AN ASSESSMENT OF GROWTH POTENTIAL OF SOUTH AFRICAN START-UPS ADOPTING EARLY INTERNATIONALISATION STRATEGIES

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A research project submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration.

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Abstract

Most studies of multinational organisations (MNE’s) have been focused on large mature corporations. Traditional literature explains that firms internationalise after a certain level of domestic maturity and wield a significant amount of economic power to withstand the threat of international competition (Oviatt, McDougall, 1993, p. 29)

However, this premise has changed in recent years with the adoption of new legislation and technologies that allow firms to become established MNE’s much sooner, with many of these pursuing rapid internationalisation strategies.

If the traditional notions of staged theory no longer hold true and new behavioural aspects are driving small businesses to internationalise, it is essential for researchers to gain insights into new firm development, survival and growth in the South African context. Firm growth is of particular interest where globalised SME’s are concerned.
Keywords

Start-ups, Entrepreneurship, Globalisation
Dedication

Dedicated to my father, Johnny Smit, in loving memory
Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

[Signature]

Ettienne Smit
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CHAPTER 1: INTRODUCTION TO THE RESEARCH PROBLEM

1.1. INTRODUCTION

Open markets, diminishing trade barriers, access to new technologies and availability of information, stimulate the process of globalisation for new entrepreneurial ventures (McDougall, Oviatt, 1993, p 34, 51-52). Yet it seems that South Africa still needs to realise the benefits of access to the global economy, where productivity has marginally increased 16.6% since 1990 lagging far behind China and India with 400% and 200% respectively over the same period (Mantshantsha, 2010, para 11). In contrast to the first notion, a study conducted by Barcellos, Cyrino, Oliveira, Fleury (2010, p 57) of Brazilian firms concluded that, those firms pursuing higher degrees of internationalisation showed worse financial performance than firms with less internationalised activity.

According to the Global Entrepreneurship Monitor (GEM), South Africa ranks among the lowest of countries, for total early stage activity (TEA) (Broembsen, Wood, Herrington, 2005, p 7). Evidence is also provided in this report of South Africa’s diminishing rank in world standings when compared to other developing economies (Broembsen et al., 2005, p 22). But in a survey by Luiz and Mariotti (2011, p 61-62) conducted with 609 university students, a positive attitude toward entrepreneurship was revealed, with half of the sample indicating their intention of starting their own businesses as soon as possible. Furthermore, strong correlations were found between parent income, student work, financial
experience and their positive perceptions toward entrepreneurship, although the eventual reality might overshadow their initial perceptions in favour of a corporate career and financial security (Luiz, Mariotti, 2011, p 62). Moreover, attention needs to be directed to the harsh global realities that are being faced in the aftermath of the recent global economic slowdown, which has caused domestic and global markets to recede (SBP, 2009, p 2). However in light of the GEM report, it would seem to be in contradiction to other comparable developing economies that are experiencing growth in this sector (Broembsen, Wood, Herrington, 2005, p 7).

![Performance/degree of internationalisation function in three stages](image)

Figure 1.1: Performance/degree of internationalisation function in three stages

Source: (Barcellos et al. 2010, p 46)
1.2. RESEARCH PROBLEM

Are South African new ventures leveraging the benefits of globalisation? Is higher growth experienced by South African start-ups choosing to internationalise?

This dissertation will attempt to understand the characteristic performance differences between South African new ventures that have developed early internationalisation strategies and those that have chosen to serve only local markets at start-up phase. It is the intention to ascertain whether early internationalisation goals produce higher growth entrepreneurial ventures in South Africa.

1.2.1. PROBLEM DEFINITION

The importance of entrepreneurship has been highlighted as one of the major contributors to a country’s economic growth (Parkin, 2010, p 4). New venture creation and sustained growth in this sector is also credited with the stimulation of new job opportunities in the economy (Nijkamp, 2000, p 11). But the Wold Bank reports that the South African SME cluster does not provide adequate jobs for the unemployed (Bank, 2000, p 9).

A country’s entrepreneurial sector needs favourable conditions, together with support from public and private sectors, in order to thrive. Government have at their disposal functional and selective interventions that can benefit all, or selected, players or industries, in the economy and can be used when
intervention is needed, for example, to reduce the unemployment levels and implement efforts to stimulate small business development (Smorfitt, 2008, p 17, 51). Yet, currently, the Government focuses most of its attention on start-ups and neglects to focus on the support needed in the first three to five years to encourage a firm’s establishment and growth (SBP, 2009, p 8). On the other hand in the State of the Nation address in February 2011 (news24.com, 2011), the South African Government claims to have made substantial strides in new business development contributions in line with its commitment to the new growth path framework set out in 2010 (South Africa Government, 2010). Yet, concern has been raised that only a small percentage of the allocated budget year on year is attained by small, medium and micro enterprises (SMMEs) (Buthelezi, 2011).

Table 1.1: Entrepreneurial Activity in the 54 GEM Countries in 2009, by Phase of Economic Development

Source: (Bosma, 2009a, p 22) (Niels Bosma, 2009a)

According to the GEM report, South Africa ranks at the bottom when compared to other comparable developing nations, with some of the lowest early stage
business activity, TEA at 5.9% (Bosma, Levie, 2009a, p 22). Although this rate has almost doubled since 2007 it still lags far behind similar nations in efficiency driven economies. Alarmingly there is only a 3.6% nascent entrepreneurial rate and only 1.4% of entrepreneurial ventures become established businesses (Bosma, Levie, 2009a, p 22).

Graph 1.1 – TEA international activity

Source: (Bosma, 2009a, p 31) (Niels Bosma, 2009a)

It is interesting to note that of all South African new ventures fully 60% of them include cross border activity, thus denoting their early internationalisation strategies (Bosma, Levie, 2009a, p 31). This statistic is significant as it is comparable with the leading TEA of efficiency driven economies and even top performing innovation driven economies. Considering, then, the high rate of global activity by entrepreneurial ventures together with the low rate of established business formation, it highlights the need for a better understanding of the growth potential of internationalising firms.
South Africa entering the global economy brings with it foreign direct investment (FDI) and represents access to markets, access to expertise and most of all, access to technology (Nations, 2009, p 3). Substantial mergers and acquisitions (M&A) such as the established firms Barclays M&A of ABSA (Pickworth, 2010, para 2), and, more importantly, Wallmart M&A of Masmart (Reuters, 2011), have centred the debate as to the competitiveness of domestic SME’s in relation to their global competition and the limiting factors for these firms, such as domestic transaction costs. These phenomena, in other parts of the developing world such as Turkey, have induced local SME’s to internationalise in order to reduce the risk of falling prey to the increased competition, reduce their transaction costs and maintain competitiveness and growth (Erdilek, 2008, p 746). The firms in the studies benefited from the networks they established through more productive technologies and access gained to further global markets.
1.3. RESEARCH OBJECTIVE

Is high growth achievable by South African start-ups adopting early internationalisation strategies?

![Diagram showing linear relationship for higher growth expectations](image)

Figure 1.2 – Linear relationship for higher growth expectations

1.4. RESEARCH SCOPE

The scope of this study will be focused on the study area of Pietermaritzburg, South Africa. The scope will be limited to SMEs who are members of the Pietermaritzburg Chamber of Business (PCB) with no more than 200 permanent staff members.
1.5. CONCLUSION

Evidence has been produced in Chapter 1 that establishes the trend of South African start-ups engaging in cross border activity or globalisation. The information also suggests that other developing nations are experiencing mixed results from their efforts to internationalise SME activity. The lack of literature surrounding this topic, in the South African context, suggests that a study be conducted on start-up firms to investigate the effects of early internationalisation.

- **Chapter two** presents the literature review of entrepreneurship and start-ups as it relates to economic theory and internationalisation theory.
- **Chapter three** reports the research hypotheses that will guide the research methodology.
- **Chapter four** discusses the research methodology. It outlines the population, sampling method, research instrument and data collection process.
- **Chapter five** presents the research results that were captured with the online survey and method used.
- **Chapter six** conveys the research findings to the research objectives and hypothesis together with the secondary research.
- **Chapter seven** presents the conclusion and recommendations for future research into this field.
CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

In Chapter 1 we recognised that the South African economy has not yet been able to achieve the growth statistics that other developing economies have been able to realise. The following literature review will assimilate the existing body of knowledge to uncover more of the factors that might be considered to influence high growth in respect to internationalised start-up ventures.

Entrepreneurship forms part of the factors of production and is a significant contributor to a country’s competitiveness and economic growth potential. Entrepreneurs are individuals that organize labour, land and capital to exploit opportunities with the intent of making and maximizing economic profit – $P = L.L.K$ (Parkin, 2010, pp. 4, 304).

There are many theories in the literature of entrepreneurial activity and behaviour in developed economies, with literature growing rapidly for the developing economies. However, the models for developed nations are not always comparable to models for developing nations and a revised perception is needed to understand the behavioural differences (McDougall et al, 2003).

A growing body of knowledge has been focused on globalisation, specifically on international new ventures (INV) and early internationalising firms (EIF) to help understand the impact of the decision to go global (McDougall et al, 2003).
studies have gained empirical evidence relating to this phenomenon disproving past understanding of the staged theories of international firm development.

2.2. ENTREPRENEURSHIP AND ECONOMIC GROWTH

“The expansion of production is called economic growth.” (Parkin, 2010, p. 38)

Yet, when the Production Possibilities Frontier (PPF) is examined, it is evident that when all the factors of production (FOP) are devoted to producing goods and services, and none of these factors are committed to advancing and innovating new technologies, then a country’s production possibilities will remain exactly the same in future as they are today. In order for advancement and growth potential, a country will have to commit fewer factors to the production process and re-allocate them towards developing new technologies. The decrease in consumption due to the re-allocation of FOP is called the opportunity cost of future increases in consumption (Parkin, 2010, p. 39).

