

https://dspace.org/

A cross sectional study of Net Promoter and its linkage to South African firm growth

Bissict, Gregg Michael

2012

http://hdl.handle.net/10539/21751

Bissict, Gregg Michael (2012) A cross sectional study of Net Promoter and its linkage to South African form growth, University of Witwatersrand, Johannesburg, <http://wiredspace.wits.ac.za/handle/10539/21751>

Downloaded from a DSpace repository. https://dspace.org/



The Library

University of the Witwatersrand,
Johannesburg

Bound by
B.K. BOOKBINDERS
Durban Est. 1972
(031) 312 2200

Copyright Notice

The copyright of this thesis vests in the University of the Witwatersrand, Johannesburg, South Africa, in accordance with the University's Intellectual Property Policy.

No portion of the text may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, including analogue and digital media, without prior written permission from the University. Extracts of or quotations from this thesis may, however, be made in terms of Sections 12 and 13 of the South African Copyright Act No. 98 of 1978 (as amended), for non-commercial or educational purposes. Full acknowledgement must be made to the author and the University.

An electronic version of this thesis is available on the Library webpage (www.wits.ac.za/library) under "Research Resources".

For permission requests, please contact the University Legal Office or the University Research Office (www.wits.ac.za)

A CROSS SECTIONAL STUDY OF NET PROMOTER AND ITS LINKAGE TO SOUTH AFRICAN FIRM GROWTH

Gregg Michael Bissict

A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Science in Engineering (Industrial)

University of Witwatersrand, Johannesburg

Declaration

I, Gregg Bissiet (0410228N), am registered for MECN7018, Masters of Science in Engineering (Industrial) in the year 2011 declare that the following thesis, "A cross sectional study of Net Promoter and its linkage to South African firm growth" submitted as partial fulfillment of the degree, is:

- My own unaided work not submitted before for any purpose
- Not removed from any other publication without prior permission or reference and acknowledgment of the source

Signature: 

Date: 20/09/2012

Acknowledgements

I would like to sincerely thank my supervisor Mr. Ian Campbell for his input and guidance during the writing of this research. I would also like to acknowledge my wife, Aadila Bhabha for her patience and support while I worked to complete this research.

Abstract

This research project undertakes to investigate the linkage between firm Net Promoter score and firm growth in the South African context. South African firms are selected from the cellular service provider industry and the retail banking service provider industry and a primary research study is undertaken to obtain sample data for the respective firms' Net Promoter scores. Firm revenue is defined as a suitable measure of firm growth and half year time period from 2010 to 2011 are defined as periods from which percentage growth rates may be computed. Revenue data for each firm is collected from public sources and an annual percentage growth rate for each firm is calculated from revenue reported for the first half of 2010 to 2011. A data reliability test is performed on the Net Promoter data set and the data is found to be non-uniform and preferential, indicating scores which are not arbitrary. A Pearson's correlation analysis is performed to measure the strength of relationship between the Net Promoter scores and percentage firm revenue growth rates. The results of the Pearson correlation analysis indicates a relatively stronger linear relationship between Net Promoter scores and percentage firm revenue growth for the South African cellular service provider industry segment (0.9932) and a relatively weaker linear relationship between that and the South African retail banking industry segment (0.4752). This research finds that there is a positive linkage between Net Promoter scores and revenue growth rates which is consistent with previous research undertaken on the subject.

Table of Contents

Declaration i

Acknowledgements ii

Abstract iii

List of Figures viii

List of Tables x

List of Abbreviations xi

1 Introduction 1

1.1 Background 1

1.2 Problem Statement 1

1.3 Research Objectives 1

1.4 Approach 1

1.4.1 Literature survey 1

1.4.2 Data collection 1

1.4.3 Analysis and results of the data collected 2

1.4.4 Discussion and future research 2

1.5 Research Scope, Limitations and Assumptions 2

2 Literature Survey 4

2.1 Introduction to strategic marketing 4

2.2 Overview of non-financial measures of firm performance 6

2.2.1 Introduction 6

2.2.2 Reichheld's claim regarding Net Promoter and Customer Satisfaction 7

2.3 Customer Satisfaction (CS) 7

2.3.1 Introduction 7

2.3.2 Definition of Customer Satisfaction 8

2.4 Customer Satisfaction as a loyalty metric 9

2.5 Net Promoter Score 12

2.5.1 Introduction 12

2.5.2 Definition of NPS 12
2.5.3 Development of NPS 12
2.5.4 NPS methodology as a loyalty metric 14
2.6 Linking revenue growth to Customer Satisfaction and NPS measures 15
2.6.1 Customer Satisfaction's linkage to growth 17
2.6.2 NPS's linkage to growth 17
2.7 Measurement of firm growth or performance 22
2.8 Market Research Tools 23
2.8.1 Sampling Procedures 23
2.8.2 Types of Sampling Methods 24
2.8.3 Non-probability sampling procedures 24
2.8.4 Probability sampling procedures 25
2.8.5 Mathematics of probability sampling 26
2.9 Kolmogorov- Smirnov (K-S) Statistical test for ordinal data 27
2.10 Sample size 29
3 Research Methodology and Design 31
3.1 Introduction 31
3.2 Sequence of Market Research 31
3.3 Formulate the problem 32
3.4 Determine Research Design 32
3.4.1 Overview of the research design 32
3.4.2 Research constraints 33
3.4.3 Answering the primary research question 34
3.4.4 Sampling methodology 36
3.4.5 Measurement of NPS 37
3.4.6 Measurement of Firm Growth and South African Firm Selection 39
3.4.7 Firms selected for the survey 40
3.4.8 Methodology of linking firm growth to Net Promoter scores 41
3.5 Data reliability and validity 43

3.6 Final research design 44
3.6.1 Type of research study to be conducted 44
3.6.2 Data collection: Measuring Net Promoter Scores 44
3.6.3 Data collection: Measuring South African Firm Performance 45
3.6.4 Analysis: Linking Net Promoter Scores to Firm Performance 45
4 Data Collection 47
4.1 Primary Research Survey 47
4.2 Primary Research Study 47
4.3 Quality checking of data collection 47
4.4 Number of respondents required 47
5 Analysis and Results 49
5.1 Introduction 49
5.2 Demographics of survey respondents 49
5.3 Number of respondents per industry segment 51
5.4 Net promoter score per industry segment 52
5.5 Net promoter score by firm 53
5.5.1 Overview of NPS% by firm 54
5.5.2 Mobile telecommunications industry 55
5.5.3 Banking service providers 55
5.5.4 Insurance service providers 56
5.5.5 Internet service providers 56
5.6 Consolidated list of firms with a sample of over 50 respondents 57
5.7 Firms chosen for analysis 57
5.8 Percentage firm growth for firms chosen for analysis 58
5.8.1 Validation of Net Promoter scores using the K-S Test 60
5.8.2 Results of linkage of NPS to firm performance growth 62
6 Discussion 65
6.1 Research question and research limitations 65
6.2 Research methodology and design 66

6.3 Data collection 67
6.4 Analysis and results 68
6.5 Significance test of Net Promoter scores 69
6.6 Linking Net Promoter scores to % firm revenue growth rates 69
7 Conclusion and Recommendations 72
7.1 Research Hypothesis Result 72
8 Future research recommendation 73
9 References 74
10 Appendix 1- Survey used for AB research firm's NPS study 78
11 Appendix 2- Assumptions made in order to calculate firm revenue growth rates 90
11.1 Cellular service providers 90
11.2 Retail banking service providers 90
12 Appendix 3- Detailed K-S Test results for selected South African firms analysed 92
13 Appendix 4- NPS data survey results 93

List of Figures

Figure 1: Business construct of marketing KPIs (Ranchhod, et al., 2007) 5

Figure 2: European Customer Satisfaction Model (Coelho, 2007 p. 318) 9

Figure 3: American Customer Satisfaction Index model (ACSI, 2011) 10

Figure 4: Latent variables and indicators used in surveys for the ECSI (Coelho, 2007 p. 319) 11

Figure 5: Excerpt of top ranking correlates to customer behaviour (Satmetrix, 2007 p. 5) 13

Figure 6: Excerpt of the relationship between % frequency of purchase and referral rates and recommend ratings (Satmetrix, 2007 p. 5) 14

Figure 7: Framework for customer metrics and their impact on firms' financial performance (Gupta, et al., 2006 p. 719) 16

Figure 8: Impact of unobservable metrics on firms' financial performance 17

Figure 9: NPS correlation with revenue growth of American airline firms(Reichheld, 2003) 18

Figure 10: NPS correlation with revenue growth of American internet service providers(Reichheld, 2003) 18

Figure 11: NPS correlation with revenue growth of American car rental firms(Reichheld, 2003) 19

Figure 12: Results of Keiningham et. al 2007, Longitudinal analysis of Net Promoter (Keiningham, et al., 2007 p. 85) 21

Figure 13: Basic choice for means of collection primary research data (Churchill, 1995 p. 348) 35

Figure 14: Time periods to be analysed and assumptions made for NPS averaging 43

Figure 15: Diagrammatic overview of research methodology 46

Figure 16: Demographics of the survey respondents by LSM (AB research firm, 2011) 50

Figure 17: Demographics of the survey respondents (AB research firm, 2011) 50

Figure 18: Number of respondents per industry category 51

Figure 19: NPS% results for industries sampled 53

Figure 20: NPS% for cellular service providers 55

Figure 21: NPS% for banking service providers 55

Figure 22: NPS% for insurance service providers 56

Figure 23: NPS% for internet service providers 56

Figure 24: Firms chosen for analysis with over 50 respondents 57

Figure 25: Firms chosen for analysis from cellular and retail banking service providers 57

Figure 26: South African cellular service provider correlation results versus % revenue growth 63

Figure 27: South African retail banking service provider correlation results versus % revenue growth 64

Figure 28: Standard Bank's personal and business banking operational breakdown 91

Figure 29: K-S Test results of Net Promoter scores for industries considered for evalution 92

List of Tables

Table 1: Scales of measurement (Churchill, 1995 p. 455) 28

Table 2: Typical sample sizes for studies of human and institutional population (Churchill, 1995 p. 645) 30

Table 3: Segmentation of Promoters, Neutrals and Detractors to calculate NPS scores 52

Table 4: NPS % results by firms chosen for analysis (n>=50) 54

Table 5: NPS % results by firm providing insurance services not chosen for analysis (industry not selected for comparison) 54

Table 6: NPS % results by firm providing internet services not chosen for analysis (industry not selected for comparison) 54

Table 7: % Growth rates for firms selected for analysis 59

Table 8: K-S test for sample data- ABSA Bank 61

Table 9: Consolidated results of K-S test on the Net Promoter data per firm 62

Table 10: Results of correlation analysis for chosen industries 63

List of Abbreviations

AOL	America Online
ASCI	American Customer Satisfaction Index
CEO	Chief Executive Officer
ECSI	European Customer Satisfaction Index
FNB	First National Bank
H1	Half [year] 1
KPI	Key Performance Indicator
K-S test	Kolmogorov –Smirnov test
LSM	Living Standards Measure
NPS	Net Promoter Score
SAARF	South African Advertising Research Foundation
SBK	Standard Bank
SRS	Simple Random Sampling
TNS	Taylor Nelson Sofres [Market Research]

1 Introduction

1.1 Background

This research is intended to fulfil the requirements of the MSc(Eng)(Ind) qualification as set out by the facility of Mechanical, Aeronautical and Industrial Engineering at the University of Witwatersrand.

It was undertaken in collaboration with a marketing research consultancy firm which will be referred to and sited in this research as AB research firm for confidentiality reasons.

1.2 Problem Statement

Net Positive Promoter customer perception measurement methodology will be tested as an effective indicator of organic revenue growth within sampled South African industries. Its applicability to the South African context will be tested using statistical methods of concomitant variation to measure the strength of relationship between Net Promoter scores and % revenue growth.

1.3 Research Objectives

The primary objective of this research is to prove the following hypothesis:

Hypothesis: Net Positive Promoter Score is positively linked to firm revenue growth in selected South African firms.

1.4 Approach

In order to achieve the said objective the following approach will be undertaken:

1.4.1 Literature survey

A literature survey will be undertaken to gather information on the theory and background of:

- Non-financial measures and their linkage to growth
- Customer satisfaction KPI's – purpose and linkage to firm revenue growth
- Net Positive Promoter Score – purpose and linkage to firm revenue growth
- Sampling methodology and statistical tests of significance

1.4.2 Data collection

Data collection will rest on primary research in the form of a survey constructed to measure Net Positive Promoter scores for firms selected for the study. Financial results for the surveyed firms will

be acquired using public sources of company financial results, namely via the respective firm's websites.

The survey will be designed to measure the Net Positive Promoter scores of the following South African service industries:

- Publically listed South African cellular service providers
- Publically listed South African retail banking service providers

The data collection methodology will be discussed and quality checks thereof will be defined.

1.4.3 Analysis and results of the data collected

A non-parametric goodness-of-fit test will be used to test the significance of the results of the Net Promoter survey results and the data reliability discussed.

A bivariate, or Pearson's correlation analysis will be used to measure the strength of relationship between the Net Positive Promoter scores collected for each firm and the respective firm's semi-annual revenue % growth rates.

Finally, all firms surveyed will be plotted on a graph with axes of Net Promoter score % and indexed % revenue growth rate in order to illustrate the linear relationship between to the two variables.

1.4.4 Discussion and future research

A discussion on the strengths and weaknesses of the methodology, data collection, analysis and results will be presented. In addition to this, a discussion on the outcome of the research with the view of proving or disproving the research hypothesis will be presented.

Recommendations for further research will be outlined and discussed with the view of defining recommendations for future studies or analysis and its application to different types of industry.

1.5 Research Scope, Limitations and Assumptions

This research was funded by AB research firm, Johannesburg. The funding for data collection was limited, which constrained the size of the samples obtained during the data collection phase.

The firms studied and surveyed in this research will be limited to those which are both of interest to AB research firm and have publically published financial data. Consequently, only South African firms active in the South African market will be considered in this research.

A cross sectional study will be used to test the hypothesis. The number of samples taken, the sample size and number of firms evaluated will be limited by the budget constraints and the number of data

points obtained. A cross sectional study is chosen and assumed to be adequate to evaluate the stated hypothesis. A detailed discussion of this decision is undertaken in the research methodology and design sections.

The samples taken by a research firm, employed by AB research firm, will be assumed to be adequately randomly surveyed within the groups surveyed for firms included in AB research firm's study. This point will be discussed in detail in the research methodology and design sections.

Customers will be assumed to be the purchasers of the service or product and not merely the user. This assumption is made as the experience of the customer and the users may not be the same. Studies conducted by Reichheld and other researchers focus only on customer surveys and not the general population for perception and experience data, which is consistent with the above assumption.

Financial data on revenue growth of firms operating in South Africa is not readily available to the public unless the firms in question are publically listed. Listed firms are required to publish annual results to their shareholders and consequently only publically listed South African firms will have the required revenue data available to be included in the final evaluation of the hypothesis.

Revenue of firms selected for this research will be broken down into the business units with which the customer interacts directly when purchasing or using a service or product. For example, *retail* banking revenue will be assumed to indicate revenue that will be tested for correlation with customers using the *retail* banking business unit's services- the revenue used in the analysis will not include corporate banking or merchant or investment banking revenue streams with which the customer has neither interaction, nor need for interaction when using the retail banking service.

This research will not seek to compare other non-financial measure such as Customer Satisfaction or other loyalty measures to the results of the Net Promoter primary research.

This research will discuss the similarities and results of other published studies investigating the relevance of non-financial measures with the view of defining how Net Promoter scores should be measured and evaluated.

2 Literature Survey

2.1 Introduction to strategic marketing

The question of what drives a firm's success in a given market place has generated great interest in what drivers should be present to steer a specific competitive strategy. A caveat to this inquiry is which drivers are the leading and lagging indicators of how well a firm is competing within a given market. The success of the firm's ability to compete can be seen as the firm's revenue as margins amplify or contract compared to industry trends or competitor performance.

Firm revenue growth and margin is effectively a function of sales quantity, price and its relative input-output costs respectively, but beyond the financial measures lays a myriad of root causes for differences in each.

The definition of a firm's specific key performance indicators (KPIs) are helpful to, '…help managers predict the company's economic performance and spot the need for changes in operations.'(Chase, et al., 2006 p. 39).

The success of a selected strategy is shown when a firm achieves financial compensation for its competitive performance in the market place by either increasing sales, or margins.

The motivation of this research paper is to analyse whether the proposed Net Promoter methodology should be given weight in the boardroom as a relevant and reliable indicator of a firm's financial growth in revenue.

As will be defined within the latter sections of the literature review, Net Promoter is an external quantitative KPI of how well a firm is serving its customers and whether those customers are willing to recommend the firm to a friend, colleague or family member.

In the context of firm operating and marketing strategy, there is a distinct question of 'given the choices customers face today, how do they decide which product or service to buy?' (Chase, et al., 2006 p. pg 25).

The competitive positioning of a firm seeks to differentiate the firm from its competitors in a given market place and influence customer purchasing behaviours. Defining the customer's perspective within a firm's corporate strategy leads to the following three methods of differentiation as defined by Chase, et al. 2006. (Chase, et al., 2006 p. pg 30):

- Product leadership: A product leadership company pushes its products into the realm of the unknown, the untried, or the highly desirable.

- Customer intimacy: A customer intimate company builds bonds with its customers; it knows the people to whom it sells and the products and services it needs.
- Operational excellence: Operationally excellent companies deliver a combination of quality, process, and ease of purchase that no one else can match.

Net Promoter is proposed as a relevant and reliable indicator of the results of a firm's given strategy and execution in the context of customer purchasing behaviours.

Given below in Figure 1 is a graphic interpretation of the strategic importance of marketing and/or non-financial KPIs. The subsequent sections will define and outline how and why customer experience and feedback is important in this context and how they affect a firm's ability to compete and grow.

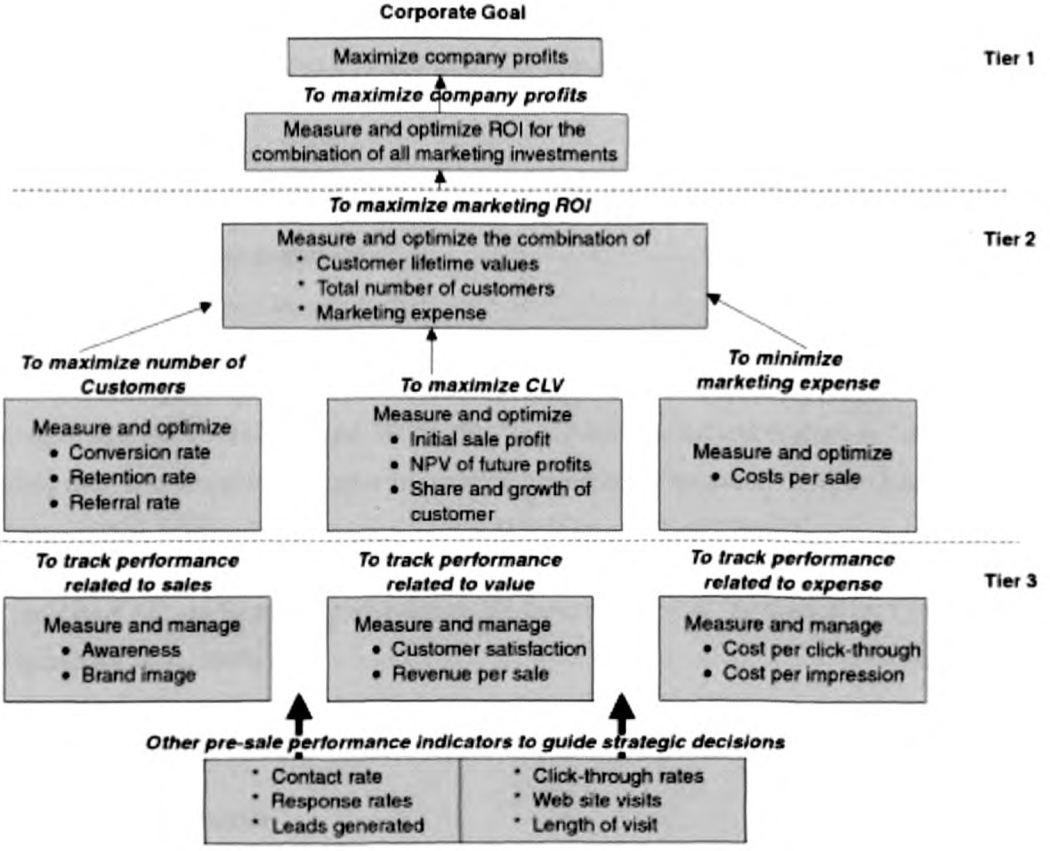


Figure 1: Business construct of marketing KPIs (Ranchhod, et al., 2007)

2.2 Overview of non-financial measures of firm performance

2.2.1 Introduction

"Non-financial measures offer clear advantages, such as providing links to long-term organisational strategies and providing indirect, quantitative indicators of the impact of the firm's intangible assets on financial performance."(Chang, et al., 2009 p. 72)

Non-financial measures of firm performance are widely used for goal-setting and performance monitoring purposes because they are believed to be leading indicators of the firm's future financial performance (Morgan, et al., 2006 p. 426).

Management in firms value customer feedback metrics that are easy to comprehend, communicate and that also have strong simple relationships with future firm performance (Morgan, et al., 2006 p. 426)(Reichheld, 2003).

Morgan et al. 2006 describe two sets of non-financial metrics competing for credibility:

- Academics advocate:
    - Average Customer Satisfaction
    - Repurchase intentions
- Consultants advocate loyalty metrics such as:
    - Likelihood to recommend (or Net Promoter score)

According to Morgan et al (2006 and 2005), the "Top 2 Box" satisfaction score is the most common and widely used non-financial indicator in practice, followed by intention to repurchase as the second most common (See Section 2.3.2 on page 8 for a definition of "Top 2 Box").

Other indicators of non-financial performance are described below (as studied by Gupta, et al 2006 and Keiningham, et al. 2007):

Unobservable customer metrics:

- Customer Satisfaction
- Service Quality
- Loyalty
- Intention to Repurchase
- Recommend Intention
- Net Promoter
- Share of Wallet

Observable customer metrics:

- Customer Acquisition
- Customer Retention
- Cross Selling
- Customer Lifetime Value
- Customer Equity

Research by Keiningham et al. 2007, Gupta et al. 2006, Morgan et al. 2006 and Reichheld 2003 have all examined the above listed unobservable and observable variables with the view of correlating their time based values with firm performance in various forms (profit, revenue, Tobin's q etc.).

