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PRODUCT COST SYSTEM SELECTION FRAMEWORK FOR THE BANKING INDUSTRY

by

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EXTRACT

Large organisations, such as banks, compete through a variety of products, geography and services dimensions (Stenzel & Stenzel, 2004). Firms achieve sustainable competitive advantage if they are able to generate higher economic profits relative to competitors in the long-term. Market economics combined with relative strength in market and cost structure positions enhances the ability of a firm to generate superior economic profits (Besanko et al, 2004). Determining the use and allocation of investment resources is one of core and critical task strategic activity for management in a large firm. Firms use management accounting information to determine product profitability, understand cost drivers and the implication of investment decisions on the overall products and markets performance.

This reports come from the premise that the extent use, accuracy and deeper understanding of management accounting information is crucial for strategic management of the firm. Product cost systems produces the cost side of this management information and thus its use can have a far-reaching implications for the firm.

The study explores the various usage of product costs information and position product costing system in the context strategic management. The main of the study is to determine the key factors that management should consider when selecting a product cost system. This was achieved by a comprehensive discussion of each product cost system type and implications of the cost associated with each product. Furthermore, the product cost systems are discussed in terms of the level of sophistication which increases or decrease the level of product cost system design complexity. The theoretical foundation was applied in the South African banking industry to practically illustrate the problem in the real-world, the importance of the study; demonstrate the complexity of product cost system in two-sided markets as well as implication of implementing an incorrect system.

The research questions were tested and answered using quantitative techniques. Data was collected from a sample which represented the big four banks in South Africa primarily using a questionnaire. Purposive sampling technique was used.
The study concluded that the effectiveness of product cost systems are impacted two types of factors. Organisation-wide factors include organisation size, cost structure, product and market diversity. Product specific factors include product strategy, intensity of competition, usage of cost information and pricing capability.

The report concludes by producing a multi-dimensional framework that is designed to assist management when choosing a product cost system. The framework is designed to show the conceptual model of the interaction between organisation-wide and product-specific factors as well as level of sophistication. Broadly speaking, the study showed a strong positive relationship between level of sophistication and organisational size, fixed cost structure, product diversity and high usage of cost information. However, it was found that product cost system on its own was not a key driver for individual product strategy. In addition, whilst price setting was a critical capability as informed by the product cost system, in markets where price elasticity is low then product cost systems has limited impact on the organisation.

The report brings to the fore the dynamics, interaction and usage of product cost system with other critical organisation capabilities required in order to achieve sustainable competitive advantage. It hopes to increase investment in time and resources from management when choosing the product cost system before, rather than, implementation.
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1. INTRODUCTION AND AIM OF THE STUDY

Strategic management can be described as the process of planning, implementing and controlling the execution of a future-oriented and usually long-term plan within a competitive environment in order to achieve company objectives (Pearson & Robinson, 2007: 3). Broadly speaking, a strategy can be of two types: corporate strategy and business strategy (Ginevičius, Krivka & Šimkūnaitė, 2010: 8; Lynch, 2006: 7; Pearson & Robinson, 2007: 10). Corporate level strategy focuses on the identity and the management of the different business portfolios, including when to enter or exit markets, resource distribution decisions, industry or market segment diversification, and so on. Business level strategy, on the other hand, is concerned with competing for customers, generating the most value from allocated resources, and defining underlying sustainable competitive advantages. Porter (1980: 15) argues that competitive strategy looks at how the firm survives and competes in a given competitive environment. He further contends that a firm without a clear competitive strategy will not survive in the long-term. The riskiest strategy of all is simply to pursue business as usual.

Most organisations compete through a variety of product and service dimensions (Stenzel & Stenzel, 2004: 38). Often these products and services are offered in various market segments and are subject to competitive pressures that require decision makers to have accurate cost information at their disposal in order to accurately measure performance (James & Elmezugh, 2010: 54; Senthil, 2010: 4). Product costing systems play a critical role in enabling decision makers to clearly understand product performance. Almost all product costing commentators tend to agree that modern costing systems, such as activity-based costing (ABC), resource consumption accounting (RCA) and time-driven activity-based costing (TDABC), are hailed as providing more accurate information and therefore having a value-enhancing effect on price-setting decisions (Chea, 2011:4; James & Elmezugh, 2010: 52; Drury & Taylor, 2005: 49). The accuracy (or lack of) of product costing information has direct implications for the organisation’s business strategy.

From a business strategy perspective, management has a need for accurate information to arrive at a realistic measure of business performance - in particular, product profitability.
Accurate information is important for cost management, ability to price competitively in the market and effective strategy execution. The total product cost is made up of two components: direct and indirect costs (Blocher, Stoute & Cokins, 2010: 10). Direct costs are costs that can be directly attributable to a specific product or service (such as labour, materials, etc.) whereas indirect costs are shared among products or organisational activities (such as corporate brand marketing, finance, contact centre and so on). Cost allocation methods are used to apportion indirect costs to products. Incorrect cost allocations where products and services are concerned may lead to poor strategic management decisions.

What complicates the matter even further is that pricing decision makers will not set prices lower than the levels reported by an inaccurate costing system if it leads to accounting loss (Cardinaels, Roodhooft & Warlop, 2004: 136). These authors argue that such action is likely even if it does not lead to real economic loss for the organisation, demonstrating the typical principal-agency problem. Jansen and Mackling (1976: 310) argue that it is necessary for the principal to incur “costs” that ensure that the agency takes optimal decisions and actions in the interests of the principal. Put differently, any organisation must ensure that product-level decisions are consistent with the organisation’s broader strategic objectives. There are clear and obvious dangers in a situation where there is disconnect between product and/or business unit level decisions and corporate strategy (Pearson & Robinson, 2007:38). This suggests that product costs systems should a critical role in keeping strategic objectives and at business unit level synchronised. Potentially, product cost system may assist management to make investment or disinvestment decisions given its ability to product profitability and other crucial management information.

However, theoretical literature is limited when it comes to looking at product cost management systems as a strategic management imperative. The existing literature does not appear to integrate the role and importance of product cost management system with strategy formulation, execution and organisational controls.
This study arises out of the critical need for management to make long-term decisions (positioning, diversifying and achieving competitiveness) for the organisation as a whole and translate these into various product and service strategies for chosen segmented markets. In view of this link, the economics of the underlying products and services must be clearly understood at all levels of the organisation. Product costing systems play a pivotal role in determining product investment, profitability and long-term viability. Accurate cost information at product level is critical in this context.

This study aims to develop a framework to assist management in choosing and evaluating a product costing system by taking a strategic management approach. In essence, such a framework will look beyond a product costing system as an accounting system and take into consideration the broader context in which it may be applied. Literature shows that there is an appreciation of the importance of the product cost systems to produce accurate cost information (Cardineals et al, Cooper & Kaplan, 1988; 2007; Drury & Tayles, 2005), however, the literature appears to be short of why it is important for management to choose the right system in the first place. This study will develop a framework to assist management to make the right decision as to which system is suitable given the organisation strategic direction, competitive and internal organisation constructs. The framework will then be applied and tested in the South African banking industry.

1.1 Important concepts for the study

1.1.1 Costs and usage cost information
This report adopted the description of Balakrishnan, Labro and Sivaramakrishnan (2012) which defines product costing systems as mechanisms for allocating costs to cost objects such as products, customers, etc. to produce meaningful cost information. When implemented accurately, product costing systems produce critical information for various audiences and purposes within the organisation. Several commentators (Blocher et al, 2010: 9; Drury & Taylor, 2006: 406; Fisher & Krumwiede, 2012: 43) asserts that product costing systems play a number of roles and provide information for a variety of uses in the organisation.
These include:

a) Providing cost information for cost control (management of cost drivers);

b) Providing and allocating costs for internal and external profit reporting (financial reporting);

c) Providing cost information for investment and growth purposes (investment decisions);

d) Providing cost information for price setting;

e) Providing economic feedback to managers to improve competitiveness (driving appropriate competitive behaviour).

Clearly, the role played by product costing systems in an organisation is broad, diverse and complex. There is no one single product costing system that meets all the afore-mentioned diverse needs equally (Fisher & Krumwiede, 2012: 43). In addition, the organisational environment (e.g. manufacturing or service, the organisation’s size, geographical diversity, and so on) plays a key role in the appropriateness of costing systems (Williams & Seaman, 2001:444). Therefore, selecting an appropriate product costing system and philosophy requires careful consideration in terms of economic benefits, costs and contextual relevance. This study takes a strategic management approach, and therefore focuses on the areas that impact the organisation’s strategic position and implications for the firm’s short- and long-term survival.

1.1.2 Cost information and long-term price-setting

Creating a strategic framework that accommodates both short-term and long-term pricing decisions is one of the complex tasks that management faces. The work of Hsu (2011) provides the useful insight that “prices and unit capacity costs increase as a function of expected capacity utilisation and decrease in response to demand variability”. In essence, when the demand is high then the organisation has the power to increase prices (including capacity costs). However, if demand is difficult to predict in the face of both high volatility and variability, then capacity is measured with a higher error rate and as a result, prices and unit capacity costs fall. Furthermore, there is no conclusive agreement among researchers as to whether capacity should, or should not, be allocated to product-level unit cost (Cooper & Kaplan, 1998; Banker, Hwang & Mishra, 2002: 80; Hsu, 2011: 555;). In solving this
complex and intractable problem, top management has a key responsibility to ensure that
the organisation has a clear strategy and a supporting product costing system, thus aligning
business unit level and product competitive strategy with overall corporate goals.

Price-setters, even when they know that the costing information is less than accurate, will
avoid setting prices that produce accounting loss (Cardinaels et al., 2004). Tversky and
Kehneman (1991:1042) support this view, arguing that cost information creates an internal
focal point for price-setting. The loss avoidance theory is significant for this study in that
management can make incorrect decisions by closing certain product lines or exiting
markets in its quest to avoid a perceived accounting loss, which in turn impacts the strategic
positioning of the firm.

1.1.3 Cost and competition and competitive strategy
Porter’s (2008: 88) classic work on the five forces framework for industry analysis is based
on the fundamental idea that industry conditions are an important determinant of an
organisation’s profitability. Porter (1980) argues that in a competitive environment, those
firms with sustainable competitive advantage will outperform rivals. Besanko, Dranove,
Shanley and Schaefer (2004: 360) assert that a firm that achieves a better rate of economic
profit than other competing firms has that competitive advantage.

Porter (1980) goes on to discuss the three well-researched generic strategies that firms can
adopt in their quest to achieve this competitive advantage. They are: cost-leadership,
differentiation and focus (sometimes referred to as niche) strategies. Based on this, Besanko
et al (2004: 360) developed a useful model (Figure 1-A) which conceptualise the implications
of each strategy option within a competitive environment. As can be noted, whether the
firm chooses the differentiation, cost-leadership and/or focus strategy, relatively better
performance in comparison to competitors will lead to superior, sustainable economic
returns.
Fisher and Krumwiede (2012:45) argue that the actual intensity of rivalry is felt at a product level or within a business unit rather than at the overall corporate level. They assert that at a corporate level a mixed impact is felt in the performance of the product portfolio, which at times can “hide” the real issues surrounding the product or portfolio. In support of this view, the research of McGahan and Porter (1997:29) shows that the industry and parent company together account for 23% of the firm’s performance, whereas the competitive position of a particular product or business unit accounts for 32%. Competitive position is by far the largest determinant of a firm’s performance outside the “unexplainable variations” category. Understanding the critical underlying cost drivers is critical in ensuring that products are positioned appropriately in the marketplace.

Product costing systems are based on the premise that when executives are armed with accurate information about profit potential, they can carefully consider a range of strategic options (Cooper & Kaplan, 1998; Fisher & Krumwiede, 2012). Cooper and Kaplan (1988:96) assert that “often managers selling multiple products are making important strategic, pricing, product mix and process technology decisions based on distorted cost information”. They further argue that this is largely due to high overheads or indirect costs that are allocated inappropriately to products, which makes them less competitive. The contrast is
also true, when there is a poor estimation of profit potential, then management has fewer strategic options. Relevant and timely cost information is essential for profitability analysis and strategic planning (Fisher & Krumwiede, 2012: 49).

Cooper and Kaplan (1998) state that cost allocation methods based on volume-based drivers often lead to over-costing of high-volume products and under-costing of low-volume products. There is a general consensus that modern costing systems provide more relevant and accurate product cost information than traditional systems (Chea, 2011: 6; Drury & Taylor, 2005: 48). Two firms, with products operating in the same environment and with similar underlying cost structures, could – by having a choice of product costing systems - have totally different unit costs for their competing products.

1.2 Importance of the Study

Miller (2002: 360) asserts that more than 70% of organisations fail to implement new strategic initiatives. Pertusa-Ortega, José and Claver-Cortés (2010: 1284) opine that this might largely be due to the fact that strategic change, as largely perceived by top management, is easier to conceptualise than actual organisational change. Put differently, clear strategic priorities and inspirational vision on their own are often not sufficient to achieve sustainable competitive advantage. Strategy should be supported by appropriate organisational structures, capabilities and systems (Barney, 1991; Grant, 1991; Newbert, 2008).

Barney (1991) and Grant (1991), as part of the resource-base view theory, recognise that organisational structure needs to include capabilities and organisational resources. Barney (1991: 100) points out that these firm-level capabilities include reporting structures, formal and informal planning, controlling and coordinating processes. Often these processes are managed and controlled through management control systems. Product costing systems are one (but a critical) part of these management processes that provide important insight into the firm’s overall performance.

In this strategy and product costing system nexus (Galan & Sanchez-Beuno, 2009: 1235), the study aims to contribute to the expanding literature linking strategy, management accounting and performance in the following ways:
Product costing systems, when implemented properly, provide critical information about how well the firm is executing its strategy (Anderson & Lanen, 1999:380). This study shows that feedback is critical for the individual business units as well as for firm-level strategy formulation and management;

Choosing which product costing system to implement and where, matters a great deal, but it should be borne in mind that no one system will meet all management information requirements (Fisher & Krumwiede, 2012);

Choosing an appropriate product costing system is a broader and more complex undertaking than that suggested by the finance department’s information requirements (Kaplan & Cooper, 1988). The product costing system will have implications for management behaviour, strategy formulation and execution, business controls and other administrative activities designed to help the firm achieve its desired strategic outcomes.

1.3 Research Problem
There are three main categories of research in the area of product costing systems. The first category comprises studies that focus on arguing the accuracy and efficacy of one product system over another (Brierley, 2008; Drury & Taylor, 2005; Kaplan & Cooper, 1988). The second category comprises studies on how cost allocation methods and systems are focused on changes in price-setters’ behaviour in the face of accurate versus less accurate costing information (Cardinaels, Roodhooft & Warlop, 2004; Dierynick & Roodhooft, 2011), thereby reinforcing the importance of accurate information. The third category focuses on the “fixation” (focal points) on the output of the cost allocation system as a critical reference point for decisions, which in turn could lead to inappropriate pricing and short-term and long-term strategic decisions (Hsu, 2011; Shin, Sudhir & Yoon, 2012; Tversky & Kehneman, 1991). However, the literature is limited when it comes to looking at product cost management systems as a strategic management imperative. The existing literature does not appear to integrate the role, interaction and importance of product cost management system with strategy formulation, execution and organisational controls. The main research
problem is that management rely on the product cost information to make crucial strategic decisions without taking the necessary care to ensure the system that produces the data is fit-for-purpose.

It is for this reason that the design and choice of appropriate product cost management systems are often relegated to finance teams who take these important decisions on the basis of accounting principles rather than as a strategic lever for competitiveness. The author argues that product costing systems within the context of a firm’s management accounting practices, among other factors, are central to the economics of the products and services that the firm provides to the market. This study will add to the managerial accounting and strategic management sciences knowledge base by taking a strategic management approach in providing senior management with a tool that serves as a frame of reference for selecting an appropriate product costing system.

1.4 Research Objectives

The primary objective of the study is to develop a framework intended to assist senior management in the banking industry in deciding which product costing systems are appropriate for their business units. Senior management are not only concerned with the soundness of the product costing systems from an accounting point of view, but also the implications on the strategic management of the organisation. The theoretical literature review shows that a gap exists specifically on the role, importance and nature of the interaction between product cost systems and strategic management. In this context, the research objectives can be summarised as follows:

- To investigate the relevance and importance of cost accuracy and efficacy in the banking industry;
- To investigate the implications of the cost allocation system outputs as a focal point for price-setting in the banking industry;
- To develop a thorough understanding of the strategic implications of product costing systems in the banking industry;
To develop a general framework and a set of principles for management to consider when deciding on cost allocation systems in the banking industry.

The study draws frameworks and principles from existing literature, mainly in the fields of management accounting, management and economics which are relevant to strategic management. In the management accounting field, the study uses the existing of definitions, application and implications of the different types of product cost systems (Balakrishnan et al, 2012; Drury & Taylor, 2005). In the management field, the study draws from various theories including contingency theory (Chandler, 1962), Resource-Base View (Grant, 1991) and generic competitive strategy (Porter, 1985). In the economics field, it uses theory of the firm (Bensako et al, 2004; Jensen & Meckling, 1963) as well as competition and price-setting theory (Bromwich (1990).

The main idea is that if senior management choose the appropriate product cost management system, they will be able to:

- Make appropriate strategic decisions based that are adjusted for the level of accuracy contained in the outcomes of the cost system;
- Direct the behaviour of the price-setters appropriately given the intensity and structure of competition;
- Make decisions that are strategically designed to direct and harmonise the efforts of various divisions to achieve overall corporate goals;
- Ensure that management behaviour is aligned to the organisation’s long-term objectives.

1.5 Research Questions
This study seeks to analyse and intersect three key research themes related to cost management: a) relevance, use and importance of accurate costing information, b) product costing in the context of pricing decisions, and c) relevance of product cost management
systems and the implications for competitive strategy. The integration of these key research themes is aimed at answering a broad research question – **what critical principles and framework elements that management should consider in order to select of an appropriate product costing system in the banking industry?**

This broad question is broken down into sub-questions:

- What role do product costing systems play in the strategic management of the bank?
- Which product cost management systems are relevant and efficient for the banking industry?
- What role do product costing systems play in, and what are their implications for, price-setting in the banking industry?
- What are the critical considerations for management when choosing a cost allocation system in the banking industry?

### 1.6 Research Design

A phenomenological approach was adopted with a view to understanding people’s perceptions and perspectives of a particular situation (Leedy & Ormrod, 2001). The phenomenon of product costing systems, price-setting and competitive advantages are already in existences. A phenomenological approach was deemed appropriate since it explores an already existing area. Consequently, the design is that of interpretivism where the researcher will enter the world of, or is part of the social fibre of, the research subjects (Saunders, Lewis & Thornhill, 2007).

Data was collected from the sample of people who are working in the banking industry only. The purposive sampling technique was deemed appropriate because the respondents were required to have specific requisite knowledge. According to Welman and Kruger (1999), the phenomenologists are concerned with understanding social and psychological phenomena from the perspective of the people involved.

The research design paradigm used for this study involves mixed-methods as it is expected that data will be collected through qualitative and quantitative methods, with the analysis
being performed using quantitative techniques. Qualitative methods were used to ensure that the questionnaire was designed to obtain the data targeted specifically for this study through structured interviews process. This ensured that the questionnaire was clear in its concepts and presentation. After this a data was collected using this questionnaire. All data was analysed used quantitative methods. The logical flow of research methodological framework is shown in figure Figure 1-B.
Figure 1-B Research Methodological Framework

Source: Author
1.7 Research Methods

The data will be collected using questionnaires with closed questions to ensure a consistent and effective collection process. The sample size is envisaged to be 65 people drawn from finance, business and senior executives in the banking industry. Gordon and Langmaid (1988) highlight two criticisms of the interview format in terms of its reliability and validity. The first relates to the opportunity for the responses to vary significantly from one respondent to the next. The second relates to the possibility of bias in the analysis of the data based on the researcher’s perceptions. A small sample of structured interviews will be conducted face-to-face with each respondent to ensure validity, consistency and minimise interpretation issues on the questionnaire.