The FOP of an economy constitutes land as a natural resource that countries exploit in order to create economic wealth. Labour is the productivity factor of the work force within a country that produces goods and services. The quality of labour depends on the knowledge and skill of the labour force and is denoted as Human Capital. Entrepreneurship is furthermore the human resource that organises the first three factors of production, land labour and capital, to produce and innovative new technologies, processes and products that in turn create profit that adds to economic wealth (Parkin, 2010, p. 4).
Audretsch and Keilbach (2004, p 250) argued the importance of entrepreneurship as a factor of economic growth that has previously been overlooked and investigated it as a factor in explaining variations in economic performance as it relates to the huge portions of growth left unexplained (Audretsch, Keilbach, 2004, p 250). Describing the main benefits entrepreneurship adds to economic growth, the authors focus on:

- The usefulness of increased competition for new ideas bringing forth rapid innovations (Audretsch, Keilbach, 2004, p 250). It echoes what Harvey Leibenstein (1968) formulated as important elements in economic development. The per capita income growth shifts, as more productive techniques coupled with technological advancements result in the adoption of new commodities. The exploitation of the new markets that are created due to the innovations produced (Leibenstein, 1968, p 77).

- The value of diversity and the knowledge spill over that is a result of cooperative engagement of firms (Audretsch, Keilbach, 2004, p 250). Jack High (2009) accredited the phenomenon to the division of labour (Smith, 1967, p 11) that is enhanced by the exploitation of comparative advantage across different cultures and nations (Hausmann, Klinger, 2006, p ).
2.3. THEORY OF INTERNATIONALISATION

Internationalisation theories are fairly young and evolving. They contain new models that aim to address the gaps and inconstancies in mainstream economic growth theories.

For example the Neo-classical economic growth theory developed by Solow in the 1940’s, neglects to acknowledge internationalisation and knowledge capital as contributing factors to a country’s economic growth. It was specifically developed for the industrial age in the 1940’s (Solow, 1999, p 640). Furthermore it addresses technological advancement as exogenous and describes it incompletely, as it applies deductive logic to a set of assumptions about consumer behaviour and the technology of production (Cortright, 2001, p. 1).

The New growth theory set to address the shortcomings stated above and includes technological progress and knowledge capital as products of economic activity. The new growth or endogenous growth models emphasise entrepreneurial ideas and human capital as critical factors in the growth process that facilitate better information flows through social linkage resulting in strong network ties. As a result it allows the inclusion of international expansion and considers the importance of entrepreneurial activity in the economy (Cortright, 2001).

Growth theories and models have been published from an economic perspective on monopolistic advantage of entrepreneurial firms. The
frameworks take into consideration, monopolistic advantage, international transaction cost theory and oligopolistic behaviour theories for extrapolating the causes of international entrepreneurship (Cortright, 2001). These theories address the seeming ability of new ventures to identify global opportunities for products and services where none existed before and take advantage of the firm’s abilities to provide these products and services whilst maintaining their competitive advantage (Autio et al, 2003, p 3).

These opportunities are exploited rapidly, resulting in higher transaction costs. The decision to internationalise is sometimes taken due to domestic market size or negative local receptiveness toward substitution. The novelty aspect is also a determinant for internationalisation (Bürgel, 1998).

It is argued that this behaviour seems to contradict the established models of process theories. By its very definition, internationalisation should be an incremental process occurring at later stages of a firm’s life cycle. Similar to process theory, the stage model theory also describes the stages of firm development and later choice of foreign market entry mode with progressive expansion facilitated by incremental structured decisions (Autio et al, 2005). The exploitation of foreign markets by INV’s and EIF’s, in developing economies in particular, are seemingly more disadvantaged and require more rigorous scrutiny.

Behavioural theory seeks to bridge the gap that exists in traditional growth theory regarding the previously described phenomenon of early
internationalisation (Fryges, 1998). The focus is shifted internally, to the behavioural aspects of the founding team and management structures to determine its impact on the decision to go global. Important influences such as age of firm, age of management team, management prior foreign exposure also contribute to the internationalisation decision process with varying degrees of importance. Such studies are focused internally and constitute a micro view of the Entrepreneurial firm by considering the behavioural aspects of the founding members together with its organisational structure (Kuratko, 2009, p 8, 9).

Further investigations have led to the emergence of another highly debated perspective, the Capabilities View of a Firm. It attempts to improve our understanding of a firm’s source of competitive advantage (Autio et al, 2005). It further suggests that firms that start an internationalisation strategy early on, are more likely to grow at a faster rate that well established companies that only start their internationalisation strategy at a later stage in their development, and it is imperative that further investigation be made as to the risks to survival of the early entrants. The case is made when evaluating the early entrant’s ability to adapt its strategy in line with global market demand and emphasises the rapid learning potential of these new firms.
2.4. START-UPS AND EARLY INTERNATIONALISATION

Most studies of multinational organisations (MNE’s) have been focused on large mature corporations. Traditional literature explains that firms internationalise after a certain level of domestic maturity and need to wield a significant amount of economic power to withstand the threat of international competition (Oviatt, McDougall, 1993, p. 29).

However, this premise has changed in recent years with the adoption of new legislation and technologies that allow firms to become established MNE’s much sooner, with many of these pursuing rapid internationalisation strategies (Oviatt, McDougall, 2004, p. 29).

The new domain of academic research attempts to identify the attributes of these new firms through case studies of international new ventures. Many of
the case studies have found that these new international ventures are a result of international experienced entrepreneurs. With these individuals being able to take advantage of resources from multiple countries to meet the demand of markets that are inherently international (Oviatt, McDougall, 2004, p. 29).

- Definition of Internationalisation

In the context of recent studies of SME’s that internationalise it is important to define the term “internationalised” firms. Internationalised firms are defined by the value added and not assets owned (Oviatt, McDougall, 2004, p. 30).

- Import and export related INVs
- Strategic alliances INVs
- Foreign ownership INVs

Figure 2.4 b – Degree of internationalisation (Oviatt, McDougall, 1993, p. 37)
These internationalised start-ups could have minimal international relationships for imports and exports of products and services in order to gain competitive advantage. Furthermore the internationalised start-ups could have strategic alliances with foreign entities that allow for additional manufacturing capacities.

Helmut Fryges (2005) investigates the micro economic data of technology firms as the author tries to determine the relationship between international activity and firm performance and establishes a foundation for testing growth variables (Fryges, 2005, p. 1 - 2). The joint research project did in fact confirm improved labour productivity, sales growth and staff growth of internationally active firms. However other findings contradict the causal relationship between exports and firm performance of this study with little evidence that internationalisation has significant causal effect on firm performance (Fryges, 2005, p. 1, 2). It is particularly the case with larger firms and in a study on Turkish MNE’s and SME’s

As Fryges (1998) (2005) points out, more often than not, superior firm performance amongst internationally active firms is a result of self selection and leaves little evidence that internationalisation has a causal effect on firm performance. Thus firms that perform well choose to internationalise and not the other way round (Fryges, 2005, p. 3).

Firms that export and generate international sales face international competition leading to them developing more efficient ways to exploit their resources and reduce their costs (Fryges, 2005, p. 3).
This aspect leads to increased productivity. On the reverse side Domestic ventures also face competition from abroad with often cheaper foreign imported products, resulting in their need to seek out and build relationships with foreign firms in order to remain competitive (Fryges, 2005, p. 12). Fryges (2005) further highlights that high productivity ratios especially in the formative years could be due to initial start-up size not yet approaching the Minimum Efficiency Scale (MES). This means that start-ups usually start with less than adequate staff and become more adequately staffed as the operation develops over time (Fryges, 2005, p. 12).

Fryges (1998)(2005) three 3 equations that built on the prior theoretical efforts of Burges who established the growth formula based on the Cobb Douglas productivity model in order to extract the function of linear relationship for productivity and growth (Fryges, 2005, p. 12) (Bürgel et al, 2000, p. 9).

- **Staff growth formula**
  \[
  \ln G_t = \frac{\ln E_{i,t_2} - \ln E_{i,t_1}}{t_2 - t_1}
  \]

The German and British study by Fryges (2005) provided a positive relationship between Internationalisation and productivity, together with Internationalisation and firm growth. The growth construct consist of three parts that of Financial growth, Knowledge growth (R&D) and Staff growth (Fryges, 2005).
• Economic growth

Firms with international activities generated higher average sales and were found to be more productive than non-internationalising firms. The difference in productivity however was not significant in nature although the annualised sales growth rates were significantly higher for internationalising firms (Fryges, 2005, p. 19-27). However Venkataraman (1997) points out that relative sales performance is not a sufficient measure of success because profits must exceed different minimum thresholds in order to cover all the associated costs of the enterprise, such as opportunity costs, investor risk, uncertainty and advantage premium and need to deliver surplus liquidity for entrepreneurial reward. The business thus needs to produce sustained “above-minimum” net profits (Venkataraman, 1997, p 132-135).

• Knowledge growth

Firms with international activities invested more on R&D and on average employed more people working on R&D activities than non international firms. Moreover the study found that a larger percentage of internationalising firms had active engagement in R&D activities as opposed to non internationalised firms. Fryges also finds that internationalising firms spend more on R&D activities than non-internationalising firms (Fryges, 2005, p. 19-27).
- Staff growth

Fryges (2005) indicates significant staff growth of internationalising firms compared to non-internationalising firms. However, the study did find, in sharp contrast to Gibrat’s Law, a negative correlation to staff growth and firm size. The study does not make clear if the slower staff growth rate is due to the firms approaching the MES or if it is related to macroeconomic variables that might impact employment growth (Fryges, 2005, p. 19-27).

The study could not determine significant differences between staff growth and sales growth yet it did reveal that R&D activities increased both sales and staff growth significantly (Fryges, 2005, p. 29). Furthermore international sales did not affect staff or sales growth significantly (Fryges, 2005, p. 31).

In a Turkish Multi National Enterprises (MNE’s) study conducted by Erdilek (2006) on eight company-specific cases he found that Turkey was too competitive and not very profitable. Foreign market access was chosen to alleviate the local constraints with all of the cases examined pursuing outward foreign direct investment (OFDI) (Erdilek, 2006).