The most recent and publically available research in this regard pertains mostly to Net Promoter and Customer Satisfaction and their linkage to firm growth, including a comparison of which metric had stronger or weaker correlations.

2.2.2 Reichheld's claim regarding Net Promoter and Customer Satisfaction

In the context of this research, it is useful for the reader to understand the controversy created by the introduction of the Net Promoter methodology and claims by its creator, Fredrick Reichheld.

In 2003 the Harvard Business review released an article, *The One Number You Need to Grow by Fredrick Reichheld*, which indicated strongly that the Net Promoter concept and its metric out-correlated other measures such as Customer Satisfaction in most of the industries examined.

Since Net Promoter and Customer Satisfaction are both unobservable and given that Net Promoter has been introduced by Reichheld to replace Customer Satisfaction and its methodology, both metrics will be examined in detail in the section below.

2.3 Customer Satisfaction (CS)

2.3.1 Introduction

Customer Satisfaction is proposed as a metric of how a consumer may judge a product or service as compared to how the consumer would have expected it to have performed (Gupta, et al., 2006 p. 3).

Historically, Customer Satisfaction began an intensive study in the 1970s during a rise in US consumerism and is measured both cumulatively and transactionally by research firms such as the American Society for Quality Control and their partners to create the American Customer Satisfaction Index, or ACSI (Hoffman, et al., 2001 p. 296).

2.3.2 Definition of Customer Satisfaction

Customer Satisfaction can be defined as the comparison of customer expectation with perception with regard to the actual service encounter (Hoffman, et al., 2001 p. 298).

Customer Satisfaction has typically been portrayed by research as the disconfirmation of expectations (Gupta, et al., 2006 p. 720), meaning that Customer Satisfaction is based on both the perceptions of the performance of a product or service and the customer's expectations of said product or service.

Customer Satisfaction may be measured on a transactional level or cumulatively (Gupta, et al., 2006 p. 720), meaning the definition of Customer Satisfaction may encompass both the judgement of the customer after a specific product or service has been experienced (transactional) or as an attitude towards a company or brand (cumulative). See (Gupta, et al., 2006 p. 720) and (Anderson, et al., 1994 p. 53) for further clarification.

According to Anderson et al. 1994, where transactional Customer Satisfaction may help a company diagnose and correct the undesirable outputs of a specific service point, cumulative Customer Satisfaction is a more fundamental indicator of a firms past, current and future performance (Anderson, et al., 1994 p. 53).

Customer Satisfaction may be measured either directly or indirectly according to Hoffman et al. 2001 (Hoffman, et al., 2001 p. 301):

- Indirectly- tracking Customer Satisfaction through changes in sales, profits and number of customer complaints registered
- Directly- proactive collection of Customer Satisfaction through Customer Satisfaction surveys
    - Numerical 100 point scale-
        - Customer is asked to score how satisfied they are from 0- 100 (0 being very dissatisfied and 100 being very satisfied)
    - 5 point scale (most common)-
        - From a list of 5 states (very satisfied to very dissatisfied), customers are asked to select the state which best fits them

A widely used variant of the Customer Satisfaction measure is the "Top 2 Box" or "Top Box" measure of Customer Satisfaction (Keiningham, et al., 2007 p. 42). This variant scores Customer Satisfaction based on the proportion of customers who rate their level of Customer Satisfaction in the top two points of the satisfaction scale, usually on a five point scale.

2.4 Customer Satisfaction as a loyalty metric

Two well-known and maintained indices in the arena of Customer Satisfaction measurement are the American Customer Satisfaction Index (ACSI) and the European Customer Satisfaction Index (ECSI).

Both indices use survey methodologies to calculate Customer Satisfaction values for different firms and industries. Both indices use a cause and effect model, meaning that customers are surveyed on each one of the factors in Figure 2 and Figure 3 shown below.

Figure 2 and Figure 3 below represent the structural models used to identify which factors are antecedents of others (Coelho, 2007 p. 318). The measurement model is the conceptual framework used to match the variables in the given figures below to survey questions that would indicate their values.

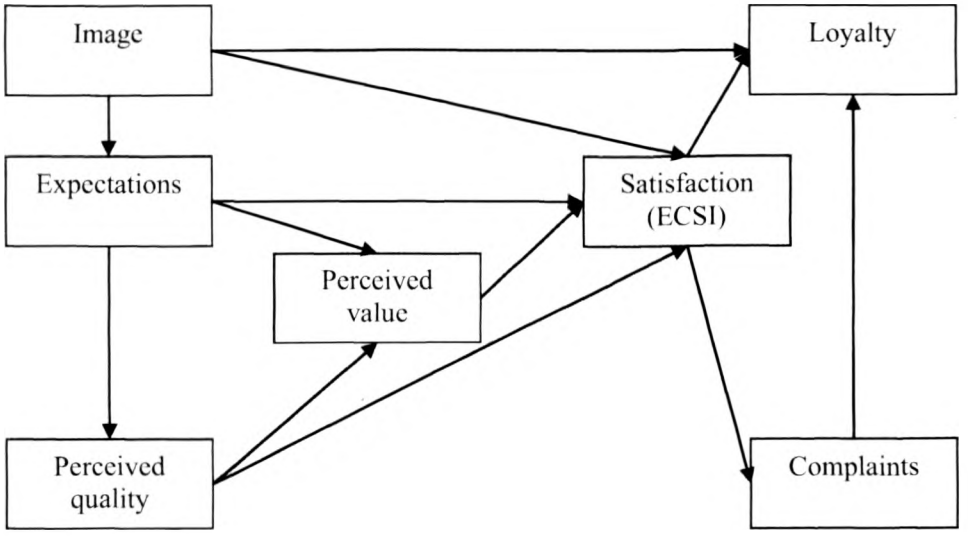


Figure 2: European Customer Satisfaction Model (Coelho, 2007 p. 318)

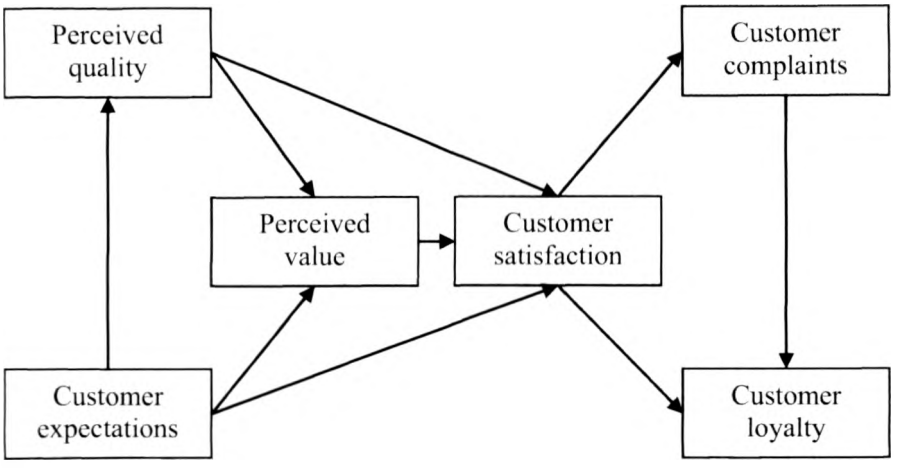


Figure 3: American Customer Satisfaction Index model (ACSI, 2011)

Figure 4 below describes the survey questions used as indicators of each of the latent variables given in the ECSI model above. The model is then used to weight how dependant each latent variable is on each of its antecedants by averaging the values for the survey data.

Over time when a firm's Customer Satisfaction score changes, the root cause can be traced back to a drop in one of the antecendants (ACSI, 2011)(Coelho, 2007 p. 19).

In practice this means that firms that are included in the surveys undertaken to produce the ACSI and ECSI, are able to obtain data on what their Customer Satisfaction numbers are in order to identify trends and focus areas for improvement of their service and product quality. Companies that are included in the surveyed study may also compare their scores to the industry averages and to their competitors for benchmarking purposes (Hoffman, et al., 2001 p. 296)

Latent variable	Indicators
Image	Q4A: It is a reliable operator Q4B: It is well established Q4C: It gives a positive contribution to society Q4D: It is concerned about its customers Q4E: It is innovative and forward looking
Expectations	Q5A: Expectations concerning overall quality Q5B: Expectations concerning the fulfilment of personal needs Q5C: Expectations concerning reliability
Perceived quality	Q6: Perceived overall quality Q7A: Technical quality of the network Q7B: Personal attention Q7C: Quality of services provided Q7D: Diversity of products and services Q7E: Product reliability Q7F: Quality of information provided Q7G: Coverage of the network
Perceived value	Q10: Evaluation of price given quality Q11: Evaluation of quality given price
Satisfaction	Q3: Overall satisfaction Q9: Fulfilment of expectations Q18: Distance to the ideal company
Complaints	Q15: Complaint handling Q16: Expectations of complaint handling
Loyalty	Q12: Intention of remaining as a customer Q17: Recommendation to colleagues and friends

Figure 4: Latent variables and indicators used in surveys for the ECSI (Coelho, 2007 p. 319)

2.5 Net Promoter Score

2.5.1 Introduction

As mentioned above, Net Promoter score was introduced in a 2003 Harvard Business review article authored by Fredrick F. Reichheld. The concept of Net Promoter is proposed as a new and more effective measure of customer loyalty (Reichheld, 2003). The following section will define the Net Promoter metric and its methodology.

2.5.2 Definition of NPS

Net Promoter score is proposed by Reichheld as a loyalty metric and defined as "the percentage of customers who are promoters of a brand or company minus the percentage who are detractors" (Reichheld, 2003). The resulting number is the Net Promoter score:

Equation 1: Net promoter score

$$NPS = \%\ Promoters - \%Detractors$$

The number of promoters and detractors is identified through customer survey research using the question -"How likely is it that you would recommend [company X] to a friend or colleague?" (Reichheld, 2003).

An 11 point scale is used to score the responses with 0-6 grouped as "detractors", 7-8 grouped as "neutrals" or "passives" and 9-10 grouped as "promoters".

2.5.3 Development of NPS

In Reichheld's book, "*The Ultimate Question- Driving True Profits and Good Growth*" and the Harvard Business Review article *"The One Number You Need To Grow"*, Reichheld outlines the methodology used in his deciding that the Net Promoter question was the most effective indicator of customer repurchase and referral behaviour.

Reichheld began the study by conducting a customer "acid test" (see Satmetrix, 2012, for questionnaire) consisting of 20 questions on thousands of customers sourced from public lists of six major industries. The list of industries included: financial services; cable and telephony; personal computers; e-commerce; auto insurance; and internet service providers. (Reichheld, 2003 p. 50)

Purchase histories and referrals of customers responding to the survey were populated and Reichheld was able to build 14 case studies from the 4000 data points.

Using a Pearson's correlation test, Reichheld was able to rank the survey questions according to their correlation with repeat purchases and referral behaviour.

According to Reichheld, "one question was best for most industries"- the referral question of "How likely is it that you would recommend [company x] to a friend or colleague?"(Reichheld, 2003 p. 50)

According to Reichheld, the recommendation question ranked first or second for 11 out of the 14 case studies. A Satmetrix white paper graphs out the correlations of each of the surveyed questions in Figure 5 below showing ~ 80% correlation coefficient of customer purchasing and referral behaviour with the "recommend" question:

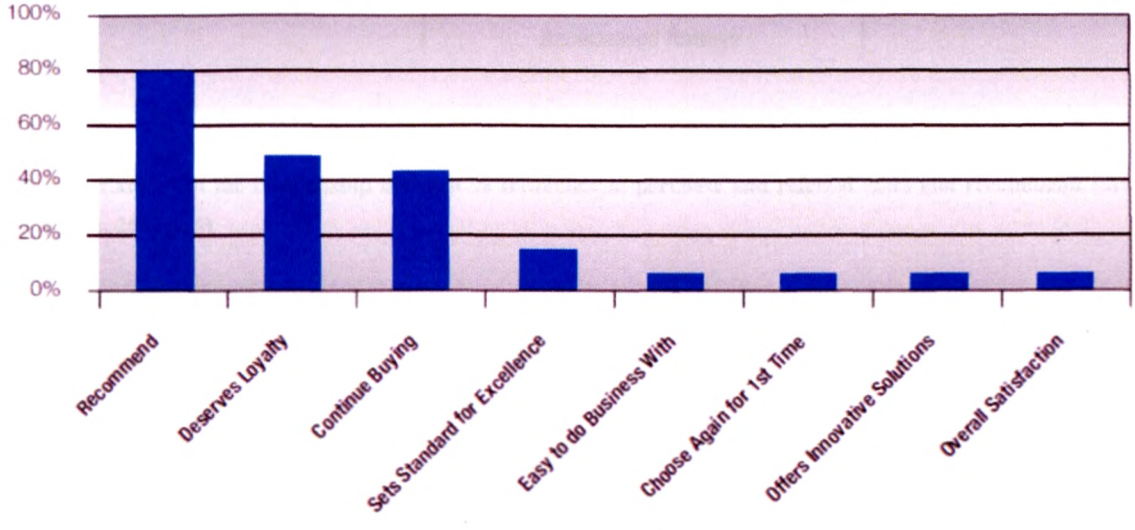


Figure 5: Excerpt of top ranking correlates to customer behaviour (Satmetrix, 2007 p. 5)

Reichheld decided on an 11 point scale for Net Promoter measurement for simplicity and classified customers into 3 groups based on their "recommend" score:

- Promoters: respondents rating their recommendation likelihood as 9 or 10
- Passives: respondents rating their recommendation likelihood between 6 and 8
- Detractors: respondents rating their recommendation likelihood between 0 and 6

Reichheld explains that the limitation of promoters to the 9-10 points ensure that there was no "grade inflation" meaning that if customer was on the edge of being a promoter they would not be included as promoters but rather as passives.

Figure 5 below illustrates the relationship between the measure of likelihood to recommend versus the referral and purchase rates and how the grouping of the 11 point scale into three categories corresponds to a linear distribution of purchase and referral rates.

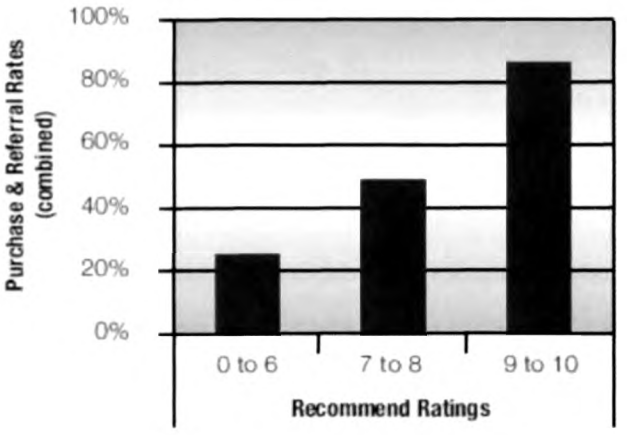


Figure 6: Excerpt of the relationship between % frequency of purchase and referral rates and recommend ratings (Satmetrix, 2007 p. 5)

2.5.4 NPS methodology as a loyalty metric

"Loyalty is the key to profitable growth" (Reichheld, 2006 p. 9).

In Reichheld's book, "*The Ultimate Question-Driving Good Profits and True Growth*", Reichheld defines two distinct methodologies for how companies can achieve profitable growth which are either through:

- Good profits or,
- Bad profits

Good profits are defined as the profits earned "with customers' enthusiastic cooperation" (Reichheld, 2006 p. 9).

Bad profits are defined as the profits "earned at the expense of customers" (Reichheld, 2006 p. 9)

Through the definition of good and bad profits Reichheld lists allegorical evidence of the effect of good profit and bad profit strategies and their end result on their firm's growth.

American Online (AOL), an American global internet service provider is given as allegorical evidence of the effect of bad profits on AOL's customer retention when, according to Reichheld, "AOL opted to buy growth by carpet-bombing the country with free software diskettes." The

campaign described by Reichheld apparently worked but due to poor servicing of the current customer base and AOL's focus merely on growth, "by 2002, surveys showed that a whopping 42 percent of AOL's customers were detractors. AOL not only lost customers to broadband, it also lost market share to dial-up competitors MSN and Earthlink, Inc." Reichheld claims that due to the growth focus AOL employed, "the company's membership surged to a peak of 35 million, but detractors began to choke off its growth." (Reichheld, 2006 p. 8)

Conversely Reichheld sites *Vanguard* as an example of a company that employed a good profit strategy:

"Vanguard *reduced* prices by as much as one-third for customers who had recently made large investments or who had maintained healthy balances for an extended period. Vanguard's management recognized that the company had inadvertently been overcharging its best customers and (in essence) subsidizing new customers ...When the company righted the wrong, its core customers were so delighted that they increased their holdings and boosted referrals." That, according to Reichheld, helped 'turbocharge' Vanguard's growth, and pushed the company toward leadership in the mutual funds industry.(Reichheld, 2006 p. 10)

A summary of Reichheld's message which underpins the formation of the NPS loyalty metric, is that if a firm drives growth at the expense of their customer base (bad profits), they will create detractors within the customer base, who eventually influence new customer behaviour, by discouraging new customers from purchasing or considering a firm's product.

Conversely if a firm drives growth by enthusing customers (good profits), they will create promoters within their customer base, who eventually influence new customer behaviour , by promoting and encouraging new customers to purchase or consider a firm's product.

2.6 Linking revenue growth to Customer Satisfaction and NPS measures

The use of traditional financial performance measures for company growth predictions are now widely accepted as being inadequate on their own (Chang, et al., 2009). The main deficiency of using traditional financial measures of performance is that financial measures are defined and measured in retrospect. That is to say financial measures of performance only show past performance and as a consequence are lagging indicators of firm growth (Chang, et al., 2009).

However, non-financial measures such as sustainability, learning and growth and internal process improvements **do** tend to be leading indicators or predictors of possible firm growth (Chang, et al., 2009 p. 73)

Non-financial measures are neatly grouped by Gupta, et al., 2006 into two main constructs as observable and unobservable measures (Gupta, et al., 2006).

Observable measures involve the behaviours of the customer that the firm can measure as action such as purchasing or consumption of a service or product. From the point of view of the customer, these measures are where, what and how much to buy(Gupta, et al., 2006).

Unobservable measures involve customer perceptions, attitudes and intentions to purchase. Unobserved measures are factors which the customer would have to state (in surveys or feedback forums)(Gupta, et al., 2006).

Figure 7 below shows a simplified overview of the chain of interactions by which marketing actions intended to influence and affect financial performance.

The relevance of leading and lagging indicators of firm growth is important in the context of this research in that the Net Promoter methodology under evaluation claims to be a leading unobservable indicator of firm growth.

Using Gupta, et al.'s frame work in Figure 7, Net promoter score and the American Customer Satisfaction Index (ACSI) seek to measure unobservable metrics and link them to financial performance, thus proving the intuitive logical link between 'what customers think', 'what customers do' and 'what firms get.'

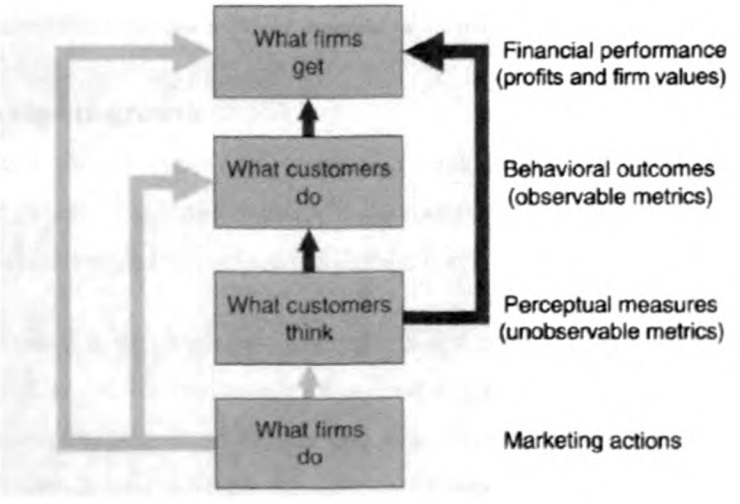


Figure 7: Framework for customer metrics and their impact on firms' financial performance (Gupta, et al., 2006 p. 719)

2.6.1 Customer Satisfaction's linkage to growth

Previous work on whether non-financial indicators are indeed leading indicators of firm growth has been summarized in a paper by Gupta et al. 2006. An extract from Gupta et al. 2006's paper is shown below in Figure 8.

The American Customer Satisfaction Index (ACSI) questionnaire is designed to be a primary and direct link to the satisfaction of the American customer. Figure 8 below shows various studies completed and correlated to an increase in financial performance.

Study	Data	Results
Anderson et al. (2004)	200 Fortune 500 firms in 40 industries during 1994–97 with ACSI, 1–100 scale	1% change in ACSI → 1.016% change in Tobin's *q* or $275 million in firm value.
Ittner and Larcker (1998)	140 firms and ACSI index	One unit increase in ACSI → $240 million increase in market value.
Gruca and Rego (2005)	ACSI and Compustat data from 1994–2002 for 105 firms in 23 industries	One point increase in ACSI → $55 million increase in cash flow in the next year and 4% reduction in variability.
Anderson and Mittal (2000)	125 firms and SCSB	1% increase in satisfaction → 2.37% increase in ROI. 1% drop in satisfaction → 5.08% drop in ROI.
Anderson et al. (1997)	Swedish data for 1989–92	Satisfaction elasticity for ROI = 0.14 – 0.27
Anderson et al. (1994)	Swedish data on 77 firms	One point increase in SCSB → 11% of current ROI or $94 million. Short-run elasticity of ROI with respect to quality = 0.196.
Hallowell (1996)	1 retail bank, 59 divisions 12,000 retail banking customers satisfaction measured on 1–7 scale	One point change in satisfaction → 0.59% point change in ROA.
Nayyar (1995)	106 firms from 68 industries for 1981–91	Increase in customer service → 0.46% average CAR. Decrease in customer service → –0.22% CAR.
Rucci et al. (1998)	Sears 1994–95	4% increase in satisfaction → $200 million in additional revenue or $250 million in market cap.
Nelson et al. (1992)	51 general hospitals, each with a sample of 300 patients	Service quality explains 17% – 27% of variation in financial performance of hospitals.
Rust et al. (1995)	7,882 responses over one year from a national hotel chain customers	44.6% projected return on quality.
Aaker and Jacobson (1994)	34 firms and 1,000–2,000 customer surveys over four years	Quality perceptions → stock returns.

