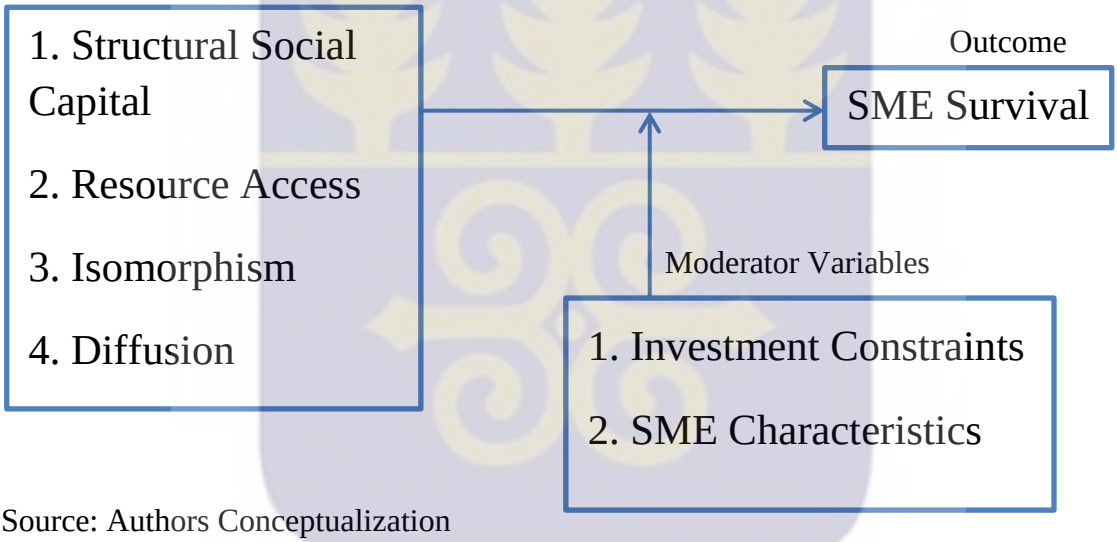
theoretical mechanism employed to explain failure of SMEs in this is social network theory. Social network theory postulates that actors (individuals, firms, industries, countries and units) are connected by some ties (relationships). These ties confer opportunities and constraints that inform their social behaviour. Brass, Galaskiewicz, Greve, and Tsai (2004) describe the concept as 'a network as a set of nodes and the set of ties representing some relationship, or lack of relationship, between the nodes. The particular content of the relationships represented by the ties is limited only by a researcher's imagination. Typically studied under networks are strategic alliances and collaborations; flows of information (communication); affect (friendship); goods and services (workflow); influence (advice); and overlapping group memberships such as boards of directors. There are usually several reasons why networking occurs as enumerated above. However, there is a basic organising principle underlying all the networks that an individual can have called homophily. McPherson, Smith-Lovin, and Cook (2001) discuss that actors have an affinity to relate more to those who behave like them noting that geography, organisational structures, industries and isomorphism in social systems give rise to homophilious relational forms in humans and organisations. Homophily is just one of the concepts in social networks; but there are several others that I discuss and relate to enterprise survival. Homophily is related to the idea of mimetic isomorphism in institutional theory, which states that firms mimic successful firms by acting like them. There is also the idea of structural holes that states that firms that bridge gaps between other firms that have no connections among them in any social network have a stronger bargaining power for resources in that network (Burt, 2004). Some other concepts in social network theory include: embeddedness - the notion that all economic activities are found within some broader social context (Granovetter, 1985); board interlocks - the notion that organisations relate as a result of having board memberships

with implications for organisational dependencies and power and control for some elites (Borgatti & Foster, 2003; Pfeffer & Salancik, 2003); reciprocity - rewarding an actor's connection with a connection (for example *i* to *j* and *j* to *i* friendships) (Leider, Möbius, Rosenblat, & Do, 2009); clustering and closure - actors being connected to actors connected to the connections (example people becoming friends with friends of their friends) (Levine & Kurzban, 2006); and centrality - this refers to the stars of organisational networks (those central to the network) (Rivera, Soderstrom, & Uzzi, 2010).

Granovetter (2005, pp. 42) has also discussed social networks and their impacts on economic outcomes. He notes that social networks affect labour markets, prices, productivity and innovation. He, however, concludes that the three main reasons why social networks affect economic outcomes in organisations are because: '*social networks affect the flow and the quality of information. Much information is subtle, nuanced and difficult to verify, so actors do not believe impersonal sources and instead rely on people they know. Second, social networks are an important source of reward and punishment, since these are often magnified in their impact when coming from others personally known. Third, trust, by which refers to the confidence that others will do the "right" thing despite a clear balance of incentives to the contrary, emerges, if it does, in the context of a social network*'. These offer mechanisms through which the consequences of social networks can be felt by organisations. However, in a detailed review and typology of social network theory in organisational paradigms, Borgatti and Foster (2003) note that the theory offers the opportunity for the inclusion of other theoretical mechanisms to explain network consequences. The study therefore develops a framework by adapting the typology of network consequences that these authors offer and moderate with existing theoretical elements. These elements are structural capital from social capital theory (Lin,

1999); resources access from resource dependence theory (Pfeffer & Salancik, 2003); isomorphism from institutional theory (DiMaggio & Powell, 1991); and contagion from diffusion of innovation theory (Rogers, 2010). In this section of the thesis, these issues are discussed in brief but expanded open in the theory and hypothesis sections of the four empirical papers that test different parts of this framework. A diagrammatic presentation of the framework is presented below.

Figure1.1: Basic Conceptual Framework



Source: Authors Conceptualization

1.4.1 Structural Social Capital

Social capital refers to 'resources embedded in a social structure which are accessed and/or mobilized in purposive action' (Lin, 1999, pp. 31) or as 'a collective resource that arises from (and is shaped by) social relations between actors within a network' (Tomlinson, 2011, pp. 5). These descriptions of social capital have structural embeddedness, opportunities and action oriented uses. Thus, the basic understanding is that social capital comes from social relations. Oh, Labianca, and Chung (2006) have also proposed the idea of group social capital. They argue that this is the set of resources made available to a

group through members' social relationships within the social structure of the group and in the broader formal and informal structure of the organization and that greater group social capital resources lead to greater group effectiveness. There are three dimensions of social capital. These are structural, relational and cognitive dimensions (Liao & Welsch, 2005). The structural dimension focuses on the locations of actors within a network and the benefits they confer on such an actor. Issues investigated under network structure include centrality and structural holes. This study focuses on the structural dimension of social capital and deals with the centrality of individual actors in a network as these positions confer certain privileges on the actor. Some of these privileges comprise conferring certain competitive advantages as has been described as the final arbiter of competition among firms as no matter the amount of productive resources available to a firm, its ability to sell through its network is what ultimately matters (Burt, 1992; 2000). Empirical studies in social capital has focused on explaining variances in organisational outcomes (Moody & Paxton, 2009). Pennings, Lee, and Witteloostuijn (1998) also found that social capital predicted firm dissolution based on uniqueness and appropriation of social capital resources but also proposed future studies considering stimulating effects of organisational ecology and resource-based view perspectives. Despite these benefits of social capital, some authors have mentioned the 'dark-side' of social capital in which over-embeddedness can constrain firm innovations as there are few ties to outside actors (weak ties) (Gulati, Nohria, & Zaheer, 2000; Gulati & Higgins, 2003). Liao and Welsch (2005) have also reported that social capital has no effect on entrepreneurial behaviour in organisations. Consequently, this variable will be used as an antecedent to SME survival while controlling for SME characteristics, owner characteristics, investment climate constraints, and managerial and technical competencies.

1.4.2 Resource Access

Enterprises do not have resource sufficiency and hence depend on other organisations in the external environment for resources required for their functioning and survival. This dependence on the external organisation creates uncertainty as that organisation can exert power over the enterprise as a result of this dependence. This power can be exerted positively in favour of the enterprises or against it. In order for enterprises to limit the negative effect of the organisation on its operations it must develop positive relational linkages with the organisation. This phenomenon has been described as the resource dependence theory or the external control of organisations (Pfeffer & Salancik, 2003). Drees and Heugens (2013) have noted that the resource dependence theory (RDT) has long been a premier framework for understanding organization-environmental relations by explaining how enterprises form interorganizational arrangements like interlocks, alliances, joint ventures, in-sourcing arrangements, and mergers and acquisitions. It also theorizes how these arrangements make enterprises more autonomous and more legitimate. Again, RDT assumes exchange is affected by more complex social factors and focuses on the social context of the organization's relationships with the environment. RDT states that firms manage their dependencies in the face of uncertainty and that, as the environment becomes more uncertain and dependencies increase, firms will seek closer relationships to improve information exchanges, commitment, legitimacy, and exchange stability (Fink, 2006). The theory also assumes that organisations make active choices about their external relations in order to gain the required legitimacy to gain access to resources for their functioning (Hessels & Terjesen, 2008). Within organisational networks, this theory reflects the connectionist perspective (Zaheer et al., 2010). This approach suggests that the amount of resources that an actor can draw from its alter is dependent on the number and quality of ties it has with the alter (Borgatti & Foster, 2003). The ties act as conduits

through which the actor can extract the resources. This argument assumes that actors are rational agents that will exploit their relationship with alters rich in resources to benefit from those resources (Borgatti & Cross, 2003). Evidence from a sample of young biotechnology firms show that ties to prominent venture capital firms are particularly beneficial to IPO success during cold markets, while ties to prominent investment banks are particularly beneficial to IPO success during hot markets (Gulati & Higgins, 2003). Consequently, this variable will be used as an antecedent to SME survival while moderating SME characteristics and controlling for owner characteristics, investment climate constraints and managerial competencies.

1.4.3 Isomorphism

Isomorphism is the constraining effect in business environments or industry that forces firms to become similar with each other (DiMaggio & Powell, 1991). This occurs because firms seek to adjust their organisational forms to withstand these constraints. These effects work through formal and informal pressures (coercive), responses to uncertainty and ambiguity in the environment (mimetic) and industry norms (normative). Hambrick, Finkelstein, Cho, and Jackson (2004, pp. 320) observe from the theory that "organizations must compete for social success (power and legitimacy) as much as for economic success, and thus are subjected to isomorphic mechanisms, which – if present – produce an increasing degree of similarity among peer organizations over time". Isomorphism in social structures is also the result of complex relational networks that foster effective practice; occupational specialization, principles of coordination as well as best practices developed by successful firms diffuse through the relational networks (Meyer & Rowan, 1977). Within network studies, Borgatti and Foster (2003) has described it as the convergence in actor attitudes and practices as a result of similar networking

environments. Isomorphism can have a positive impact on organisational outcomes as a result of legitimation of structural form rather than technical efficiency; the logics of good faith and reduction in environmental turbulence (Scott, 1991). These can serve as currency through which other more tangible resources can be acquired for productive activities (Deephouse, 1996). In network environments, the impacts of isomorphism works through oligopolistic coordination and trust that reduces transaction costs as a result of having similar third parties (Gulati et al., 2000; Burt, 2005; Williamson, 2005). Beyond certain thresholds, isomorphism returns negative effects as similar firms begin to compete for similar resources to maintain their organisational forms leading to competitive crowding (Podolny, Stuart, & Hannan, 1996). Again, similar firms with connections to similar third parties can lead to redundant information flows that will make them obsolete and fail (Burt, 2005; Symeonidis, Tiakas, & Manolopoulos, 2010). Consequently, this variable will be used as an antecedent to SME survival while moderating for investment climate constraints and controlling for SME characteristics, owner characteristics and managerial competencies.

1.4.4 Diffusion

Ideas, attitudes and resources can spread from one actor to the other in a network. These shared attributes of actors in a network can be explained by the diffusion of innovations theory. The theory suggests that such resources need to diffuse through a medium over time in a social system to be made available to the alters that require them. This means that, for the resource to be diffused, the medium of diffusion, the timeline and the social system within which the diffusion takes place, are relevant (Rogers, 2010). Four main issues emerge from theory and these are: (1) the alter resource to be diffused; (2) the medium of diffusion; (3) time; and (4) the network when it is considered from a network

point of view. Borgatti and Foster (2003, pp. 1001) note that "ties are conceived of as conduits or roads along which information or influence flow and seen from the point of view of a single actor, her adoption of a practice is determined by the proportion of nodes surrounding her that have adopted". Diffusion of resources within networks is very useful for SME outcomes because, according to Lichtenthaler (2008), SMEs can reap greater benefits from external collaborations as it can compensate for the scarcity of internal resources and competences. Mcdade and Malecki (1997) have also suggested that in industrial estates resource sharing is very common among individual entrepreneurs in Ghana as a mechanism for overcoming the resource constraints that they face. Consequently, this variable will be used as an antecedent to SME survival while controlling for SME characteristics, owner characteristics, investment climate constraints, and managerial and technical competencies.

1.4.5 Moderators

The strength of association between whether an SME survives and the network effects are moderated by some variables such as managerial competence, technical competence, SME characteristics, owner characteristics and investment climate constraints that have also been shown to have an effect on survival as individual constructs. In this study I focus on two of these moderators - SME characteristics and investment climate constraints. The effects of SME characteristics on SME survival has been discussed through the organisational ecology theory (Hannan & Freeman, 1993). More specifically, SME size has been seen to affect survival through the liability of smallness (Box, 2007); SME age has been observed to affect survival through the age dependence hypothesis (Thornhill & Amit, 2003); while the resource requirements of the SME concerning whether it specializes or not works through the resource partitioning effect (Carroll & William,

2004). In this study, the researcher specifically focuses on how these SME characteristics moderate the relationship between SME distributional ties as a market resource access mechanism and SME survival. The second moderator that is considered is investment climate constraints. These constraints include access to credit, access to raw materials, labour quality, land and electricity. Difficulty in accessing or overcoming these factors or issues in the operating environment imposes indirect costs on the functioning of the SMEs (Eifert, Gelb, & Ramachandran, 2008). The study considers how isomorphism of SME in the network environment can be useful in overcoming the general investment climate constraints. This is because isomorphic firms are judged on their structural forms rather than their technical efficiency in overcoming institutional constraints (Scott, 1991).

1.5 Context of the Study

1.5.1 Issues in the Ghanaian SME Sector

Abor and Quartey (2010) have noted that SMEs in Ghana constitute 85% of the manufacturing sector's employment. They are also believed to contribute about 70% to Ghana's GDP and account for about 92% of businesses in Ghana. Notwithstanding the recognition of the important roles SMEs play, their development is largely constrained by a number of factors, such as lack of access to appropriate technology; limited access to international markets; the existence of laws; regulations and rules that impede the development of the sector; weak institutional capacity; lack of management skills and training; and most importantly, finance. Benzing and Chu (2009) researching motivations of small business owners in Ghana, Kenya and Nigeria found that the strongest motivator across countries was the opportunity to increase income. Their factor analysis found three motivation factors: a family factor; an external validation factor,; and a self-betterment

factor. The three countries showed significant differences with Ghanaian entrepreneurs by rating the family factor as more important.

Mcdade and Malecki (1997) studied entrepreneurial clustering in Ghana and observed a paradox. On the one hand, there are many examples of ingenious innovation in the adaptation of material resources such as recycling worn-out rubber tires into 'new' hand-tooled for precision-calibrated wheel bushings of expensive cars, such as Mercedes Benz. However, much of the energy of innovation is consumed in finding ways to accommodate the scarcity of basic economic and material resources. Economic difficulties do not also encourage SMEs to plan seriously. Studies show that firms that plan do not necessarily experience increased performance, with the exception of the manufacturing sector (Yusuf & Saffu, 2005). Mensah et al. (2007) note that most enterprise activities are for subsistence purposes in Ghana. The majority of the firms are sole proprietorships, with most of the hired labour being apprentices. A high proportion of rural-based proprietors and many urban-based proprietors have secondary occupations. The majority are unprofitable when the legal minimum wage was used as a proxy for the value of proprietors' time. The small enterprises represent part of a 'sustainable livelihoods' strategy of lowering economic risk by diversifying income sources.

Agyapong (2010) studying internationalization tendencies revealed that lack of international presence by Ghanaian SMEs is due mainly to lack of internal strategic capabilities. However, organization's successful strategies are dependent partly on having internal strategic capability required for survival and success. The research further reveals that, due to lack of both tangible and intangible resources such as finance, information, reputation, knowledge and technology, the SMEs in Ghana are unable to compete in the

international markets on the product features, quality and price. Buame et al. (2013) studying the gendered part of enterprise activities in Ghana noted that the indigenous Ghanaian woman entrepreneur exhibits many similarities with their male counterparts in terms of their personality traits. However, they differed in other aspects such as their educational backgrounds and modes of entrepreneurial skills acquisition. Through their entrepreneurial activities the women have made substantial contributions to the economic growth of Ghana in terms of innovation, job creation, and reduction in poverty and unemployment.

In sum, the Ghanaian SME sector is a very complex one. The sector contributes significantly to national development in terms of employment and GDP. This is despite the scarcity and constraints they face. The enterprises exhibit a lot of ingenuity to overcome these structural challenges. Family networks play a huge role in small businesses. It is a popular belief in Ghana that family members help you build a business and also help to destroy it. There is also a huge lack of planning due to economic difficulties and sometimes simply lack of the ability to do so. This may account for their high mortality. Most Ghanaian SMEs use cheap labour and yet are unprofitable to even achieve their subsistence goal. There is a lack of international presence mainly due to the lack of internal strategic capabilities. The role of women is very high as most husbands provide capital for their housewives to trade or engage in some business activity.

1.5.2 Ghanaian Poultry Sector: A Focus on the Dormaa Cluster

The poultry sector in Ghana is one of the few sectors that have faced the harsh realities of trade liberalization. This has led to the collapse and below-capacity operation of many of the poultry clusters in the country before the mid-1980s to early 1990s (FAO, 2014).

Compared to cocoa, maize or rice, the poultry sector does not feature prominently in economic planning or agricultural policy and programme documents. Where it is referred to, the proposed measures appear to lack either purpose, focus or consistency, and it is difficult to discern a specific policy approach or strategy towards the poultry sector (Sumberg, Awo, Fiankor, Kwadzo & Thompson, 2013). The study researches the poultry sector in three districts of the Brong Ahafo Region - Dormaa Central (Dormaa Ahenkro), Dormaa West (Nkrankwanta) and Dormaa East (Wamfie). This cluster is popularly known in the agriculture literature as the Sunyani/Dormaa cluster (Mensah-Bonsu & Rich, 2010). At the moment the poultry industry, specifically table egg production, is operating at large scale levels. Poultry production in this cluster is one of the largest in the region and nationwide. Some of the major challenges encountered by the poultry farmers included; financing, diseases and absence of electricity for operations in most farms while the presence of feed processing mills, poultry input shops and availability of organised markets served as prospects that could be harnessed to boost the growth of the poultry industry in the district (Adei & Asante, 2012). The area seems to have formed strong collaborative partnerships with Foani Farms in La Cote D'Ivoire to avoid competition that was leading to collapse of some farms. Anecdotal evidence suggests (the researcher observed this) some farms that collapse are helped back to their feet by Foani Farms so long as there is a social or familial linkage. The owner of Foani farms is a family relation of the broader Unity Farms in Ghana, one of the big players in the Ghana poultry industry. The cluster in recent times is one of the few in the sector receiving support from the Ghana government as part of the broader National Poultry Support Project (NPSP) announced by the Ministry of Trade and Industry[5] and the Ghana Broiler Revitalization Project (GHABROP) through the Ministry of Food and Agriculture (MOFA) in a ten year

[5] http://graphic.com.gh/news/general-news/22412-government-support-to-poultry-industry-increasing.html

collaboration with the Ghana National Association of Poultry Farmers[6]. There are many farms in Dormaa owned by returnees from Europe or remittances from migrants to Europe who are seeking to return back to Ghana. Please see detailed statistics about sector in Appendix 1.

1.6 Overview of Methodology

This section seeks to present how the problem statement, research objectives and research questions were addressed. By definition, methodology can be seen as a way of thinking about and studying reality, whilst methods can be defined as "a set of procedures and techniques for gathering and analysing data" (Strauss & Corbin, 1998). This section presents a general overview of the various methodological issues utilized in the various empirical papers. The detailed research methods are explicated in the various papers. Specifically, this section first illustrates the methodology employed in this thesis by first describing higher level considerations such as philosophical views, research approach, research design, data sources, and research strategy,; and thereafter moving to more practical considerations and methods including data collection, questionnaire design, sampling, survey administration, and data analysis. Finally, the quality criteria applied to this study are then described and discussed.

1.6.1 Philosophical World Views

Although philosophical ideas remain largely hidden they still influence research and need to be identified (Creswell, 2009). Philosophical world views form the paradigms and frameworks by which researchers see the world (Saunders, Lewis, & Thornhill, 2007).

[6] http://www.thepoultrysite.com/poultrynews/32740/ghanas-broiler-sector-to-get-legup-from-revitalization-project

This involves the way knowledge is sought and utilized, and the positions held by various researchers. There are two main philosophical issues that underpin research efforts: these are epistemological and ontological considerations (Bryman, 2008). Epistemology positions discuss what constitutes an acceptable level of knowledge in a particular field of study (Saunders et al., 2007). According to Bryman (2008, pp. 45), "the central issue in this debate is whether the social world can and should be studied according to the same principles, procedures and ethos as the natural sciences". There are three major categories of epistemological positions of positivism, realism and interpretivism (Saunders et al., 2007).

Researchers that belong to the positivists' tradition prefer to work with observable data and make generalizable conclusions about observations; those that belong to the realism tradition believe that both social science and natural science researchers should apply the same methods in data collection and explanation of reality; while interpretivists hold that researchers study humans that are constantly changing and hence law-like generalisations of positivists cannot explain social behaviour (Saunders et al., 2007; Bryman, 2008; Creswell, 2009). This study is underpinned by critical realism (belonging to the realist philosophical position), one of the key epistemological positions in management research. Critical realism holds that there are two steps in experiencing the world; first, the thing itself and the sensations it conveys; and second, the mental processing that goes on when it is experienced (Saunders et al., 2007). The critical realism proposition that the world is constantly changing and what can be captured in a study are the sensations that these changes convey (Dobson, 2002; Bhaskar, 2010), and is much more in line with management and business research which is often to understand the reason for a certain phenomenon (Saunders et al., 2007).

Ontological issues relating to research philosophy is concerned with the nature of reality (Rosenberg, 2002). According to Bryman (2008, pp. 48), "*the central point of orientation here is the question of whether social entities can and should be considered objective entities that have a reality external to social actors, or whether they can and should be considered constructions built up from the perceptions and actions of social actors*". The three main ontological issues usually debated are objectivism, subjectivism and pragmatism (Saunders et al., 2007). Objectivism suggests that social phenomena confronts us as external facts that are beyond the study control while subjectivism implies that the social world is constructed by social actors and hence cannot be objective (Bryman, 2008). Guba and Lincoln (1994) suggest that the objective and subjective positions have a competitive outlook and are unrealistic positions and consequently propose pragmatism as another ontological position. The basic orientation of this philosophy is that the philosophical position chosen by a researcher should be based on the research question under investigation. This study is underpinned by the pragmatic ontological position. This is because, while I seek objective answers regarding the influence of network effects on the survival chances of small businesses, these effects have a lot of endogenous loops with actor characteristics and hence, in a sense, also subjective. Consequently, the research question is ambiguous and does not align clearly with either objective or subjective positions and hence pragmatism becomes the ontological position.

1.6.2 Research Approach

This section explores the dichotomies of inductive and qualitative research as against deductive and quantitative research and provides explanations for why this particular study has pursued a largely deductive and quantitative approach. The research in this thesis is of

the deductive type, as the empirical study is guided by models and hypotheses that have been derived from pre-existing theories and previous research in the area of organizational and SME survival. The deductive research approach begins with an abstract logical relationship among concepts and then moves towards concrete empirical evidence (Blaikie, 2009). This study develops a framework in this chapter which formed the basis for data collection to test the relationships between network effects and SME survival established in the framework. Rigid positions are often taken in favour of either quantitative or qualitative research by academicians. The positions are based on the approaches which provide the most accurate understanding of a particular phenomenon. Many quantitative researchers dismiss qualitative research as journalistic accounts while qualitative researchers think of quantitative research as yielding misleading information (Malhotra & Birks, 2007). The decision as to the research approach to adopt should be contingent on the research purpose (Potter, 1996). It is, however, impossible to create an absolute distinction between the two approaches, as many studies have been known to incorporate both qualitative and quantitative elements (Saunders et al., 2007). This study is to be considered quantitative and deductive in nature as it seeks to establish network effects as the basis for the survival or otherwise of SMEs. The results derived from quantitative research are assumed to be measurable and presentable in the form of numbers and statistics (Blaikie, 2009). The aim is to make generalizations based on the processed results of the investigation. The quantitative method is formalized, structured, and approaches the research problem from a broad perspective. Consequently, this explains why the study adopts a quantitative approach.

1.6.3 Research Method

Research method is the road map for undertaking a systemic research of a phenomenon of interest (Creswell, 2009). Saunders et al. (2007) identify seven research methods, namely: survey; case study; action research; grounded theory; ethnography; and archival research. They describe action research as involving a close collaboration between researchers and practitioners; case study involves the study of a phenomenon in its real context; and archival research involves the analysis of administrative records. They further describe ethnography as research to explain the social world first hand; experiment as research where samples can be controlled; grounded theory as research by observation and survey as research that involves the structured collection of data from a population. Each strategy can be used for exploratory, descriptive and explanatory research (Yin, 2003). These strategies either belong to the inductive or deductive schools of thought: this is, however, not to say that one is better than the other. Rather, the emphasis should be on the one that enables the researcher to meet his/her objectives and answer the research questions. These strategies should not be thought of as being mutually exclusive since they can sometimes be used together. By first looking at the objectives of this study and applying them to the above reasoning, it is apparent that most of the strategies could be more or less applicable. However, due to the already established quantitative nature of this study and the need for primary information, the research method for this thesis became the network survey research with corresponding respondent attributes that focuses on the case of the poultry cluster in Dormaa Ahenkro. This enables the study appropriate the benefits of both survey and case study methods as described earlier.

1.6.4 Data Sources and Collection

Having selected the survey method, the next decision involved choosing the sources of data and actual means of obtaining information from the informants. Sources used for data collection can take two forms: primary and secondary. Primary sources of data are collected and accumulated specifically for the research problem at hand, whereas secondary sources contain data that have been gathered and assembled at a previous time for purposes other than the current research problem (Hawkins & Tull, 1994; Yin, 2003; Hair, Black, Babin, Anderson, & Tatham, 2006). The advantage of secondary data is that it can usually be collected at a lower cost and more rapidly than primary data. On the other hand, since it was usually collected for a different purpose, its content might correlate poorly with the researchers' current needs (Yin, 2003; Hair et al., 2006). This is one of the reasons why primary data sources were utilized in this study. Moreover, considering the relative complexity and depth of the information required by the current study, no presently available secondary sources were located that were sufficient.

On the actual means of data collection, the options available were personal interviews, telephone interviews, or self-administered questionnaires (Malhotra & Birks, 2007). The study adopts the personally administered questionnaires with personal interviews as the information seeking strategy. In this strategy, respondents are interviewed qualitatively because of the qualitative nature of network relationships but the responses are reduced to quantitative responses on the questionnaire. This strategy also provides a sense of anonymity for the respondents and there is much less time constraint associated with self-administered questionnaires than for other primary data collection methods. This might lead to answers that are more honest and information that is more correct, since the respondents have been given sufficient time to search for information on complicated

questions. The standardized nature of written questionnaires also facilitates comparisons of different respondents' answers in subsequent data analysis (Saunders et al., 2007).

From the above discussion, a composite list of 200 farmers was developed after discussions with industry associations, the Ghana Revenue Authority (GRA), the Municipal Assemblies, Assemblymen and women in each unit area of the district and the office of the paramount traditional chief (Omanhene). When the whole list was compiled and recurring farms taken care of, there were a total of 163 farms. All the farms were contacted to be interviewed of which 155 farmers participated in the study representing a 95.05% response rate. It is important to note that not all the farmers in the cluster area were included in the compiled list because some of the farms were household farms that are not operating as an enterprise and hence were excluded from the study. The average interview using a research questionnaire (see in appendix) took on average between 45 and 60 minutes. The farmers were asked for information regarding enterprise characteristics, owner characteristics and general organizational competences. In relation to the network data farmers were asked to name other farmers in the study area whom they collaborated with, and their distributors and financiers for the purposes of their business in line with the multiple name generator approach (Rooks, Szirmai, & Sserwanga, 2012). I then checked if the names provided were on my list; if not I further checked the location of the named farm. In most cases I found that farms that were not on my list were outside the study area and consequently were discounted for network boundary validity purposes Boutilier, 2007; Carpenter, Li, & Jiang, 2012). Distribution and financier networks were not subject to these locational requirements since this is impractical as these stakeholders operate nationwide. After every interview the face validity of the responses was assessed by ensuring that respondents' had documentation to support the existence of a link. If none

were produced, the link was discounted. Two rounds of data were collected for the purposes of this study. The first round of data was collected in January 2014 and the second round of data was collected in March 2015.

1.6.5 Data Analysis Techniques

In this sub-section, the analytical strategy adopted in the study is discussed. Two broad analytical processes are undertaken: the network analysis leading to the development of network variables; and the empirical estimation of survival probability. First, I discuss the network analysis conducted using the UCINet (Borgatti, Everett, & Freeman, 2002). Respondents were asked to name financiers, distributors and other farmers in the poultry cluster they collaborate with for business purposes. For the finance network, a bi-partite finance network was developed by mapping each other to its named financiers for both 2014 and 2015 (see network in appendix). The UCINet software was then employed to generate the closeness and eigenvector centralities as structural social capital within the network. The financial institutions were also classified into five broad categories[7] (universal banks, savings and loans companies, credit unions, micro-finance and rural banks). The UCINet is again used to generate the degree centralities of the poultry SMEs to each of these classes of financial institutions. For the distribution network (see network in appendix), the network software is used to generate the degree centrality of SMEs and the distributors. Finally, for the local industry network (see network in appendix), was used for two purposes. First, I use it to develop the structural equivalence of actors which is operationalised as the level of isomorphism of actors in the network. Secondly, it's used to generate diffusion in the network by generating the direct and indirect ties as diffusion

[7] In line with Bank of Ghana Classification of Bank and Non-Bank Financial Institutions (see www.bog.gov.gh)

mechanisms while the alter attributes relating to market and technical competencies was also computed using UCINet as the resources that are diffused. The next stage of the research involved the empirical estimation strategy adopted. Survival is operationalized as SME persistence from 2014 to 2015. The study adopts the lagged independent variables approach by suggesting that SME characteristics in 2014 are what enable it to persist into 2015. Since the dependent variable is a binary outcome, the study used the probit model[8] which employs the cumulative distribution function (cdf) of the standard normal distribution (snd) as its link function and the maximum likelihood as the estimator. The estimations were done in a hierarchical approach where covariates are estimated first and variables of interests and the interactions follow. The estimations were all robust to heteroscedasticity. The covariates include SME characteristics, owner characteristics, managerial and technical competencies as well as investment climate constraints. The hierarchical and lagged approach is useful in partialling-out some endogeneity that may be present in the variables of interest. These estimations are implemented using STATA 14.

1.7 Significance of the Study

The dynamic role of small and medium enterprises (SMEs) in developing countries has long been recognized (Kayanula & Quartey, 2000a). There is, however, reports of high mortality among these SMEs, with the majority dying before their second birthday (Okpara, 2011). However, these SMEs are associated with significant benefits. SMEs in Ghana are very labour intensive (Kayanula & Quartey, 2000b) and hence are a major source of employment especially to the youth. The poultry SMEs in Dormaa are anecdotally believed to employ approximately 1500 persons in the district. The study data suggests that approximately 1000 persons are employed by the SMEs that I studied. The

[8] A type of binary classification model

International Organisation for Migration (IOM) estimates that the majority of the youth that trek the desert in search of economic opportunities in Europe are from the study region and most of these youth engage in these perilous journeys because of the lack of employment opportunities and family poverty.[9] In this sense the survival of these SMEs to provide employment to the youth is very critical. Abor and Quartey (2010) notes that SMEs in Ghana constitute 85% of manufacturing sector employment. They are also believed to contribute about 70% to Ghana's GDP and account for about 92% of businesses in Ghana. An improvement therefore in the survival chances of these SMEs will have a very high impact of the development of the nations in which they are found. In respect of the rural agricultural cluster sample that the researcher used, there was a cross-cutting effect in the form of stemming rural poverty, reducing rural-urban migration as well as improving the gender balance as women are some of the major actors in this sector.

1.8 Structure of the Thesis

In chapter one, the focus is on reviewing literature on organisational failure to understand the issues and formulate a research gap and questions. Subsequent to that, a conceptual framework was developed for testing in line with social network theory based on resource access, social capital, isomorphism and diffusion in networks. Chapter two focuses on market resource access through distribution ties and how they associate with SME survival. Chapter three focuses on structural social capital in finance network and how useful they are in SME survival by overcoming credit constraints. Chapter four focuses on network isomorphism using structural equivalence and how they can aid SME survival by serving as the mechanism through which investment climate constraints can be overcome.

[9] http://www.iom.int/files/live/sites/iom/files/Country/docs/IOM-Ghana-raises-concern-about-Ghanaian-youth-embarking-on-perilous-journeys.html

The last empirical chapter focuses on how an SME can benefit from the resources owned by its alters and the mechanism through which these can be made available to it. This is useful in overcoming SME resource scarcities. The last chapter of the thesis summarizes and concludes the study and provides recommendations for practitioners and suggestions for future studies. The tabular structure of the thesis is as follows.

Table 1.1: Structure of Thesis

Chapter	**Issue Addressed**
Chapter 1	Introduction to the Thesis
Chapter 2	Empirical Paper 1: Distribution Ties, SME Characteristics and Survival
Chapter 3	Empirical Paper 2: Finance Network Capital, Credit Constraints and SME Survival
Chapter 4	Empirical Paper 3: Isomorphism, Investment Climate Constraints and SME Survival
Chapter 5	Empirical Paper 4: Benefitting from Alter Resources: Network Diffusion and SME Survival
Chapter 6	Conclusion

CHAPTER TWO

DISTRIBUTION TIES, SME CHARACTERISTICS AND SURVIVAL IN GHANA

Abstract

The studyThis study seeks to understand the effects of increased market access in the form of distribution network ties on enterprise survival in Ghana using data from a two year network survey of poultry enterprises. The study also explored the moderating effects of organisational ecology factors in the form of enterprise age, size and resource utilization. Data was collected from a cluster of poultry SMEs in Ghana using a network survey approach with corresponding SME and owner attributes. First, the study found that there was a high failure rate of approximately forty percent. The study also found that, contrary to popular belief, increases in market access through distribution ties does not necessarily lead to positive outcomes as the study observed a negative association between distribution ties and SME survival. The interaction between age of SME and the resource usage of the SMEs are found to also have a significant negative association with SME survival.

Keywords: Distribution Ties, Networks, SME Survival, Organisational Ecology, Ghana

2.1 Introduction

Market access has been consistently reported as one of the major constraints to the development of small and medium scale enterprises (SMEs)[10] in Africa (Kayanula & Quartey, 2000b; Abor & Quartey, 2010). Some academics have therefore suggested that SMEs increase their marketing activity (Harrigan, Ramsey, & Ibbotson, 2012; Parry et al.,

[10] Businesses employing less than 99 employees in Ghana

2012) to aid their survival by increasing their access to both local and international markets. Implicit in this idea of increased market participation is the assumption that such participation will automatically lead to positive outcomes for SMEs because firms are viewed as rational agents that will exploit their market participation for their benefit (Borgatti & Foster, 2003). However, empirical evidence from the embeddedness theory (Granovetter, 2005) is showing that this assertion may not always hold as over-embeddedness can also have negative consequences on the economic performance of firms (Uzzi, 1996).

Specifically, SMEs are relationally embedded in a distribution network involving producers and sellers. The producers (herein SMEs) engage in the production of the products while the distributors serve as agents (sellers) in the market place. Both actors seek to maximize their gain in this network by increasing their connections to other actors in the other group. That is, the distributor seeks to gain more suppliers (SMEs) to ensure constant supplies and greater negotiation power while the SME seeks to gain more distributors in order to gain a greater access to the market for his products and increase in his prices. Focusing on the SMEs as producers; the study explored the effect of any additional increase in the number of distributor relations on the survival of the SME. While increased distribution ties can offer SMEs some benefits such as access to the market, market information and sometimes working capital (Benton & Maloni, 2005; Ireland, 2008), there can also be significant negative effects as well. These negative effects can include cost of maintaining multiple relationships (learning, monetary and social costs), lost trust with other distributors that would expect a more exclusive relationship and the fact that there is an additional competitor for the share of consumers 'wallet' (Mizruchi & Stearns, 2001; Uzzi & Lancaster, 2003; Ropega, 2011). Consequently, the study theorized

that increased relational embeddedness in distribution networks can only be detrimental to the survival chances of an SME because the costs of new relationships are likely to outweigh the benefits associated. Also organisational ecology suggests that firm characteristics such as age, size and resource utilization have an effect on the survival chances. The study therefore explored the interaction effect of the distribution ties and these variables on the survival chances of SMEs in Ghana. The study used the number of distributors to represent market participation because most SMEs are usually small and have small capital outlays; hence cannot avoid the intermediation of distributors who link them to the market (Ropega, 2011).

Pursuant to this, the study utilized network data and corresponding actor attributes from the Ghanaian poultry sector focusing on the Dormaa Ahenkro Cluster. The study used this sector because it better represents the agrarian nature of the Ghanaian economy. The study also limited its analyses to this cluster for two main reasons. First, to control the boundary of the network the study sought to analyse; lacking which will lead to sprawl and render network sparse, meaningless and lacking context (Carpenter et al., 2012). Secondly, the cluster is one of the best performing poultry clusters in Ghana (FAO, 2014) and can serve as a critical case-study and findings used to inform other clusters in the country (Flyvbjerg, 2006). Using multiple name generators (Rooks et al., 2012), 155 poultry SME owners/managers were asked to provide a list of all their distributors. The data were collected in two waves: the first in January 2014 and second in March 2015. The data were then used to generate a two-mode affiliation network of SMEs and distributors for the two rounds of data. The study then modelled the failure (exit) of an SME from the second round using characteristics from round one. The study found that about 60% of the SMEs surveyed in 2014 persisted into 2015 giving credence to the anecdote that most SMEs do

not live to their second 'birthday'. The study also found that, contrary to popular belief, increases in market access through distribution ties does not necessarily lead to positive outcomes as the study observed a negative association between distribution ties and SME survival. The interaction between age of SME and the resource usage were also found to have a significant negative association with SME survival.