The Turkish OFDI strategies revealed that the companies in question benefited from scale economies and reduced their risk as they became less dependent on often unstable and increasingly saturated Turkish markets. The domestic market is too small. The cases seem to have significantly increased their
competitiveness through scale economies, and it has diversified its business and country risks through OFDI.

The firms drastically improved their international competitiveness and benefited in local markets through economies of scale and inward technology transfer. The firms capitalised on knowledge transfer and experience gained in international markets with the OFDI strategies resulting in more competitive and profitable firms (Erdilek, 2006).

However, the study conducted by Barcellos et al (2010) on Brazilian internationalising firms concluded the opposite result in firm performance due to internationalisation.

2.5. MEASURING FINANCIAL GROWTH

Most often in business literature the most important question asked is why some companies perform better than others. This is particularly the case according to Barcellos et al (2010) with international ventures where sufficient attention needs to be given to the dependant variables of performance and growth (Barcellos et al, 2010, p. 42 - 44). The problem is identified when considering the selecting an appropriate metric and increases the complexity of the question about performance. Financial performance measures that are frequently used include, to varying degrees that of sales, return on assets,
return on equity, profit margin, earnings per share, stock price, sales growth, increase in external sales and Tobin’s Q (Barcellos et al, 2010, p. 44).

<table>
<thead>
<tr>
<th></th>
<th>Financial performance</th>
<th>Operational performance</th>
<th>Overall effectiveness performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm</td>
<td>Sales based: 44%</td>
<td>Market share: 47%</td>
<td>Reputation: 30%</td>
</tr>
<tr>
<td></td>
<td>Return on assets: 40%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategy business unit</td>
<td>Sales based: 68%</td>
<td>Market share: 46%</td>
<td>Performance relative to competitors: 50%</td>
</tr>
<tr>
<td></td>
<td>Return on investment: 47%</td>
<td></td>
<td>Perceived overall performance: 33%</td>
</tr>
<tr>
<td>Inter-organization unit</td>
<td>Sales based: 62%</td>
<td>Productivity: 44%</td>
<td>Perceived overall performance: 71%</td>
</tr>
<tr>
<td></td>
<td>Profitability: 31%</td>
<td>Market share: 33%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Product/service quality: 33%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Sales based: 52%</td>
<td>Market share: 44%</td>
<td>Perceived overall performance: 47%</td>
</tr>
<tr>
<td></td>
<td>Return on assets: 29%</td>
<td>Productivity: 26%</td>
<td>Performance relative to competitors: 20%</td>
</tr>
<tr>
<td></td>
<td>Profitability: 26%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.5: Most used performance metrics

There is no correct way of measuring performance and any of the variables depicted above would be acceptable metrics to be used.

2.6. DEGREE OF INTERNATIONALISATION

Contractor et al. (2003) pointed toward the positive relation between international expansion and firm’s performance and highlighted the benefits that international firms receive (Contractor et al, 2003, p. 6):
- Learning is enhanced through international experience
- Greater access to cheaper resources from foreign markets including, but not limited to, cheaper labour and advanced technologies
- First mover advantages gained from scanning global markets for profitable opportunities
- Geographic scope allowing for price discrimination with a resultant better performance on sales and profits

![Diagram](image)

Figure 2.6: Performance/degree of internationalisation function in three stages

Source: (Barcellos et al. 2010, p 46)

These factors are particularly important to firms that are investigating the barriers to entry into foreign markets but which are also considering the optimal strategy to avoid detrimental negative impact to the initial entry (Contractor et al, 2003, p. 6, 7).
However from the Barcellos et al (2010) study of internationalisation and Performance (I-P) it is evident that prior studies in Brazil were conducted on large MNEs in the manufacturing sector with 52 cases being examined to determine the relationship of internationalisation on specific variables for performance with only three out of 36 found to have positive significance (Barcellos et al, 2010, p 47).

The result of the Barcellos et al (2010) study concluded on SMEs found that a negative relationship is encountered with increased internationalisation and explains that this could be due to over extension of resources together with governance difficulties (Barcellos et al, 2010, p. 57).

2.7. CONCLUSION

The internationalisation of start-ups or SME businesses has produced mixed performance outcomes in different parts of the world. South Africa is no different and it is imperative that researchers need to investigate the outcomes of different internationalisation strategies in the local context. If the traditional notions of staged theory no longer hold true and new behavioural aspects are driving small businesses to internationalise, it is essential for researchers to gain insights into new firm development, survival and growth in the South African context. Firm growth in terms of the constructs discussed in the literature review is of particular interest where globalised SME's are concerned.
The constructs that have emerged:

- Growth construct
  - Knowledge growth
  - Financial growth
  - Staff growth

Chapter 3 will proceed with the construction of the hypotheses and determine the objectives of this research report.
CHAPTER 3: RESEARCH HYPOTHESES

3.1. INTRODUCTION

Chapter 1 introduced the problem for this research study by highlighting South Africa’s low rate of TEA coupled with a high rate of international activity comparable to innovation driven economies. Chapter 2 reviewed the literature as it relates to the topic of internationalisation and economic growth. It further discussed the previous research that has been conducted in this field, by examining the effects of internationalisation relating to different countries and industries from around the world. The result of prior studies will form the basis for Chapter 3 to allow for the construction of the hypotheses and objectives.

The research problem and objectives are detailed in this section. It is imperative that a clear statement of the research problem and objectives of the research study are formulated prior to designing the questionnaire. Failure to do so will result in failure of the instrument, and this in turn will lead to failure of the study.

3.1.1. PROBLEM

An analysis needs to be conducted, in order to better understand the growth rate achievable from internationalising SME start-up businesses in South Africa.
3.1.2. OBJECTIVES

The research objectives that will be answered relate to the relative performance of SME growth:

H1₀: SMEs that internationalise during the start-up phase achieve higher growth rates than Non-internationalising SMEs

H1ₐ: SMEs that internationalise during the start-up phase do not achieve higher growth rates than Non-internationalising SMEs
CHAPTER 4: RESEARCH METHODOLOGY

4.1. INTRODUCTION

In the previous chapter the objective of this research paper is described in the hypothesis. This chapter details how the research design is intended to fulfil the research objective. Further justification of the method is provided in light of the research objectives according to Saunders et al. (2009, p 43)

4.2. RESEARCH DESIGN

The research was conducted collecting and analysing:

- Secondary research (Literature review)
- Primary research (Quantitative explanatory research)

4.2.1. SECONDARY RESEARCH

Secondary research was conducted of the relevant literature in Chapter 2 that helped develop a detailed understanding of the subject matter. It provided the insights required to formulate the research hypotheses according to Saunders et al (2009). It was also necessary to highlight trends that have emerged from prior studies into the field as it relates to this study (2009, p 43). In addition further important theories have been identified that will guide the primary research further in this chapter.
4.2.2. PRIMARY RESEARCH

A quantitative explanatory research will be conducted in order to test the hypotheses described in Chapter 3. Saunders et al (2009, p 124, 140) explains that it is used when a hypothesis is deduced from a theory base and constitutes the evaluation of dependant variables. In this study the cause and effect relationship between internationalisation (independent variable) and growth (the dependent variable) will be analysed according to Saunders et al. (2009, p 124, 140, 362). The results of this finding will be compared to the results found in earlier studies as described in the literature.

4.2.3. RESEARCH METHOD SELECTION: RATIONALE

Saunders (2009, p 124) points out that deductive or testing theory relates closest to what is known as scientific research. It develops a theory that is then subjected to rigorous testing to validate the predicted occurrence of the phenomenon being hypothesised.

- Hypothesised, relationship between two variables
- Expressing it in operational terms
- Testing
- Examining the outcome

This research paper will use the survey method to conduct explanatory research, and differs from prior studies that have used the case study method.
in order to conduct exploratory research on this topic (Oliver Bürgel, 1998). The case study method by default only reviews very small samples from the population with face to face interviews being conducted. This paper will attempt to acquire sorely needed statistical evidence from the entrepreneurial SME sector in South Africa where information sources are poor (SBP, 2009, p 3) with the hope of adding to the existing body of knowledge.

The method will be a formal cross sectional quantitative study of SME businesses in Pietermaritzburg, South Africa and will include only SMEs who are members of the Pietermaritzburg Chamber of Business (PCB). Smorfitt, reasons that alternative databases in respect of South African SMEs are available to conduct such a study, but convincingly justifies the problems associated with the use of these alternative databases (Smorfitt, 2008, pp. 96-97).

4.3. POPULATION

The study is limited geographically to Pietermaritzburg, South Africa. The research sample was taken from SMEs who are members of the Pietermaritzburg Chamber of Business (PCB). The size of this population is 832 businesses.

A limitation of the study is that the PCB membership is possibly not representative of all industries and all businesses in the Pietermaritzburg area.
and further limits the findings of such a survey to not be representative of the SME’s in South Africa as a whole.

The PCB has 832 total members. 22 organisations were excluded from the study, because their firms had more than 200 employees, thus disqualifying them as SMEs. That left a total of 810 organisations. Next government, NGOs, branch offices of large organisations, schools and honorary members were excluded from the list, which left a total of 678 organisations in the population for this particular study.

4.4. UNIT OF ANALYSIS

The unit of analysis used for this study was selected as:

- SMEs listed as members of the PCB
- That have no more than 200 permanent employees

4.5. SAMPLING METHOD AND SIZE

From the potential population an attempt will be made to gather data from a comparable but representative sample. Probability sampling will suit the research intent and Simple Random Sampling will be done on the entrepreneurial businesses listed with the PCB.
The following formula was used to calculate the sample size from the population, where population (N) is 678 organisations, accuracy (e) is 5% and the confidence level is 95%. The sample of the population (n) was solved for.

\[
N = 678 \\
e = 5 \\
n = ?
\]

\[
n = \frac{N}{(1 + [N (e)^2])}
\]

\[
n = \frac{678}{(1 + [678 (5)^2])}
\]

\[
n = 252
\]

A random selection of 252 businesses was taken from the 678 members of the population, to determine which businesses to send the electronic questionnaires to. The process of generating the random numbers from the list of 678 was done by using a tool in the computer programme called Moonstats.