The impact of the two criticisms mentioned above is mitigated through the pilot study with a small sample. This ensures the questionnaire (Appendix C) is correctly interpreted and addresses the pertinent issues relevant to the study. The use of the purposive sampling method ensures that respondents do have pre-requisite knowledge and skills to able to answer the questionnaire. The structured questionnaire has standard rating system which minimises variability of responses. Lastly, quantitative analysis minimises the researcher’s perceptions and biasness in the process.

1.8 Chapter Outline

Chapter 1 – This chapter serves as an introduction, providing the background, rationale, research questions and objectives of the study.

Chapter 2 – This chapter provides a comprehensive literature review. The literature review is broadly organised to develop a solid foundation for understanding the link between strategic management and product costing systems relevant to the banking industry, and the implications thereof for price-setting. It is mainly arranged in three sections: 1) In-depth analyses between strategic management and product costing systems; 2) A thorough analysis of product costing systems, and lastly, 3) A study of the implications of product costing systems in a price-setting environment. The chapter concludes by summarising the hypotheses that acts a theoretical framework.
Chapter 3 – This chapter provides an overview of the banking industry in South Africa. More importantly, it aims to illustrate the application of product cost system using real-world practical example - cash as service offered by the bank.

Chapter 4 – This chapter explains the research design and methodology used to test the validity of the theoretical framework, as deduced from the literature review in Chapter 2. In addition, it explains the rationale for the chosen research methodology and sample size. It also provides detailed reasons for collecting secondary data to validate the qualitative data acquired through the interview process.

Chapter 5 – This chapter presents the data collected. It codifying and categorises the data to facilitate quantitative data analysis based on the research questions as described in Chapter 1.

Chapter 6 – This chapter analyses data and interpretation in order to arrive at conclusions in relation to the theoretical framework deduced from Chapter 2. It concludes the report with the validation - or non-validation, as the case may be - of the theoretical framework deduced in Chapter 2.

Chapter 7 – This chapter concludes the report with conclusions and recommendation to management including management accounting practitioners and business strategists. It also proposes new areas of research.

1.9 Limitations
The study is aims to develop a framework that could be used by management in choosing an appropriate product costing system. It will not attempt to evaluate the accuracy, soundness or effectiveness of First National Bank’s current costing system for any particular business unit. It will also not recommend any new system or reveal the existing system to parties that may use the information for unwanted purposes. Lastly, the data collected from the system will not be used in its “real” form but will rather focus on relationships and relevant outcomes.

Since product cost system and price-setting activities are sensitive and confidential in nature among competing organisations, the study may experience resistance from targeted
sample. However, keeping respondents and individual responses anonymous could mitigate against this risk.

1.10 Ethical Considerations

Data collected will be used for the purpose of this study only. Therefore, confidentiality of the respondents’ identities will be maintained. There will be full disclosure to the participants before the interviews with regard to the interview process and its purpose. Participants will be afforded an opportunity to decline participation should they wish to do so. Lastly, only the consolidated outcomes will be shared with management without a break-down of information which could potentially reveal individuals’ identities.
2. LITERATURE REVIEW

The short- and long-term success of a firm depends on how it performs relative to its competitors in its chosen markets. Ultimately, a firm’s performance is the result of complex, cross-functional and multi-dimensional, endogenous interactions and factors within the firm that meet or exceed the exogenous needs of clients (Anderson & Lanen, 1999:380). In some markets, firms aim to influence exogenous environmental factors in order to drive demand for their products or services (i.e. shaping or creating the market) or choose a particular strategy to compete with existing establishments. Irrespective of their chosen strategy, firms have to ensure that they have adequate capabilities to deliver superior returns (Anderson & Lanen, 1999:379).

This chapter explores in detail four distinct but inter-linked themes:

1. The link between strategy, organisational capabilities and performance;
2. Management accounting – with emphasis on the relevance of product costing systems – as a key organisational capability;
3. The value of key product costing systems;
4. Performance management and managerial behaviour - more specifically, the implications of costing systems on management behaviour.

2.1 Strategy, Organisational Capabilities and Performance

In this section, the links between strategy, organisational capabilities and a firm’s performance are examined. The depth of such linkages is explored using two well-researched organisational design theory models – the contingency approach and the resource-based view. The researcher chose these two models as a framework for exploring the dynamic relationship between strategy, organisational capabilities and performance, for two important reasons. First, the contingency theory has been widely accepted as the traditional strategy-structure-performance paradigm developed by Chandler (1962) which demonstrates a direct link between a firm’s performance and strategy, with the structure acting as a moderating factor between the two. Secondly, the resource-based view is a more modern theoretical model which argues that internal resources and their capabilities
offer a more sustainable competitive advantage (Grant, 1991:111) than “structure”. The
validity of both models has been widely accepted and they provide the necessary
foundation to develop a framework that looks at product costing systems, from a strategic
management viewpoint, as a critical organisational capability. Despite the models
incorporating the same fundamental organisational theory, the cornerstone of both models
is the importance of evaluating different strategic alternatives and driving performance
through sustainable, transformational capabilities.

Before the report moves into a discussion on the linkages between strategy, organisational
capabilities and performance, it is a good idea to start with a review of the literature that
introduces key economic concepts relating to the basis for the existence of a firm, its
boundaries and its internal organisation. In this way, the report will lay the foundation for
an understanding of the strategic management process in a firm and the dynamics that are
typically at play.

2.2 Theory of the firm

In business administration literature - notably the strategy and organisational development
fields – the theory of the firm provides the foundation for understanding why a firm exists
and how its limited resources are allocated. It also describes managerial behaviour within
the context of various constraints, with particular reference to the potential principal-
agency problem (Becerra, 2009). The theory of the firm rests on a broad base of theoretical
frameworks and applications. Theory of the firm research can be group into three distinct
areas: existence of the firm, managerial behaviour theory, and the firm’s relationship with
the market (Becerra, 2009; Jensen & Meckling, 1963; Spender, 1996; Zenger, 2011).

2.2.1 Firm Existence

Most commentators in the field of economics agree that firms exist largely for the purpose
of profit maximisation (Bensako et al, 2004; Coase, 1937; Jensen & Meckling, 1963). In his
breakthrough work, Coase (1937) explains that firms exist where it is possible to make a
profit, bearing in mind that there are costs associated with conducting transactions in the
market. The theory of transaction costs (Williamson, 1985) emphasises that transaction
costs increase when transaction-specific investments are involved. These two key concepts can be applied to the entire firm or to specific business units within a large firm. Clearly, profit maximisation and the reduction of transactional costs are central to the issue of why most businesses exist and continue to survive in the long-term.

Besanko et al (2004) assert that the firm or business organisation is a fundamental unit of analysis in the strategy field. It is therefore necessary to define the concept of the “firm” so that a context can be provided for the dynamics that take place within it. There are four broad concepts that can be used to define a firm (Becerra, 2009:11):

The firm as a production unit

The theory of production in the field of economics is built on the premise that a firm is a supplier of goods and services through a formalised production function (Binswanger, 2013:49). This view suggests that a firm’s size and scope are a function of the shape of its production function (Becerra, 2009:13). In the long-run equilibrium, the firm will produce at the lowest average cost of production. New entrants will enter the market until the overall supply equals demand, and thus no extra economic profit is possible (Zenger, 90). This theory, however, totally ignores managerial behaviour, the firm’s market position, incentives, and so on which are also key drivers of a firm’s performance – in fact, they go far beyond the achievement of the lowest cost of production in the long run. Essentially, the theory fails to provide insight into what actually goes on inside the firm, other than to explain that inputs are used in various transformation processes to produce outputs that are required by the market.

The firm as a decision-making process

Simon (1991:127) defines the firm as “the pattern of communications and relations among a group of human beings, including the processes for making and implementing decisions”. He describes a firm from the standpoint that it is a formal, systematic structure where the output is the result of people making decisions about pricing, inventory, advertising, investing, recruiting, and so forth. Simon’s definition is a departure from the pure profit maximisation paradigm as it recognises the need for the organisation to have decision-
making rules that steer people’s behaviour within acceptable boundaries (as opposed to simply driving profit maximisation). In other words, the sum of all maximisation efforts does not always lead to the maximisation of the firm as a whole. Therefore, the optimisation of various aspects is necessary. This notion of optimising decision making is useful for understanding the economics of two-sided markets, which is discussed later in the report.

**The firm as a contracting solution**

With reference to the classic work of Coase (1937), the contracting solution of a firm stems from a simple, yet insightful, realisation that exchanges can take place either inside (intra-firm) or outside the firm when it contracts through a market. Using the optimisation principle, the firm should internalise value exchanges to operate more efficiently as long as the cost of doing so is lower than that of transacting through the market (Becerra, 2009; Williamson, 1985; Zenger, 2011). Coase (1937) refers to this as “transactions costs”. He said “a firm will tend to expand until the costs of organizing an extra transaction within the firm is equal to the cost of carrying out the same transaction by means of an exchange in the open market” (Coase, 1937:389). This theory is of particular relevance to the study since product costing systems act as mechanisms that provide insight into the economic (and real) costs of internal or external exchanges throughout the transformation value chain.

Oliver Williamson (1985) expanded on Coase’s views about transaction costs and the firm as a governance mechanism, by developing a theory known as transaction costs economics. He frequently uses the term “hierarchy” to explain the phenomenon of governance mechanisms within the firm, highlighting the importance of organisational authority. Williamson (1985:32) offers the view that hierarchy will emerge as governance when the behavioural assumptions of bounded rationality and opportunism are present and the economic exchange requires asset-specific investment. In other words, governance allows the firm to organise transactions so as to economise on bounded rationality while simultaneously preventing the hazards of opportunism.

Contracting employees and introducing other administrative processes in the performance management domain are one way, among others, in which the firm sets out to govern employee behaviour. Hart (1988:121) describe the nature of these contracts as incomplete
because it is not always possible to clearly specify the expected behaviour and output of the agency (or an employee). The agency problem is discussed in more detail in the principal-agency problem section below. The central issue at this stage is showing that firms use contracts to enforce “hierarchy” and administration system which acts as an internal governance mechanism.

**The firm as a collection of resources**

Barney (1991) is generally acknowledged as being the first to formalise the resource-based view theory in the literature. He argues that a firm can be defined in terms of its resources and capabilities, and that these are integrated under one administrative framework to achieve a sustainable competitive advantage. In addition, he points out that the value, immobility and rarity of such resources ultimately result in improved performance, both in the short- and long-term. The resource-based view offers an alternative to the notion of the strategy-structure-performance relationship under the contingency theory.

The classification of the firm’s resources includes what Grant (1991:840) calls “organisational resources” which are components of organisational structure. These include the firm’s reporting structure, formal and informal planning, controlling and coordinating systems, as well as formal and informal relationships within the firm and with the firm’s external environment. According to Teece, Pisano and Shuen (1997:510), the firm’s capabilities need to be seen largely as organisational structures and managerial processes that support productivity-linked activities. In other words, the firm needs to be able to decide on and implement a product costing system that is aligned to its strategic intent and makes a contribution to the firm’s competitiveness (Cooper, 1998).

**Putting all together**

The above concepts help clarifying what a firm is and what it aims to achieve. They provide useful insights into what drives the multi-disciplinary character of, and dynamics within, the firm. Since this study takes a strategic management approach in developing a decision-making framework for product costing systems, the notion of a firm as a governance structure is key to understanding the type of opportunism that can be evident in managerial
behaviour, which may or may not be aligned to a principal’s interests. The following section will dissect the agency problem, and consider the implications of organisational structure on performance in the context of the contingency theory and resource-based view, respectively.

2.2.2 Principal-agency problem
If a firm’s reason for being is largely to generate profits for its owners, surely there is a potential principal/agency problem between management and the general employees of the firm? Put differently, it is fair to assume that the managers and employees in the firm are, individually, also seeking to maximise their individual economic returns. Jensen and Meckling (1963:310) refer to this relationship in a broad sense as an agency relationship. An agency relationship can be defined as a “contract under which one or more persons (the principal) engage another person (the agent) to perform services on their behalf, which involves delegation of authority” (Jensen & Meckling, 1963:310). Williamson (1985) suggests behavioural and managerial theories in relation to the firm, that there possible incentive conflicts between owners and managers; as well as between intra-firm agents. To a large extent, this theory supports the view that product costing systems play a critical role in organisations.

Individuals will be willing to accept being part of the organisation if their activity contributes directly and indirectly to their personal goals (Hart, 1988). It is therefore possible that managers’ objectives may diverge from those of the owners of the firm. According to Jensen and Meckling (1963:317), the principal can limit the degree of divergence by putting in place appropriate incentives for the agent. He further asserts that in addition to appropriate incentives, the principal must also incur costs for monitoring, which are designed to limit the activities of the agent. Ensuring that there are appropriate incentives and adequate monitoring mechanisms in place will help to strengthen the interaction between the corporate office and business units, and limit divergence within the same firm.

In recent times, the topic of management incentives and bonuses has been put under the spotlight by the media, especially as used by financial institutions, such as banks, in the wake of the 2008 global financial crisis. The work of Hart (1988) explains that the employer-employee relationship is governed by an incomplete contract whereby the employer offers
remuneration in return for an agreement that the employee will accept direction from the employer. The contract is incomplete in the sense that the two parties are unable to write an enforceable contract that fully specifies what the employee must do (Hart, 1988:125).

The employee will accept an “open-ended” contract to the extent that he/she expects his/her duties to fall within the framework of the firm’s direction and transformational activities. In line with Hart’s view, the recent work of Christ, Sedatole and Towry (2012:1936) has conveyed the idea that if a contract is incomplete, then the employee’s trust of the employer becomes highly relevant. The authors note that employees accept work-related responsibility on the basis of potential monetary rewards, such as discretionary bonuses for increased effort. Interestingly, they conclude that penalty contracts are interpreted by the agents as a sign of mistrust, and they then tend to put less effort into tasks outside such contracts. On the other hand, bonus contracts have the opposite effect and do increase voluntary work efforts.

The report will now discuss the mechanisms that the principal might put in place to ensure that the agents engage in appropriate behaviour. The strategic context and activities of the corporate office and the business unit, respectively, are of particular relevance.

2.2.3 Aspects that moderate divergent needs of a firm

2.2.3.1 The moderating role of the strategic environment

The relationship between rationality in the strategic management process and a firm’s performance has been a topic for debate within the strategic management field for decades. Various management concepts, including strategy, structure, processes and outcomes, are largely influenced by external and internal environmental factors (Goll & Rasheed, 1997:585). Reeves, Love and Tillmanns (2012:77) suggest that many executives adopt a strategic management approach that does not match their firm’s competitive circumstances. The authors suggest the adoption of a framework that can help to guide firms in adopting the strategic style that is most relevant to their situation (see Figure 2-A Strategic Paradigms).
All four strategic approaches have fundamental differences in terms of their time horizon and the flexibility of the strategy itself, as well as their underlying management processes. Adaptive and shaping strategies, for instance, are likely to have shorter planning cycles with the key differences centring on whether firms are able to influence their industry by driving their own strategies or alternatively, taking their cue mainly from competitors’ actions. Reeves et al (2012:90). Often, the visionary strategy is appropriate where a firm can create new and disruptive industries – pretty much what Apple did to the music industry when it created the iPod music player. Clearly, the strategic paradigm in which the firm finds itself will give rise to different management systems and organisational capabilities, including product costing systems. Despite this, where a firm is competing with multiple products in multiple markets and in different geographical areas, all four strategic approaches could potentially be employed at the same time in one firm. Therefore, the costing, pricing and competitive tools should be sufficiently adaptable as to fit all these situations, while also acting as enablers of the overarching strategy at hand.
2.2.3.2 The moderating role of administrative mechanisms

It is common knowledge that large firms organise themselves into a number of strategic business units and typically have varying strategies that are relevant for their specific markets (Porter, 1980). As an example, a bank may apply varying strategies in its corporate and investment banking markets, which are different from those applicable to retail banking. Within retail banking, in turn, a number of different strategies may be employed in the home loan divisions which contrast with the high-end individual banking offerings (such as private banking and wealth management). This situation creates an interesting challenge for the executive team (and in particular, the Chief Executive Officer) to balance the different needs of the various business units - especially if the same product is offered in two different markets with direct networks effects. This is discussed in detail in Chapter 3.

In his research, Govindarajan (1988:830) provides some answers to the question of how administrative mechanisms can be employed to manage uncertainties and complexity. Chandler (1962) argues that the greater the firm’s product-market diversity, the greater the environmental complexity and resultant uncertainty for the firm. Govindarajan (1988:829) suggests there are three key administrative systems: a) the design of the organisational structure, b) the design of control systems, and c) the selection of managers. Auzior (2010:57) adds that the design of a management control system should be aligned to the organisation’s life cycle and should fit in with the competitive environment and the overall business strategy. This study focuses on product cost management systems in a broad strategic management context, which is part of the broader management control systems and organisational capability.

As this section on the theory of the firm draws to a close, it is clear that the principal needs to incur costs to the extent that his/her interests are aligned to those of the agency. This principle can be applied to the relationship between the firm’s shareholders and its executive management, as well as between the executive management and the employees in the various strategic business units. Fundamentally, the issue of optimisation of decision making in the firm is crucial.

An increase in product-market diversity leads to a higher degree of complexity and uncertainty. Management employs both strategy and administrative mechanisms to
moderate varying interests within a diverse organisation. One such administration mechanism is a management control system. A product costing system is part of a management control system which, at its core, establishes a level of costs associated with products and their related activities. These costs (both tangible and intangible) give rise to perceived transaction costs which then drive broad management behaviour throughout the business in so far as pricing, strategy, investment decisions and estimation of economic profits.

2.3 Product Cost Systems Overview

The main objective of the study is to determine what factors senior management of a large financial institution should consider before adopting a product costing system. It achieves this by analyzing the environment at which product costing systems are applied, the needs and use of the cost information, driving forces and dynamics that makes this management control system applicable in firms. Most studies tend to focus on comparing product cost systems in terms sophistication and/or accuracy of producing costs data by comparing the traditional systems against more modern systems (Cooper & Kaplan, 1988; Auzir, 2010; Chea, 2011). In this context, the researcher found it necessary to provide an overview, without direct comparison, of the characteristics of key cost systems.

2.3.1 Defining Product Costs sophistication

Cooper and Kaplan (1988:97) state that cost distortions mainly stem from the process of allocating indirect costs. Several studies gauge the sophistication of product costing systems as a continuum, ranging from a simplistic approach where only direct costs are allocated to products, to more complicated processes involving multi-stage and sophisticated ways of allocating indirect costs. Authors such as Abernethy et al, (2001) and Drury & Tayles (2005) define a product costing system in terms of four key dimensions: the number of cost pools, the number of different types of drivers, the types of second stage drivers, and the extent to which direct resource drivers are used in the first stage of the allocation process. In line with the views of Cooper and Kaplan (1998), Drury and Tayles (2005:56) assert that the degree of sophistication in a product costing system can be shown on a continuum representing the four dimensions for assigning costs, as shown in Figure 2-B below.
2.3.2 Key product costing systems
It is virtually impossible to develop a product costing system that resolves the complex problem of allocating uncontrollable costs in their totality for all firms, using one model. The main issue is how to allocate shared costs that incorporate capacity acquisition, capacity allocation, pricing and product mix into the product costing system (Al-Omri & Drury, 2007:400). Thus, the author found it necessary to include common product costing systems in the discussion to enable the development of the hypothesis at a later stage.