Figure 8: Impact of unobservable metrics on firms' financial performance

2.6.2 NPS's linkage to growth

The hypothesis of this research paper seeks to provide a linkage between Net Positive Promoter scores and firms' revenue growth of selected South African companies. Both Reichheld and Satmetrix have conducted studies which purport to confirm the linkage between NPS and growth internationally.

The first study examined is Reichheld and Satmetrix's first reported study on NPS and its linkage to growth as sited in the article *The one number you need to grow* (Reichheld, 2003), Reichheld's book *The Ultimate Question-Driving Good Profits and True Growth* (Reichheld, 2006) and Satmetrix's white paper *The Power Behind a Single Number, Net Promoter: The New Standard for Measuring Customer Loyalty* (Satmetrix, 2007).

The study utilized email surveys sent to customers from over 400 companies in various industries and "in each subsequent quarter [Satmetrix] gathered 10 000 to 15 000 responses to a very brief email

survey that asked respondents, "...to rate one to two companies with which they were familiar" (Reichheld, 2003 p. 51).

Plots of the results of the study are given below in Figure 9, Figure 10 and Figure 11, which show the revenue growth rate of the firms on the Y-axis and the average Net Promoter % for the period on the X-axis (only firms with significant numbers of survey respondents are shown). The plot appears to show a linear relationship between the firm revenue growth and average Net Promoter scores. Validity tests and confidence intervals are not given, nor are the number of respondents per firm.

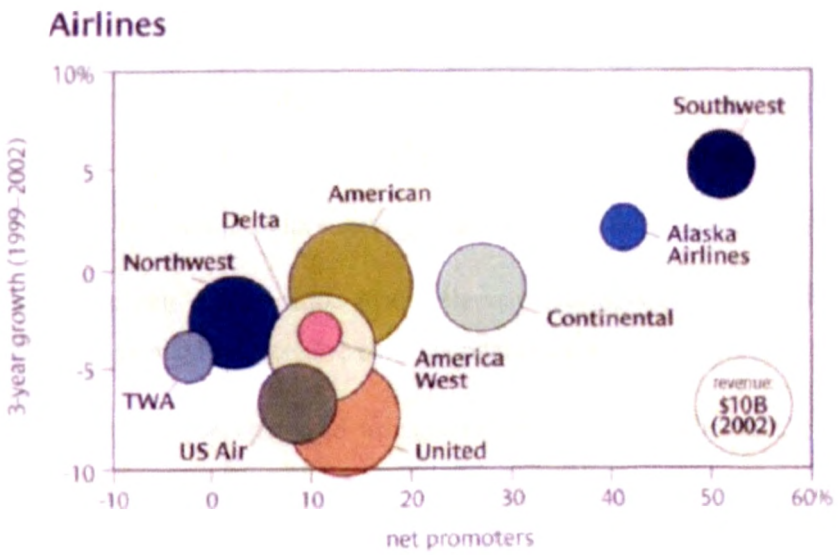


Figure 9: NPS correlation with revenue growth of American airline firms(Reichheld, 2003)

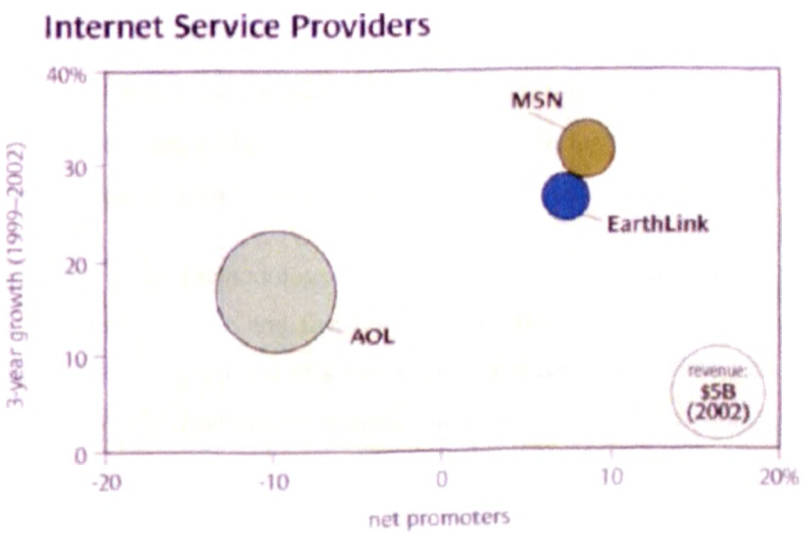


Figure 10: NPS correlation with revenue growth of American internet service providers(Reichheld, 2003)

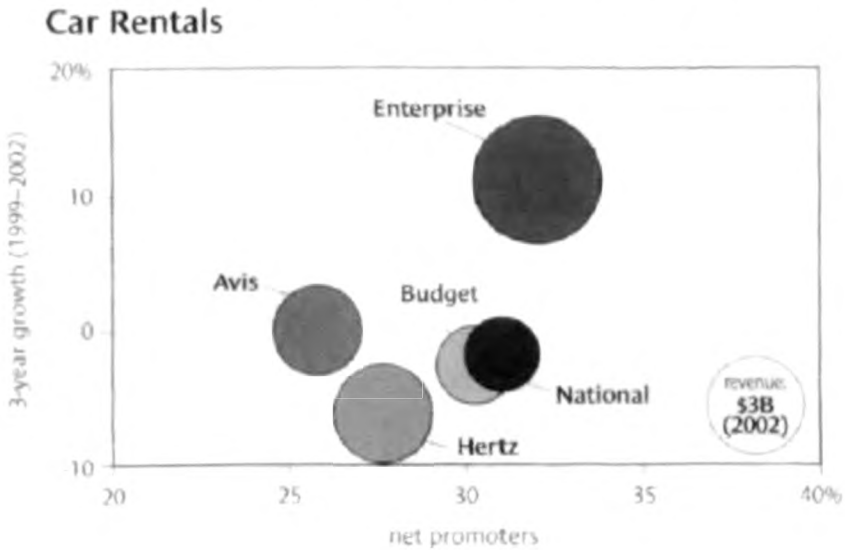


Figure 11: NPS correlation with revenue growth of American car rental firms(Reichheld, 2003)

Since Reichheld's publication in the Harvard Business review in 2003, criticisms of Reichheld's methodology and findings have been undertaken on a longitudinal scale by various academic authors.

Morgan et al. 2006 attempted to examine the relationship between Net Promoter scores and firm growth, but as mentioned by Keiningham et al. 2007, used a different methodology for calculating Net Promoter scores. Morgan et al. 2006 did not directly ask the Net Promoter "recommend" question of "How likely is it that you would recommend [company X] to a friend or colleague?" (Reichheld, 2003), but instead used "Have you discussed your experiences with [brand or company x] with anyone?" and "Have you formally or informally complained about your experiences with [brand or company x] with anyone?"(Morgan, et al., 2006 p. 429).

Morgan et al. 2006 calculates the Net Promoter % for each firm by "computing the number of customers that reported discussing their consumption experiences minus the number of the firm's surveyed customers that reported formally or informally complaining expressed as a proportion of the total number of a firm's surveyed customers."

Using the given methodology, Morgan et al. 2006 finds that there is no relationship between a firm's Net Promoter metric and firm growth- or exhaustively: Morgan et al. 2006 finds that there is no relationship between a firm's Net Promoter metric and a firm's change in Tobin's q, net operating cashflows, total shareholder returns, annual sales growth, gross margin or market share. Keiningham et al. 2007 notes that due to the discrepancy between Morgan et al. 2006's methodology and Reichheld's methodology: "conclusions regarding the effectiveness of Net Promoter on business performance cannot be accurately made from this study."(Keiningham, et al., 2007 p. 40)

Keiningham et al. 2007 and 2008 produced two papers which critique the methodology and conclusions made by Reichheld- *A Longitudinal Examination of Net Promoter and Firm Revenue Growth* (2007) and *A holistic examination of Net Promoter* (2008). The former is published in the Journal of Marketing and the latter in the Journal of Database Marketing & Customer Strategy Management. The 2008 paper is simply a shortened and revised version of the 2007 version. The results of Keiningham et al.'s 2007/ 2008 study will now be explored.

Keiningham et al. 2008, unlike Morgan et. al 2006 and Marsden et al. 2005's study, replicated the exact methodology undertaken by Reichheld and Satmetrix when studying Net Promoter (Keiningham, et al., 2008 p. 83). The evaluation took place on a macro and micro level, with macro data including data from ACSI and the Norwegian Customer Satisfaction Index (NCSI).

Keiningham et al. 2007 used a longitudinal methodology for comparison of Customer Satisfaction metrics with the Net Promoter metric for the first part of their macro study, meaning that a fixed panel (finite number of respondents) where measured repeatedly for their Net Promoter and Customer Satisfaction metrics.

Reichheld 2003, Keiningham et al. 2007 and Morgan et al. use the Pearson correlation statistic in various forms to analyse the strength of the relationship between non-financial measures with firm performance. Keiningham et al. 2007 compares the non-financial measures to one another using this basic procedure.

Using the NCSI data, Keiningham et al. 2007 found that in almost all industry categories the Net Promoter metric was not the most effective predictor (Net Promoter and Customer Satisfaction tied for first place in the banking sector). Keiningham et al. 2007 found that "Top 2 box" satisfaction measures were the most effective leading indicators of firm growth when compared to the Net Promoter metric. The result of Keiningham et al. 2007's study is shown below in Figure 12 on page 21.

Using ACSI data and Reichheld's data supporting Net Promoter, Keiningham et al. 2007 was able to replicate the study performed by Reichheld and recomputed the ASCI data from the same periods and industries. The results of the study were in contradiction to Reichheld's claims- 2 out of 3 industries were better predicted by Customer Satisfaction metrics (personal computers and airlines) than by Net Promoter (US life insurance).

	Net Promoter	NCSB	Satisfaction (Mean)	Repurchase intention (Mean)	Recommend intention (Mean)	Satisfaction (Top Box)	Satisfaction (Top 2 Box)	Repurchase intention (Top Box)	Repurchase intention (Top 2 Box)	Recommend intention (Top Box)	Recommend intention (Top 2 Box)
Banking											
Pooled *Y Y*+1 (2001–2005)	**0.40**	0.17	0.02	0.37	0.32	−0.05	−0.29	0.37	**0.40**	−0.02	0.29
p-value	0.20	0.60	0.95	0.24	0.32	0.88	0.37	0.23	0.20	0.96	0.36
Retail (gasoline)											
Pooled *Y Y*+1 (2000–2003)	−0.45	0.09	0.49	0.62	−0.32	0.42	**0.84**	0.63	0.45	0.38	0.21
p-value	0.55	0.91	0.51	0.38	0.68	0.58	0.16	0.37	0.55	0.62	0.79
Retail (home furnishings)											
2003–2004	−0.12	0.95	−0.17	−0.95	−0.12	**0.99**	0.26	−0.83	−0.45	0.08	−0.26
Security systems											
2002–2003	0.66	0.17	0.05	−0.56	0.95	0.64	0.16	−0.44	−0.99	0.76	**0.98**
Transportation											
2000–2001	0.08	0.06	0.04	**0.14**	0.02	−0.59	−0.43	−0.32	0.00	−0.26	−0.08

Note: The highest positive correlations between revenue change and satisfaction/loyalty metrics are in bold.

Figure 12: Results of Keiningham et. al 2007, Longitudinal analysis of Net Promoter (Keiningham, et al., 2007 p. 85)

2.7 Measurement of firm growth or performance

As discussed in section 2.1, the aim of selecting the correct competitive strategy is to better position the firm for future growth against competitors.

Firms simultaneously pursue a number of different performance objectives (Morgan, et al., 2006 p. 427).

According to Correia et al. 2008, business operation exists in order to supply local and international customers with goods or services based on demand. However when new businesses are set up capital needs to be raised.

Correia, et al. 2008 describes that once an investor has invested funds into the business, there is an expectation that a return on those funds will be created. Therefore the general aim of the management of the business will be to increase the wealth of the business and ensure that the wealth of the investors is increased.

Hunt et al. 1995 describes in their "*Comparative Theory of Competition*" that the neoclassical theory of economics sets the primary goal of the firm as profit or wealth maximization (by maximizing the net present value of future profits). Hunt however argues that the due to constraints of morality, ethics and cost of information concerning customer and competitive market dynamics, that firms seek rather to gain superior financial performance rather than only profitability.

Superior financial performance metrics will depend on the environment in which the firm competes (Hunt, et al., 1995 p. 6). Hunt argues that basic metrics as profits or return-on-investment measures are inadequate for the purposes of measuring firm performance in many cases where prevailing socio-economic factors limit or increase the value of certain financial and operational metrics.

Fornell et al. 2006 notes that share price gains linked to Customer Satisfaction levels are the result of increasing cash flows on lower value assets, thereby increasing return and lowering risk. Implicitly, therefore, investors of publically listed companies benefit from the pricing up of their shares due to increasing operating cash flows and stable or reduced risk rates (Correia, et al., 2008)(Gruca, et al., 2005).

Profit is not considered for valuation of additional shareholder value due to its malleability at the hand of accounting standards (Morgan, et al., 2006 p. 427). Instead, given below are other factors and methodologies used for valuation and measurement of firm growth is the change in (Correia, et al., 2008 pp. 6-11):

- Present values of free cash flow discount models

- Price multiples
- Economic value added (EVA) discount models
- Dividend growth models

Other metrics of firm performance or value as used by Morgan et al. 2006 are the change in:

- Tobin's q
- Net operating cash flows
- Total shareholder returns
- Sales growth
- Gross margin
- Market share

Reichheld 2003 used change in revenue as a firm performance indicator- specifically as an indicator of firm growth. Subsequent studies by Morgan et al. 2006 and Keiningham et al. 2007, 2008 have used the above measures including revenue growth in order to evaluate the claims made by Reichheld 2003. Sources and durations of financial data vary from Keiningham et al. 2007 who used publically available financial data for years 2000-2005, and Reichheld who used publically and privately available financial data for two consecutive years to compute revenue growth for firms included in the study (Keiningham, et al., 2007 p. 82; Reichheld, 2003).

Reichheld 2003 and Keiningham, et. al. 2007 do not indicate whether they use the specific revenue in the financial statements that pertains exclusively to the business unit or the part of the business which is used by customers surveyed for Customer Satisfaction or Net Promoter scores. For example, if retail banking customers are surveyed for Customer Satisfaction or Net Promoter scores, Reichheld and Keiningham do not define if they use the bank's grouped revenue growth in their analysis or only retail banking revenue growth, which excludes merchant or investment banking and corporate banking.

2.8 Market Research Tools

2.8.1 Sampling Procedures

Suitable sampling procedures will be required for the evaluation of the research hypothesis given in Section 1.2 on page 1.

This section will aim to provide a brief overview of sampling procedures and their research implications with the view of providing this research with the appropriate tools to sample the South African market.

In the context of this research, sampling methodology is relevant because the chosen procedure will affect data reliability and accuracy and also whether the reliability and accuracy can be known and tested.

If the chosen sampling procedures are not mutually exclusive, collectively exhaustive and objective, an inference on how reliable the sampled data is, is not possible (Churchill, 1995 p. 586).

According to Churchill 1995 and Malhotra 2007, sample frames defined by researcher judgement may not diminish the ability of non-objective samples to represent a certain population if the choice of the elements in a sample is made by an expert or with prior experience; only that the selection will not be random and therefore cannot be tested for reliability.

2.8.2 Types of Sampling Methods

Broadly there are two types of sampling that are commonly used by researchers as defined by Churchill 1995 and Malhotra 2007:

1. Non-probability sampling procedures
2. Probability sampling procedures

The choice of sampling method has implications for the tests that can be used to determine accuracy and reliability among other measures.

The following sections will outline the two methods mentioned above.

2.8.3 Non-probability sampling procedures

Non-probability sampling can be defined as "sampling techniques that do not use chance selection procedures but rely on personal judgement of the researcher (Malhotra, et al., 2007 p. 410).

Non-probability sampling procedures as given by Churchill 1995 and Malhotra 2007 are:

- **Convenience sampling** - the selection of elements to be included in the study are left to the preference of the interviewer. In other words, respondents are selected because they happen to be in the right place at the right time (Malhotra, et al., 2007 p. 411)
- **Judgement sampling** is a form of convenience sampling in which the population elements are purposely selected based on the judgement of the researcher (Malhotra, et al., 2007 p. 412)
- **Quota sampling** is a two-phase restricted judgement sample. The first phase consists of developing control categories or quotas of the population elements. In the second phase, sample elements are selected based on convenience or judgement.

- **Snowball sampling** is a sampling procedure which uses an initial group of respondents to recommend or refer further respondents for the inclusion in the sample.

Non-probability sampling procedures are useful for exploratory research where cost and time duration of the study are limited (Malhotra, et al., 2007 p. 421). Since non-probability procedures are not random or collectively exhaustive, their statistical reliability cannot be objectively evaluated. "*This is not to say that probability samples will always be more representative than non-probability samples. Far from it. A non-probability sample may indeed be more representative than probability samples.*"(Churchill, 1995 p. 585)

2.8.4 Probability sampling procedures

Probability sampling procedures can be defined as, "*a sampling procedure in which each element of the population has a fixed probabilistic chance of being selected for the sample.*"(Malhotra, et al., 2007 p. 411)

Probability sampling procedures as defined by Churchill 1995 and Malhotra 2007 are:

- Simple random sampling
- Systematic sampling
- Stratified sampling
- Cluster sampling
- Others

Simple random sampling or SRS is defined as, "a probability sampling technique in which each element has a known and equal probability of selection. Every element is selected independently of every other element, and the sample is drawn by a random procedure from a sampling frame."(Malhotra, et al., 2007 p. 415)

Systematic sampling is defined as, "a probability sampling technique in which the sample is chosen by selecting a random starting point and the picking every i^{th} element in succession from the sampling frame."(Malhotra, et al., 2007 p. 416)

Stratified sampling is defined as, "a probability sampling technique that uses a two-step process to partition the population in subsequent sub-populations, or strata. Elements are selected from each stratum by a random procedure."(Malhotra, et al., 2007 p. 417)

Cluster sampling is defined as, "a two-step probability sampling technique where the target population is first divided into mutually exclusive and collectively exhaustive sub-populations called clusters, and then a random sample of clusters is selected based on a probability sampling techniques

such as SRS. For each selected cluster, either all the elements are included in the sample, or a sample of elements is drawn probabilistically."(Malhotra, et al., 2007 p. 418)

2.8.5 Mathematics of probability sampling

In the context of this research, simple random sampling procedures will be used when sampling the customer population of each firm for characteristics such as their Net Promoter scores.

Parameters in the context of sampling procedures are "simply a characteristic or measure of a parent or target population"(Churchill, 1995 p. 587).

This section will define procedures for determining parameters that will be used for describing the target population and validating the reliability of the data collected.

Some simple statistical parameters will now be defined:

Given that:

$\boldsymbol{\mu}$: arithmetic mean of a population

$\boldsymbol{\sigma^2}$: variance of a population

N: number of elements in a population

n: number of elements in a sample population

1. Arithmetic Mean of a population: $\mu = \frac{\sum_{i=1}^{N} X_i}{N}$
2. Variance of a population: $\sigma^2 = \frac{\sum_{i=1}^{N} (X_i - \mu)^2}{N}$
3. Sample mean: $\bar{x} = \frac{\sum_{i=1}^{N} X_i}{N}$
4. Sample variance (population variance known): $\sigma_{\bar{x}}^2 = \frac{\sigma^2}{n} \frac{(N-n)}{(N-1)}$
5. Sample variance (population variance unknown): $\sigma_{\bar{x}}^2 = \frac{\sum_{i=1}^{n} (X_i - \bar{x})^2}{n-1}$

2.9 Kolmogorov- Smirnov (K-S) Statistical test for ordinal data

In context of this research a suitable statistical test will be need to test the reliability of data collected from surveys. Since attitude measurement is usually performed using measures of intensity such as; very bad; bad; fair; good and very good, the test should not rely on scaled or ratio data as an input.

The following section will outline the types of data that can be used for survey inputs and the corresponding test (K-S test) that should be used for the data expected from Net Promoter measurements.

Churchill et al. 1995 defines the following scales of measurement that can be expected from any data as seen in the table below.

Table 1: Scales of measurement (Churchill, 1995 p. 455)

Scale	Basic Comparisons	Example Types	Measures of average
Nominal	Identity	Male-female User-nonuser Uniform umbers	Mode
Ordinal	Identity, order	Preference for brands Social class Hardness of materials Graded quality of lumber	Median, mode
Interval	Identity, order, comparison of intervals	Temperature scale Grade point average Attitude towards brand	Mean, median, mode
Ratio	Identity, order, comparison of intervals, comparison of absolute magnitudes	Units sold Number of purchases Probability of purchases Weight	Geometric mean, Harmonic mean, mean median, mode

Net Promoter scores are scored on a 0-10 scale as discussed in 2.5 on page 12, and are ordinal in nature (Jeske, et al., 2011 p. 147) since the rating scale is arbitrary and the distances between the scale points are unknown (Churchill, 1995 p. 465).

Statistically, ordinal data should only be tested using non-parametric tests or in other words tests that do not assume a normal or known distribution (Malhotra et al. 2007 p. 533).

The Kolmogorov- Smirnov (K-S) test is a goodness-of-fit test that uses a comparison between observed and expected frequencies to determine whether observed results are in accord with a stated null hypothesis, in a very similar way to the chi-square test (Malhotra, et al., 2007 p. 533; Churchill, 1995 p. 840).

The K-S test is, however, simpler to compute than the chi-square test and does not require a certain minimum expected frequency in each cell as the chi-square test does.(Churchill, 1995 p. 841)

Operationally, the K-S test compares the cumulative distribution function for a variable with a specified distribution (Malhotra, et al., 2007 p. 533).

The K-S test formulation consists of:

A_i: cumulative relative frequency for each category of the theoretical distribution

O_i: the comparable value for each category of the sample frequency

n : sample size

α : threshold value of statistical significance

Equation 2: K-S test maximum difference equation

$$K = max|A_i - O_i|$$

Which will be tested against:

Equation 3: K-S test critical value equation

$$K_o = \frac{1.36}{\sqrt{n}} (for\ n > 35, \propto = 0.05)$$

The hypothesis-driven approach will set the null hypothesis as: *data set O_i does not differ significantly from a given distribution A_i*. If the maximum observed difference between the ordered data sets is less than K_o then the null hypothesis is rejected and the data set O_i does not significantly differ from the given distribution A_i with a 95% significance.