This paper is structured as follows. Section 2 presents the theory and hypotheses. Then in section 3 of the study presents the research methods focusing on study setting, network survey, measures and model specification. Section 4 presents the results of the analysis while sections 5 and 6 present the discussion of the results and conclusions respectively.

2.2 Literature Review and Hypotheses Development

This section relates to the literature review and hypotheses development to guide the study. The review covers distribution ties, SME characteristics and how they associate with SME survival.

2.2.1 Distribution Ties and SME Survival

Distributors are an important part of any business value chain (Tuominen, 2004). Distributors participate in the business activities of an SME by linking the SME to the market, providing market information and in some cases provide working capital. Distributors usually act as a link between the producer and the final consumer. This is because there are significant costs in transporting, warehousing and marketing to the final consumer. Since, most SMEs are usually small and have limited capital outlay; taking up distribution functions can be daunting or nearly impossible. This leaves the distributors as

an SMEs main access to the market (Ireland, 2008). Secondly, distributors serve as conduits for SMEs to receive market information since these distributors have a closer relationship with the final consumer (Benton & Maloni, 2005). This information can be used to tailor, improve and make significant adjustments that meet the final consumer's needs. Finally, in markets or seasons where the products of the SME or the industry in general are difficult to get; distributors can pay in advance for the products. This advance payment can serve as working capital for SMEs who normally have difficulty in accessing financial resources from the financial sector in most developing countries (Kayanula & Quartey, 2000b). SMEs normally develop ties with distributors to access these benefits in line with the resource dependence theory that suggests that firms need to develop ties to organisations from those they need resources from to gain their legitimacy (Pfeffer & Salancik, 2003). In line with stakeholder theory that will see distributors as resource hubs that SMEs need to draw from (Mitchell, Agle, & Wood, 2013). However, are these linkages and benefits cost free?

First, the study considered the problem of relational embeddedness. The central theme of embeddedness is that repetitive business relations lead to embedded logics of exchange (Granovetter, 1985). Such repetitive business relations may include increased relational ties to a particular group of actors in the marketplace. Uzzi (1996, pp. 682) found that, although embedding in market relations has positive effects, it reaches a threshold and returns negative effects. He argues that "*a crucial implication is that embedded networks offer a competitive form of organizing but possess their own pitfalls because an actor's adaptive capacity is determined by a web of ties, some of which lie beyond his or her direct influence. Thus a firm's structural location, although not fully constraining, can significantly blind it to the important effects of the larger network structure, namely its*

contacts' contacts". Uzzi and Lancaster (2003) have also found that, when firms are linked by embedded ties, they are more likely to engage in exploratory learning behaviour. This behaviour can have dire consequences for small businesses that have limited resources and legitimation; and hence if such explorations do not yield positive outcomes it can lead to their failure.

Secondly, the study discussed the lost transaction cost benefits as a result of increased embeddedness in distribution networks. Transaction cost economics (TCE) suggests that different agents engage in economic exchanges for mutual benefit (Williamson, 2005); and some of these benefits include lower costs of doing business as a result of trust. Hence in that sense, TCE is a relational theory (Borgatti & Foster, 2003). Thus, for example, companies that are embedded in high-closure networks may have better functioning alliances with lower costs (Zaheer et al., 2010). However, this view would suggest that all the parties, herein, the distributors and SMEs are all honest but this is not likely; leading to the 'dishonest' participant problem. More intuitively, this problem is likely to occur because both sets of actors are competing in a sense for a greater share of the consumers 'wallet'. This is because both sets want to make a bigger margin from every transaction on a particular product. Consider that the study have a fixed price for the SMEs products. The SME will want to sell that product to the distributor as close to that fixed price as possible while the distributor attempts to pay as low as possible. Once such self-interest arises the potential for greediness becomes higher and one party loses out. This, the study argue, will be against the SME in line with Marxist capital formation theory (Marx, 1986). Consequently, the policing and enforcement costs that TCE argues will vanish if they have a good relationship does not accrue to the SME (Williamson, 1981). This is especially true

if the study consider that it takes 710 days, 23% of claim and 38 procedures to enforce contracts in Ghana (World Bank, 2014).

Also, there is the manner in which the whole relationship with distributors is managed. SME failure is not just a function of managerial or firm actions alone but knock-down effects from the actions of other firms (Ropega, 2011) and these include the SMEs distributors. Ropega (2011, pp. 479) further notes that: 'distribution is an area that shapes the company's position in the market. The fundamental mistake in this area is inappropriate deals to market needs. This reason is often combined with a lack of or inappropriate price policy'. This view suggests SMEs are quick to create market ties without reflecting the market needs of the business and how to extract those needs from the distribution network. Consequently, setting-up deals that will prove detrimental to the existence of the SME.

These factors discussed above can greatly determine the growth and survival chances of an SME or otherwise. For an SME to access these benefits associated with distributors, the SME will needs to have ties with the distributors in the value chain. These benefits are not costs free as they are an indication of the SMEs dependence on the distribution network and its distributors. The level of dependence of an actor on the others will determine whether it's controlled by the other or vice versa. The study suggests from the above discussion that SMEs are more dependent on distributors. This is because these firms are usually small, lack resources and cannot control the relationship. Hence increases in these ties will only compound the problems for the SME. Consequently, the study hypothesizes that:

H1: An increase in SME distribution ties is associated with a decrease in probability of survival

2.2.2 Distribution Ties, SME Characteristics and Survival

The question the study sought to answer here is whether variations in the number of distribution ties of an SME with regard to its characteristics matters for its survival. The study used the organisational ecology theory to explain the impact of SME level characteristics and focused on three ecological variables of age of SME (age dependence hypothesis), size of the SME (liability of size), and specialisation (resource partition) (Hannan & Freeman, 1993). The age of the SME influences the survival of the SME either through the liability of newness or the liability of obsolescence. The newness argument suggests that competences for survival are built over time and hence in the period where a new SME lacks these competences then its survival chances are limited (Thornhill & Amit, 2003). Similarly, learning reduces the likelihood of exit because the SME becomes dependable in the eyes of its stakeholders who continue to give it the required legitimacy to exist. The liability of obsolescence idea also indicates that, over time, SMEs become misaligned and have difficulty adapting to the environment (Carroll & Khessina, 2005; Hannan, 2005); there is sometimes challenges with succession among owner-managed SMEs (Perez et al., 2004); and fixed costs invariability (Baum & Mezias, 1992) lead to failure. The study therefore posit that the older an enterprise gets the more distributors it's likely to have as a result of assumed growth of the enterprise with age. Hence, the problems associated with increased distribution ties will be adverse for older firms than for younger SMEs. Consequently, the study hypothesizes that:

H2a: An increase in the age of the SME is associated with a decrease in survival probability

H2b: The interaction between SME age and distribution ties is associated with decreased survival probability for older SMEs

The study now considers whether the SME is a specialist or generalist. This relates to the resources required for the SME to function and is known as resource partition (Carroll, Dobrev, & Swaminathan, 2002). This concept argues that SMEs survive based on the segments of a market that an SME occupies (Carroll & William, 2004). The concept notes that SMEs occupy two broad segments that also determine their resource usage. There are specialists that occupy homogeneous segments of the market and survive within limited range of resources. There is also generalist that occupies broad segments of the market and requires large resources to survive. Since generalists require a lot more resources from the environment including distributional stakeholders; the study suggests that the negative effects of increased distribution ties will be more intense for generalists as compared to specialists. The study therefore hypothesizes that:

H3a: SMEs that specialize in a specific segment of the industry have a higher survival probability compared to generalists

H3b: High distribution ties for generalist SMEs are associated with lesser survival probability compared to specialist SMEs

Size of the SME is an important ecological variable with relevant implications for its survival. The idea suggests that organizational failure is linked to the size of the organization (Azoulay & Shane, 2001; Sarkar et al., 2006; Box, 2007; Gassmann et al.,

2010; Burger & Owens, 2013). The bigger the size of the firm the less likely it is that the firm will fail. The reasons are that small firms lack economies of scale, do not have inertia abilities to withstand environmental shocks, lack external legitimization and find it difficult accessing resources (Sarkar et al., 2006; Gassmann et al., 2010) . The study therefore offer that the bigger an SME gets the better it becomes at managing its relationships with distributors and can extract value from the relationship as a result of its inertia withstanding capabilities. The study therefore hypothesizes as follows:

H4a: The larger an SME, the more likely it is to survive

H4b: The interaction between SME size and distribution ties is associated with decreased survival probability for smaller SMEs

2.3 Research Methods

2.3.1 The Research Setting

The poultry sector in Ghana is one of the few sectors that have faced the harsh realities of trade liberalization. This has led to the collapse and below-capacity operation of many of the poultry clusters in the country before the mid-1980s to early 1990s (FAO, 2014). Compared to cocoa, maize or rice, the poultry sector does not feature prominently in economic planning or agricultural policy and programme documents. Where it is referred to, the proposed measures appear to lack either purpose, focus or consistency, and it is difficult to discern a specific policy approach or strategy towards the poultry sector (Sumberg, Awo, Fiankor, Kwadzo & Thompson, 2013). The study researches the poultry sector in three districts of the Brong Ahafo region: Dormaa Central (Dormaa Ahenkro); Dormaa West (Nkrankwanta); and Dormaa East (Wamfie). This cluster is popularly

known in the agriculture literature as the Sunyani/Dormaa cluster (Mensah-Bonsu & Rich, 2010). At the moment the poultry industry, specifically table egg production, is operating at a large-scale level. Poultry production in this cluster is one of the largest in the region and nationwide. Some of the major challenges encountered by the poultry farmers included: financing; diseases; and absence of electricity for operations in most farms. Meanwhile the presence of feed processing mills, poultry input shops and availability of organised markets served as prospects that could be harnessed to boost the growth of the poultry industry in the district (Adei & Asante, 2012). The area seems to have formed strong collaborative partnerships with Foani Farms in La Cote D'Ivoire to avoid competition that was leading to collapse of some farms. Anecdotal evidence suggests (the researcher observed this) some farms that collapse are helped back into business by Foani Farms. The cluster in recent times is one of the sectors receiving support from the Ghana government as part of the broader National Poultry Support Project (NPSP) announced by the Ministry of Trade and Industry[11] and the Ghana Broiler Revitalization Project (GHABROP) through the Ministry of Food and Agriculture (MOFA) in a ten year collaboration with the Ghana National Association of Poultry Farmers[12].

2.3.2 Network Survey

The study used the network survey approach to sample and collect data (Boutilier, 2009) in two rounds: the first in January 2014 and second in March 2015. Network analysis requires high rates of responsiveness (Sparrowe, Wayne, & Kraimer, 2001); therefore, a census approach was used to survey the poultry farmers in the three districts. To do this, a

[11] http://graphic.com.gh/news/general-news/22412-government-support-to-poultry-industry-increasing.html
[12] http://www.thepoultrysite.com/poultrynews/32740/ghanas-broiler-sector-to-get-legup-from-revitalization-project

composite list of all poultry farms operating in the three districts as at January 2014 were compiled from the industry association (DPFA), the Ghana Revenue Authority (GRA), the Municipal Assemblies, Assemblymen and women in each unit area of the district and office of the paramount traditional chief (*Omanhene*). When the whole list was compiled and recurring farms taken care of the study had a total of 163 farms. 155 farmers agreed and participated in the study representing a 95.09% response rate. It is important to note that not all the farmers in the cluster area were included in the compiled list because some of the farms were not for commercial purposes; a basic requisite for participation. Such farms were excluded from the dataset. The average interview took between 35-45 minutes. Multiple name generators was used to generate the name of distributors (Rooks et al., 2012). To ensure data integrity respondents were asked to provide evidence of a relationship between itself and a named distributor by providing evidence (line of credit, receipt copies, etc) to support the existence of a link. If none were produced, the link was discounted. The cohesive characteristics of the distribution networks generated for each year is presented in Table 2.1 below.

Table 2.1: Distribution Network Characteristics

Measure	**2014**	**2015**	**(Δ2015-2014)**
Diameter	9	9	0
Average Distance	3.934	4.409	0.475
Fragmentation	0.009	0.015	0.006
Density	0.044	0.030	-0.014
Transitivity	0.380	0.392	0.012

The study discusses the network characteristics in Table 2.1 above and their implications for the actors embedded in them below. The definitions (see in appendix) of the computations are based on analyses of two-mode[13] data used in the UCINET (Borgatti & Everett, 1997; Borgatti, Everett, & Freeman, 2002). The study found that, within the

[13] This represents network graphs with two different classes of actors like buyers and sellers

period under study, there was no change in the diameter indicating that the longest number of walks within the network did not change. However, the size of the network is large as it requires nine steps to move from one end of the network to the other. There is a slight increase in the average distance between the various actors in the network of about 0.475. When the study consider the level of dyadic connection (density) between the actors the study also find that there was a slight decrease although the density figures across the two years is still low, indicative of the fact that resource and information diffusion in the network may be slow. The level of transitivity in the network did not change much hovering between 0.38 and 0.392, allowing for divide-and-rule, mediational and clustering behaviour in the network. The level of fragmentation remained fairly around 1% of all ties in both waves.

2.3.3 Measures and Operationalization

Dependent Variable: SME Survival

The definition of the word SME is as complicated as the sector itself (Senderovitz, 2009). He notes that in many articles it is difficult to see whether the researcher has considered what a small SME actually is; whether the particular definition is appropriate, or what the consequences for the conclusion might be if other definitions were used. Consequently, the study focus on a context-based definition of SMEs that has been used by many Ghanaian authors using employee numbers as a basis (Kayanula & Quartey, 2000b; Yusuf & Saffu, 2005; Hinson & Sorensen, 2006; Abor, 2007; Kyereboah-coleman & Amidu, 2008; Saffu et al., 2008; Abor & Quartey, 2010; Abor & Biekpe, 2012). An SME is defined as any business employing less than 99 people (Kayanula & Quartey, 2000b). This definition notes that SMEs can be divided into three broad categories: micro, small and medium with categorization based on micro SMEs having less than 6 employees; small SMEs having

less than 30 employees while medium SMEs have less than 99 employees. This definition no doubt has its inefficiencies (does not account for turnover, assets, capital and balance sheet) but so far seems accepted by Ghanaian scholars and practitioners as a fair reflection of the Ghanaian SME context.

SME survival and failure represent two sides of the same issue. SME failure has been called different names in the management literature to include bankruptcy, decline, retrenchment, SME death, decline, downsizing and exit (Mellahi & Wilkinson, 2004). A failed SME is "when an SME involuntarily becomes unable to attract new debt or equity funding to reverse decline; consequently, it cannot continue to operate under the current ownership and management. Failure is the endpoint at discontinuance (bankruptcy) and when it is reached, operations cease and judicial proceedings take effect" (Pretorius, 2009). Hannan and Freeman (1986) also defined failure as "when an SME ceases to carry out routine actions that sustain its structure, maintains flows of resources and secure allegiance of its members". This study therefore defines SME failure as when an SME can no longer meet the utility of its stakeholders and be operationalized using the traditional closure approach. In order to do this, the study compiled a list of all poultry farms operating in the three districts as at January 2014 for the first wave of data collection. A follow-up was made on the same list in March 2015. Those SMEs that had gone out of business by this time were deemed to have failed in this respect. SMEs that survived were coded as 1 and those that failed were coded as 0. At the end of the period 63 SMEs had failed while 92 survived out of the 155 SMEs that participated in the study. See details in Table 2.2 below. The high mortality rate may be symptomatic of the many years of neglect as mentioned earlier under research setting. This is why it is imperative to understand the networking mechanisms that enable survival in the absence of government support (Allen et al., 2008).

Table 2.2: Survival Rate

		2014	2015
2014	Survived	155	92 (59.35%)
	Failed		63 (40.65%)

Variable of Interest: Distribution Ties

The study operationalised the number of distribution ties of a given SME using the degree centrality of the SME in the distribution network generated from the network survey. Degree refers to the local connectedness to the actor in the network at distance one (Borgatti, 2005). The degree centrality of a given farm is the number of ties it has in a one-mode network[14] (Freeman, 1979). However, the distribution network is a two-mode network consisting of two sets of actors: SMEs and their distributors. Consequently, the study adopt the approach of Borgatti and Halgin (2011) in analysing affiliation networks and deriving the degree centrality (DC) of a given SME by specifying degree centrality as:

$$DC = \sum DN: i \rightarrow j, \qquad i \in V_1 \text{ and } j \in V_2$$

where DN is the distribution network; i is a given SME; j is a given distributor; V_1 is the vector containing the list of SMEs and V_2 is the vector containing the list of distributors.

Interaction Variables

The study also moderated for the interaction effects between distribution ties and organisational ecology variables such as size of SME, age of SME and resource partition. Size of SME was operationalized as the number of employees the SME has; age of SME was operationalised as the number of years the SME has been operational while resource partition was operationalised as whether an SME was a specialist (producing broilers or

[14] A network involving one-set of actors; either sellers or buyers alone

layers only) and coded as 0 and if it did both generalist and coded as 1. To create a given interaction effect the study followed the approach suggested by Balli and Sørensen (2012) and specify it as follows:

$$I = (dt_i - dt_m)(m_i - m_m)$$

where I is the demeaned interaction effect; dt_i is the distribution ties of a given SME; dt_m is the mean of distribution ties; m_i is a given moderator variable and m_m is the mean of that moderator.

Covariates

The study controlled for owner characteristics such as education of owner, experience of owner and gender of the owner. Education provides formal training and experience provides practical knowledge of the industry (Patzelt et al., 2008) while the different sexes have been associated with different managerial styles (Park, 1996; Rand & Tarp, 2011); and these variables influence enterprise outcomes. Education was operationalized as the highest educational attainment of the owner. Owners with no education were coded as 1, those with informal education were coded as 2, those with primary education as 3, secondary education as 4 and tertiary education as 5. Experience was operationalised as the number of years of industry experience of the owner. Gender was operationalised as a male-dummy with male-owned businesses coded as 1 and female ones 0. The study also controlled for the effect of firm level competencies such as market orientation, entrepreneurial orientation, absorptive capacity and dynamic capability. Market orientation involves issues relating to intelligence generation, dissemination and market response in the light of the intelligence (Kohli, Jaworski, & Kumar, 1993) and was operationalised as

having customer meetings, having informal discussions to resolve customer issues and review of marketing plans. Entrepreneurial orientation was operationalised as the risk-taking, proactive and innovation tendencies of the organisational culture (Altinay & Wang, 2011). Absorptive capacity concerns issues relating to the acquisition, assimilation, transformation and exploitation of resources external to the firm (Flatten, Engelen, Zahra, & Brettel, 2011) and was operationalised as search for industry information, application in problem solving and the adoption of new methods. Dynamic capability also relates to issues such as coordination of enterprise activities, learning and competitive strategic response (Protogerou, Caloghirou, & Lioukas, 2011); and was operationalised as business planning, on-the-job training and industry benchmarking. The study also controlled for the perceived effects of the investment climate constraints such as cost and access to finance, land access, access to electricity, inflation and quality of labour. These managerial and investment climate operationalisations were measured on a Likert scale from 1 (the least) and 7 (the highest) as perceptions of owners on the performance of their enterprises in relation to these variables. The operationalisations of each construct was added and standardized for the construct.

2.3.4 Model Specification and Estimation

The study model SME survival by specifying a probit model of a form:

$$P(ES_{t+1}=1) = \Phi\ (\beta_0 + \beta_1 SME_t + \beta_2 OC_t + \beta_3 MCOMP_t + \beta_4 ICC_t + \beta_5 M_t + \beta_6 I_t + \varepsilon_t)$$

where ES_{t+1} indicates that an SME survives from period t (2014) to $t+1$ (2015); SME_t is the SME characteristics; OC_t is represents the owner characteristics; $MCOMP_t$ is a vector containing the managerial capabilities and orientations; ICC_t represents the perceived

impact of investment climate constraints on SME operations; M_t is the effect of the variable of interest distribution ties; I_t is a vector carrying the effects of the interaction terms of distribution ties and SME characteristics; ε_t is the statistical noise and Φ is the cumulative distribution function of the standard normal distribution. The magnitude of the coefficients of the probit model cannot be interpreted and hence the study also estimated for the average marginal effects (AME) of the model which can be interpreted. The study model the average marginal effects of the study probit using the following function:

$$\partial ES/\partial V_i = \beta_i \Phi (\beta_0 + \beta_1 V_t + \varepsilon_t)$$

where $\partial ES/\partial V_i$ is a partial derivative with respect to *V (a given vector)* and the index *i* refers to the *ith* independent variable in *V*.

After estimating the model, the study conducted some post hoc analysis to ensure that the model was fairly robust. First, the study employed the hierarchical regression approach to specify three models: a control model containing only the covariates; a second model where the study added the main effect of distribution ties; and a third that the study added the interaction terms. This enabled us to check if the study main effect is robust to different specifications. Secondly, the study specifies models that are robust to heteroskedasticity. Thirdly, the study also uses two different estimators (the logit and the ordinary least squares (OLS)) to model the effects of distribution ties on survival of SMEs (see results in appendix). Also, the study tried to deal with possible endogeneity in the study variable of interest by including variables in line with existing theory relating to organisational failure (Mellahi & Wilkinson, 2004). Finally, on possible selection problems the Food and Agriculture Organisation has a 2014 database on farms in the study area in which they

reported that 202 farms operate in the area (FAO, 2014). The study also had 200 farms but after accounting for recurring farms and same ownership the study ended up with 163 farms of which 155 farms participated. Consequently, issues of selection may not arise.

2.4 Results

In this section the study present the results of the analysis conducted on the data collected.

2.4.1 Descriptive Analysis

Table 2.3 presents the means, standard deviations and correlation matrix of the variables used in the study. The mean age of any given SME is approximately 8 years while the mean size is also around 6 employees. The mean education is around secondary education for the owners' highest educational attainment while in terms of experience the study found that it is around 9 years. The difference between SME age and owner experience may suggest a one year apprenticeship before an owner ventured out to set up his/her own business. The average number of distribution ties is approximately 3. The majority of the SMEs were specialist while most owners were men. Market orientation, entrepreneurial orientation, dynamic capability and absorptive capacity are standardized variables while interaction variables are demeaned. In terms of the correlation between the variables, the study observed that the least correlation of -0.71 is between SME survival and distribution ties while the highest correlation of 0.64 is between entrepreneurial orientation and absorptive capacity of the SME; yet none of these exceeds the absolute threshold of 0.8 that is suggested to lead to multicollinearity problems (Hair, Black, Babin, & Anderson, 2010).

In Table 2.4, the study present a cross tabulation of distribution ties, moderator variables and survival. The study found that 74% of the firms were specialists that focus on solely producing broilers or layers. 93.48% of the SMEs that survived were specialists while the majority of those that failed were generalists that produced both broilers and layers. The study also observed that about 57% of the SMEs were young firms below 8 years of age while, of the failed firms, approximately 65% were some of these young firms. In terms of size, 77% were micro firms with less than 5 employees while 23% were small and large firms. Considering the failed SMEs, 94% were micro-SMEs. There was a fair balance between those SMEs that had ties above and below the average of 3 – 51% and 49% respectively. However, of those that survived 78% had ties below the average while of those that failed 94% had ties that were above the average.

Table 2.3: Means (M), Standard Deviations (S.D.) and Correlations

	M	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Survival	0.59	0.40	1															
Age (A)	7.50	6.08	0.15	1														
Size (S)	6.35	11.20	0.23	0.42	1													
Generalist (=1) (G)	0.26	0.44	-0.53	-0.20	-0.17	1												
Education	3.65	0.86	-0.23	0.17	0.12	0.03	1											
Experience	8.96	6.70	0.34	0.61	0.32	-0.30	-0.12	1										
Gender (Male=1)	0.75	0.44	0.07	0.07	0.02	-0.13	-0.15	0.30	1									
Market Orientation	-0.10	0.99	0.43	-0.01	0.06	-0.25	-0.23	0.22	0.22	1								
Entrepreneurial Orientation	-0.10	1.00	0.51	0.13	0.38	-0.28	-0.19	0.27	0.07	0.54	1							
Absorptive Capacity	-0.18	0.95	0.43	0.16	0.35	-0.22	-0.06	0.24	0.07	0.52	0.64	1						
Dynamic capability	-0.12	1.02	0.55	0.11	0.29	-0.33	-0.17	0.26	0.13	0.52	0.60	0.58	1					
Investment Constraints	-0.20	0.96	-0.49	0.05	0.15	0.23	0.22	-0.17	-0.20	-0.30	-0.18	-0.07	-0.31	1				
Distribution Ties (DT)	3.39	1.64	-0.71	-0.12	-0.12	0.46	0.06	-0.18	0.02	-0.23	-0.29	-0.27	-0.32	0.33	1			
DT*A	-1.01	11.47	-0.02	-0.46	-0.20	-0.01	-0.22	-0.21	0.09	0.08	-0.10	-0.08	0.00	0.01	0.07	1		
DT*G	0.33	0.58	0.02	0.01	0.00	0.14	-0.06	-0.03	0.00	0.02	0.00	0.13	-0.03	-0.09	-0.11	-0.18	1	
DT*S	-2.02	15.85	0.03	-0.27	-0.71	-0.01	-0.16	-0.13	0.03	-0.04	-0.19	-0.18	-0.15	-0.14	-0.09	0.36	-0.11	1

Table 2.4: Cross Tabulation of Ties, Moderators and Survival

	Failed (%)	Survived (%)	Total (%)
Specialist	29 (43.03%)	86 (93.48)	115 (74.19)
Generalist	34 (53.97)	6 (6.52)	40 (25.81)
Young[a]	41 (65.08)	48 (52.17)	89 (57.42)
Old[a]	22 (34.92)	44 (47.83)	66 (42.58)
Micro[a]	59 (93.65)	60 (65.22)	119 (76.77)
Small & Large[a]	4 (6.35)	32 (34.78)	36 (23.23)
Few Ties[a]	4 (6.35)	72 (78.26)	76 (49.03)
Many Ties[a]	59 (93.65)	20 (21.74)	79 (50.97)

[a]The mean of these variables are used as thresholds for binarization

2.4.2 Regression Analysis

Table 2. 5: Distribution Ties and SME Survival

	AME (1)	AME (2)	AME (3)
Age (A)	0.001	0.001	-0.004
	(0.006)	(0.003)	(0.004)
Size (S)	0.017	0.006*	0.015***
	(0.011)	(0.004)	(0.005)
Generalist (=1) (G)	-0.230***	-0.138***	-0.182***
	(0.041)	(0.030)	(0.033)
Education	-0.019	-0.043***	-0.048***
	(0.027)	(0.014)	(0.013)
Experience	0.012**	0.004	0.004**
	(0.005)	(0.003)	(0.002)
Gender (Male=1)	-0.164***	-0.059**	-0.070***
	(0.048)	(0.026)	(0.018)
Market Orientation	0.007	0.016	0.028***
	(0.029)	(0.011)	(0.010)
Entrepreneurial	0.075**	0.047**	0.033
Orientation	(0.029)	(0.020)	(0.021)
Absorptive Capacity	0.108***	0.082***	0.067***
	(0.032)	(0.021)	(0.018)
Dynamic capability	0.041	0.034**	0.018
	(0.029)	(0.017)	(0.015)
Investment	-0.243***	-0.127***	-0.107***
Constraints	(0.032)	(0.029)	(0.025)
Distribution Ties		-0.059***	-0.060***
(DT)		(0.006)	(0.011)
DT*A			-0.004**
			(0.002)
DT*G			-0.082***
			(0.028)
DT*S			0.004
			(0.005)
Wald	56.98***	56.98***	57.77***
Pseudo R^2	0.696	0.880	0.902
Observations	155	155	155

+Standard errors in parentheses are robust to heteroskedasticity
++Significance Levels: 1%***; 5%**; 10%*

In Table 5, the study presents the econometric analysis. The study report the probit estimates and their corresponding average marginal effects (AMEs) and since the interpretation of the betas of the probit models (see in Appendix) present some challenges the study focussed on the AMEs that are reported. The study starts by reporting the fitness

of the study model to the data. All the study three probit models show a significant Wald statistic of 56.98*** for column 1; 56.98*** for column 2 and 57.77*** for column 3. The Pseudo R^2 also range between 0.696 for the control model in column 1; 0.880 for the main model in column 2 and 0.902 for the interacted model in column 3. The study finds that SME size has a positive and significant effect (0.006 and 0.015) on survival in columns 2 and 3. Generalists have a negative and significant possibility of survival across all the models (-0.230, -0.138 and -0.182) while education has a negative and significant effect (-0.043 and -0.048) in columns 2 and 3 and experience of the owner is positive and significant only in column 1. Male-owned have a negative survival probability (-0.164, -0.059 and -0.070) and this is well determined in all the models. The effect of market orientation is positive and significant only in column 3 with an estimate of 0.028 while entrepreneurial orientation is positive and significant (0.075 and 0.047) in columns 1 and 2. The study also observe that absorptive capacity has a positive effect (0.108, 0.082 and 0.067) on survival of SMEs and is well determined while dynamic capability is positive and significant only in column 2 with an estimate of 0.034. Investment climate constraints are also seen to have a negative and significant effect (-0.243, -0.127 and -0.107) on survival probability. Turning to the study hypothesized variables the study find that distribution ties have a negative and significant effect on survival and the effect (-0.059 and -0.060) is robust to the introduction of interaction terms. The study also observes that the interaction effect between distribution ties and age of SME is negative and significant with an estimate of -0.004; the interaction effect between distribution ties and resource usage is negative and significant with an estimate of -0.082. The interaction effect of SME size and distribution ties is positive but does not rise to significance.

2.5 Discussion of Results

The assertion in small enterprise development is that increases in market access are associated with positive outcomes as they present opportunities for SMEs to sell their products. The study tested this assertion by constructing SME access to the market as a function of the number of relational ties it has with distributors in the market place and its impact on the survival of these enterprises. The study adopted this approach mainly because there are significant costs in transporting, warehousing and marketing to the final consumer and since SMEs are small and have limited resources using distributors proved intuitive. The study used primary data from two rounds of data collection from the poultry industry in three districts of rural mid-western Ghana. The purpose is to control the boundaries of the network while the cluster is one of the best performing in the country (FAO, 2014). The study also tested for the interaction effects of organisational ecology effects (age dependence, resource partition and liability of size) on this relationship between distribution ties and survival outcomes while controlling for investment climate constraints, owner characteristics and managerial competencies. The study estimated the study specified models using a cross-sectional probit model. In this section the study present a discussion of findings based on column six in table five in the previous section since it has a higher pseudo r-square compared to the other models and presents some implications for enterprise development.

The study first discussed the effects of the control variables on the study outcome variable. The study included owner characteristic variables such as owner education, experience and gender in line with upper echelon theory (Hambrick & Mason, 1984; Hambrick, 2007). The study found that education and gender operationalised as a male dummy had a negative and significant effect on survival probability while experience of owner is

positive but does not rise to significance. Existing literature has tended to imply that female owners are discriminated against in business environments due to socio-cultural reasons (Brush, Bruin, & Welter, 2009); however, the study found the opposite in that male-business are failing. The study finding is in-line with the other findings that are beginning to show that female entrepreneurs are either favoured or only capable females are selected into entrepreneurship and hence are able to compete (Hansen & Rand, 2014a, 2014b). The study also find that education has a negative effect on survival and is contrary to earlier findings (Jo & Lee, 1996). However, contextually this may be the case as the Ghanaian grammar educational system trains students to look for jobs in the formal sector (Buame, 1996) consequently it is those without such opportunities that engage in entrepreneurship (Acheampong & Esposito, 2014) for survival. Hence, most people re-select into formal employment once their educational attainment offers them such opportunities and with it the failure of their enterprises. The study also controlled for managerial competencies in line with management theory (Mellahi & Wilkinson, 2004; Miles, 2012). The study controlled for competencies such as market orientation, entrepreneurial orientation, dynamic capabilities and absorptive capacity. The study find that market orientation and absorptive capacity have a positive and significant effect on survival. This is intuitive as managerial competencies are to help manage the enterprise in ways that helps mitigate the negative effects of environmental conditions on the firm (Lane, Salk, & Lyles, 2001; Ropega, 2011; Mahmoud & Hinson, 2012). The study also controlled for the investment climate constraints and found a negative effect on survival of the SME. This finding is in line with existing empirical findings that suggests that the investment climate in Africa imposes indirect costs on businesses (Eifert et al., 2008).

The study turn to the study hypothesized effects. The study hypothesized that a unit increase in the distribution ties of an SME is associated with a reduced survival probability and confirm the study hypothesis. This is likely because increasing network relations with distributors can also significantly lead to loss of other significant resources from other networks (Uzzi, 1996) like finance and supply networks. Another reason could be that increased embeddedness leads to exploratory learning behaviour (Uzzi & Lancaster, 2003). Such behaviours exposes the SME to the flexibility problem and makes it susceptible to failure (Hiebl, 2013). Also, the reduced transaction costs associated with embedding in networks may not have been realised as a result of the fact that both SMEs as producers and distributors as agents in the marketplace compete indirectly for a share of the consumers' 'wallet'. Since SMEs are small and contextually have perishable products the distributors have the upper hand (Marx, 1986). Consequently, such competition will leave the SME still policing its transactions with distributors in line with TCE theory (Williamson, 1979). Also, SMEs sometimes simply engage in bad deals in attempt to market and distribute their products leading to the failure of the businesses (Ropega, 2011). The study also explored the interaction effect of organisational ecology variables of age, size and resource partition on the above relationship. The age of the SME has a negative association with the survival of SME but did not rise to significance. However, the moderation of age and distribution ties had a negative and significant effect on survival. The study suspects that this may be due to the fact that, as SMEs get older, they develop many competencies such as building distribution ties. Age in this sense facilitates the acquisition of distribution ties and attendant with its negative effects on survival. Generalists in resource partition theory are seen to have a higher probability of failure as a result of their broad range of resource requirements from the environment (Carroll & William, 2004). This high resource requirement will in turn lead to the acquisition of many

distribution ties that leads to intense negative effects of distribution ties. The study also found that size has a positive effect on survival. This is in line with existing literature that suggests that large SMEs are able to withstand external shocks, benefit from economies of scale and gain legitimacy (Sarkar et al., 2006; Enkel, Gassmann, & Chesbrough, 2009). However, although the interaction effect with distribution ties is positive it does not rise to significance.

The study now discusses some enterprise management and research implications of the study findings. The study starts by suggesting two points for enterprise management. First the study suggest, based on the negative effects of distribution ties on survival and negative effects of the moderation of age of SME and distribution ties on survival, that SMEs engage in a process of backward integration in the value chain as they age. The process helps cut-off distributors thereby still having access to the market but through the enterprises' own market infrastructure. The benefit is that the margins of the distributors will then accrue to the enterprise in the long run. The costs of accessing the market directly can be daunting for small businesses; in that case, collaborations among small clusters of firms to share such costs can be useful. Currently, the Unity Group[15] has provided such a model that may be worth emulating. Secondly, the study suggest, based on the findings of the generalist and its interaction with distribution ties, that SMEs specialise in a particular niche of the market, limit their resource requirement, and hence improve their survival probability. There are a few cautions in interpreting the study findings. First, the study moderated effects are robust to the logit estimator but not to the ordinary least squares (OLS) estimator (see in Appendix) although the study variable of interest is robust to them

[15] Unity Brothers constitute 7 farms owned by individuals but have familial relations that collaborate in transporting their produce from their farms to major trading centres in Accra directly without middlemen. The researcher observed that they had stable and bigger farms relative to the other farms.

all. Secondly, the study use cross-sectional data. The study encourage other studies to use panel data to validate the results from this cross-sectional data. Also, the study study focuses on agricultural SMEs. New studies can also focus on new sectors as well as still study the agricultural sector but in different geographical jurisdictions.

2.6 Conclusions

The overall aim of this article is to come to grips with the effect of SME distributional ties on its survival. The study find that increases in distributional ties have a negative effect on the survival chances of SMEs. The study also sought to understand the moderation effects of organisational ecology variables such as age, size and resource utilization on the distribution ties and survival relationship. The study found that age and resource utilization have a negative moderation effect on the survival of SMEs while size is positive but does not rise to significance. Consequently, the study conclude that increasing SMEs' access through distribution ties is associated with a higher risk of failure and older firms and generalists who use broad resources from the environment face a much higher risk.