2.3.2.1 Plant-wide Costing System
The most simplistic traditional costing system is known as the plant-wide system (Al-Omri & Drury, 2007:62). Plant-wide costing systems assign all costs to products (or cost objects) using a single rate for the entire organisation. Figure 2-Cbelow shows the calculation of a unit cost of R0.50 per unit by simply dividing total cost with units produced. The plant-wide unit is used across the firm for decision-making purposes. Not surprisingly, in today’s complex world, this method is hardly ever used given that different activities, even in a single product setting, have variable rates and different cost drivers.

Source: adapted from Drury & Tayles (2005) - Explicating the design of overhead absorption procedures in UK organizations, p.56
2.3.2.2 Full Absorption Costing
According to Garrison et al (2008:276), full absorption costing allocates portions of fixed or overhead costs and adds variable unit costs to arrive at a total unit rate cost.

<table>
<thead>
<tr>
<th>Cost Data</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>100 000</td>
</tr>
<tr>
<td>Labour</td>
<td>50 000</td>
</tr>
<tr>
<td>Overheads</td>
<td>50 000</td>
</tr>
<tr>
<td>Total Cost</td>
<td>200 000</td>
</tr>
</tbody>
</table>

Units Produced: 100 000.0

Cost per Unit: 0.50 per unit

<table>
<thead>
<tr>
<th>Cost Data</th>
<th>Total</th>
<th>Product A</th>
<th>Product B</th>
<th>Product C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Labour per unit</td>
<td>30</td>
<td>20</td>
<td>5</td>
<td>5 (B)</td>
</tr>
<tr>
<td>Overheads</td>
<td>2 000 000</td>
<td></td>
<td></td>
<td>(C)</td>
</tr>
<tr>
<td>Unit Produced</td>
<td>45 000</td>
<td>10 000</td>
<td>20 000</td>
<td>15 000 (D)</td>
</tr>
</tbody>
</table>

Overhead Rate (E) = C / D 44.44 (E)

Labour 200 000.00 100 000.00 75 000.00 (H)
Overheads Allocation (= E * Units) 444 444.44 888 888.89 666 666.67 (I)
Total Costs 2 375 000.00 644 444.44 988 888.89 741 666.67 (K)

Unit Cost Rates 64.44 49.44 49.44 (L)
The system involves a two-stage allocation process in which indirect costs (overheads as illustrated in Figure 2-D on page 32) are assigned to products. The first stage involves computing overhead rates, i.e. dividing total overheads by a chosen volume driver. In the example given, two volume drivers are used – units produced and labour rate per unit (refer to E or F in Figure 2-D). The second stage involves allocating the costs to products (refer to I or M in Figure 2-D). Fully absorbed product unit costs can be calculated on the basis of the total costs divided by volumes (refer to L or O in Figure 2-D).

The author used two volume drivers to illustrate the possible cost distortions that are inherent in single-pool costs and volume drivers. Let us assume that these calculations are applied at a financial institution and that the overheads are made up of head office/central staff costs. The following is can be observed.

First, using units produced (L) to calculate unit rates for products A, B and C, it is clear that product B is allocated the highest proportion of costs in absolute terms simply because it is produced in highest volumes. In other words, the business unit producing product B will be carrying the largest proportion of central costs, despite the fact that the direct labour costs required to produce product B and product C, respectively, are exactly the same. Clearly, in this scenario, the head of the product B business has less incentive to grow volumes, even though such growth will deliver an overall reduction in the overhead unit rate for the firm.

Secondly, using labour rates per unit (O) for products A, B and C, it can now be seen that product A is allocated the highest proportion of head office costs. Let us assume that the
labour unit rate reflects the level of complexity and number of staff necessary to produce all three products. In this case, there is a strong argument in favour of product A requiring higher levels of support from head office, given the complexity, level of risk and other governance processes, and therefore higher costs should be allocated compared with those for product B and product C. While this argument may appear sound, the heightened cost allocations will encourage the head of the business unit that produces product A to adopt a simpler approach with fewer staff members, despite the needs of the market. Product B and product C producers will find this system quite useful since the total unit costs reflect their relative scale vis-à-vis one another. They are therefore likely to view the system as fair.

Thirdly, the changes in the allocation method of total costs of R2 375 000 to the products yield fundamentally different results. In both scenarios, direct costs are exactly the same, with changes in the cost drivers only. Product A’s unit costs increase from R64.44 to R153.33; product B’s costs decrease from R49.44 to R21.76; and product C’s costs decrease from R49.44 to R27.22, as shown in (L) and (O). Depending on the choice of system, managers will behave differently. If the market price of a product is R80.00 per unit, then product A will be making an accounting loss. This prompts an aggressive reduction in volumes by the manager (indirect exit from the market) which may not directly result in a reduction in head office costs. The reduction in product A volumes increases the cost allocation to product B and product C. According to Drury (2007:374) and illustrated in the example above (Figure 2-D), the problem with a traditional product costing system is that it assumes that there is a strong correlation between the consumption of overhead costs and the volumes produced which, of course, is not always the case.

2.3.2.3 Activity-Based Costing (ABC)

The basic principle of ABC costing is that costs are grouped into multiple cost pools and assigned to products and other cost objects using a variety of cost drivers (Balakrishnan et al, 2012; Banker et al, 2002; Cooper, 1988; Hsu, 2011). In this section, the Balakrishnan et al (2012) description is adopted which suggests that there are fundamental conceptual and procedural differences between the ABC and traditional costing systems. Their description was found to be more comprehensive as it beyond simply distinguishing between the ABC
and other systems mainly on the basis of single versus multiple cost pools and driver allocations.

Balakrishnan et al (2012) argue that there are four procedural differences between ABC and traditional product costing systems:

a) The use of non-volume drivers for cost allocation purposes;

b) The formation of cost pools on the basis of activities, including the logical separation of a cost centre from a cost pool (which may cut across departments);

c) The expansion of resource costs to include general and administration costs as well as pre-production costs; and

d) The expansion of cost objects beyond products, to include customers, channels, etc.

In addition, Balakrishnan et al (2012) contend that the two fundamental conceptual paradigm shifts that ABC brings are:

a) The use of a cost hierarchy (i.e. classifying costs into volume, batch, product and facility level costs); and

b) The use of practical capacity rather than budgeted capacity to derive allocation rates.

In essence, ABC requires one to think of a “transaction” as a discrete occurrence of business activity (e.g. account opening, sales, taking of customer orders, and so on). These activities form the basis of views about a business process, which cuts across the organisation and facilitates decision making and the incurring of costs. The use of a cost hierarchy make a way for precise identification of the costs that may be relevant (or irrelevant) to particular types of decision making. Expanding the hierarchy concept further, the ABC system allows for the identification of subsets of capacity or batch-based costs that may be divorced from volume-based decisions. Figure 2-E below illustrates these principles in a two-stage allocation process.
To put this simplistic ABC costing system model into perspective we use an example to illustrate the procedural and conceptual mechanics of ABC.

1) Allocate Costs into Cost Pools

<table>
<thead>
<tr>
<th></th>
<th>Direct Cost A</th>
<th>Direct Cost B</th>
<th>Direct Cost C</th>
<th>Overheads / Shared Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outbound Logistics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dept Servicing</td>
<td>12 000</td>
<td>18 000</td>
<td>20 000</td>
<td>50 000</td>
</tr>
<tr>
<td>Delivery</td>
<td>15 000</td>
<td>5 000</td>
<td></td>
<td>20 000</td>
</tr>
<tr>
<td>Building</td>
<td>10 000</td>
<td>10 000</td>
<td>10 000</td>
<td>30 000</td>
</tr>
<tr>
<td>Branding</td>
<td>-</td>
<td>-</td>
<td>10 000</td>
<td>10 000</td>
</tr>
<tr>
<td></td>
<td>37 000</td>
<td>28 000</td>
<td>45 000</td>
<td>110 000</td>
</tr>
</tbody>
</table>

The first stage in the process involves transforming shared costs. These shared costs are potentially grouped together through cost centres which are a reflection of the organisational or management structure. Cost pools, in turn, represent logical functions that are linked to specific activities in the “transaction” value chain. Cost drivers are then determined for each cost pool. It is also possible to have a mix of drivers per cost pool as the main objective is to find drivers that are truly representative of what moves the costs up or down.
In the example, outbound logistics, and call centre and admin costs are transformed into servicing, delivery, building and branding cost pools. Cost drivers are identified for each cost pool. Up to this point, the R110 000 can still be easily traced back to the original departmental view. Yet one can imagine the complexities involved in transforming, say, a bank’s branch costs into cost pools, given the variety and volume of activities that typically take place in such an environment. For the sake of simplicity, the example assumes that planned capacity and actual consumption are equal. The report will discuss the implications of short- and long-term capacity allocations for pricing decisions in the section below.

The next step involves calculating unit cost rates for each cost pool. The unit rates are determined by taking the total cost allocated to the pool and dividing this by the actual consumption (as can be seen in F, G and H). Once the unit rates are calculated, the activities need to be allocated to the cost objects, such as products (as can be seen in I, J, K, L). The ABC product costing system does make provision for certain costs not to be allocated as part of an activity unit rate if those costs are not driven by the activity in question. In the example, branding (SC4) is allocated to products since it is directly linked to product-related activities. Therefore, branding is added at the end, as an unallocated cost, to the total cost of the firm. In the case of a commercial bank, expenditure such as sponsorships, corporate branding, social corporate investment, head office, and so forth, can be quite significant.

The usefulness of ABC is found in its capacity to accommodate both allocated and unallocated costs. Secondly, it allows for a specific activity rate to be part of, or to be excluded from, an overall “transaction”. In the example, product C does not utilise any delivery service, so therefore it does not attract the R16.67 per delivery (G). Thirdly, each product attracts costs (at the constant unit rate) only in proportion to consumption levels. Therefore, the product manager of product C could reduce the total product cost by simply reducing the space it utilises.

The biggest challenge, however, is that the actions of one product manager affect all other managers. For instance, if the manager of product C decides to utilise the delivery service, this will reduce the activity rate. The reverse is also true. If the manager of product A
decides to curtail the use of the activity, then the cost per unit rate will increase. In
addition, the grouping of costs into cost pools makes it difficult for managers running their
departments to see a direct link between the movement of activity unit rates, and
enhanced efficiency in the overall system. Potentially, there is less incentive for cost centre
owners to reduce specific costs even though they could act as strong levers in delivering a
cost advantage to the organisation. The first and second stages in the allocation process, as
well as the grouping of costs into cost pools, make the whole process much more complex.
In high fixed cost structure where investment costs are incurred upfront exist another layer
of complexity in terms product costing systems (Cooper & Kaplan, 1988).

2.4 Special Attention to Capacity Costs Allocation
The aspect of capacity cost allocation in relation to product pricing decisions is a topic in its
own right. It is common knowledge that most experts recommend that fixed costs should
not be allocated to products because sunk costs are irrelevant to pricing decisions and
marginal costs are the only relevant consideration (Banker et al, 2002). However, advocates
of ABC such as Cooper & Kaplan (1988) recommend that committed capacity should be
charged to the product on the basis of a cause-and-effect relationship (as is evident in the
ABC system outlined above). Balakrishnan and Sivaramakrishnan (2002) throw some
interesting light on the capacity and pricing decision problem. They suggest that the
problem would be better understood if it were viewed as an exercise in managing the
opportunity cost. Often, it is not economical (and is even impractical in some instances) to
achieve the required capacity in near real time (for instance, it is not feasible for a bank to
have a branch open only when one customer needs it). Therefore, it is necessary for a firm,
in acquiring and maintaining capacity, to give consideration to the opportunity cost
associated with alternative activities - which potentially can vary over time.

Acquisition costs are often difficult and time-consuming to calculate (for instance, when
building a branch network or even a single branch) and once the costs are incurred, they are
usually irreversible. Clearly, too much capacity is a blatant waste of capital but too little
capacity means a lost opportunity in term of revenue or the extra capacity acquisition cost
“spot” price. Various economic models have been developed to address this problem (Balakrishnan & Sivaramakrishnan, 2002; Banker, Hwang & Misha, 2002; Li & You, 2012) with varying degree of success. The central questions posed in these studies are:

- How should available capacity be charged to products?
- What period should these charges span?
- What is the impact of such charges in the face of demand uncertainty and competition pressures?

In a decentralised decision-making setting, these questions become more difficult to answer as each product manager or business unit head is potentially faced with demand uncertainty, competition from product substitutes, and fluctuating market prices. This means that, when it comes to the ABC costing system, it is very difficult for all economic agents to act in a harmonised way in executing strategic objectives because of the possible distortions in cost information.

2.5 Contingency Theory

Despite the surge in formal studies on the contingency theory between 1960 and 1985, recent years have seen a waning of interest in this regard. A quick search on Google N-Gram viewer (Appendix B) revealed that there was a distinct increase in research into this theory from around 1950 until the mid-1980s and thereafter, a steady decline. So, why did the author deem it appropriate to use this model? It is because there is clear merit in the notion that organisational performance is enhanced by matching the external demands on the business with key internal characteristics, such as strategy, structure, systems and culture (Chandler, 1962; Miller, 2002). Put differently, the organisational environment moderates the relationship between organisational design and performance (Goll & Rasheed, 1997). The work of Lawrence and Lorsch (1967:156) emphasises a special dimension of the contingency theory which makes the theory particularly relevant to this study. They say that organisations require an appropriate level of differentiation and
integration. Therefore higher levels of uncertainty, the greater the need for internal differentiation as well as integration.

With reference to banks and many other large and complex organisations, contingency theory entails maximising performance outcomes by minimising the misfit between diverse environmental demands and the internal organisational arrangements. This, in turn, calls for maximising the benefits of organisational differentiation and minimising the costs of integration (Chandler, 1962; Lawrence & Lorsch, 1967). In developing the strategic framework for choosing an appropriate product cost management system, the study gives recognition to the three critical components of contingency theory:

- The external environment and its demands on the organisation;
- The obligation placed on the organisation to perform efficiently and maximise output;
- The appropriate linkages between the external environment and the ultimate business performance, which are influenced by internal organisational arrangements - specifically the management accounting practices and the chosen product cost management system.

The essence of the model below (see Figure 2-F) is to illustrate that according to the contingency theory, the product costing system should be understood and developed as part of the broader moderating variable between strategy and desired organisational performance. This is not to say that the model must make way for internal inconsistencies while responding to endogenous and exogenous factors. On the contrary, it must show how the desired performance is supported and upheld in the context of external factors.
H1: **Product costing systems must be designed to respond to the external and internal environments, which are influenced by the competitive strategy and desired organisational performance.**

2.6 Resource-Based View

The resource-based view (RBV) describes the business in terms of its internal resources and what it is capable of doing to promote a sustainable competitive advantage (Grant, 1991). As explained in the previous section, the contingency theory states that the external and internal environments influence the internal structures of a firm and therefore the choice of product costing system. The ability to implement and manage a product costing system can be regarded as a critical internal capability. The report uses the RBV approach to demonstrate the importance of a costing system as a potential source of competitive advantage. Organisational resources include “organisational capital resources” (Barney, 1991) which mainly refer to reporting structures, informal and formal planning systems, and control and coordination systems and processes.

According to RBV theory, firms create value by accumulating and combining valuable resources that are not present in other firms, and are imperfectly mobile and
unsubstitutable (Barney, 1991; Newbert, 2008). Setting the right prices is an important component in firms’ strategic quest to extract sufficient value from market-based exchanges. Depending on a firm’s understanding of its various costs and how to use cost information, it may set prices that are too low and thus inadvertently cede some of the value created to customers. The opposite scenario is also possible. If a firm sets its prices too high, then there could be a negative effect on volumes (Al-Najjar, Baliga & Besanko, 2008:214).

Dutta, Zbaracki and Bergen (2003:616) argue that price-setting processes are based on the behavioural theory of the firm. They further contend that prices may be used to balance competing interests rather than simply maximising profits. In terms of RBV, price-setting is seen - just like product costing systems - as going to the core of a firm’s capabilities and strategic impact. Teece, Pisano and Shuen (1997: 530), for example, are of the view that the efficient and appropriate application of a product costing system and price setting can be an invaluable source of sustainable competitive advantage.

**H2: Accurate and efficient product costing systems have a positive impact on the firm’s ability to set appropriate market prices.**

2.7 Organisational size and product cost systems

Prior research has shown that there is a positive relationship between the size of the organisation and the sophistication of the product costing system used (Innes & Mitchell, 1995; Moores & Chenhall, 1994). These studies largely examine the extent to which the size of the organisation influences the adoption, or non-adoption, of ABC costing systems. The author concluded that there was synergy between these investigations and this particular study insofar as the former view the ABC system as sophisticated in comparison with other systems.

Large firms, like banks, are more likely to have many cost objects, pools and cost drivers due to the diversity of their product offerings and operational complexity. Innes and Mitchell (1995:139) assert that one of the inhibitors to adopting a complex product costing system is the cost of implementation. Larger organisations are likely to be better endowed to implement sophisticated systems than smaller organisations.
H3: The larger and more diverse the organisation, the greater the need for a complex product costing system.

2.8 Cost structure and product costing systems

Traditional and erstwhile sensible accounting decisions made when firms still had only a few product lines in a silo configuration led to distorted product cost information (Kaplan & Cooper, 1988:99). Firms were generally obsessed with producing the same products in large volumes in order to drive the unit costs down, and less was spent on marketing, support structures and other overheads. Thus, it was relatively easy to identify direct costs. However, in today’s complex business environment, many firms produce a wide range of products for different market segments, all requiring complex distribution networks. Direct labour and material costs often constitute only a small portion of the firm’s total costs, particularly in service organisations including financial institutions (Kaplan & Cooper, 1998:97).

The financial services firms have some unique features in terms of how services are produced and consumed. A bank incurs high costs in setting up its infrastructure, such as branches, core banking systems, compliance-related procedures, marketing channels such as websites, and so on. The creation of a bank savings account only takes place when there is interaction with a customer. Thus, consumption is, strictly speaking, almost inseparable from production. However, should the customer close his account, the bank is required by law to keep the account on dormant or closed status in its records for a prescribed period of time. To complicate matters further, bank customers are offered augmented product packages involving many other products or services, for instance bank accounts with free rewards, to make the core product more appealing. Given such a complex, integrated service offering and dynamic production process, several questions can be asked: How much does it cost to create a client bank account? How much does it cost to offer the rewards programme associated with the basic bank account (bearing in mind that the rewards programme is also offered along with other account types and services)?

Production and customer consumption-related expenses in service organisations can be analysed by examining product volumes and mixes (Chea, 2011:5). Kaplan and Cooper
(1998:101) advocate that firms with higher indirect costs should use sophisticated product costing systems since the traditional methods are likely to produce distorted costing information. Given the complex cost structure of a service organisation like a bank, a sophisticated product costing system should be adopted.

**H4: The higher the indirect costs relative to the total cost structure, the greater the need for a sophisticated product costing system.**

2.9 Intensity of competition and product cost systems

Large, complex firms like banks have many products that are subject to fierce competition, and so they are constantly looking for ways to differentiate. Often this results in customisation, including using existing capabilities in different ways to cater to specific customer desires or taking advantage of competitor weaknesses. Extending organisational resources and capabilities in this way has direct implications for the selection of a product costing system. From an economic theory point of view, this argument is supported by the theory of contestable markets. According to Bromwich (1990:29), the essence of the contestable markets theory is that there is a need to maintain cost advantages if the firm’s strategies are to be sustainable. To this end, the cost management system should be focused not only on internal cost behaviours but also on the cost behaviours of competitors, thereby helping management to make sensible decisions in the face of competitive markets (Bromwich, 1990:30). Clearly, it is imperative that a product costing system is internally consistent but, more importantly, is responsive to competitive market dynamics.