2.10 Sample size

This section will briefly outline how a sample size may be determined for ordinal data. The section is relevant to determining approximate sample sizes needed to measure the Net Promoter scores of the firms under evaluation with reasonable accuracy.

Reasonable accuracy means that the data analysed presents a result that may be reliable within an acceptable range of random error.

An attitude/perception/intention is being measured when using the Net Promoter methodology. The data is captured on an 11 point numerical scale from 0 to 10. The distance between the points on the scale are not known, and therefore all that one may infer is the rank of the data points and not differences of magnitude.

Given the above, a scale or ratio data procedure for determining sample size may not be used on the Net Promoter data. The ratio and scale data methods of determining sample sizes are through population variance estimation assuming normally distributed data (Churchill, 1995 p. 644).

Given the absence of statistical measures to determine the sample size the following sample size is recommended by Churchill 1995 is given below in Table 2 on page 30.

Table 2: Typical sample sizes for studies of human and institutional population (Churchill, 1995 p. 645)

	People or households		**Institutions**	
Number of subgroup analysis	National	Regional or special	National	Regional or special
None or few	1000-1500	200-500	200-500	50-200
Average	1500-2500	500-1000	500-1000	200-500
Many	2500+	1000+	1000+	500+

As will be discussed in Section 5.3 on page 51, the sample sizes for the survey of the two chosen industries- telecommunication services and retail banking- had samples sizes of 776 and 771 respectively for respondents that used the services provided by the firms surveyed and made the buying decision, which falls into the above recommended ranges set for national institutions.

3 Research Methodology and Design

3.1 Introduction

The following section will outline the methodology used to undertake research necessary to satisfy the research hypothesis as stated in the above Section 1.3 Research Objectives of:

Net Positive Promoter Score is positively linked to firm revenue growth in selected South African firms.

This research report will use data collection methods obtained in conjunction with a management consultancy, AB research firm, Johannesburg. AB research firm, Johannesburg is conducting a broad initial customer research coverage for business reasons which will include Net Promoter measurement.

The benefits of this arrangement are that the primary research expense will be funded by AB research firm and the primary research data collection will be undertaken by a professional research company (Taylor Nelson Sofres (TNS) see http://www.tnsglobal.com/global/alm/south-africa/TNS.aspx) but the drawbacks are that the questionnaire/survey design will consist of other questions needed to fulfil the broader study and the number of data points will be fewer given that the questionnaire/survey will be more lengthy to administer.

The research firm TNS will undertake the Net Promoter sampling in April 2011 with final results being delivered in May 2012.

The research methodology will consist of a discussion of the correct sequence of market research, formulation of the problem, determination of research design and final design.

3.2 Sequence of Market Research

The fundamental steps in a marketing research process are given below(Churchill, 1995 p. 82):

1. Formulate the problem
2. Determine research design
3. Design data collection method and forms
4. Design sample and collect data
5. Analyse and interpret the data
6. Prepare the research report

Churchill 1995 describes that all research problems require their own special emphasis and approaches, since each problem is unique in some way.

The research methodology that is needed to effectively evaluate the research hypothesis that, "*Net Positive Promoter Score is positively linked to firm revenue growth in selected South African firms*" will be described in the following sections according to the research process as outlined by Churchill 1995 above.

3.3 Formulate the problem

Section 1.2 Problem Statement above on page 1 defines the research undertaking as a hypothesis driven approach- to either prove or disprove the statement.

In the literature review section covering Net Promoter linkage to growth (Section 2.6.2 pg 17) and the claim made by Reichheld (Section 2.2.2 pg 7), the research context for the evaluation of the research hypothesis of "*Net Positive Promoter Score is positively linked to firm revenue growth in selected South African firms*" is given and will now be expanded upon for the formulation of the problem.

In Section 2.2.2 Reichheld claims that the Net Promoter question is the best leading indicator firm growth while in Section 2.6.2 Keiningham and other researchers dispute the claim and the methodological conclusions made by Reichheld.

Keiningham et. al 2007 replicates the study performed by Reichheld and Satmetrix in 2003 and concludes that Net Promoter is not a better leading indicator of firm growth and that Customer Satisfaction methodologies better correlate as leading indicators of firm performance numbers.

This study intends to test whether Net Promoter methodologies do correlate with firm growth in the South African context and thus an academically accepted methodology of evaluation should be used that mirrors similar studies into the question of the importance of non-financial predictors on firm growth.

3.4 Determine Research Design

3.4.1 Overview of the research design

As mentioned above in Section 3.3 Formulate the problem (pg 32), the methodology for this research will need to mirror other published journals on the subject of linking non-financial measures as leading indicators of firm growth or performance in order for the research be acceptable and credible.

Two types of published studies have been completed by researchers on Net Promoter:

1. Longitudinal- As defined by Churchill 1995 are studies that use panel data and panel methods or, in other words, measure a fixed number of subjects repeatedly(Churchill, 1995 p. 166)
2. Cross sectional- As defined by Churchill 1995 are studies that sample elements from the population group of interest usually using a sample survey and are measured at single point in time (Churchill, 1995 p. 166)

All of the research undertaken on the linkage between non-financial measures and their linkage as leading indicators of firm growth or performance have used causal designs and methods of concomitant variation (Gupta, et al., 2006; Satmetrix, 2007; Fornell, et al., 2006; Keiningham, et al., 2008; Morgan, et al., 2006).

Causal designs seek to attribute an effect Y to causes X_i (Churchill, 1995 p. 190) or as in the case of this study, linking the measurement of aspects of customer views and attitudes to firm growth or performance. Note, that the causes, X_i need to precede the effect Y or occur simultaneously. Without tacit knowledge of the interactions of a system, no logically causal argument can prove the causal link between correlating variables, only an inference can be made. (Churchill, 1995 pp. 189-200)

The methodology of linking these factors through concomitant variation or correlation of dependant and independent variables is performed in order to rank each customer metrics' strength of relationship to the growth or performance of a firm.

The assistance of the AB research firm's research team was present is deciding the type of sample, primary research methodology, and firms to be included in the broader research study.

3.4.2 Research constraints

This research report will have limitations of measurement and analysis due to either the cost associated with collecting data or data being unavailable at any cost or effort.

An example of the former may be the sample size of the study as primary research has a cost associated with each interview, and of the latter may be company financial reports not being granular enough for actual values to be known (and estimations used instead).

Given that AB research firm will be funding the research, the cost constraint will be externally defined which will limit the sample size used in the research, which in turn will limit the number of firms examined for the study.

Explicitly, the following limitations will be considered in the research design:

- Limited access to primary data- primary data for the purposes of analysing the linkage of firm growth to the Net Promoter metric is not readily available in South Africa. New data will have to be obtained in order to complete the study.
- Budget for primary data collection- only a certain amount of funds will be available for the collection of primary data from AB research firm which will limit the sample sizes and number of primary measurements taken.
- Duration of the study- only a year is available for the research to be completed, thus limiting the number of company financials that may be obtained
- The research firm, TNS, chosen by AB research firm will undertake the Net Promoter sampling in April 2011 with final results being delivered in May 2012.

3.4.3 Answering the primary research question

Previous studies by Reichheld 2003, Keiningham et al. 2007 and Gutpa et al. 2006 used the following data to support their hypotheses:

- Customer Satisfaction/ Service Quality/ Net Promoter/ Loyalty values for a sample group for a single instance or over time
- Financial measures of firm performance through annual reports and interim reports over time

In order to prove this research paper's hypothesis that Net Promoter score is indeed at least linked to firm performance or growth, two distinct research data streams would need to be investigated:

1. The measurement of Net Promoter scores (of South African firms) for a single sample group or over time
2. The measurement of financial or revenue growth in the respective firms measured for Net Promoter score over time

The first point above implies the gathering of primary research data through surveys or questionnaires since no publicly held data on Net Promoter scores are available. The second and last point above implies the gathering of publicly available data since the researcher will not be privy to the internal sales and financial performance of the firms included in this research.

Primary research sampling of a population can take place in either one of two ways according to (Churchill, 1995 p. 348):

- Observation of the target group and its effects
- Communication with the target group concerning a latent effect (such as an attitude)

Other factors that have to be considered are whether to:

- Structure the survey by having limited or set answers that respondents can choose when answering the survey
- Disguise the purpose of the survey in order to eliminate bias
- Influence the setting under which the survey takes place (used when designing controlled experimental studies)
- The method of administering the survey such as email or telephone calls

Churchill 1995 lists the following options for primary research population sampling:

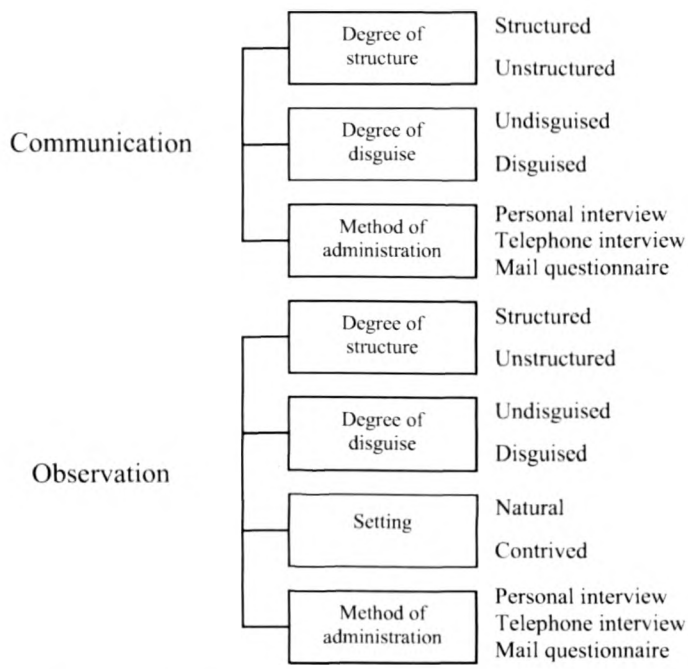


Figure 13: Basic choice for means of collection primary research data (Churchill, 1995 p. 348)

Given the above, it is clear that the Net Promoter measurement research that this study undertakes should be a communication method which is:

- Structured, since the Net Promoter primary research component will need to be surveyed
- Undisguised, since the feelings and views that influence loyalty towards the firms surveyed is under evaluation.

The method of sampling firm performance will be observational, given that the financial reports are public, structured and collected from automated sources.

The following sections will outline, sampling methodologies, the measurement of NPS and of firm performance.

3.4.4 Sampling methodology

Churchill 1995 defines the following fundamental sampling methodologies commonly employed:

- Non-probability samples: judgement and quotas are used to select the population group to be sampled
- Probability samples: every population element has a known, non-zero chance of being included in the sample
    - Simple random samples: every population element has an equal chance of being included in the sample
    - Stratified sample: the parent population group is divided into mutually exclusive and exhaustive subpopulations or strata, and a sample of elements is drawn from each stratum by random procedure
    - Cluster sample: the parent population group is divided into mutually exclusive and exhaustive subsets and a random sample of elements is drawn from each subset

Non-probability samples need an informed marketing researcher to define the elements that should be selected for the purposes of informing the sampling of the parent population (Churchill, 1995 p. 578).

Given that non-probability samples cannot be statistically tested for accuracy means that inherent or intuitive knowledge is required to effectively define quotas or make judgements of which population elements to include in the sample.

Stratification and clustering probability samples typically lead to the most statistically significant results (based on standard error and variation), but require information on the parent population (Churchill, 1995 p. 620).

Research reports on each South African industrys' parent populations are available from market research firm Eighty 20, thus mutually exclusive and exhaustive segmentation of the parent populations for South African firms is feasible for this study.

The best possible sample method given cost and time constraints is a simple probability sample which should be chosen for the measurement of Net Promoter scores per firm.

The South African Advertising Research Foundation (SAARF)'s Living Standards Measure (LSM) is a method of segmenting survey groups into mutually exclusive and mutually exhaustive groups to help setup the sample sizes per segment(AB research firm, 2011; SAARF, 2011).

Life Style Measures, or LSM, will be used to guide the respondent qualification in to the data set. The final data set should roughly mirror the LSM distribution for the South African population (AB research firm, 2011).

The AB research team research objectives aligned with this sampling methodology in all aspects. AB research firm, however, added additional population identifiers for business purposes and comparison with population data for specific firms when firm data became available in their broader study.

3.4.5 Measurement of NPS

As discussed in the literature review, the Net Promoter metric falls into the unobservable category of customer metrics as defined by (Gupta, et al., 2006). According to this definition, Net Promoter can then only be measured by using primary research or direct questioning of the customer group in order to gain insight into their attitudes and intentions.

Reichheld and Satmetrix used email surveys to complete the initial research study and other researchers such as Gupta et al. 2006 used ACSI data obtained from customer email and phone call surveys.

The following primary research options are available for surveying Net Promoter scores (as defined by the primary research company TNS that is being considered for the research):

- Email survey
- Telephone survey
- Personal interview survey

The NPS rating system is simply a 0-10 gauge of how likely the customer is to recommend a company to a friend or colleague (Reichheld, 2003). The research fundamentally will only need to ask the one recommendation question, but other factors worth considering for future research could be included at this stage for efficiency. Therefore the following additional factors are considered with regard to Net Promoter measurement (AB research firm, 2011):

- **Factor 1 :**

  The consumer is a buying-decision maker

  - Keiningham et. al 2007 and Reichheld 2003 do not explicitly define if a customer is merely the user of a product or the actual purchaser. Customer Satisfaction data used in Keiningham et. al. 2007's study is based on the Norwegian Customer Satisfaction Barometer (NSCB) which tracks customer responses to satisfaction surveys. The

customer in this case is the actual purchaser of the product and not the general public. In the case of banking and mobile telecoms services, the customer and the users are subsets of one another respectively. Customers are always a subset of users but users are not always a subset of customers. Users and customers are not commutative sets.

- **Outcome:** Given that the general population will be surveyed, only respondents with buying decision power that use the service are therefore considered for the NPS measurement as customers.

- **Factor 2:**

  The recommendation question relates directly to the number of recommendations the consumers will make

  - Whether NPS actually affects the number of recommendations made and whether the recommendations are acted upon by other consumers is a vital link between attitude and consumer behaviour.
  - **Outcome:** The number of recommendations each consumer makes is questioned in the survey with a follow up question asking how many of the recommendations actually changed/influenced the behaviour of the recipient consumer.

- **Factor 3:**

  The NPS of a particular consumer can be changed by the firm through acute response and improvement of the service/ product experience

  - How a firm may increase its NPS score is of value when diagnosing what the leading problems consumers are affected by when engaging with a particular firm through their products or services
  - **Outcome:** Why the consumer rated the firm's NPS as they did, is a follow up question added to the survey to root cause what the firm could do to either improve their NPS or what the firm is doing well/poorly that influenced the score.

Factor 1 above will be considered for this report as a filter. Only customers that have an experience of a firms' service will be included. The other factors given above are important but fall outside the scope of this report.

Given that this research study is part of a broader study on customer loyalty and satisfaction, the questionnaire/ survey design will need to be designed to measure more than only Net Promoter scores. AB research firm's research team added in other factors for measurement which fall outside the scope of this report.

3.4.6 Measurement of Firm Growth and South African Firm Selection

This section will introduce the methodology to be undertaken for measurement of firm growth and the South African industries and firms selected for NPS measurement. As discussed above in Section 3.4.3 on page 34, the firms selected for the study should be from a publically listed accessible base for primary research.

In Reichheld's 2003 study and Keiningham et al.'s 2007 study, the chosen financial growth metric was revenue growth. Gupta et al. 2006 and Morgan et al. 2006 conducted similar studies as mentioned in the literature survey Section 2.6 on page 15 which used other metrics including revenue growth to measure financial growth but for the purposes of this study and consistency with Reichheld and Keiningham, % change in revenue will be used as the proxy for firm growth.

This selection is made for two reasons:

- Morgan et. al 2006, Gupta et al. 2006 and Keiningham et al. 2006 used revenue as a measure of firm growth (see Section 2.7 on page 22 for further discussion).
- Reichheld 2003's model is loyalty based and his claim is that the underlying behaviours of customers that provide positive references and repurchases are best measured by Net Promoter (see Section 2.5.4 on page 14 and Section 2.6.2 on page 17). The natural consequence of this would be an increase in sales revenue from repeat sales and customer referrals leading to greater sales.

The selection of firms for the study will have to satisfy AB research firm's broader research objectives but should not limit the firms selected for this study. Instead the firms considered for this study will have more constraints than that considered by the AB research firm's research efforts, hence the firms to be considered for this study will become a subset of the firms considered for study by AB research firm.

The following constraints will be considered when selecting industries and firms for the study:

- Firms included in the survey should be B-C or "business to consumer" firms in the retail space to ensure availability of primary research participants for Net Promoter measurement
- Firms included in the survey should be publicly listed firms to insure availability of financial data
- Firms included should compete in the South African market and at least have revenue segmented for South Africa and for business units interacting with customers as defined in the first point above

Given the criteria above, the following industries met the above mentioned constraints in terms of publically listed data being available:

- **Retail banking service providers**
- **Cellular network service providers**

Other industries that were considered based on their business-consumer models were:

- **Car insurance service providers**
- **Internet service providers**

The internet service providers and car insurance providers did not however meet the requirement of publically listed financial data for all of the major firms, meaning that only 1-2 firms could be evaluated and thus were removed from the list of industries to be considered in this research study (they will however remain in the survey for the purposes of the broader AB research firm study).

As mentioned in Section 2.7 on page 22, revenue growth is not defined by Reichheld 2003 or Keiningham et. al. 2007 as being the revenue associated with the section of the firms surveyed with which the customer has direct interaction when using or purchasing a product. The firms selected for this research within the retail banking and cellular network service provider industries have different sources of revenue from multiple product classes that roll up into the total revenue figures reported.

Given that only retail banking and cellular or mobile services will be considered for this study, the revenue streams for each of their services will need to be stripped out of the income statements. In the case of banking, only the retail banking portion will be considered for analysis. In the cellular or mobile service providers, only the voice sales and services revenue will be considered for analysis.

3.4.7 Firms selected for the survey

- **Short term insurance service providers:**
    1. ABSA (includes iDirect)
    2. Auto and General (includes Dial Direct)
    3. Budget Insurance
    4. Hollard
    5. Mutual and Federal
    6. Outsurance
    7. Regent
    8. Santam (includes MiWay)
    9. Standard Bank
    10. Telesure
    11. Zurich
- **Retail banking service providers:**
    1. ABSA
    2. Capitec

3. FNB (First National Bank)
4. Investec
5. Nedbank
6. Standard Bank

- **Internet service providers:**

1. 8TA
2. Cell C
3. Internet Solutions
4. MTN
5. MWEB
6. Neotel
7. Telkom
8. Virgin Mobile
9. Vodacom

- **Cellular network service providers:**

1. 8TA
2. Cell C
3. MTN
4. Virgin Mobile
5. Vodacom

3.4.8 Methodology of linking firm growth to Net Promoter scores

In order to prove the research hypothesis as stated in Section 1.2 on page 1, the following section will discuss the logical linkages that will need to be tested through analysing the data gathered through primary research and publicly available financial results.

As discussed in above in Section 3.4.3 on page 34, the studies undertaken by Reichheld, Keiningham and others used a causal and concomitant approach to linking firm growth to non-financial metrics.

The analysis of results to follow will utilise similar statistical tools as mentioned in Section 2.8.1 on page 23 to link the Net Promoter metric with % firm revenue growth and use validation metrics to confirm confidence of the surveyed data. The Pearson correlation method will be used to evaluate the link between Net Promoter scores and % firm revenue growth and K-S tests (see Section 2.9 on page 27 for further details) will be used to validate the survey data.

As discussed in Section 3.4.1 on page 32, in order for concomitant variation to be valid, the cause of a certain phenomenon needs to precede the effect. Therefore in the context of this research, the Net Promoter scores (which seek to measure the unobservable attitudes which drive customer behaviours of repurchase and referral) need to be sampled at time t and then compared with firm revenue growth over time t to $t+1$ in the case of a cross sectional study.

In the case of a longitudinal study, as complete by Keiningham 2007 and Reichheld 2003, the Net Promoter metric is sampled from a selected group of respondents multiple times and averaged for the

defined period of time. The average results are then compared to the relative revenue growth of the respective firms surveyed in the study.

For the purpose of this research, revenue sampling time frames and Net Promoter time frames will need to be chosen. As discussed above Net Promoter scores are assumed to be averaged over the period under analysis. This study will make a similar assumption, but will need to consider the periods for which % change in revenue will need to be calculated.

In order to account for seasonality of revenue data per firm, similar periods from two consecutive years will need to be compared. The number of years of comparison is limited due to one sample of the Net Promoter scores to be taken in April 2011. If a yearly sample for *n* years was taken, more n years of revenue growth could be included in the analysis- this would be the case in a longitudinal analysis.

Given that the sample of Net Promoter scores per firm will take place in April 2011, the time period chosen for growth in revenue will be H1 2010 against H1 2011. In order for the chosen time periods to be valid in terms of the aforementioned studies above, some basic assumption will need to be made.

The assumptions to be made are listed below and illustrated in Figure 14 below:

1. The revenue periods will be half-year revenue earnings from similar time periods over two consecutive years.
    - This assumption mitigates any concern over the effects of seasonality on firm revenue.
2. Revenue will not be normalised for industry growth.
    - Given that industry growth will affect the revenue of all firms, it is assumed that better competing firms will capture more of the growth in the industry and thus their revenues will grow more than other firms in the same industry. Net Promoter score is claimed to be a measure of those firms which are relatively more competitive within their industries and thus the Pearson correlation should show a positive correlation between Net Promoter scores and % revenue growth whether an industry is expanding or contracting.
3. Revenue considered will only be revenue associated with the firms' business unit responsible for the service or product.
4. The April 2011 sample of Net Promoter scores by firm will be assumed to be the average Net Promoter score for period analysed.

- This is a reasonable assumption since the midpoint of the 18 months from January 2010 to June 2011 is the beginning of October 2010, which is six months from April 2011.