APPENDIX

Table 2A1: Ghana Poultry Sector Statistics

National				Brong Ahafo Region	
Region	No. of Birds (%)	Egg Production (in millions)	No. of Farms+	District	No. of Farms+
Greater Accra	2,547,219 (7.02%)	542	475	Dormaa	202
Central	903,702 (2.49%)	437	312	Jaman South	9
Western	1,406,642 (3.88%)	247	102	Berekum	34
Eastern	3,886,914 (10.72%)	358	213	Sunyani	65
Volta	1,071,622 (2.95%)	68	98	Techiman	25
Ashanti	10,180,760 (28.07%)	5,321	697	Tano South	16
Brong-Ahafo	10,743,897 (29.62%)	3,989	510	Nkoranza	32
Northern	3,625,149 (9.99%)	-	30	Kintampo South	1
Upper East	1,325,835 (3.66%)	-	33	Asunafo North	17
Upper West	579,474 (1.60%)	-	34	Asunafo South	0
				Asutifi	10
				Wenchi	9
				Sunyani West	90

+Based on FAO Sector 1/2/3 Classification

Sources: Veterinary Services Directorate (2010, 2011, 2013) in FAO, 2014

Table 2A2: Probit Estimates

	Probit (1)	Probit (2)	Probit (3)
Age (A)	0.011	0.027	-0.096
	(0.050)	(0.063)	(0.116)
Size (S)	0.150	0.142	0.404**
	(0.099)	(0.092)	(0.164)
Generalist (=1) (G)	-2.038***	-3.100***	-4.869***
	(0.463)	(0.933)	(1.332)
Education	-0.170	-0.975**	-1.284**
	(0.238)	(0.434)	(0.584)
Experience	0.104**	0.095	0.119*
	(0.045)	(0.074)	(0.069)
Gender (Male=1)	-1.450***	-1.338*	-1.872***
	(0.440)	(0.718)	(0.647)
Market Orientation	0.064	0.368	0.758**
	(0.253)	(0.273)	(0.323)
Entrepreneurial	0.666**	1.060**	0.885
Orientation	(0.272)	(0.534)	(0.664)
Absorptive Capacity	0.959***	1.842***	1.800**
	(0.293)	(0.707)	(0.722)
Dynamic capability	0.365	0.766**	0.476
	(0.253)	(0.336)	(0.372)
Investment	-2.155***	-2.863***	-2.865***
Constraints	(0.399)	(0.935)	(0.783)
Distribution Ties		-1.334***	-1.615***
(DT)		(0.351)	(0.383)
DT*A			-0.105*
			(0.055)
DT*G			-2.207**
			(0.804)
DT*S			0.096
			(0.136)
Wald	56.98***	56.98***	57.77***
Pseudo R^2	0.696	0.880	0.902
Observations	155	155	155

Table 2A3: Logit and Average Marginal Effects

	Logit	AME	Logit	AME	Logit	AME
Age (A)	0.014	0.001	0.045	0.001	-0.229	-0.004
	(0.090)	(0.006)	(0.116)	(0.003)	(0.262)	(0.003)
Size (S)	0.264	0.018	0.304	0.007	0.864	0.016***
	(0.210)	(0.013)	(0.257)	(0.005)	(0.556)	(0.004)
Generalist (=1)	-3.521***	-0.235***	-5.834**	-0.141***	-9.797**	-0.187***
(G)	(0.963)	(0.050)	(2.792)	(0.043)	(4.980)	(0.031)
Education	-0.279	-0.019	-1.894*	-0.046***	-2.746	-0.052***
	(0.468)	(0.031)	(1.126)	(0.017)	(1.970)	(0.014)
Experience	0.172**	0.011**	0.159	0.004	0.196*	0.004
	(0.077)	(0.005)	(0.131)	(0.003)	(0.110)	(0.003)
Gender	-2.378***	-0.159***	-2.666	-0.064**	-3.707**	-0.071***
(Male=1)	(0.765)	(0.050)	(1.775)	(0.031)	(1.868)	(0.016)
Market	0.133	0.009	0.719	0.017	1.477*	0.028***
Orientation	(0.530)	(0.035)	(0.601)	(0.012)	(0.801)	(0.010)
Entrepreneurial	1.102**	0.074**	2.189	0.053	2.140	0.041
Orientation	(0.526)	(0.035)	(1.714)	(0.033)	(2.310)	(0.027)
Absorptive	1.589***	0.106***	3.561*	0.086***	3.727	0.071***
Capacity	(0.571)	(0.039)	(2.044)	(0.032)	(2.362)	(0.016)
Dynamic	0.613	0.041	1.220**	0.029*	0.823	0.016
capability	(0.454)	(0.031)	(0.607)	(0.018)	(0.616)	(0.014)
Investment	-3.658***	-0.245***	-5.409**	-0.130***	-5.529**	-0.105***
Constraints	(0.737)	(0.035)	(2.725)	(0.040)	(2.600)	(0.022)
Distribution			-2.514**	-0.061***	-3.039**	-0.058***
Ties (DT)			(1.180)	(0.016)	(1.253)	(0.011)
DT*A					-0.225	-0.004***
					(0.149)	(0.002)
DT*G					-4.525*	-0.086***
					(2.476)	(0.024)
DT*S					0.287	0.005
					(0.389)	(0.005)
Wald	52.06***		22.59***		33.94***	
Pseudo-R^2	0.691		0.881		0.906	
Observations	155	155	155	155	155	155

Table 2A4: OLS Estimates

	Control Model	+Main Effect	+Interaction Effects
Age (A)	-0.001	-0.002	-0.001
	(0.006)	(0.005)	(0.005)
Size (S)	0.004	0.004*	0.008***
	(0.003)	(0.002)	(0.002)
Generalist (=1) (G)	-0.356***	-0.182***	-0.171**
	(0.074)	(0.063)	(0.066)
Education	-0.059*	-0.059**	-0.055*
	(0.031)	(0.029)	(0.030)
Experience	0.006	0.006	0.005
	(0.005)	(0.005)	(0.005)
Gender (Male=1)	-0.146**	-0.081	-0.086
	(0.065)	(0.056)	(0.056)
Market Orientation	0.018	0.024	0.031
	(0.044)	(0.032)	(0.033)
Entrepreneurial	0.060	0.050	0.044
Orientation	(0.043)	(0.034)	(0.035)
Absorptive Capacity	0.055	0.025	0.024
	(0.049)	(0.034)	(0.036)
Dynamic capability	0.071**	0.062**	0.062**
	(0.034)	(0.029)	(0.030)
Investment Constraints	-0.171***	-0.113***	-0.117***
	(0.029)	(0.028)	(0.028)
Distribution Ties (DT)		-0.130***	-0.125***
		(0.016)	(0.016)
DT*A			0.000
			(0.002)
DT*G			-0.011
			(0.044)
DT*S			0.004***
			(0.001)
F-Stat	51.93***	61.28***	53.55***
R^2	0.599	.0728	0.736
Observations	155	155	155

CHAPTER THREE

FINANCE NETWORK CAPITAL, CREDIT CONSTRAINT AND SME SURVIVAL

Abstract

The aim of this study is to understand the usefulness of financial network capital to the survival of SMEs in Ghana. The study also explored the association between financial institution class ties and SME survival. The study used data from a network survey with associated attribute data on poultry SMEs in Ghana. The study found that the survival rate of SMEs is approximately sixty percent. The study also found that the prestige of financiers that an SME has is positively associated with the survival chances of that SME. Furthermore, SMEs with ties to universal banks and cooperative credit unions have a better survival chance while those with ties to savings and loans companies have a reduced survival probability. The value of the study is in its use of relational data in predicting the survival chances of SMEs in a developing economy.

Keywords: Finance Networks, Social Capital, SMEs, Survival, Access to Finance, Ghana

3.1 Introduction

Access to finance remains one of the major reasons for the failure of small and medium scale enterprises (SMEs)[16] in Ghana (Kayanula & Quartey, 2000b; Abor & Quartey, 2010; Abor & Biekpe, 2012). The challenge with finance has to do with the lack of availability of finance and when available the cost of the finance. Some of the reasons that have been alluded to for banks not lending to the SME sector is poor financial management skills and

[16] Businesses employing less than 99 employees in Ghana

high risk of default thresholds (Okpara, 2011). If SMEs are to survive and grow then liquidity remains one of the issues that need to be tackled. Without finance, SMEs cannot acquire or absorb new technologies nor can they expand to compete on the global market or even strike business linkages with larger firms. However, the reasons for banks unwillingness to lend to the sector is very institutional and can be resolved in the long-term (Beck & Demirguc-Kunt, 2006). For instance, the high risk thresholds of SMEs are indicative of the poor identification and addressing systems in the country. Again, the poor financial management skills are symptomatic of the underlying educational systems (Buame, 1996). Most of these challenges can only be addressed in the long-term. In the short-term, however, the SMEs need to survive these binding constraints. Some authors have proposed that SMEs develop their social capital in financial networks by developing strong relationships with their bankers (Hernández-Cánovas & Martínez-Solano, 2007; Akuetteh, 2009).

Social capital theory suggests that relations of actors in a network can lead to embedded resources that can be mobilized for purposive action (Lin, 1999). These resources can be structural or relational. Structural resources represent the opportunities that are made available to an actor by virtue of its location in a network or the nature of its surrounding environment in the network (Borgatti & Foster, 2003; Burt, 2005; Kim & Skvoretz, 2012). In this study, the study sought to explore if financial network capital is useful for SME survival in Ghana. The study focused on two structural social capital factors. These are closeness to financial institutions, prestige of financiers and the financial institution's ties that the SMEs have. Closeness to financial institutions considers how close an SME is to all the stakeholders in the financial network. It enables the SME to engage in direct bargaining with financial institutions, gain access to information about credit opportunities

in the network as well as gain the trust of the financiers in a sector where the default rate is believed anecdotally to be high and a main reason why financial institutions do not want to lend to the sector (Lin, 1999; Pfeffer & Salancik, 2003; Hanneman & Riddle, 2005). The prestige of the financier refers to how popular a financial institution is to SMEs in the financial network. An SME with connections to these important financiers is also in a very prestigious position. This can be useful in achieving SME survival since the SME focuses on a few relevant financiers that can offer it the required resources needed for functioning. It can also enable it to send signals about their attributes to other firms that may not be embedded in the network who have no means of evaluating the quality of those attributes (Zaheer et al., 2010). Signals may also help to reinforce beliefs about those attributes and continued access to resources within and without the network (Lin, 1999). Consequently, the study explore if social capital embedded in financial constrained networks is useful for SME survival in Ghana. The study also asks if ties to certain classes of financial institutions can have an impact on an SME's survival. Although this is not structural it's very important within the context of constrained financial networks. This is because Berger and Udell (2002) found that small and local banks are more likely to lend to SMEs because they are better suited to engage in relationship lending as a result of loan officer's 'soft' information about the SME applicants. Beck, Demirgüç-Kunt, and Maksimovic (2008) also suggest that large banks are better suited at financing SMEs through arm's length mechanisms (Uzzi & Lancaster, 2003) such as fixed-asset lending and credit scoring. In Ghana and specifically in the study area five broad classes of financial institutions exist, namely: universal banks; cooperative credit unions; rural and community banks,; savings and loans; as well as microfinance firms.

The study seek answer to these questions within the Ghanaian poultry sector focusing on the Dormaa Ahenkro cluster as a critical case. The study collected financial network data using multiple name generators (Rooks et al., 2012) and attribute data on 155 poultry SMEs in the cluster. The data was collected in two waves – the first in January 2014 and second in March 2015. The study then modelled survival from 2014 to 2015 with a probit model with lagged independent variables. The study found that approximately 40% of the SMEs failed within the period under study. The study also found that credit is a binding constraint to SME survival. Focusing on the study research questions the study found that prestige of financiers has a positive and significant association while closeness to financial institutions is not significant. The study also found that universal banks and credit unions have a positive and significant effect on survival while savings and loans company ties have a negative and significant effect on survival. Descriptively, the study also observes that SMEs with prestigious financiers and those with ties to universal banks were less likely to be credit constrained in the network. This chapter is structured as follows: section 2 presents the theory and hypotheses; then in section 3 the study presents the research methods focusing on study setting, network survey, measures and model specification. Section 4 presents the results of the analysis while sections 5 and 6 present the discussion of the results and conclusions respectively.

3.2 Literature Review

In this section the study review literature on the financial constraints faced by small businesses, classes of financial institutions in Ghana, and financial network capital based on social network and social capital theories.

3.2.1 Small Business Credit Constraints

SMEs remain significant contributors to the development efforts of developing countries (Abor & Quartey, 2010; Ardic, Mylenko, & Saltane, 2012) yet these businesses remain constrained by several factors in the business environment especially access and cost of finance. Access to finance has been identified as a key element for SMEs to succeed in their drive to build productive capacity, to compete, to create jobs and to contribute to poverty alleviation in developing countries (UNCTAD, 2001). Without finance, SMEs cannot acquire or absorb new technologies nor can they expand to compete in global markets or even strike business linkages with larger firms. It is in this regard that the G-20 2010 Summit in Seoul, South Korea that the Global Partnership for Financial Inclusion (GPFI)[17] was established to help reduce the SME financing gap as part of its aims. At the national level governments are undertaking broad level of policies aimed at improving SME access to finance. In Ghana, the government as engaged in several programmes and funds[18] have been set-up to aid SME to access credit for various purposes. These include the Ghana Private Sector Development Fund (GSPDF), Skills Development Fund (SDF), Export Development and Agricultural Investment Fund (EDAIF), Microfinance and Small Loans Centre (MASLOC), Business Assistance Fund (BAF), and Funds for Small and Medium Scale Enterprise Development (FUSMED). Despite these programmes constraints continue to persist.

Cetorelli (2014, pp. 1172) studied competition in credit markets using data from the United States and concludes that credit constraints have a significant influence on population dynamics of small businesses; and that these dynamics "*imply significant effects on firms' life expectancy profile, and these effects are heterogeneous across firms of different*

[17] http://www.gpfi.org/
[18] Abor and Biekpe (2006) discuss these Ghanaian schemes in detail

vintage. Modifications in life expectancy are likely to affect firms' incentives in undertaking future capital investment and likewise investments in technological innovation. Hence, these changes in overall firms' population dynamics characterize an explicit mechanism through which finance can affect real economic activity". Ma and Lin (2010, pp. 295) studied the aspects of SME credit during the credit crunch that affected their survival. They suggest that "*it may not be the 'credit crunch' and the restriction of credit itself that has an impact on SME survival, but rather the consequences arising from the recession. The difficulties may lie with downturn in trade leading to reduction in cash flow and turnover, and this may be exacerbated by a slowdown in the rate of payments for all businesses. These aspects feed through to the higher risk premium that may be charged to SMEs*". Fajnzylber, Maloney, and Gabriel (2009) studied small businesses in Mexico and found that accessed credit from both formal and informal sources are more likely to survive than those who did not, although the firms that survived had lower income growth. This poor income growth may be attributable to the high interest rates charged on accessed loans. More specifically they observed that only 12% of enterprises actually sought credit and 90% of them received the credit; the high approval rate may underlie a self-selection mechanism of only those with the possibility of gaining access to credit applying. 4% borrowed from formal sources while 7% borrowed from informal sources. 86% of SMEs indicated that they did not need the credit or prefer to use their own resources while the rest were constrained. Ardic et al. (2012) have noted that, compared to large firms, SMEs are more likely to be constrained by the cost and access to finance. These constraints arise from a lack of collateral; difficulty in proving credit worthiness; small cash flows; inadequate credit history; high risk premium; under-developed bank borrower relationships; and high transaction costs.

Ghanaian SMEs face similar financial constraints to those in other countries discussed above. Tagoe, Nyarko, and Anuwa-amarh (2005) have opined that financial sector liberalisation has presented challenges for financing needs of SMEs in Ghana. They conclude that government borrowing; the general economic climate; availability of collateral; and SME investor relations can influence the access and cost of SME credit. In a follow-up study, they also showed that SMEs that have better record keeping skills had better access to credit than those that did not (Tagoe, Anuwa-Amarh, & Nyarko, 2008) since such information helped financial institutions better access their credit risk. However, most Ghanaian SMEs do not keep proper records and hence find it difficult to access credit from the Ghanaian financial system. The evidence also suggests that, for an SME to be able to access finance in the formal sector, it will need to provide landed property as collateral (Domeher, 2012) although microfinance firms can relax this rule and compensate for it with higher interest rates. Akuetteh (2009) studied 496 entrepreneurs in Ghana and reported that less than 5% of them used formal sources of credit in the line of their business. These, they suggest, may be due to the "discouraged borrower effects" resulting from an underlying self-selection mechanism. Agyei-Mensah (2010, pp. 12) has also concluded from a study of working capital management practices of Ghanaian enterprises that "*possess limited formal education, weak managerial and financial management skills within the sector. They also lack qualified accounting staff and suitable accounting software which are motivators to effective working capital management practices. Owners/managers were found to act as barriers to efficient usage of working capital management practices*". The effect of this is that small business owners misapply funds borrowed from banks making them less attractive to banks. In the face of all these issues Quartey (2003) implies that firms that are able to access credit are more likely to perform better than those that do not. This may be due to the fact that such liquidity

enables the small business to acquire the requisite resources that maintains its organisational structure. Consequently, the study hypothesizes that:

H1: SMEs that are credit constrained are more likely to fail

3.2.2 Financial Network Capital

Ardic et al. (2012) have noted that, compared to large firms, SMEs are more likely to be constrained by the cost and access to finance. These constraints arise from a lack of collateral, difficulty in proving credit worthiness, small cash flows, inadequate credit history, high risk premium, under-developed bank borrower relationships and high transaction costs. These are symptomatic of relationships where identification and trust may be a challenge. Consequently, some authors have proposed that SMEs develop their social capital in financial networks by developing strong relationships with their bankers ((Hernández-Cánovas & Martínez-Solano, 2007; Akuetteh, 2009). Social network theory postulates that actors (financial institutions and SMEs) are connected by some ties (relationships). These ties confer opportunities and constraints that inform their social behaviour. Granovetter (2005) has noted that social networks affect economic outcomes in organisations because social networks affect the flow and the quality of information. Much information is subtle, nuanced and difficult to verify, so actors do not believe impersonal sources and instead rely on people they know. Second, social networks are an important source of reward and punishment, since these are often magnified in their impact when coming from others personally known. Third, trust, by which refers to the confidence that others will do the "right" thing despite a clear balance of incentives to the contrary, emerges, if it does, in the context of a social network.

The mechanism through which organisations can appropriate the benefits of social networks for organisational functional has been described as social network capital. More formally, it has been defined as 'resources embedded in a social structure which are accessed and/or mobilized in purposive action' (Lin, 1999, pp. 31) and as 'a collective resource that arises from (and is shaped by) social relations between actors within a network' (Tomlinson, 2011, pp. 5). Consequently, the study define financial network capital as the collective resources embedded in a bipartite network of financial institutions and SMEs that can be mobilized for purposive action such as SME business operations and financial institution lending capability. These descriptions of social capital have structural embeddedness, opportunities and action oriented uses. Thus the basic understanding is that social capital comes from social relations. There are three dimensions of social capital. These are structural, relational and cognitive dimensions (Liao & Welsch, 2005). In this study the study are interested in the structural dimension of social capital and how they particularly affect SME survival. The structural dimension focuses on the locations of actors within a network and the benefits they confer on such an actor. The implicit assumption is that SMEs that either have certain topological network environments or lie in certain structural locations can appropriate certain benefits for their functioning since they are viewed as rational agents that will exploit their structural locations for their benefit (Borgatti & Foster, 2003). The structural location of an SME is measured by its centrality; in this study the study consider two forms of centrality: closeness centrality that measures how close an actor is to all actors in the network; and eigenvector centrality that measures the connections to prestigious alters. Hence in this study the study measure how structurally close an SME is to financial institutions and how prestigious their financial alters are in the finance network and the consequences of these for its survival.

3.2.2.1 Closeness to Financial Institutions

Closeness to financial institutions considers how close an SME is to all the stakeholders in the financial network. Hanneman and Riddle (2005) suggests that closeness enables the SME to engage in direct bargaining/exchange as well as be the reference point for discussions. SMEs that have a close relationship with financial institutions can directly bargain for resources and policy support without going through intermediaries who can 'water-down' messages or extract service charges. In terms of being the reference point for discussions in networks; SMEs that have close relationships become the standard by which other SMEs judge themselves or are judged. This means that policy support from financial stakeholders will be framed with these SMEs in mind and ultimately specifically aid their survival. Another mechanism through which closeness to financial institutions can aid the survival is the access to fine-grained information about credit opportunities in the financial network. Social network theory suggests that actors located in vantage points in a network by virtue of their location in the network structure are able to access resources owned by other actors to enhance their performance and survival chances (Borgatti & Foster, 2003; Pfeffer & Salancik, 2003). These actors may have the ability to access these resources by bridging structural holes or being embedded in dense networks (Burt, 2005). Informational resources are useful for firm performance and survival because markets are usually imperfect and there are a lot of information asymmetries. Actors with strategic locations in networks can therefore have access to informational resources that may not be available to its competition and thus provide it with more opportunities and choices (Lin, 1999). Actors with strategic locations in networks can also have direct access to informational resources without having to go through intermediaries. This helps reduce the transaction costs of these actors and improve survival chances relative to its competition. In a study of advice and hindrance networks (Sparrowe et al., 2001) found that actors central to networks

perform better because of their access to information not available to those in the periphery because of their favoured network positions. Zaheer and Bell (2005) in a study of Canadian mutual fund companies also found that being located in vantage points in a network bestows informational resource advantages to firms that they can benefit from. Again, closeness to banks may enable the SME to gain the trust of the financiers in a sector where the default rate is believed anecdotally to be high and a main reason why financial institutions do not what to lend to the sector. Lin (1999) describes it aptly as the certification of the social credentials of an ego in a given network. This certification of social credentials has three implications for economic outcomes: (1) helps to reduce transactional uncertainty that is difficult to price or enforce contractually; (2) helps facilitate resources and information that is crucial for high performance by serving as governance mechanism; and (3) strengthens an actor's adaptation abilities towards unforeseen problems (Uzzi, 1996). Trust has been noted to be associated with low transaction costs as a result of improved efficiency among actors in a network because of closure and clustering in trust networks (Zaheer et al., 2010). Consequently, the study hypothesizes that:

H2: Closeness to financial institutions has a positive relationship with the probability of SME survival

3.2.2.2 Prestige of Financiers

Prestige of financier refers to how popular a financial institution is to SMEs in the financial network. SMEs with connections to these financiers are also in a very prestigious position. This can be useful in achieving SME survival since the SME focuses on few relevant financiers that can offer it the required resources needed for it functioning. This

means that the SME can avoid redundant network relations that take resources away from the SME and limits its possibility of survival (Rowley, Behrens, & Krackhardt, 2000). Since SMEs have limited resources having only relevant connections can bode well for its survival. Also, SMEs that are located in central locations have a structural position from which to develop ties with prestigious financiers. This enables them to send signals about their attributes to other firms that may not be embedded in the network who have no means of evaluating the quality of those attributes (Zaheer et al., 2010). Signals may also help to reinforce beliefs about those attributes and continued access to resources within and outside the network (Lin, 1999). For example, a small firm that has an alliance with a reputable large firm may send signals as a promising new venture and can attract new resources by virtue of the alliance. Attracting these new resources puts this small firm in a competitive position relative to its market and increases its survival chances. Gulati and Higgins's (2003) findings from a sample of young biotechnology firms show that ties to prominent venture capital firms are particularly beneficial to Initial Public Offering (IPO) success during cold markets, while ties to prominent investment banks are particularly beneficial to IPO success during hot markets. Consequently, the study hypothesizes that:

H3: Prestige of financiers has a positive relationship with the probability of SME survival

3.2.3 Financial Institution Type

Financial institution characteristics have been found to have an effect on whether the bank lends to the SME sector or not (Ardic et al., 2012). Berger and Udell (2002) found that small and local banks are more likely to lend to SMEs because they are better suited to engage in relationship lending as a result of loan officer's 'soft' information about the SME applicants. Beck et al. (2008) also suggest that large banks are better suited at

financing SMEs through arm's length mechanisms (Uzzi & Lancaster, 2003) such as fixed-asset lending and credit scoring. In Ghana, the Bank of Ghana classifies financial institutions into different classes. These include universal banks; cooperatives and credit unions; rural and community banks; savings and loans; as well as microfinance firms[19]. These institutions have different foci for which they are set-up. Their influences and nature of services offered to SMEs are likely to differ and so will their influence on the survival of the SMEs. The study therefore explores these differences.

First, the study considers universal banks. Traditionally, banking in Ghana used to be segmented into commercial, merchant and development banks until in 2003 when the Bank of Ghana introduced universal banking to level the sector (Hinson, Mohammed, & Mensah, 2006). These banks operate in the major cities with their main target customers as importers, exporters, mining and manufacturers. While some of these banks have an SME banking unit these do not represent their major business as SMEs are seen as high risk (Abor & Biekpe, 2012). According to Narteh (2013), SMEs in Ghana select to these banks mainly due to availability of credit, bank guarantees, cash transfers, financial training and advisory services. Accessing loans from these banks anecdotally can take about a month with a lot of paper work. These procedures are unfriendly to the SME owner-managers most of whom are uneducated and find such procedures intimidating (Kayanula & Quartey, 2000b). These banks however offer SMEs access to major cities where most of the trading of poultry products takes place. Again, they also have large capital outlays and are able to offer credit facilities that can help SMEs significantly expand their operations. Consequently, the study hypothesizes that:

[19] See Bank of Ghana website (http://www.bog.gov.gh/#)

H4a: SME ties to universal banks are associated with a higher probability of survival

Another class of financial institutions found in Ghana is the savings and loans companies (SLCs). This is a statutory term used to describe some class of non-bank financial institutions in Ghana licensed under the Financial Institutions Non-Banking Law of 1993. These companies operate like universal banks but can only take deposits and give out credit. This, according to Haveman (1993), maybe due to "loosening of regulatory constraints that has provided substantial new opportunities for savings and loans to change their basis of activities and to expand into new domains". According to a Centre for Policy Analysis report[20] SLCs remain a major means through which small businesses are able to access funds for their businesses. However, a recent banking survey report by Price Waterhouse Coopers[21] notes that SMEs are largely neglected by the universal banks and hence they turn to savings and loan companies that they term 'loan sharks'. This maybe because this class of financial institutions have very high interest rates that affect the profitability of SMEs. Mensah (2009) studied the savings and loans sector and reported that SLCs engage in certain practices such as credit rationing, short-term loan and high interest rates based on expected profit margins rather than Bank of Ghana prime rates. These practices are not conducive to the operations of SMEs in Ghana (Akuetteh, 2009). Consequently, the study hypothesizes that:

H4b: SME ties to savings and loans companies are associated with a lower probability of survival

[20] http://www.cepa.org.gh/publications/Issues%20Paper%20Series%20183.pdf
[21] https://www.pwc.com/en_GH/gh/pdf/ghana-banking-survey-2013-pwc.pdf

Credit unions are member-owned local financial institutions established to encourage a savings culture in its members while offering credit to its members at competitive rates. Credit unions have been in existence in Ghana since 1952 with their umbrella body as Ghana Cooperative Credit Union Association[22]. While a credit union's focus is to provide credit to its members at competitive rates large credit unions sometimes provide credit to non-members at a rate higher than those offered to members but yet lower than those of the universal banks (Ofei, 2001). Due to the local focus of credit unions they can better identify with the context within which rural SMEs operate and more likely to grant them loans especially if they are members. Also, the competitive interest rates that credit unions offer make them an alternative institution that SMEs can utilize to fund their operations. Consequently, the study hypothesizes that:

H4c: SME ties to credit unions are associated with a higher probability of survival

Historically, banking in Ghana was focussed in the major cities with the main targets being importers, exporters, mining and manufacturers. In 1976 the Bank of Ghana conceived the idea of a lower level of financial institutions to provide financial services to the rural areas with its main role as financial intermediation and capital formation in rural areas (Ajai & Fissha, 2010). Rural and Community Banks (RCBs) were created. These RCBs offer their services to cottage industries, farmers, fishermen and the general rural folk (Obeng, 2008). Due to their rural focus the study believes RCBs are more inclined to offer financial services that reflect the context within which the SMEs the study study operate. Consequently, the study hypothesizes that:

[22] http://www.cuagh.com/cua

H4d: SME ties to rural and community banks are associated with a higher probability of survival

Microfinance refers to the provision of small loans and other facilities like savings, insurance, transfer services to poor low-income household and micro-enterprises (Gallardo, 2002). Micro-finance is not new to Ghanaians. Traditionally, it is called 'susu' and thought to have originated from northern Nigeria (Afrane, 2002). Some of these institutions are able to provide credit facilities in less than 24 hours when the credit application is filed. However, the interest rates of these institutions are very high as a result of the costs associated with daily visits to collect deposits and loan payments used to mitigate the high risk of lending to the SME sector. Micro-finance institutions operate at a local level and seek to remove the risk associated with lending to the micro-enterprise sector by engaging in daily visits. Due to this function of micro-finance, firms are able to lend more easily to SMEs than traditional banks. Consequently, the study hypothesizes that:

H4e: SME ties to micro-finance institutions are associated with a higher probability of survival

3.3 Research Methodology

3.3.1 The Research Setting

The poultry industry in Ghana is one of the few industries that have faced the harsh realities of trade liberalization. This has led to the collapse and below-capacity operation of many of the poultry clusters in the country before the mid-1980s to early 1990s (FAO, 2014). Compared to cocoa, maize or rice, the poultry industry does not feature prominently

in economic planning or agricultural policy and programme documents. Where it is referred to, the proposed measures appear to lack either purpose, focus or consistency, and it is difficult to discern a specific policy approach or strategy towards the poultry industry (Sumberg, Awo, Fiankor, Kwadzo and Thompson, 2013). The study researches the poultry industry in three districts of the Brong Ahafo region: Dormaa Central (Dormaa Ahenkro); Dormaa West (Nkrankwanta); and Dormaa East (Wamfie). This cluster is popularly known in the agriculture literature as the Sunyani/Dormaa cluster (Mensah-Bonsu & Rich, 2010). At the moment the poultry industry, specifically, table egg production, is operating at large-scale levels. Poultry production in this cluster is one of the largest in the region and nationwide (see national poultry statistics in Appendix). The study argue that the study area is a critical case for poultry in Ghana since its one of the best performing in the country and the findings can be generalized to the sector in the country in line with Flyvbjerg (2006). Flyvberg notes in line with the 'black swan' argument and Galileo's falsification of Aristotelian gravity model that critical cases can form the bases of generalizations. Some of the major challenges encountered by the poultry farmers include financing; diseases; and absence of electricity for operations in most farms: while the presence of feed processing mills, poultry input shops and availability of organised markets served as prospects that could be harnessed to boost the growth of the poultry industry in the district (Adei & Asante, 2012). The area seems to have formed strong collaborative partnerships with Foani Farms in La Cote D'Ivoire to avoid competition that was leading to collapse of some farms. Anecdotal evidence suggests (the researcher observed this) some farms that collapse are helped back into business by Foani Farms. The cluster in recent times is one of the clusters receiving support from the Ghana government as part of the broader National Poultry Support Project (NPSP) announced by the Ministry

of Trade and Industry[23] and the Ghana Broiler Revitalization Project (GHABROP) through the Ministry of Food and Agriculture (MOFA) in a ten year collaboration with the Ghana National Association of Poultry Farmers[24]. The study focus the study study in this area in order to provide a boundary for the study network effects without which the findings will be sparse, lacking variation and context (Hanneman & Riddle, 2005).

3.3.2 Network Survey

The study used the network survey approach to sample and collect data (Boutilier, 2009) in two rounds: the first in January 2014 and second in March 2015. Network analysis requires high rates of responsiveness (Sparrowe et al., 2001); therefore, a census approach was used to survey the poultry farmers in the three districts. To do this, a composite list of all poultry farms operating in the three districts was compiled from the industry association (DPFA), the Ghana Revenue Authority (GRA), the Municipal Assemblies, Assemblymen and women in each unit area of the district and office of the paramount traditional chief (*Omanhene*). When the whole list was compiled and recurring farms taken care of the study had a total of 163 farms. 155 farmers agreed and participated in the study representing a 95.09% response rate. It is important to note that not all the farmers in the cluster area were included in the compiled list because some of the farms were not for commercial purposes; a basic requisite for participation. Such farms were excluded from the dataset. Each farming enterprise was asked to name its financiers or bankers that were used to generate the financial network in line with the multiple name generators approach (Rooks et al., 2012). The average interview took between 40-45 minutes. To ensure data

[23] http://graphic.com.gh/news/general-news/22412-government-support-to-poultry-industry-increasing.html
[24] http://www.thepoultrysite.com/poultrynews/32740/ghanas-broiler-sector-to-get-legup-from-revitalization-project

integrity respondents were asked to provide evidence of a relationship between itself and a named financier by providing some document (line of credit, deposit receipt copies, cheque book, 'susu' card and any verifiable evidence) to support the existence of a link. If none of these were produced, the link was discounted. The study then developed an affiliation matrix comprising SMEs and financiers where the study mapped SMEs and their corresponding financier. The cohesive characteristics of the financial network generated for each year is presented in Table 3.1 below.

Table 3. 1: Finance Network Characteristics

Year	Density	Avg. Distance	Diameter	Fragmentation
2014	0.073	4.614	10	0.218
2015	0.132	2.786	6	0
Δ	0.059	-1.828	-4.000	-0.218

The study discusses the network characteristics and their implications for the actors embedded in them below. The definitions of the computations are based on analyses of two-mode data used in the UCINET (Borgatti & Everett, 1997; Borgatti, Everett, & Freeman, 2002). The study finds that the density of the network increased significantly from 0.073 to 0.132. This has two implications for actors embedded in the network: the increase in density suggests a faster rate of resource diffusion in the network but can also be an indication of network constraint for the actors embedded in the network. The faster resource diffusion should favour SMEs that are close to financial institutions. The network constraint may not be a problem if the study consider the diameter (longest geodesic (walk) of the network) - which reduced from 10 to 6 suggesting that resources embedded in the peripherals can be accessed by other actors in the other peripheral. There was also a reduction in the average distance and fragmentation between actors in the survival period under study. This might be indicative of an industry that is bracing itself for difficult times by enhancing its overall resource utilisation.

3.3.3 Measures and Operationalization

Dependent Variable: SME Survival

The definition of the word SME is as complicated as the sector itself (Senderovitz, 2009). He notes that in many articles it is difficult to see whether the researcher has considered what a small SME actually is; whether the particular definition is appropriate, or what the consequences for the conclusion might be, if other definitions were used. Consequently, the study focus on a context-based definition of SMEs that has been used by many Ghanaian authors using employee numbers as a basis (Kayanula & Quartey, 2000b; Yusuf & Saffu, 2005; Abor, 2007; Hinson & Sorensen, 2006; Kyereboah-coleman & Amidu, 2008; Saffu et al., 2008; Abor & Quartey, 2010; Abor & Biekpe, 2012). An SME is defined as any business employing less than 99 people (Kayanula & Quartey, 2000b). This definition notes that SMEs can be divided into three broad categories: micro, small and medium with categorization based on micro SMEs having less than 6 employees; small SMEs having less than 30 employees; while medium SMEs have less than 99 employees. SME survival and failure are two different sides of the same coin. SME failure has been called different names in the management literature to include bankruptcy, decline, retrenchment, SME death, mortality, downsizing and exit (Mellahi & Wilkinson, 2004). A failed SME is "*when an SME involuntarily becomes unable to attract new debt or equity funding to reverse decline; consequently, it cannot continue to operate under the current ownership and management. Failure is the endpoint at discontinuance (bankruptcy) and when it is reached, operations cease and judicial proceedings take effect*" (Pretorius, 2009, pp. 8). Hannan and Freeman (1986, pp. 62) also defined failure as "*when an SME ceases to carry out routine actions that sustain its structure, maintains flows of resources and secure allegiance of its members*". This study therefore defines SME failure as when an SME can no longer meet the utility of its stakeholders and operationalized it using the traditional

closure approach. In order to do this, the study compiled a list of all poultry farms operating in the three districts as at January 2014 for the first wave of data collection. A follow-up was made on the same list in March 2015. Those SMEs that had gone out of business by this time were deemed to have failed in this respect. SMEs that survived were coded as 1 and those that failed were coded as 0. At the end of the period 63 SMEs had failed while 92 survived out of the 155 SMEs that participated in the study as seen in Table 3.2.

Table 3. 2: Survival Rate

		2014	2015
2014	Survived	155	92 (59.35%)
	Failed		63 (40.65%)

Variables of Interest: Financial Constraint

The study operationalized financial constraint with the question: "on a scale of 1 to 7 to what extent does the access to finance (cost and availability) negatively affect your business operations?" 1 means the cost and access of finance was not a constraint at all; 2 means it was rarely a constraint; 3 means to a limited extent; 4 means moderately; 5 means to some extent; 6 means to a large extent and 7 means to a very large extent. The study developed a binary financial constraint variable from these responses where those who said it was not a constraint at all was coded as zero and all others that said it was a constraint in some magnitude was coded as 1.

Closeness to Financial Institutions

This variable refers to how structurally close an SME is to actors in the financial network (Freeman, 1978). The study operationalises this variable using the closeness centrality of the SME in the network. Closeness centrality is the sum of geodesic distances of a given

SME *i* to all other nodes in the network *n-1*. However, since the financial network is a two-mode network consisting of two sets of actors (SMEs and their financiers), the closest an SME can be to financiers is n_2 while the closest it can be to other SMEs is $2(n_1-1)$. Closeness to other SMEs is important because it offers a mechanism through which the SME can connect to other financiers in the network through other SMEs that are connected to its financiers. Consequently, the study adopted the approach of Borgatti and Halgin (2011) in analysing affiliation networks and deriving the closeness centrality (CC_s^*) as:

$$CC_s^* = [n_2 + 2(n_1-1)] / CC_s$$

where n_2 is the finance node set; n_1 is the SME node set and CC_s is the theoretical minimum closeness for an SME in the financial network.

Prestige of Financiers

The prestige of financiers refers to how popular a given SME's financiers are within the financial network. The study operationalized this variable using the eigenvector centrality of a given SME in the financial network (Bonacich, 1987; Bonacich & Lloyd, 2001). Consider two SMEs *k* and *q* who both have two ties to other actors in the network *a, b* and *c, d* respectively. The actors *a* and *b* also have two ties each to other actors in the network while *c* and *d* do not. In this case, actor *k* is in a more prestigious position than actor *q* because it has ties to alters who also have ties and is more likely to have influence in the network than *q*. Consequently, the study formalizes the eigenvector centrality (E_i) as:

$$E_i = \lambda \sum FN_{ij}\, e_j, \qquad i \in V_1 \text{ and } j \in V_2$$

where FN is the financial network; λ is a constant required so that the equations do not have a non-zero solution; *i* is a given SME; *j* is a given financier in the network; e_j is the degree centrality of a given financier; V_1 is the vector containing the list of SMEs and V_2 is the vector containing the financiers in the network.

Type of Financiers

The study operationalized the type of financier based on the number of ties to a particular class of financiers (see classification in appendix) in the financial network. There were five broad classes in line with the Bank of Ghana's sub-classification[25] system. These are universal banks, savings and loans companies, rural and community banks, credit unions and microfinance companies. The study used the degree centrality of a given SME to a particular class as its ties to that class. Degree refers to the local connectedness to the actor in the network at distance one (Borgatti, 2005). The degree centrality of a given SME is the number of ties it has in a one-mode network (Freeman, 1979). However, the financial network is a two-mode network consisting of two sets of actors: SMEs and their financiers. Consequently, the study adopted the approach of Borgatti and Halgin (2011) in analysing affiliation networks and deriving the degree centrality to a particular class of financiers as (DC_c) of a given SME by specifying degree centrality as:

$$DC_c = \sum FN: i \text{ -> } j, \qquad i \in V_1 \text{ and } j \in V_2$$

where FN is the financial network; *i* is a given SME; *j* is a given class of financier in the network; V_1 is the vector containing the list of SMEs and V_2 is the vector containing the class of financiers in the network.