Large organisations facing intense competition are likely to have products with low margins due to price matching or under-cutting by competitors. Balancing the development and growth of higher margin products with growing volumes on low margin products requires a product costing system that helps to steer management towards the right decisions. Under-costing a product may extend the life of a product that is really a loss maker, while over-costing may lead to the discontinuation of a reportedly loss making, but actually viable, product.

**H5: The more intense the competition, the greater the need for a sophisticated product costing system.**
2.10 The Use and Importance of Cost Information

Drury and Tayles (2005) argue that many firms view prices as a function of market forces and so there is minimal opportunity for discriminatory price setting for similar products. Furthermore, small firms operating in industries dominated by large market leaders will have little influence over prices of products other than to drive the prices down (Cardineals et al., 2007; Drury & Tayles, 2005). Despite a firm’s relative inability to set market prices, it will still conduct periodic profitability analyses of all its products. Cooper and Kaplan (1998:278) advocate that profitability analyses constitute the foundation of a strategic review of costs and profitability associated with the existing mix of activities in an organisation. Thus, whether the information is used for profitability analysis or price-setting purposes, it is important that cost information is accurate.

The other critical function of cost information is determining cost levels and behaviour in a firm (Blocher et al., 2010). Irrespective of market prices, the firm will still want to reduce its cost base to optimum levels. Porter (1980) argues that even if the firm does not adopt cost leadership as a generic strategy, it still has to pay attention to its costs. Product costing systems direct management’s attention to those products that drive costs while also encouraging the analysis of cost behaviour in order to determine which cost levers are controllable and which are not.

Cost information can also be used as a key driver of specific competitive strategies. In financial institutions, one of the many functions of the Group Treasurer is to determine the costs and benefits of funds in a process known as internal transfer pricing. In this regard, the assets and liability committee and the credit committee will set a transfer price that the Group will charge to the originators of specific assets (like home loans or personal loans), as well as passing the benefits of such funds to those that generate deposits (savings accounts or term deposit accounts). The Treasurer will then determine the appropriate price to drive specific behaviours. For instance, if the bank wants to stimulate aggressive growth in certain asset types (e.g. personal loans), then it will lower the interest charge for the originators. On the other hand, if it wants to increase deposits, then it will increase the rates it pays deposit originators. In instances where the cost information is used to determine transfer pricing to drive management behaviour and the strategic direction of
the firm, there will be a greater need for a sophisticated product costing system that is
dynamic and responsive to the information needs of its users.

**H6: The more important the cost information, the greater the need for a sophisticated
product costing system.**

### 2.11 Summary and Conclusion

The theory of the firm provides the basic foundation for understanding important concepts
such as what the firm is, what determine its boundaries, and the typical principal-agency
differences that are evident in corporate level and business unit level strategies. The firm’s
performance is optimised when the firm makes focused decisions, and finds mechanisms to
lower the costs of integration and narrow the divergent interests that may exist between
interested parties. Strategy and management control systems are some of the key
moderating factors in organisations.

Product costing systems have been a prominent topic in this section. Capacity costs pose an
interesting challenge for those responsible for cost management, particularly where there is
much product diversity and a highly competitive business environment.

Based on the afore-going themes, the following hypotheses have been developed which
need to be tested with the target population. They can be summarised as follows:

- **H1:** Product costing systems must be designed to respond to the external and internal
  environments, which are influenced by the competitive strategy and desired
  organisational performance.
- **H2:** Accurate and efficient product costing systems have a positive impact on the
  firm’s ability to set appropriate market prices.
- **H3:** The larger and more diverse the organisation, the greater the need for a complex
  product costing system.
- **H4:** The higher the indirect costs relative to the total cost structure, the greater the
  need for a sophisticated product costing system.
- **H5:** The more intense the competition, the greater the need for a sophisticated
  product costing system.
• **H6:** The more important the cost information, the greater the need for a sophisticated product costing system.

Before testing these hypotheses in a practical sense, the theory contained in this chapter is applied to the banking industry in South Africa. This will help to illustrate how things work in practice in the real world.
3. PRODUCT COST SYSTEMS IN THE BANKING INDUSTRY

The purpose of this chapter is to provide an overview of the banking industry in South Africa. More specifically, it will illustrate the application of product costing systems using cash as the product used in the bank. The objective is to show the dynamics and interaction between product costing systems and strategic management, as well as give an impression of the competitive environment of the banking sector in South Africa. Where appropriate, the thesis will show how the operation of an inappropriate or poorly implemented product costing system can have serious implications for the sector and, by association, the economy as a whole.

3.1 Banks as Financial Intermediaries

At the core of the financial intermediation theory, the primary role of financial intermediaries is to facilitate of funds (or surplus units) from savers to borrowers (Torado & Smith, 2006: 140). In the process, transactions costs are minimised between lenders and borrowers. In other words, financial intermediaries have optimising effect on the prices of financial products (Cecchetti, 2006: 11). Cost efficiency, amongst other things in the financial systems, improves investment climate and by implication impact positively on fixed capital formation. Higher level of fixed capital formation translates to higher levels of economic growth which in turn has positive effect on income levels and job creation (Samila & Sorenson, 2011:339).

Financial intermediaries are largely grouped into two categories, namely banks (commercial, retail and investment banks) and non-bank financial intermediaries (pension funds, insurance, development finance institution and so on). Since this is study focuses on the banking sector non-bank financial intermediaries are excluded from the rest of the paper. This is not to suggest that they are inconsequential in so far as their role in facilitating transfer of savings into productive use. They are simply outside the scope of the research.

Financial institutions have strategically placed themselves in a unique position between savers and ultimate borrowers (Falken et al, 2001: 184) and take responsibility for matching
diverse needs for the two parties. In addition, they have “special” and exclusive powers, afforded to them through regulation, to finance new production by offering credit extension, deposit-taking as well as access to national payment system (Falken et al, 2004: 7). According to Menkhoff (2000), there is a direct relationship between bank’s ability to optimally manage financial flows from savers to borrowers with its ability to be efficient in managing of its own internal resources and capabilities.

This, in part, explains the importance of a vibrant, effective and efficient banking industry in facilitating economic activity throughout society. By implication, a bank with unique capabilities to efficiently allocate appropriate and relevant costs to its various products and services is able to positively influence its own competitiveness and that of the industry as whole. The study will return to this point by using two unrelated products in a practical application.

3.2 The Banking Industry in South Africa

According to the SARB (2013), there are 17 registered banks, 3 mutual banks, 1 co-operative bank, and 56 foreign banks with local branches or representative offices in South Africa. Interestingly, the number of registered banks has declined from 22 in 2003 to 17 in 2012. The banking sector has R3.5 trillion-worth of assets of which the big 4 banks account for over 85% (SARB, 2013). The banking system withstood the global financial crisis and was not exposed, to any significant degree, to sub-prime-related products, as the US and European countries were. Losses relating to funding markets were also limited and banks were able to secure short-term funding without too much difficulty, primarily because their balance sheets were adequately capitalised. More importantly, banks liabilities are largely domestic-generated and rand-based dominated and therefore less exposed to currency foreign exchange exposures. Even though South African did produce lower profits due to the global financial crisis, they still remain highly profitable. Moreover, South Africa’s profitability was in line with other emerging markets and in most much more profitable than developed markets.
Figure 3-A Big 4 Profitability

Source: SARB (2013). Profitability Ratio, pg 44

Figure 3-B SA vs internationals banks profitability

Source: PwC, 2013. Analysis of Bank Results, p:5

Source: World Bank Data bank
Over the last few years, South African banks have also improved their efficiency ratios. The average cost-to-income ratio improved to 53% during 2012 (Figure 3-C). The decrease in the ratio is attributable to higher growth in operating income relative to that of the operating expenses, suggesting that banking operations had become more efficient.

Figure 3-C SA Banks cost-to-income ratio

Since this study focuses on product cost systems for the banking industry, a further analysis on the banks cost base is warranted. As can be noted in figure 3-Figure 3-D, staff cost and travel, occupation and equipment remain the two largest expenses for the banks. In absolute terms, staff cost increased by 11,2% to R104 billion in 2012 (SARB, 2013). As discussed earlier in this report, shared costs such staff, computer and marketing expenses are often the cost that create distortions in pricing due to poor cost allocation methods.

Source: SARB (2013). Cost-to-income ratio, pg 45
3.3 Bank Regulation and Supervision

The regulatory environment can either constrain or enhance the effectiveness of the banks in facilitating the movement of funds from savers to borrowers (Mashele, 2007). According to Falkena et al (2001), the ultimate objectives of bank regulation and supervision should be to achieve high levels of efficiency and consumer protection in the economy. These authors go on to state that the regulator generally attempts to achieve its ultimate goals through three categories of regulations:

1) Securing systemic stability in the economy
2) Ensuring safety and soundness of institutions such as banks
3) Promoting consumer protection and education

The main thrust of this section is to provide a brief overview of the regulatory landscape as it affects banking. The recent developments in South Africa’s bank regulatory and supervision space - such as the twin peak approach, among others - makes the landscape too broad for extensive coverage. The researcher thus opted to focus specifically on the regulatory landscape of the National Payment System (NPS) because the nature of the products used helps to illustrate the implications to the bank – and to consumers and the
economy in general - of introducing a poor product costing system. Given this specific focus, the chapter will show why it is difficult for the regulator to detect, in a practical sense, the ineffectiveness of product costing systems within the banking industry and thus its limited ability to influence pricing or the terms and conditions of consumer products in various markets.

3.3.1 The National Payment System
The economy requires an appropriate and effective payment system to operate efficiently. How effective and efficient – and indeed how complicated – the payment system is depends on the extent to which the government views it as an “enabler” (or strategic lever) in the economy (VISA, 2009). Nevertheless, even an efficient system does not guarantee a well-functioning economy. It is simply one of the characteristics of a well-managed economy. A sound payment system must be able to operate in, and cope with, a booming or contracting economy as well as an inflationary or deflationary environment.

The National Payment System (NPS) network affects the lives of all consumers and businesses in the economy. In South Africa, the value of transactions facilitated through the NPS amounts to R89 trillion, 35 times the value of Gross Domestic Product (GDP) in 2012 (SARB, 2013a). Commonly, cash functions as a payment stream in the NPS, allowing the exchange of goods and services for notes and coins. Cash substitutes include cheques, electronic funds transfer (commonly known as EFT), and debit and credit cards. All these payment instruments allow payments to be made and other financial obligations to be settled.

Table 1 set out descriptions of common payment instruments in the NPS:

Table 1 Common Payment Streams

<table>
<thead>
<tr>
<th>Payment Instrument</th>
<th>Description</th>
<th>Volumes and Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>Notes and coins.</td>
<td>R176 billion in the hands of the public by Sept 2013. Cash makes up fewer than 3% of the value of all transactions, but 90% of the volume.</td>
</tr>
</tbody>
</table>
### Cheque
A written order from one party (the drawer) to another (the drawee, normally a bank) requiring the drawee to pay a specified sum on demand to the drawer or to a third party specified by the drawer. Cheques may be used for settling debts and withdrawing money. By value, cheques still account for 11% of non-cash transactions, but by volume, only 6%.

### EFT
Electronic funds transfers
EFT Credit is the mechanism by which payerinitiated payments are facilitated (known as credit-push transactions) wherein the payer instructs "their" bank to pay funds to another bank or beneficiary e.g. salary payments, stop orders and internet payments. EFT debit is a mechanism by which the payee draws down specific values, as specified by the payee on authority of the payer. These are credit-pull transactions, an example of which is a debit order. By value, EFTs account for 76% of all non-cash transactions value, and around 54% by volume.

### Debit Cards
Card enabling the holder to have his purchases directly charged to funds on his account at a deposit-taking institution (may sometimes be combined with another function eg that of a cash card or cheque guarantee card). By value, debit card transactions account for only 7% of all noncash transactions, but 15% by volume.

### Credit Cards
A card indicating that the holder has been granted a line of credit. It enables the holder to make purchases and/or withdraw cash up to a prearranged ceiling; the credit granted can be settled in full by the end of a specified period or can be settled in part, with the balance taken as extended credit. Interest is charged on the amount of any extended credit and the holder is sometimes charged an annual fee. By value, credit card transactions account for 6% of the value of the non-cash transactions, and 13% of the volume.

*Sources: BankServ MPR September 2013 report; SARB (2013b) Quarterly Bulletin*
These payment instruments are an absolute necessity for the efficient functioning of the economy, in relation to both wholesale (institutional) and consumer (individual) business activities. Indirectly, the prices of these essential services act as an inhibitor to, or accelerator of, economic performance and economic prosperity among the country’s citizens (Falkena et al, 2004).

3.3.2 Regulatory Landscape
It is important to note that the NPS is heavily reliant on self-regulation. Appendix A outlines the key regulatory components of the NPS together with relevant pieces of legislation that govern them. By definition, low-value payment transactions carry lower systemic risk; therefore, the Bank of International Settlements (2000) recommends that the role of the central bank should be geared towards oversight, while also acting as a catalyst or facilitator for innovations. In South Africa, the system operators for clearing and settlement are in the private sector (BankServ, VISA and MasterCard). In this thesis, particular attention is given to the SARB, through the Payment Association of South Africa (PASA), in its role as overseer and facilitator of financial flows and associated regulations in the market.

PASA is an organisation mandated by the SARB to manage payment systems in South Africa under the guidance of the National Payment System Department of the SARB. As defined by the NPS Act of 1998, “PASA is the payment system management body recognised by the SARB to organise, manage and regulate the participation of its members in the payment system”. PASA thus plays a crucial role in the payments industry in South Africa.

3.3.4 Multiple roles of the regulator
Self-regulation is prevalent feature within the banking sector, the regulator and its representative institutions plays a crucial roles in enhancing and inhibiting innovation in the banking sector (SARB, 2013b). The regulator(s) plays various roles in shaping and the developments in the industry. A few of these activities, which are relevant to this study, are discussed below.

3.3.4.1 Regulator as an overseer of the NPS
PASA’s vision is “to lead the South African payments domain safely into the future”. According to the Bank of International Settlements (2000), the primary responsibility of a regulator as an overseer is to ensure efficiency, safety and integrity, thereby increasing
consumer protection and preventing money laundering. From this perspective, PASA tends to focus its attention on the following:

- Supporting and driving the development of effective standards and infrastructural arrangements
- Brokering and facilitating decisions affecting the payments industry
- Focusing on national interests in terms of payments, while simultaneously considering the influences, conditions and developments in the Southern African region and the rest of the world.

3.3.4.2 Regulator as a market development facilitator

In the South African payments industry where there is high level of “self-regulation”, PASA tends to participate in the market development process as a facilitator (to registered participants), helping to steer market development strategies and providing “guiding principles” from a regulatory standpoint. In this capacity, PASA tends to focus its attention on the following:

- Fostering competitive market conditions (levelling the playing field);
- Addressing issues in the legal and regulatory framework that support market development and innovation;
- Maintaining interoperability between participants; and
- Aligning national interests, particularly of the consumers, to those of the industry or market participants.

Regulation authorities have to engage in a careful balancing act which involves creating an effective regulatory environment, protecting the consumer, and encouraging innovation among the banks. PASA supports innovation that brings convenience without increasing risks to the NPS and to consumers.
3.4 Two-side markets in the Banking Sector

In the testimony on behalf of ABSA during the Competition Commission Banking Enquiry (2008), Robert Stillman said (Competition Commission, 2008):

“It is clear that there are very large fixed costs in the banking industry. It is one of the themes that has been emphasised by all banks in their presentations, and rightfully so. Fixed costs must be in the order of 70 – 80% of the cost structure, and those costs are in turn common costs that are very difficult to allocate to particular products or even, in some cases, business units.”

Earlier, the thesis discussed the strategic positioning of banks to act as a mechanism for transferring excess funds from savers to borrowers. The banks also, through their special access to the NPS, ensure the safe and efficient facilitation of payments between two or more parties. In this process, banks find themselves in the unique position of servicing “two-sided” markets (sometimes referred to as multi-sided markets). In the economics and strategy fields, two-sided markets have drawn considerable interest from practitioners, partly due to the emergence of IT companies such as Google, Kalahari.net, eBay, Twitter, LinkedIn, and so on (Hagiu & Wright, 2011; Rysman, 2009).

Rysman (2009) defines a two-sided market as one where: 1) two distinct sets of customers interact through an intermediary or platform, and 2) the decisions of each set affects the outcomes of the other set. What is really important about two-sided markets is that each side has its own demand characteristics, but at the same time it affects the other side. For instance, shoppers prefer a shopping mall where there are more retail outlets, and retailers prefer a shopping mall with more customers. Consequently, the decisions (e.g. pricing) affecting one side of the market should take into cognisance the effects on both sides.

Clearly, the banks offer their services to two-sided markets in different contexts - whether it is raising deposits to create a sufficient capital base to facilitate lending, or issuing payment cards that can be swiped at merchants, or processing cash receipts in order to re-issue physical notes through ATMs. However, the issue of pricing in these markets is largely dependent on what product costing systems are used to determine unit costs. In an environment where shared fixed costs form a large portion of the cost base, then product
costing systems play a crucial role in preventing or creating pricing distortions in the whole market - or in one area of the market if the decisions are not taken holistically. With a view to illustrating the above phenomenon, the following discussion will look at cash as a bank product.

3.5 Product Cost System in Cash Product

Figure 3-E Cash Product Ecosystem

3.5.1 Clarifying terminology

- **Cash Issuing** - Refers to the service where the bank enables its customers to deduct value out of their bank accounts in the form of cash. Most customers use an Automated Teller Machine (ATM) to withdraw cash from their accounts. In recent times, banks and large retailers have enabled consumers to withdraw cash at tills (point-of-sale). For the purpose of the thesis, the cash withdrawal process is limited to activities at ATMs, bank branches or Cash Processing Centres.

- **Cash Acquiring** – Refers to the service where the bank accepts cash deposits with the intention of increasing the value of (or crediting) customers’ bank accounts. Large retailers generally use bulk Cash Processing Centres, whereas consumers predominantly use bank branches and ATMs to deposit cash.
3.5.2 Cash product as two-sided market
As shown in Figure 3-E Cash Product Ecosystem, it is fair to assume that virtually every person has used physical cash as a means of exchange of value to buy goods at a retail store. The researcher chose to use cash as a bank product in order to illustrate a number of things directly linked to the study:

- Products in two-sided markets present an interesting challenge when it comes to the allocation of costs;
- Since banks mainly have high fixed and shared costs, the role of the product costing system is crucial;
- By the very nature of two-sided markets, an incorrect allocation of costs to one side (i.e. poor implementation of a product costing system) leads to the sub-optimal functioning of the market. This can potentially lead to fragmented strategies in one or both markets, with unintended consequence; and lastly,
- Incorrect cost allocations to a market have consequences for the economy as a whole.

3.5.3 Cash Ecosystem
As depicted in Figure 3-E Cash Product Ecosystem, a bank customer withdraws cash from a bank’s ATM. That bank customer receives benefits such as having the ATM at a convenient location, access to cash and other bank services 24 hours. He/she pays fees to the bank for this service. Here, just like any open market, there are clear supply and demand factors at play. If the bank charges too much for service, less customer will withdraw cash and the same time lower prices will increase demand for cash withdrawal service (this shown as market 2 on the diagram - Figure 3-E Cash Product Ecosystem).