4.6. RESEARCH INSTRUMENT

A questionnaire was used as the research instrument (Saunders et al. 2009, 362). The survey was conducted in the form of an online survey utilising a survey tool such as SurveyMonkey and participants were invited via email to participate. After the initial compilation of the questionnaire a pilot group was selected from the population, to test the validity and consistency of the survey.
Changes were made to the questionnaire to avoid ambiguity. Feedback from the pilot study was also used to alter the wording where necessary.

Due to the fact that certain types of data are notoriously difficult to acquire from SME’s, only a few profile related questions asked for numerical data. These are past and current staff member’s quantities and age of organisation.

All other data collected that relates to financial and operational activities were categorised as ranked ordinal data.

The research instrument is available in APPENDIX A and is designed to have 3 sections.

Section A: Biographical information
Section B: Internationalisation constructs
Section C: Growth constructs

4.7. RELIABILITY AND VALIDITY

A pilot study will determine the initial reliability of the questionnaire. The comments raised will be addressed to ensure the questionnaire is correctly prepared for the primary data collection process (Saunders, 2009, p 373).

Internal consistency to the questionnaire was tested and guaranteed by means of alternative form responses for different questions. This will be particularly
necessary to determine the respondent’s exposure to internationalisation. Cronbach’s alpha was used to ensure further reliability in the data collected (Saunders, 2009, p 374).

The questionnaire is mapped to the research objective in the consistency matrix (APPENDIX B) to ensure content validity and adequate coverage by means of consistency matrix. The consistency matrix is also used to determine the construct validity (Saunders, 2009, p 373).

4.8. DATA COLLECTION

As stated previously the instrument will be setup as an online survey making use of SurveyMonkey. An email with attached letterhead will be emailed to the sample that was selected to participate in the study.

4.9. LIMITATIONS

The study focused the research specifically relating to SMEs that have been listed with the PCB in the Pietermaritzburg area of South Africa. This is only a representation of the SME firms listed and does not represent the broader SME businesses that are not affiliated with the National Chamber of Commerce. Due to the time constraints, this study will not be a longitudinal study but rather cross sectional. The impact of changes over time as it relates to internationalisation will not be measured.
4.10. CONCLUSION

Chapter 4 covered the research methodology and design together with the research instrument that was used to gather the data. It also included the process that will be followed to answer the research question. In Chapter 5 the research results are presented together with the analytical methods that were applied to further uncover if a relationship exists between internationalisation and firm growth.
CHAPTER 5: RESULTS

5.1. INTRODUCTION

The following chapter will present the results of the primary research conducted as it was discussed in the previous chapter. What follows is a discussion of the research instrument used, limitations encountered and results of the survey instrument as it relates to internationalisation and growth.

5.2. RESEARCH INSTRUMENT

The instrument was designed using the online tool SurveyMonkey and logically divided into three sections covering the participant’s profile, internationalisation status and the growth performance construct.

- Participant’s Profile
  This section of the survey was intended to provide vital descriptive data to ascertain if the sample observations adequately covered a broad spectrum of industries. It also needed to capture firms in various stages of development, including but not limited to, variables for age and staff numbers.

- Internationalisation status

Due to the fact that primary nominal data is notoriously difficult to acquire from start-ups or SME’s and further fear of non-response for the survey questions,
where needed, a ranked ordinal approach was taken to collect the necessary financial data.

5.3. RELIABILITY AND VALIDITY

It is imperative for the questionnaire to reliably determine the internationalisation status of the respondents. According to Saunders (2009) it was necessary to review the answer to Question 6 and correlate that for internal consistency with the answers in Questions 7, 8, 9 and 11. Questions 7, 8, 9 and 11 were collapsed into a new variable indicating the new internationalisation status. This new variable was tested for internal consistency to the original variable in Question 6 (Saunders, 2009, p 374).

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.838</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 5.3: Internationalisation variable internal consistency, Cronbach’s Alpha

The overall alpha resulted in a score of (.838) which high and indicates strong internal consistency among the two items. Essentially this means that respondents who tended to say Yes for Internationalisation in question 6, also tended to say Yes for the collapsed cumulative new variable. Thus, knowing the answer for Internationalisation enables one to predict, with some accuracy, the possibility of the company having attempted internationalisation. Had alpha been low, this ability to predict would not be possible.
The validity of the instrument was tested with a pilot study, as mentioned in the previous chapter, that highlighted the structural changes needed to the scaling of the answer categories in order to acquire usable data. The validity of the instrument was maintained throughout the survey.

5.4. RESPONSE RATE

The population for this study was the SME members of the Pietermaritzburg, Ladysmith, Durban and Zululand Chambers of Commerce in KZN. The population, although large enough, is not representative of all SMEs in KZN or South Africa. Therefore, the findings of the primary research cannot be extrapolated for the SME population in South Africa.

The use of an email survey does lead to a number of problems. There is no control over the respondents’ understanding of the questions, as the respondent interprets the questions in their own context. The benefit of this, however, is that the interviewer cannot introduce bias into the findings by guiding the respondents to a particular response.

The invitation to respond to the survey was sent out with the help of a mass email online utility called Graphicmail (sic). The sample group was first emailed the invitation on the 4th of October 2011 and then again for the second reminder on the 12 October 2011. Very few respondents opened the email that was sent with half on average proceeding to the online survey.
At the end of the 3 week survey only 40 responses were received. Thus a 16% response rate was achieved from the sample. A further three responses had to be removed because their current staff quantities that were more than 200 staff and could not be classified as SME.

The lack of access to a larger sample that could have provided a better response further limits the findings of this survey.

**5.5. PROFILE OF RESPONDENTS**

The results of this section of the survey shed light on the observations profile information. The section provides biographical information and gives an overview of the observation spread as it relates to the hypothesised constructs. It further validates the sample selection in order to cover a broad spectrum of industries and companies in various stages of development.
5.5.1. Research Questions 1:

What industry does your company operate in?

This question identifies the relevant economic sector the firms operate in. The data is presented below in Figure 5.5.1

![Figure 5.5.1 – Industry sectors of respondents](image)

INVs and DNVs both show biases toward two categories namely the services sector with a combined 44% and the sector denoted as other with a combined 27%. Both these sectors show internal bias toward DNVs. The manufacturing sector has a combined 11% of respondents with a bias toward INVs. The retail wholesale sector has 10% of the respondents with no bias to either INVs or DNVs. Alarmingly there are very few of the respondents in the remaining agricultural and technology sectors with a combined 6% and 3% respectively. Interestingly there are no INVs in the technology sector from our observations.
5.5.2. Research Questions 2:

How old is your organisation?

This question identifies the observations stage of development and attempts to identify if organisations have been captured in their start-up phase.

![Chart showing age distribution of organisations]

Figure 5.5.2 – SME, age of the organisation

There is a strong bias in both INVs and DNVs to be in a later stage of organisational development with a combined 81% of the respondents indicating that they are older than 5 years. Only a few of the respondents have been captured in their early stages of organisational development. Only 3% of total, denoting INVs are in their fourth year of development with no INVs in their first or fifth year. The DNVs are evenly spread and very sparse at 5% of total in their second, third and fourth year of development.
5.5.3. Research Questions 3:

Did you start or buy the business?

This question is intended to understand the entrepreneurial orientation of the respondents. It identifies the opportunity seeking vs. independence seeking entrepreneurs from the observations.

![Chart showing the percentage of respondents who started or bought businesses.]

Figure 5.5.3 – Venture creating orientation

There is a high degree of opportunity seeking entrepreneurs within the respondent profiles as 71% of INVs have started their own businesses compared to 29% of INVs that have bought the businesses. The DNVs have a marginal stronger showing with 74% of DNVs having started their own businesses and 26% of DNVs choosing to buy the businesses.
5.5.4. Research Questions 4, 5:

*How many staff did you start the business with?*

*How many staff is in your company now?*

The two questions are intended to shed light on the employment growth potential of the observed firms as it relates to INVs and DNVs respectively. The two results are set on similar scales to easily identify visual differences between the groups.

![Bar chart showing the number of staff started and in the company.

**How many staff did you start with?**

- **Firm Count**
  - 0 - 3: 14 (International - No), 9 (International - Yes)
  - 4 - 50: 8 (International - No), 6 (International - Yes)
  - 51 - 150: 6 (International - No), 6 (International - Yes)

**Figure 5.5.4 a - Beginning staff size**

A large proportion of the respondents started the companies with three or less employees. A bias toward DNVs are found in the (0 – 3) category with 14 of DNVs opposed to 9 INVs. A further 8 DNVs and 6 INVs started the firms with between (4 – 50) staff members.
Firm staff growth did occur for both INVs and DNVs with the bias being shifted to the (4 - 50) category. Bias still favours DNVs with 14 firms in this category and INVs with 7 firms. There are still firms with a small number of staff (0 - 3) with 7 DNVs and 5 INVs respectively in this category. A small number of the observed firms have achieved larger firm size with 3 DNVs and 2 INVs respectively indicating that they have grown into the next category of (51 - 150) staff.

5.6. INTERNATIONALISATION STATUS

The strong Cronbach’s alpha result (.838) already significantly validated the new cumulative variable that was generated from the respondent’s answers to the internationalisation activities they are currently engaging in.
5.6.1. Research Question 6:

*My company has attempted internationalisation? (If your company has initiated or is currently doing business outside of South Africa)*

![Pie chart showing international orientation of respondents.](image)

Figure 5.6.1 - International orientation of respondents

The Internationalisation status variable is depicted on the Pie-chart above and indicates that less than half of the respondents are currently engaged in international activities with 38% of the respondents being INVs and 62% of respondents being DNVs.

5.6.2. Research Questions 7,8,9 and 11:

- *Does your company export products or services?*
- *Does your company import products or services?*
• Does your company have partnerships with other organisations outside of South Africa? (Foreign contracts, agreements or licences)

• Does your company own an international subsidiary or any facilities outside of South Africa?