[25] See www.bog.gov.gh

Control Variables

The study controlled for owner characteristics such as education, years of experience in the poultry industry and gender. Education provides formal training and experience provides practical knowledge of the industry (Patzelt et al., 2008) while the different sexes have been associated with different managerial styles (Park, 1996; Rand & Tarp, 2011). Education was operationalized as whether the owner has had secondary education and above in which case it was coded 1 and otherwise 0. Experience was defined as the number of years of industry experience of the owner. Gender was operationalised as a male-dummy with male-owned businesses coded as 1 and female ones 0. Beyond owner characteristics the study also controlled for SME level characteristics such as number of paid employees and generalists. The number of paid employees variable seeks to control for the liability of smallness effect in the model (Tsvetkova et al., 2014) and measured as the number of paid labour the enterprise has. Generalists variable was also used to control for the resource partition effect in the model (Carroll et al., 2002) and was measured as whether an enterprise undertakes only broiler or layer farming (0) and whether the enterprise does both (1). The study also controlled for the effect of firm level managerial competencies, which included variables such as market orientation, entrepreneurial orientation, absorptive capacity and dynamic capability. Market orientation involves issues relating to intelligence generation, dissemination and market response in the light of the intelligence (Kohli et al., 1993) and was operationalised as having customer meetings, having informal discussions to resolve customer issues and review of marketing plans. Entrepreneurial orientation was operationalised as the risk-taking, proactive and innovation tendencies of the organisational culture (Altinay & Wang, 2011). Absorptive capacity concerns issues relating to the acquisition, assimilation, transformation and

exploitation of resources external to the firm (Flatten et al., 2011) and was operationalised as the search for industry information, application in problem solving and the adoption of new methods. Dynamic capability also relates to issues such as coordination of enterprise activities, learning and competitive strategic response (Protogerou et al., 2011) and was operationalised as business planning, on-the-job training and industry benchmarking. The study also controlled for the perceived effects of the investment climate constraints such as cost and access to finance, land access, access to electricity, inflation and quality of labour. These managerial and investment climate operationalisations were measured on a Likert scale from 1 (the least) and 7 (the highest) as perceptions of owners on the performance of their enterprises in relation to these variables. The operationalisations of each construct was added and standardized for the construct. Another competence that was controlled for is the technical competence of the SME in poultry production. The study proxy this variable with the SMEs ties to technical agencies and companies such as the veterinary services department and the Ministry of Food and Agriculture (MOFA).

3.3.4 Model Specification and Estimation

The study model SME survival by specifying a general probit model of a form:

$$P(ES_{t+1}=1) = \Phi\ (\beta_0 + \beta_1 SME_t + \beta_2 OC_t + \beta_3 COMP_t + \beta_4 ICC_t + \beta_5 M_t + \varepsilon_t)$$

where ES_{t+1} indicates that an SME survives from period t (2014) to $t+1$ (2015); SME_t is SME characteristics; OC_t represents owner characteristics; $COMP_t$ is the technical and managerial capabilities of the SME; ICC_t represents the perceived effect of investment climate constraints; M_t is the effect of the variables of interest: self-reported financial constraint, closeness to financial institutions and prestige of financiers; ε_t is the statistical

noise and Φ is the cumulative distribution function of the standard normal distribution. The magnitude of the coefficients of the probit model cannot be interpreted and hence the study also estimated for the average marginal effects (AME) of the model which can be interpreted. The study model the average marginal effects of the study probit using the following function:

$$\partial ES/\partial V_i = \beta_i \Phi (\beta_0 + \beta_1 V_t + \varepsilon_t)$$

where $\partial ES/\partial V_i$ is a partial derivative with respect to *V (a given vector)* and the index *i* refers to the *ith* independent variable in *V*.

In estimating the study models the study ensured that the model is fairly robust. First, the study employed the hierarchical regression approach to specify three models: a control model containing only the covariates; and a second model where the study add the main effects (of financial constraint, closeness to financial institutions and prestige of financiers) and a third model with only financier type as main effects. This enabled us to check if the study main effect is robust to controls. Secondly, the study specified models that are robust to heteroskedasticity. Thirdly, the study also attempted to partially reduce endogeneity by modelling survival by the lagged independent variables. Also, in relation to endogeneity the study tried to include variables in line with existing theory relating to organisational failure (Mellahi & Wilkinson, 2004). Finally, on possible selection problems the Food and Agriculture Organisation has a 2014 database on farms in the study area in which they report that 202 farms operate in the area (FAO, 2014). The study also had 200 farms but after accounting for recurring farms and same ownership the study ended up with 163 farms of which 155 farms participated. Consequently, issues of selection may not arise.

3.4 Results

This section reports the analysis of the data collected from the study site.

3.4.1 Descriptive Analysis

Table 3.3 presents the descriptive statistics of the variables used in the analysis, table 3.4 presents a cross-tabulation of financial network variables, financial constraint and survival while table 3.5 presents the results of the probit model of survival. The study first reports the descriptive statistics in table 3. The study found that few of the SMEs reported that they were not financially constrained (45.2%). This may be due to some underlying self-selection mechanism or discouraged-borrower effect (Akuetteh, 2009; Fajnzylber et al., 2009). The means of prestige of financiers and closeness to financial institutions was 0.050 and 0.761 respectively with corresponding standard deviations of 0.063 and 2.473 indicating a high variability in closeness to financial institutions among SMEs in the financial network. The ties to bank types had means between a low of 0.052 for savings and loans ties and a high 0.432 for universal bank ties while the standard deviations varied between a low of 0.222 and 0.665 for the same variables. In terms of enterprise characteristics, the majority of the SMEs had approximately 6 paid employees and specialised in layer production (74.2%). When the study considered owner characteristics: most of the owners had at least attended secondary school (52.9%), were male (74.8%) and had an average of 9 years of industry experience. It is, however, important to note that the number of paid employees and owner experience showed a great deal of variability with standard deviations of 11.196 and 6.698 respectively. The mean score of technical competence was 0.955 with a standard deviation of 0.914.

The study now turns to Table 3.4, which shows the results of the cross-tabulations between financial constraints, financial network and survival variables. It is important to note that, for the purposes of the cross-tabulation analysis, the study have binarized financial network capital variables, which are continuous variables in all other analysis. Prestige of financiers and closeness to financial institutions were binarized along the mean while financial institution type variables were binarized as having no tie (0) and one or more tie/s (1). The study start by focusing on closeness to financial institutions. The study found that 70% of SMEs had closeness to financial institution scores that were below the mean. Of the 85 SMEs that reported that they were not financially constrained, 56% had a low closeness to financial institutions; while of those 70 SMEs that were constrained, 72% had a low closeness to financial institutions in the network. When the study consider survival of the 92 SMEs that survived, 55% had a low closeness to financial institutions while, of the 63 that failed, 92% had a low closeness to financial institutions. Also, the study found that 30% of SMEs had prestigious financiers. Of the 85 SMEs that reported that they were not financially constrained, 67% had prestigious financier ties while, of those 70 SMEs that were constrained, 31% had prestigious financier ties in the financial network. When the study consider survival of the 92 SMEs that survived, 45% had prestigious financier ties while, of the 63 that failed, 8% had prestigious financier ties. When the study considers ties to types of financial institutions; the study find that 35% of SMEs had ties to universal banks. Of the 85 SMEs that reported that they were not financially constrained, 53% had ties to universal banks while, of those 70 SMEs that were constrained, 28% had ties to universal banks in the financial network. When the study consider survival of the 92 SMEs that survived, 52% had ties to universal banks while, of the 63 that failed, 10% had ties to universal banks. Secondly, when the study considers ties to savings and loans companies (SLCs) the study find that 95% of SMEs had no ties to SLCs. Of the 85 SMEs

that reported that they were not financially constrained 99% had no ties to SLCs while, of those 70 SMEs that were constrained, 74% had no ties to SLCs in the financial network. When the study consider survival of the 92 SMEs that survived, 99% had no ties to SLCs while, of the 63 that failed, 89% had no ties to SLCs. Thirdly, when the study consider ties to credit unions the study find that 32% of SMEs had ties to credit unions. Of the 85 SMEs that reported that they were not financially constrained 41% had ties to credit unions while, of those 70 SMEs that were constrained, 35% had ties to credit unions in the financial network. When the study consider survival of the 92 SMEs that survived 44% had ties to credit unions while, of the 63 that failed, 16% had ties to credit unions. Again, when the study considers microfinance institutions, the study find that 16% of SMEs had ties to them. Of the 85 SMEs that reported that they were not financially constrained 7% had ties to microfinance institutions while, of those 70 SMEs that were constrained, 40% had ties to microfinance institutions in the financial network. When the study consider survival of the 92 SMEs that survived 7% had ties to microfinance institutions while, of the 63 that failed, 30% had ties to microfinance institutions. Finally, the study finds that 23% of SMEs had ties to rural and community banks (RCBs). Of the 85 SMEs that reported that they were not financially constrained 21% had ties to RCBs while, of those 70 SMEs that were constrained, 39% had ties to RCBs in the financial network. When the study consider survival of the 92 SMEs that survived 21% had ties to RCBs while, of the 63 that failed, 27% had ties to microfinance institutions.

Table 3.3: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.
Financial Constraint	155	0.452	0.499
Prestige of Financiers	155	0.050	0.063
Closeness to Financial Institutions	138	0.761	2.473
Universal Bank Ties	155	0.432	0.665
Rural Bank Ties	155	0.239	0.443
Credit Union Ties	155	0.348	0.530
Savings & Loans Ties	155	0.052	0.222
Microfinance Ties	155	0.174	0.413
No. of Paid Employees	155	6.348	11.196
Generalist	155	0.258	0.439
Education (Secondary and above=1)	155	0.529	0.501
Owner Experience	155	8.961	6.698
Male	155	0.748	0.435
Technical Competence	155	0.955	0.914
Managerial Competence	155	-0.127	0.812
Investment Climate Constraints	155	0.192	1.061

Table 3.4: Cross-Tabulation of Network Capital, Financial Constraint and Survival

		No Constraint	%	Constraint	%	Failed	%	Survived	%	Total	%
Closeness to Financiers[1]	Low	48	56.47	61	71.76	58	92.06	51	55.43	109	70.32
	High	37	43.53	9	28.24	5	7.94	41	44.57	46	29.68
Prestige of Financiers[1]	Low	28	32.94	59	69.41	58	92.06	51	55.43	109	70.32
	High	57	67.06	11	30.59	5	7.94	41	44.57	46	29.68
Universal Bank[2]	No	40	47.06	61	71.76	57	90.48	44	47.83	101	65.16
	Yes	45	52.94	9	28.24	6	9.52	48	52.17	54	34.84
Savings & Loans[2]	No	84	98.82	63	74.12	56	88.89	91	98.91	147	94.84
	Yes	1	1.18	7	25.88	7	11.11	1	1.09	8	5.16
Cooperative Credit Union[2]	No	50	58.82	55	64.71	53	84.13	52	56.52	105	67.74
	Yes	35	41.18	15	35.29	10	15.87	40	43.48	50	32.26
Microfinance[2]	No	79	92.94	51	60.00	44	69.84	86	93.48	130	83.87
	Yes	6	7.06	19	40.00	19	30.16	6	6.52	25	16.13
Rural Bank[2]	No	67	78.82	52	61.18	46	73.02	73	79.35	119	76.77
	Yes	18	21.18	18	38.82	17	26.98	19	20.65	36	23.23
Total		85	54.84	70	45.16	63	40.65	92	59.35	155	100.00

[1]These variables have been binarized along the mean
[2]These variables binarized as having no tie (0) and one or more tie (1)

3.4.2 Regression Analysis

Table 3.5: Finance Network and SME Survival

	SME Survival		
	(1)	(2)	(3)
No. of Paid Employees	0.019**	0.055*	0.014*
	(0.008)	(0.028)	(0.007)
Generalist	-0.267***	-0.496**	-0.196***
	(0.040)	(0.239)	(0.038)
Education (Secondary and above=1)	0.023	0.554**	0.025
	(0.047)	(0.274)	(0.033)
Owner Experience	0.009**	0.016*	0.001
	(0.004)	(0.008)	(0.004)
Male	-0.131***	-0.099	-0.030
	(0.043)	(0.061)	(0.034)
Technical Competence	0.073***	0.061	0.026
	(0.024)	(0.043)	(0.026)
Managerial Competence	0.217***	0.009	0.134***
	(0.039)	(0.034)	(0.033)
Investment Climate Constraints[1]	-0.193***	-0.233**	-0.115***
	(0.030)	(0.101)	(0.024)
Financial Constraint		-0.644**	
		(0.309)	
Prestige of Financiers		5.512**	
		(2.685)	
Closeness to Financial Institutions		-0.002	
		(0.002)	
Universal Bank Ties			0.224***
			(0.053)
Rural Bank Ties			0.063
			(0.039)
Credit Union Ties			0.162***
			(0.050)
Savings and Loans Ties			-0.288***
			(0.103)
Microfinance Ties			0.062
			(0.041)
Wald	35.91***	30.40***	499.20***
Pseudo R-Square	0.706	0.911	0.811
Observations	155	138	155

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Average marginal effects reported
[1]This has no financial constraint

The study now turns to the probit models in Table 3.5. In column 1 the study present the control model, column 2 presents the financial network capital model with financial constraints and the third model in column 3 is the type of financial institution model. The study find that financial constraints have a negative effect on survival probability (-0.644**); prestige of financiers has a strong positive effect on survival probability (5.512**); and closeness to financial institutions has a negative effect on survival but is not significant (-0.002). Universal bank ties and credit union ties were seen to have a positive and significant effect on survival probability with 0.224*** and 0.162*** betas respectively while savings and loans company ties have a negative effect on survival (-0.288***). Microfinance and rural bank ties had a positive effect on survival but were not seen to be significant. The study turn to the control variables. The number of paid employees was seen to be positive and significant in all the three models (0.019**, 0.055* and 0.014*); generalists were seen to have a negative and significant effect in all the models (-0.267***, -0.496*** and -0.196***); education was seen to have a positive effect on survival but was only significant in the model 2 (0.023, 0.554** and 0.025); owner experience was seen to have a positive association with survival and significant in all models except model three (0.009**, 0.016* and 0.001); male-owned businesses were seen to be less likely to survive compared to female-owned ones but only significant in the first model (-0.131***, -0.099 and -0.030); technical competence was seen to have a positive effect on survival but only significant in the first model (0.073***, 0.061 and 0.026); managerial competence has a positive association with survival and significant in models one and three only (0.217***, 0.009 and 0.134***); and investment climate constraints was unsurprisingly seen to have a negative association with survival in the models (-0.193***, -0.233*** and -0.115***).

3.5 Discussion of Results

The objective of the study was to answer questions relating to the usefulness of financial network capital for SME survival in a financial network. The study operationalized financial network capital as closeness to financial institutions and prestige of financiers with closeness and eigenvector centralities as the measures. The study also explored the effect of specific class of financier class ties on survival using the degree centralities of the SMEs. The study was implemented within the context of the Ghanaian poultry industry using the Dormaa cluster as a critical case (Flyvbjerg, 2006). In this section the study discuss the study findings in relation to the existing literature. The study modelled SMEs survival into 2015 using a probit model with lagged independent variables while controlling for SME characteristics, owner characteristics, technical competences, managerial competencies and investment climate constraints.

The study first discusses the study hypothesized associations. The study found that financially constrained SMEs are more likely to fail than those that are less constrained. This is notwithstanding the fact that about 55% of the SMEs said that they were not credit constrained which the study suspect may be a 'discouraged borrower effect' (Akuetteh, 2009) or having alternative sources of income.[26] The reasons for financial constraint having a negative effect on survival maybe due to the SMEs inability to acquire or absorb new technologies nor can they expand to compete in global markets or even strike business linkages with larger firms due to a lack of funds. The study also found that prestige of SMEs financiers have a positive and significant effect on survival. The implication of this finding is that the SME has connections with very relevant financiers and hence is also in a very prestigious position in the network. This can be useful in achieving SME survival

[26] Anecdotally most SMEs poultry enterprises are started with income from family members in Europe and America

since the SME focuses on a few relevant financiers from which it extracts the required resources needed for it functioning. Also, ties to prestigious financiers enable SMEs to send signals about their attributes to other firms that may not be embedded in the network who have no means of evaluating the quality of those attributes (Zaheer et al., 2010). Signals may also help to reinforce beliefs about those attributes and continued access to resources within and outside the network (Lin, 1999). For example, a small firm that has an alliance with a reputable large firm may send signals as a promising new venture and can attract new resources by virtue of the alliance. Descriptively, the study also observed some interaction effects in table 3.4 where the cross-tabulations show that SMEs that have prestigious financiers are less likely to report being credit constrained while those that are not are more likely to report such constraints. The study also explored the financier class ties on survival and found that universal bank credit union ties have a positive effect on survival. The mechanism through which ties to universal banks can aid survival may be through their ability to offer large capital outlays to SMEs that are able to meet their requirements to expand their operations significantly and hence aid the survival of those SMEs. The means through which credit unions can improve survival chances may be due to the fact that credit unions are local and can better identify with the context within which rural SMEs operate and are more likely to grant them loans (especially if they are members) as well as offering competitive interest rates (Ofei, 2001). The study also found that savings and loan company ties have a negative association with survival. This may confirm the issues raised in the a recent banking survey report by Price Waterhouse Coopers[27] which notes that SMEs are largely neglected by the universal banks and hence they turn to savings and loan companies that they term 'loan sharks'. Some of the negative practices of savings and loans companies include small and short term loans, and high

[27] https://www.pwc.com/en_GH/gh/pdf/ghana-banking-survey-2013-pwc.pdf

interest rates that are detrimental to SME business development (Mensah, 2009). The study also controlled for some variables in line with existing theory and finds them significant. The positive effect and significance of the number of paid employees confirms the liability of size hypothesis that small firms are more likely to fail due to a lack of legitimacy and economies of scale (Hjalager, 2000). The negative effect of generalist also confirms the theory of niche packing that claims SMEs that require a broad range of resources are more likely to fail (Carroll et al., 2002). The findings in education and experience confirms the fact that training and relevant industry experience can be useful for SME performance (Jo & Lee, 1996). The positive effects of managerial and technical competence indicate how knowledge and organisational skills are useful in achieving enterprise goals (Mellahi & Wilkinson, 2004; Mensah-Bonsu & Rich, 2010). Unsurprisingly, investment climate constraints are seen to have a negative effect on survival and this may be due to the imposition of indirect costs on the operations of SMEs (Eifert et al., 2008).

The study now discusses the implications of the results for enterprise management and research. In terms of financial network capital the study suggest that small business owners develop ties to financiers that are prestigious or respected in the network as they are likely to offer them the required resources or be a mechanism through which they can send positive signals about their operations. It may also help them reduce their credit constraint. Secondly, the study recommends that SMEs develop ties with universal banks, and credit unions while avoiding ties to savings and loans companies. Universal banks can provide them with large capital outlays when required for expansion and not feel credit constrained; credit unions can offer competitive interest rates when required for working capital management but unfortunately savings and loans companies can charge interest

rates that can be detrimental to their businesses. There are a few caveats that readers need to bear in mind when interpreting the study findings. First, the study measure of financial constraints is self-reported. While such measures have been extensively used in the literature (Beck & Uc, 2005; De Maeseneire & Claeys, 2012) they may sometimes not reflect the reality when the data is observed reflecting the usual difference between perceived and actual. The study focussed on the Dormaa cluster in Ghana but the study can be replicated in other jurisdictions within either Ghana or other countries. Such studies can aim to either confirm or extend this study. In this study a tie is either present or absent hence another way that new studies can improve upon this study is measuring the intensity of the relationship between financial institutions as this may have implications for the findings.

3.6 Conclusions

The aim of this study is to understand the usefulness of financial network capital to the survival of SMEs in Ghana. The study also explored the association between financial institution class ties on SME survival. The study found that the prestige of SMEs financiers, namely, universal bank and credit union ties have a positive and significant effect on survival; while savings and loans company ties have a negative effect on survival. The study therefore conclude that being located in network positions that give an SME access to prestigious financiers such as universal banks improves the survival probability of such enterprises. While firms that enjoy lower interest rates offered by credit unions improves survival while those tied to savings and loans companies are likely to fail due to high interest rates charged by such financiers.

APPENDIX

Table 3A1: Ghana Poultry Sector Statistics

National				Brong Ahafo Region	
Region	No. of Birds (%)	Egg Production (in millions)	No. of Farms+	District	No. of Farms+
Greater Accra	2,547,219 (7.02%)	542	475	Dormaa	202
Central	903,702 (2.49%)	437	312	Jaman South	9
Western	1,406,642 (3.88%)	247	102	Berekum	34
Eastern	3,886,914 (10.72%)	358	213	Sunyani	65
Volta	1,071,622 (2.95%)	68	98	Techiman	25
Ashanti	10,180,760 (28.07%)	5,321	697	Tano South	16
Brong-Ahafo	10,743,897 (29.62%)	3,989	510	Nkoranza	32
Northern	3,625,149 (9.99%)	-	30	Kintampo South	1
Upper East	1,325,835 (3.66%)	-	33	Asunafo North	17
Upper West	579,474 (1.60%)	-	34	Asunafo South	0
				Asutifi	10
				Wenchi	9
				Sunyani West	90

+Based on FAO Sector 1/2/3 Classification
Sources: Veterinary Services Directorate (2010, 2011, 2013) in FAO, 2014

Table 3A2: Financial Institution Classification

Class	Frequency	List
Universal Bank	5	Societe-General, Barclays, Ecobank, Agricultural Development Bank, Ghana Commercial Bank
Savings & Loans	2	Multi-Credit Financial Services, Procredit
Cooperative Credit Union	3	Brong Ahafo Catholic Cooperative for Social Development (BACCSOD), Dormaa Area Teachers Co-operative Credit Union (DATCCU), Agape Credit Union
Micro-Finance	4	Satellite Financial Services, First Liberty Financial Services, African Financial Services, Noble Dream Financial Services
Rural Bank	3	Kaaseman Rural Bank, Wamfie Rural Bank, Nkrankwanta Rural Bank

Table 3A3: Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Survival	1																
Financial Constraint	-0.8	1															
Prestige of Financiers	0.5	-0.4	1														
Closeness to financial Institutions	0.1	-0.1	0.0	1													
Universal bank	0.4	-0.4	0.8	0.1	1												
Rural Bank	-0.1	0.0	-0.4	-0.1	-0.3	1											
Credit Union	0.3	-0.2	0.4	-0.1	0.0	-0.3	1										
Savings & Loans	-0.2	0.2	-0.1	0.0	-0.1	-0.1	-0.1	1									
Microfinance	-0.3	0.3	-0.3	0.0	-0.2	-0.1	-0.2	-0.1	1								
Size	0.2	-0.2	0.4	0.0	0.5	-0.1	-0.1	0.0	-0.1	1							
Generalist	-0.6	0.5	-0.3	0.1	-0.2	0.0	-0.1	0.2	0.1	-0.2	1						
Education	-0.2	0.3	0.0	-0.1	0.1	-0.1	-0.1	0.2	0.1	0.2	0.0	1					
Experience	0.3	-0.3	0.4	0.0	0.4	-0.1	0.2	-0.1	-0.2	0.4	-0.3	-0.1	1				
Male	0.0	-0.1	-0.1	0.0	-0.1	0.3	0.0	0.0	-0.1	0.0	-0.1	-0.1	0.3	1			
Technical Competence	0.2	-0.2	0.3	0.0	0.3	0.0	0.2	0.1	0.0	0.2	0.0	0.0	0.1	-0.1	1		
Organizational Competence	0.6	-0.7	0.3	0.0	0.3	0.0	0.1	-0.1	-0.3	0.3	-0.3	-0.2	0.3	0.1	0.1	1	
Investment Climate Constraints	-0.4	0.4	-0.2	-0.1	-0.1	-0.1	-0.2	0.2	0.2	0.2	0.2	0.3	-0.1	-0.1	0.0	-0.2	1

CHAPTER FOUR

ISOMORPHISM, INVESTMENT CLIMATE CONSTRAINTS AND SME SURVIVAL IN GHANA

Abstract

The aim of this study is to understand the importance of SME isomorphism to its survival using data from a two year network survey of poultry enterprises in rural Ghana. The study measured isomorphism as structural equivalence between actors in the collaborative network the study developed from the data. First, the study found that there is a high failure rate among the SMEs of about forty percent. The study found that isomorphic SMEs have a better survival probability and such isomorphism was very useful in overcoming investment climate constraints. However, the isomorphism reaches an optimum and returns negative effects.

Keywords: Structural Equivalence, Isomorphism, Investment Climate, SME Networks, Ghana

4.1 Introduction

Small and medium scale enterprises (SMEs)[28] have consistently reported investment climate constraints as one of the major factors hampering their development (Delios & Henisz, 2003; ; Bigsten & Soderbom, 2006; Frynas, Mellahi, & Pigman, 2006; Ackah, Aryeetey, Ayee, & Clottey, 2010). These investment climate constraints have led to the failure of most SMEs with it being anecdotally reported that approximately 90% fail

[28] Businesses employing less than 99 employees in Ghana

before their second birthday (Kayanula & Quartey, 2000b; Franco & Haase, 2009; Abor & Quartey, 2010; Okpara, 2011). These constraints include: difficulty in accessing and cost of finance; problems with land tenure systems; difficulty in accessing government permits and licenses; quality of labour force; access to electricity from the national grid; the effect of the tax system on productive activities; corruption in government relations; poor quality of road networks hampering mobility of finished products; as well as high inflation that does not aid business planning. Eifert, Gelb, and Ramachandran (2008) have noted that these investment climate constraints mitigate the development of small businesses by imposing indirect costs on the productive activities. According to the World Bank's (2010) report on infrastructural development in Ghana, poor electricity supply led to a 0.5% loss in growth as a result of it hampering productive activity in Ghana. However, under the concept of isomorphism in a new institutional theory in organisational analysis scholars have argued that organisations, which are isomorphic to their environment, are more likely to survive because they receive legitimation for their conformance to the rules of engagement rather than their technical efficiency and endorsement of structural elements by organisations in the external environment that reduces turbulence and improves its stability (Meyer & Rowan, 1977; Scott, 1991; Archibald, 2004; Barman & MacIndoe, 2012). DiMaggio and Walter (1991) argue that within an environment a small business will face coercive, mimetic and normative pressures to be isomorphic barring which it will not be legitimated leading to the loss of other resources critical for the survival of the business (Deephouse, 1996). Consequently, do isomorphic small enterprises have a better survival chance than those that are not in constrained investment climates?

Also, consider a small business that is a new entrant facing decisions as to where to source for raw materials for its production, assuming that these materials are sourced within a

constrained climate. It will be faced with two options of choosing suppliers either from self-determined decisions (that may be random or not) or to copy from other producers in the industry. When the small business makes a self-determined decision and the product is cheaper compared to the competition, then it can have a better survival chance compared to the competition. However, when the self-determined decision is wrong then the small business risks going out of business because the competition will be more competitive than the firm. Will it be more profitable to mimic the decision patterns of other firms in the industry as a precaution against being wrong when you develop your own supply patterns? However, when a model bases its business structures on the competition they will increasing become alike and compete for the same resources. Ultimately, firms will crowd around these resources with the possibility of the resource prices going up or the industry reducing its prices (Burt, 1992). If the study consider distributors as a resource to access the market; then if two small businesses have ties to the same distributors without collusion then the distributors can pitch the two businesses against each other and drive prices downwards (Bresnahan, 1987). Therefore, will it be reasonable for the small business to copy the structural patterns of other businesses in the industry infinitely? And will such a business survive long term?

In order to answer these questions, the study collected network data from SMEs in the poultry industry in the three Dormaa (East, West and Central) districts of Ghana. The study used this industry because it better allows us to represent the Ghanaian economy, which is largely agrarian. In terms of the location, it enables us to control for network sprawl; without which the network will be sparse and lacking variation in scores (Hanneman & Riddle, 2005). According to statistics from the national veterinary office

and the Food and Agriculture Organisation (FAO) this particular cluster is one of the best[29] in the country for poultry production (FAO, 2014). The poultry sector generally does not feature prominently in economic policy debates compared to cocoa, maize, gold and/or timber (Sumberg, Awo, Fiankor, Kwadzo & Thompson, 2013). The three Dormaa districts are in rural mid-western Ghana along the border with La Cote d'Ivoire where government policy effects may be limited at best (Adei & Asante, 2012). Within the three districts approximately 1500[30] people are employed by the sector. The study argue for the generalizability of the findings to other clusters in line with Flyvbjerg (2006) who note that critical case studies can be extrapolated for other cases in line with the black swan argument. The argument suggests that; once a single case disproves the theory then the theory needs modification. Using multiple name generators (Rooks et al., 2012), farm SME owners were asked to identify other farmers that they collaborate with in the course of their business operations. The data were collected in two rounds: the first in January 2014 and second in March 2015. The study then constructed a one-mode network from which the study further constructed a similarity matrix for each year utilizing the Jaccard coefficient (Wasserman & Faust, 1994) and then computed the level of similarity score for all enterprises as the level of isomorphism. The study modelled survival into period two based on characteristics in period one. The main variables were level of isomorphism measured as a level of similarity or structural equivalence with other actors; investment climate constraints; and the interaction between isomorphism and investment climate constraints; while controlling for enterprise, owner characteristics as well as organisational competencies.

[29] Based on FAO 1-2-3 Classification
[30] Based on data from 2014 survey

The study found that there was a high failure rate of approximately forty percent. This finding supports the anecdotal evidence in the SME scholarship that most SMEs do not see their second birthday. The study also found, unsurprisingly, that investment climate constraints have a negative effect on the survival chances of SMEs. The study results also indicate that the more isomorphic a small business is the more likely it is to survive. This is attributable to the legitimation they receive from their peers. The study also observe that covariates such as age of SME, speciality of the business, experience of the owner, gender of the owner, entrepreneurial orientation and absorptive capacity of the business are relevant.

In the following pages the study discuss the theory and hypotheses, the research methods employed, the study findings and the conclusions derived from the study.

4.2 Theory and Hypotheses

A social network consists of nodes and edges (Wasserman & Faust, 1994). When applied to small scale industries and sectors, nodes usually represent particular SMEs and the edges represented the relationships between them. Networks tell us who is connected to whom in the population and by what relationship (Krause, Croft, & James, 2007). An SME's network position also has important survival consequences. Another important property of network environments of organisations is common attitude formation that occurs by means of structural equivalence (Galaskiewicz & Burt, 1991). This property of networks represents the institutional theory tradition (Borgatti & Foster, 2003) if networks are noted as just another operating environment that organisations, including SMEs, must contend with. The importance of this mechanism for organisational variation was recognized by Jepperson (1991) who suggested that organisations in an industry represent

low constructions held together by interaction ties. This is indicative of the fact that SMEs are different functional units within a given sector and hence face common resource and selection constraints and hence are forced to adopt similar organisational forms that aid survival. In this section the study reviews literature regarding isomorphism in organisational networks using social network theory as the theoretical basis as well as investment climate constraints and how they relate to SME survival.

4.2.1 Isomorphism and SME Survival

Isomorphism is a constraining process that forces an organisation in an environment to resemble other organisations as a result of increasing compatibility with environmental constraints (DiMaggio & Powell, 1991). There is diversity in the initial phase of industrial development but certain organisational forms are selected out leaving other forms that are legitimated (winnowing phase) (Hannan & Freeman, 1986). Isomorphism emerges out of the general structuration (Giddens, 1979) of the operating environment during the winnowing phase. DiMaggio and Powell (1991) note three mechanisms by which firms become isomorphic as coercive, mimetic and normative isomorphism. Coercive isomorphism stems from political influence and legitimacy. This results from formal and informal pressures exerted on the organisation upon which they are dependent and cultural expectations of the network in which they operate. Mimetic isomorphism relates to standard responses to uncertainty and periods of ambiguity. Firms model their structures on those firms that are successful when there is uncertainty. Normative isomorphism is based on professionalization of an industry. This describes the collective struggle of industry participants to define the rules of engagement in the industry. The three components are for analytical purposes and may not always be empirically distinct. Isomorphism in social structures is also the result of complex relational networks that

foster effective practice; occupational specialization, and principles of coordination as well as collective organisations developed by successful firms diffuse through the relational networks (Meyer & Rowan, 1977).

Isomorphism can occur within an enterprise (or organisational) network if the study operationalise a network as another environment within which firms have to operate. This is especially true if the study note Jepperson (1991) who points to the fact that firms in an industry are held together by relational ties. What happens is the emergence and structuration of a network as a result of the different firms networking and the homogenization of their networking behaviour that is accepted by industry participants. What the study mean by network environment or 'field' as institutionalism will call it, is the network graph within which the actors (enterprises) are embedded. For the purposes of this study, the graph is a one-mode network consisting of the collaborations between industry participants in the poultry industry. The homogeneity that DiMaggio and Powell (1991) theorize is the structural equivalence that occurs within a network graph. This refers to the level of similarity of network patterns between different actors in a network graph (Scott & Carrington, 2011). The similarity between enterprises in network analysis is measured by the level of structural equivalence between it and other enterprises. Two enterprises in an industry are therefore isomorphic if they have the collaborative ties to the same enterprises in the industry. Consequently, such firms can be considered to be structurally similar. Some reasons adduced for why network isomorphism may lead to positive outcomes are discussed below.

Isomorphism can have impacts on organisational outcomes. These include external legitimation of the organisational form rather than its efficiency; employment of external

assessment criteria to endorse the value of structural elements; and the dependence on externally fixed organisations which reduces turbulence and maintains stability (Meyer & Rowan, 1977). Ultimately, isomorphism therefore promotes the success and survival of organisations. Technical environments represent those environments in which efficiency and effectiveness are rewarded. In institutional environments actors must conform to the rules of engagement to receive support and legitimacy from the environment (Scott, 1991). There is also the logic of good faith that suggests that institutionalized SMEs can appear useful despite their lack of technical validation because of the confidence and good faith of internal participants and external constituents (ibid). From the discussion above, it can be inferred that selection mechanisms (survival) is not only based on technical efficiency but how isomorphic an organisation is to its environment. Specifically, within a network environment Gulati et al. (2000) discussed the role of strategic networks on firm performance and note that similar firms can engage in oligopolistic coordination behaviour in either tacit form or otherwise. This is because these enterprises have ties to similar third parties that may offer the opportunity for this behaviour to occur. Secondly, similarity has been observed to breed connection among agents in a network (McPherson et al., 2001); such connection, has been noted to also lead to trust (Coleman, 1988; Burt, 2005). Trust has also been argued to lead to lower transaction costs as firms spend less on enforcing and policing costs in line with transaction cost economics (Williamson, 1979; 2005). Consequently, the study hypothesizes that:

H1: The more isomorphic an enterprise is to its environment the higher the probability of survival

It is important to note that when a firm becomes too isomorphic to other enterprises in the network it can also experience negative consequences on enterprise outcomes. Two main reasons have been adduced for why firms that are similar to others in their environment are likely to fail within the network literature. These are triadic closure and competitive intensity problems. First, let us consider the issue of triadic closure. This occurs because similar organisations tend to cluster together and that provides opportunities for transitive behaviours (Symeonidis et al., 2010). Transitivity generally refers to the presence of triadic relations (of this nature *i->j, j->k and k->i*) in a network (Hanneman & Riddle, 2005). Transitivity leads to redundancy in a network as critical information may be locked in a triad and not able to be moved out if not bridged by an outside actor (Buskens, 1998). This redundancy prevents enterprises from engaging in bridging behaviour (Burt, 1992) which is critical for the development of technical competences and exchange of resources. Another reason that has been mooted for why being too similar to other firms can lead to failure is the problem of competitive intensity (Burt, 1992). The competition arises because the firms become substitutable: a key condition for them to be structurally equivalent (Scott & Carrington, 2011). This is because structurally similar firms' need the same resources to maintain their organisational forms and this is noticeable from the fact that they tie to the same alters. This need for the same resources leads to competitive crowding of some firms (Podolny et al., 1996). This leads to a situation where enterprises closely tied together through third parties engage in bickering (Burt, 2000) in order to gain the first right to resources embedded in the networks. The study deduce that, while being isomorphic to your environment can help legitimate an enterprise beyond a certain threshold, such isomorphism can lead to competitive intensity as a result of niche crowding and lead to failure. The study therefore hypothesizes that:

H2: At higher levels of isomorphism an enterprise's probability of survival reduces

4.2.2 Investment Climate Constraints

Every firm operates within some institutional environment, whether it is the macro or industry environments. These environments are classified as the investment climate and plays a very significant role in the performance, growth and survival of firms (Delios & Henisz, 2003; Box, 2007; Yildirim, 2010). This environment can be divided into two broad groups: the climate and the institutions. The climate is the out-workings of the institutions that make them. The investment climate that has been seen to affect business activities are politico-legal, economic, socio-cultural, technological and infrastructural. The environment has been found to present businesses with a lot of uncertainty (Delios & Henisz, 2003). Inability to navigate the political, socio-cultural, technological and infrastructural landscapes in any business environment will lead to lack of performance and ultimately enterprise mortality (Henisz & Zelner, 2003; Henisz, 2004; Frynas, Mellahi, & Pigman, 2006). As mentioned earlier these environments are out-workings of some institutions. The institutions that firms have to deal with are formal (for licenses for operations); informal (for socio-cultural legitimacy); and/or supranational (for international certifications) ones (Lounsbury & Glynn, 2001; Bloom & Van Reenen, 2002; Edelman & Suchman, 2013). SMEs, like any other organizations, need to manage these environmental and institutional interfaces of their relationships with the broader society or risk going out of business.