Every day consumers need to pay for goods delivered/services rendered. For the purpose of this study, the diagram introduces a retail store which sells food, clothes and other essential services to the public. The retail store is simply one example; it could be any business that sells its goods and services to the public or other businesses. From a retail store owner’s perspective, the objective is to sell as much merchandise as possible in exchange for value -
whether it comes in the forms of physical cash or otherwise. These days, bank cards are increasingly being used instead of physical cash. Nevertheless, in the process, the retailer accumulates large amounts of cash. After accumulating the cash takings throughout the business day, the retailer would typically wish to deposit excess cash at a bank. Here, again, there are clear and observable demand and supply factors at play. Retailers wish to deposit cash as quickly as possible with minimal risks and so rely on the bank to provide adequate infrastructure to accept such deposits (depicted as Market 1 in the diagram). Again, a charge that is too high will encourage the retailers to find alternative uses for the cash received rather than depositing it at the bank.

From a bank perspective, the two (consumer and business) markets are distinct with two types of customers. The bank provides the platform where cash is recycled into the entire economy. The same R100 note withdrawn from a bank’s ATM or branch could be used to facilitate a few transactions between buyers and sellers before it ultimately finds its way back to the bank. Clearly, if it becomes too expensive to withdraw or deposit cash, there will be less incentive for either the consumer or the retailer to use the bank’s services. However, the bank has to provide adequate infrastructure to simultaneously grow the “cash issuing” and “cash acquiring” businesses so that they can support each other. Too much emphasis on the “cash issuing” business means that the bank must purchase notes, at a cost, from the Reserve Bank. Too much emphasis on the “cash acquiring” business means excess cash must be stored at a cost, or deposited back into the Reserve Bank where it earns no interest.

Banks use the same infrastructure to enable efficient cash recycling from Market 1 to Market 2. This could be recycling at a local branch level (meaning cash receipts are used to load ATMs), or at a regional level where branches with excess cash receipts transport cash to other outlets with cash deficits (either at the branch or ATMs). Banks also ensure that the system is applied at a national level to minimise the deposits and purchases of cash to and from the Reserve Bank. It achieves this by transporting regional excess cash to bulk Cash Processing Centres where the notes are recycled to regions with cash deficits, taking into consideration imbalances in note denominations and timing differences. Under this arrangement, physical notes are actually separated from their monetary value in the eyes of
customers in both markets, and become a logistical challenge and a source of cost to the bank. The question then is: how does the bank allocate this cost fairly between the two markets?

3.5.3.1 Product costing systems in two-sided market – Cash Product
It is clear that a branch or a Cash Processing Centre has shared infrastructure and a high fixed costs structure. For example, one teller does both cash acquiring and issuing, among other activities. The cash counting machines are used to check accuracy and detect counterfeits during both cash issuing and acquiring activities. The vault (a big secured storage facility inside the bank) carries cash that has been received but is waiting for issue at a future date. So, which market must carry the cost of holding cash? In such an environment a product costing system plays a vital role.

The main objective of this study is to provide a framework to assist management in choosing a product costing system that complies with strategic directives but does not necessarily deliver a ‘shopping list’ of operational solutions. Cash product is positioned in a two-sided market serving two distinct set of customers. The types of customers in Market 1 are distinctive and quite different from the customers in Market 2. Market 1 customers are generally large businesses that enjoy negotiating power. The demand elasticity in this market is significantly higher than in Market 2.

According to Rysman (2009:129), in a normal one-sided market, the nature of price-cost mark-ups depends on the elasticity of demand and marginal costs. However, in a two-sided market, pricing decisions also take into consideration the elasticity of responses on the other side. Clearly, then, the output of the cost allocation system has a direct impact on the pricing decisions taken in these two distinct markets. One can therefore see that the role of a product costing system extends beyond simply producing accurate costs; it involves being the facilitator of growth (or even exit) strategies in one or both markets.

According to Weyl (2009:41), prices in both markets should be a reflection of a joint set of demand elasticities and marginal costs on each side. A low price on one side does not only attract elastic customers to that side; it also leads to higher prices (an increase in demand) or more participation on the other side. Under these circumstances, it is easy to see why it
is possible for a firm to sustain below marginal pricing in one side of the market with a view to extracting higher value on the other side, particularly where there are substantial differences in price elasticity on each side.

In a bank where potentially there are different management teams focusing on the business and retail markets, achieving a price point that satisfies two distinct markets can be a serious challenge. The business banking management task is to grow profits from that market. Generally speaking, management are unlikely to accept a loss making activity (in this instance, cash acquiring) on the basis that the retail team makes a profit (cash issuing). Cardinaels et al (2004:763) argue that price decision makers will not set prices lower than the levels reported by costing systems if it would lead to an accounting loss.

3.5.4 Capacity cost allocation in multi-product context
The bank branch, as an example, does not only process cash deposits and withdrawals. The bank teller also prints statements, issues new cards, and so on. The product costing systems must then be able to determine how much teller capacity should be allocated to cash products versus other activities (or products) that the cashier performs. Another example of a shared cost in the bank is insurance – which can relate to cash at hand as well other valuables. Given the significance of these shared costs, it is possible that cash product costs could be distorted capacity costs (of tellers or insurance). As shown above, the inaccurate allocation of costs to cash (as an example) leads to price movements which in turn move prices in the overall economy, given the share of this product in the payments market.

3.6 Conclusion
The disconnectedness of strategic activities in the various business units in the bank (those that pertain to cash acquiring versus cash issuing) may potentially lead to a competitive disadvantage in the overall cash market. Senior management who have overall responsibility for the bank have several tools to manage this situation, with a critical one involving the way in which costs are allocated. Therefore, it is crucial to find a product costing system that supports the strategic direction of the bank – as observed in cash products on both sides of the market.

A product costing system, then, does not just produce accurate cost information. It also:
• Acts as a lever to balance the interests of various business units in two-sided market products, such as cash;

• (As a business unit’s management are unlikely to price below the unit cost produced by the product costing system), enables management to balance the growth or decline in the overall market by taking the right strategic steps in one or both markets simply by allocating costs to drive the right managerial behaviour. For instance, if they want to increase market share in cash issuing (i.e. increase cash withdrawals), they must simply charge fewer costs to the issuing businesses;

• Acts as a strategic enabler for the overall market positioning strategy in both one- and two-sided markets;

• Acts (in a more subtle but important way) as an administrative mechanism that keeps corporate strategy and business unit level strategies aligned;

• Acts, in a broad sense, as a moderating influence between various products (multiple-products, e.g. cash versus cards) in various markets (e.g. business versus retail markets), and lastly;

• Presents a challenge to policy makers who tend to apply a “cost plus mark-up” model due to the complexity of the capacity cost allocation process, thereby preventing inflated prices in the economy.

Since banks are largely fixed and shared cost environments, product costing systems play a much more far-reaching role than simply producing accurate cost information. They are a lever that assists senior management to keep many moving parts in sync so as to position the firm effectively in chosen markets. With reference to RBV theory, the bank that is able to decide on and implement an effective product costing system has a rare, immovable and difficult-to-substitute capability which, according to Newbert (2007:755) and Barney (1991a:119), leads to sustainable competitive advantage. In contrast, complexity in capacity cost allocation makes it almost impossible for the regulator to prevent costs from flowing through to the economy.
4. RESEARCH METHODOLOGY

4.1 Introduction
This chapter describes the research methodology that was employed to address the research problems identified in Chapter 1 of this thesis. Specifically it explains the methods and techniques used to collect data to test the hypotheses presented in Chapter 2. Moreover, it justifies the chosen research methodology, and discusses some of the limitations as well ethical considerations associated with carrying out the study.

The sampling technique, which outlines the sample size, sampling frame and procedure for contacting the individual respondents, will now be presented. The research design of this empirical study is first discussed in order to illustrate how the answers to the research questions (results) were obtained. The issues of questionnaire design, data collection, data processing and statistical analysis are also examined below.

4.2 Research Design
Research is valid if it measures what it set out to test and measure. McNeill (1990: 100) suggests that the researcher should think about research design as methods, techniques and mechanism to answer research questions. Therefore, the researcher must understand what information is to be collected and should collect such data as accurately at a reasonable cost and time. The research design is dependent on thorough knowledge of various research methods and techniques together with their inherent strengths and weaknesses (Gill & Johnson, 2010: 56).

This study takes a functionalist research paradigm (see Figure 4-A) in terms of the model developed by Saunders at al, (2007). The model utilises the regulatory perspective to explain the mechanism and manner at which organisational affairs are regulated and offers suggestions on how to improve them within the existing framework (Saunders et al, 2007: 112; Gill & Johnson, 2010: 76). Product cost systems and strategic management are already existing phenomena in organisations. This study seeks to address the context at which decision making takes place in so far as selecting the appropriate product cost systems for the banking industry.
4.3 Research Objectives

The main aim of the study is to develop a framework to assist management in choosing an appropriate product cost allocation system within the banking industry. This framework is necessary to ensure management choose product cost allocation system after considering a broad range of factors that impact investment and strategic direction of the bank. Product cost system has a direct impact on managerial behaviour, pricing decision, performance and strategic direction of the firm and therefore a critical component of strategic management.

The main research problem is that management rely on the product cost information to make crucial strategic decisions without taking the necessary care to ensure the system that produces the data is fit-for-purpose. As a result, some products may be “under-costed” leading to reduction in market prices or perceive higher margins or “over-costed” which lead to less investment and over time product exits.

Therefore, this study aims to satisfy the following objectives:

Objective 1: To investigate the relevance and importance of cost accuracy and usefulness in the banking industry;
Objective 2: To investigate the implication of the cost allocation systems outputs as a focal point for price-setting in the banking industry;

Objective 3: To develop a thorough understanding of strategic implication of product cost system in the banking industry;

Objective 4: To develop general framework and principles for management to consider when deciding on cost allocation systems in the banking industry.

4.4 Research Questions

The research questions are designed, in line with the aim of the study, to position product cost management in the context of strategic management of the firm rather than as a finance activity. The main argument is that product costing systems has far reaching implication for the organisation way beyond its traditional place as a management control and accounting activity. The research objectives are achieved by answering specific research questions by testing the hypotheses developed in Chapter 2. These are summarised as follows:

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1: What role does the product cost systems play in strategic management of the bank?</td>
<td>H1: Product costing systems must be designed to respond to the external and internal environments, which are influenced by the competitive strategy and desired organisational performance</td>
</tr>
</tbody>
</table>
| Q2: What product cost management system characteristics that are relevant for the banking industry? | H4: The higher the indirect costs relative to the total cost structure, the greater the need for a sophisticated product costing system  
H5: The more intense the competition, the greater the need for a sophisticated product costing system |
| Q3: What role and implications does product cost systems play in price-setting in the banking industry? | H2: Accurate and efficient product costing systems have a positive impact on the firm’s ability to set appropriate market prices |
| Q4: What are other critical considerations for management when choosing a cost allocation system in the banking industry? | H3: The larger and more diverse the organisation, the greater the need for a complex product costing system  
H6: The more important the cost information, the greater the need for a sophisticated product costing system |
4.5 Research Strategy

The study is exploratory in nature as it seeks to develop insights from existing practices. According to Welman & Kruger (1990), exploratory studies seek to find out “what is happening and seeking insight by assessing a phenomenon in a new light”. The critical business activity of allocating costs into products or cost objects is common to the banking industry. In this study, product cost management systems are analysed and researched within the context of strategic management. This approach brings new perspective in that the decision on what system is implemented in the firm should be understood as a strategic imperative.

The research strategy follows the deductive approach in terms of its methodology. According to Gill and Johnson (2010: 7) deductive research methods “are designed to test previously formulated theory by confronting its causal predictions with empirical data gathered through neutral observations or analysis which draws upon philosophical assumptions and commitments that are contestable yet so often take-for-granted”. There are several studies (Abernethy et al, 2001; Balakrishan & Sivaramakrishan, 2002; Brierley, 2008; Drury & Tayles, 2006; Fisher & Krumwiede, 2012; Hsu, 2011) that aimed at analysing different types of product costing systems in terms of sophistication and providing accurate cost information. This study uses these management accounting studies theories and combined them with classic strategic and managerial theories such as theory of a firm, contingency and resource-based view (in Chapter 2). Out of the literature review the study formulated 5 hypothesis are designed to answer research questions.

The application of deduction approach can be summarised following Saunders at al (2007: 117) five sequential stages which this research followed:

Table 2: Research Process

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Deduct hypothesis (testable proposition about the relationships between two or more concepts)</td>
<td>Developed 5 multi-dimensional hypothesis Hypotheses derived from various theories and academic fields</td>
</tr>
</tbody>
</table>
Expressing the hypothesis in operational terms (indicating exactly the relationship between concepts)

6 hypothesis are expressed in terms of their application in the banking industry in South Africa. In addition, ‘sophistication’ is another variable to ensure that product costing systems are understood in a continuum rather than rigid standalone systems.

Testing the operational hypothesis

Operational hypothesis are tested primarily using quantitative techniques. To ensure that questions are relevant and appropriate, the first questionnaire was tested for using a qualitative technique through interviews.

Examining the specific outcome of the enquiry (will either confirm the hypothesis or indicate the need for modifications)

Comprehensive data presentation and results analysis is provided in the chapter 5 and 6 respectively.

If necessary, modify the theory or hypothesis in the light of new findings

Recommendations are discussed in Chapter 7

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4.6 Questionnaire Design

In the fields of economics and management accounting, product costing systems have been at the centre of numerous debates for more than two decades. Kaplan and Cooper (1988) brought into sharp focus the possibility of cost information being distorted by the inclusion of fixed and/or sunk or capacity costs (indirect) in calculating costs per unit. Dierynck and Roodhooft (2011) argue that while there is an unambiguous prescription that only marginal costs are relevant for price-setting, there is mixed empirical evidence that most firms have adopted this practice.

To ensure that the questionnaire (see Appendix C) was designed to obtain the data targeted specifically for this study, a qualitative interview process was used as pilot. This ensured that the questionnaire was clear in its concepts and presentation. Three structured interviews were conducted which ensured that:

- The purpose and context of the study were clear;
• The concepts relevant to product cost allocation management were clear (such as cost pools, cost drivers, fixed costs, etc.);
• The concepts relevant to the strategic management of the bank were clear (such as intensity of competition, product diversity, etc.);
• The questionnaire used language and concepts that were understandable to the target sample (personnel) outside the finance community;
• The questionnaire reflected the complexity and dynamics of the subject at hand, particularly as it straddled management accounting and strategic management.

All interviewees were from one of the large banks in South Africa. One (1) of the interviewees was an executive responsible for the finance department. One (1) was a senior manager responsible for product management, including price-setting. The last interview was with a middle manager who works in the operations area and whose performance is largely dependent on cost per unit. The reason for using structured interviews was to allow respondents to respond freely and to build on their ideas. The main purpose of the interviews was to ensure that the terminology and structure of the quantitative research method were possible in terms of coverage and sampling.

Collecting data through an interview process is not free of problems. Gordon and Langmaid (1988) criticise the interview format from the standpoint of its reliability and validity. For example, there is the possibility of responses varying significantly from one respondent to the other. More importantly, there could be subjectivity in the process where respondents could, for example, be anxious to give answers they perceive to be correct given their active role in this field. Gordon and Langmaid (1988) also criticise the interview data collection method as there may be bias in the way data is analysed due to researcher perceptions. In the face of these criticisms, it is worth noting that it is part of the scope of this pilot to gauge the extent to which there are similarities or differences in responses and understanding of concepts. Thus, variability was actually embraced and developed into themes. It was anticipated that content variances would be mitigated through the design of a questionnaire that was balanced in the areas it sought to test. The data collected as part of the interview process was processed and interpreted using the quantitative techniques.
After these interviews a comprehensive questionnaire (Annexure C) was designed and used as primary instrument to collect data. Six questions (question 5, 6, 7, 8, 10 & 11) were drawn from the work of Drury and Tayles (2005: 80) as this study also attempted to develop a factors associated with selecting a product cost system with the difference being that it was applied in manufacturing sector in the UK whereas this study is focussed on the banks in South Africa. All other questions were developed by the authors using Drury and Tayles (2005:80) format and rating system.

The following table summarises that the content and areas of emphasis in the questionnaire:

Table 3: Questions distribution

<table>
<thead>
<tr>
<th>Area of emphasis</th>
<th>Number of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td>4</td>
</tr>
<tr>
<td>Sophisticated costing environment</td>
<td>2</td>
</tr>
<tr>
<td>Product costing system in relationship to strategic management</td>
<td>3</td>
</tr>
<tr>
<td>Product costing system utilisation for pricing decisions</td>
<td>2</td>
</tr>
<tr>
<td>Product costing system in context of product diversity</td>
<td>4</td>
</tr>
<tr>
<td>Product costing system in context of organisation's cost structures</td>
<td>1</td>
</tr>
<tr>
<td>Product costing system in context of highly competitive environment</td>
<td>2</td>
</tr>
<tr>
<td>Product costing system in context of its general usage in the organisation</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
</tr>
</tbody>
</table>

The entire questionnaire used a 5-point rating system adopted from Drury and Tayles (2005). The rating system is discussed in detail on the coding procedures section below.

4.7 Population and Sampling

4.7.1 Definition of the population
The population for this study comprised all management accounting professionals, senior managers and product management specialists within the South African banking industry. Using base information from FNB, it was estimated that the total population is approximately 232 professionals. According to Welman and Kruger (1999:210), the target population must be consistent with the objectives of the study. They further emphasise
that the target population should have the skills and knowledge that the researcher seeks to uncover. Lastly, it must be clearly defined what decisions will be included or excluded.

International and public banks were excluded from the target population because of structural differences in their banking operations. The varying nature of their businesses would have made it difficult to generalise coherent results. The privately-owned 4 big banks were considered primary targets as their operations are comparable. In any case, they manage and control over 85% of banking assets in South Africa (SARB, 2013a)

4.7.2 Definition of the sample
Selecting a portion of the target population for the ultimate purpose of drawing conclusions is referred to as sampling (Gill & Johnson, 2010:143). As was the case with this research study, limitations of time and resources often restrict the researcher in reaching the entire target population (Saunders et al, 2007:206). Interestingly, Parasuraman (2004:446) suggests that data obtained through sampling may be more accurate than data obtained from a complete consensus. He cites accuracy as largely being a function of the process of collecting data rather than the number of elements included (Parasuraman, 2004:447).

The sample frame consisted primarily of three groups within the big 4 banks:

- Group 1: Those who are in the management accounting space with a focus on cost or profitability information production;
- Group 2: The general management or executives who are responsible for the overall organisational or business unit performance;
- Group 3: The product managers who are responsible for specific product performance. These individuals often report to general managers or executives responsible for the combined products’ performance.

4.7.3 Sampling technique
Since the study required respondents to have specific knowledge, skills and aptitudes, it was felt that random sampling methods were inappropriate. Consequently, a non-probability sampling technique was adopted. In this regard, a combination of purposive and snowball techniques was used. According to McNeill (1990), purposive sampling “enables the
researcher to choose a particular group because it is known to be the type that is wanted”. The snowball technique, in turn, allows the researcher to be referred to additional interviewees regarded as having the experience and insight necessary to answer the interview questions. The researcher recognised, however, that both techniques do not eliminate the high potential for bias. The snowball technique could potentially result in respondents only identifying other likely respondents on the basis that they share similar viewpoints. The purposive technique, in turn, could potentially prompt the researcher to select respondents who fit his own personal preferences or bias. For example, they may be very accessible or have converging viewpoints, or have a personal relationship with the researcher.