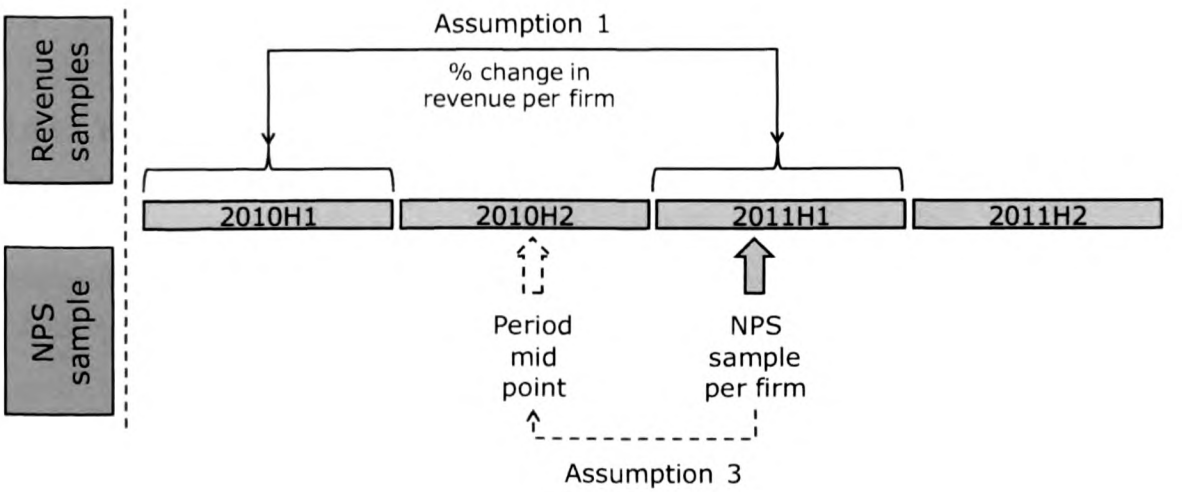


Figure 14: Time periods to be analysed and assumptions made for NPS averaging

3.5 Data reliability and validity

Data reliability and validity is an important topic to address before data collection begins. As mentioned above, an external firm called TNS research services was used to collect data on behalf of AB research firm.

Primary research collection requires that both the survey design and the processes for capturing of data are consistent with the aim of the study. TNS research services is a global research firm specialising in primary research and is responsible for the integrity of the data capturing method and the interview or survey methods used in this study.

Given the above responsibility of TNS research services, internal spot checks will need to be conducted by AB research firm and the author for:

- Consistency of delivery of the questionnaire to respondents
  - Identify a random sample of respondents and check that recordings of the survey delivery to those respondents are consistent
- Consistency of capturing of responses given by respondents
  - Use the random sample recordings given above to check the actual data inputted into the final data file to be handed over by TNS

Logical tests on the data base will also need to be performed to check if capturing of the data is accurate. These tests may include checking for duplicates in the respondent data set and checking that the data entered is consistent with the inputs or options specified in the survey.

3.6 Final research design

3.6.1 Type of research study to be conducted

Based on the discussion of the factors above, a cross sectional causal analysis is chosen due to time and cost constraints. Given that a cross sectional data is *always* more limited and less accurate than a longitudinal data (Churchill, 1995 p. 173), this research will serve as preliminary exploration of the market dynamics in South Africa.

3.6.2 Data collection: Measuring Net Promoter Scores

As mentioned in Section 3.4.4 on page 36, the Net Promoter measurement should be a structured, undisguised communication method and use a simple random sampling method.

To satisfy the above, the following approach was decided upon as a reasonable and robust methodology for **measuring Net Promoter scores:**

1. Design a survey to measure Net Promoter score taking into account the factors mentioned in Section 3.4.4 on page 36:
    a. Reichheld's recommendation question for chosen firms
    b. If the respondent is the buying decision maker for each firm?
    c. How many recommendations a respondent has made concerning each firm?
    d. Include other questions for the broader AB research firm study
2. Based on TNS's constraints due to cost limitations, the use of a telephonic and email primary research methodology was most appropriate for data collection and thus the methodology should ensure that:
    a. The survey is suitable for telephone interviews and email data collection
    b. There are built in quality checks of how consistently the survey is undertaken per respondent
    c. There are built in quality checks of data captured and coded, and conduct logical tests on the full data set
    d. Population groups are covered in the high bracket LSM's by email survey and in the lower bracket by telephonic interviews

3.6.3 Data collection: Measuring South African Firm Performance

To satisfy the research hypothesis the following approach was decided upon as a reasonable and robust methodology for **measuring South African firm performance:**

1. Gather firm financial publications from public information sources
2. Analyse and select revenue portions associated with business units of which the Net Promoter score is measured (for example use only retail banking revenues and not that from business banking, investment banking and other investments for South African banks)
3. Calculate net change in revenue growth for the period of analysis

3.6.4 Analysis: Linking Net Promoter Scores to Firm Performance

To satisfy the research hypothesis the following approach was decided upon as a reasonable and robust methodology for **linking Net Promoter scores to firm performance:**

1. As discussed in Section 3.4.8 on page 41, revenue will be used as an appropriate measure for firm growth
2. Net Promoter scores will be tested for Pearson correlation with % change in revenue for business units associated with customer interactions as discussed in Section 3.4.8 on page 41.

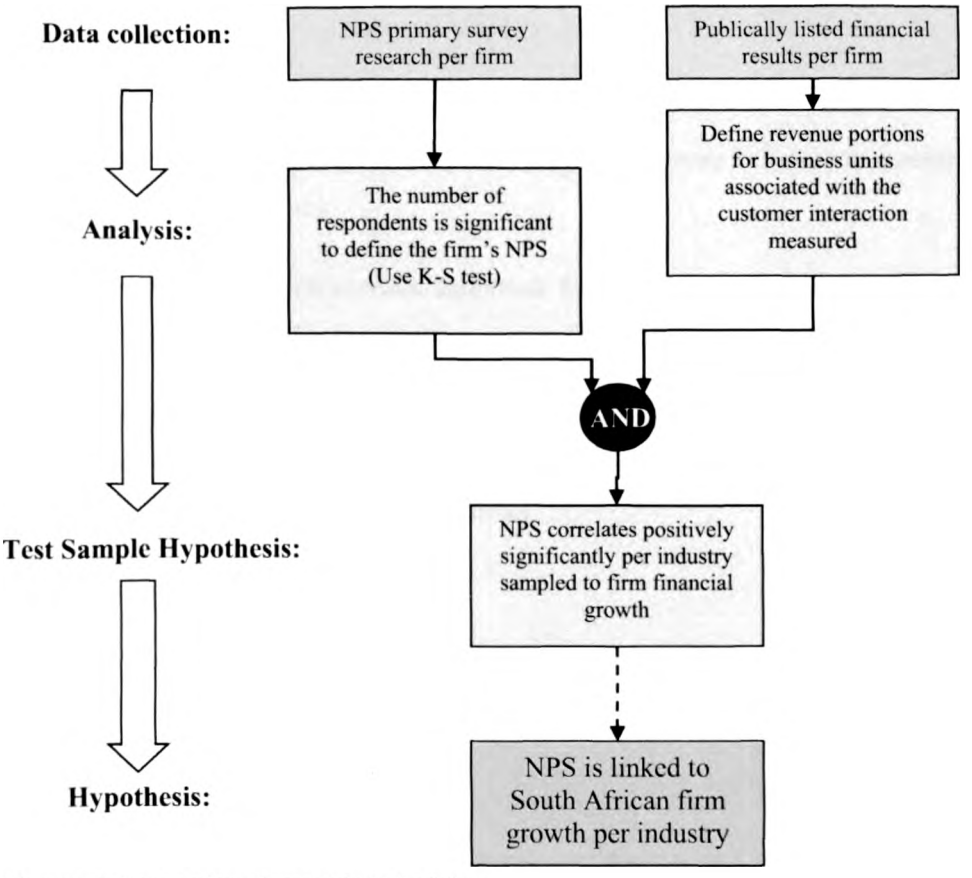


Figure 15: Diagrammatic overview of research methodology

4 Data Collection

4.1 Primary Research Survey

This section will present the final design of the primary research survey tool used to measure the Net Promoter scores for the selected firms.

AB research firm and TNS research services undertook the preliminary design with input from the author concerning the data needed for this study.

The research survey was designed for the AB research firm research team's requirements but was refined for telephone and email interviews by TNS. Appendix 1 on page 78 shows the final survey template used by TNS staff in the telephonic interviews.

4.2 Primary Research Study

A simple telephonic and email undisguised random sample was undertaken by the research firm TNS in April 2011 for AB research firm and this research specifically.

4.3 Quality checking of data collection

A random sample of ± 20 respondents was selected from the final database for quality checking. The data entries selected that were telephone interview recordings were then rescored according to the survey questions and compared with the database from TNS research services. This meant that the recorded interviews were checked against one another for consistent delivery of the survey to the survey respondents and checked for consistency of data capturing against the final database handed over by TNS research services.

No discrepancies were found in the data collection or in the line of questioning undertaken by TNS research services.

Logical tests were performed on the data by AB research firm's research team which included:

- Checking the data set for duplicate entries
- Checking that the input entered into the data set were consistent with what the survey allowed as options for input (e.g. an NPS of 11 would be an error given that only scores of 0-10 are allowed).

No logical discrepancies were found in the final data set handed over by TNS research services.

4.4 Number of respondents required

The number of respondents required for the final NPS measurement was set by the budget for the research undertaken and was therefore limited to ± 1000 respondents (AB research firm, 2011).

The number of respondents in each LSM category was used as a guideline for survey completeness and market research for each LSM, gender and income per industry was compared to the survey data.

Number of respondents per firm was not used as indicator of survey completeness and a random sampling was used at a broad LSM level until approximately ± 1000 respondents were captured.

5 Analysis and Results

5.1 Introduction

The analysis and results section will describe the results of the data collection efforts and the analysis.

Firstly the results of the Net Promoter survey will be presented demographically and by sample number. The Net Promoter calculations will then be presented in a table and graphically by industry and firm.

The firms chosen for correlation analysis will then be presented. A K-S goodness of fit test will be used to prove preference and the non-uniformity of the data collected for Net Promoter scores.

The results of the revenue data collection and analysis will be presented and lastly the results of the correlation analysis will be presented in a table and graphically.

5.2 Demographics of survey respondents

The demographics of the sample group are not as important in this study but are analysed in order to check that a reasonable spread of the target population is represented by the survey undertaken.

Figure 16 shows the LSM or Life Style Measure of the general population group compared to the sample results. The sample group proportion of LSM 4-7 and 8-10 corresponds with the general population of the South African demographics as well. LSMs as compared to the general population are not strictly relevant to the research since the samples were aimed at firms and not randomly sampling the population, however, the distribution may still be relevant if one looks at Figure 17 below.

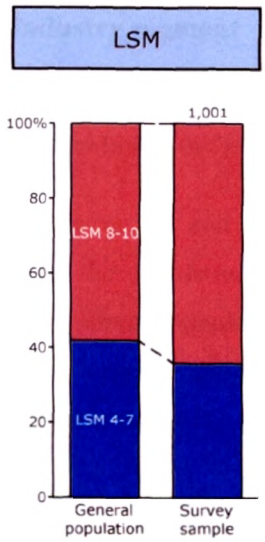


Figure 16: Demographics of the survey respondents by LSM (AB research firm, 2011)

Figure 17 below compares the survey data sample to the general population in terms of gender, age and income. The disparity in income and age against the sample is due to the LSM 4-7 and 8-10 being sampled exclusively and since LSMs 1-3 are not able to afford the services of the firms included in the study.

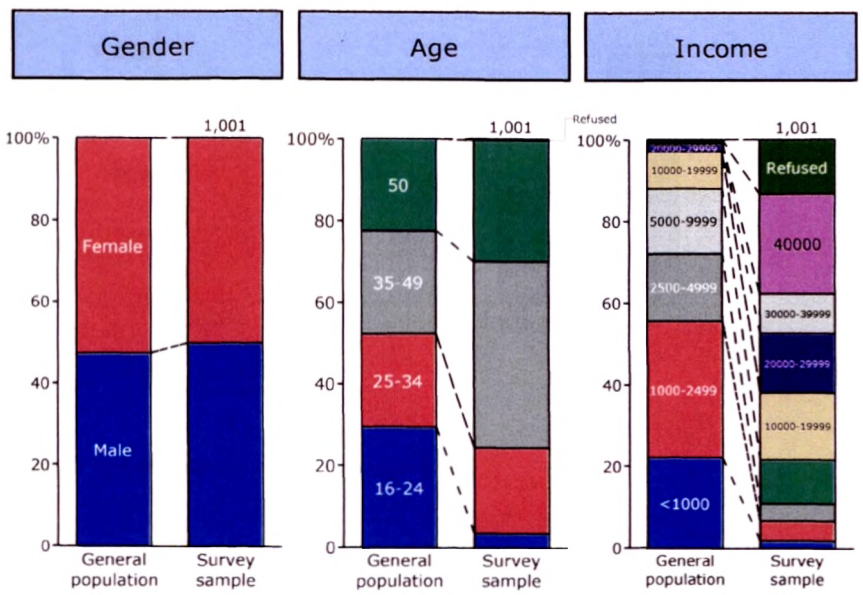


Figure 17: Demographics of the survey respondents (AB research firm, 2011)

5.3 Number of respondents per industry segment

For the industries selected for this study, the sample sizes were significant and comparable to the studies undertaken by other researchers as mentioned in the literature review.

Statistically, a survey sample size of between 50 and 200 respondents is normally considered reasonable to make inferences concerning the population preferences or attitudes for regional or special institutions with few subgroups. A survey sample size of between 200-500 respondents is considered suitable for national institutions with few subgroups. See Section 2.10 on page 29 for a table on appropriate sample sizes for regional institutions.

Figure 18 below illustrates that the sample size for the two chosen industries- telecommunication services and retail banking had samples sizes of 776 and 771 respectively for respondents that used the services provided by the firms surveyed and made the buying decision, which falls into the ranges set above for national institutions. Note that the "All" category below indicates the number of respondents surveyed which answered for at least one industry segment- a respondent using products across all segments would have answered for four different industries, but this does not translate into a "n" of 2384 respondents.

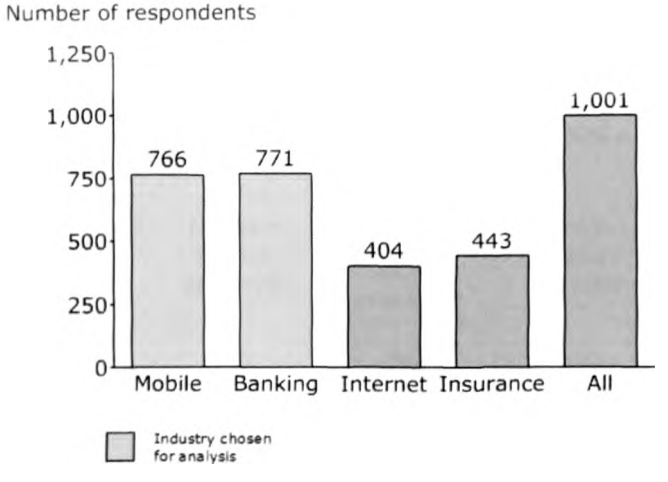


Figure 18: Number of respondents per industry category

5.4 Net promoter score per industry segment

Mathematically the Net Promoter score can be described as (see Section 2.5.2 on page 12):

Equation 4: Net promoter score

$$NPS = \%\ Promoters - \%Detractors$$

Where promoters are respondents who scored their likelihood to recommend the firm between 9-10, neutrals are respondents who scored between 7-8, detractors are respondents who scored between 0-6.

Table 3 and Figure 19 below show the results of the Net Promoter scores per industry.

Table 3 shows the detailed breakdown of Promoters, Neutrals and Detractors per industry. The NPS % is then calculated by grouping the survey responses into the score intervals given in Table 3. Note that the total given in Table 3 below is above 1001 respondents due to double counting across responses to the different industry segments.

Figure 19 shows the NPS % graphically for visual comparison. The vertical axis indicates the NPS% and the bars indicate the respective industries surveyed. The results are that NPS % is greatest in the mobile industry segment followed by insurance, banking and internet services.

The following sections will describe the NPS% scores by firm by industry.

Table 3: Segmentation of Promoters, Neutrals and Detractors to calculate NPS scores

Segment	Score interval	Cellular service providers	Retail banking service providers	Internet service providers	Insurance service providers	Total
Promoters	[9,10]	489	500	197	222	2874
Neutrals	[7,8]	267	265	160	138	1408
Detractors	[1,6]	169	240	133	94	636
NPS %		34.6%	25.9%	13.1%	28.2%	26.9%

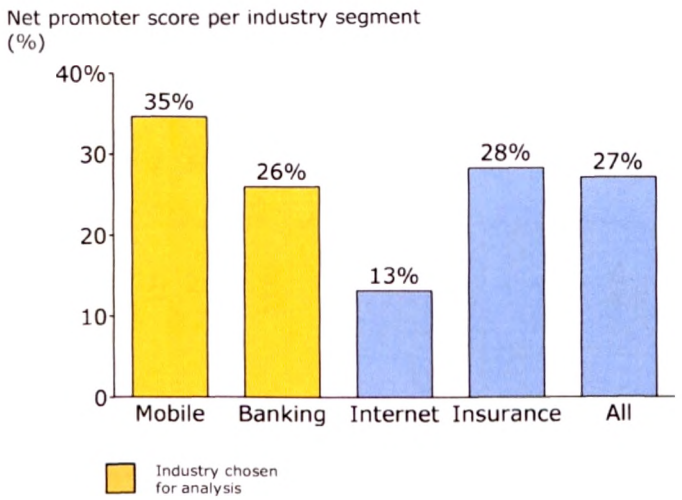


Figure 19: NPS% results for industries sampled

5.5 Net promoter score by firm

The following sections will describe the NPS% per firm surveyed, broken down by industry segment. In bar graphs below, green bars indicate a positive NPS% and red bars indicate a negative NPS %.

As discussed in the literature review, other studies involving the study of non-financial measures used thousands of data points for each result. For the purpose of this study, only firms with over 50 respondents were considered for the final comparison between Net Promoter and revenue growth rates.

5.5.1 Overview of NPS% by firm

Firms chosen for analysis

Table 4: NPS % results by firms chosen for analysis (n>=50)

		Cellular service providers						Retail banking service providers						
Segment	**Score interval**	**Vodacom**	**MTN**	**Cell C**	**Other**	**8ta**	**Virgin**	**Investec**	**Capitec**	**FNB**	**Other**	**Standard Bank**	**Nedbank**	**ABSA**
Promoters	[9,10]	231	140	107	9	1	1	17	30	146	5	125	59	118
Neutrals	[7,8]	132	76	54	3	1	1	2	10	70	6	79	30	68
Detractors	[1,6]	57	50	48	7	3	4	0	3	45	1	70	31	90
% NPS		41.4%	33.8%	28.2%	10.5%	-40.0%	-50.0%	89.5%	62.8%	38.7%	33.3%	20.1%	23.3%	10.1%

Table 5: NPS % results by firm providing insurance services not chosen for analysis (industry not selected for comparison)

		Insurance service providers										
Segment	Score interval	Standard Bank	Mutual & Federal	Zurich	Santam	Other	Outsurance	ABSA	Regent	Hollard	Auto & General	Budget
Promoters	[9,10]	5	17	2	40	63	40	21	2	7	22	3
Neutrals	[7,8]	2	8	3	25	40	28	11	1	7	9	4
Detractors	[1,6]	0	3	0	12	21	14	9	1	4	26	4
%NPS		71.4%	50.0%	40.0%	36.4%	33.9%	31.7%	29.3%	25.0%	16.7%	-7.0%	-9.1%

Table 6: NPS % results by firm providing internet services not chosen for analysis (industry not selected for comparison)

		Internet service providers									
Segment	**Score interval**	**Internet Solutions**	**Other**	**Neotel**	**MWEB**	**Vodacom**	**Cell C**	**8TA**	**MTN**	**Telkom**	**Virgin**
Promoters	[9,10]	2	23	6	31	66	17	1	20	31	0
Neutrals	[7,8]	0	11	5	22	53	12	0	17	39	1
Detractors	[1,6]	0	9	2	12	36	15	1	20	37	1
%NPS		**100.0%**	**32.6%**	**30.8%**	**29.2%**	**19.4%**	**4.5%**	**0.0%**	**0.0%**	**-5.6%**	**-50.0%**