Eifert, Gelb, and Ramachandran (2008) studied the investment climate constraints in Africa using data from the World Bank enterprise surveys and the costs they impose on businesses. They reasoned that the investment climate imposes more indirect costs on businesses through poor infrastructure and public services compared to elsewhere in the

world. They suggest that this leads to African businesses having to pay high prices for inputs yet have to sell their products for lower prices and have lower technological levels. Consequently, businesses on the continent face a higher mortality level. Reviewing evidence from papers that used manufacturing data from the Regional Program on Enterprise Development (RPED) on Africa; Bigsten and Soderbom (2006) note that the business environment is the prime suspect for poor enterprise performance on the continent and therefore improving the investment climate should be a policy priority. The most frequently mentioned investment constraints are access and cost of finance; corruption; infrastructure; and inflation: researchers have also found taxes rates and tax administration to be significant. They also note that the implication of such a climate is high costs of manufacturing inputs. Okpara (2011) studied the investment constraints affecting the survival of small businesses in Nigeria. Results show that corruption is negatively associated with small business failure and this is hardly surprising as Nigeria is considered one of the most corrupt nations in the world. He notes situations where local administrators in a federal small business advocacy office consistently misapply funds meant to finance small businesses at the local level.

More specifically on evidence from Ghana, Ackah, Aryeetey, Ayee, and Clottey (2010, pp. 6) studied the state-business relations in Ghana and observe that "civilian governments have generally promoted and enjoyed good rapport with the business community while military governments especially in the 1980s have tended to have confrontations with the private sector". They found that business managers with close contacts within the government or political elites have experience positive outcomes compared to other firms. These results indicate that political and governmental connections help such enterprises lobby to overcome some of the difficulties confronting enterprises, such as the number of

procedures it takes to obtain licenses and permits and the number of days it takes to clear imported goods from the port. Another major challenge is the quality of labour force in Ghana. Kayanula and Quartey (2000) note that, although most Ghanaian enterprises rely on simple technology, where skilled labour is required there is an insufficient supply of this labour. This then tends to limit specialization and raises the cost of production. This is linked to an earlier discussion by Buame (1996), who noted in a praxis and discourse on entrepreneurialism in Ghana that a grammar education system that emphasizes less technical skills hence limiting small business development. Another major constraint the investment climate faces is electricity supply, currently popularly called 'dumsor'. Adom (2013) notes that Ghana's electricity supply suffers power outages with very high uncertainty levels in the timing, frequency and duration. This makes it difficult for households and businesses to re-optimise their behaviour accordingly, as well as coming with its own attendant high costs of replacing lost power. The impact of uncertain power supply is huge on productivity and sales. A report on Ghana's infrastructure by the World Bank (2010) notes a few constraints imposed by current infrastructural state on business activities. The report notes that Ghana has succeeded in increasing household access to telephone, power, and water services by developing its national infrastructure backbone and this development is not limited to urban areas alone. The report also notes that the major challenge however lies with the energy supply sector with unreliable power supplies holding growth back by 0.5 percentage points. Consequently, the study hypothesizes in line with this discussion that:

H3: Investment climate constraints are associated with a negative effect on SME survival

4.2.3 The Interaction Effect

The institutional environment within which the SME operates presents constraints such as lack of access to finance, land litigation, corruption, infrastructural constraints and many others (Bigsten & Soderbom, 2006). Can network isomorphism help SMEs overcome some of the constraints of the investment climate? The study suggests that SMEs that are isomorphic to their environment have a better survival chance than those that do not. This is because if the study consider the formulation suggested by DiMaggio & Walter (1991) as to why businesses become isomorphic under new institutional theory; it's because they require institutional legitimacy. This they can achieve by being isomorphic to their environment (Deephouse, 1996). Under the organisational ecology theory young businesses suffer from the liability of newness while small firms suffer from the liability of smallness (Thornhill & Amit, 2003; Hannan, 2005; Sam, 2007; Geroski, Mata, & Portugal, 2010; Wagner, 2012; Lam, Klein, Freisthler, & Weiss, 2013). These liabilities result from the fact that these firms are not reliable in the eyes of environmental actors and hence do not legitimate them. SMEs are usually small and young businesses with little resources available and require environmental legitimation to survive. Zimmerman and Zeitz (2002) have argued that it is important that small ventures move beyond surviving to building legitimacy that can help them access other resources from the environment. Small businesses can gain legitimacy by being isomorphic to its environment. This helps the business to model its structure on those of stable firms in its environment and become stable itself. More specifically, small business can avoid ambiguity and uncertainty resulting from investment climate constraints by modelling its actions on other successful businesses in its environment: mimetic isomorphism. Also, small enterprises can gain access to resources allocated to an industry by conforming to the rules of engagement that shape the industry standards accepted as proper: normative isomorphism. Finally, small

businesses need to conform to formal structures that guide the operation of businesses within a broader national and supra-national framework and risk the loss of legitimation by such bodies: coercive isomorphism. This loss of legitimation leads to loss of resources and consequent failure of these small businesses. The study therefore hypothesize that

H4: SMEs that are isomorphic to their environment have a better survival chance than those that do not.

4.3 Research Methods

4.3.1 The Research Setting

The study is set in the poultry cluster of three districts in the Brong Ahafo Region of Ghana. These districts are Dormaa Central (Dormaa Ahenkro), Dormaa West (Nkrankwanta) and Dormaa East (Wamfie). This cluster is popularly known in the agriculture literature as the Sunyani/Dormaa cluster (Mensah-Bonsu & Rich, 2010). Poultry production in this cluster is one of the largest in the region and nationwide (see national poultry statistics in appendix). Some of the major challenges encountered by the poultry farmers included financing; diseases; and absence of electricity for operations in most farms. The presence of feed processing mills, poultry input shops and availability of organised markets served as prospects that could be harnessed to boost the growth of the poultry industry in the district (Adei & Asante, 2012). Sectorally, the poultry sector in Ghana is one of the few sectors that have faced the harsh realities of trade liberalization. This has led to the collapse and below-capacity operation of many of the poultry clusters in the country before the mid-1980s to early 1990s (FAO, 2014). Compared to cocoa, maize or rice, the poultry sector does not feature prominently in economic planning or agricultural policy and programme documents. Where it is referred to, the proposed measures appear to lack either purpose, focus or consistency, and it is difficult to discern a

specific policy approach or strategy towards the poultry sector (Sumberg, Awo, Fiankor, Kwadzo & Thompson, 2013). Recently, the government of Ghana has initiated two programmes aimed at rescuing the sector from collapse. These projects are the National Poultry Support Project (NPSP) announced by the Ministry of Trade and Industry[31] and the Ghana Broiler Revitalization Project (GHABROP) through the Ministry of Food and Agriculture (MOFA) in a ten year collaboration with the Ghana National Association of Poultry Farmers[32].

4.3.2 Data Collection

To collect network and attribute data from poultry farmers, a composite list of 200 farmers was developed after discussions with industry association, the Ghana Revenue Authority (GRA), the Municipal Assemblies, Assemblymen and women in each unit area of the district and office of the paramount traditional chief (*Omanhene*). When the whole list was compiled and recurring farms taken care of, the study had a total of 163 farms. The study contacted all the farmers to interview them, of which 155 farmers participated in the study representing a 95.05% response rate. It is important to note that not all the farmers in the cluster area was included in the compiled list because some of the farms were household farms that are not operating as an enterprise and hence were excluded from the study. The average interview took between 45 and 60 minutes. The farmers were asked for information regarding enterprise characteristics, owner characteristics and general organisational competences. In relation to the network data, farmers were asked to name other farmers in the study area that they collaborated with for the purposes of their business in line with the multiple name generator approach (Rooks et al., 2012). The study

[31] http://graphic.com.gh/news/general-news/22412-government-support-to-poultry-industry-increasing.html
[32] http://www.thepoultrysite.com/poultrynews/32740/ghanas-broiler-sector-to-get-legup-from-revitalization-project

then checked if the names provided were on the study list; if not, the study further checked the location of the named farm. In most cases the study found that farms that were not on the study list were outside the study area and consequently were discounted for network boundary validity purposes (Boutilier, 2007; Carpenter, Li, & Jiang, 2012). After every interview the face validity of the responses was assessed by ensuring that respondents' had evidence to support the existence of a link. If none was produced, the link was discounted. Two rounds of data were collected for the purposes of this study. The first round of data was collected in January 2014 and the second round of data was collected in March 2015. The cohesive characteristics of the network are presented below.

Table 4. 1: Collaborative Network Characteristics

Measure	2014	2015	(Δ2015-2014)
Density	0.013	0.023	0.01
Centralization	0.073	0.028	-0.045
Closure	0.183	0.063	-0.12
Diameter	19	10	-9
Dyadic Reciprocity	0.074	0.042	-0.032

The collaborative network characteristics and their implications for the actors embedded in them are discussed in line with the definitions and computations of one-mode data implemented in the UCINET (Borgatti, Everett, & Freeman, 2002). In this network the study observes very low levels of network density although the study observe a marginal increase in density between 2014 and 2015. The low levels of density may be indicative of a network with a slow diffusion of resources, and also has low levels of network constraints as well. The overall network centralisation was reduced by approximately 4.5%. The study also observed a negative change in network closure indicative of the fact that there has been a reduction in possible trust as a result of loss in the local connectedness of actors in the network (Coleman, 1988). There was also a reduction in the diameter which may signal the fact that enterprises in the network can more easily reach

all parts of the network to access resources owned by specific local neighbourhoods (Hanneman & Riddle, 2005). The level of dyadic reciprocity was also reduced. This is indicative that actors reduced the number of times that they returned collaborative initiatives and favours.

4.3.3 Measures and Operationalization

Dependent Variable: SME Survival (SURV)

In this section the study operationalizes the class of businesses within which the study measure survival. The study measure the survival of small and medium scale enterprises (SMEs). The definition of the word SME is as complicated as the sector itself (Senderovitz, 2009). Senderovitz (2009) notes that in many articles it is difficult to see whether the researcher has considered what a small SME actually is, whether the particular definition is appropriate, or what the consequences for the conclusion might be if other definitions were used. Many different definitions have been offered by several scholars and institutions considering the turnover, assets, number of employees, working capital and balance sheet of the business (Kayanula & Quartey, 2000b; Gibson & van der Vaart, 2008). However, developing an operationalization that considers all these issues raises some of the complexities discussed by Senderovitz (2009). Also, the operationalisation of such definitions even if feasible may be practically impossible considering that most Ghanaian businesses do not keep accurate information and records (Yusuf & Saffu, 2005) that will aid effective classification. Consequently, the study fall on the number of employees based definition that has been utilized by several Ghanaian scholars (Kayanula & Quartey, 2000b; Yusuf & Saffu, 2005; Hinson & Sorensen, 2006; Abor, 2007; Kyereboah-coleman & Amidu, 2008; Saffu et al., 2008; Abor & Quartey, 2010; Abor & Biekpe, 2012). The employee based definition notes that an SME cannot employ more

than 99 employees. This definition notes that SMEs can be divided into three broad categories: micro, small and medium with categorization based on micro SMEs having less than 6 employees; small SMEs having less than 30 employees while medium SMEs have less than 99 employees. This definition, no doubt, has its inefficiencies (does not account for turnover, assets, capital and balance sheet) but so far seems accepted by Ghanaian scholars and practitioners as a fair reflection of the Ghanaian SME context as well as easily 'operationalizable' within the context of this study.

Next, the study focus on what survival means in the context of the study. SME survival and failure are two different sides of the same coin. SME failure has been called different names in the management literature to include bankruptcy, decline, retrenchment, SME death, mortality, downsizing and exit (Mellahi & Wilkinson, 2004). The study operationalize failure in line with Hannan and Freeman (1986) who defined it as "when an SME ceases to carry out routine actions that sustain its structure, maintains flows of resources and secure allegiance of its members". They, as part of their definition, note four kinds of mortality: disbanding, acquisition, merger and radical change. This paper also operationalizes organizational failure in the manner proposed by Hannan and Freeman (1986) but do not see mergers and radical change in form as a failure. SMEs do not lose the allegiance of their members when it merges or changes form (Jones, 2005). Those are managerial manoeuvres for the SME to adapt to its environment and maintain functional utility for its members (Young, 1988; Greenwood & Suddaby, 2006). This study therefore defines SME failure as when an SME can no longer meet the utility of its stakeholders and are operationalized using the traditional closure approach. The study conducted two rounds of data collection and those SMEs that had gone out of business by the second round were deemed to have failed in this respect. SMEs that survived were coded as 1 and those that

failed were coded as 0. At the end of the period 63 SMEs had failed while 92 survived out of the 155 SMEs that participated in the study. See details in table below. The high mortality rate may be symptomatic of the many years of neglect as mentioned earlier under the research setting but also confirms what small business scholars have opined - that approximately 90% of SMEs do not see their second birthday. The study also observed that 28 new entrants entered the sector in the area under study representing 23.33% of the number of businesses operating in the sector as at 2015.

Table 4. 2: Exit and Entry Rate

		2014	2015
2014	Survived	155	92 (59.35%)
	Failed		63 (40.65%)
2015	New Entrants		28 (23.33%)[33]

Main Effect: Isomorphism (ISO)

The study operationalize isomorphism as how structurally equivalent an enterprise is in the network (Galaskiewicz & Burt, 1991). This measures the number of times that two given enterprises *i* and *j* are tied to the same alter *q* divided by the total number of alters *n* that are available to them. However, applying such a measure will make the network sparse and provide little variation in the structural equivalence of the enterprises and hence the study utilize the Jaccard coefficient approach (Hanneman & Riddle, 2005). Consider that enterprise *i* has a total of $q+p$ ties and enterprise *j* has a total of $q+r$ ties and *q* represents the number of ties that they are tied together: then their structural equivalence *sq* can be given as the following formula (Borgatti & Everett, 1997):

$$sq = q/(p+q+r)$$

[33] As percentage of firms existing as at March 2015

This formula yields a correlation matrix of the percentage (between 0 and 1) of equivalence between all enterprises in the network. In order to get the total similarity score for each actor the study sum its equivalence values across its column for its total structural equivalence score.

Investment Climate Constraints (ICC)

The study operationalizes investment climate constraints with sixteen (16) self-reported constraints in the business operating environment. These questions were adopted from the World Bank Enterprise Surveys Questionnaire for Ghana in 2007 and are related to the ease and cost of accessing finance; difficulty in accessing land for poultry farming; difficulty in acquiring permits from local government authorities; corruption in relating to government agencies; how court related procedures impede business; problems related to theft of farm equipment and produce; ease of clearing imported goods from the ports; access and reliability of electricity supply; quality of labour force; issues relating to regulations; political stability; competition from the informal sector; constraining effects of tax rates and administration; challenges in transporting products across regions; and the challenges posed by inflation. The questions were implemented with a Likert scale from one (1) to seven (7). The respondents were asked to indicate 1 when the variable was not a constraint and 7 when it was highly constraining. The study then summed all the responses and standardized the variable for each respondent for a composite investment climate score.

Interaction Effects

To create a given interaction effect the study followed the approach suggested by Balli and Sørensen (2012) and specify it as follows:

$$INT = (ISO_i - ISO_m)(M_i - M_m)$$

where INT is the demeaned interaction effect; ISO_i is the isomorphism score of a given SME; ISO_m is the mean of isomorphism; M_i is a given moderator variable and M_m is the mean of that moderator. This approach is used to create the interactive variable between isomorphism and investment climate constraints and the squared isomorphism term.

Covariates and Moderators

In this section the study present the covariates that the study used as controls in the study models, how they are operationalised, and their sources in the academic literature.

Table 4.3: Operationalization of Covariates

Covariate	**Operationalization**	**Source**
Age (AGE)	The number of years the enterprise has been operating.	(Mens & Hannan, 2014)
Generalist (GEN)	Whether an enterprise undertakes only broiler or layer farming (0) and whether and enterprise does both (1)	(Carroll et al., 2002)
Size	The number of employees the enterprise has	(Tsvetkova et al., 2014)
Education (EDUC)	This is rank data with no education as 1 and tertiary education as 5	(Jo & Lee, 1996)
Experience (EXP)	The number of years of industry experience of owner including prior to establishing the enterprise	
Gender (M)	The gender of enterprise owner if male is 1 and 0 if female.	(Park, 1996)
Entrepreneurial Orientation (MO)	This is operationalized as the risk taking, proactive and innovative tendencies of the enterprise. This is measured using a Likert scale with 1 as strongly disagree and 7 as strongly agree. The study then standardizes the variable.	(Jantunen, Puumalainen, Saarenketo, & Kyläheiko, 2005)
Market Orientation (MO)	This is operationalized as customer meetings, informal customer discussions and review of marketing approaches. This is measured using a Likert scale with 1 as strongly disagree and 7 as strongly agree. The study then standardizes the variable.	(Kohli et al., 1993)
Absorptive Capacity (AC)	This is operationalized as new information search, cross-enterprise problem solving, knowledge application and adoption of new technology. This is measured using a Likert	(Flatten et al., 2011)

	scale with 1 as strongly disagree and 7 as strongly agree. The study then standardizse the variable.	
Dynamic Capability (DC)	This is operationalized as business planning, on-the-job training and effective industry benchmarking. This is measured using a Likert scale with 1 as strongly disagree and 7 as strongly agree. The study then standardize the variable	(Protogerou et al., 2011)

4.3.4 Model Specification

To examine the relationship between network isomorphism and enterprise survival the study generated three probit models. The first model investigates the relationship between covariates and survival; in the second model the study add the investment climate and isomorphism variables and in the third model the study add the interaction term between investment climate constraints and the squared isomorphism term. The study specify the general probit model as:

$$P(ES_{t+1}=1) = \Phi\ (\beta_0 + \beta_1 SME_t + \beta_1 OC_t + \beta_1 MCOMP_t + \beta_1 ICC_t + \beta_2 M_t + \beta_3 INT_t + \varepsilon_t)$$

where ES_{t+1} indicates that an SME survives from period t (2014) to $t+1$ (2015); C_t is SME characteristics; OC_t is a vector containing owner attributes; $MCOMP_t$ represents SME capabilities and orientations; ICC_t is the perceived effects of investment climate on business activities; M_t is the vector containing the main effects of investment climate constraints and isomorphism; INT_t is a vector carrying the effects of the interaction and squared terms; ε_t is the statistical noise and Φ is the cumulative distribution function of the standard normal distribution. The magnitude of the coefficients of the probit model cannot be interpreted and hence the study also estimated for the average marginal effects (AME)

of the model which can be interpreted. The study model the average marginal effects of the study probit using the following function:

$$\partial ES/\partial V_i = \beta_i \Phi (\beta_0 + \beta_1 V_t + \varepsilon_t)$$

where $\partial ES/\partial V_i$ is a partial derivative with respect to *V (a given vector)* and the index *i* refers to the *ith* independent variable in *V*.

The study performed three robustness checks in the estimation of the study models. First, all the study models are estimated with robust standard errors to guard against heteroskedasticity. Secondly, the study specifies the study models in line with the hierarchical regression approach to ensure that the study models are fairly robust to different specifications and control variables. Thirdly, the study also uses two different estimators (the logit and the ordinary least squares (OLS)) to model the effects of distribution ties on survival of SMEs (see results in appendix). On possible endogeneity, the study tried to include as many control variables as possible in line with existing literature on organisational failure (Mellahi & Wilkinson, 2004). On possible selection problems, the study attempted to conduct a district census of all poultry farms in the study area[34]. The Food and Agriculture Organisation has a 2014 database on farms in the study area in which they report that 202 farms operate in the area (FAO, 2014). The study also had identified 200 farms but after accounting for recurring farms and same ownership, the study ended up with 163 farms of which 155 farms participated. Consequently, issues of selection did not arise.

[34] See appendix on poultry statistics in Ghana

4.4 Results

In this section the study present the results of the study data analysis.

4.4.1 Descriptive Results

The study presents the results for means, standard deviations and correlations of variables. The study also present results for cross tabulations of isomorphism, investment climate constraints and survival as well as those of the probit and average marginal effects. The mean age of an SME is 7 years and 6 months with 6 years standard deviation among them. The average enterprise had approximately 6 employees but there was high variability among the firms of about 11 employees. The average manager has approximately 9 years of experience with standard deviation of 6 years and 7 months. The difference between the SME age and experience of owner may suggest a one and a half year apprenticeship or understudy. The study also observed that the majority of the farmers specialised either in layers or broiler production with only a few generalist (26%). The majority of the owners are male (75%) while the average educational level was secondary education. The mean isomorphism score for the SMEs is 1.82 with standard deviation of 1.17. The highest correlation among variables was 0.64 between absorptive capacity and entrepreneurial orientation while the least was between survival and the generalist dummy: these were all below the 0.8 absolute figure suggested to lead to multicollinearity problems in estimations (Hair et al., 2010). The study also conducted a cross-tabulation between investment climate constraints, isomorphism and SME survival. The first investment climate constraint the study considered was access to finance. The study found that 64.52% of SMEs had low constraints when it came to cost and access to finance while 35.48% indicated that they were constrained. This may be because anecdotally most of the businesses are started with funds from family relations living outside Ghana and savings

from formal employment. The majority of the SMEs (76.39%) who had low constraints had a high isomorphism. 45.78% of the firms with low constraints also had low isomorphism. All the firms that had low constraints survived; 87.30% of the firms that had high constraints failed; while 12.70% that had low constraints failed. Secondly, the study considered access to land and 97.42% of farmers mentioned that they face low constraints in this area. This is because the traditional authority in Dormaa Ahenkro offers land to those who want to go to poultry farming in the traditional area[35]. All those with low isomorphism also had low constraints while 94.44% of those with high isomorphism had low constraints. Surprisingly, all those that failed had low constraints while 95.65% of those that survived also had low constraints. Thirdly, the study considered challenges with customs and port services especially considering the fact that poultry inputs such as drugs, supplements, soya beans and wheat are imported (FAO, 2014). 85.16% reported that they face low constraints in this area. This may be because most of the importation is done by input dealers; and hence SMEs do not interface directly with customs and port authorities. However, this has a feed through mechanism to affect their operations through increased prices. 86.75% of those with low isomorphism had low constraints while 83.33% those with high isomorphism also had low constraints. 14.29% of those that failed had high constraints while 15.22% of those that survived had high constraints. The study also investigates access to electricity and found that 58.06% reported that it was not a constraint while 41.94% reported it as a constraint. 51.81% of those with low isomorphism had low constraints while 65.28% of those with high isomorphism also had low constraints. 65.08% of those that failed had high constraints while 26.09% of those that survived had high constraints. The study also assessed the quality of the labour force that was employed by the poultry SMEs considering the fact that poultry is a science that requires specific

[35] This was known during an interview with the Sumankwahene of the traditional area who is also a poultry farmer

activities (Mensah-Bonsu & Rich, 2010). 76.13% reported it as a low constraint while 23.87% reported it as a high constraint. 74.70% of those with low isomorphism had low constraints while 77.78% those with high isomorphism also had low constraints. 30.16% of those that failed had high constraints while 19.57% of those that survived had high constraints. The findings with electricity and quality of labour force may point to the idea suggested by Kayanula and Quartey (2000) that SMEs in Ghana use basic technology and hence skilled labour may not be required and it is when they are required that quality of skilled labour is found lacking. The study further analysed the constraining effect of tax rates in the municipalities on the small businesses. 65.81% reported it as a low constraint while 34.19% reported it as a high constraint. 67.47% of those with low isomorphism had it as a low constraint while 63.89% of those with high isomorphism also had it as a low constraint. 31.75% of those that failed had it as a high constraint while 35.87% of those that survived had it as a high constraint. The study also considered the constraining effect of the road transport network on their distribution activities. 59.35% reported it as a low constraint while 40.65% reported it as a high constraint. 62.65% of those with low isomorphism had it as a low constraint while 55.56% those with high isomorphism also had it as a low constraint. 38.10% of those that failed had it as a high constraint while 42.39% of those that survived had it as a high constraint. Finally, the study assessed the constraining effects of currency inflation. 45.81% reported it as a low constraint while 54.19% reported it as a high constraint. 39.76% of those with low isomorphism had it as a low constraint while 52.78% those with high isomorphism also had it as a low constraint. 77.78% of those that failed had it as a high constraint while 38.04% of those that survived had it as a high constraint.

Table 4. 4: Means (M), Standard Deviations (S.D.) and Correlations

	M	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Survival	0.59	0.40	1														
Age	7.50	6.08	0.15	1													
Size	6.35	11.20	0.23	0.42	1												
Generalist	0.26	0.44	-0.53	-0.20	-0.17	1											
Education	3.65	0.86	-0.23	0.17	0.12	0.03	1										
Experience	8.96	6.70	0.34	0.61	0.32	-0.30	-0.12	1									
Male	0.75	0.44	0.07	0.07	0.02	-0.13	-0.15	0.30	1								
Market Orientation	-0.10	0.99	0.43	-0.01	0.06	-0.25	-0.23	0.22	0.22	1							
Absorptive Capacity	-0.18	0.95	0.51	0.13	0.38	-0.28	-0.19	0.27	0.07	0.54	1						
Entrepreneurial Orientation	-0.10	1.00	0.43	0.16	0.35	-0.22	-0.06	0.24	0.07	0.52	0.64	1					
Dynamic Capability	-0.12	1.02	0.55	0.11	0.29	-0.33	-0.17	0.26	0.13	0.52	0.60	0.58	1				
Investment Constraints (ICC)	-0.20	0.96	-0.49	0.05	0.15	0.23	0.22	-0.17	-0.20	-0.30	-0.18	-0.07	-0.31	1			
Isomorphism (ISO)	1.82	1.17	0.42	0.14	0.34	-0.26	0.05	0.18	0.07	0.26	0.38	0.34	0.35	-0.14	1		
Isomorphism Squared	1.35	1.90	-0.01	0.03	0.20	-0.01	-0.03	0.05	0.01	0.19	0.29	0.22	0.16	0.02	0.36	1	
ISO*ICC	-0.14	1.19	0.04	0.05	0.22	0.00	0.00	0.00	0.00	-0.05	-0.07	-0.09	-0.02	0.06	-0.18	-0.29	1

Table 4. 5: Cross Tabulations of Isomorphism, Investment Climate Constraints and Survival

		Low Isomorphism (%)	High Isomorphism (%)	Failed (%)	Survived (%)	Total (%)
Finance	Low Constraint	45 (54.22)	55 (76.39)	8 (12.70)	92 (100.00)	100 (64.52)
	High Constraint	38 (45.78)	17 (23.61)	55 (87.30)	0 (0.00)	55 (35.48)
Land Access	Low Constraint	83 (100.00)	68 (94.44)	63 (100.00)	88 (95.65)	151 (97.42)
	High Constraint	0 (0.00)	4 (5.56)	0 (0.00)	4 (4.35)	4 (2.58)
Permits	Low Constraint	14 (16.87)	18 (25.00)	10 (15.87)	22 (23.91)	32 (20.65)
	High Constraint	69 (83.13)	54 (75.00)	53 (84.13)	70 (76.09)	123 (79.35)
Corruption	Low Constraint	55 (66.27)	52 (72.22)	44 (69.84)	63 (68.48)	107 (69.03)
	High Constraint	28 (33.73)	20 (27.78)	19 (30.16)	29 (31.52)	48 (30.97)
Courts	Low Constraint	50 (60.24)	32 (44.44)	36 (57.14)	46 (50.00)	82 (52.90)
	High Constraint	33 (39.76)	40 (55.56)	27 (42.86)	46 (50.00)	73 (47.10)
Crime	Low Constraint	64 (77.11)	54 (75.00)	48 (76.19)	70 (76.09)	118 (76.13)
	High Constraint	19 (22.89)	18 (25.00)	15 (23.81)	22 (23.91)	37 (23.87)
Customs	Low Constraint	72 (86.75)	60 (83.33)	54 (85.71)	78 (84.78)	132 (85.16)
	High Constraint	11 (13.25)	12 (16.67)	9 (14.29)	14 (15.22)	23 (14.84)
Electricity	Low Constraint	43 (51.81)	47 (65.28)	22 (34.92)	68 (73.91)	90 (58.06)
	High Constraint	40 (48.19)	25 (34.72)	41 (65.08)	24 (26.09)	65 (41.94)
Workforce Quality	Low Constraint	62 (74.70)	56 (77.78)	44 (69.84)	74 (80.43)	118 (76.13)
	High Constraint	21 (25.30)	16 (22.22)	19 (30.16)	18 (19.57)	37 (23.87)
Labour Regulations	Low Constraint	18 (21.69)	18 (25.00)	13 (20.63)	23 (25.00)	36 (23.23)
	High Constraint	65 (78.31)	54 (75.00)	50 (79.37)	69 (75.00)	119 (76.77)
Political Stability	Low Constraint	51 (61.45)	46 (63.89)	36 (57.14)	61 (66.30)	97 (62.58)
	High Constraint	32 (38.55)	26 (36.11)	27 (42.86)	31 (33.70)	58 (37.42)
Informal	Low Constraint	54 (65.06)	43 (59.72)	42 (66.67)	55 (59.78)	97 (62.58)

Sector	High Constraint	29 (34.94)	29 (40.28)	21 (33.33)	37 (40.22)	58 (37.42)
Tax	Low Constraint	60 (72.29)	42 (58.33)	40 (63.49)	62 (67.39)	102 (65.81)
Administration	High Constraint	23 (27.71)	30 (41.67)	23 (36.51)	30 (32.61)	53 (34.19)
Tax Rates	Low Constraint	56 (67.47)	46 (63.89)	43 (68.25)	59 (64.13)	102 (65.81)
	High Constraint	27 (32.53)	26 (36.11)	20 (31.75)	33 (35.87)	53 (34.19)
Transportation	Low Constraint	52 (62.65)	40 (55.56)	39 (61.90)	53 (57.61)	92 (59.35)
	High Constraint	31 (37.35)	32 (44.44)	24 (38.10)	39 (42.39)	63 (40.65)
Inflation	Low Constraint	33 (39.76)	38 (52.78)	14 (22.22)	57 (61.96)	71 (45.81)
	High Constraint	50 (60.24)	34 (47.22)	49 (77.78)	35 (38.04)	84 (54.19)

4.4.2 Regression Results

Table 4. 6: Isomorphism and SME Survival

	AME (1)	AME (2)	AME (3)
Age (A)	-0.006	0.008	0.007*
	(0.007)	(0.005)	(0.004)
Size (S)	0.012	0.011	0.005
	(0.010)	(0.009)	(0.008)
Generalist (=1) (G)	-0.285***	-0.212***	-0.203***
	(0.046)	(0.043)	(0.046)
Education	-0.059**	-0.014	-0.024
	(0.029)	(0.023)	(0.025)
Experience	0.009	0.010**	0.010***
	(0.006)	(0.004)	(0.004)
Gender (Male=1)	-0.085	-0.193***	-0.164***
	(0.059)	(0.042)	(0.050)
Market Orientation	0.030	0.033	0.034
	(0.033)	(0.025)	(0.024)
Entrepreneurial	0.049	0.084***	0.089***
Orientation	(0.039)	(0.026)	(0.024)
Absorptive Capacity	0.034	0.124***	0.130***
	(0.037)	(0.030)	(0.029)
Dynamic Capability	0.111***	0.039	0.035
	(0.031)	(0.028)	(0.025)
Investment Climate		-0.267***	-0.247***
Constraints (ICC)		(0.039)	(0.035)
Isomorphism (ISO)		0.083***	0.058***
		(0.018)	(0.015)
ISO Squared			-0.053***
			(0.014)
ISO*ICC			0.050*
			(0.027)
Wald	71.07***	37.67***	34.29***
Pseudo R^2	0.506	0.755	0.801
Observations	155	155	155

+Standard errors in parentheses are robust to heteroskedasticity
++Significance Levels: 1%***; 5%**; 10%*

The study now turns to the study econometric analysis. The study reports the average marginal effects (AME) of the probit estimates (see in appendix). In column 1, the study presented the covariate model, in column 2, the study added the main effects (isomorphism and investment climate constraints) and in column 3, the study added the isomorphism

squared and interaction between isomorphism and investment climate constraints. The study began by reporting the fitness of the study models to the data. All the models showed a significant Wald statistic of 71.07*** for column 1; 37.67*** for column 3 and 34.29*** for column 5. The Pseudo R^2 for the models range from 0.506 to 0.801. The study found that age of SME has a positive and significant relationship with survival (0.095 and 0.007) in column 3. The generalist dummy is seen to be negatively associated and well determined in all the columns (-0.285, -0.212, and -0.203). Education of owner is seen to be significant in only the covariate model (-0.059). Experience of the owner is positive and significant in the main effect and interaction models. Gender of owner which is a male dummy has a negative and significant effect in the main effect and interacted models (-0.193, and -0.164). Entrepreneurial orientation (0.084 and 0.089) and absorptive capacity (0.124, and 0.130) are positive and well determined in the main effects and interacted models. Dynamic capability is seen to be significant in the covariate model only (0.111). Investment climate constraints are seen to be negative and well determined in the main effects and interaction model (-0.267 and -0.247). Isomorphism is also seen to have a positive and significant association with SME survival (0.083 and 0.058) in columns 2-3. Isomorphism squared is seen to be negatively significant (-0.053) while the interaction between isomorphism and investment climate constraints is seen also to be positively significant (0.050) in the interacted model.

4.5 Discussions of Results

In this section the study discuss the findings of the study in line with existing literature. The study sought to explain the association between level of SME isomorphism and survival; and whether this isomorphism was useful in overcoming the burdens of investment climate constraints. The study operationalizes isomorphism as the level of

structural equivalence of an SME in a collaborative network survey in 2014 and survival as the persistence of the SME into 2015. The data was collected from a poultry cluster in rural mid-western Ghana that is one of the best performing in the country as a critical case (Flyvbjerg, 2006; FAO, 2014); and also to avoid network sprawl and sparseness (Hanneman & Riddle, 2005). The study modelled the study data with a cross sectional probit model with lagged independent variables while controlling for the SME characteristics, owner characteristics and organisational competencies. In this section the study discuss the findings based on the AMEs results in column six of table 4.6 presented in the previous section.

The study first discusses the effects of the covariates on survival. The study controlled for SME characteristic such as age, size and resource utilization relating to organisational ecology theory. The study found that age of the SME was positively related to survival while generalist as a dummy for resource utilization is negatively related. The findings on age of SME conforms to the age dependence hypothesis that suggests that as a firm ages it is less likely to suffer the liability of newness as it acquires the competencies required to survive in the industry and also becomes reliable in the estimations of relevant stakeholders (Mens & Hannan, 2014). The findings on the generalist dummy confirms the resource partition hypothesis that indicates that firms that require broad resources from the environment and hence, when not legitimated by stakeholders, can fail (Carroll et al., 2002). The study also controlled for owner characteristics of education, gender and experience. The study found that businesses of experienced owners are more likely to survive while businesses owned by men are more likely to fail compared to those owned by women. The findings on gender conforms to an emerging stream of literature on gender in small business that suggests that women may be favoured or only capable women are

selected into entrepreneurship (Hansen & Rand, 2014b). The findings on experience is in line with top management literature that suggests that experienced managers are more likely to gain positive outcomes (Jo & Lee, 1996). Furthermore, the study also controlled for the effects of organisational competencies like market orientation, entrepreneurial orientation, absorptive capacity and dynamic capability in line with management theory. The study found that all the variables have a positive effect on survival but only entrepreneurial orientation and absorptive capacity rise to significance. The general positive effect of managerial and organisational competencies confirms management literature that managers must manage their firms to reduce the negative effects of environmental pressures (Miles, 2012). The significance of absorptive capacity suggest that small businesses that develop systems that enable them to absorb resources from the environment have a better survival likelihood (Zahra & George, 2002), while that of entrepreneurial orientation suggest that those firms that can take risks, be proactive and innovative will survive (Jantunen et al., 2005).

The study now turns to the study hypothesized effects. The study hypothesized that as a small business becomes increasingly isomorphic to its environment the more likely it will survive and confirm the study hypothesis. This is likely because, from an institutional theory perspective, isomorphic businesses conform to the coercive, mimetic and normative pressures and hence are legitimated (DiMaggio & Walter, 1991). This legitimation is then useful in acquiring other resources that are needed for the fight for survival (Deephouse, 1996). Also, by being isomorphic the small businesses are validated by their structural forms and not their technical efficiency and hence are able to survive in line with the logic of good faith (Scott, 1991). Also, isomorphism enables the small business to copy more stable businesses in its environment to reduce turbulence and maintain stability that aids

survival (Meyer & Rowan, 1977). From a network theory perspective, this may be possible because isomorphic businesses are similar in structure and links, therefore can engage in oligopolistic coordination (Gulati et al., 2000). Again, the similarity breeds cohesion which is a major ingredient in network trust and such trust is useful in reducing transaction costs with each other; hence, improving survival chances (Williamson, 1979; Coleman, 1988; McPherson et al., 2001). The study also hypothesized that when the firms get too similar it can have negative consequences on survival and confirm this hypothesis. This, the study argue, may be due to the fact that when businesses become structurally similar they compete for the same resources and hence lead to competitive crowding and failure of some of the businesses (Podolny et al., 1996). Also from network theory, similar firms engage in triadic closure and hence redundant information is locked in it and there are limited opportunities to engage in bridging behaviour for new information (Burt, 2004; Symeonidis et al., 2010). Again, the study hypothesized that investment climate constraints reduce the survival chances of small businesses and unsurprisingly confirm the hypothesis. This may be possible because they impose indirect costs on productive activities of these businesses (Eifert et al., 2008). Furthermore, the study hypothesized that isomorphism can be useful in overcoming investment climate constraints. The study found that the interaction between investment climate constraints and isomorphism is positive which confirms the hypothesis. A reason for this may be because small businesses are able to reduce their liabilities by being isomorphic and gaining the good faith of relevant stakeholders which becomes a currency to acquire other critical resources in that environment (Deephouse, 1996).

The study now discusses the implications of the results for enterprise management and research. The study suggested to managers of small business to copy the activities of other

SMEs in their industry as this will offer them the needed stability through the legitimation of their activities in line with the findings on isomorphism and survival. However, the study also cautioned that there is an optimum point beyond which such 'copying' will return negative returns. In the study data the optimum point is the second order derivative of the squared term but the experience of the manager in leading his business to this optimum point may be critical. Another incentive for small businesses to base their actions on those of other businesses is that it can be useful in overcoming investment climate constraints. This mechanism may work through the logics of good faith where small businesses can avoid certain indirect costs imposed by the investment climate. On research implications, the study focussed the study study on a particular poultry cluster as a critical case. The study will encourage other studies to focus on other poultry clusters in the country to replicate this study. The study also used structural equivalence to measure similarity but other studies can use measures of cohesion as a measure of similarity to replicate the study.