Nevertheless, the use of the purposive sampling technique was important for gaining access to the network of the respondents. The snowball technique was also important in that, without the referrals, the sample would have been statistically too small or biased towards one bank. In addition, the researcher would have faced significant obstacles in gaining access to respondents, given that cost management practices can be easily viewed as providing a competitive edge within the firm. Furthermore, the complexities, myriad models and experiences, nuances and challenges associated with each bank’s management accounting practices left the researcher with limited choice in terms of gaining access to the right quality of respondents.

4.7.4 Sample Size and Response Rate
The size of the sample can be put into three different groups:

- Group 1: Management Accounting / Finance professionals = 30
- Group 2: Senior / Top / Executive Management = 10
- Group 3: Product / Business managers = 25

The sample size represents 33% of the estimated total target population. 29 questionnaires were received and processed. This represents a response rate of 45% of targeted sample size.
4.8 Data Collection

The study used a mixed model research approach. According to Saunders et al (2007:145), mixed model research comprises both qualitative and quantitative procedures to collect data, as well as quantitative techniques to analyse data. Mixed model research sets out to combine the particular strengths of qualitative and quantitative research techniques, while minimising their limitations (Gill & Johnson, 2010:384). Gill and Johnson (2010:384) argue, though, that the primary weakness of the mixed model research approach is that it is more difficult to manage and is potentially expensive.

This study used both qualitative and quantitative techniques to collect data, yet the data analysis was conducted using a quantitative technique. Data was initially collected using unstructured and in-depth interviews which were intended to:

- Act as a pilot or test to improve the initial questionnaire; and
- Ensure that the questionnaire addressed the relevant concepts and there was sufficient scope and coverage.

Following the interview process, the questionnaire was further refined. The final questionnaire was produced with a view to collecting and analysing data using quantitative techniques. Thus, the process of data collection was sequential, starting with a qualitative approach and ending off with a quantitative one.

Finally, the study was cross-sectional in that data was collected at a particular point in time. Furthermore, data was only collected once. In cross-sectional studies, data is collected during a single, and relatively short, period (Gill & Johnson, 2010:335). Yet data or perceptions are affected by other organisational factors – which are not related to the study – that could influence respondents’ attitudes towards product costing systems. For instance, if the bank had just released results that revealed poor performance, an individual participating in this study might perceive the product costing system as being the reason behind limited investment in their product or business lines, rather than external economic realities.
The questionnaire was delivered to, and collected from, the respondents in person. On average 15 days elapsed between delivery and collection, thus allowing respondents enough time to go through the questionnaire.

4.9 Ethical Considerations

Each questionnaire was accompanied by a letter (Annexure C) stating the purpose of the study and with the assurance that the results would be strictly confidential. The researcher received reasonably quick responses from the first and third groups of respondents (i.e. those in the management accounting and product management fields). However, with the second group, i.e. executives and senior management, the researcher had to visit their offices or follow up with phone calls on several occasions.

The first group was at first hesitant to participate in the research as they perceived their accounting capability to be a competitive advantage. The researcher thus decided to make the insertion of people’s names optional so that they could disguise their identity. As can be seen on the questionnaire (Annexure C), there were no identification marks for people completing the questionnaire, other than a reference number which was used purely for administrative purposes. The researcher adopted this approach in order to swell the numbers of participants.

At the time of the study, the researcher was involved in a particular product line, with overall responsibility for the performance of the business unit. The respondents (4) that would have taken part in the survey were excluded from the sample to avoid any perceived conflict of interest.

4.10 Limitations of the study

The study was limited to the 4 big banks in South Africa which together control about 85% of banking assets (SARB, 2013a). As their activities are largely similar, it ensured that a general view from the banking industry could be obtained. By contrast, attempting to gain a general view from international, co-operative and state-owned banks would have been difficult.

All respondents were residents of Johannesburg where the big 4 banks’ head offices are located. During the qualitative pilot study it was established that most of the respondents
making up the three target groups also resided in Johannesburg. While this study has focused on the bank as whole, certain activities could conceivably be performed differently in other cities such as Cape Town or Durban.

4.11 Data Processing
This section explains the process from when the data was collected until after it was analysed (Gill and Johnson, 2010). Data analysis involves checking the questionnaire for validity, eliminating invalid responses, coding data, and converting the data into formats that are understood by relevant data analysis software applications (Saunders et al, 2007). Data collected through the interview process was processed using quantitative techniques. The data processing in this context involved the following:

4.11.1 Data inspection
Each questionnaire was hand delivered and picked from each respondent. The researcher ensured that questionnaires were 100% completed before taking for processing. As a result all 29 questionnaires received were “fit for processing”. Data collected during the interviews as captured on the pilot questionnaire by the researcher.

4.11.2 The coding procedure
Since all questions in the questionnaire a five possible response; the first block of the possible response was coded as number one (1), the second one – number two (2) until the last one coded number five (5). A questionnaire reference number was also generated. The first letter represented the bank, the second character represented the area of responsibility and last number represented the questionnaire number. This numbering was useful in enabling the research to analyse and categorise data into groups in order to interpret data. Again, as a result of the pre-processing checking, no questionnaires had questions that were left unanswered.

4.11.3 Transferring of data
The data was transferred into a Microsoft Excel software application. The researcher typed the data into the programme manually, with systematic checks to eliminate possible errors. These checks involved using some totals (i.e. the sum of all response values that were converted into numerical values) from paper responses and comparing them to the sum in the Excel programme.
Both the paper responses and the soft copy response (MS Excel application) were handed over to STETKON (student data analysis assistance service provider). The latter also checked for the consistency and integrity of the data. No capturing errors were found. STETKON used the SPSS-X application software, which uses data import functionality from Excel, in order to perform the data analysis. Once the data was in the SPSS-X application software, it was ready for analysis. The next chapter discusses the results of the analysis that were produced from the software application.
5. RESULTS PRESENTATION

This chapter presents the research findings using quantitative methods. The data is presented using tables and graphs grouped together according to research questions as outlined in chapter 1.

5.1 Categorizing of data

Since data was collected via questionnaire, the researcher found it necessary to categorise the responses in order to analyse and interpret them, and make comparisons. This chapter and the next will show how data was analysed and interpreted using different categories representing “themes” that link the hypotheses directly to the research questions. The categorisation (or “coding”) is based on the thematic analysis and grounded theory developed by Strauss and Corbin (1998:102). These authors refer to “coding” as the creation of categories in relation to data, and the grouping together of different instances of data under an umbrella term or theme so that they can be regarded as being of the “same type” where an association of meaning can be developed.

Another data analysis concept of Strauss and Corbin (1998) is the “dimensionalising” of data. They suggest that, typically, people react to things, or cause things to happen, or explain things in different ways, and these different ways are referred to as the “dimensions” of an object. They further suggest that “dimensionalising” and categorising data often lead to questions relating to “links” in terms of their relationships. In this thesis, the linkages between various questions in the questionnaire are explored in more detail in the interpretation of the results in the next chapter. This chapter deals with the presentation of categorised data (i.e. the summary of responses) by research question, supplemented by specific hypotheses.
### 5.2 Linking Research Questions, Hypothesis and Questionnaire

The below, provides the summary of the linkages of the research questions, hypothesis and sub-questions contained in the questionnaire. The purpose of the table is to provide the structure and context of how results are presented and interpreted.

#### Table 4 - Linking Research question, hypothesis and questionnaire

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Hypothesis</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1; What role does the product cost systems play in strategic management of the bank?</td>
<td>H1: Product costing systems must be designed to respond to the external and internal environments, which are influenced by the competitive strategy and desired organisational performance</td>
<td>Q11: Indicate your perception of the accuracy of cost information for making strategic (long-term) decisions? Q13: Indicate the intensity of the use of cost or periodic profitability analysis to inform cost reduction strategies - including outsourcing, discontinuing of products and/re-designing? Q20: Please indicate your perception on the importance of revising cost allocation methods when there is change or revision of the business strategy?</td>
</tr>
<tr>
<td>Q2: What product cost management system characteristics that are relevant for the banking industry?</td>
<td>H4: The higher the indirect costs relative to the total cost structure, the greater the need for a sophisticated product costing system H5: The more intense the competition, the greater the need for a sophisticated product costing system</td>
<td>Q16: Indicate your perception of cost drivers diversity for the core products Q8: Indicate the level of competitiveness intensity on core product(s) in your business unit or organisation? Q19: Indicate the intensity of customer switching based on price point movements for your core products?</td>
</tr>
</tbody>
</table>
Q3: What role and implications does product cost systems play in price-setting in the banking industry?

H2: Accurate and efficient product costing systems have a positive impact on the firm’s ability to set appropriate market prices.

Q12: Indicate the intensity of the use of cost or periodic profitability analysis to inform pricing decisions.

Q18: Indicate of your perception of whether pricing-decision makers largely base their pricing decisions on competitor pricing for core products?

Q4: What are other critical considerations for management when choosing a cost allocation system in the banking industry?

H3: The larger and more diverse the organisation, the greater the need for a complex product costing system.

H6: The more important the cost information, the greater the need for a sophisticated product costing system.

Q9: Indicate the level of product diversity in your organisation?

Q10: Indicate the importance of cost information in periodic profitability analysis to determine product strategies?

Q17: To what extent does cost information enable realisation of diverse and/or convergence of product strategies in various markets?

5.3 Demographics

5.3.1 Level of Occupations

<table>
<thead>
<tr>
<th>Level of Occupation</th>
<th>Frequency</th>
<th>Share</th>
<th>Accum. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Management</td>
<td>6</td>
<td>20.7%</td>
<td>20.7</td>
</tr>
<tr>
<td>Senior Management</td>
<td>6</td>
<td>20.7%</td>
<td>41.4</td>
</tr>
<tr>
<td>Middle Management</td>
<td>12</td>
<td>41.4%</td>
<td>82.8</td>
</tr>
<tr>
<td>Junior</td>
<td>5</td>
<td>17.2%</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

Out of 29 responses, just over 80% of respondents were at the management level. The occupation level responses were categorised using the Department of Labour’s Employment Equity levels. The researcher chose these categories as they are used (as required by South
African labour law) by South African corporates to report progress in achieving employment equity goals. The banking sector is no exception. This allowed the researcher to compare occupation levels among banks, where they can vary considerably. Since this study adopts a strategic management perspective, a large proportion of responses came from the management category. This was deemed an appropriate and deliberate result. Furthermore, over 40% of responses came from the senior or top management levels, adding an important, overarching perspective as these respondents generally influence the strategic direction of the business.

5.3.2 Years of Experience

<table>
<thead>
<tr>
<th>Total Years of Work Experience</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 2</td>
<td>1</td>
<td>3.4%</td>
<td>3.4%</td>
</tr>
<tr>
<td>3-5</td>
<td>4</td>
<td>13.8%</td>
<td>17.2%</td>
</tr>
<tr>
<td>6-10</td>
<td>4</td>
<td>13.8%</td>
<td>31.0%</td>
</tr>
<tr>
<td>11 - 15</td>
<td>13</td>
<td>44.8%</td>
<td>75.9%</td>
</tr>
<tr>
<td>&gt;15</td>
<td>7</td>
<td>24.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

Of the 29 respondents, 69% had a total of 11 or more years of work experience, while over 83% had more than 6 years. Again, this reinforces the fact that management had a higher participation rate in the survey. Naturally, it was expected that respondents at the different management levels would have a correspondingly higher level of work experience. It is also worth noting that close to 25% of respondents had over 15 years of experience.

5.3.3 Area of Responsibility

<table>
<thead>
<tr>
<th>Area of Responsibility</th>
<th>Frequency</th>
<th>Percent</th>
<th>Accum. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Management</td>
<td>5</td>
<td>17.2%</td>
<td>17.2%</td>
</tr>
<tr>
<td>Finance</td>
<td>13</td>
<td>44.8%</td>
<td>62.1%</td>
</tr>
<tr>
<td>Product Manager</td>
<td>11</td>
<td>37.9%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>
In Chapter 2, it was mentioned that this study straddles finance (more specifically, management accounting), economics and strategic management concepts from the literature. The different categories of respondents were chosen for the following reasons:

- Product managers are largely responsible for profitability, strategy and driving marketing initiatives for their products;
- Finance deals with all financial management responsibilities, including allocating costs, revenues as well as generating management and statutory reporting information;
- General management mainly takes an overall strategic view of the business. Among other things, this level of management ensures that the business is competing effectively, and acquiring the right market share in a holistic manner that supports the corporate strategy.

Thus, it was critical to get a relatively balanced mix of respondents. The finance community was the largest of the respondent groups at 45%, compared with product managers at 38%. General management respondents represented approximately 17% of the 29 respondents. Clearly, finance represented the largest respondent group by a small margin (7%) compared with the product management group. The general management group was expected to be small given the limited quantum of ‘top’ management personnel that had business-wide responsibility. The relative mix of respondents was consistent with the targeted sample (as discussed in Chapter 4).

### 5.3.4 Management Accounting Experience

Since product cost allocation management systems falls within the ambit of management accounting, it was necessary to understand the respondent’s level of understanding of management accounting both as a user and producer of management accounting.

<table>
<thead>
<tr>
<th>Management Accounting Years of Work Experience</th>
<th>Frequency</th>
<th>Percent</th>
<th>Accum. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 2</td>
<td>6</td>
<td>20.7%</td>
<td>20.7%</td>
</tr>
<tr>
<td>3-5</td>
<td>6</td>
<td>20.7%</td>
<td>41.4%</td>
</tr>
<tr>
<td>6-10</td>
<td>13</td>
<td>44.8%</td>
<td>86.2%</td>
</tr>
<tr>
<td>11 - 15</td>
<td>4</td>
<td>13.8%</td>
<td>100.0%</td>
</tr>
<tr>
<td>&gt; 15</td>
<td>0</td>
<td>0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
About 59% of respondents had more than 6 years of experience working with management accounting information. In most cases, it was expected that more respondents would not necessarily have a thorough understanding of concepts such as cost objects or cost pools outside the finance community, but would be able to understand the basics of cost allocation as well as the final output of product costing systems. A close to 60% level of understanding of management accounting was considered acceptable for the purpose of this study due to the diluting effects of other areas of responsibility covered in the survey, such as product and general management.

5.4 Research Question 1

What role does the product cost systems play in strategic management of the bank?

Respondents were asked several questions to elicit their perceptions about the role of product costing systems insofar as they assist the strategic management process in the bank. The main idea was to establish whether the respondents understood that a product costing system is an integral part of the strategic management of the bank and not only a business finance activity. The questions were designed around Hypothesis 1, which suggests that product costing systems should be designed to respond to the external and internal business environments, as influenced by the competitive strategy and desired organisational performance.

<table>
<thead>
<tr>
<th>Related Questions</th>
<th>N</th>
<th>Mode</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q11: Indicate your perception of the accuracy of cost information for making strategic (long-term) decisions?</td>
<td>29</td>
<td>3</td>
<td>3.83</td>
<td>.966</td>
</tr>
<tr>
<td>Q13: Indicate the intensity of the use of cost or periodic profitability analysis to inform cost reduction strategies - including outsourcing, discontinuing of products and/re-designing?</td>
<td>29</td>
<td>4</td>
<td>3.86</td>
<td>.789</td>
</tr>
<tr>
<td>Q20: Please indicate your perception on the</td>
<td>29</td>
<td>4</td>
<td>4.10</td>
<td>.724</td>
</tr>
</tbody>
</table>
importance of revising cost allocation methods when there is change or revision of the business strategy?

The respondents conveyed a greater diversity of views regarding cost information accuracy with a view to making long-term decisions - as indicated by 0.966 σ (standard deviation). There was a high perception (mode of 4 with 0.789 σ) that cost information is used to determine strategic cost reduction initiatives, such as outsourcing or exiting markets or products. The mean of 4.1 and mode of 4 with 0.724 σ indicates that respondents believed that a product costing system should be revisited when there is a change in strategy. This analysis assisted in interpreting the data and creating linkages between the results.

<table>
<thead>
<tr>
<th>Distribution of results</th>
<th>Very Low</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q11 Count</td>
<td>0</td>
<td>2</td>
<td>10</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Row N %</td>
<td>0.0%</td>
<td>6.9%</td>
<td>34.5%</td>
<td>27.6%</td>
<td>31.0%</td>
</tr>
<tr>
<td>Q13 Count</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>Row N %</td>
<td>0.0%</td>
<td>6.9%</td>
<td>17.2%</td>
<td>58.6%</td>
<td>17.2%</td>
</tr>
<tr>
<td>Q20 Count</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>Row N %</td>
<td>0.0%</td>
<td>0.0%</td>
<td>20.7%</td>
<td>48.3%</td>
<td>31.0%</td>
</tr>
</tbody>
</table>

At a detailed level, the use of cost information for making strategic decisions was practically evenly spread from “average” to “very high”. About 75% of respondents said that cost information usage is high or very high for cost-related strategic initiatives. Finally, close to 80% of respondents believed that the product costing system should be revised when there is a revision to the business strategy. This distribution analysis also assisted the researcher to make conclusive remarks about the respondents’ perceptions regarding the role of product costing systems in the context of the strategic management of the bank.
5.5 Research Question 2

What product cost management system characteristics that are relevant for the banking industry?

The respondents were asked a number of questions to highlight the characteristics of a product costing system that they perceived as being relevant for the banking industry. The concept of sophisticated versus simpler product costing systems, as discussed in Chapter 2, was used as a proxy (instead of comparing common product costing systems) to test key characteristics. The questions were designed around Hypotheses 4 and 5. The Competition Enquiry of the banking sector in South Africa found that the industry had the characteristics of a complex monopoly (Falkena et al., 2004:145) and that the banking industry's cost structures can be seen as a barrier to entry. Consequently, the product cost management system should be responsive to these unique banking industry contextual needs.

5.5.1 Sophistication

Abernethy et al. (2001:264) and Drury and Tayles (2005:56) add a dimension that defines the sophistication of a product costing system as a continuum, ranging from a simplistic approach where only direct costs are allocated to products, to more complicated processes involving multi-stage activities largely aimed at allocating indirect costs. The authors define sophistication levels using four key dimensions: the number of cost pools, the number of different types of drivers, the types of second stage drivers, and the extent to which direct resource drivers are used in the first stage of the allocation process. Drury and Tayles (2005:57) conclude that an increase in the number of cost pools and/or drivers, together with the use of different types of drivers, move sophistication from simple to more complex.

<table>
<thead>
<tr>
<th>Number of cost pools</th>
<th>Frequency</th>
<th>Percent</th>
<th>Accum. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>1</td>
<td>3.4%</td>
<td>3.4%</td>
</tr>
<tr>
<td>3-6</td>
<td>6</td>
<td>20.7%</td>
<td>24.1%</td>
</tr>
<tr>
<td>7-12</td>
<td>16</td>
<td>55.2%</td>
<td>79.3%</td>
</tr>
<tr>
<td>13-20</td>
<td>5</td>
<td>17.2%</td>
<td>96.6%</td>
</tr>
<tr>
<td>&gt;21</td>
<td>1</td>
<td>3.4%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Number of cost drivers</td>
<td>Frequency</td>
<td>Percent</td>
<td>Accum. %</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------</td>
<td>---------</td>
<td>----------</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>3.4%</td>
<td>3.4%</td>
</tr>
<tr>
<td>2-3</td>
<td>1</td>
<td>3.4%</td>
<td>6.9%</td>
</tr>
<tr>
<td>4-5</td>
<td>7</td>
<td>24.1%</td>
<td>31.0%</td>
</tr>
<tr>
<td>6-9</td>
<td>19</td>
<td>65.5%</td>
<td>96.6%</td>
</tr>
<tr>
<td>&gt;10</td>
<td>1</td>
<td>3.4%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

On the one hand, 55% of respondents had the number of cost pools standing at between 7 and 12. Added together with the 13 – 20 range, this number rises to 72%. On the other hand, 66% of the respondents said they had between 6 and 9 cost drivers. Effectively, these results show a higher level of sophistication considering that 80% of 55% of respondents in the 7 – 12 number of cost pools category also reported that they used 6 – 9 cost drivers. Thus, each respondent in this category, at the minimum and maximum levels, uses a product costing system with attributes ranging from 42 to 108.