5.5.2 Mobile telecommunications industry

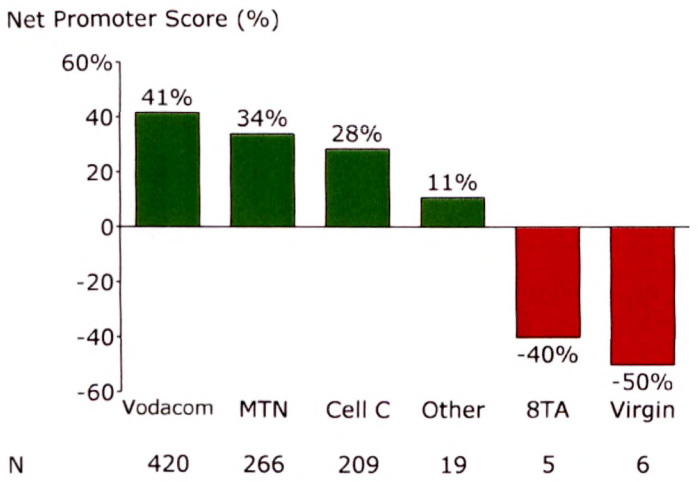


Figure 20: NPS% for cellular service providers

5.5.3 Banking service providers

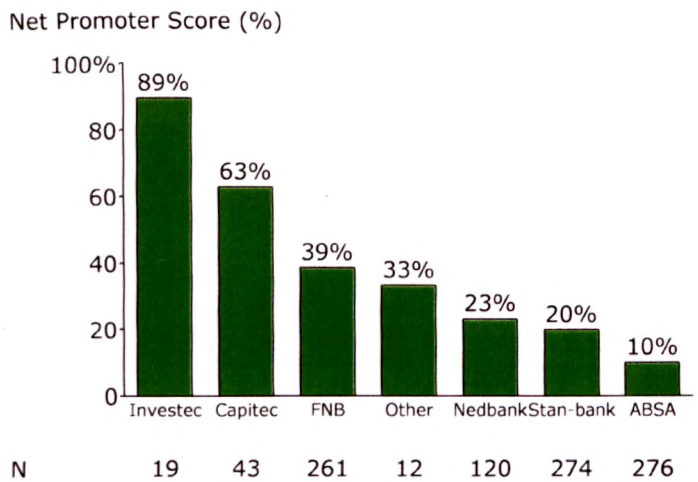


Figure 21: NPS% for banking service providers

5.5.4 Insurance service providers

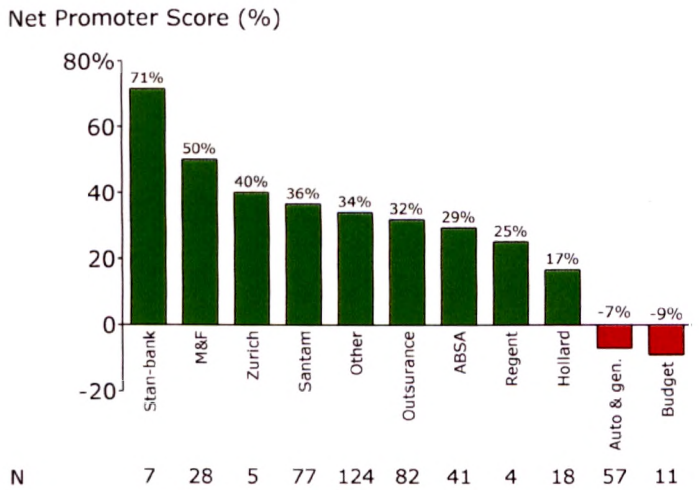


Figure 22: NPS% for insurance service providers

5.5.5 Internet service providers

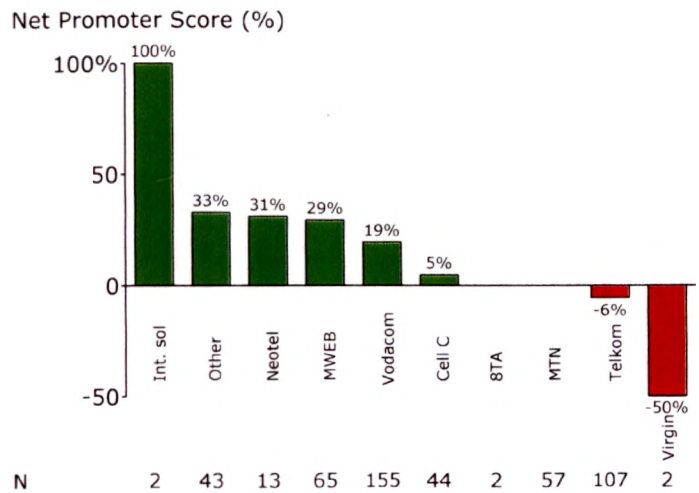


Figure 23: NPS% for internet service providers

5.6 Consolidated list of firms with a sample of over 50 respondents

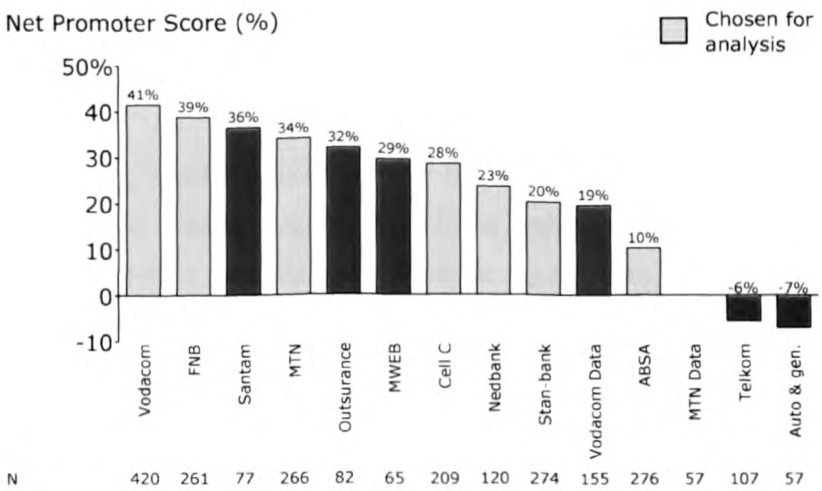


Figure 24: Firms chosen for analysis with over 50 respondents

5.7 Firms chosen for analysis

As discussed above the following firms are chosen for analysis:

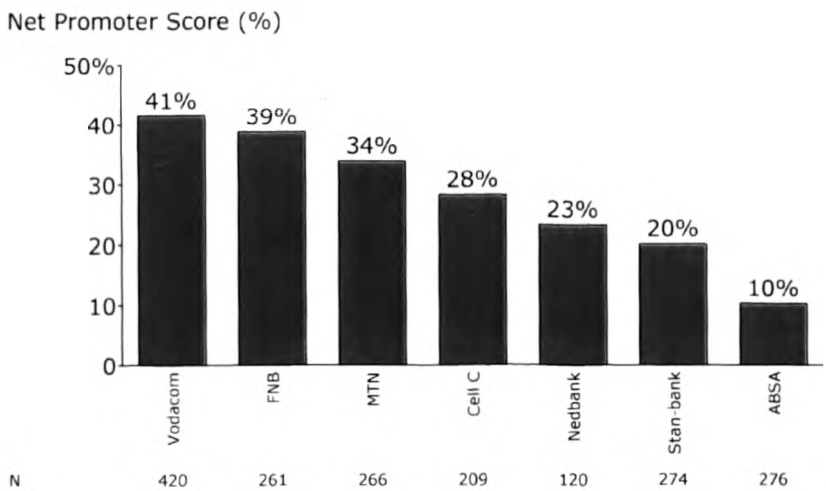


Figure 25: Firms chosen for analysis from cellular and retail banking service providers

5.8 Percentage firm growth for firms chosen for analysis

As discussed in Section 3.6.3on page 45, the % revenue growth calculation will use half-year 2010 and half-year 2011 revenue results for the business units within the chosen firms that where surveyed for Net Promoter scores.

Assumptions concerning which business units to consider for retail banking and what Cell C's revenue was for the period under analysis are made in the Appendix. Notably Cell C's revenue figures are taken from CEO updates and not from financial reports. See Appendix 2 on page 90 for assumptions made in determining revenue per firm for the % growth rate calculation.

The results for each firm are given below in Table 7.

Table 7: % Growth rates for firms selected for analysis

Firm	Segmentation of business unit	H1 2010 Revenue (R Millions)	H1 2011 Revenue (R Millions)	% Growth rate	Source
South African cellular service providers					
Vodacom	Only Vodacom South Africa's operations	R 25188	R 27139	7.7%	(Wireless Intelligence, 2011)
MTN	Only MTN South Africa's operations	R 17135	R 18143	5.9%	(MTN Group, 2011)
Cell C	Only Cell C South Africa's operations	R 4857	R 5100	5.0%	(Business Live, 2011)
South African retail banking service providers					
FNB	Only FNB South Africa's retail banking operations	R 8667	R 9546	10.1%	(First Rand, 2011)
Nedbank	Only Nedbank South Africa's retail banking operations	R 8858	R 9689	9.4%	(Nedbank Group, 2011)
Standard Bank	Only Standard Bank South Africa's retail banking operations	R 13179	R 13499	2.4%	(Standard Bank Group, 2011)
ABSA	Only ABSA South Africa's retail banking operations	R 11199	R 12025	7.4%	(ABSA Group, 2011)

5.8.1 Validation of Net Promoter scores using the K-S Test

As discussed in the literature survey Section 2.9 on page 27 and in the methodology and design Section 3.6.4 on page 45, a non-parametric test will be performed on the data collected for Net Promoter scores in order to determine the reliability of the data.

As discussed the K-S test is ideal for ordinal data where the population distribution is unknown or assumed to be non-normal.

The K-S test identifies the greatest difference in value between a cumulative sample distribution and a theoretical cumulative distribution, against which the sample data is being compared for goodness of fit (Churchill, 1995 p. 840).

The hypothesis to be tested is that the distribution of the sample data **does not** vary significantly from the theoretical distribution.

A sample calculation will be given below for one firm measured in the survey (ABSA bank), followed by the results of all firms considered for the analysis of linking Net Promoter scores to % revenue growth rate.

Sample calculation: K-S test of ABSA Bank's NPS scores

The first conceptual step of the analysis is to define the hypothesis to be tested. In the case of ABSA Bank the hypothesis is:

The distribution of ABSA Bank's sampled Net Promoter scores show that there is no preference between the scores 0-10 (i.e. each score is equally likely).

In order to test this hypothesis using the K-S test, a cumulative frequency or proportion table must be produced for all of ABSA Bank's scores. Table 8 shows ABSA Bank's cumulative frequency or proportion table under the heading, "Observed Cumulative Proportion".

The next step is to choose a distribution against which the observed values will be tested. In this case, the observed values will be tested against a uniform cumulative distribution- given that this would indicate that all scores are equally likely.

The uniform cumulative distribution is shown in Table 8 under the heading, "Theoretical Cumulative Proportion."

The next step is to calculate the greatest difference between the cumulative distribution of the observed and theoretical proportions as defined by Equation 5 below. The greatest difference in the case of ABSA Bank is 0.331 as shown below in Table 8 next to the label, "Max Delta".

Equation 5: K-S test maximum difference equation

$$K = max|A_i - O_i|$$

The critical value of the K-S test given by Equation 6 below will now be computed and compared to the greatest difference value. The critical value for ABSA Bank is shown below in Table 8 next to the label, "D-critical."

Since the greatest difference is 0.331 and the critical value is 0.082, according to the K-S test, the hypothesis is rejected and, therefore, there is a significant preference for certain scores with a 95% confidence level.

Equation 6: K-S test critical value equation

$$K_o = \frac{1.36}{\sqrt{n}} (for\ n > 35, \alpha = 0.05)$$

Table 8: K-S test for sample data- ABSA Bank

Firm: ABSA

NPS Score	Observed Cumulative Proportion	Theoretical Cumulative Proportion
0	0.033	0.091
1	0.051	0.182
2	0.083	0.273
3	0.101	0.364
4	0.123	0.455
5	0.264	0.545
6	0.326	0.636
7	0.424	0.727
8	0.572	0.818
9	0.667	0.909
10	1.000	1.000

n	276
Max Delta	0.331
D-critical	0.082

Result:
Max : Delta>D-critical
therefore:
Hypothesis rejected

A hypothesis test is carried out for each firm included in the analysis. Section 12, Appendix 3 on page 92, shows the detailed results for each of the firms chosen for the analysis.

The consolidated results for each firm are shown below in Table 9. The results indicate that the data is reliably (95% confidence) non-uniform, therefore significant according to the hypothesis tested.

Table 9: Consolidated results of K-S test on the Net Promoter data per firm

	Cellular service providers			Retail banking service providers			
Segment	Vodacom	MTN	Cell C	FNB	Standard Bank	Nedbank	ABSA
n	428	270	213	270	283	121	276
Max Delta	0.503186	0.456902	0.426803	0.490236	0.389014	0.396694	0.331357
D-critical	0.065738	0.082767	0.093186	0.082767	0.080844	0.123636	0.081862
Hypothesis results	Rejected	Rejected	Rejected	Rejected	Rejected	Rejected	Rejected

5.8.2 Results of linkage of NPS to firm performance growth

As discussed in the final research design Section 3.6.4 on page 45, a Pearson correlation will be used to confirm/measure the relationship between Net Promoter scores and firm performance growth (defined in this study as revenue).

The results of the correlation analysis are shown below in Table 10 as the variable 'r'.

Figure 26 and Figure 27 show a linear plot of the NPS% results versus revenue % growth per firm. The sizes of the bubbles in the said figures are indicators of magnitude of revenue and the colours differentiate the different firms. "SBK" in Figure 27 stands for Standard Bank.

According to Clarke et al. 2004, a strong linear relationship as measured by a correlation coefficient is inferred for values near 1 and no relationships is defined for values near 0.The South African cellular service provider industry shows the highest correlation at 0.9965 showing a near perfect correlation. The South African retail banking service provider industry shows a correlation of only 0.4752. Plots of these results in Figure 26 and Figure 27 visualise the results and show how a correlation near 1 places all firms measured along an almost straight line.

Table 10: Results of correlation analysis for chosen industries

	% Δ 2010H1-2011H1	%NPS	r
South African cellular service providers			
Vodacom	7.7%	41.4%	0.9932
MTN	5.9%	33.8%	
Cell C	5%	28.2%	
South African retail banking service providers			
FNB	10.1%	38.7%	0.4752
Nedbank	9.4%	23.3%	
Standard Bank	2.4%	20.1%	
ABSA	7.4%	10.1%	

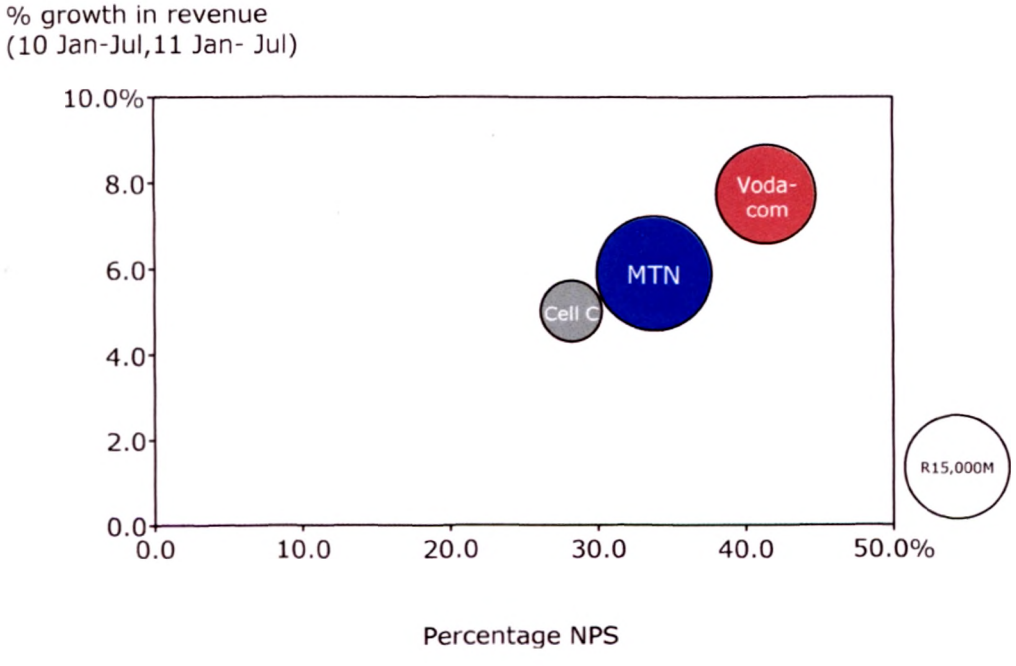


Figure 26: South African cellular service provider correlation results versus % revenue growth

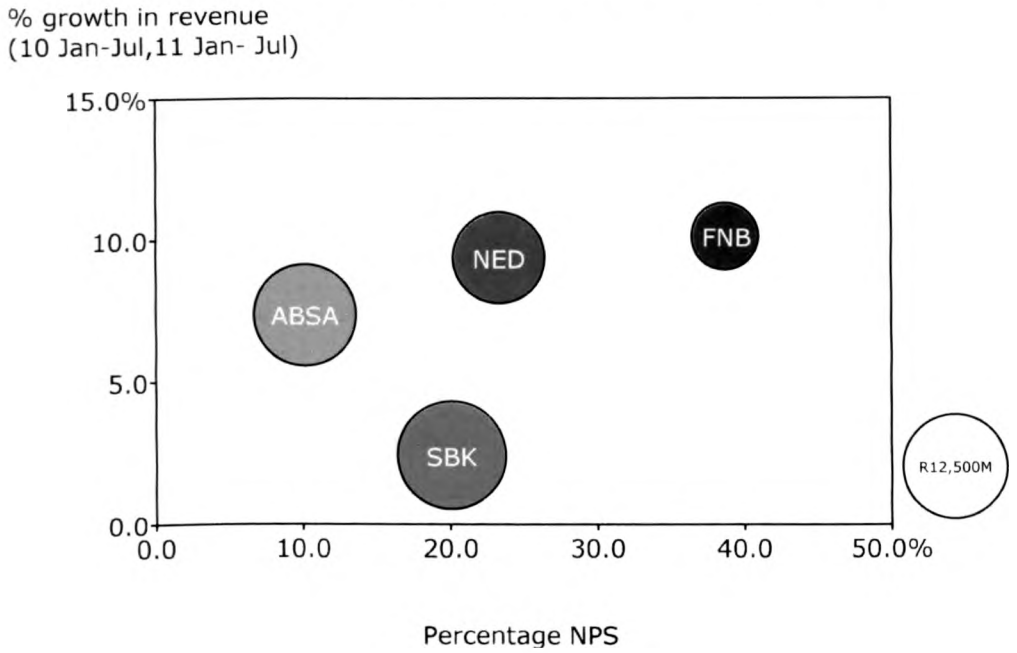


Figure 27: South African retail banking service provider correlation results versus % revenue growth

6 Discussion

In this section, a discussion will be presented starting with a summary of the research question and research limitations and followed by a detailed discussion into the research methodology and design, data collection, assumptions and analysis and results. The detailed discussions into the research reports sections will outline any anomalies discovered during the process of compiling the research and highlight any trends, methodological strengths and methodological weaknesses.

Finally a discussion of the results of the Net Promoter survey and the revenue % growth figures per firm will be explored and the evaluation of the hypothesis undertaken which will define to what extent Net Promoter scores can be linked to firm growth.

6.1 Research question and research limitations

This research is carried out in order to satisfy the following research objective or hypothesis:

Hypothesis: Net Positive Promoter Score is positively linked to firm revenue growth in selected South African firms

The stated hypothesis was chosen, because it easily lends itself to statistical and methodological logic tests for its evaluation. The research objective is, therefore, to either confirm or refute this statement.

A literature survey was undertaken to discover publications that have either evaluated a similar hypothesis or set of hypothesises, or conducted a review of methodologies that may be undertaken to evaluate the given research objective.

Reichheld 2003's claim that Net Promoter is the single best indicator of firm growth, inspired cross sectional and longitudinal evaluation of his statement by many academic authors. In addition, given that Net Promoter metric relies on the likelihood to recommend, it is an unobservable customer metric representing a customer attitude or behaviour and thus may be evaluated against other measures such as Customer Satisfaction and repurchase intention.

A key note for the literature survey undertaken, with regard to Net Promoter and its methodology, is the work of Keiningham et al., 2008 who undertakes a longitudinal evaluation of the Net Promoter's methodology, results and findings.

Keiningham et al., 2008 find that Reichheld 2003's claim is not support by his own data set and that of an additional data set sourced from the Norwegian Customer Satisfaction Index records. Keiningham et al., 2008 is only able to confirm that for one industry (banking) that Net Promoter is

the highest correlating measure of firm revenue growth but not for the remaining three (retail, security and transportation). The results of Keiningham et al. 2008's study is shown in Figure 12 on page 21.

6.2 Research methodology and design

The purpose of the research and design methodology is to outline an effective approach for evaluating the research hypothesis. The approach outlined in the research and design methodology defines the design of the study and consequently the sampling or data collection methodology to be undertaken.

The chosen methodology for this study was a cross sectional analysis of the Net Promoter metric utilising telephonic and email simple random sampling by firm. The number of samples and the sample size was limited by the budget of the research undertaken.

The limitation of a cross sectional analysis is that only one point in time is evaluated, whereas a according to Keiningham et al. 2008, a longitudinal panel study would administer multiple samples of the same randomly selected population. A longitudinal study would therefore allow the testing of trends within the group and variation of individual scores.

The cross sectional analysis has its advantages in that it is quicker and cheaper to administer and can still be tested for reliability and stability of parameters given the sample size is big enough (Churchill 1995).

An important design factor was the decision of which firms to include in the study. Based on the need for Net Promoter data, financial data and AB research firm's internal needs, a list of companies was compiled that were both public and in the business-to-consumer category.

The list of companies included for this research is given in Section 3.4.7 on page 40. The one exception to the public company rule of selection is Cell C. Cell C did have financial data available but the source was CEO announcements and not financial reports.

The firms chosen for further analysis of Net Promoter scores versus firm growth are:

- MTN
- Vodacom
- Cell C
- ABSA
- Standard Bank
- Nedbank
- FNB

Once data collection methods had been designed, an appropriate methodology for linking Net Promoter score to firm growth was evaluated. The research question requires that the Net Promoter scores leads the % change in the firm growth rate, and thus financial information would have to be sampled and compared from period to period.

Revenue is chosen as a measure of firm growth over other measures, for reasons of consistency and accuracy. As discussed in the literature survey Section 2.6 on page 15, revenue measures are used in practice because of simplicity and due to mechanics of Net Promoter reasoning which reasons that repurchase intention and referral rates are directly correlated with the level of Net Promoter score that is given.

Assumptions were made when designing the test for linking Net Promoter scores to % firm growth rates. These assumptions were:

- The Net Promoter scores taken would adequately represent the average Net Promoter scores for the period under comparison
- The same timeframe in the calendar year (half years) would need to be compared to adjust for any seasonality of sales and would represent % firm growth

Given the above assumptions, a Pearson's correlation analysis was decided upon, which would test the Net Promoter score relationship with the % firm growth rate.

An appropriate statistical significance test was then selected for use on the Net Promoter score sample data which is based on the ordinal data type. A K-S test was chosen for this purpose given that it is a non-parametric test and is reliable for data that is ordinal in nature, such as Net Promoter scores.

6.3 Data collection

Net Promoter scores were collected by a research firm called TNS Research via the administration of a telephonic and email survey.

The data collection method was a simple random sample for each firm included in the study.

Two separate quality checks were undertaken. TNS conducted their own internal tests and the research group conducted a random sample of elements from the study to check for interview consistency and data entry consistency.

The AB research firm research team sampled 20 telephonic interviews for consistency. No errors were found with the data collection.

6.4 Analysis and results

The analysis and results section applied the designed analysis methodology given in the research methodology and design section to the data collected from the Net Promoter and firm revenue sampling.

The Net Promoter survey data collected is tabulated and graphed according to industry type sample sizes, firm sample sizes, industry Net Promoter scores and firm Net Promoter scores. Firms are then filtered for sample sizes over 50 respondents and illustrated in Figure 25 on page 57.

The revenue growth rates are then tabulated per firm in Table 1 on page 28. The revenue results are given for each firm for first half-year 2010 compared to first half-year 2011 for the chosen firms discussed above.