4.6 Conclusion

The main objective of this study was to understand if an SME becomes isomorphic to other SMEs in its environment, it survival probability increases and if such isomorphism returns negative results at some point. The study also considered whether this isomorphism can also be useful in overcoming investment climate constraints. The study found that isomorphic SMEs have a better survival probability, and such isomorphism was very useful in overcoming investment climate constraints. However, the isomorphism reaches an optimum and thereafter returns a negative effect. Consequently, the study conclude that it is useful for firms to be isomorphic to their environments however there is need for caution as this can return some negative effects after some point.

APPENDIX:

Table 4A1: Ghana Poultry Sector Statistics

National				Brong Ahafo Region	
Region	No. of Birds (%)	Egg Production (in millions)	No. of Farms+	District	No. of Farms+
Greater Accra	2,547,219 (7.02%)	542	475	Dormaa	202
Central	903,702 (2.49%)	437	312	Jaman South	9
Western	1,406,642 (3.88%)	247	102	Berekum	34
Eastern	3,886,914 (10.72%)	358	213	Sunyani	65
Volta	1,071,622 (2.95%)	68	98	Techiman	25
Ashanti	10,180,760 (28.07%)	5,321	697	Tano South	16
Brong-Ahafo	10,743,897 (29.62%)	3,989	510	Nkoranza	32
Northern	3,625,149 (9.99%)	-	30	Kintampo South	1
Upper East	1,325,835 (3.66%)	-	33	Asunafo North	17
Upper West	579,474 (1.60%)	-	34	Asunafo South	0
				Asutifi	10
				Wenchi	9
				Sunyani West	90

+Based on FAO Sector 1/2/3 Classification

Sources: Veterinary Services Directorate (2010, 2011, 2013) in FAO, 2014

Table 4A2: Probit Estimates

	Probit (1)	Probit (2)	Probit (3)
Age (A)	-0.033	0.085	0.095*
	(0.041)	(0.056)	(0.057)
Size (S)	0.068	0.118	0.070
	(0.056)	(0.101)	(0.105)
Generalist (=1) (G)	-1.548***	-2.296***	-2.687***
	(0.300)	(0.619)	(0.845)
Education	-0.322**	-0.149	-0.314
	(0.159)	(0.258)	(0.353)
Experience	0.050	0.113**	0.134***
	(0.035)	(0.048)	(0.051)
Gender (Male=1)	-0.464	-2.093***	-2.179***
	(0.331)	(0.508)	(0.674)
Market Orientation	0.163	0.362	0.448
	(0.184)	(0.272)	(0.310)
Entrepreneurial Orientation	0.265	0.907***	1.186***
	(0.213)	(0.323)	(0.409)
Absorptive Capacity	0.186	1.340***	1.721***
	(0.203)	(0.370)	(0.497)
Dynamic capability	0.601***	0.418	0.461
	(0.182)	(0.318)	(0.352)
Investment Climate Constraints (ICC)		-2.899***	-3.275***
		(0.641)	(0.788)
Isomorphism (ISO)		0.906***	0.768***
		(0.256)	(0.258)
ISO Squared			-0.710***
			(0.242)
ISO*ICC			0.666*
			(0.368)
Wald	71.07***	37.67***	34.29***
Pseudo R^2	0.506	0.755	0.801
Observations	155	155	155

+Standard errors in parentheses are robust to heteroskedasticity
++Significance Levels: 1%***; 5%**; 10%*

Table 4A3: Logit and Average Marginal Effect Estimates

	Logit	AME	Logit	AME	Logit	AME
Age	-0.058	-0.006	0.151	0.008	0.183	0.008**
	(0.081)	(0.009)	(0.111)	(0.006)	(0.113)	(0.004)
Size	0.112	0.012	0.201	0.011	0.110	0.005
	(0.092)	(0.010)	(0.200)	(0.011)	(0.185)	(0.008)
Generalist (=1)	-2.596***	-0.279***	-4.140***	-0.223***	-5.211**	-0.221***
	(0.535)	(0.049)	(1.322)	(0.052)	(2.232)	(0.060)
Education	-0.536*	-0.058*	-0.308	-0.017	-0.669	-0.028
	(0.287)	(0.031)	(0.512)	(0.027)	(0.723)	(0.028)
Experience	0.084	0.009	0.185**	0.010**	0.229**	0.010**
	(0.070)	(0.007)	(0.081)	(0.004)	(0.096)	(0.004)
Gender (Male=1)	-0.803	-0.086	-3.484***	-0.188***	-3.643***	-0.154**
	(0.601)	(0.062)	(0.900)	(0.045)	(1.366)	(0.064)
Market Orientation	0.289	0.031	0.563	0.030	0.735	0.031
	(0.324)	(0.034)	(0.554)	(0.030)	(0.634)	(0.028)
Entrepreneurial	0.473	0.051	1.620**	0.087***	2.270**	0.096***
Orientation	(0.393)	(0.042)	(0.653)	(0.030)	(0.967)	(0.026)
Absorptive	0.334	0.036	2.383***	0.128***	3.274***	0.139***
Capacity	(0.383)	(0.041)	(0.788)	(0.037)	(1.240)	(0.034)
Dynamic	1.062***	0.114***	0.778	0.042	0.868	0.037
Capability	(0.329)	(0.032)	(0.644)	(0.033)	(0.768)	(0.029)
Investment Climate			-5.157***	-0.278***	-6.116***	-0.259***
Constraints (ICC)			(1.371)	(0.047)	(2.004)	(0.041)
Isomorphism (ISO)			1.620***	0.087***	1.420**	0.060***
			(0.549)	(0.022)	(0.590)	(0.017)
ISO Squared					-1.326**	-0.056***
					(0.556)	(0.015)
ISO*ICC					1.109*	0.047*
					(0.660)	(0.027)
Wald	58.78***		29.58***		23.69**	
Pseudo R^2	0.500		0.753		0.802	
Observations	155	155	155	155	155	155

+Standard errors in parentheses are robust to heteroskedasticity
++Significance Levels: 1%***; 5%**; 10%*

Table 4A4: Ordinary Least Squares (OLS) Estimates

	Control Model	+Main Effects	+Interaction Effects
Age	-0.003	0.000	0.000
	(0.006)	(0.006)	(0.005)
Size	0.001	0.003	0.002
	(0.002)	(0.002)	(0.002)
Generalist (=1)	-0.401***	-0.336***	-0.312***
	(0.079)	(0.072)	(0.070)
Education	-0.073**	-0.068**	-0.069**
	(0.033)	(0.030)	(0.029)
Experience	0.010*	0.006	0.006
	(0.006)	(0.005)	(0.005)
Gender (Male=1)	-0.115*	-0.149**	-0.150**
	(0.069)	(0.064)	(0.060)
Market Orientation	0.041	0.014	0.019
	(0.044)	(0.043)	(0.041)
Entrepreneurial Orientation	0.068	0.049	0.070*
	(0.044)	(0.042)	(0.042)
Absorptive Capacity	0.023	0.049	0.054
	(0.051)	(0.049)	(0.048)
Dynamic Capability	0.117***	0.064**	0.056*
	(0.036)	(0.032)	(0.031)
Investment Climate Constraints (ICC)		-0.163***	-0.157***
		(0.029)	(0.029)
Isomorphism (ISO)		0.065***	0.096***
		(0.022)	(0.023)
ISO Squared			-0.046***
			(0.012)
ISO*ICC			0.028
			(0.021)
F-Stat	48.55***	44***	42.80***
R^2	0.516	0.618	0.653
Observations	155	155	155

+Standard errors in parentheses are robust to heteroskedasticity
++Significance Levels: 1%***; 5%**; 10%*

CHAPTER FIVE

BENEFITTING FROM ALTER RESOURCES: NETWORK DIFFUSION AND SME SURVIVAL

Abstract

The objective of this study is to understand whether alter resources can be useful for the survival of SMEs in Ghana. The study utilize data from two rounds of poultry SME network survey and accompanying SME attributes in rural Ghana in 2014 and 2015. The study specifically focused on the resources that diffuse to SMEs from their alters and the mechanism through which these resources diffuse to the SME. The study observed that alter market and technological resources are significant for the survival of the SMEs. The study also explored the effect of variations in alter competences along the lines of the resource and found that market resources have a positive effect and technological resource variations have a negative effect but these do not rise to significance. Finally, the study assessed the impact of the mechanism through which the resources are diffused and found that both direct and indirect tie mechanisms have a positive effect on survival of the SMEs but the effect of direct ties was higher than for indirect ties.

Keywords: Diffusion of Innovations, Networks, Alter Resources, SMEs, Survival, Ghana

5.1 Introduction

Small and medium scale enterprises (SMEs)[36] in developing parts of the world face several resource constraints. These constraints include raw material supplies, market, technological, quality labour, and transport resources (Kayanula & Quartey, 2000b; Abor

[36] Businesses employing less than 99 employees in Ghana

& Quartey, 2010). In order to address this challenge some authors have called for collaborations among SMEs for better resource sharing. Lichtenthaler (2008) for instance, asserts that SMEs can reap greater benefits from external collaborations as it can compensate for the scarcity of internal resources and competences. Mcdade and Malecki (1997) have suggested that in industrial estates, resource sharing is very common among individual entrepreneurs as a mechanism for overcoming the resource constraints that they face. Narteh (2008) also studied knowledge as a resource and its transfer within the context of collaborations between developed and developing countries and reports that the resource and the mechanism of transfer are critical to the usefulness of the resource. Hinson and Sorensen (2006) have noted that the internet is a mechanism through which resources can diffuse to small business exporters in Ghana. SMEs are, however, embedded in set enterprise networks that provide opportunities or constraints on their successful operations (Buame, 1996; Naudé, Zaefarian, Najafi-Tavani, Neghabi, & Zaefarian, 2014). That is, what resources can be made available from their connections for their benefit.

These suggestions imply a diffusion of resources from an actor in an enterprise network to its alters that may require such resources. The diffusion of innovation theory of Rogers (2010) has been employed to explain this phenomenon. The theory suggests that such resources need to diffuse through a medium over time in a social system to be made available to the alters that require them. This means that, for the resource to be diffused, the medium of diffusion, the timeline and the social system within which the diffusion takes place are relevant. If the study hold the time and social system constant for all the actors in the SME network then the resource and medium are variable. In this study the study ask if two types of resources embedded with a SMEs alters (market and technological) are relevant for the survival probabilities of the SME. This is considering

the fact that marketing and technological capabilities vary among SMEs, and whether such diffusion will aid the survival of an SME. Also, will such variability matter for the survival of SMEs if the study consider that SMEs must make a decision as to which of the alters resources it needs to adopt for its usage and choosing the wrong technology can have negative influences on the survival of the business. Again, the mechanism through which resources can diffuse among alters can be both direct and indirect. The study ask if these mechanisms are also relevant for the survival of the SMEs.

Pursuant to these research questions, the study collected network data from SMEs in the poultry industry in the three Dormaa (East, West and Central) districts of Ghana. The study used and limited the study to this industry and study site because it enabled us to control for network sprawl; without which the network would have been sparse and lacking variation in scores (Hanneman & Riddle, 2005). According to statistics from the national veterinary office and the Food and Agriculture Organisation (FAO), the cluster is one of the best[37] in the country in poultry production (FAO, 2014). The sector is also a critical case for the industry considering its one of the best performing poultry clusters in the country. The study argue for the generalizability of the findings to other clusters in line with Flyvbjerg (2006) who note that critical case studies can be extrapolated for other cases in line with the black swan argument that critical cases can be major test of theory falsification. Using multiple name generators (Rooks et al., 2012), farm SME owners were asked to identify other farmers that they have collaborated with in the course of their business operations in the last six (6) months. The data was collected in two rounds: the first in January 2014 and second in March 2015. The study then constructed a one-mode network from which the study derived the direct and indirect ties, actor alter attributes and

[37] Based on FAO 1-2-3 Classification

the variations in those attributes. The study then modelled survival into 2015 as a function of lagged independent variables from 2014. The study found that there was a high failure rate of approximately forty percent. This finding supports the anecdote in the SME scholarship that most SMEs do not see their second birthday. The study also found that the mechanisms through which the resources diffuse and the resources themselves have a positive association with survival; the variations have no significant effect; market resource variations have a positive effect; while technological variations have a negative effect. In the following pages the study discuss the literature and hypotheses, the research methods employed, the study findings and the conclusions derived from the study.

5.2 Literature Review and Hypotheses

Borgatti and Foster (2003) in a review of network studies argue that diffusion occurs in networks in the form of shared attitudes, culture and practices. This occurs through the interaction between an actor and its alters linked by their ties. Therefore a given actor's adoption of a particular culture, attitude or practice is dependent on the number of its alters that have that attitude, culture or practice and its intensity. The theoretical mechanism that has been used to explain this phenomenon is the diffusion of innovation (DoI) theory (Rogers, 2010). The theory defines diffusion as the process through which an innovation is communicated through certain medium over time among members of a social system. Consequently, the study defines diffusion within the context of networks in this study as the process by which the resources of an actor is made available to others through its ties over time among SMEs in an industry network. Four main issues emerge from this: (1) the alter resource; (2) the medium of transfer; (3) time; and (4) the network. In this study the study focus on the alter resource and the medium of transfer of the resource since the time and network are fixed for all the SMEs and offers no variation. The study, however,

include and test the effects of variation in alter resource outcomes on SME survival. In the following paragraphs the study discusses and hypothesizes these issues.

5.2.1 The Alter Resources, Variations and SME Survival

In this section the study focus on two alter resources and the variations in them that an SME can appropriate for its survival. These are market and technological resources and their consequent variations as a result of different alters having different levels of the resource. The first alter resource the study discuss is market resources. An actor's marketing competence in the network is based on their level of market orientation (Kohli & Jaworski, 1990). Market orientation (MO) is derived from the application of marketing concepts suggesting that the key to organisational success is through the determination and satisfaction of the needs, wants, and aspirations of target markets (Mahmoud & Yusif, 2012). MO is therefore a cultural orientation with behavioural implications since it channels organizational efforts towards learning about markets and developing strategies in response to market threats and/or opportunities (Cambra-Fierro et al., 2011). Parry, Jones, Rowley, and Kupiec-Teahan (2012) found that marketing orientation is useful for small business performance. SMEs with higher levels of MO will have greater access to the market and its resources than those that do not, but can offer some of these to other SMEs it is connected to. Consider an SME that, due to its market competences, receives a large order it is not able to meet on its own. It will likely contact other SMEs that it has ties with to meet part of that order to enable it to meet the customer needs. This other SME that is contacted will therefore be benefitting from its alters market resources. Consequently, the study hypothesizes that:

H1a: SMEs with ties to alters rich in market resources are more likely to survive

However, alters are likely to have differing levels of market competences and therefore resources it can offer an SME. Can these variations have a negative effect on SME survival? In terms of market resources, this is less likely to be the case as an SME will only be selling to diverse markets and is more likely to give it bargaining power (Cook & Yamagishi, 1992). Consider the situation where an SME receives 'help orders' to meet its customer's requests from its alters whether small or large this should not affect the functioning of the SME since a sale is made in each case. The only time this can be possible, is when such orders tend to be large and the alter exerts some power over the SME that it is not able to meet its own customer needs. However, this situation is less likely to occur in the study area and many agricultural enterprises where supply usually outstrips demand (Adei & Asante, 2012; FAO, 2014; Sumberg, Awo, Fiankor, Kwadzo and Thompson, 2013) and demand of all kinds are likely to be welcome. Consequently, the study hypothesizes that:

H1b: SMEs with high variations in alter market resources are more likely to survive

The next resource the study considers is technological resources. Technological resources are very important within the context of SMEs as it allows businesses to expand quickly and efficiently by serving as an enabler of production and service functions of the business (Aa & Elfring, 2002). Segarra and Callejon (2002) noted that technology is very important to the survival of small businesses focusing on Spanish data and evidence. They mentioned that technology is a key variable in a set of factors in market structure and dynamics in line with the Schumpeterian market theory (ibid). They also concluded that the SMEs that faced the lowest exit probabilities were those that had better technologies. Despite the importance of technology to the operations of SMEs there still persists low usage. This has

been attributed to mainly financial and organisational reasons (Consoli, 2012). Finance is a major challenge as the initial capital outlay required to buy a new technology is usually very high and most of these SMEs in the end are not able to acquire it. It is important to also note that SMEs are usually credit constrained (UNCTAD, 2001) and therefore this problem can only be compounded. Again, even if the technology is available there is the lack of skilled labour and a coherent strategy to utilize the technology (Kayanula & Quartey, 2000b). However, according to Rogers (2010), the biggest reason why SMEs may not be adopting new technologies is the lack of information and uncertainty. This is because SMEs can look for the funds to finance the technology and train employees to use the technology but if they are unsure about its possible benefits then adoption becomes problematic. However, having ties to alters that have these resources and competences can help reduce the uncertainty associated with technology and access to the new technology especially when the technology has led to increases in production. Consequently, the study hypothesizes that:

H2a: SMEs that have alters with high technological resources are more likely to survive

However, in reality an SME can have more than one alter and these may vary in their technological competences. This makes the evaluation of the technology and its associated uncertainty even more uncertain. This is because the reason why SMEs look to their alters is for information to erase the uncertainty associated with new technology (Rogers, 2010). Consequently, high variation in the technological resource competences and resources can have a negative effect on SME outcomes. This is because the SME may not be able to verify the technology and hence may not adopt the technology and suffer from using possible obsolete technology. The study therefore hypothesizes that:

H2b: SMEs with high variations in alter technological resources are less likely to survive

5.2.2 Direct Ties, Indirect Ties and SME Survival

Resources that flows from one alter to the other require a medium. The DoI theory suggests that these are communication channels (Rogers, 2010) but within this study the study consider this as the ties that exists between the alters. These ties can be direct ties or indirect ties (the study focuses on distance two only). The study starts the study discussion with the direct ties. The number of direct ties SME maintains has been known to positively influence organisational outcomes (George, Zahra, Wheatley, & Khan, 2001). Their influence is in the form of knowledge sharing, complementarity and scale (Ahuja, 2000). SMEs in clusters can share knowledge on what is best practice and this can lead to higher levels of performance for their sustained growth. They also achieve complementarity by bringing different skills sets to perform a task; especially, when it comes to meeting the orders of larger corporate clients where one SMEs capability may not be enough to achieve the required output. This is related to the scale factor. Increasingly, SMEs (especially, agricultural ones) must meet the raw material requirements of institutional buyers, and collaboration enables them to access support from their immediate environment to meet these large-scale project demands. Direct ties can help SMEs achieve these through strong ties (Granovetter, 1973); exploitative behaviour (Rowley et al., 2000) and embedding (Uzzi & Lancaster, 2003). Direct ties can be seen as strong ties with which an SME has a relationship. SMEs with direct, strong or intense relationships can easily access resources from each other whether it is knowledge, complementary skills and scaling opportunities. The same can be said for exploitation and embedding where SMEs can exploit or utilize their immediate contacts to gain access to knowledge, complementary skills and scaling opportunities. Taken together resource access from direct ties represents

local (an actor's immediate neighbourhood) resource utilization (Zaheer et al., 2010). However, since the study are discussing diffusion from a given SMEs alters then such direct ties will have to be of incoming direct tie form. Consequently, the study hypothesizes that:

H3: An increase in a given SME's incoming direct ties is associated with a higher survival probability

Beyond direct incoming ties SMEs can also benefit from diffusion of resources from indirect ties. Indirect ties refer to the ties an actor has outside his local neighbourhood as a result of ties of connections held by its direct ties to other ties it has no direct tie to. This is popularly referred to as the 'friend-of-friend' phenomenon (Goodreau & Kitts, 2009). Indirect ties can be a resource gathering and/or processing/screening mechanism (Ahuja, 2000). In SME networks, resources can diffuse from SMEs to other SMEs beyond their immediate catchment area to access information and resources that can be critical for their functioning and existence. Indirect ties can also be used to screen information received from direct ties as well. For example, if information received from a direct tie is different from what the tie sent to its other direct ties then the trustworthiness of such information should be doubted. Closer indirect ties can also be used to screen information flowing to the SME from much more distant indirect ties. Indirect ties can also be thought of as weak ties (Granovetter, 1973), an explorative mechanism (Rowley et al., 2000) and/or arm's length relations (Uzzi & Lancaster, 2003). The weak ties explanation suggests that SMEs with many indirect ties will be able to access resources from other SMEs that are not in their immediate environment. This lends itself to the flow of resources between groups rather than within groups. Linked to this idea is the explorative mechanism of indirect ties.

If SMEs move from their immediate groups in search of resources, which can be thought of as explorative, as compared to exploiting the local resources direct ties offer. These resources can then diffuse through the tie mechanism to the SME that sought. This is because the distant the indirect tie is, the less reliable the resource is likely to be. Exploration offers the SME the chance to gain resources that are not in its immediate catchment area. The arm's length part of the argument suggests that indirect relations are cool, impersonal and atomistic and therefore require less investment. Like 'books-on-a-shelf' SMEs can activate them as and when resources are needed. This helps them to largely avoid the constraining effects of over-embeddedness. Taken together, indirect ties represent a global access to resources by an SME embedded in a network. This is because these resources are beyond the SMEs immediate ties. Consequently, the study hypothesizes that:

H4: An increase in a given SME's indirect ties is associated with a higher survival probability

5.3 Research Methods

5.3.1 The Research Setting

The study tests the above hypotheses within the Dormaa poultry cluster in three districts of the Brong Ahafo Region of Ghana. These districts are Dormaa Central (Dormaa Ahenkro), Dormaa West (Nkrankwanta) and Dormaa East (Wamfie). This cluster is popularly known in the agriculture literature as the Sunyani/Dormaa cluster (Mensah-Bonsu & Rich, 2010). Poultry production in this cluster is one of the largest in the region and nationwide (see national poultry statistics in appendix). Some of the major challenges encountered by the

poultry farmers include; financing, diseases, and absence of electricity for operations in most farms. The presence of feed processing mills, poultry input shops and availability of organised markets served as prospects that could be harnessed to boost the growth of the poultry industry in the district (Adei & Asante, 2012). Sectorally, the poultry sector in Ghana is one of the few sectors that have faced the harsh realities of trade liberalization. This has led to the collapse and below-capacity operation of many of the poultry clusters in the country before the mid-1980s to early 1990s (FAO, 2014). Compared to cocoa, maize or rice, the poultry sector does not feature prominently in economic planning or agricultural policy and programme documents. Where it is referred to, the proposed measures appear to lack either purpose, focus or consistency, and it is difficult to discern a specific policy approach or strategy towards the poultry sector (Sumberg, Awo, Fiankor, Kwadzo & Thompson, 2013). Recently, the Government of Ghana has initiated two programmes aimed at rescuing the sector from collapse, namely: the National Poultry Support Project (NPSP) announced by the Ministry of Trade and Industry;[38] and the Ghana Broiler Revitalization Project (GHABROP) through the Ministry of Food and Agriculture (MOFA) in ten year collaboration with the Ghana National Association of Poultry Farmers[39]. The cluster the study used is a critical case for poultry production in Ghana as it is one of the best performing clusters in Ghana (FAO, 2014) and hence the findings from the study can be generalized for the poultry sector in Ghana (Flyvbjerg, 2006).

[38] http://graphic.com.gh/news/general-news/22412-government-support-to-poultry-industry-increasing.html

[39] http://www.thepoultrysite.com/poultrynews/32740/ghanas-broiler-sector-to-get-legup-from-revitalization-project

5.3.2 Data Collection and Network Survey

To collect network and attribute data from poultry farmers a composite list of 200 farmers was developed after discussions with the industry association, the Ghana Revenue Authority (GRA), the Municipal Assemblies, Assemblymen and women in each unit area of the district and the office of the paramount traditional chief (*Omanhene*). When the whole list was compiled and recurring farms taken care of, the study had a total of 163 farms. The study contacted all the farmers to interview them, of which 155 farmers participated in the study representing a 95.05% response rate. It is important to note that not all the farmers in the cluster area were included in the compiled list because some of the farms were household farms that are not operating as a business; hence were excluded from the study since this was a primary requisite for participation. The average interview took approximately 45 minutes. The farmers were asked for information regarding enterprise characteristics, owner characteristics and general organisational and technical competences. In relation to the network data, farmers were asked to name other farmers in the study area that they collaborated with for the purposes of their business in line with the multiple name generator approach (Rooks et al., 2012). The study then checked if the names provided were on the study list; if not, the study further checked the location of the named farm. In most cases the study found that farms that were not on the study list were outside the study area and consequently was discounted for network boundary validity purposes (Boutilier, 2007; Carpenter, Li, & Jiang, 2012). After every interview the face validity of the responses was assessed by ensuring that respondents had evidence to support the existence of a link. If none was produced, the link was discounted. Two rounds of data were collected for the purposes of this study. The first round of data was collected in January 2014 and the second round of data was collected in March 2015. The cohesive characteristics of the networks in both rounds are presented below.

Table 5. 1: Collaborative Network Characteristics

Measure	2014	2015	(Δ2015-2014)
Density	0.013	0.023	0.01
Centralization	0.073	0.028	-0.045
Closure	0.183	0.063	-0.12
Diameter	19	10	-9
Dyadic Reciprocity	0.074	0.042	-0.032

The collaborative network characteristics and their implications for the actors embedded in them are discussed in line with the definitions and computations of one-mode data implemented in the UCINET (Borgatti, Everett, & Freeman, 2002). In this network the study observe very low levels of network density although the study observed a marginal increase in density between 2014 and 2015. The low levels of density may be indicative of a network with a slow diffusion of resources but also has very low levels of network constraints as well. The overall network centralisation also reduced by approximately 4.5%. The study also observed a negative change in network closure indicative of the fact that there has been a reduction in possible trust as a result of loss in the local connectedness of actors in the network (Coleman, 1988). There was also a reduction in the diameter which may signal the fact that enterprises in the network can more easily reach all parts of the network to access resources owned by specific local neighbourhoods (Hanneman & Riddle, 2005). The level of dyadic reciprocity also reduced. This is indicative that actors reduced the number of times that they returned collaborative initiatives and favours.

5.3.3 Measures and Operationalization

Dependent Variable: SME Survival (SURV)

In this section the study operationalizes the class of businesses within which the study measure survival. The study measure the survival of small and medium scale enterprises

(SMEs). Many definitions have been offered based on assets, employees, turnover and balance sheet (Kayanula & Quartey, 2000b; Gibson & van der Vaart, 2008) and all these present their complexities when they have to be operationalized. In Ghana, operationalizing an SME in line with assets, turnover and balance sheet presents peculiar complexities and difficulties (Senderovitz, 2009) as most Ghanaian businesses do not keep accurate information and records (Yusuf & Saffu, 2005) that will aid effective classification. Consequently, the study fall on the number of employees based definition that has been utilized by several Ghanaian scholars (Kayanula & Quartey, 2000b; Yusuf & Saffu, 2005; Hinson & Sorensen, 2006; Abor, 2007; Kyereboah-coleman & Amidu, 2008; Saffu et al., 2008; Abor & Quartey, 2010; Abor & Biekpe, 2012). The employee based definition notes that an SME cannot employ more than 99 employees. This definition notes that SMEs can be divided into three broad categories: micro, small and medium with categorization based on micro SMEs having less than 6 employees; small SMEs having less than 30 employees while medium SMEs have less than 99 employees. This definition, no doubt, has its inefficiencies (does not account for turnover, assets, capital and balance sheet) but so far seems accepted by Ghanaian scholars and practitioners as a fair reflection of the Ghanaian SME context as well as easily 'operationalizable' within the context of study. Next, the study focus on what survival means in the context of the study. SME survival and failure are two different sides of the same coin. SME failure has been called different names in the management literature to include bankruptcy, decline, retrenchment, SME death, mortality, downsizing and exit (Mellahi & Wilkinson, 2004). The study operationalize failure in line with Hannan and Freeman (1986, pp. 62) who defined failure as "when an SME ceases to carry out routine actions that sustain its structure, maintains flows of resources and secure allegiance of its members". They, as part of their definition, note four kinds of mortality, namely: disbanding, acquisition, merger and radical change.

This paper also operationalizes organizational failure in the manner proposed by Hannan and Freeman (1986) but do not see acquisitions, mergers and radical change in form as a failure. SMEs do not lose the allegiance of their members when it is acquired, merges or changes form (Jones, 2005). Those are managerial manoeuvres for the SME to adapt to its environment and maintain functional utility for its members (Young, 1988; Greenwood & Suddaby, 2006). This study therefore defines SME failure as when an SME can no longer meet the utility of its stakeholders and operationalized using the traditional closure approach. The study conducted two rounds of data collection and those SMEs that had gone out of business by the second round were deemed to have failed in this respect. SMEs that survived were coded as 1 and those that failed were coded as 0. At the end of the period 63 SMEs had failed while 92 survived out of the 155 SMEs that participated in the study as detailed in table 5.2 below. The high mortality rate may be symptomatic of the many years of neglect as mentioned earlier under research setting but also confirms what small business scholars have opined that approximately 90% of SMEs do not see their second birthday. The study also observed that 28 new entrants entered the sector in the area under study representing 23.33% of the number of businesses operating in the sector as at 2015.

Table 5. 2: Failure Rate

		2014	2015
2014	Survived	155	92 (59.35%)
	Failed		63 (40.65%)

Variables of Interest

Alter Resources

This refers to the attributes of a given SMEs alters that can diffuse for its use. For this, let us consider that an SME has 3 incoming alters with 4, 6 and 2 levels of competences for a

particular resource. For the amount of resources available to the SME the study sum the alter competences and divide by the number of alters and in this example the study arrive at 4. Formally, the study can represent this as:

$$AR_i = (\sum EN: i <- j_c)/n_i$$

Where AR_i is the average amount of resources available to the SME from its alters; *EN* is the enterprise network within which the SME is embedded; *i* is a given SME; j_c is the total incoming degree of the SME with associated resources from a given alter and n_i is the number of alters the SME has. This approach is used to compute the market and technological resources made available to the SME from its alters. This approach requires that the study know the competence levels of all alters in the network. For market resource the study used the market orientation of alters in the network. This is operationalized as customer meetings, informal customer discussions and review of marketing approaches. This is measured using a Likert scale with 1 as strongly disagree and 7 as strongly agree. The study then summed the responses and averages it for the average market orientation. For technological competences the study operationalized it with the statement "the study adopt new technology to improve work" in the questionnaire. This is measured using a Likert scale with 1 as strongly disagree and 7 as strongly agree.

Variations in Alter Resources

In the considered example under alter resources the study find that alters have varying competences. Do these variations have implications for SME survival? To measure this variable the study compute the standard deviation in alter competences. This the study represent as:

$$\sigma = [\sum(x_j - x_m)/n_i]^{1/2}$$

where σ is the standard variation in alter scores for a given SME; x_j is the score of a particular alter; x_m is the mean of alter scores for a given SME and n_i is the number of alters the SME has. This approach is used to compute the variations in technological and market resources.

Direct Resources

The study operationalized the direct resources that diffuse to a given SME with the incoming degree centrality of the SME. This is because the resources are assumed to flow from alters to the SME. The study compute this with the formula (Borgatti, 2005):

$$D_i = \sum EN: i <- j$$

where D_i is the incoming degree of a given SME; *EN* is the enterprise network; *i* is a given SME and *j* is a given alter.

Indirect Resources

Resources can also flow from the friends-of-their friends and beyond. However, for the purposes of this study the study limit it to distance two. That is the ties of SMEs ties. The study use the eigenvector centrality that measures the popularity of a given SMEs ties to operationalize indirect resources but using this measure alone will fail to account for the SMEs own tie to the SME. The study therefore subtract the degree centrality of the SME from the eigenvector centrality to arrive at only the popularity of the tie without the SME

in question. What this effectively does is to sum all ties of distance two to the study given SME but yet discount that SMEs own tie. The study can represent this mathematically as:

$$ID_i = \{[\lambda \sum EN_{ij}\, e_j] - [\sum EN: i <- j]\}$$

where ID_i is the indirect resources diffusing to a given SME *i* from a given alter *j*, *EN* is the enterprise network and λ is a constant required so that the equations do not have a non-zero solution.

Covariates and Moderators

In this section the study present the covariates that the study used as controls in the study models, how they are operationalised and their sources in the academic literature.

Table 5. 3: Operationalization of Control Variables

Covariate	Operationalization	Source
Age (AGE)	The number of years the enterprise has been operating.	(Mens & Hannan, 2014)
Generalist (GEN)	Whether an enterprise undertakes only broiler or layer farming (0) and whether and enterprise does both (1)	(Carroll et al., 2002)
Size	The number of employees the enterprise has	(Tsvetkova et al., 2014)
Education (EDUC)	Whether owner has attained secondary education or higher is 1 and otherwise 0	(Jo & Lee, 1996)
Experience (EXP)	The number of years of industry experience of owner including prior to establishing the enterprise.	
Gender (M)	The gender of enterprise owner if male is 1 and 0 if female.	(Park, 1996)
Entrepreneurial Orientation (MO)	This is operationalized as the risk taking, proactive and innovative tendencies of the enterprise. This is measured using a Likert scale with 1 as strongly disagree and 7 as strongly agree. The study then standardizes the variable.	(Jantunen et al., 2005)
Market Orientation (MO)	This is operationalized as customer meetings, informal customer discussions and review of marketing approaches. This is	(Kohli et al., 1993)

	measured using a Likert scale with 1 as strongly disagree and 7 as strongly agree. The study then standardizes the variable.	
Absorptive Capacity (AC)	This is operationalized as new information search, cross-enterprise problem solving, knowledge application and adoption of new technology. This is measured using a Likert scale with 1 as strongly disagree and 7 as strongly agree. The study then standardizes the variable.	(Flatten et al., 2011)
Dynamic Capability (DC)	This is operationalized as business planning, on-the-job training and effective industry benchmarking. This is measured using a Likert scale with 1 as strongly disagree and 7 as strongly agree. The study then standardize the variable	(Protogerou et al., 2011)
Technical Competence	Another competence that was controlled for is the technical competence of the SME in poultry production. The study proxy this variable with the SMEs ties to technical agencies and companies such as veterinary services department and the ministry of agriculture (MOFA). The number of ties was used as level of competence.	(Mensah-Bonsu & Rich, 2010)
Investment Climate Constraints	Operationalize investment climate constraints with sixteen (16) self-reported constraints in the business operating environment. The constraints include access to finance, labour quality, tax rates, inflation and transport infrastructure. The questions were implemented with a Likert scale from one (1) to seven (7). The respondents were to indicate 1 when the variable was not a constraint and 7 when it was highly constraining. The study then summed all the responses and standardized the variable for each respondent for a composite investment climate score.	World Bank Enterprise Survey Ghana 2013

5.3.4 Model Specification

To examine the relationship between network diffusion and enterprise survival the study generated four probit models. The first model investigates the relationship between covariates and survival; in the second model the study added the direct and indirect

resource variables; in the third model the study removed the direct and indirect resources and replaced that with alter market resources and its variations and in the final model the study replaced market resources with technological resources. The study specify the general probit model as:

$$P(ES_{t+1}=1) = \Phi\ (\beta_0 + \beta_1 SME_t + \beta_2 OC_t + \beta_3 MCOMP_t + \beta_4 ICC_t + \beta_5 M_t + \varepsilon_t)$$

where ES_{t+1} indicates that a SME survives from period t (2014) to $t+1$ (2015); SME_t is a vector containing SME characteristics; OC_t is represents owner characteristics; $MCOMP_t$ is a vector containing SME competencies and capabilities; ICC_t represents perceived effects of investment climate on business operations; M_t is the vector containing the main effects. These are the direct and indirect resources diffusing to a given SME from its alters, alter resource competences and variations in alter resource competences; ε_t is the statistical noise and Φ is the cumulative distribution function of the standard normal distribution. The magnitude of the coefficients of the probit model cannot be interpreted and hence the study also estimated for the average marginal effects (AME) of the model which can be interpreted. The study modelled the average marginal effects of the study probit using the following function:

$$\partial ES/\partial V_i = \beta_i\ \Phi\ (\beta_0 + \beta_1 V_t + \varepsilon_t)$$

where $\partial ES/\partial V_i$ is a partial derivative with respect to *V (a given vector)* and the index *i* refers to the *ith* independent variable in *V*.

The study performed three robustness checks in the estimation of the study models. First, all the study models are estimated with robust standard errors to ensure its robustness against heteroskedasticity. Secondly, the study specified the study models in line with the hierarchical regression approach to ensure that the study models were fairly robust to the control variables. Thirdly, the study also adopted a lagged dependent variable to minimize as well as partial out some endogeneity in the model. Still on possible endogeneity, the study tried to include as many control variables as possible in line with existing literature on organisational failure (Mellahi & Wilkinson, 2004). Also, on possible selection problems the study attempted to conduct a district census of all poultry farms in the study area[40]. The Food and Agriculture Organisation has a 2014 database on farms in the study area in which they report that 202 farms operate in the area (FAO, 2014). The study also had 200 farms but after accounting for recurring farms and same ownership the study ended up with 163 farms of which 155 farms participated. Consequently, issues of selection may not arise.

5.4 Results

In this section the study present the findings of data analysis.

5.4.1 Descriptive Statistics

The study first presents the study descriptive results. The mean direct resources available from a given SME's alters is 1.974 while that of indirect ties is 2.080 indicating SMEs benefited slightly more from indirect alters than they did from direct alters. However, the standard deviation was much higher for indirect alters also indicating a high variation in scores. When the study compare the means of surviving and failed SMEs the study find

[40] See appendix for poultry statistics in Ghana

that surviving SMEs have higher mean scores relative to the failed ones. The mean for alter market resources were seen to be higher than that of alter technological resources. This is consistent in the total, including surviving and failed samples. This may indicate that actors in the enterprise network have more marketing capabilities available to them than technological. In terms of variation in these alter resources, the study find that there was a greater variation in the technological resources and even when the sample is decomposed into failed and survived SMEs the same pattern emerges. In terms of enterprise characteristics, the majority of the SMEs had approximately 6 paid employees and specialised in layer production (74.2%). When the study considered owner characteristics most of the owners had at least attended secondary school (52.9%); were male (74.8%); and had an average of 9 years industry experience. It is, however, important to note that the number of paid employees and owner experience showed a great deal of variability with standard deviations of 11.196 and 6.698 respectively. The mean score of technical competence was 0.955 with a standard deviation of 0.914. Managerial competence and investment climate constraints were standardized and hence the study expected their means to approach 0 and the standard deviations to approach 1.