Lastly, the respondents were asked to indicate cost drivers diversity used within their environment.

<table>
<thead>
<tr>
<th>Cost driver diversity</th>
<th>N</th>
<th>Mode</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q16: Indicate your perception of cost drivers diversity for the core products</td>
<td>29</td>
<td>4</td>
<td>3.69</td>
<td>.850</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Very Low</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q16: See above</td>
<td>Count</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>21</td>
</tr>
<tr>
<td>Row N %</td>
<td></td>
<td>0.0%</td>
<td>17.2%</td>
<td>3.4%</td>
<td>72.4%</td>
</tr>
</tbody>
</table>

72% of respondents indicate “high” cost driver diversity. The standard deviation of 0.805(σ) is high for the remaining 28%.

### 5.5.2 Cost Structure

It was established in Chapter 3 that banks generally have a high fixed cost structure. Insofar as product costing systems are concerned, a high fixed cost structure brings the dimension of capacity cost into the fray. Li and You (2012:445) highlight the additional complexity that
exists in terms of capacity acquisition, and cost allocation and reduction in a multi-product environment with high demand variability. This study argues that South African banks are faced with this situation. Respondents were asked one question relating to their cost structure.

<table>
<thead>
<tr>
<th>Indirect (or shared) costs as a percentage of total costs</th>
<th>Frequency</th>
<th>Percent</th>
<th>Accum. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 15%</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>16 - 30%</td>
<td>1</td>
<td>3.4%</td>
<td>3.4%</td>
</tr>
<tr>
<td>31 - 50%</td>
<td>2</td>
<td>6.9%</td>
<td>10.3%</td>
</tr>
<tr>
<td>51 - 75%</td>
<td>18</td>
<td>62.1%</td>
<td>72.4%</td>
</tr>
<tr>
<td>&gt;75%</td>
<td>8</td>
<td>27.6%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

62% of the 29 respondents said that between 51 and 75% of their cost structure are shared or indirect costs. If combined with those who are in greater 75% category, then this group represents 90% of the respondents.

5.5.3 Intensity of competition
Bromwich (1990:27) asserts that the essence of the contestable markets theory is that there is a need to maintain cost advantages if the strategies are to be sustainable. To achieve this, the cost management system should not only be focused on an internal analysis of cost behaviours but also on that of the competitors to help management make sensible decisions in competitive markets. In this context the product costing system should be dynamic and sophisticated to assist management to navigate and make informed decisions, given the highly competitive nature of today’s business environment. Respondents were asked two questions relating to the intensity of competition.

<table>
<thead>
<tr>
<th>Related Questions</th>
<th>N</th>
<th>Mode</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q8: Indicate the level of competitiveness intensity on core product(s) in your business unit or organization?</td>
<td>29</td>
<td>4</td>
<td>4.48</td>
<td>.509</td>
</tr>
<tr>
<td>Q19: Indicate the intensity of customer switching based on price point movements</td>
<td>29</td>
<td>3</td>
<td>3.31</td>
<td>.761</td>
</tr>
</tbody>
</table>
for your core products?

<table>
<thead>
<tr>
<th>Related Questions – Distribution of results</th>
<th>Very Low</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q8</td>
<td>Count</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Row %</td>
<td>0.0%</td>
<td>0.0%</td>
<td>51.7%</td>
<td>48.3%</td>
</tr>
<tr>
<td>Q19</td>
<td>Count</td>
<td>0</td>
<td>4</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Row %</td>
<td>0.0%</td>
<td>13.8%</td>
<td>44.8%</td>
<td>37.9%</td>
</tr>
</tbody>
</table>

All respondents said that the intensity of competition was high (52%) or very high (48%) with a standard deviation of at least 0.509. This indicates symmetric perceptions that there is a high intensity of competition in the banking industry. However, the data does not show similar consensus insofar as price elasticity is concerned, with 0.761 \( \sigma \) and most responses (45%) in the average category. These questions had a poor Cronbach’s Alpha (\( \alpha \)) score of 0.106, partly because the questions had two constructs - one about the level of competition and another about the underlying reasons for that competition.

5.6 Research Question 3
What role and implications does product cost systems play in price-setting in the banking industry?

Newbert (2008:747) suggests that firms, using the resource-based view theory, with unique capabilities to combine and accumulate resources that are not present in other firms and are difficult to substitute and are immobile, will achieve competitive advantage. The bank’s ability to set appropriate prices for products in multiple markets – particularly in two-sided markets - is a key requirement. Product costing systems play a crucial role in this process.
periodic profitability analysis to inform pricing decisions?

Q18: Indicate of your perception of whether pricing-decision makers largely base their pricing decisions on competitor pricing for core products?

<table>
<thead>
<tr>
<th></th>
<th>Very Low</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q12 Count</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>Row N %</td>
<td>0.0%</td>
<td>6.9%</td>
<td>20.7%</td>
<td>62.1%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Q18 Count</td>
<td>0</td>
<td>2</td>
<td>6</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td>Row N %</td>
<td>0.0%</td>
<td>6.9%</td>
<td>20.7%</td>
<td>55.2%</td>
<td>17.2%</td>
</tr>
</tbody>
</table>

62% of respondents indicated a high usage of cost information for pricing decisions. The mean of 3.76, which is lower than the mode of 4, suggests that the other 38% did not show a clear dominant category. This is also observed through a 0.739 σ. 55% of the 29 respondents said that competitor pricing is also a key factor in pricing decisions. Again, there was no other clear dominant category for the remaining 45% (with 0.805 σ). The internal consistency test for these two sets of data produced a good result at 0.808 α, showing a strong correlation between the two sets of data.

5.7 Research Question 4
What are other critical considerations for management when choosing a cost allocation system in the banking industry?

Besides strategic direction, pricing and the specific banking industry structure, there are additional factors that management should be aware of when selecting product costing systems. The literature review suggested that product diversity, a multi-market environment and the sheer size of the organisation influence the selection and adoption of product costing systems (Abernethy, 2001; Drury & Tayles, 2005). Respondents were asked 6 questions to determine the importance of the factors in terms of their impact on product cost allocation systems, grouped into two themes.
5.7.1 Size and product diversity of the organisation
Larger organisations often have many business processes, and complex product architecture and governance structures. Thus, they require complex financial management and control systems to deal with organisational differentiation and to minimise the cost of integration (Lawrence & Lorsch, 1967:156; Anderson & Lanen, 1999:380). Simon (1991:127) added the dimension of optimisation in respect of decision making, structure and functioning of the firm with a view to achieving optimum business performance. Product costing systems, as part of a broad management control system, play a crucial role here. Moreover, smaller organisations are unlikely to have resources and capabilities to implement sophisticated product costing systems. Banks, in the context of this study, are assumed to be large since they represent 85% of total banking assets (SARB, 2013a) and the questionnaire was focused on the extent of product diversity and the multi-market environment.

<table>
<thead>
<tr>
<th>Product Diversity</th>
<th>N</th>
<th>Mode</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9: Indicate the level of product diversity in your organisation?</td>
<td>29</td>
<td>4.00</td>
<td>3.17</td>
<td>.848</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distribution of results</th>
<th>Very Low</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q9: Same as above</td>
<td>Count</td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Row N %</td>
<td>0.0%</td>
<td>13.8%</td>
<td>27.6%</td>
<td>55.2%</td>
<td>3.4%</td>
</tr>
</tbody>
</table>

The mode of 4 (“high” category) represents 55% of respondents with 0.848 σ indicating dominant view that product diversity is high in banks; 28% perceived product diversity to be “average”. Respondent were further asked to disclose the nature of product diversity.

<table>
<thead>
<tr>
<th>Category</th>
<th>Q14: Single Market</th>
<th>Q15: Multi-Market</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Percent</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>2-3</td>
<td>16</td>
<td>55.2%</td>
</tr>
<tr>
<td>3-5</td>
<td>9</td>
<td>31.0%</td>
</tr>
<tr>
<td>6-9</td>
<td>4</td>
<td>13.8%</td>
</tr>
</tbody>
</table>
On one hand, 55% of respondents whose product are directed towards a single market also show a lower number of core products (2 – 3 category). On the other hand, close to 60% of respondents had their products used in multiple markets reported that they offered more products (3 – 5 category). The respondents were guided on the definitions of customer segmentation (see appendix C). Accumulatively, both respondents with products in single or multiples in the 2 – 5 product range showed a response of approximately 80% (86% and 79.3, respectively). This data supports the view that banks offer high product diversity in multiple markets, and therefore sophisticated product cost system should be adaptable into this environment.

5.7.2 The usage and importance of cost information
Porter (1980) asserts that even if the firm does not adopt cost leadership as a generic strategy, it still has to pay attention to its costs. Blocher et al (2010:9), Drury and Taylor (2006:406), and Fisher and Krumwiede (2012:43) argue that product costing systems play various roles and provide crucial information for a variety of purposes in the firm. These include a) providing cost information for cost control; b) reporting on internal and external profitability, and c) providing economic feedback to drive appropriate managerial behaviour, among other things. Respondents were asked two questions in this regard.

<table>
<thead>
<tr>
<th>Related Questions</th>
<th>N</th>
<th>Mode</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q10 Indicate the importance of cost information in periodic profitability analysis to determine product strategies?</td>
<td>29</td>
<td>4</td>
<td>4.34</td>
<td>.670</td>
</tr>
<tr>
<td>Q17 To what extent does cost information enable realisation of diverse and/or convergence of product strategies in various markets?</td>
<td>29</td>
<td>4</td>
<td>3.86</td>
<td>.915</td>
</tr>
</tbody>
</table>
The first question related to the importance of cost information to determine product profitability which is used to inform product strategies as suggested by literature review. There was almost anonymous agreement (89%) amongst the respondents that the importance of cost information is high or very high supported by 0.670 $\sigma$. With regards to requirement c), the respondents were asked to what extent does product costs information enable divergent or convergence of product strategies in various markets. 48% of respondents thoughts product cost systems enables divergent or converging product strategies with only 24% who believe it acted as key enabler. High standard deviation of 0.915 ($\sigma$) on the other 52% (including the 24%) makes it harder to draw conclusion on this aspect of the study.

5.8 Conclusion
Data was presented based on the research questions using categories and dimensions linked to the hypothesis. The data from all 29 respondents was processed as valid. The mode was used as the focal point to present the views of the majority in a specific hypothesis context. In some cases logical, accumulative percentages were used. The standard deviation ($\sigma$) together with the distribution of results was used to show the degree of “consensus” among the respondents. Cronbach’s Alpha ($\alpha$) was used to measure internal consistency in order to draw conclusions from two or more sets of data, where appropriate.

The thesis will now focus on the analysis and interpretation of the results, and will draw final conclusions based on the data presented in this chapter.
6. DISCUSSION AND ANALYSIS OF RESULTS

6.1 Introduction
This chapter analyses and discusses the results presented in Chapter 5 with the specific intention of drawing conclusions. It achieves this by analysing the results in the context of the specific research questions posed. Data is cross-tabulated to make sense of the results, i.e. by validating or invalidating the hypotheses aimed at answering the research questions.

6.2 Reliability of the data
As discussed in Chapter 4, the targeted sample were senior management, management accounting, professionals, product management executives within the big four banks (Nedbank, FirstRand [RMB and FNB], ABSA and Standard Bank). The big four sample size was deemed appropriate due to their size relative to the banking industry as whole.

6.2.1 Industry generalisation
Ensuring the balance of the responses to reflect representation of total bank assets market share was a challenge (see Figure 6-A). Bank A and Bank C were aligned to their respective market shares, but Bank D represented the smallest bank while Bank C represented the third largest. Nevertheless, the fact that 65% was a reflection of the two bigger banks and the relatively small difference between Bank C’s and Bank D’s representation, the research results were regarded as reliable, adequate and valuable for the purpose of arriving at a general industry perspective.

Figure 6-A - Respondents per Banks
6.2.2 Area of Expertise Generalisation

Another challenge related to achieving adequate representation at the different levels of responsibility within the banks. It has been established (in Chapter 5) that at an aggregated level, the representation of the targeted sample was adequate. However, it was necessary to ensure that the data at bank level was similarly balanced to allow for generalisations using this dimension as well. Figure 6-B shows adequate distribution in terms of individual bank representation, with the exception that there was no general management respondent in Bank B. Bank B’s overall representation (as seen in Figure 6-A) was only 21% and therefore limited in terms of the overall statistics. The data was then deemed reliable, adequate and valuable to generalise from an area of expertise perspective across the banks.

Figure 6-B Area of Expertise generalisation

<table>
<thead>
<tr>
<th>Area of Responsibility</th>
<th>Bank A</th>
<th>Bank B</th>
<th>Bank C</th>
<th>Bank D</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Management</td>
<td>40%</td>
<td>0%</td>
<td>40%</td>
<td>20%</td>
<td>100%</td>
</tr>
<tr>
<td>Finance</td>
<td>38%</td>
<td>31%</td>
<td>15%</td>
<td>15%</td>
<td>100%</td>
</tr>
<tr>
<td>Product Manager</td>
<td>18%</td>
<td>18%</td>
<td>55%</td>
<td>9%</td>
<td>100%</td>
</tr>
</tbody>
</table>

From the two data analysis discussions, it was found that the data was regarded as reliable and adequate to generalise across the banks, as well as the areas of responsibility. This analysis was crucial in that it provided the necessary positive linkages to arrive at conclusions at an industry level, which is part of the aim of this study.

6.3 Research Question 1

What role does the product cost systems play in strategic management of the bank?

6.3.1 Cost management as part of strategic management

The strategic management of the bank entails maximising performance outfits by harmonising efforts and minimising any misfit between diverse demands and internal organisational arrangements, including structure and capabilities (Goll & Rasheed, 1997:584). In contrast, too, strategic management must aim to maximise the benefits of organisational differentiation to improve output (Chandler, 1962). Organisations achieve sustainable competitive advantage by combining capabilities and resources in such a way
that they are valuable, rare and immobile (Barney, 1991a:117; Newbert, 2008:768). A product cost management system, as a moderating administrative mechanism, plays a critical role when it comes to investment, divestment, cost management and profitability decisions, all of which influence managerial behaviour. Finally, according to Auzior (2010:57), the design of the product management system should be aligned to the competitive environment and the overall business strategy.

The hypothesis developed out of the literature review (in summarising the above) was:

\[ H1: \text{Product costing systems must be designed to respond to the external and internal environments, which are influenced by the competitive strategy and desired organisational performance.} \]

It was shown in Chapter 5 that when respondents were asked if cost information analysis was used to determine long-term business strategies, a mode of “average” came up (shown as number 3) with 0.966 \( \sigma \). If this result is broken down further, top management responded with “high” (17%) and “very high” (50%), whereas the majority (68%) of senior management responded with “average”. Middle management had a high standard deviation (1.22 \( \sigma \)) to draw any meaningful conclusions. The statistical link between product costing and competitive strategy is not conclusive.

Naturally, as one moves up or down in the organisation, it is expected that there would be different interpretations of key variables that drive the organisation. However, since more than 80% of respondents occupied management positions, it was expected that there must be a higher level of correlation between various levels insofar as the linkage between product costing and business strategy is concerned. One possible explanation for this is that business strategy is largely seen as an activity that is focused on the external environment mainly because of competition, while product costing systems are understood to be more of an internal administrative activity.

To support this possible explanation, when respondents were asked about the link between product cost information and cost reduction strategies, including outsourcing, discontinuation of products and/or redesign, a mode of “high” was given (shown as number
4) with fewer deviations in responses (0.789 σ). 83% of top management, 100% of senior management and 75% of middle management responded with either “high” or “very high”. The data supports the notion that cost reduction strategies have positive linkages with product costing system information. Cost reduction can be perceived as largely an internal strategic initiative.

The last component of Hypothesis 1 was to establish whether respondents believed that if the strategy of the firm changed then their product costing system should be revised. 88% of top management, 66% of senior management and 92% of middle management responded with “high” or “very high”. Interestingly, 80% and 83% of the general management and finance areas, respectively, were in agreement whereas product managers only achieved a 71% agreement rate. One possible explanation for this small variation is that product managers often change their product-related business strategy (particularly positioning and marketing aspects) without needing to revise the core cost behaviour. Nevertheless, this variation is not so statistically significant as to alter the conclusion.

The findings show that the data supports the notion that product cost management systems, as part of the broader moderating mechanism to manage complexity and uncertainty, are positively linked to cost reduction strategies. Furthermore, the data shows that if and when the business strategy is reviewed, the product costing system also needs to be revised, thus forming a positive link between the two. However, the data did not conclusively link the product costing system with competitive strategy. Therefore, this study concludes that the product costing system must be designed to respond to the internal environment, which in turn is influenced by the competitive strategy and desired organisational performance.

6.4 Research Question 2

What product cost management system characteristics that are relevant for the banking industry?

According to Falkena et al (2004:145), the South African banking industry has the characteristics of a complex monopoly. Over the last few years, competition has intensified
- particularly in the consumer segments. The same report (Falkena et al, 2004) also concludes that there is high market concentration, just like in other parts of the world, in the South African banking industry, which is world-class. Competing in multiple markets, with high product diversity and a very competitive atmosphere increases uncertainty and complexity (Govindarajan, 1988).

The hypothesis developed out of the literature review (in summarising the above) was:

**H4: The higher the indirect costs relative to the total cost structure, the greater the need for a sophisticated product costing system.**

**H5: The more intense the competition, the greater the need for a sophisticated product costing system**

### 6.4.1 Sophistication dimension
Sophistication has been defined according to number of cost pools; the number of drivers and the use of different types of drivers. It has also been established in Chapter 5 that banks use high number of cost pool; cost drivers and cost driver diversity and therefore require highly sophisticated product cost systems. To further substantiate this view; a cross-tabulation between product diversity and cost driver diversity variables, shows that 88% (8) of respondents who had an “average” product diversity used “high” cost driver diversity. Furthermore, 77% (10) of those who said they had “high” product divers also said they had “high” cost driver diversity. From this data analysis, the study concludes that banks require sophisticated product cost systems.

### 6.4.2 Cost Structure
In Chapter 3, it was established that banks largely have fixed or shared costs (at an aggregated level) which increases the need for, and importance of, a product cost management system (Kaplan & Cooper, 1998). This, together with product diversity and a competitive market, makes it necessary for the product costing system to have a high level of sophistication.

The data also showed that 90% of respondents believed that 51% or more of their business cost structure is fixed. 100% of respondents in general management and 64% of those in product management fell into the 51% - 75% category, while the finance group had 46%.

A
further 39% of the finance group were in the greater than 75% category. The data confirms that the banking industry has a high fixed cost structure, as per the analysis in Chapter 3.

Combining the conclusion that South African banks have high fixed cost structures and need highly sophisticated product costing systems, the study finds that the data supports Hypothesis 4 as being applicable and relevant.