Assumptions were made for the revenue figures for some firms as discussed in Appendix 2 on page 90. The assumptions applied to the Standard Bank and Cell C's revenue figures. Standard Bank group did not have their revenue split by retail banking using instead retail and business banking as one category. Cell C (given that it is not a public company) only had CEO announcements concerning their revenue growth.

The assumptions made where that Standard Bank's retail banking revenue was the greatest portion within the personal and business banking category and that Cell C's revenue figure were as the CEO announced, which was reasonable given that that was the case with other retail banks such as Nedbank.

The results of the Net Promoter survey are shown in Figure 19 on page 53. Cellular service provider industry segment scored the highest Net Promoter score at 35% followed by insurance service providers at 28%, retail banking service providers at 26% and internet service providers at 13%.

The highest Net Promoter scores by firm with over 50 sample points are Vodacom (41%), First National Bank (39%), MTN (34%), Cell C (28%), Nedbank (23%), Standard bank (20%) and ABSA Bank (10%) .

The highest % revenue growth rates by firms with over 50 sample points are First National Bank (10%), Nedbank (9%), Vodacom (8%), ABSA Bank (7%), MTN (6%), Cell C (5%) and Standard Bank (2%).

6.5 Significance test of Net Promoter scores

A K-S test is chosen as an appropriate method of evaluating the statistical reliability of the Net Promoter scores per firm. According to Malhorta et al. 2007 and Churchill et al. 1995, the K-S test is ideal for ordinal data and is non-parametric. The reason a non-parametric test is required is the distribution of the population of Net Promoter scores is unknown and may not be normally distributed. Given that the data is ordinal, tests of variance and mean cannot be used to test the applicability of normality to the sample sizes of the firms studied (See Section 2.9 on page 27 for further discussion and references).

Section 5.8.1 on page 60, illustrates a sample calculation for ABSA bank. Table 9 on page 62 tabulates the results of the K-S test performed on all firms included in the study. The results of the test is a rejected hypothesis for all firms, indicating that the data distribution for each firm is significantly (95%) non-uniform and consequently, the Net Promoter values are as defined by Churchill et al. 1995 are preferential or show a strong tendency for not being equally possible.

Section 12 Appendix 3 on page 92, shows the detailed results for K-S test on all firms included for further analysis.

6.6 Linking Net Promoter scores to % firm revenue growth rates

As discussed in the literature survey (Section 2.6 on page 15) and the research methodology design (Section 3.4.8 on page 41), concomitant variation or Pearson's correlation analysis is used to link Net Promoter scores to % firm revenue growth rates.

Table 10 on page 63, shows the final results of the correlation analysis performed per industry section. The results of the analysis are that the Net Promoter scores for South African cellular service provider industry correlates with its respective growth rates by a correlation factor of 0.9932. The South African retail banking service provider industry correlates with its respective growth rates by a correlation factor of 0.4752. According to Clarke et al. 2004, a correlation coefficient near to 1.0 indicates a strong relationship is present between the two variables.

A result of 0.9932 indicates a strong relationship between the two variables and is shown graphically in Figure 26 on page 63.

A result of 0.4752 indicates a weaker relationship between the two variables and is shown graphically in Figure 27 on page 64.

Given that Keiningham et al. 2008 found that it is possible for firms to correlate with a correlation factor of 0.99, the above result reveals a highly linear relationship between Net Promoter scores and

% revenue growth for the South African cellular service provider industry. The South African retail banking service provider industry shows a relationship which is not linear.

According to Churchill 1995, correlation coefficients close to 1.0 imply that the variation in the observed variable (% growth rates) can be accounted for completely by the measured variable (Net Promoter scores) assuming causality. This implies that Net Promoter scores could be assumed to account for close to ~100% of the variation in % revenue growth for South African cellular service providers, while only accounting for only ~48% of the variation of the South African retail banking industry % revenue growth.

Figure 12 on page 21, shows Keiningham et al. 2007's results for the banking industry yielded a 0.4 correlation factor for Net Promoter methodology, possibly confirming that the Net Promoter metric may not be not be the only variable influencing revenue growth in both Norwegian and the South African retail banking industry.

However, the revenue assumption made for Standard Bank as discussed above may have had an effect on the correlation. The split between Standard Bank's retail banking and business banking sections were not defined in their annual reports and thus retail banking was assumed to compose the greatest portion of the revenue. If one examines the annual reports of Nedbank and compares the revenue generated from retail banking activities to the business banking activities, retail banking accounts for ~80% of the revenue. This implies that Standard bank may be a real outlier in terms of Net Promoter methodology and the source of this variation may be due to internal firm or external and environmental factors.

When focusing on the South African cellular service provider results it seems plausible that a factor like Net Promoter scores could realistically have an impact on revenue growth for a number of reasons.

One reason is that the South African cellular industry may lower barriers to switching when customers are not satisfied with the service that they are paying for. As described by Reichheld 2003, in his Harvard Business journal article, Net Promoter may not be applicable to all industries. Exceptions sited by Reichheld are industries that are dominated by monopolies or where consumers have little choice concerning which supplier they use. Retail banking may have higher switching effort or costs and so customers are not able to move from one retail bank to another with ease. Another possibility is that the Net Promoter scores lead the retail banking industry by more than 6 months to a year, implying that it takes longer for revenue earned to correct itself as customers take longer to switch banking service providers.

The weaknesses of the above analysis is the small number of firms per industry, even though the firms evaluated are more than 80% of the total number of firms in each industry. The limited number of firms makes the analysis sensitive to outliers, illustrated with the case of Standard Bank above.

Another potential weakness is the assumption that the Net Promoter data sampled is the average Net Promoter score for the periods compared. Ideally the Net Promoter scores should have been measured before any of the financial periods were sampled. Morgan et al. 2006 for example, was able to compare repeated measures of Customer Satisfaction over 2-5 years with financial results from those periods. This means that a better leading average value could be compared to financial performance of firms which results in a more comprehensive understanding of which non-financial metrics are leading indicators of firm growth.

The limit of the cross sectional analysis undertaken in this research is that only one sample is taken at a point in time. This limits the tests that can be performed to analyse any changes in Net Promoter scores and also the ability of the analysis to identify outliers.

The final weakness of the analysis is that within the short time period analyzed, prevailing economic conditions could be influencing the growth of each firm disproportionately. Again, a longitudinal study with multiple samples of revenue would help identify trends and changes in the data, and therefore, identify root causes or reasons for outliers.

Finally, the outliers notwithstanding, the analysis completed was able to show that there is a relationship between firm Net Promoter scores and firm growth albeit differing in strength between the two industries. If the assumption that the Net Promoter scores measured do indeed represent the midpoint for the period of analysis, then the Net Promoter metric is a leading indicator of firm growth and positively linked.

7 Conclusion and Recommendations

The purpose of this research is to evaluate the hypothesis of whether Net Promoter scores are positively linked to firm revenue growth in selected South African firms.

A random data sample of each of the customer bases of each firm was administered via telephonic and email surveys using the research firm TNS funded by AB research firm. The total sample size was 1000 respondents.

Revenue per firm for firms with over 50 respondents was collected for the first half of 2010 and 2011 for comparison.

7.1 Research Hypothesis Result

The research hypothesis is:

Hypothesis: Net Positive Promoter Score is positively linked to firm revenue growth in selected South African firms

The two industries chosen for evaluation are the South African cellular service providers and South African retail banking service providers.

A stronger correlation (versus retail banking) is found for South African cellular service providers of 0.9932 indicating a definite link between Net Promoter score and % firm revenue growth (see Section 6.6 on page 69).

Accepting that firm revenue growth is a good indicator of firm growth, the hypothesis is confirmed for the South African cellular service provider industry segment.

A weaker correlation is found for the South African retail banking service providers of 0.4752 which still shows a positive linear relationship and which is similar to Keiningham et al. 2007's results for the banking industry, which yielded a 0.4 correlation coefficient (Figure 12 on page 21). Assuming that the revenue assumptions made are true, the hypothesis is confirmed for the South African retail banking industry, but with a caveat that there may be other factors accounting for the remaining 0.5248 variation, which may better explain the cause of variation.

The overall research hypothesis is therefore proved true in the context of this study.

8 Future research recommendation

Recommendations for further research fall into three categories. The first category involves the number of samples taken, the second, the number of years that the study could continue for and the third, the number of firms and non-financial measures included.

Conducting a longitudinal scale study with a stratified sampling method for multiple samples would be recommended for future research in order to provide greater confidence in the applicability of Net Promoter to the South African context. Future research could also test other non-financial perception or attitudinal measures to show which measures are the most appropriate indicators for different industry segments.

A further recommendation is that the study should be undertaken over two to three years in order to establish confidence in the revenue trends, and to provide a more stable correlation analysis.

Finally other industries such as the retail sector or business-to-business industries could be included in the study to expand the applicability or inapplicability of the Net Promoter metric.

9 References

ABSA Group. 2011. *ABSA Group; Interim results for year ended 30 June 2011.* 2011. www.absa.co.za, accessed September 2011.

ACSI. 2011. American Customer Satisfaction Index. [Online] 24 12 2011. [Cited: 24 12 2011.] http://www.theacsi.org/index.php?option=com_content&view=article&id=48&Itemid=122.

Anderson, Eugene, Fornell, Claes and Lehmann, Donald. 1994. *Customer Satisfaction, Market Share and Profitability.* s.l. : Journal of Marketing, 1994. Vol. 58.

Business Live. 2011. *Cell C ups revenue, grows subscribers.* 2011. http://www.businesslive.co.za/southafrica/sa_companies/2011/08/11/cell-c-ups-revenue-grows-subscribers-with-audio, accessed September 2011.

Chang, Chen and Smith, Melcolm. 2009. *Measuring the efficiency of customer-related strategies: a review of the literature and agenda for research.* s.l. : Accounting, Accountability & Performance, 2009. Vol. 15.

Chase, Richard B., Jacobs, F. Robert and Aquilano, Nicholas J. 2006. *Operation Management for Competitive Advantage.* 11th Edition. s.l. : McGraw-Hill Irwin, 2006.

Churchill, Gilbert A. 1995. *Marketing Research, Methodological Foundations.* 6th Edition. s.l. : The Dryden Press, Harcourt Brace College Publishers, 1995.

Clarke, GM and Cooke, D. 2004. *A Basic Course in Statistics.* s.l. : Hodder Arnold, 2004. 5th Edition.

Coelho, Paulo. 2007. *The choice between a five-point scale and a ten-point scale in the framework of Customer Satisfaction measurement.* s.l. : International Journal of Market Research, 2007. Vol. 49.

Correia, Carlos, et al. 2008. *Financial Management.* 6. s.l. : Juta, 2008.

firm, AB research. 2011. *AB research firm NPS research team.* Johannesburg : s.n., 2011.

First Rand. 2011. *Analysis of Financial Results 2011 for year end 30 June 2011.* s.l. : Analysis of Financial Results 2011 for year end 30 June 2011, 2011. www.firstrand.co.za, accessed September 2011.

Fornell, Claes, et al. 2006. *Customer Satisfaction and Stock Prices: High Returns, Low Risk.* s.l. : Journal of Marketing, 2006. pp. 3-14. Vol. 70.

Gruca, Thomas S. and Rego, Lopo L. 2005. *Customer Satisfaction, Cash Flow and Shareholder Value.* s.l. : Journal of Marketing, 2005. pp. 115-130. Vol. 69.

Gupta, Sunil and Zeithaml, Valarie. 2006. *Customer metrics and their impact on financial performance.* s.l. : Marketing Science, 2006. pp. 718-739. Vol. 25.

Hill, Nigel and Alexander, Jim. 2006. *Handbook of Customer Satisfaction and loyalty measurement.* s.l. : Gower Publishing Limited, 2006. 0-566 08744 8.

Hoffman, K Douglas and Bateson, John E.G. 2001. *Essential of Services Marketing: Concepts, Strategies and Cases.* s.l. : South Western- Thomson Learning, 2001. 0030288924.

Hunt, Shelby D. and Morgan, Robert M. 1995. *The comparitive advantage theory of competition.* s.l. : Journal of Marketing, 1995. pp. 1-15. Vol. 59.

Jeske, Daniel, Callanan, Terrance and Guo, Li. 2011. *Identification of Key Drivers of Net Promoter Score Using a Statistical Classification Model.* s.l. : INTECHopen, 2011. Efficient Decision Support Systems - Practice and Challenges From Current to Future, http://www.intechopen.com/articles/show/title/identification-of-key-drivers-of-net-promoter-score-using-a-statistical-classification-model#reference.

Keiningham, T L, et al. 2007. *A holistic examination of Net Promoter.* s.l. : Database Marketing & Customer Strategy Management, 2007. pp. 79-90. Vol. 15.

Keiningham, T L, et al. 2008. *Linking customer loyalty to growth.* s.l. : MITSloan Management Review, 2008. pp. 50-57. Vol. 49.

Keiningham, Timothy, et al. 2007. *A Longitudinal Examination of Net Promoter and Firm Revenue Growth.* s.l. : Journal of Marketing, 2007. pp. 39-51. Vol. 71.

Malhotra, Naresh K. and Birks, David F. 2007. *Marketing Research, An Applied Approach.* 3rd European Edition. s.l. : Prentice Hall, 2007.

Marsden, P., Samson, A. and Upton, N. 2005. *Customer Advocacy Drives UK Business Growth.* s.l. : Brand Strategy, 2005. pp. 426-429. Vol. 198.

Morgan, Neil A. and Rego, Lopo Leotte. 2006. *The Value of Different Customer Satisfaction and Loyalty Metrics in Predicting Business Performance.* s.l. : Marketting Science, 2006. pp. 426-439. Vol. 25.

MTN Group. 2011. *MTN Group Limited; Interim results for six months ended 30 June 2011.* 2011. www.mtn.co.za, accessed September 2011.

Nedbank Group. 2011. *Nedbank Group; analyst presentation.* 2011. www.nedbank.co.za, accessed September 2012.

Ranchhod, Ashok and Marandi, Ebi. 2007. *CIM Coursebook 07/08 Strategic Marketing in Practice: 07/08 Edition.* s.l. : Elsivier, 2007.

Reichheld, Fredrick. 2003. *The one number you need to grow.* s.l. : Harvard Business Review, 2003. pp. 46-54. Vol. 81.

Reichheld, Fredrick. 2006. *The Ultimate Question-Driving Good Profits and True Growth.* s.l. : Harvard Bussiness School Press, 2006. p. 9.

SAARF. 2011. 2011. www.saarf.co.za/LSM/lsms.htm, accessed on the 1 January 2012.

Satmetrix. 2007. *The Power Behind a Singel Number, Net Promoter: The New Standard for Measuring Customer Loyalty.* s.l. : http://www.satmetrix.com/pdfs/NetPromoterWPfinal.pdf, 2007. accessed 8 Jan 2012.

Satmetrix. 2012. Customer acid test. s.l.:
http://www.loyaltyrules.com/loyaltyrules/acid_test_customer.html, accessed 7 Jan 2012.

Standard Bank Group. 2011. *Standard Bank Group Analysis of financial results; for six months ended 30 June 2011.* 2011. www.standardbank.co.za, accessed September 2011.

Wireless Intelligence. 2011. *South African Wireless Intelligence Report 30 June 2011.* 2011. AB research intellectual property.

10 Appendix 1- Survey used for AB research firm's NPS study

tns research surveys

tns research surveys

SECTION A: INTRODUCTION AND SCREENING

INTRO1 (e.g. reception / gatekeepers):
Good day, please may I speak to... (name of person supplied on list)

INTRO2 (once connected to actual respondent):
Good day, my name is.....

I am calling on behalf of TNS Research Surveys, an independent research company. We are conducting a survey which aims to help companies improve their products and services in the future. Would it be possible to ask you a few questions in this regard to record your opinion? The interview will take no more than 20 minutes and may be recorded for quality purposes. Please note that your answers will remain strictly confidential and cannot be identified individually. They will be combined with thousands of other surveys to provide insight into the South African market. Is now a good time for you?

-1 Yes
-2 No
-3 Refuse to participate

IF YES CONTINUE, IF NO SET UP ANOTHER CALL TIME. IF RESPONDENT REFUSES, THANK AND CLOSE

IF RESPONDENT SAYS THAT HE/SHE HAS ALREADY PARTICIPATED IN THIS STUDY, THANK AND CLOSE

INTRO3 (after call back/appointment):
Good morning/ afternoon. I am calling from TNS Research Surveys to conduct the interview set up with you earlier.

S1. Please can you tell me which of the following products you have in your name?

READ OUT
MULTIPLE MENTIONS POSSIBLE
NONE (CODE -5) IS A SINGLE MENTION

-1 Car insurance
-2 Bank account (e.g. cheque, savings, mzanzi etc.)
-3 Mobile phone
-4 Access to the internet on your personal computer
-5 None of these

IF NONE (CODE -5), CLOSE INTERVIEW

ASK IF RESPONDENT OWNS CAR INSURANCE (CODE -1 IN Q.S1), OTHERS GO TO Q.6:
1. Which car insurance provider(s) do you use?

READ OUT IF NECESSARY.
MULTIPLE MENTIONS POSSIBLE.

-1 ABSA (includes iDirect)
-2 Auto and General (includes Dial Direct)
-3 Budget Insurance
-4 Hollard
-5 Mutual and Federal
-6 Outsurance
-7 Regent
-8 Santam (includes MiWay)
-9 Standard Bank
-10 Telesure
-11 Zurich
-12 Other (specify)

CHECK QUOTAS

ASK IF RESPONDENT HAS ACCESS TO INTERNET (CODE -4 IN Q.S1), OTHERS GO TO Q.10:
6. Which companies do you use?

READ OUT IF NECESSARY.
MULTIPLE MENTIONS POSSIBLE.

-1 8TA
-2 Cell C
-3 Internet Solutions
-4 MTN
-5 MWEB
-6 Neotel
-7 Telkom
-8 Virgin Mobile
-9 Vodacom
-10 Other (specify)

CHECK QUOTAS

ASK IF OWN A <u>BANK ACCOUNT</u> (CODE -2 IN Q.S1), OTHERS GO TO Q.15:

10. Which bank(s) do you use?

READ OUT IF NECESSARY.
MULTIPLE MENTIONS POSSIBLE.

-1 ABSA
-2 Capitec
-3 FNB (First National Bank)
-4 Investec
-5 Nedbank
-6 Standard Bank
-7 Other (specify)

CHECK QUOTAS

ASK IF OWN A <u>MOBILE PHONE</u> (CODE -3 IN Q.S1), OTHERS GO TO Q.S2:

15. Which mobile service provider(s) do you use?

READ OUT IF NECESSARY.
MULTIPLE MENTIONS POSSIBLE.

-1 8TA
-2 Cell C
-3 MTN
-4 Virgin Mobile
-5 Vodacom
-6 Other (specify)

CHECK QUOTAS

S2. Please can you confirm if there is a **landline** telephone number that I can call you back on?

-1 Yes
-2 No

IF NO (CODE -2), CONTINUE INTERVIEW.
IF YES (CODE -1), RECORD LANDLINE NUMBER AND CALL THE RESPONDENT BACK <u>IMMEDIATELY</u>.

SECTION B: NPS AND ROOT CAUSES

ASK IF RESPONDENT OWNS <u>CAR INSURANCE</u> (CODE -1 IN Q.S1), OTHERS GO TO Q.5:

READ OUT IF <u>ONE</u> PROVIDER USED IN Q1:

2. I am now going to ask you about your car insurance.
Were **you** the one who made the decision to insure with **(READ OUT PROVIDERS IN Q.1)**, or at least strongly influenced the decision?

-1 Yes
-2 No

IF NO (CODE -2), GO TO Q.5, OTHERS CONTINUE.

READ OUT IF <u>MORE THAN ONE</u> PROVIDER USED IN Q1:

2. I am now going to ask you about your car insurance.
For which of these providers were **you** the one who made the decision to insure with them, or at least strongly influenced the decision?

READ OUT PROVIDERS USED IN Q.1.

MULTIPLE MENTIONS POSSIBLE.

-1 ABSA (includes iDirect)
-2 Auto and General (includes Dial Direct)
-3 Budget Insurance
-4 Hollard
-5 Mutual and Federal
-6 Outsurance
-7 Regent
-8 Santam (includes MiWay)
-9 Standard Bank
-10 Telesure
-11 Zurich
-12 Other (specify)
-13 None

IF NONE (CODE -13), GO TO Q.5, OTHERS CONTINUE.

---

3. How likely is it that you would recommend **(READ OUT PROVIDERS MENTIONED IN Q.2)** to a friend or colleague? Please use a scale from 0 to 10, where 0 means 'not at all likely' and 10 means 'extremely likely'.

ASK FOR EACH PROVIDER MENTIONED IN Q.2.
SINGLE MENTION PER PROVIDER.

-1 ABSA (includes iDirect)
-2 Auto and General (includes Dial Direct)
-3 Budget Insurance
-4 Hollard
-5 Mutual and Federal
-6 Outsurance
-7 Regent
-8 Santam (includes MiWay)
-9 Standard Bank
-10 Telesure
-11 Zurich
-12 Other

-0 Not at all likely
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10 Extremely likely
-11 Don't know **(DO NOT READ OUT)**

FOR <u>EACH</u> PROVIDER CODED -9 OR -10, ASK Q.4a
FOR <u>EACH</u> PROVIDER CODED -7 OR -8, ASK Q.4b
FOR <u>EACH</u> PROVIDER CODED -0 TO -6, ASK Q.4c

4a. What is the main reason for giving **(READ OUT PROVIDER)** a high score?

RECORD VERBATIM
PROBE FULLY

.....
.....

4b. What would it take to increase your score for **(READ OUT PROVIDER)** to a 9 or 10?

RECORD VERBATIM
PROBE FULLY

.....
.....

4c. What is the main reason for not giving **(READ OUT PROVIDER)** a high score?

RECORD VERBATIM
PROBE FULLY

.....

ASK IF RESPONDENT HAS ACCESS TO INTERNET (CODE -4 IN Q.S1), OTHERS GO TO Q.11:

I am now going to ask you about your internet access.

5. What type of internet service provider(s) do you use to access the internet?

READ OUT.
MULTIPLE MENTIONS POSSIBLE.

-1 Fixed-line internet e.g. dial-up internet or ADSL broadband
-2 Mobile internet e.g. 3G modem or dongle

READ OUT IF ONE COMPANY USED IN Q6:

7. Were **you** the one who made the decision to purchase internet with **(READ OUT PROVIDERS IN Q.6)**, or at least strongly influenced the decision?