Table 5. 4: Descriptive Results

	Total Sample		Survived Sample		Failed Sample	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Direct Alter Resources	1.974	3.355	2.717	4.157	0.889	0.764
Indirect Alter Resources	2.080	5.558	3.830	6.505	-0.475	1.858
Alter Market Resources	3.230	1.899	3.833	1.503	2.350	2.077
Variation in Alter MRs	0.409	0.735	0.611	0.843	0.113	0.387
Alter Technological Resources	2.697	1.866	3.226	1.718	1.923	1.814
Variation in Alter TRs	0.473	0.827	0.678	0.925	0.174	0.537
Age of SME	7.497	6.077	8.261	6.551	6.381	5.157
Size of SME	6.348	11.196	8.489	14.050	3.222	2.218
Generalist	0.258	0.439	0.065	0.248	0.540	0.502
Education (>Primary=1)	0.529	0.501	0.435	0.498	0.667	0.475
Owner Experience	8.961	6.698	10.83	6.780	6.222	5.581
Male	0.748	0.435	0.772	0.422	0.714	0.455
Technical Competence	0.955	0.914	1.109	0.977	0.730	0.766
Entrepreneurial Orientation	-0.104	1.002	0.319	0.936	-0.721	0.747
Market Orientation	-0.099	0.990	0.252	0.968	-0.612	0.779
Dynamic Capability	-0.121	1.016	0.344	1.040	-0.799	0.436
Absorptive Capacity	-0.185	0.949	0.149	0.935	-0.672	0.740
Investment Climate Constraints	-0.205	0.964	-0.59	0.901	0.362	0.752

5.4.2 Regression Analysis

The study now turns to the results of the study econometric model. The study report average marginal estimates of the study probit models. The study first discuss the fit the study models to the data. All the study models had significant Wald statistics with the exception of model three that has the covariates and alter market resources and its variations. This shows that the model is not significantly better than the null likelihood model but the study still interpret the significant variables in the model since they are still useful individually in predicting survival of SMEs. In terms of the variance explained by the study models the study found that none of the study models had a pseudo r-square less than 0.733 implying that the study models explain at least more than 70% of the variance in the survival outcome. When the study consider the variables of interest, the study found that direct and indirect alter resources have a significant and positive effect on survival

(0.081*** and 0.011***) however, the coefficient for direct resources is higher than for indirect. The study also found that alter market resources have a positive effect (0.032**) on probability of survival and the variations in market resources is also positive (0.036) but it does not rise to significance. The study also observed that technological resources from alters have a positive effect (0.020*) on survival of SMEs while variations in technological resources from alters have a negative effect (-0.012) on survival but it does not rise to significance. The study found that age and size of SME have a positive effect on survival but only the size of the SME rises to significance. The study also found that SMEs that are generalists are less likely to survive compared to specialists. In terms of owner characteristics, education and owner experience have a positive effect of survival but male-owned are more likely to fail than female-owned enterprises. In terms of organisational competences, the study found that entrepreneurial orientation, market orientation, absorptive capacity and dynamic capabilities have a positive effect on survival. Technical competence in poultry production is also seen to have a positive effect on survival. Investment climate constraints unsurprisingly have a negative effect on survival of SMEs.

Table 5. 5: Alter Attributes and SME Survival

	(1)	(2)	(3)	(4)
Age of SME	0.003	0.004	0.006	0.003
	(0.005)	(0.006)	(0.004)	(0.005)
Size of SME	0.018**	0.013*	0.013*	0.015*
	(0.008)	(0.007)	(0.007)	(0.009)
Generalist	-0.286***	-0.218***	-0.290***	-0.279***
	(0.043)	(0.036)	(0.042)	(0.038)
Education (>Primary=1)	0.015	0.017	0.015	0.005
	(0.048)	(0.037)	(0.043)	(0.049)
Owner Experience	0.010**	0.009**	0.014**	0.010**
	(0.005)	(0.004)	(0.006)	(0.005)
Male	-0.152***	-0.116***	-0.192***	-0.170***
	(0.048)	(0.043)	(0.071)	(0.057)
Technical Competence	0.074***	0.040**	0.070***	0.073***
	(0.021)	(0.017)	(0.023)	(0.019)
Entrepreneurial Orientation	0.094***	0.102***	0.122***	0.103***
	(0.030)	(0.024)	(0.027)	(0.027)
Market Orientation	0.024	0.039**	0.051	0.025
	(0.025)	(0.019)	(0.032)	(0.027)
Dynamic Capability	0.025	0.011	0.003	0.015
	(0.029)	(0.021)	(0.029)	(0.028)
Absorptive Capacity	0.101***	0.114***	0.147***	0.111***
	(0.029)	(0.026)	(0.045)	(0.031)
Investment Climate Constraints	-0.268***	-0.262***	-0.340***	-0.261***
	(0.040)	(0.043)	(0.072)	(0.042)
Direct Resources		0.081***		
		(0.022)		
Indirect Resources		0.011**		
		(0.005)		
Market Resources (MR)			0.032**	
			(0.015)	
Variation in Alter MRs			0.036	
			(0.035)	
Technological Resources (TR)				0.020*
				(0.012)
Variation in Alter TRs				-0.012
				(0.030)
Wald	36.07***	74.46***	18.06	30.18***
Pseudo R^2	0.733	0.821	0.777	0.745
Observations	155	155	155	155

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5.5 Discussion of Results

In this section the study discuss the findings of the study in line with existing literature. The study sought to explain whether network diffusion was useful for the survival of SMEs by utilizing alter resources. More specifically, the study focused on the mechanism through which the resources are made available both direct and indirect; the particular resource both market and technological as well as variations in alter resources. The study operationalizes survival as the persistence of the SME into 2015 from 2014. The data was collected from a poultry cluster in rural mid-western Ghana that is one of the best performing in the country as a critical case (Flyvbjerg, 2006; FAO, 2014) and also to avoid network sprawl and sparseness (Hanneman & Riddle, 2005). The study model the study data with a cross sectional probit model with lagged independent variables while controlling for the SME characteristics, owner characteristics and organisational competencies. The reported results are the average marginal estimates from the probit models.

The study found that alter resources generally are useful for the survival probability of SMEs. This is because SMEs can reap greater benefits from external collaborations as it can compensate for the scarcity of internal resources and competences. This means SMEs can appropriate the market and technological resources of its alters for its survival. These market resources will enable the SME to better determine and satisfy the needs and wants of target markets as well as deal with inherent threats while maximizing the benefits that may arise in such markets (Cambra-Fierro, Florin, Perez, & Whitelock, 2011; Mahmoud & Yusif, 2012). Technological resources also offer the methods for SME to expand quickly and efficiently by serving as an enabler of production and service functions of the business (Aa & Elfring, 2002). However, market resources have a stronger effect on

survival than technological resources. This may be a purely contextual matter since the operations of most SMEs in Ghana are labour intensive and require little sophisticated technology (Kayanula & Quartey, 2000b). Again, this may be due to the fact that agricultural produce in many rural parts of Ghana do not reach many market centres due to poor road infrastructure (Buame, 1996) and a general lack of access to markets (FAO, 2014). The study also observed that the variations in the resources received from alters had no significant effect on survival. However, the directions of their effects are informative. High variations in alter market resources have a positive effect while those of technological resources have a negative effect. This goes to support the point that high variations in alter technological resources can have a negative effect as uncertainty creeps in to create doubt and hence may not be able to benefit from technological resources while the risk of choosing the wrong technology can be high (Rogers, 2010). The study also found that the mechanism through which the resources diffuse also matters for the survival. Both the direct and indirect tie mechanisms have a positive effect on the survival of the SME. The effect of direct ties may be working through complementarities, knowledge sharing and scaling of activities of SMEs that directly collaborate with each other in the network (Ahuja, 2000). Indirect ties may also work because they present arm's length relations that require little investment (Uzzi & Lancaster, 2003) and it also helps SMEs gain access to resources beyond its local neighbourhood and avoid informational and resource redundancy related problems (Burt, 2005). The direct tie mechanism has a bigger coefficient compared to the indirect ties.

The study now turns to the study covariates. First, regarding the study SME characteristics the study found that SME age and size affect survival positively while generalist SMEs are more likely to fail. The findings on age and size of SME support the liability of smallness

while the generalist findings support the resource partitioning theory. The bigger the size of the firm the less likely it is that the firm will fail (Burger & Owens, 2013) while young firms are more likely to fail in line with the liability of newness in the age dependence hypothesis (Geroski et al., 2010). The resource partition theory suggests that SMEs with broad requirements from the environment are more likely to fail in difficult times due to difficult in attaining systematic legitimacy (Carroll & William, 2004). Secondly, when the study consider the owner characteristics the study find that education and owner experience has a positive effect on survival while male-owned businesses are more likely to fail. Experienced and educated owners are expected to possess a broad range of skills and knowledge to steer their businesses through varying environmental constraints to achieve positive outcomes (Jo & Lee, 1996). The surprising finding here is that male-owned businesses are more likely to fail against conventional wisdom. However, a new strand of literature is emerging that seems to suggest that either only capable women are selected into entrepreneurship or there is a general favouritism of females in business environments (Hansen & Rand, 2014a, 2014b). The study also found that technical competence in the area of operation was significant. This means that firms that have strong capability in poultry production are more likely to survive than those that are not. Also, organisational competences such as market orientation, entrepreneurial orientation, absorptive capability and dynamic capability all have a positive effect on SME survival. This is in line with management theory that suggest that managers of businesses must motivate, manage and provide required structures for employees to achieve the goals of the organization and ultimately survival (Mellahi & Wilkinson, 2004; Crossan & Apaydin, 2010; Miles, 2012). Unsurprisingly, investment climate constraints are seen to have a negative effect on survival as these have been seen to impose indirect costs on the activities of SMEs (Eifert et al., 2008).

The study now discusses the implications of the results for enterprise management and research. The study suggest to managers of small businesses to explore collaborations with their alters as it can provide a mechanism through which they can access resources to mitigate their own scarcity in resources and competences. These can come in the form of knowledge sharing, complementarities and scaling opportunities. Secondly, they need to be wary of significant variations in alter technological resources as these can have a negative effect on their survival chances. This is because wrong technological choices can prove costly in production down times especially when high variations in alter technological approaches defeats the assumption that alter ties should help SMEs reduce their uncertainty in such situations (Rogers, 2010). Lastly, they need to look beyond their immediate neighbourhoods in the network as resources embedded with indirect ties represent resources with little constraints and provides the vison advantage required to be innovative. On research implications, the study use degree and eigenvector centrality-adapted measures as the study tools in measuring diffusion; however, new approaches are emerging that can handle specifically diffusion based issues in networks albeit with some data constraints (Jackson, 2010). Also, as the study focus on a critical case in Ghana, replications of this study can take place in other jurisdictions to attempt a falsification of the study findings. This will provide the needed stress test of the study approach and findings.

5.6 Conclusion

The aim of this study was to come to grips with the usefulness of alter resources for SME survival in Ghana. The study found that alters market resources and technological resources are significant for the survival of the SMEs. The study also explored the effect of

variations in alter competences along the lines of the resource and found that market resources have a positive effect and technological resource variations have a negative effect, but these do not rise to significance. Finally, the study assessed the impact of the mechanism through which the resources are diffused and found that both direct and indirect tie mechanisms have a positive effect on survival, but the effect of direct ties was higher than that for indirect ties.

APPENDIX

Table 5A1: Ghana Poultry Sector Statistics

National				Brong Ahafo Region	
Region	No. of Birds (%)	Egg Production (in millions)	No. of Farms+	District	No. of Farms+
Greater Accra	2,547,219 (7.02%)	542	475	Dormaa	202
Central	903,702 (2.49%)	437	312	Jaman South	9
Western	1,406,642 (3.88%)	247	102	Berekum	34
Eastern	3,886,914 (10.72%)	358	213	Sunyani	65
Volta	1,071,622 (2.95%)	68	98	Techiman	25
Ashanti	10,180,760 (28.07%)	5,321	697	Tano South	16
Brong-Ahafo	10,743,897 (29.62%)	3,989	510	Nkoranza	32
Northern	3,625,149 (9.99%)	-	30	Kintampo South	1
Upper East	1,325,835 (3.66%)	-	33	Asunafo North	17
Upper West	579,474 (1.60%)	-	34	Asunafo South	0
				Asutifi	10
				Wenchi	9
				Sunyani West	90

+Based on FAO Sector 1/2/3 Classification

Sources: Veterinary Services Directorate (2010, 2011, 2013) in FAO, 2014

Table 5A2: Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
SME Survival	1																		
Direct Alter Resources	0.3	1																	
Indirect Alter Resources	0.4	0.7	1																
Alter Market Resources	0.4	0.2	0.2	1															
Variation in Alter MRs	0.3	0.6	0.5	0.3	1														
Alter Technical Resources	0.3	0.2	0.3	0.7	0.2	1													
Variation in Alter TRs	0.3	0.6	0.6	0.3	0.8	0.3	1												
Age of SME	0.2	0.3	0.3	0.0	0.3	0.2	0.2	1											
Size of SME	0.2	0.8	0.6	0.1	0.5	0.2	0.4	0.4	1										
Generalist	-0.5	-0.2	-0.2	-0.3	-0.2	-0.3	-0.2	-0.2	-0.2	1									
Education (>Primary=1)	-0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.1	1								
Owner Experience	0.3	0.2	0.3	0.1	0.3	0.3	0.3	0.6	0.3	-0.3	-0.1	1							
Male	0.1	-0.1	-0.1	0.1	-0.1	0.1	0.0	0.1	0.0	-0.1	-0.1	0.3	1						
Technical Competence	0.2	0.2	0.2	0.0	0.0	0.1	0.0	0.2	0.2	0.0	0.0	0.2	0.0	1					
Entrepreneurial Orientation	0.5	0.3	0.5	0.2	0.3	0.1	0.3	0.1	0.4	-0.3	-0.2	0.3	0.1	0.0	1				
Market Orientation	0.4	0.0	0.2	0.1	0.1	0.2	0.1	0.0	0.1	-0.2	-0.2	0.2	0.2	-0.1	0.5	1			
Dynamic Capability	0.6	0.2	0.4	0.4	0.2	0.3	0.2	0.1	0.3	-0.3	-0.2	0.3	0.1	0.2	0.6	0.5	1		
Absorptive Capacity	0.4	0.3	0.4	0.2	0.3	0.2	0.2	0.2	0.3	-0.2	-0.1	0.2	0.1	0.1	0.6	0.5	0.6	1	
Investment Climate Constraints	-0.5	0.1	-0.1	-0.3	0.0	-0.3	-0.1	0.1	0.2	0.2	0.3	-0.2	-0.2	-0.1	-0.2	-0.3	-0.3	-0.1	1

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

Small and medium scale enterprise (SME) failure is one that continues to intrigue many academics and policy makers especially when coupled with the fact that most of them fail before their second year of operations (Okpara, 2011). Three broad approaches of determinism, voluntarism and integrativism have been employed to explain why SMEs fail (Mellahi & Wilkinson, 2004). The deterministic approach posits that SMEs fail due to external reasons emanating from changes in market behaviour and preferences (Jovanovic, 1982; Hopenhayn, 1992) and changes in the ecology of SME populations (Hannan & Freeman, 1986). The voluntaristic approach suggests that failure is mainly due to lack of managerial competence in managing the negative externalities to achieve positive outcomes for the SME. These have come from many theoretical and conceptual thoughts such as dynamic capabilities (Teece, 2007); absorptive capacity (Cohen & Levinthal, 1990); managerial orientations (Covin & Miller, 2014); and top management characteristics (Hambrick, 2007). However, one theory that has received little attention in relation to the issue of survival is social network theory despite its wide usage in understanding several other organisational outcomes such as performance (Naudé et al., 2014), innovation (Gronum, Verreynne, & Kastelle, 2012) and learning (Golub & Jackson, 2010). This is maybe due to the fact that most scholars assume that a performing SME is a surviving SME but in recent empirical studies this relationship has been shown to be complicated (Wennberg et al., 2010; Coad et al., 2013). Hence, it is important to consider how networks of firms relating can influence directly their survival especially in Africa where relational systems of firms connecting and interacting has a significant influence on

SME outcomes (Biggs & Shah, 2006). Also, most of the studies that attempt to even explore association between networks and SME outcomes mostly focus on competition networks (Zaheer & Bell, 2005; Rooks et al., 2012) to the neglect of other relevant networks that are important for SME outcomes such as finance, distribution and supplier networks from which resources flow (Pfeffer & Salancik, 2003; Pajunen, 2006). Again, studies (Biggs & Shah, 2006; Boso, Story, & Cadogan, 2013) have mainly measured network effects using attribute approaches rather than the relational approaches that have been suggested as the more appropriate approach (Scott & Carrington, 2011). Consequently, the study focused on relational network effects at the ego-level of analysis as suggested by earlier social network scholars (Wasserman & Faust, 1994; Scott & Carrington, 2011). The study also contributes to literature by filling some contextual gaps with network evidence from Ghana's rural poultry industry.

Four empirical papers are presented that explore the association between four network issues (relational ties, structural capital, isomorphism and diffusion) and SME survival using data from the Dormaa poultry cluster. This cluster is one of the best performing clusters in the nation and is used as a critical case study (Flyvbjerg, 2006). The study collected distribution, financial and collaboration network and attribute data of the SMEs that participated in the study. The attribute data related to SME characteristics, owner characteristics, organisational competencies, technical competencies and investment climate constraints. Survival is operationalized as persistence from 2014 to 2015 and modelled using lagged independent variables from 2015. The specific issues discussed and analysed are addressed in detail in the empirical papers in chapters' two to five. In this chapter the summary findings are presented, conclusions drawn, recommendations are made and limitations and the opportunities they present for future research are discussed.

6.2 Summary of Findings

The thesis sought to explore the role of network effects on enterprise survival in Ghana. In this section I present a summary of the findings of this thesis specifically referring to the research question each finding answers in the study.

6.2.1 Empirical Paper 1

This empirical paper is used to answer research questions two (2) and five (5). In this paper, the study explored the effects of distribution ties on the survival probability of SMEs and the moderating effects of SME characteristics on this relationship. It was hypothesized that increases in the number of distribution ties is associated with lower probability of survival as SMEs are not able to draw required resources for their survival. It was reasoned that an increased number of distribution ties takes attention from other networks like supply and finance networks that are also critical for the survival of the SME. Another reason is that embeddedness can lead to exploratory learning behaviour that leads to over-flexibility which makes the SME susceptible to fail (Brian Uzzi & Lancaster, 2003; Hiebl, 2013). Again, distributors also have better negotiation power in the market relations and as a result have a bigger share of the customers' 'wallet'. This is because the produce of the farmer SMEs is perishable and hence not selling it will mean the produce goes bad; hence distributors dictate the price and an additional distributor may just take more margin from the SME. Also, SMEs that sell themselves are more likely to keep all the value made in the value chain and hence be more profitable and more likely to survive. On this point, I also discuss the lost transaction costs. The transaction cost idea is that high ties creates relations that relieve policing and enforcing costs associated with transactions (Williamson, 1979) but where there is competition in these ties then the benefits do not arise. Also, SMEs sometimes simply engage in bad deals in an attempt to market and

distribute their products leading to the failure of the businesses (Ropega, 2011). I confirmed the hypothesis that many ties are associated with a low survival probability. The theoretical ideas suggested are then offered as possible reasons for this effect and direction. To be sure that the result was not being driven by SME characteristics, SME age, size and production specialisation were interacted with the number of distribution ties the SME had. I found that SMEs that are generalists and older SMEs still experienced negative and significant association. However, larger SMEs experienced a positive association but this did not rise to significance. The suspicion is that older SMEs are either more likely to distribute themselves or use fewer and more reliable distributors. The key contribution of this paper is to show that increased ties to distributors as a mechanism to the market does not always lead to positive outcomes because there is competition among these two actors for customers' resources and SMEs are more likely to be on the losing end as they have less bargaining power.

6.2.2 Empirical Paper 2

This empirical paper is used to answer research question one (1) in chapter (one) 1. Access to capital remains one of the major reasons why SMEs fail. In this study I sought to establish if social capital in a financial network was useful for SME survival in Ghana. It is found that SMEs that reported being financially constrained were less likely to survive. This is notwithstanding the fact that about 55% of the SMEs said that they were not credit constrained which I suspect may be from the 'discouraged borrower effect' (Akuetteh, 2009) or having alternative sources of income[41]. Also, SMEs that had prestigious or popular financiers were associated with better probability of survival. This may be due to the fact that SMEs with ties to these financiers focus on a few relevant SMEs, are able to

[41] Anecdotally most SMEs poultry enterprises are started with income from family members in Europe and America

send signals about their positive attributes that is not easily verifiable, and enforce their access to resources in and out of the network (Lin, 1999; Zaheer et al., 2010). Descriptively, I also observe some interaction effects in table 3.4 where the cross-tabulations show that SMEs that have prestigious financiers are less likely to report being credit constrained while those that are not are more likely to report such constraints. The study also explored the effects of the type of financial institution ties on the survival of SMEs. It is found that universal banks and credit unions are associated with positive survival chances while savings and loans companies are associated with negative survival probability. The mechanism of these associations may be that universal banks are able to offer large capital outlays to SMEs that are able to meet their requirements to expand their operations significantly (Narteh, 2013); credit unions offer competitively low interest rates compared to the other types of financial institutions (Ofei, 2001) while savings and loans companies charge high interest rates and have been described as loan sharks[42] that engage in practices detrimental to the business operations of SMEs (Mensah, 2009).

6.2.3 Empirical Paper 3

In this paper the study sought to establish if SME network isomorphism with other SMEs in its operating environment was more likely to survive and whether such isomorphism effects were infinite. This paper helps to answer the research questions three (3) and six (6). It is observed that SMEs that are isomorphic to other SMEs are more likely to survive. This may be because such SMEs are able to acquire institutional legitimacy that enables them to acquire resources for their functioning; they are validated based on their structural forms not technical efficiency; they benefit from the logics of good faith; and also copy stable firms in the environment and hence are stable and experience less turbulence (Meyer

[42] https://www.pwc.com/en_GH/gh/pdf/ghana-banking-survey-2013-pwc.pdf

& Rowan, 1977; Scott, 1991; Deephouse, 1996). From a network theory perspective this may be possible becomes isomorphic businesses are similar in structure and links; therefore can engage in oligopolistic coordination (Gulati et al., 2000). Again, the similarity breeds cohesion which is a major ingredient in network trust and such trust is useful in reducing transaction costs with each other and hence improving survival chances (Williamson, 1979; Coleman, 1988; McPherson et al., 2001). I also asked if the benefits of network isomorphism were infinite. This is because when SMEs get too similar there is competition for resources and hence the benefits of network isomorphism may have a limit. I found that at higher levels isomorphism or similarity SMEs survival was associated with negative probabilities. The study opines that this may be the result of competitive crowding resulting from structural similarity of SMEs (Podolny et al., 1996) due to high levels of isomorphism. Also, within the network this may be the result of triadic closure and the redundant information that is locked in the triads that may not be bridged for new sources of resources and information (Burt, 2004; Symeonidis et al., 2010). It also explored whether such isomorphism was useful in overcoming investment climate constraints in the operating environment. I found that the interaction between investment climate constraints and isomorphism is positive and confirm this hypothesis. A reason for this may be because small businesses are able to reduce their liabilities by being isomorphic and gaining the good faith of relevant stakeholders which becomes a currency to acquire other critical resources in that environment (Deephouse, 1996).

6.2.4 Empirical Paper 4

In this paper the study sought to establish whether SMEs can benefit from the attributes (competencies and resources) of its alters by assuming a diffusion of resources from these alters to the SMEs. This paper helps understand and answer research question four (4) in

chapter one (1). I focused on two types of resources: market and technological. It is found that alter resources are useful for SME survival. This might be because alter resources may provide a means by which the SME is able to compensate for the scarcity of internal resources and competences. Market resources enable the SME to benefit from the marketing skills of its alters while technological resources enable the SME to reduce the uncertainty associated with new technologies while skills training may be provided by its alters. Alter market resources has a greater association to survival compared to technological resources. This is possibly due to the high need for markets as the SMEs' products (eggs) are perishable and need to get to be marketed as quickly as possible. The study also tested if variations in the attributes affected survival and found that variations in market resources had a positive association with survival while variations in technological competences had a negative association. This goes to support the point that high variations in alter technological resources can have a negative effect as uncertainty creeps in to create doubt and hence they may not be able to benefit from technological resources while the risk of choosing the wrong technology can be high (Rogers, 2010). Furthermore, the study sought to ascertain if the mechanisms through which resources are diffused (direct and indirect ties) from alters to SMEs matters for the survival of SMEs. I found that the medium for diffusion was important. Direct tie mechanisms provide complementarities, knowledge sharing and scaling of activities of SMEs that directly collaborate with each other in the network (Ahuja, 2000). Indirect ties may also work because they present arm's length relations that require little investment (Uzzi & Lancaster, 2003) and it also helps SMEs gain access to resources beyond their local neighbourhood and avoid informational and resource redundancy related problems (Burt, 2005).

6.3 Reflections

In this section, the study seeks to reflect of the whole research process to identify the implications of alternative approaches on the outcomes achieved. Reflections are made relative to the theory, the conceptual framework and research methodology.

6.3.1 Theory

The core theory used in this study is the social network theory and is complemented by social capital, resource dependence, isomorphism and diffusion of innovation theories: these complementary theories are operationalized within the network theory. Social network theory has been criticized for lacking consistency in operationalisations and definitions; the confusions in the categorical versus anti-categorical approaches and what constitutes a network tie (for review see Miles, 2012). It is therefore possible to use these complementary theories on their own as has been done by earlier scholars (Deephouse, 1996; Sanidas, 2004; Acquaah, 2007; Hessels & Terjesen, 2008). However, adopting such an approach loses sight of the interdependencies between SMEs and other actors in their operating environment that social network theory helps capture despite its challenges as mentioned above. Capturing such interdependencies is critical because SMEs do not operate in a vacuum and in this sense social network theory is relevant as it helps in understanding the relational dimensions of power, organisational convergence, spread of ideas in industries and development of collective resources. These become nearly impossible to understand without the network theory despite its inadequacies.

6.3.2 Framework

A conceptual framework was developed to guide the study. The framework focused on the relationship between network effects (of structural social capital, resource access,

isomorphism and diffusion) and SME survival and the moderating effects of investment climate constraints and SME characteristics. Beyond these variables that the study included in the model, there are others such as owner characteristics, managerial competencies and technical competencies in production and selling activities that also matter for survival which was not included in the current framework. The framework was limited to these variables mainly due to the research questions that the study sought to answer. Consequently, it is suggested that the study framework is representative of the objectives the research project sought to achieve and not exhaustive. These variables that are not included in the framework are however controlled for, in order to partial out the parts of the relationship among the variables of interest and SME survival that may be endogenous to these variables not included in the study framework.

6.3.3 Methodology

In this section, reflections are made regarding methodological issues such as research approach, data collection, operationalisations and estimation strategies. In terms of research approach, the study adopted a quantitative and deductive approach within the critical realist tradition. This approach helped to generalize findings from the study by developing findings from respondent averages. In this process, peculiar attributes of respondents that can have an impact on results may be lost and hence mixed methods may have offered a route out of this challenge. The mixed methods approach helps develop hypothesis based on qualitative insights and analyses the data quantitatively. However, since most of the hypotheses that this study sought to confirm have been established within the complementary theories the mixed methods approach was deemed superfluous although it would be interesting to consider the impact of such an approach on the study findings. Also, data was collected using the name generator approach in the Dormaa

poultry cluster. While the name generator approach is easy to implement since respondents have to name their alters there is the challenge that alters may not remember some significant alters that they do not interact with regularly. The study design was implemented in the Dormaa poultry cluster although other clusters are operating in Ghana. This presents some problems with generalising the findings of the study. This is because other clusters may have their own peculiarities and organising mechanisms that may influence their survival or otherwise. However, this cluster is one of the best performing in the country and can serve as a critical case (Popper, 2005; Flyvbjerg, 2006). Finally, on the estimation strategy, the study is a cross-sectional one with lagged independent variables predicting survival. While such an approach is straightforward and easy to implement it is not able to control for the fixed effects that may influence survival outcomes. A panel study approach would therefore have been appropriate: however, this was not possible due to data and time constraints within which the study design was to be implemented.

6.4 Contributions of the Study

In this section the contributions made by the study are presented. The major contributions relating to literature, framework, measurement and new evidence are discussed.

6.4.1 Synthesis of Literature

The study makes a contribution to the survival literature especially with respect to SME survival. The last significant review of organisational survival was conducted by Mellahi and Wilkinson (2004) over a decade ago. Hence a recent review to update the state of the literature is relevant and this study provides this review to which other scholars can turn. More specifically, a systematic synthesis of SME survival literature is made. Two broad

issues of determinants and strategies for survival emerge from the review emanating from socio-economic and managerial perspectives.

6.4.2 Framework

The synthesis of the literature revealed that the explanation of SME survival with network effects remains largely nascent. Consequently, the study developed a conceptual framework that addresses this relationship. The framework serves as a guide to explaining how network effects such as structural social capital, resource access, isomorphism and diffusion can influence SME survival in the face of investment climate constraints and SME characteristics. Beyond the explained relationship, the framework can serve as the starting point for other studies seeking to understand SME outcomes from a network perspective.

6.4.3 Measurement

Social networks focus on relations between social and organisational actors and hence require a relational data approach to truly capture network effects (Wasserman & Faust, 1994). However, most studies in management and economics (Biggs & Shah, 2006; Boso, Story, Micevski, & Kadic-Maglajlic, 2013; Kinghan & Newman, 2015) have rather used an attribute-data-based approach which does not capture the dependencies in network mechanisms. The study makes a contribution to the measurement of network effects by suggesting the use of relational data extracted and analysed at the nodal or ego level.

6.4.4 New Evidence

The study contributes to both SME survival and social network theory literature by contributing new evidence through its empirical findings (papers). Also, prior to this study the synthesis of literature revealed that most studies on SME survival were undertaken outside of Africa and those with an African focus were conducted either in Nigeria or in Ethiopia with an industrial emphasis. New evidence is therefore presented from Ghana and from a non-traditional agricultural sector (poultry). The findings suggest that network isomorphism, diffusion and structural social capital have a positive link with SME survival while increased market access through distribution ties is linked with reduced survival probability. These findings can either form the basis of a hypothesis to be tested in replication studies or form an explanatory mechanism through which other findings may be placed.

6.5 Conclusion

The aim of this study was to come to terms with why SMEs fail from a social network theory perspective. The study focuses on four main network issues: resource access, structural capital, isomorphism and diffusion (Borgatti & Foster, 2003). The key takeaway from the study is that network effects matter for SME survival. More specifically, market resource access through distribution ties can be detrimental to the survival chances of SMEs; structural capital in the form of prestige of financiers, has a positive association with survival; network convergence as isomorphism also has a positive association with survival but reaches a threshold after which it diminishes and alter resources are important for the survival of SMEs both from direct and indirect sources. Network effects are useful in overcoming some of the constraints that SMEs experience in the operating environment. Isomorphism can be useful in overcoming investment climate constraints, financial

network capital is useful in overcoming financial constraints and diffusion of resources from alters can also be useful in overcoming SME resource scarcities.

6.6 Practical Implications

Based on the study findings I offer the following practical recommendations to small business owners and managers. These are presented below.

First, the study suggests based on the negative effects of distribution ties on survival and negative effects of the moderation of age of SME and distribution ties on survival that SMEs engage in a process of backward integration in the value chain as they age. The process helps cut-off distributors thereby still having access to the market but through the enterprise's own market infrastructure. The benefit is that the margins of the distributors will then accrue to the enterprise in the long run. The costs of accessing the market directly can be daunting for small businesses in that case collaborations among small clusters of firms to share such costs can be useful. Currently, the Unity Group[43] has provided such a model that may be worth emulating.

Second, it is suggested, based on the findings of the generalist and its interaction with distribution ties, that SMEs specialise in a particular niche of the market and limit their resource requirements and hence improve their survival probability.

In terms of financial network capital it is offered that small business owners develop ties to financiers that are prestigious or respected in the network as they are likely to offer them

[43] Unity brothers constitute 7 farms owned by individuals but have familial relations that collaborate in transport of their produce from their farms to major trading centres in Accra directly without middlemen. The researcher observed that they had stable and bigger farms relative to the other farms.

the required resources or be a mechanism through which they can send positive signals about their operations. It may also help them reduce their credit constraints.

It is recommended that SMEs develop ties with universal banks, credit unions while avoiding ties to savings and loans companies. Universal banks can provide them with large capital outlays when required for expansion and not feel credit constrained, credit unions can offer competitive interest rates when required for working capital management but unfortunately savings and loans companies can charge interest rates that can be detrimental to their businesses.

Managers of small business can copy the activities of other SMEs in their industry as this will offer them the needed stability through the legitimation of their activities in line with the findings on isomorphism and survival. However, I also caution that there is an optimum point beyond which such 'copying' will result in negative returns.

Another incentive for small businesses to base their actions on those of other businesses is that it can be useful in overcoming investment climate constraints. This mechanism may work through the logics of good faith where small businesses can avoid certain indirect costs imposed by the investment climate.

Managers of small business need to explore collaborations with their alters as it can provide a mechanism through which they can access resources to mitigate their own scarcity in resources and competences. These can come in the form of knowledge sharing, complementarities and scaling opportunities.

Managers need to be wary of significant variations in alter technological resources as these can have a negative effect on their survival chances. This is because wrong technological choices can prove costly in production down times especially when high variations in alter technological approaches defeats the assumption that alter ties should help SMEs reduce their uncertainty in such situations (Rogers, 2010).

Lastly, managers need to look beyond their immediate neighbourhoods in the network as resources embedded with indirect ties represent resources with little constraints and provides the vision advantage required to be innovative.

6.7 Future Research

While the study is very useful in predicting survival of SMEs by highlighting the various network effects, it has limitations as well. These limitations provide opportunities for other researchers to pursue future studies that attempt to address these gaps. These future research opportunities are highlighted below.

The study utilizes an agricultural (poultry sector) data set to test the study hypotheses. I encourage other studies to test these hypotheses in other industrial sectors in Ghana. Again, I utilized the Dormaa poultry cluster in Ghana whereas other studies could be replicated in the poultry industry but in other clusters in Ghana or other African countries. These could form the basis of strong validation and replication studies to establish the robustness of the study findings especially if they are context driven.

The measure of financial constraints in the second empirical paper is self-reported. While such measures are indicative and have been extensively used in the literature (Beck & Uc,

2005; De Maeseneire & Claeys, 2012) they may sometimes not reflect the reality when the data is observed reflecting the usual difference between perceived and actual.

In this study a tie is either present or absent: hence another way that new studies can improve upon this study is measuring the intensity of the relationship between SMEs and their alters as this may have implications for the findings.

In the third empirical paper isomorphism was measured as structural equivalence in network of other SMEs but other studies can use measures of cohesion as a measure of similarity to replicate the study. Structural equivalence is also a very strict measure of similarity. Further studies can used other equivalence measures such as regular and automorphic equivalence.

In empirical paper four, the study uses degree and eigenvector centrality-adapted measures as the study tools used in measuring diffusion; however, new approaches are emerging that can handle specifically diffusion-based issues in networks albeit with some data constraints (Jackson, 2010).

Studies of enterprise survival usually rely on data on entry decisions of firms from longer range of years; usually spanning from five years and beyond especially in organizational ecological analysis (see Hannan and Freeman, 1993). However, data constraints have forced many studies in Africa to rely on shorter ranges (see Ali and Peerlings, 2012 for example). This study is also no different in this respect. However, future studies can build on this study and collect panel data based on this two year panel that is utilized in this study.

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APPENDICES:

Appendix 1: Ghana Poultry Sector Statistics

National				Brong Ahafo Region	
Region	No. of Birds (%)	Egg Production (in millions)	No. of Farms+	District	No. of Farms+
Greater Accra	2,547,219 (7.02%)	542	475	Dormaa	202
Central	903,702 (2.49%)	437	312	Jaman South	9
Western	1,406,642 (3.88%)	247	102	Berekum	34
Eastern	3,886,914 (10.72%)	358	213	Sunyani	65
Volta	1,071,622 (2.95%)	68	98	Techiman	25
Ashanti	10,180,760 (28.07%)	5,321	697	Tano South	16
Brong-Ahafo	10,743,897 (29.62%)	3,989	510	Nkoranza	32
Northern	3,625,149 (9.99%)	-	30	Kintampo South	1
Upper East	1,325,835 (3.66%)	-	33	Asunafo North	17
Upper West	579,474 (1.60%)	-	34	Asunafo South	0
				Asutifi	10
				Wenchi	9
				Sunyani West	90

+Based on FAO Sector 1/2/3 Classification

Sources: Veterinary Services Directorate (2010, 2011, 2013) in FAO, 2014

Appendix 2: Systematic Review: Codebook and Keywords

Codebook

Code	Definition
Quantitative Variables Coded	
Authors	List of authors
Year	Year of publication
Title	Title of the article
Journal	Publication in which journal was published
Type	Theoretical, empirical or conceptual
Theory	The main theory used in study
Approach	Research approach adopted
Strategy	Main research strategy used in data collection
Data Source	Primary, secondary or mixed
Type of Data	Attribute or Relational
Analytical Method	Method of data analysis
Location	Rural or urban
Sector	Industry from which data was collected
Continent	Continent from which data was collected
Qualitative Variables Coded	
Issue	Research objective stated in article
Key Findings	Key findings stated in article

Keywords Used for Search

Enterprise survival, Enterprise failure, Enterprise closure, Enterprise mortality and Enterprise exit
Organizational survival, Organizational failure, Organizational closure, Organizational mortality and Organizational exit
SME survival, SME failure, SME closure, SME mortality and SME exit
Business survival, Business failure, Business closure, Business mortality and Business exit

Appendix 3: Definitions of Network Characteristics

1. *Density (D) = t/ n(m)*

where *t* is the number of ties in the network; *n* is the number of rows and *m* is the number of columns for a bi-partite network. However, in a one-mode network the formula is modified to be:

$D = t/T$

where *t* is the number of ties in the network and *T* is the maximum number that is possible with diagonals ignored.