These questions had 2 purposes:

• The first was to determine the reliability of the internationalisation status as was asked in question 6. Further that the data adhere to the correct definition of internationalisation.

• The second was to allow for the further segmentation of the INVs to determine their degree of internationalisation.

![Degree of Internationalisation](image)

Figure 5.6.2 – Degree of Internationalisation

As can be seen from Figure 5.6.2 two of the INVs responded incorrectly to question 6 regarding their internationalisation status and was subsequently included in the correct category as depicted in Figure 5.6.1
5.6.3. Research Question 10:

How long after you started or purchased the company did you start doing international business (in years)?

This question required the respondents to indicate at which stage of the firm’s life cycle internationalisation was pursued. It attempts to identify the phase of organisational development and attempts to uncover the relevance to the born global paradigm.

![Figure 5.6.3 – Stage of adopting Internationalisation](image)

DNVs by nature will all have indicated N/A and this choice can be seen in Figure 5.6.3.1 from all DNV respondents. Interestingly a bias is perceived from INVs that started engaging internationalisation at their inception (36%). With
21% and 14% of INVs choosing to internationalise at later stages in their life cycle, two and three plus years respectively. The 29% of INVs that indicated N/A form part of the error in the original internationalisation variable.

5.6.4. Research Question 12:

What percentage of your staff is international?

All respondents indicated that they do not have any international staff. This is found true for all of the internationalised firms, even the firm that owns facilities outside of South Africa and falls into the category of “High degree” of internationalisation.

5.7. FINANCIAL PERFORMANCE

This section of the survey requested various financial performance metrics from the respondents. The instrument did allow for respondents to skip these questions due to their sensitive nature. An ordinal approach was used to minimise the intrusive nature of the questions in this section.

5.7.1. Research Question 13:

Indicate how much your international sales have grown in the last year?

This question intended to identify the sales growth experienced by the INVs over the last financial year (2009 - 2010)
Figure 5.7.1 – International sales growth achieved

From Figure 5.7.1 it is evident that most INVs (64%) had no sales growth between 2009 and 2010. A further 21% of INVs had experienced a marginal increase in sales growth (1% – 10%). Substantial international sales growth (11% - 20%) and (more than 20%) was only experienced by a marginal 7% of INVs respectively. DNVs were expected to indicate no international sales growth yet 20% of DNVs indicated a decline in international sales growth.

5.7.2. Research Question 14:

*Indicate how much your domestic sales have grown in the last year?*

This question attempts to understand the domestic sales growth of the two groups over the period 2009-2010
55% of DNVs achieved a modal (1% - 10%) domestic sales growth. DNVs that experienced no sales growth accounted for 15% of DNVs. 15% of DNVs also indicated higher sales growth at (11% - 20%) while another 15% of them indicated very high domestic sales growth of (more than 20%).

The INVs followed a similar pattern with 43% of INVs achieved a modal (1% - 10%) domestic sales growth. INVs that experienced no sales growth accounted for 14% of INVs. 14% of INVs also indicated higher sales growth at (11% - 20%) while surprisingly 21% of them indicated very high domestic sales growth of (more than 20%). Lastly 7% of INVs indicated a negative domestic sales growth for the same period.
5.7.3. Research Question 15:

How many employees are involved with R&D (Research and Development) as a percentage of total employees?

This question attempts to identify the strength of the learning and development aspect of the respondent firms. R&D activity shows the firms attitude toward knowledge growth and reveals further aspects relating to innovation and competitiveness.

![R&D staff](image)

**Figure 5.7.3 – Staff engaging in R&D**

The modal response of DNVs on R&D activity is (0%-none) this is in sharp contrast to INVs who have a modal response of (1%-5%). Also DNVs only seem to spend minimal human resources on R&D activity with 30% of DNVs having selected (1%-5%).
INVs however indicate that 50% of them do not spend any human resources on R&D while a similar 29% of them spend (1%-5%) of human resources on R&D. 7% of the INVs spend (10%-20%) of human resources on R&D. Finally 14% of INVs spend more than 20% of their human resources on R&D activities.

5.7.4. Research Question 16:
How much of your total costs are associated with R&D activities?

This question measures the respondent’s financial commitment to knowledge growth and further reveals the impact of these activities on the firm’s capital resources.

Figure 5.7.4 – Costs associated with R&D

More than half of DNV’s (55%) have no costs associated with R&D and slightly less than half of INVs have no costs associated with R&D (43%)
Once again of the respondent’s, INVs seem to bias more spend on R&D activities than DNVs. 25% of DNVs spend (1%-5%) on R&D activities. A further 15% of DNVs spend (6%-10%) on R&D with a final 5% spending (11%-20%) on R&D.

29% of INV respondents indicated (1%-5%) spend on R&D. A smaller 7% of INVs spend (6%-10%) on R&D. A larger number of INVs at 14% spend (11%-20%) on R&D with the final 7% indicating more than 20% spend on R&D.

5.7.5. Research Question 17:
Is the company Net Profit before tax (NPBIT), as a percentage of Gross Sales/Turnover between:

This question informs us of firm profitability. Not considering capital structure.

<table>
<thead>
<tr>
<th>% of Grouped</th>
<th>International - No</th>
<th>International - Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% - 5%</td>
<td>11%</td>
<td>23%</td>
</tr>
<tr>
<td>6% - 10%</td>
<td>22%</td>
<td>46%</td>
</tr>
<tr>
<td>11% - 20%</td>
<td>17%</td>
<td>15%</td>
</tr>
<tr>
<td>20%+</td>
<td>50%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Figure 5.7.5 – SME’s Profitability
Bias is shown by DNVs (50% of DNVs) at very high profitability (more than 20%) vs. INVs (46% of INVs) bias toward much lower profitability (6%-10%).

The lowest 11% of DNVs have indicated low profitability (0%-5%). A further 22% of DNVs are at (6%-10%) profitability and 17% are at (11%-20%) profitability.

The remaining INVs indicated 11% of them are at (0%-5%) with 15% of INVs at (11%-20%) and finally only 15% of INVs achieve more than 20% profitability.

5.7.6. Research Question 18:

Has your current (Net Profit %) as defined in the previous question, varied from the previous year?

This question attempts to identify changes in profitability experienced by the firms.

![Figure 5.7.6 – Changes in Profitability](image)

<table>
<thead>
<tr>
<th>NET profitability change (2009 - 2010)</th>
<th>% of Grouped</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Negative growth) Below -0%</td>
<td>16% 15%</td>
</tr>
<tr>
<td>0% (none)</td>
<td>26% 31%</td>
</tr>
<tr>
<td>1% to 10%</td>
<td>42% 46%</td>
</tr>
<tr>
<td>11% to 20%</td>
<td>11% 8%</td>
</tr>
<tr>
<td>More than 20%</td>
<td>5% 0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>International - No</th>
<th>International - Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>16% 26% 42% 11% 5%</td>
<td>15% 31% 46% 8% 0%</td>
</tr>
</tbody>
</table>

Figure 5.7.6 – Changes in Profitability
A modal (1%-10%) increase in profitability is experienced by both DNVs and INVs at 42% and 46% respectively. Very similar profitability changes were experienced across the board by both groups.

A similar negative growth was experienced by 15% of INVs and 16% of DNVs. 26% of DNVs and 31% of INVs experienced absolutely no change in profitability for the period. A marginal 11% of DNVs and 8% of INVs indicated an 11% to 20% change in profitability with only 5% of the remaining DNVs showing a very high profitability change of more than 20%

5.7.7. Research Question 19:

What percentage of your sales are international sales?

This final question was intended to understand the international sales proportion of the firms with exports.

![Figure 5.7.7 – % of international sales](image-url)

<table>
<thead>
<tr>
<th>% of Sales that are international</th>
<th>0 (none)</th>
<th>1% to 25%</th>
<th>25% to 50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>International - No</td>
<td>91%</td>
<td>9%</td>
<td>0%</td>
</tr>
<tr>
<td>International - Yes</td>
<td>64%</td>
<td>21%</td>
<td>14%</td>
</tr>
</tbody>
</table>

55
A very large proportion of firms for both INVs and DNVs indicated no international sales at 91% of DNVs and 64% of INVs. Surprisingly 9% of DNVs indicated (1%-25%) international sales  
21% of INVs indicated (1%-25%) international sales and 14% of INVs indicated (25%-50%) international sales.

5.8. CONCLUSION

Chapter 5 presented the findings of the survey data and discussed the results of each question. The following Chapter 6 will further analyse the data in accordance with the research hypothesis and draw on Chapter 2 to compare the literature findings to the results of the analysis.
CHAPTER 6: ANALYSIS OF RESULTS

6.1. INTRODUCTION

The previous chapter presented the results of the survey that was conducted on a sample of the PCB population. This chapter will examine the data further by including and analysing the in terms of the constructs that were stated in the research hypothesis.

6.2. PROBLEM DISCOVERY AND EXPLORATION

As stated in Chapter 3 the research question was guided by the findings in the literature review where young “Born Global” firms experience varying degrees of success in different parts of the world. This has led to the need to explore the affects of early internationalisation of SMEs in the South African context.

The research question has led to the hypothesised relationship between internationalisation and SME growth:

$H_{10}$: SMEs that internationalise during the start-up phase achieve higher growth rates than Non-internationalising SMEs

$H_{1A}$: SMEs that internationalise during the start-up phase do not achieve higher growth rates than Non-internationalising SMEs

The tests for the association of the survey questions and internationalisation construct will be examined further.
6.2.1. Tests for association of variables

Descriptive statistics for Non-parametric variables

The literature that was reviewed finds that firms no longer adhere to the stage growth models for internationalisation and engage in international business right from inception or soon thereafter.

![Diagram](image)

**Figure 6.2.1 – Stage of adopting Internationalisation**

From the frequency distribution in Figure 6.2.1 this phenomenon would seem to hold true for the respondents in the sample. Due to the low response rate no further inference can be made on the PCB population or the greater South African SMEs. Yet within the responses this would seem to be significant.
6.2.1.1. Question 2

How old is your organisation?