-1 Yes
-2 No

IF NO (CODE -2), GO TO Q.11, OTHERS CONTINUE.

READ OUT IF MORE THAN ONE COMPANY USED IN Q6:

7. For which of these companies were **you** the one who made the decision to purchase internet with them, or at least strongly influenced the decision?

READ OUT PROVIDERS USED IN Q.6.
MULTIPLE MENTIONS POSSIBLE.

-1 8TA
-2 Cell C
-3 Internet Solutions
-4 MTN
-5 MWEB
-6 Neotel
-7 Telkom
-8 Virgin Mobile
-9 Vodacom
-10 Other (specify)
-11 None

IF NONE (CODE -11), GO TO Q.11, OTHERS CONTINUE.

8. How likely is it that you would recommend **(READ OUT PROVIDERS MENTIONED IN Q.7)** to a friend or colleague? Please use a scale from 0 to 10, where 0 means 'not at all likely' and 10 means 'extremely likely'.

ASK FOR EACH PROVIDER MENTIONED IN Q.7.
SINGLE MENTION PER PROVIDER.

-1 8TA
-2 Cell C
-3 Internet Solutions
-4 MTN
-5 MWEB
-6 Neotel
-7 Telkom
-8 Virgin Mobile
-9 Vodacom
-10 Other (specify)

-0 Not at all likely
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10 Extremely likely
-11 Don't know **(DO NOT READ OUT)**

FOR EACH PROVIDER CODED -9 OR -10, ASK Q.9a
FOR EACH PROVIDER CODED -7 OR -8, ASK Q.9b

FOR EACH PROVIDER CODED -0 TO -6, ASK Q.9c

9a. What is the main reason for giving **(READ OUT PROVIDER)** a high score?

RECORD VERBATIM
PROBE FULLY

.....
.....

9b. What would it take to increase your score for **(READ OUT PROVIDER)** to a 9 or 10?

RECORD VERBATIM
PROBE FULLY

.....
.....

9c. What is the main reason for not giving **(READ OUT PROVIDER)** a high score?

RECORD VERBATIM
PROBE FULLY

.....
.....

ASK IF OWN A BANK ACCOUNT (CODE -2 IN Q.S1), OTHERS GO TO Q.16:

READ OUT IF ONE BANK USED IN Q10:

11. I am now going to ask you about your bank account.
Were **you** the one who made the decision to bank with **(READ OUT PROVIDERS IN Q.10)**, or at least strongly influenced the decision?

-1 Yes
-2 No

IF NO (CODE -2), GO TO Q.16, OTHERS CONTINUE.

READ OUT IF MORE THAN ONE BANK USED IN Q10:

11. I am now going to ask you about your bank account.
For which of these banks were **you** the one who made the decision to bank with them, or at least strongly influenced the decision?

READ OUT BANKS USED IN Q.10.
MULTIPLE MENTIONS POSSIBLE.

-1 ABSA
-2 Capitec
-3 FNB (First National Bank)
-4 Investec
-5 Nedbank
-6 Standard Bank
-7 Other (specify)
-8 None

IF NONE (CODE -8), GO TO Q.16, OTHERS CONTINUE.

12. How likely is it that you would recommend **(READ OUT BANKS MENTIONED IN Q.11)** to a friend or colleague? Please use a scale from 0 to 10, where 0 means 'not at all likely' and 10 means 'extremely likely'.

ASK FOR EACH BANK MENTIONED IN Q.11.
SINGLE MENTION PER BANK.

-1 ABSA
-2 Capitec
-3 FNB (First National Bank)
-4 Investec
-5 Nedbank
-6 Standard Bank
-7 Other (specify)

-0 Not at all likely
-1
-2
-3
-4
-5
-6
-7

-8
-9
-10 Extremely likely
-11 Don't know **(DO NOT READ OUT)**

FOR EACH BANK CODED -9 OR -10, ASK Q.13a
FOR EACH BANK CODED -7 OR -8, ASK Q.13b
FOR EACH BANK CODED -0 TO -6, ASK Q.13c

13a. What is the main reason for giving **(READ OUT BANK)** a high score?

RECORD VERBATIM
PROBE FULLY

.....
.....

13b. What would it take to increase your score for **(READ OUT BANK)** to a 9 or 10?

RECORD VERBATIM
PROBE FULLY

.....
.....

13c. What is the main reason for not giving **(READ OUT BANK)** a high score?

RECORD VERBATIM
PROBE FULLY

.....
.....

14. What is the most common means of interacting or communicating with your bank(s) for services, questions etc.?

READ OUT.
SINGLE MENTION.

-1 In person at a branch
-2 Over the phone
-3 Online (including emails, online banking, visiting the website)

ASK IF OWN A MOBILE PHONE (CODE -3 IN Q.S1), OTHERS GO TO SECTION D (Q.43):

READ OUT IF ONE PROVIDER USED IN Q15:

16. I am now going to ask you about your mobile phone.
Were **you** the one who made the decision to purchase a mobile phone with **(READ OUT PROVIDERS IN Q.15)**, or at least strongly influenced the decision?

-1 Yes
-2 No

IF NO (CODE -2), GO TO Q.43, OTHERS CONTINUE.

READ OUT IF MORE THAN ONE PROVIDER USED IN Q15:

16. I am now going to ask you about your mobile phone.
For which of these mobile service providers were **you** the one who made the decision to purchase a mobile phone with them, or at least strongly influenced the decision?

READ OUT PROVIDERS USED IN Q.15.
MULTIPLE MENTIONS POSSIBLE.

-1 8TA
-2 Cell C
-3 MTN
-4 Virgin Mobile
-5 Vodacom
-6 Other (specify)
-7 None

IF NONE (CODE -7), GO TO Q.43, OTHERS CONTINUE.

17. How likely is it that you would recommend **(READ OUT PROVIDERS MENTIONED IN Q.16)** to a friend or colleague? Please use a scale from 0 to 10, where 0 means 'not at all likely' and 10 means 'extremely likely'.

ASK FOR EACH PROVIDER MENTIONED IN Q.16.
SINGLE MENTION PER PROVIDER.

-1 8TA
-2 Cell C
-3 MTN
-4 Virgin Mobile
-5 Vodacom
-6 Other (specify)

-0 Not at all likely
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10 Extremely likely
-11 Don't know **(DO NOT READ OUT)**

FOR EACH PROVIDER CODED -9 OR -10, ASK Q.18a
FOR EACH PROVIDER CODED -7 OR -8, ASK Q.18b
FOR EACH PROVIDER CODED -0 TO -6, ASK Q.18c

18a. What is the main reason for giving **(READ OUT PROVIDER)** a high score?

RECORD VERBATIM
PROBE FULLY

.....
.....

18b. What would it take to increase your score for **(READ OUT PROVIDER)** to a 9 or 10?

RECORD VERBATIM
PROBE FULLY

.....
.....

18c. What is the main reason for not giving **(READ OUT PROVIDER)** a high score?

RECORD VERBATIM
PROBE FULLY

.....
.....

SECTION C: MOBILE PHONE BEHAVIOURS

IF NO MOBILE COMPANIES SELECTED IN Q.16, SKIP TO SECTION D.
IF ONLY ONE MOBILE COMPANY SELECTED IN Q.16, AUTOFILL ANSWER IN Q.19 AND GO TO Q.20.

19. Which of the mobile companies you use do you consider to be your **main** provider for mobile phone services?

READ OUT PROVIDERS MENTIONED IN Q.15.
SINGLE MENTION.

-1 8TA
-2 Cell C
-3 MTN
-4 Virgin Mobile
-5 Vodacom
-6 Other

20. How many years have you been a customer of **(READ OUT PROVIDER IN Q.19)**?

NUMBER TO BE BETWEEN 1 AND 30 YEARS.

_____ years
-99 Less than one year

21. How likely are you to move to another mobile company in the next 12 months? Please use a 5-point scale, where 1 is 'not at all likely' and 5 is 'very likely'.

SINGLE MENTION.

-1 Not at all likely
-2
-3
-4
-5 Very likely

22. How many times have you switched mobile company in the past 5 years?

SINGLE MENTION.
RECORD ZERO ("0") IF HAVE NOT SWITCHED IN THE PAST 5 YEARS.

_____ times

IF ANSWER TO Q.22 IS ZERO, THEN SKIP TO Q.27.

23. Who was your last mobile company? In other words, the one used before your current company.

SINGLE MENTION.
RESPONDENT CANNOT MENTION MAIN PROVIDER IN Q.19.

-1 8TA
-2 Cell C
-3 MTN
-4 Virgin Mobile
-5 Vodacom
-6 Other (specify)

---

24. How likely is it that you would recommend **(READ OUT COMPANY IN Q.23)** to a friend or colleague? Please use a scale from 0 to 10, where 0 means 'not at all likely' and 10 means 'extremely likely'.

SINGLE MENTION.

-0 Not at all likely
-1
-2
-3
-4
-5
-6
-7
-8
-9
-10 Extremely likely

25. What was the main reason why you left **(READ OUT COMPANY IN Q.23)**?

RECORD VERBATIM
PROBE FULLY

.....
.....

26. Which mobile companies did you consider when switching providers?

DO NOT PROMPT.
MULTIPLE MENTIONS POSSIBLE.

-1 8TA
-2 Cell C
-3 MTN
-4 Virgin Mobile
-5 Vodacom
-6 Other (specify)

ASK IF OWN A MOBILE PHONE (CODE -3 IN Q.S1):

27. What is the main reason you selected **(READ OUT PROVIDER IN Q.19)** over other mobile companies?

RECORD VERBATIM
PROBE FULLY

.....
.....

28. What is your typical **monthly** spend with **(READ OUT PROVIDER IN Q.19)**? This includes calls, text messages and any other services that incur a fee. Please give me your best estimate, to the nearest Rand.

R_____

29. Do you have a contract or do you use Top-up (pre-paid or pay as you go) with **(READ OUT PROVIDER IN Q.19)**?

MULTIPLE MENTIONS POSSIBLE.

-1 Top-up (prepaid, pay-as-you-go)
-2 Contract

30. What services do you use on a regular basis on your mobile phone?

READ OUT.
MULTIPLE MENTIONS POSSIBLE.

-1 Voice calling
-2 Text (SMS)
-3 Picture/video (MMS)
-4 Downloads (e.g. music, pictures, games, ringtones)
-5 Email
-6 Internet (e.g. browsing)
-7 Payment services
-8 Other (specify)

---

31. How long has it been since you last communicated with **(READ OUT PROVIDER IN Q.19)**?

READ OUT.
SINGLE MENTION.

-1 Less than 3 months
-2 3 – 5 months
-3 6 – 12 months
-4 More than 12 months
-5 Don't know/Can't remember **(DO NOT READ OUT)**

32. How did you last communicate with **(READ OUT PROVIDER IN Q.19)**?

READ OUT.
SINGLE MENTION.

-1 In person in-store
-2 Over the phone
-3 Online (including emails, online banking, visiting the website)
-4 Other (specify)
-5 Don't know/Can't remember **(DO NOT READ OUT)**

33. How would you rate your level of satisfaction with your overall **in-store** communication and interactions with **(READ OUT PROVIDER IN Q.19)**? Please use a 5-point scale, where 1 is 'not at all satisfied' and 5 is 'very satisfied'.

SINGLE MENTION.
LOGIC CHECK: CAN'T MENTION CODE -6 IN Q.33 IF MENTIONED CODE -1 IN Q.32.

-1 Not at all satisfied
-2
-3
-4
-5 Very satisfied
-6 Have not had this type of interaction **(DO NOT READ OUT)**

34. How would you rate your level of satisfaction with your overall **phone** communication and interactions with **(READ OUT PROVIDER IN Q.19)**? Please use the same 5-point scale, where 1 is 'not at all satisfied' and 5 is 'very satisfied'.

SINGLE MENTION.
LOGIC CHECK: CAN'T MENTION CODE -6 IN Q.34 IF MENTIONED CODE -2 IN Q.32.

-1 Not at all satisfied
-2
-3
-4
-5 Very satisfied
-6 Have not had this type of interaction **(DO NOT READ OUT)**

ASK IF OWN A MOBILE PHONE (CODE -3 IN Q.S1):

35. How would you rate your level of satisfaction with your overall **online** communication and interactions with **(READ OUT PROVIDER IN Q.19)**? Again, please use the same 5-point scale.

SINGLE MENTION.
LOGIC CHECK: CAN'T MENTION CODE -6 IN Q.35 IF MENTIONED CODE -3 IN Q.32.

-1 Not at all satisfied
-2
-3
-4
-5 Very satisfied
-6 Have not had this type of interaction **(DO NOT READ OUT)**

ASK ALL:

36. How satisfied are you with the overall call quality, reception and coverage with **(READ OUT PROVIDER IN Q.19)**? Again, please use the same 5- point scale.

SINGLE MENTION.

-1 Not at all satisfied
-2
-3
-4
-5 Very satisfied

---

37. How would you rate your level of satisfaction with the overall **billing/payment** process with **(READ OUT PROVIDER IN Q.19)**? Again, please use the same 5-point scale.

SINGLE MENTION.

-1 Not at all satisfied
-2
-3
-4
-5 Very satisfied
-6 Have not had this type of interaction **(DO NOT READ OUT)**

38. Approximately how many people have you recommended **(READ OUT PROVIDER IN Q.19)** to in the past 5 years?

_____ people
-99 Don't know **(DO NOT READ OUT)**

IF ANSWER TO Q.38 IS 0 OR DON'T KNOW (CODE -99), THEN SKIP TO Q.40.

39. Approximately how many of these people became customers of **(READ OUT PROVIDER IN Q.19)**?

_____ people
-99 Don't know **(DO NOT READ OUT)**

ASK IF OWN A MOBILE PHONE (CODE -3 IN Q.S1):

40. How many people have you advised **against (READ OUT PROVIDER IN Q.19)** in the past 5 years?

_____ people
-99 Don't know **(DO NOT READ OUT)**

41. Has your likelihood to recommend **(READ OUT PROVIDER IN Q.19)** increased, decreased, or stayed the same in the last 12 months?

SINGLE MENTION.

-1 Increased
-2 Decreased
-3 Stayed the same

IF LIKELIHOOD TO RECOMMEND INCREASED (CODE -1), ASK Q42a.
IF LIKELIHOOD TO RECOMMEND DECREASED (CODE -2), ASK Q42b.

42a. What significant change has caused your likelihood to recommend **(READ OUT PROVIDER IN Q.19)** to increase?

RECORD VERBATIM
PROBE FULLY

.....
.....

42b. What significant change has caused your likelihood to recommend **(READ OUT PROVIDER IN Q.19)** to decrease?

RECORD VERBATIM
PROBE FULLY

.....
.....

SECTION D: DEMOGRAPHICS

ASK ALL:
We are nearing the end of the interview and I just have a few more questions for classification and statistical purposes only.

43. How old are you?

READ OUT IF NECESSARY.
SINGLE MENTION.

-1 18 to 24 years
-2 25 to 34 years
-3 35 to 49 years
-4 50 to 64 years
-5 65+ years

44. What is your current working status?

READ OUT IF NECESSARY.
SINGLE MENTION.

-1 Self-employed
-2 Working full-time
-3 Working part-time
-4 Unemployed – looking for work
-5 Unemployed – not looking for work
-6 Student
-7 Retired
-8 Housewife/househusband

45. What is the highest level of education you have completed?

READ OUT.
SINGLE MENTION.

-1 No formal education
-2 Some primary school
-3 Primary school completed
-4 Some high school
-5 Matriculated
-6 Some university
-7 University completed: Bachelor's degree or undergraduate degree
-8 University completed: Honours, Masters or Doctorate degree
-9 Any other post-matric qualification
-10 Some college or technikon education

46. Could you please tell me into which group your total **monthly household income** falls? By monthly household income, I mean the total of all the incomes earned by all the wage-earners living in your house, before deductions.

READ OUT.
SINGLE MENTION.

-1 Less than R1 000 per month
-2 R1 000 to R2 499 per month
-3 R2 500 to R4 999 per month
-4 R5 000 to R9 999 per month
-5 R10 000 to R19 999 per month
-6 R20 000 to R29 999 per month
-7 R30 000 to R39 999 per month
-8 R40 000 or more per month
-9 Refused **(DO NOT READ OUT)**

47. What ethnic group do you belong to?

READ OUT.
SINGLE MENTION.

-1 Black
-2 White
-3 Coloured
-4 Indian/Asian
-5 Refused **(DO NOT READ OUT)**

48. What province do you live in?

READ OUT.
SINGLE MENTION.

-1 Western Cape
-2 Eastern Cape
-3 Northern Cape
-4 Free State
-5 KwaZulu-Natal
-6 North West
-7 Gauteng
-8 Mpumalanga
-9 Limpopo

Thank you very much for taking the time to answer these questions. We greatly appreciate it. Enjoy the rest of your day/evening!

11 Appendix 2- Assumptions made in order to calculate firm revenue growth rates

11.1 Cellular service providers

Cell C:

Cell C was not publically listed but public information concerning Cell C's earnings and revenue were provided by CEO announcements every half year. In order calculate Cell C's revenue growth the following news source was used:

http://www.businesslive.co.za/southafrica/sa_companies/2011/08/11/cell-c-ups-revenue-grows-subscribers-with-audio accessed September 2011.

The above link claim that Cell C's revenue increased half-year on half-year by 5% to R 10.2 Billion which is enough information for Cell C to be included in the analysis.

An assumption is made that the half year revenue for half year 1 2011 is R5.200 Billion and using the 5% growth number, the half 1 2012 revenue is assumed to be R4.857 Billion.

11.2 Retail banking service providers

FNB:

FNB's South African Retail segmented revenues on page 54 of First Rand's annual financial results 2011 (First Rand, 2011) was assumed to be the primary segment of retail banking revenue.

Standard Bank:

Standard Bank's South African personal and business banking revenues on page 86 of the Standard Bank Group Analysis of Financial Results 2011 (Standard Bank Group, 2011) was assumed to contain the primary segment of retail banking. Figure 28 on page 91 below shows what is included in the revenue figures for the personal and business banking. Given that no other information is publically available, this assumption is the best estimate that can be made.

Personal & Business Banking

Banking and other financial services to individual customers and small- to medium-sized enterprises in South Africa, rest of Africa, Argentina and the Channel Islands

What we offer

Mortgage lending
- Residential accommodation loans to mainly personal market customers

Instalment sale and finance leases
- Instalment finance to personal market customers
- Finance of vehicles and equipment in the business market

Credit cards
- Credit card facilities to individuals and businesses (credit card issuing)
- Merchant transaction acquiring services (card acquiring)

Transactional and lending products
- Transactions in products associated with the various point of contact channels such as ATMs, internet, telephone banking and branches. This includes deposit taking activities, electronic banking, cheque accounts and other lending products, coupled with debit card facilities to both personal and business market customers

Bancassurance and wealth
- Short-term and long-term insurance comprising:
  - simple embedded products including homeowners' insurance, funeral cover, household and vehicle insurance and loan protection plans sold in conjunction with related banking products
  - complex insurance products including life, disability and investment policies sold by qualified intermediaries
- Financial planning
- Wealth services

Figure 28: Standard Bank's personal and business banking operational breakdown

12 Appendix 3- Detailed K-S Test results for selected South African firms analysed

Score	ABSA Observed Cumulative Proportion	ABSA Theoretical Cumulative Proportion	FNB Observed Cumulative Proportion	FNB Theoretical Cumulative Proportion	Nedbank Observed Cumulative Proportion	Nedbank Theoretical Cumulative Proportion	Standard Bank Observed Cumulative Proportion	Standard Bank Theoretical Cumulative Proportion	Cell C Observed Cumulative Proportion	Cell C Theoretical Cumulative Proportion	MTN Observed Cumulative Proportion	MTN Theoretical Cumulative Proportion	Vodacom Observed Cumulative Proportion	Vodacom Theoretical Cumulative Proportion
0	0.033	0.091	0.026	0.091	0.017	0.091	0.025	0.091	0.019	0.091	0.011	0.091	0.012	0.091
1	0.051	0.182	0.033	0.182	0.017	0.182	0.032	0.182	0.019	0.182	0.015	0.182	0.016	0.182
2	0.083	0.273	0.037	0.273	0.033	0.273	0.057	0.273	0.028	0.273	0.015	0.273	0.023	0.273
3	0.101	0.364	0.037	0.364	0.066	0.364	0.064	0.364	0.038	0.364	0.022	0.364	0.030	0.364
4	0.123	0.455	0.041	0.455	0.099	0.455	0.099	0.455	0.066	0.455	0.037	0.455	0.040	0.455
5	0.264	0.545	0.104	0.545	0.198	0.545	0.187	0.545	0.174	0.545	0.130	0.545	0.105	0.545
6	0.326	0.636	0.167	0.636	0.256	0.636	0.247	0.636	0.225	0.636	0.185	0.636	0.133	0.636
7	0.424	0.727	0.237	0.727	0.331	0.727	0.364	0.727	0.300	0.727	0.270	0.727	0.248	0.727
8	0.572	0.818	0.426	0.818	0.504	0.818	0.527	0.818	0.479	0.818	0.467	0.818	0.442	0.818
9	0.667	0.909	0.581	0.909	0.603	0.909	0.654	0.909	0.620	0.909	0.596	0.909	0.591	0.909
10	1.000	1.000	0.967	1.000	0.992	1.000	0.968	1.000	0.981	1.000	0.985	1.000	0.981	1.000
n	276		270		121		283		213		270		428	
Max Delta	0.331		0.490		0.397		0.389		0.427		0.457		0.503	
D-critical	0.082		0.083		0.124		0.081		0.093		0.083		0.066	
Result:	Max Delta>D-critical therefore: Hypothesis rejected		Max Delta>D-critical therefore: Hypothesis rejected		Max Delta>D-critical therefore: Hypothesis rejected		Max Delta>D-critical therefore: Hypothesis rejected		Max Delta>D-critical therefore: Hypothesis rejected		Max Delta>D-critical therefore: Hypothesis rejected		Max Delta>D-critical therefore: Hypothesis rejected	

Figure 29: K-S Test results of Net Promoter scores for industries considered for evalution

13 Appendix 4- NPS data survey results

The data collected by TNS, is not attached to this research report for confidentially and intellectual property reasons. AB consulting has purchased the data from TNS and so has full rights over its use and distribution.

For replication purposes, Mr Ian Campbell at the University of Witwatersrand may be contacted for access to the data set.