2. *Transitivity (T) = Q_4/L_3*

where Q_4 is the number of quadruples with 4 legs and L_3 is the number of quadruples with 3 legs or more (For two-mode networks only)

3. *Diameter*

It is the longest geodesic in the network in a given component. Geodesic is the walk from one actor to the other.

4. *Average Distance*

This is the average geodesic path length in the network, within components

5. *Fragmentation (F) = (1 – C)*

where *C* is the proportion of nodes that are reachable in the network

6. *Centralization (C_t) = (V_n/V_s)*100*

where V_n is the degree of variability in the network and V_s is the degree of variability in a 'star network' of similar size as network.

7. *Dyadic Reciprocity (DR) = D_r/D_a*

Where D_r is the total number of reciprocated ties and D_a is the total number of adjacent ties in the network

8. Closure is defined using transitive closure. Hence,

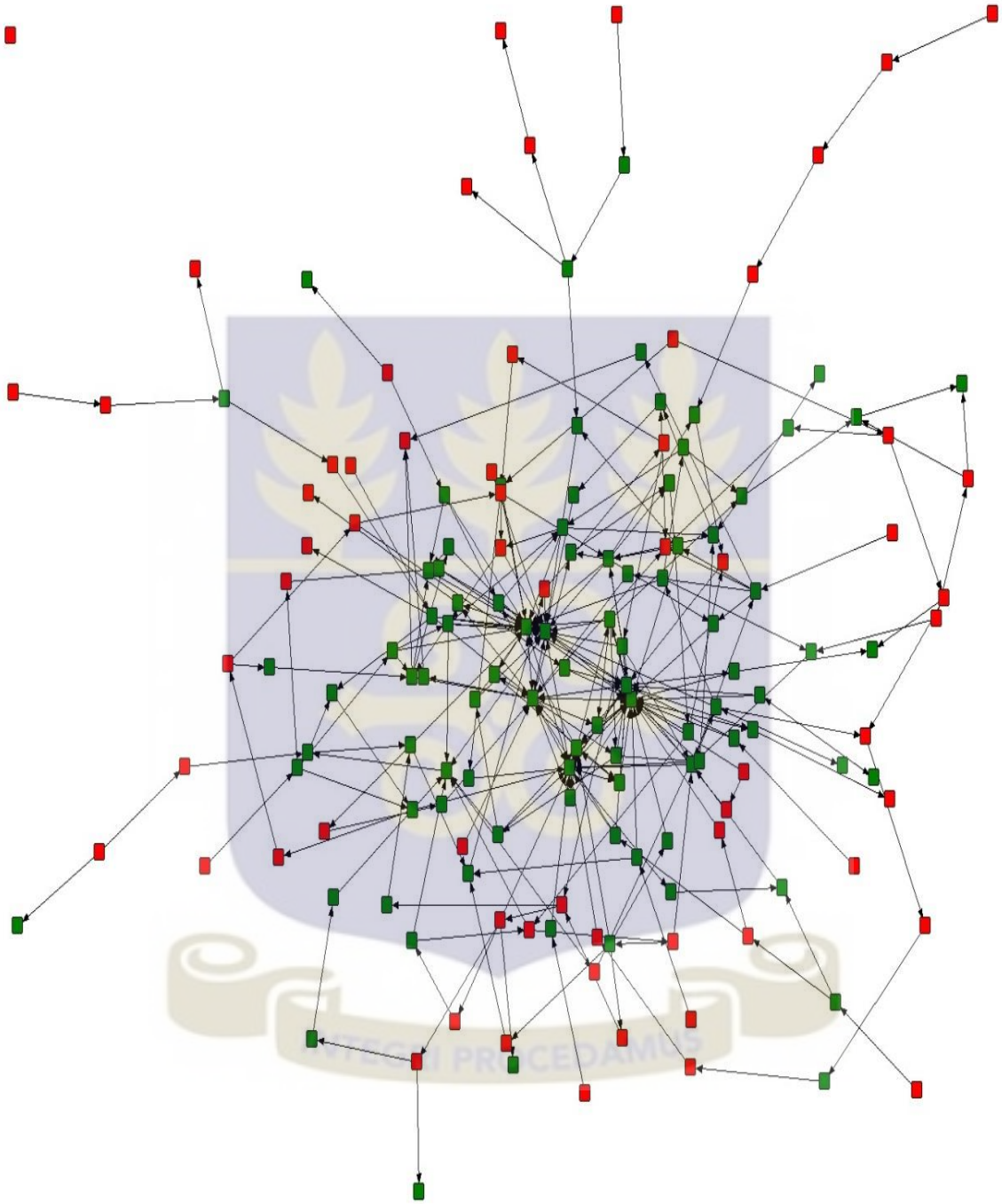
Closure (Cl) = T_3/P_2

where T_3 is the number of triples that are that are transitive and P_2 is number of paths of length two. A triple x_{ik},x_{ij},x_{jk} is transitive if x_{ik} is 1 whenever x_{ij} and x_{jk} are both 1.

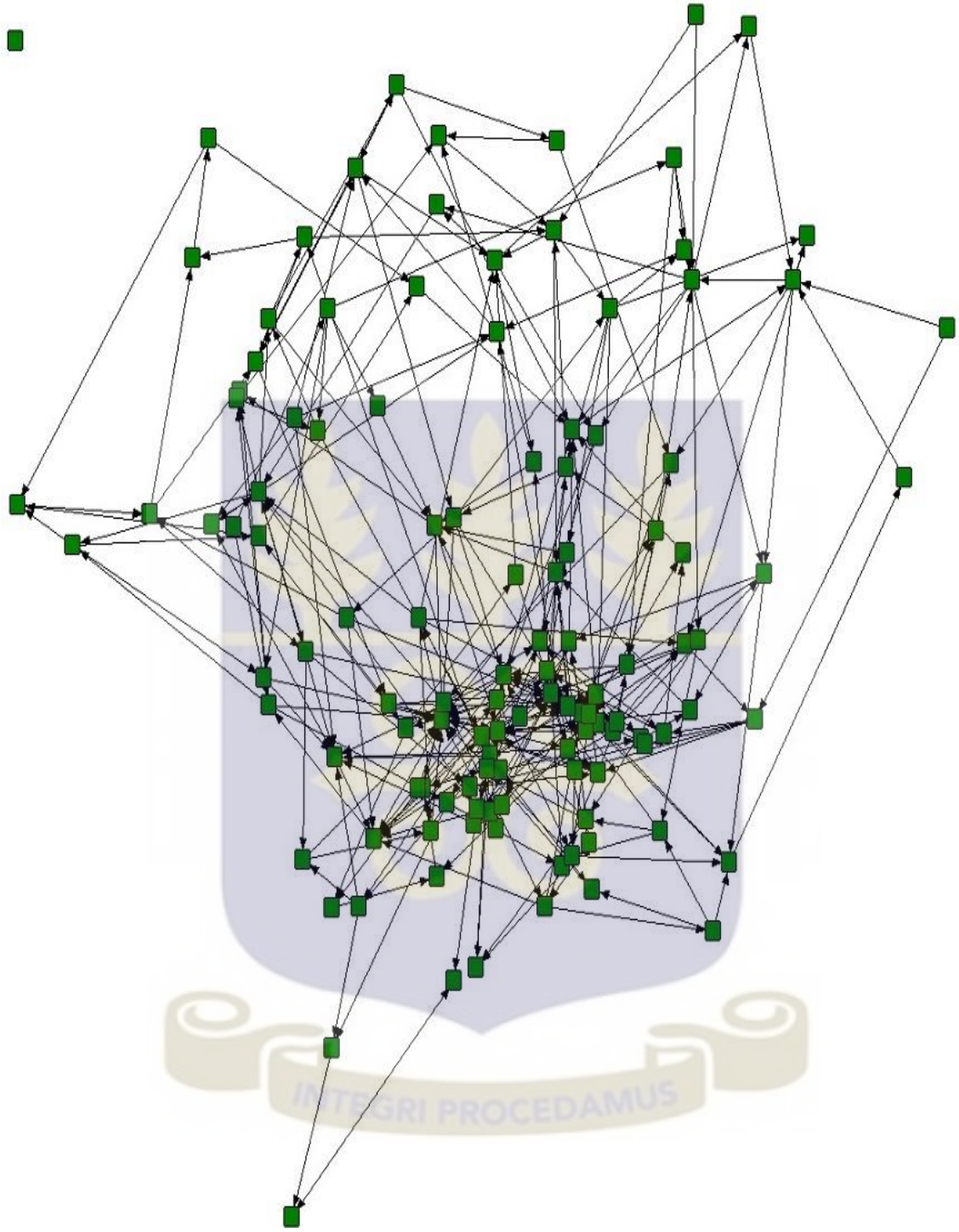
Appendix 4: Network Graphs

Graph 1: Industry Collaborative Network 2014

Survived into 2015 Failed

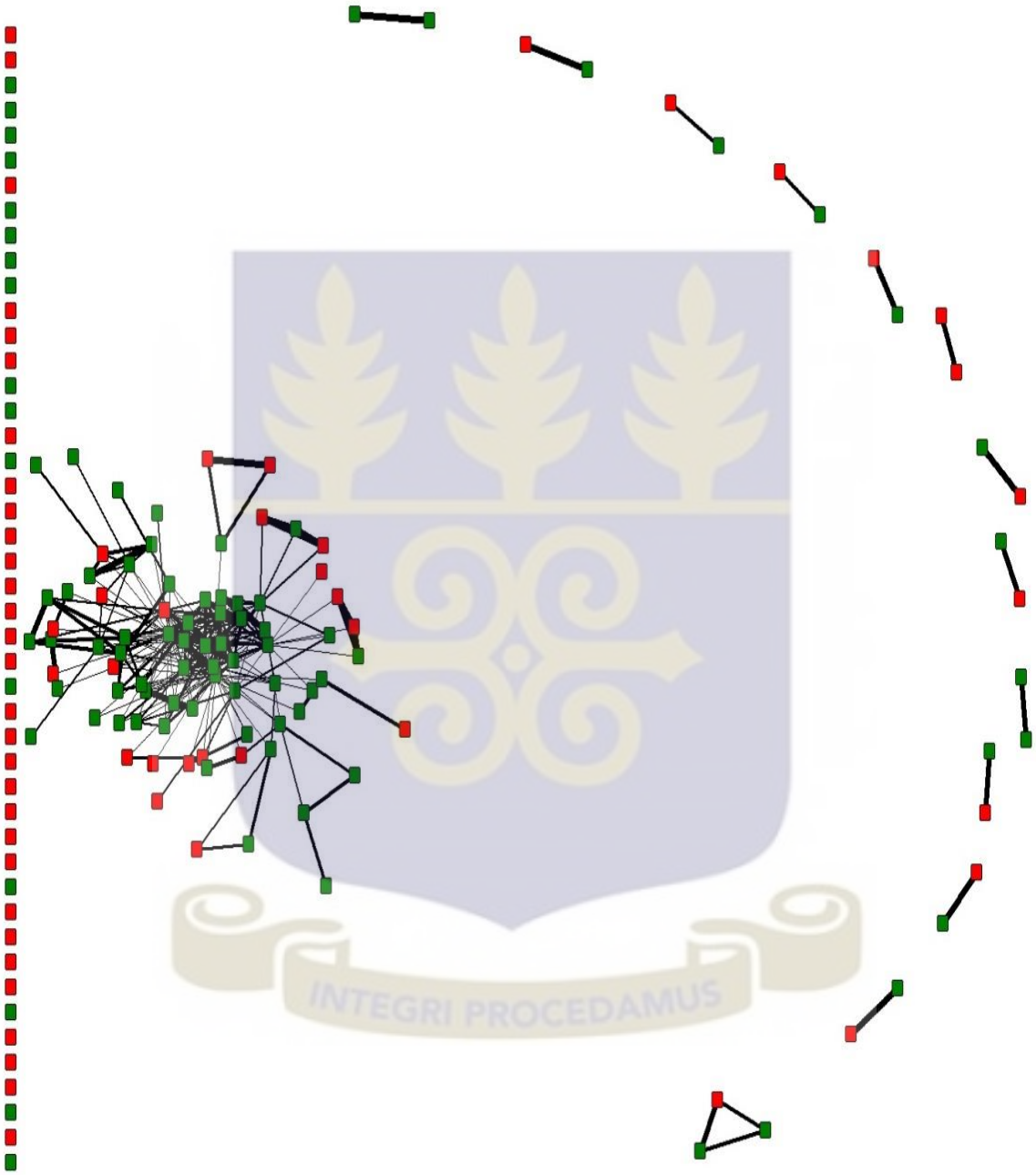


Graph 2: Industry Collaborative Network as at 2015

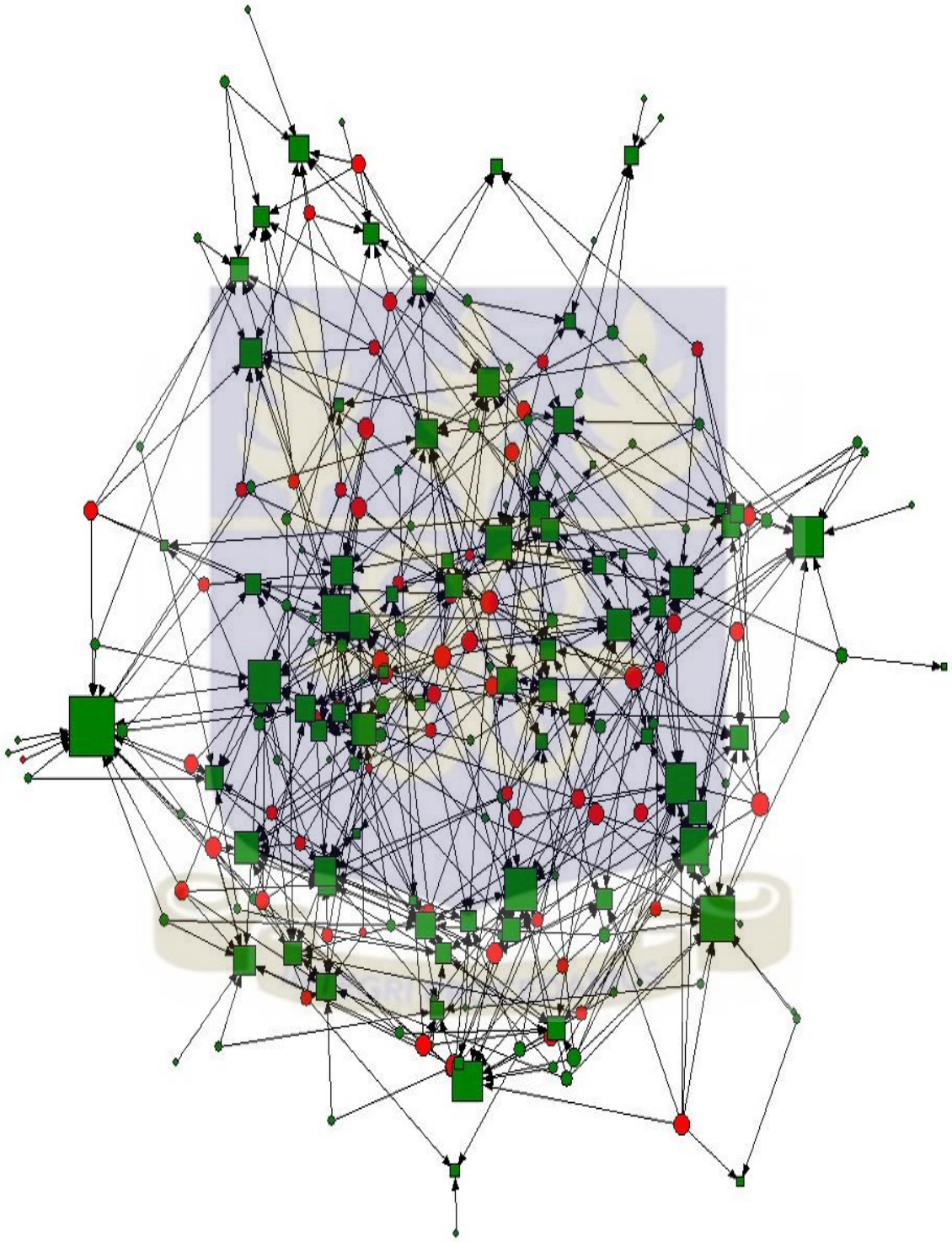


Graph 3: Structural Equivalence of Industry Collaborative Network 2014

Survived into 2015 Failed

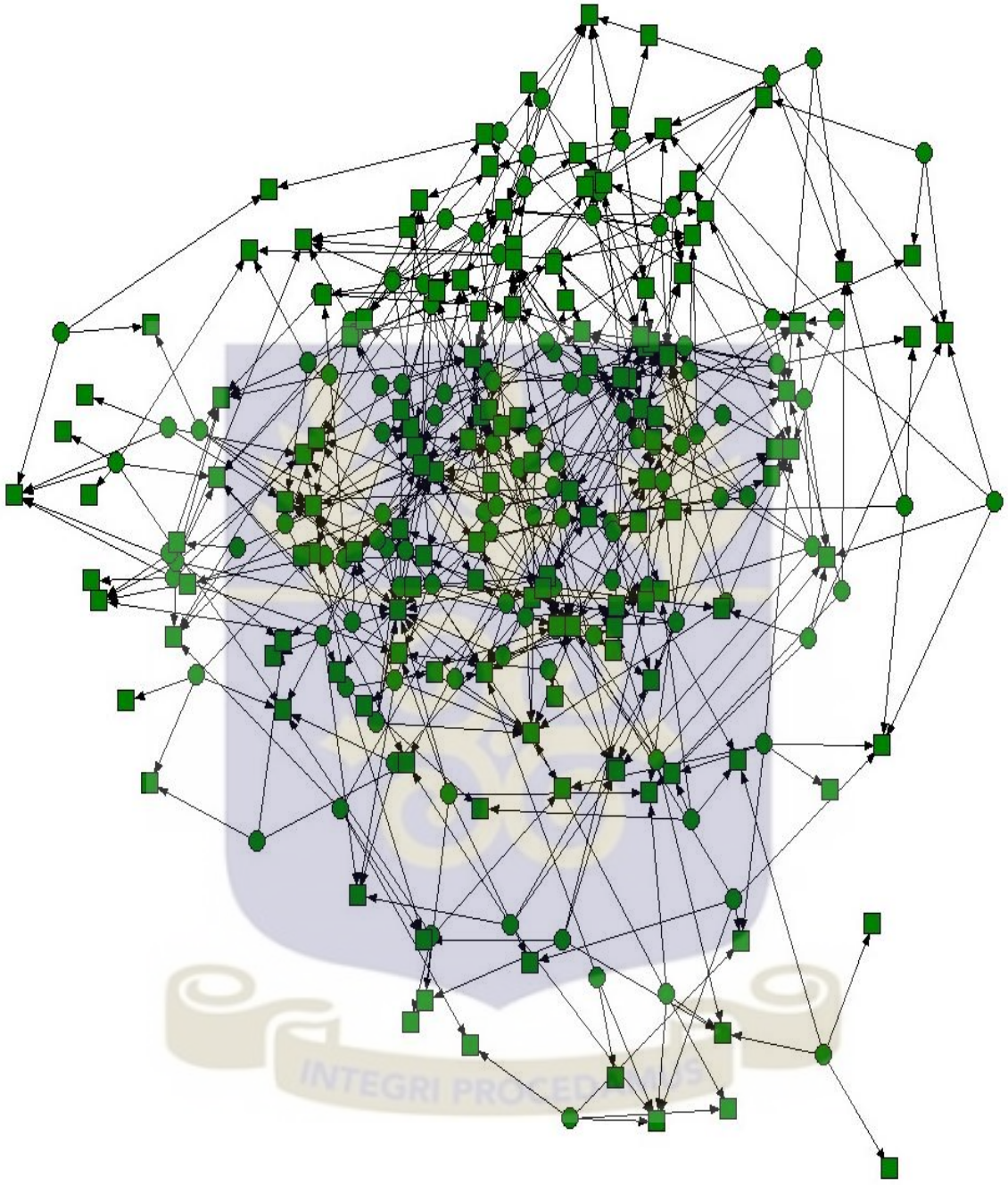


Graph 4: Bipartite Distribution Network as at 2014
SME = Circle | Distributor = Square | Survived into 2015 | Failed

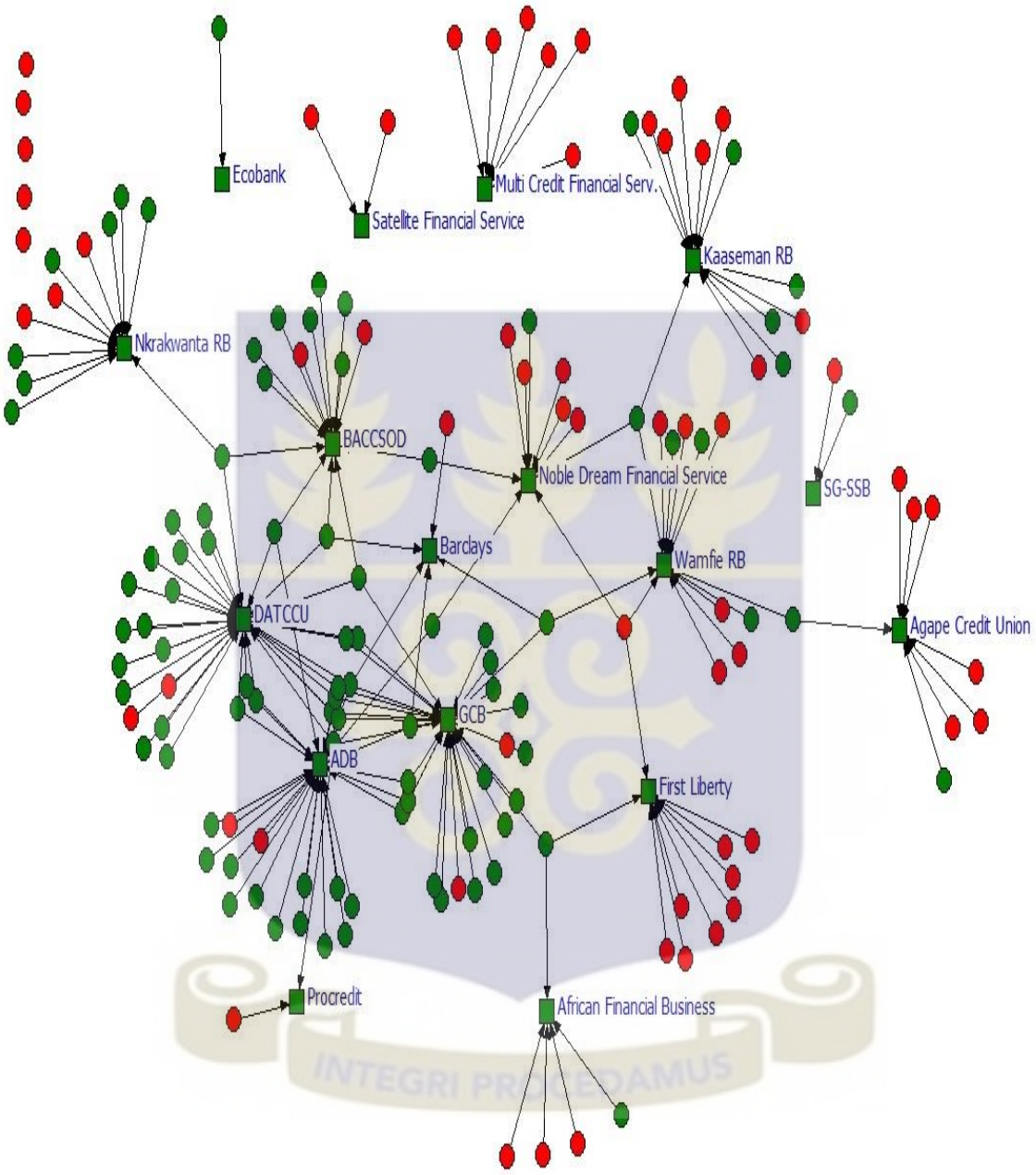


+Size of the square and circle is degree centrality-based
++Survival is tracked only for SMEs

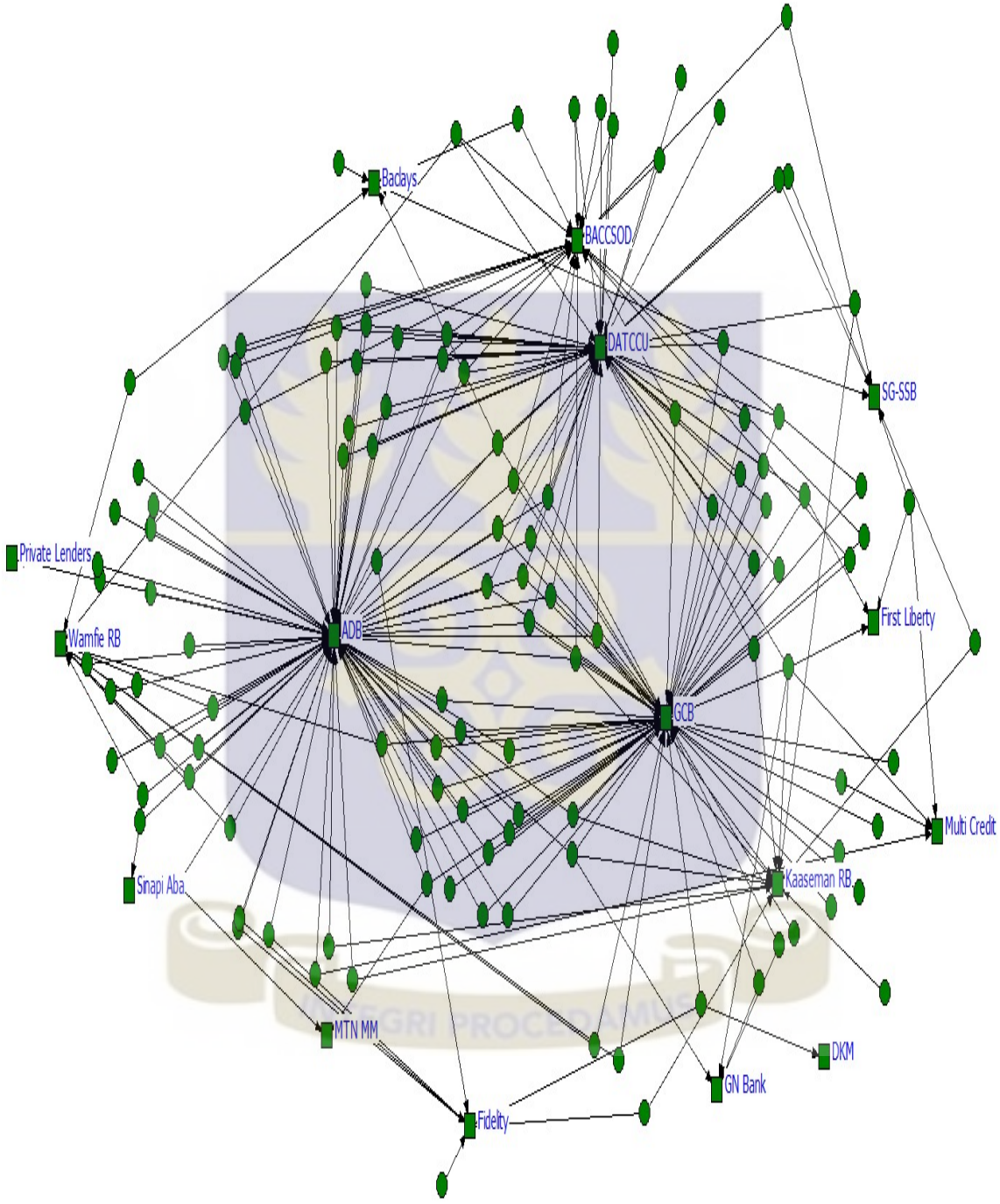
Graph 5: Bipartite Distribution Network as at 2015
SME = Circle | Distributor = Square



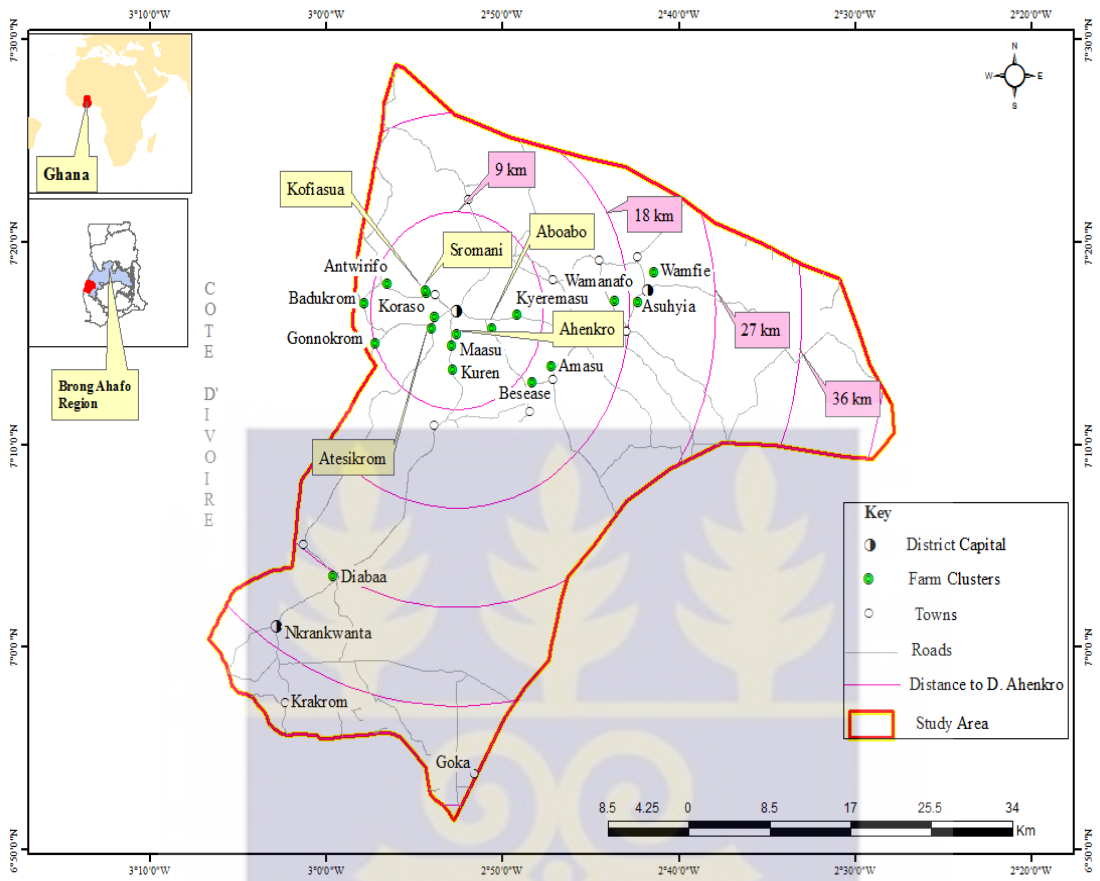
Graph 6: Bipartite Finance Network as at 2014
SME = Circle | Financial Institution = Square | Survived into 2015 | Failed



Graph 7: Bipartite Finance Network as at 2015
SME = Circle | Financial Institution = Square



Appendix 5: Geographical Map of Study Area



Appendix 6: Research Instrument/Questionnaire

UNIVERSITY OF GHANA BUSINESS SCHOOL
DEPARTMENT OF MARKETING
SURVEY INSTRUMENT

Dear Sir/Madam,
This is a survey instrument by a PhD student of the University of Ghana Business School seeking to examine ***"Enterprise Survival in Ghana"***. Information provided for the purposes of this research will be treated confidentially and used for research purposes only. The study is interested in your opinions as a representative of your organization. Kindly take a few minutes to fill out this questionnaire based on your objective opinion. Your participation is completely voluntary. Thank You!

Section A: Enterprise Ecology

1. How old is this business? ……..
2. How many workers do you have? ……..
3. What was the starting capital of the business?……..
4. Is the business registered Yes [ ] No [ ] if Yes where ……
5. What is the speciality of the business? Broilers [ ] Layers [ ] Both [ ]

Section B: Enterprise Location

1. Where is the farm located……. (Please choose from list below)
2. Do they have farms in more than one location Yes [ ] No [ ]; if Yes then main farm location should be indicated in (1)

Kofiasua	Sromani	Antwirifo	Badukrom	Gonnokrom	Koraso
Atesikrom					
Ahenkro	Maasu Road	Kuren	Diabaa	Besease	Diabaa
Wamfie					
Kyeremasu Road	Wamanafo Road	Asuhyia	Aboabo		

Section C: Enterprise Leadership

1. What is the highest educational attainment of owner/manager?

No Education [ ] Non formal [ ] Primary Education [ ] Secondary Education [ ] University [ ]

2. How many years industry experience does the owner/manager have?……..
3. How old is the owner/manager? ……..
4. What is the gender of the owner/manager? Male [ ] Female [ ]
5. Do you consider the owner/manager as charismatic? Yes [ ] No [ ]

Section D: Enterprise Managerial Factors

On a scale of 1-7, please indicate the extent to which the following statements reflect your firm's managerial competences. **[1= Not at all; 2= Rarely; 3= To a limited extent; 4= Moderately; 5= To some extent; 6= To a large extent; 7= To a very large extent]**

No.	Statement	1	2	3	4	5	6	7
Entrepreneurial Orientation								
1.	We take bold decisions necessary to achieve the firms goals							
2.	We are motivated to be creative in methods of operation							
3.	We take the lead for competitors to follow							
Absorptive Capacity								
1.	We actively search for information about our industry							
2.	We engage in cross-unit problem solving							
3.	We apply knowledge gained to practical work							
4.	We adopt new technology to improve work							
Market Orientation								
1.	We meet with customers to discuss our products							
2.	We hold internal discussions about customer needs							
3.	We review our operations to meet customer needs							
Dynamic Capabilities								
1.	We engage in systematic business planning							
2.	We provide on-the-job training for workers							
3.	We benchmark against industry standards							

Section E: Performance/Survival Measures

Financial Performance			
1.	Average weekly sales	Eggs	
		Broilers	
2.	Average weekly productivity	Eggs	
		Broilers	
3.	Value of current fixed assets		
Social Performance			
1.	Employment	Direct	
		Indirect	
2.	Community Donations (Philanthropy)	Do you make donations?	Yes [ ] No [ ]
		Estimated amount (Yearly)	
3.	Pollution	Do people complain about location of the farm?	Yes [ ] No [ ]
		How many complaints have you received since incorporation?	

Section F: Stakeholder Relations

The study wants to understand the relationships you have in the stipulated stakeholder categories below. Please provide us with a ***maximum of 7 stakeholders*** in each category that you have both a ***business and personal relationship*** with. These can be organisations or individuals.

Customers 1. 2. 3. 4. 5. 6. 7.	**Suppliers and Input Dealers** 1. 2. 3. 4. 5. 6. 7.
Poultry Farmers 1. 2. 3. 4. 5. 6. 7.	**Government/Municipal Agencies** 1. 2. 3. 4. 5. 6. 7.
Community Relations/Land Owners 1. 2. 3. 4. 5. 6. 7.	**Local Farmers (Non-Poultry)** 1. 2. 3. 4. 5. 6. 7.
Transporters 1. 2. 3. 4. 5. 6. 7.	**Egg Distributors/Specialised Agents** 1. 2. 3. 4. 5. 6. 7.
Financiers/Banks 1. 2. 3. 4. 5. 6. 7.	**Associations** 1. 2. 3. 4. 5. 6. 7.

Section G: Investment Climate Constraints

On a scale of 1-7, please indicate the extent to which the following statements affect your firm's operations. **[1= Not at all; 2= Rarely; 3= To a Limited extent; 4= Moderately; 5= To some extent; 6= To a large extent; 7= To a very large extent]**

No.	Statement	1	2	3	4	5	6	7
1.	Access to finance (availability and cost)							
2.	Access to land							
3.	Business licensing and permits							
4.	Corruption							
5.	Courts							
6.	Crime, theft and disorder							
7.	Customs and trade regulations							
8.	Electricity							
9.	Inadequately educated workforce							
10.	Labour regulations							
11.	Political instability							
12.	Practices of competitors in the informal sector							
13.	Tax administration							
14.	Tax rates							
15.	Transportation of goods, supplies, and inputs							
16.	Inflation							

Section H: Respondent Profile *(If Not Owner/Manager)*

1. What is your position:……...
2. How long have you been in your position?.....
3. Gender: Male [ ] Female [ ]
4. Age: 18-25 [ ] 26-35 [ ] 36-45 [ ] 46-55 [ ] 55-above [ ]
5. Marital Status: Married [ ] Single [ ] Divorced [ ] Widowed [ ]
6. Educational Attainment: No Education [ ] Primary Education [ ] Secondary Education [ ] University [ ]

Section I: Validation Questions *(To be answered by interviewer)*

1. Do you think the respondent understood the questions? Yes [ ] No [ ]
2. Do you think the respondent answered the questions truthfully? Yes [ ] No [ ]
3. How many minutes did it take to go through the questions? …….
4. Did the respondents show you some documents to back some answers? Yes [ ] No [ ]

Appendix 7: Ethical Clearance

UNIVERSITY OF GHANA
ETHICS COMMITTEE FOR THE HUMANITIES (ECH)
P. O. Box LG 74, Legon, Accra, Ghana

My Ref. No.....

20th May, 2014

Mr. George Acheampong
Department of Marketing
University of Ghana Business School
Legon

Dear Mr. Acheampong,

ECH 064/13-14 ENTERPRISE SURVIVAL: A STAKEHOLDER NETWORKS APPROACH

This is to advise you that the above reference study has been presented to the Ethics Committee for the Humanities and the following actions taken subject to the conditions and explanation provided below:

Expiry Date:	13/05/15
On Agenda for:	Initial Submission
Description:	25/04/14
ECH Action:	Approved
Reporting:	Bi-Annually

Please accept my congratulations.

Yours Sincerely,

Rev. Prof. J. O. Y. Mante
ECH Chair

UG/ISSER/ECH
VALID UNTIL
13 MAY 2015
APPROVED DOCUMENT

CC: Director, ISSER

Tel: +233-303933866 Email: ech@isser.edu.gh