Much of the literature on Internationalised SMEs is concerned with their survival and growth. The Chi-square test will be used on the data to determine if there is an association with firm age and internationalisation. Due to the low response rate, data in some of the columns had to be collapsed in order to make the Chi-square test statistic more valid. This further limit the significance of the categories initially measured.

Ha: There is an association between Internationalisation (Yes or No) and how old is the Organisation.

Ho: There is no association between Internationalisation (Yes or No) and how old is the Organisation.

<table>
<thead>
<tr>
<th></th>
<th>Column C</th>
<th>G</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-5</td>
<td>No Internatisation</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Expected Count</td>
<td>4.4</td>
</tr>
<tr>
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<td>Count</td>
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<td></td>
<td>Expected Count</td>
<td>18.6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>Count</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Expected Count</td>
<td></td>
<td>23.0</td>
</tr>
</tbody>
</table>

Table 6.2.1.1 a: Column C * G Cross tabulation
From the chi-square statistic, it is clear that there is no relationship between Internationalisation (Yes or No) and how old is the Organisation. That is, (chi-square= 2.036, df = 1, p = .154) i.e. p > 0.05 so we reject Ha.

Ha: There is an association between Internationalisation (Yes or No) and - Did you start or buy the business.

Ho: There is no association between Internationalisation (Yes or No) and - Did you start or buy the business.
<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
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<td>1</td>
<td>.869</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction(a)</td>
<td>.000</td>
<td>1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>.027</td>
<td>1</td>
<td>.869</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
<td></td>
<td></td>
<td>1.000</td>
<td>.580</td>
<td></td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
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<td>1</td>
<td>.871</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.2.1.1 d: Chi-square test

From the chi-square statistic, it is clear that there is no relationship between Internationalisation (Yes or No) and did you start or buy the business. That is, (chi-square= 0.027, df = 1, p = .869) i.e. p > 0.05 so we reject Ha.

6.2.1.2. Question 4

How many staff did you start the business with?

The Chi-square test will be used on the data to determine if there is an association with beginning staff and internationalisation. Due to the low response rate, data in some of the columns had to be collapsed in order to make the Chi-square test statistic more valid. This further limit the significance of the categories initially measured.

Ha: There is an association between Internationalisation (Yes or No) and how many staff did you start the business with.

Ho: There is no association between Internationalisation (Yes or No) and how many staff did you start the business with.
### Table 6.2.1.2 a: Column E * G Cross tabulation

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<tr>
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<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------</td>
</tr>
<tr>
<td>0-3</td>
<td>14</td>
</tr>
<tr>
<td>4-50</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>23</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>.043(b)</td>
<td>1</td>
<td>.835</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction(a)</td>
<td>.000</td>
<td>1</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>.043</td>
<td>1</td>
<td>.835</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
<td>.042</td>
<td>1</td>
<td>.838</td>
<td>1.000</td>
<td>.559</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 6.2.1.2 b: Chi-square test

From the chi-square statistic, it is clear that there is no relationship between Internationalisation (Yes or No) and how many staff did you start the business with. That is, (chi-square= 0.043, df = 1, p = .835) i.e. p > 0.05 so we reject Ha.

This result would confirm the hypothesised findings of Bürgel et al (2000)

#### 6.2.1.3. Question 5

**How many staff are in your company now?**

The Chi-square test will be used on the data to determine if there is an association with current staff and internationalisation. Due to the low response rate, data in some of the columns had to be collapsed in order to make the Chi-
square test statistic more valid. This further limit the significance of the categories initially measured.

Ha: There is an association between Internationalisation (Yes or No) and how many staff are in your company now.

Ho: There is no association between Internationalisation (Yes or No) and how many staff are in your company now.

<table>
<thead>
<tr>
<th>Column F</th>
<th>No Internationalisation</th>
<th>G</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>7</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>4-50</td>
<td>12</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>51-150</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22</strong></td>
<td><strong>14</strong></td>
<td><strong>36</strong></td>
</tr>
</tbody>
</table>

Table 6.2.1.3 a: Column F * G Cross tabulation

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>.075(a)</td>
<td>2</td>
<td>.963</td>
</tr>
<tr>
<td>Continuity Correction</td>
<td>.075</td>
<td>2</td>
<td>.963</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>.075</td>
<td>2</td>
<td>.963</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>.020</td>
<td>1</td>
<td>.887</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>36</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.2.1.3 b: Chi-square test

From the chi-square statistic, it is clear that there is no relationship between Internationalisation (Yes or No) and how many staff are in your company now. That is, (chi-square= 0.075, df = 2, p = .963) i.e. p > 0.05 so we reject Ha.
6.2.1.4.  Question 13

*Indicate how much your international sales have grown in the last year?*

The Chi-square test will be used on the data to determine if there is an association with international sales growth and internationalisation. Due to the low response rate, data in some of the columns had to be collapsed in order to make the Chi-square test statistic more valid. This further limit the significance of the categories initially measured.

Ha: There is an association between Internationalisation (Yes or No) and how much international sales have grown in the last year.

Ho: There is no association between Internationalisation (Yes or No) and how much international sales have grown in the last year.

<table>
<thead>
<tr>
<th>Column Q</th>
<th>0% and neg growth</th>
<th>1-20%+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Internationalsation</td>
<td>20</td>
<td>0</td>
<td>29</td>
</tr>
<tr>
<td>Internationalsation</td>
<td>9</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>14</td>
<td>34</td>
</tr>
</tbody>
</table>

Table 6.2.1.4 a: Column Q * G Cross tabulation
From the chi-square statistic, it is clear that there is a relationship between Internationalisation (Yes or No) and how much international sales have grown in the last year. That is, (chi-square = 8.374, df = 1, p = .004) i.e. p < 0.05 so we accept Ha.

The reason for the significance in international sales growth is probably because DNVs do not have any international sales by definition and the resulting association is understandable.

### Table 6.2.1.4 b: Chi-square test

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>8.374(b)</td>
<td>1</td>
<td>.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction(a)</td>
<td>5.769</td>
<td>1</td>
<td>.016</td>
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<tr>
<td>Likelihood Ratio</td>
<td>10.146</td>
<td>1</td>
<td>.001</td>
<td></td>
<td>.007</td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
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<td></td>
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<td></td>
<td>.007</td>
</tr>
<tr>
<td>Linear-by-Linear</td>
<td>8.128</td>
<td>1</td>
<td>.004</td>
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</tr>
<tr>
<td>Association</td>
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<td></td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6.2.1.5. **Question 14**

*Indicate how much your domestic sales have grown in the last year?*

From the literature it is concluded that internationalised firms often experience higher domestic sales growth due to firstly the novelty aspect of dealing with a globalised firm and secondly the fact that INVs often are more competitive due to benefits of comparative advantage over DNVs.
The Chi-square test will be used on the data to determine if there is an association with domestic sales growth and internationalisation. Due to the low response rate, data in some of the columns had to be collapsed in order to make the Chi-square test statistic more valid. This further limit the significance of the categories initially measured.

Ha: There is an association between Internationalisation (Yes or No) and how much domestic sales have grown in the last year.

Ho: There is no association between Internationalisation (Yes or No) and how much domestic sales have grown in the last year.

<table>
<thead>
<tr>
<th>Column R</th>
<th>0% and neg growth</th>
<th>1-20%+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Internationalisati on</td>
<td>3</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Internationalisati on</td>
<td>3</td>
<td>11</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>28</td>
<td>34</td>
</tr>
</tbody>
</table>

Table 6.2.1.5 a: Column R * G Cross tabulation

<table>
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<th>Test Type</th>
<th>Value</th>
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<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>.234(b)</td>
<td>1</td>
<td>.628</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction(a)</td>
<td>.001</td>
<td>1</td>
<td>.979</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>.231</td>
<td>1</td>
<td>.631</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
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<td></td>
<td></td>
<td>.672</td>
<td>.482</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>.227</td>
<td>1</td>
<td>.634</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>34</td>
</tr>
</tbody>
</table>

Table 6.2.1.5 b: Chi-square test
From the chi-square statistic, it is clear that there is no relationship between Internationalisation (Yes or No) and how much domestic sales have grown in the last year. That is, (chi-square= 0.234, df = 1, p = .628) i.e. p > 0.05 so we reject Ha.

It is evident from the result that within the limitations of our data these factors do not seem to hold true. Due to the low response rate no further inference can be made on the PCB population or the greater South African SMEs.

6.2.1.6. Question 15

How many employees are involved with R&D (Research and Development) as a percentage of total employees?

It is concluded from the literature that INVs display higher levels of R&D activity than DNVs due to them seeking to remain competitive amidst global competition. Further it is concluded that INVs often display monopolistic advantage which in turn requires the operations to be R&D intensive.

The Chi-square test will be used on the data to determine if there is an association with R&D staff and internationalisation. Due to the low response rate, data in some of the columns had to be collapsed in order to make the Chi-square test statistic more valid. This further limit the significance of the categories initially measured.
Ha: There is an association between Internationalisation (Yes or No) and how many employees are involved with R&D (Research and Development) as a percentage of total employees.

Ho: There is no association between Internationalisation (Yes or No) and how many employees are involved with R&D (Research and Development) as a percentage of total employees.

<table>
<thead>
<tr>
<th>Column S</th>
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<th>G Internationalisation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
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<td>7</td>
<td>21</td>
</tr>
<tr>
<td>1-20%+</td>
<td>9</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>14</td>
<td>37</td>
</tr>
</tbody>
</table>

Table 6.2.1.6 a: Column S * G Cross tabulation

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
<th>Exact Sig. (2-sided)</th>
<th>Exact Sig. (1-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>.419(b)</td>
<td>1</td>
<td>.517</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuity Correction(a)</td>
<td>.093</td>
<td>1</td>
<td>.760</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>.418</td>
<td>1</td>
<td>.518</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fisher's Exact Test</td>
<td></td>
<td></td>
<td></td>
<td>.733</td>
<td>.379</td>
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<tr>
<td>Linear-by-Linear Association</td>
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<td>1</td>
<td>.523</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td></td>
<td>37</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.2.1.6 b: Chi-square test

From the chi-square statistic, it is clear that there is no relationship between Internationalisation (Yes or No) and how many employees are involved with R&D (Research and Development) as a percentage of total employees. That is, (chi-square= 0.419, df = 1, p = .517) i.e. p > 0.05 so we reject Ha.

Although the result of the test would indicate no significance, the frequency distribution in Figure 5.7.3.1 has shown bias toward INVs having higher
numbers of staff involved in R&D activities, especially in the highest category. Perhaps a larger data set would result in a more significant result.

6.2.1.7. Question 16

*How much of your total costs are associated with R&D activities?*

Higher levels of R&D activity imply higher costs associated with R&D.

The Chi-square test will be used on the data to determine if there is an association with R&D costs and internationalisation. Due to the low response rate, data in some of the columns had to be collapsed in order to make the Chi-square test statistic more valid. This further limit the significance of the categories initially measured.

Ha: There is an association between Internationalisation (Yes or No) and total costs are associated with R&D activities.

Ho: There is no association between Internationalisation (Yes or No) and total costs are associated with R&D activities.

<table>
<thead>
<tr>
<th>Column T</th>
<th>InternationaliSation</th>
<th>Internationalisation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>11</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>1-5%</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>6-20%+</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>14</td>
<td>34</td>
</tr>
</tbody>
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Table 6.2.1.7 a: Column T * G Cross tabulation
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<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.764</td>
</tr>
<tr>
<td>Continuity Correction</td>
<td>.540</td>
<td>2</td>
<td>.764</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>.540</td>
<td>2</td>
<td>.764</td>
</tr>
<tr>
<td>Linear-by-Linear</td>
<td>.516</td>
<td>1</td>
<td>.473</td>
</tr>
<tr>
<td>Association</td>
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<td></td>
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<tr>
<td>N of Valid Cases</td>
<td>34</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.2.1.7 b: Chi-square test

From the chi-square statistic, it is clear that there is no relationship between Internationalisation (Yes or No) and total costs are associated with R&D activities. That is, (chi-square= 0.540, df = 2, p = .764) i.e. p > 0.05 so we reject Ha.

Yet again no significant result is achieved when considering INV and DNV costs associated with R&D. Perhaps a larger data set would result in a more significant correlation and association.

6.2.1.8. Question 17

Is the company Net Profit before tax (NPBIT), as a percentage of Gross Sales/Turnover between:

The literature finds that there is a significant difference in profitability with INVs and DNVs. These findings however are in many cases are confound to a single industry with control variables being utilised to distinguish between different functions and profitability of firms within that industry sector. Due to such control
variables not being attainable for all South African industries, further calculation other than descriptive would not be possible.

The Chi-square test will be used on the data to determine if there is an association with profitability and internationalisation. Due to the low response rate, data in some of the columns had to be collapsed in order to make the Chi-square test statistic more valid. This further limit the significance of the categories initially measured.

Ha: There is an association between Internationalisation (Yes or No) and the company Net Profit before tax (NPBIT), as a percentage of Gross Sales/Turnover.

Ho: There is no association between Internationalisation (Yes or No) and the company Net Profit before tax (NPBIT), as a percentage of Gross Sales/Turnover.

<table>
<thead>
<tr>
<th>Column U</th>
<th>0-5%</th>
<th>6-20%</th>
<th>20%+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Internationnalisati on</td>
<td>2</td>
<td>7</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Internationnalisati on</td>
<td>3</td>
<td>8</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>15</td>
<td>11</td>
<td>31</td>
</tr>
</tbody>
</table>

Table 6.2.1.8 a: Column U * G Cross tabulation
<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>4.019(a)</td>
<td>2</td>
<td>.134</td>
</tr>
<tr>
<td>Continuity Correction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>4.276</td>
<td>2</td>
<td>.118</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>3.311</td>
<td>1</td>
<td>.069</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>31</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.2.1.8 b: Chi-square test

From the chi-square statistic, it is clear that there is no relationship between Internationalisation (Yes or No) and the company Net Profit before tax (NPBIT), as a percentage of Gross Sales/Turnover. That is, (chi-square= 4.019, df = 2, p = .134) i.e. p > 0.05 so we reject Ha.

It is not possible to determine the association of profitability and internationalisation.

6.2.1.9. Question 18

Has your current (Net Profit %) as defined in the previous question, varied from the previous year?

The Chi-square test will be used on the data to determine if there is an association with profitability and internationalisation. Due to the low response rate, data in some of the columns had to be collapsed in order to make the Chi-square test statistic more valid. This further limit the significance of the categories initially measured.
Ha: There is an association between Internationalisation (Yes or No) and current (Net Profit %) varied from the previous year.

Ho: There is no association between Internationalisation (Yes or No) and current (Net Profit %) varied from the previous year.

<table>
<thead>
<tr>
<th>Column V</th>
<th>G</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Internationlisation</td>
<td>Internationlisation</td>
<td></td>
</tr>
<tr>
<td>0% and neg growth</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>1-10%+</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>11-20%+</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>11</td>
</tr>
</tbody>
</table>

Table 6.2.1.9 a: Column V * G Cross tabulation

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-sided)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Chi-Square</td>
<td>.118(a)</td>
<td>2</td>
<td>.943</td>
</tr>
<tr>
<td>Continuity Correction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>.120</td>
<td>2</td>
<td>.942</td>
</tr>
<tr>
<td>Linear-by-Linear Association</td>
<td>.079</td>
<td>1</td>
<td>.779</td>
</tr>
<tr>
<td>N of Valid Cases</td>
<td>26</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.2.1.9 b: Chi-square test

From the chi-square statistic, it is clear that there is no relationship between Internationalisation (Yes or No) and current (Net Profit %) varied from the previous year. That is, (chi-square= .0118, df = 2, p = .943) i.e. p > 0.05 so we reject Ha.
6.2.1.10. Question 19

What percentage of your sales are international sales?

The Chi-square test will be used on the data to determine if there is an association with profitability and internationalisation. Due to the low response rate, data in some of the columns had to be collapsed in order to make the Chi-square test statistic more valid. This further limit the significance of the categories initially measured.

Ha: There is an association between Internationalisation (Yes or No) and what percentage of sales are international sales.

Ho: There is no association between Internationalisation (Yes or No) and what percentage of sales are international sales.

<table>
<thead>
<tr>
<th>Column W</th>
<th>0%</th>
<th>1-50%+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>G No Internationalisation</td>
<td>21</td>
<td>2</td>
<td>23</td>
</tr>
<tr>
<td>G Internationalisation</td>
<td>9</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>30</td>
<td>7</td>
<td>37</td>
</tr>
</tbody>
</table>

Table 6.2.1.10 a: Column W * G Cross tabulation
From the chi-square statistic, it is clear that there is a relationship between Internationalisation (Yes or No) and percentage of sales are international sales. That is, (chi-square= 4.142, df = 1, p = .042) i.e. p < 0.05 so we accept Ha.

6.3. HYPOTHESIS TESTING

To test the hypothesised relationship between internationalisation and SME growth the constructs will be examined in terms of the variables defined in the literature and collected via the survey instrument.

H1₀: SMEs that internationalise during the start-up phase achieve higher growth rates than Non-internationalising SMEs

H1₁: SMEs that internationalise during the start-up phase do not achieve higher growth rates than Non-internationalising SMEs

- Internationalisation construct
  The variable is defined by the literature to include INVs that:
  - Import/export
o Hold foreign agreements, licences or contracts
o Own an international subsidiary or international facilities

- Growth construct

  The variable is defined by the literature to most often include:
  
  o Staff growth
  o Financial growth
  o Knowledge growth

6.3.1.1. Growth construct: Staff

Strength of relationship between Staff growth and Internationalisation
The Mann-U test determines the strength of the relationship between the specific set of variables within 2 groups (INVs and DNVs). The following variables will be analysed as part of the Staff growth construct:

- Beginning staff count
- Current staff count

<table>
<thead>
<tr>
<th>Mann Whitney U test</th>
<th>Rank Sum (Group 1)</th>
<th>Rank Sum (Group 2)</th>
<th>U</th>
<th>Z</th>
<th>p-value</th>
<th>Z (adjusted)</th>
<th>p-value</th>
<th>Valid N (Group 1)</th>
<th>Valid N (Group 2)</th>
<th>Z* (2-sided exact p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many employees are involved with R&amp;D (Research and Development) as a percentage of total employees?</td>
<td>282</td>
<td>313</td>
<td>103</td>
<td>1.277234</td>
<td>0.201521</td>
<td>1.485414</td>
<td>0.137435</td>
<td>14</td>
<td>20</td>
<td>0.204489</td>
</tr>
<tr>
<td>How much of your total costs are associated with R&amp;D activities?</td>
<td>234.5</td>
<td>360.5</td>
<td>129.5</td>
<td>-0.34993</td>
<td>0.726394</td>
<td>-0.378471</td>
<td>0.705081</td>
<td>14</td>
<td>20</td>
<td>0.716972</td>
</tr>
</tbody>
</table>

Table 6.3.1.1 - Mann Whitney U test

No significance was determined by the tests on both of the variables (p = 0.479) and (p = 0.745) respectively.

There is no significance in the strength of the relationship between (beginning staff / current staff) and Internationalisation status for the observations.

The result of the observations contradict the findings of Bürgel et al. (2000)

6.3.1.2. **Growth construct: Economic**

**Strength of relationship between financial growth and Internationalisation**

The Mann-U test determines the strength of the relationship between the specific set of variables within 2 groups (INVs and DNVs). The following variables will be analysed as part of the Economic growth construct:
- International sales growth
- Domestic sales growth
- Profitability change

<table>
<thead>
<tr>
<th>Mann Whitney U test</th>
<th>Rank Sum (Group 1)</th>
<th>Rank Sum (Group 2)</th>
<th>U</th>
<th>Z</th>
<th>p-value</th>
<th>Z (adjusted)</th>
<th>p-value</th>
<th>Valid N (Group 1)</th>
<th>Valid N (Group 2)</th>
<th>Z* (2-sided exact p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicate how much your international sales have grown in the last year?</td>
<td>273</td>
<td>322</td>
<td>112</td>
<td>0.9623</td>
<td>0.3359</td>
<td>1.241691</td>
<td>0.214351</td>
<td>14</td>
<td>20</td>
<td>0.34063</td>
</tr>
<tr>
<td>Indicate how much your domestic sales have grown in the last year?</td>
<td>263.5</td>
<td>331.5</td>
<td>121.5</td>
<td>0.629869</td>
<td>0.528781</td>
<td>0.677684</td>
<td>0.497973</td>
<td>14</td>
<td>20</td>
<td>0.52248</td>
</tr>
<tr>
<td>Has your current (Net Profit %) as defined in the previous question, varied from the previous year?</td>
<td>204</td>
<td>324</td>
<td>113</td>
<td>-0.38369</td>
<td>0.701205</td>
<td>-0.406666</td>
<td>0.684253</td>
<td>13</td>
<td>19</td>
<td>0.70526</td>
</tr>
</tbody>
</table>

Table 6.3.1.2 - Mann Whitney U test

No significance was determined by the tests on all three of the variables \( p = 0.335 \), \( p = 0.528 \) and \( p = 0.701 \) respectively.

There is no significance in the strength of the relationship between (International sales growth, Domestic sales growth, Profitability change) and Internationalisation status for the observations.

The result of the observations contradicts the findings of Fryges (2009) for European technology firms and finds the result similar to Barcellos et al (2010) for the firms researched in Brazil.

6.3.1.3. Growth construct: Knowledge

Strength of relationship between Knowledge growth and Internationalisation
The Mann-U test determines the strength of the relationship between the specific set of variables within 2 groups (INVs and DNVs). The following variables will be analysed as part of the Knowledge growth construct:

- R&D staff count
- R&D costs

<table>
<thead>
<tr>
<th>Mann Whitney U test</th>
<th>Rank Sum (Group 1)</th>
<th>Rank Sum (Group 2)</th>
<th>U</th>
<th>Z</th>
<th>p-value</th>
<th>Z (adjusted)</th>
<th>p-value</th>
<th>Valid N (Group 1)</th>
<th>Valid N (Group 2)</th>
<th>Z*1sided (exact p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How many staff did you start the business with</td>
<td>273.5</td>
<td>356.5</td>
<td>125.5</td>
<td>0.707107</td>
<td>0.479501</td>
<td>0.725369</td>
<td>0.468226</td>
<td>14</td>
<td>21</td>
<td>0.474199</td>
</tr>
<tr>
<td>How many staff are in your company now</td>
<td>269.5</td>
<td>396.5</td>
<td>143.5</td>
<td>0.3245</td>
<td>0.74556</td>
<td>0.32538</td>
<td>0.744893</td>
<td>14</td>
<td>22</td>
<td>0.736655</td>
</tr>
</tbody>
</table>

Table 6.3.1.3 – Mann Whitney U test

No significance was determined by the tests on all three of the variables (p = 0.201) and (p = 0.726) respectively.

There is no significance in the strength of the relationship between (R&D staff, R&D costs) and Internationalisation status for the observations.

The result of the observations finds the result similar to Barcellos et al (2010) for the firms researched in Brazil and contradicts the findings of the Turkish study of Erdilek (2006) and to some degree Bürgel et al (2000).
6.4. CONCLUSION

Chapter 6 concluded the analysis on the observations in more detail as they relate to the hypotheses in Chapter 4 and 5. The findings will be discussed in the following chapter 7.
CHAPTER 7: CONCLUSION

7.1. INTRODUCTION

The previous chapter analysed the data that was received from the respondents in the PCB in terms of the research question hypotheses and literature review. This chapter will conclude the findings for the data analysis.

7.2. FINDINGS

The Chi-square tests that was run on the data sets of interest yielded no significant results. The Chi-square test for association of variables is limited by the number of observations and usually need a large number of observations to yield significant results. With smaller samples it becomes more difficult for the test result to display association and requires the data sets to be increasingly different in nature.

Therefore the only significant results (p < .05) were those questions that showed overwhelming evidence of differentiation between INVs and DNVs.

- Associations of all variables to internationalisation
  - No associations were found for any of the questions from the data that was collected bar two!
  - International sales growth was significant and positive for INVs
  - Percentage of international sales was significant and positive for INVs
• Non-parametric analysis of differences in means and relationship between variables in the two groups (INVs and DNVs)
  o Staff growth Mann-U tests
  o Financial growth
  o Knowledge growth

From the observations it would seem that the H1₀ should be rejected in favour of H1₁ but due to the lack of observations in this study H1₀ cannot be confirmed or rejected. Further inference cannot be made either on the population of PCB neither for South Africa as a whole.

H1₀: SMEs that internationalise during the start-up phase achieve higher growth rates than Non-internationalising SMEs
H1₁: SMEs that internationalise during the start-up phase do not achieve higher growth rates than Non-internationalising SMEs

It is felt that from the descriptive analysis it would seem that R&D intensity could be an interesting variable to explore further as it pertains to knowledge growth of SMEs. Furthermore the descriptive analysis of the profitability and financial growth could yield more significant findings in a larger data set because of the costs associated with internationalisation and the resultant financial impact on INVs.
7.3. RECOMMENDATIONS

Future studies would benefit more from better access to primary data. A more precise and complete database is required for this and this report agrees with Smorfitt (2008, p. 214,215) regarding the prospects of the SARS database to produce exploratory research on numeric data.

7.4. LIMITATIONS

This study was in many cases limited to non-parametric categorical data which in turn limits the rigorous degree of analysis required to produce definitive findings. The response rate of the survey also did not yield large enough data for the analysis to be done on. This restricts the findings in this report to the firms observed and no further inference can be done on the larger population of the Pietermaritzburg Chamber of Business.

Due to limited responses and limited correlation being identified with the survey data, there were no valid findings and inference on the greater population of PCM or South Africa as a whole could not be made.

The difficulty experienced in gaining valid data also highlights the urgent need for research access to better resources in order for insights to be gained concerning SME’s, specifically start-up companies. The new born global phenomena requires more closer scrutiny in South African terms and might shed valuable light on this field of research. The analysis of the respondents in a few test were approaching significance yet the data could not capture a worthwhile result.
7.5. SUGGESTIONS FOR FUTURE RESEARCH

Future research would benefit from further studies into a number of areas that are described below.

- **Degree of internationalisation and the impact on firm performance**
  - From the observations in this report it is clear that the INVs engage internationalisation to varying degrees. Even the low responses provided examples of firms in all three stages of internationalisation. It was not acceptable for the purposes of this study to subdivide the INVs into further staged categories yet a larger sample could present interesting findings.

- **Measuring knowledge spill over effect with Multinational traders and the benefits to firm performance.**
  - This report only examined R&D in terms of knowledge growth yet various other studies have highlighted the advantages gained by learning through experience or organisational knowledge spill over. This is particularly the case where foreign companies have access to markets and information that is shared with the local INV. The result of this knowledge spill over has numerous competitive benefits that need quantified.

- **Productivity measurement of INVs to DNVs**
  - The studies by Fryges (2005) and Bürgel et al (2000) made use of the Cobb Douglas derived productivity model to estimate the natural logarithm of output efficiency. This report lacked the
needed observations to complete such an investigation into the productivity estimates of staff in INVs and DNVs respectively.

7.6. CONCLUSION

The vast opportunities that are available in a global economy need to be explored more rigorously. Valid research into this field could yield substantial benefits to South African economy. New business formation is a hot topic in all circles of business today and growth in this sector is deemed necessary to alleviate the pains of the South African high unemployment rate. Hopes are pinned on the valuable entrepreneurial resource which South Africa need abundance of.
REFERENCES


Fryges, H. (2005). *Productivity, Growth, and Internationalisation: The Case of German and British High Techs.* ZEW.


APPENDIX A: RESEARCH INSTRUMENT

Respondents Profile

What industry does your company operate in?

Mining sector

Manufacturing sector

Agricultural sector

Retail Wholesale

Technology sector

Services sector

Other

Company age: How old is your organisation?

Less than 1 year

1 to 2 years

2 to 3 years

3 to 4 years

4 to 5 years

More than 5 years
How many permanent employees in your company?

1 – 5

6 – 10

11 - 20

21 – 50

51 – 100

101 – 200

More than 200

Internationalisation (Your Company’s exposure to international activities and level of international participation)

My company has attempted internationalisation? (If your company has initiated or is currently doing business outside of South Africa)

Yes

No

My Company Exports products or services

Yes
No

My Company imports products or services

Yes

No

Does your company have partnerships with other organisations outside of South Africa? (Foreign contracts, agreements or licences)

Yes

No

Does your company own an international subsidiary or any facilities outside of South Africa?

Yes

No

How many permanent employees abroad as a percentage of total employees?

0
Has your company engaged in international activity from its inception?

Yes

No

Financial performance indicators

Indicate how much your international sales have grown in the last year?

(Negative growth) Below -0%

0%

1% to 10%

11% to 20%

More than 20%
Indicate how much your domestic sales have grown in the last year?

(Negative growth) Below -0%

0%

1% to 10%

11% to 20%

More than 20%

What is the estimated ratio of your annual \( \frac{(\text{Net Profit})}{(\text{Total Sales})} \) \((This is to gauge firm profitability performance per industry)\)

(Negative) below 0%

0%

1% to 10%

11% to 20%

Above 20%

By how much has your “Net profitability” changed in the last year? \((Are you more profitable this year to last year?)\)
(Negative) below 0%

0%

1% to 10%

11% to 20%

Above 20%

What percentage of sales are the international sales?

0 (none)

1% to 25%

25% to 50%

50% - 75%

75% - 100%