6.4.3 Intensity of competition
Bromwich (1990:30) argues that product cost management systems should not only be focused on the internal analysis of cost behaviour but also on the cost behaviour of competitors in order to help management make sensible decisions in competitive markets. Dynamic and highly competitive markets require firms to continuously adapt their competitive capabilities; including managing costs and developing a clear competitive advantage (Li & You, 2012:458).

It was established in Chapter 5 that respondents believed that the competition in the banking industry is intense. Furthermore, the data showed that price elasticity was not deemed by the respondents to be high (41% of responses were in the “high” or “very high” categories). Only the product managers group (64% of responses were in the “high” or “very high” categories) indicated that customer switching is largely dependent on price. Product managers’ views could be explained in part by the fact that they have direct interaction with the competition and are directly involved in setting prices.

The study concludes that this data supports Hypothesis 5. It was expected that intensity of competition, as per the literature review, should go beyond pricing – even though pricing is one of the key elements in the competitor’s toolkit. Other competitive elements, such as brand, service, speed, convenience, and so on, also come into play in competitive markets. Thus, a product cost management system should be providing insight to support not only pricing processes but the entire product offering (including supplementary services such as rewards programmes). The study, supported by the relevant data, concludes that South African banks, which are participants in aggressive competitive markets, need highly sophisticated product costing systems.
6.5 Research Question 3
What role and implications does product cost systems play in price-setting in the banking industry?

6.5.1 Price setting as a capability
Using RBV theory, Dutta et al (2003:617) argue that a firm’s ability to set and change prices can be used as a source of competitive advantage. According to Dierynck and Roodhooft (2011:4), there is a general tendency for decision makers to rely on product costing system outputs to make market-related pricing decisions. Al-Najjar et al (2008:217) argue that firms might change prices (on the basis of market feedback) more frequently than they change their product costing system. This is in line with the findings of Dutta et al (2003:627) that prices must be set to balance competing interests.

In Chapter 3, the study used “cash” as a product of the bank to illustrate the role of a product costing system in a two-sided market. As part of that section, the study also demonstrated how both product pricing and costing capabilities need to be applied in a highly complex environment. Setting prices in two-sided markets involves determining the price point as a reflection of demand elasticities and marginal costs on each side (Weyl, 2009:41).

In line with Dutta et al (2003), this study proposed that:

H2: Accurate and efficient product costing systems have a positive impact on the firm’s ability to set appropriate market prices.

The research data showed that 72% of respondents indicated a “high” or “very high” usage of cost information to inform pricing decisions. Furthermore, the respondents were asked whether pricing was largely based on margin requirements (i.e. the cost-plus principle) or competitor pricing. 72% of respondents indicated a bias towards competitor pricing. 73% (8) of product managers (11) showed a strong bias towards competitor pricing, whereas the finance group (13) had an even spread of responses with a 46% to 54% split between margin requirements and competitor pricing. Again, this difference in views can be explained by the differing nature of the respondents’ roles in the organisation.
Product managers tend to face competitors and their product strategies, whereas the finance group seeks to maximise margins based on the data obtained from product costing systems. Therefore, in terms of this study, the divergent views in the context of price-setting really support and illustrate the very point deduced from the literature review, i.e. that pricing should balance the need to extract appropriate economic rents as well as internal interests. Thus, the presence of an accurate product costing system will have a positive impact on the firm’s ability to set prices – a capability that is of crucial importance in balancing competitor pricing and internal requirements. Based on this analysis, the research data supports Hypothesis 2.

6.6 Research Question 4
What are other critical considerations for management when choosing a cost allocation system in the banking industry?

According to Innes & Mitchell (1995: 149), large organisations are likely to adopt sophisticated product cost system, in part, due to costs and resource required to implement and maintain these systems. In addition, firms with high product and market diversity have higher internal organisational complexity (Auzior, 2010: 60; Govindarajan, 1988: 828).

The study proposed that:

**H3: The larger and diverse the organisation, the higher the need for complex product costing system.**

**H6: The higher the importance of cost information, the higher the need for sophisticated product cost systems.**

6.6.1 Size and product diversity of the organisation
The big four South African banks are large organisations irrespective of matrix used to measure their size. Together, they employ well over 200,000 employees (SARBa, 2013) and in top 20 listed companies on the Johannesburg Stock Exchange (measured by market capitalisation), thus the study assumes that banks are large organisations. Thus, the main issue was to establish the extent of product and market diversity.
The research data confirms product diversity was high in banks. In addition, data confirmed that products were offered to clients in market different market segment. Cash, as discussed in Chapter 3, is offered to both consumers and corporate markets. Market dynamics, including pricing power and intensity of competition is different in these markets. This concludes that banks are large and have high product and market diversity and therefore require sophisticated product cost systems that support this environment.

6.6.2 The usage and importance of cost information
Respondents were asked questions related to the usage and importance of cost information. Research data suggest high usage of cost information for profitability analysis. However, there was no conclusive data to establish whether cost information was key enabler to manage diverging product strategies. The data shows that product cost system information is important and it supports divergent product strategies but not as a key enabler. Thus, this study concludes a high usage of product cost system information and supports divergent product strategies. It was found that product cost system is not a key driver for product strategy. This is consistent with the conclusion of hypothesis 1.

The report will now move on to the summaries finding and offer recommendations for this study.
7. CONCLUSION AND RECOMMENDATIONS

The main aim of this report was to establish a framework that enables management to select appropriate product cost management system. The study takes a strategic management perspective and the framework is designed for the banking industry. It arises out of the critical requirement for management to make long-term decisions (including positioning, diversification, investments and competitiveness) for the organisation as a whole and translated into various products and services strategies in chosen markets. Strategy acts as a "glue" that harmonise efforts that define firm’s trajectory in specified boundaries and minimise cost of integrations arising from potential opportunist behaviour in various layers of management (James & Elmezughi, 2010; Zenger, 2011;)

Govindarajan (1988: 829) suggests that strategy should be support by key administrative systems including; a) the design of the organisational structure, b) the design of control systems and c) selection of managers. Auzior (2010: 57) adds that the design of management control system should be aligned to the organisation’s life cycle and fit in with the competitive environment and business strategy. The study set out to identify key principles and develop a framework for selecting a product cost management system.

7.1 Summary of Findings

First, the study found that product cost systems plays a variety of roles ranging from provision of information for cost control purpose to influencing investment decisions. It found that product cost system plays strategic role in initiatives that are focus on organisational efficiencies such outsourcing, product exits or re-designs. There was no significant link between product cost systems as key driver of competitive strategy. One possible explanation for this view is that there other drivers of competitive strategy such as product differentiation or price rather costs per se.

Secondly, it was established that banks in South African have a cost structure that is fixed and shared by many products and business processes. In addition, banks competitive environment can be described as highly intensive. The high fixed cost structure increase the needs for sophisticated product cost system. The issue of capacity costs (acquisition,
maintenance and elimination) as crucial source of cost distortions also come into play with high fixed cost. The study concluded there was positive relationship between high fixed costs as well high intensity of competition with the need for higher levels in sophistication of product cost system.

Thirdly, it was found that product cost systems plays a critical role in ensuring that the bank has pricing capability as rare, valuable and immobile organisational resource. It was established that this capability is key from strategic positioning point of view, even though price is not the only competitive lever for the banks. There was no conclusive data that banks products had high price elasticity.

Fourthly, the study found that organisations size has positive relationship with sophisticated product cost system. This can be interpreted in two ways; a) implementation of sophisticated cost management systems require investment and skilled resources which not be available in small firms and b) large organise have high demand for efficient allocation of resources which necessitate the need for cost management system to play a role as moderating factor between these internal demands. It also found the bank had high product and market diversity. There was a positive relationship between product diversity and sophisticated product cost systems.

Lastly, the study found that there was high usage of cost information for profitability analysis. However, there was no conclusive supporting data that supports the proposition that the outputs of product cost system act as key driver in managing divergence or converging product strategies. The data shows that product cost system supports multi-product environment.
This framework was developed as illustration and conceptual model to show the relationships of all key variables. The first observation is the grouping of variables according their area of impact. Organisation-wide factors are those factors that are decided and managed across the organisation irrespective of market or product. Secondly, the model is multi-dimensional showing the dynamic nature of the interaction between the variables. For instance, price-setting capability increases the need for sophistication in product cost system if the organisation’s size or fixed cost or product diversity or market diversity is high. Alternatively, if the firm decides to increase its market diversity that will impact its complexity and uncertainty in product strategy and the need to for pricing capability all which increases the need for sophisticated product cost system.

**7.2 Managerial Implications**

This study has implication for the banking industry which can be summarised as follows:

First, there is a need for management to interrogate the lenses through which investments or disinvestment decisions are made with specific focus on the costs used to determine economic profit opportunity. Distorted product cost information can lead to poor strategic decisions.

Secondly, just like other functions such as enterprise risk management and governance delegated by the board of directors to management, finance act as delegated custodian but
not the owners of product cost systems. Deciding on which product cost systems should be implemented and where should must be owned by executive management.

Thirdly, management must understand the error rate that may exist in the information produced by product cost system. Inappropriate over or under allocation of costs to a product will lead to change in behaviour by that product management. Lower the cost will lead reduction in market price in the quest for market whereas over allocation lead to market share loss as managers will not price below a breakeven point even if they know that cost information is not correct.

Lastly, selecting a product cost system requires investment in time and resource to ensure the correct decision is made. As per the recommended framework (Figure 7-A Framework for selecting product cost system), the decision is complex due to multi-dimensional characteristics.

7.3 Recommendations
The study offers the following recommendations:

7.3.1 To general management
Resource allocation decisions, including product related investments, are an important part of moving the organisation towards its desired strategic goals. Often these decisions are based on the economic profits estimation which is calculated taking into consideration the benefit versus cost positions relative to competitors (Besank et al, 2004). To arrive at cost positions relative to competitors, product cost system (whether a simple or highly sophisticated) must produce accurate, complete and timely information. It is recommended that senior management own the decision, instead of relegating it to finance departments, to choose the appropriate product cost system.

It is said that price distortions largely comes allocation of fixed cost to products (Cooper & Kaplan, 1988: 97). Since banks are high cost environment, the study recommend that capacity acquisition, maintenance and elimination becomes a key focus area that doesn’t look only to existing and planned demand but also to include the unpredictability as well variability of demand. The study recommends that is aspect should be included as part of the selection criteria for choosing or designing a product cost system.
The study also recommends that revising the design of the product cost system should be aligned with changes in business strategy. This will ensure that the design of the product cost system and its output are relevant given the organisation and product life cycle. However, this recommendation may present a new challenge as various business units and products are at different stages of development at any given point in time. In retail banking for instance, cash service is a matured product whereas internet banking is still in growth phase. This is a potential new area of research.

7.3.2 To regulators
The study explored in detail the impact and dynamics of two-sided markets in pricing decisions. In line with the findings of Rysman (2009) and Weyl (2009) work, pricing should reflect demand elasticity and marginal costs both sides of the market. Moreover, pricing should also reflect the demand elasticity effects of one-side on the other side (the so-called network effects). The study found that product cost system should be able to deal with this complexity. Therefore, it recommends that regulators should evaluate the role of product cost systems on the two-sided market as a whole in their pricing level evaluation and intensity of competition. This recommendation is mostly relevant in markets where the consumer market is on one side and business markets on the other, largely due to buying power of businesses tilts the power balance scale to one side.

7.3.3 To product and business unit managers
It is virtually impossible to design a product cost system the resolves the complex problem of allocation fixed, including capacity, costs in its totality for all business units or product using one single model (Li and You, 2012; 444). Therefore, it should be that cost information may have error rate derived from procedural, contextual or statistical computation. It is recommend that product and business unit manager should know, understand and factor in this error rate in pricing and investment decisions. This recommendation is particularly relevant of high volume and low margin products.

7.4 Areas of future research
Research on the factors that management should consider when choosing a product cost system is only one part of a complex process of cost management. This study offers future research areas:
Future research may focus on determining whether there is a link between specific types of product cost systems are suitable for specific strategic paradigms (see chapter 2).

This study concluded that the design of the product cost system should be aligned to the organisation or product life cycle. In organisation where there’s high product diversity, then how would cost management practitioners align the design and working of product cost system when products are not in the same phase of development.

In environments where decision-making is centralised, then a study may be warranted to determine which specific type of product system support divergent or converging product strategies.

In this study it was established that product cost system should support product competitive strategy. A study may be warranted to gain deeper understanding what design features of the product cost system should exist in condition where there are significant submarket intensity of competition.

The model suggested in the report included organisation-wide factors as well product specific factors, both which influence the level of sophistication of the product cost system. A further area of research may focus on the extent each variable influence one another in relation to design features and improve the effectiveness of the product cost systems.

Lastly, a study on capacity costs and impact on final pricing levels in two-sided competitive markets will share some lights on the complexity of price-setting in this environment.

7.5 Conclusion

Cost information plays various but crucial roles in organisation including providing data for cost control, investment decisions and profitability reporting (Blocher et al, 2010). Given the importance of cost information, selecting a product cost system to produce the data is an important task for management.

This study concluded that selecting a product cost system requires management to consider several organisation-wide factors including organisational size, cost structure, product diversity and market diversity as well as product-specific factors such as product strategy,
intensity of competition, use of cost information and pricing capability. These factors have influence the level of sophistication and design features of the chosen product cost system.

The researcher hopes that the findings and the model presented in this report increase the knowledge of management on the role of product cost systems, their importance in the organisation as well as increase the awareness that is far better to spend time ensuring the product cost management system are fit-for-purpose rather second guessing its outputs at a later stage.
8. REFERENCES


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Great Britain


9. APPENDICES

9.1 Appendix A
9.2 Appendix B

Google Search – Contingency Theory

Accessed; 19 September, 2013 from https://books.google.com/ngrams
## 9.3 Appendix C

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name (optional)</td>
<td></td>
</tr>
<tr>
<td>Questionnaire Number:</td>
<td></td>
</tr>
<tr>
<td>1) Level of Occupation</td>
<td>Top Management</td>
</tr>
<tr>
<td></td>
<td>Senior Management</td>
</tr>
<tr>
<td></td>
<td>Middle Management</td>
</tr>
<tr>
<td></td>
<td>Junior Management</td>
</tr>
<tr>
<td></td>
<td>Other</td>
</tr>
<tr>
<td>2) Total years of work experience</td>
<td>0 - 2</td>
</tr>
<tr>
<td></td>
<td>3 - 5</td>
</tr>
<tr>
<td></td>
<td>6 - 10</td>
</tr>
<tr>
<td></td>
<td>11 - 15</td>
</tr>
<tr>
<td></td>
<td>&gt;15</td>
</tr>
<tr>
<td>3) Management Accounting work experience</td>
<td>0 - 2</td>
</tr>
<tr>
<td></td>
<td>3 - 5</td>
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<td></td>
<td>6 - 10</td>
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<tr>
<td></td>
<td>11 - 15</td>
</tr>
<tr>
<td></td>
<td>&gt;15</td>
</tr>
<tr>
<td>4) Areas of Responsibility</td>
<td>General Management</td>
</tr>
<tr>
<td></td>
<td>Finance</td>
</tr>
<tr>
<td></td>
<td>Product Manager</td>
</tr>
<tr>
<td></td>
<td>Others</td>
</tr>
<tr>
<td>5) Indicate the number of cost pools (or cost centres) that your</td>
<td>1-2</td>
</tr>
<tr>
<td>business unit or organisation use to assign indirect costs to cost</td>
<td>3-6</td>
</tr>
<tr>
<td>objects?</td>
<td>7-12</td>
</tr>
<tr>
<td></td>
<td>13-20</td>
</tr>
<tr>
<td></td>
<td>&gt;21</td>
</tr>
<tr>
<td>6) Indicate the number of cost drivers that your business unit or</td>
<td>1</td>
</tr>
<tr>
<td>organisation uses to assign indirect costs in second stage allocation</td>
<td>2-3</td>
</tr>
<tr>
<td>process?</td>
<td>4-5</td>
</tr>
<tr>
<td></td>
<td>6-9</td>
</tr>
<tr>
<td></td>
<td>&gt;10</td>
</tr>
<tr>
<td>7) Provide an estimated percentage breakdown of your cost structure.</td>
<td>0 - 15%</td>
</tr>
<tr>
<td>Only indicate the percentage of shared (or indirect) costs as a</td>
<td>16 - 30%</td>
</tr>
<tr>
<td>percentage of total cost?</td>
<td>30 - 50%</td>
</tr>
<tr>
<td></td>
<td>50 - 75%</td>
</tr>
<tr>
<td></td>
<td>&gt;75%</td>
</tr>
<tr>
<td>8) Indicate the level of competitiveness intensity on core product(s)</td>
<td>Very Low</td>
</tr>
<tr>
<td>in your business unit or organisation?</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Very High</td>
</tr>
<tr>
<td>9) Indicate the level of product diversity in your organisation?</td>
<td>Very Low</td>
</tr>
<tr>
<td>(product diversity means a variability of products offered to clients)</td>
<td>Low</td>
</tr>
<tr>
<td>Very Low = similar / same and Very High = high variability</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Very High</td>
</tr>
<tr>
<td>10) Indicate the importance of cost information in periodic profitability</td>
<td>Very Low</td>
</tr>
<tr>
<td>analysis to determine product strategies?</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Very High</td>
</tr>
<tr>
<td>11) Indicate your perception of the accuracy of cost information for</td>
<td>Very Low</td>
</tr>
<tr>
<td>making strategic (long-term) decisions?</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Very High</td>
</tr>
<tr>
<td>12) Indicate the intensity of the use of cost or periodic profitability</td>
<td>Very Low</td>
</tr>
<tr>
<td>analysis to inform pricing decisions?</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Very High</td>
</tr>
<tr>
<td>13) Indicate the intensity of the use of cost or periodic profitability</td>
<td>Very Low</td>
</tr>
<tr>
<td>analysis to inform cost reduction strategies - including outsourcing,</td>
<td>Low</td>
</tr>
<tr>
<td>discontinuing of products and redesigning?</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Very High</td>
</tr>
</tbody>
</table>
14) Indicate the number of core product offering in your business unit or organisation targeted for **single** market (example: corporate, personal, wealth, etc)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2-3</th>
<th>3-5</th>
<th>6-9</th>
<th>&gt;10</th>
</tr>
</thead>
</table>

15) Indicate the number of core product offering in your business unit or organisation targeted for **multiple** markets

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2-3</th>
<th>3-5</th>
<th>6-9</th>
<th>&gt;10</th>
</tr>
</thead>
</table>

16) Indicate your perception of cost drivers diversity for the core products mentioned in question 14 & 15?

(Very low = very similar and very high = high diverse)

<table>
<thead>
<tr>
<th>Very Low</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
</table>

17) To what extent does cost information enable realisation of diverse and/or converging product strategies in various markets?

<table>
<thead>
<tr>
<th>Very Low</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
</table>

18) Pricing can be driven by desired margin requirements or largely a function of market (competitor) prices. Indicate of your perception of whether pricing-decision makers largely base their pricing decisions on competitor pricing for core products?

(Very low = based on margin requirement and very high = based on competitive pricing)

<table>
<thead>
<tr>
<th>Very Low</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
</table>

19) Clients can be sensitive to differentiated pricing levels amongst competitors (i.e. the cheapest attracts most clients). Indicate the intensity of customer switching based on price point movements for your core products?

(Very low = price is not the main driver for switching and very high = price only is driver for switching)

<table>
<thead>
<tr>
<th>Very Low</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
</table>

20) Please indicate the level your perception on the level of importance of revising cost allocation methods when there is change or revision of the business strategy?

(very low = no need and very high = cost methods must always be reviewed when strategy is revised or changed)

<table>
<thead>
<tr>
<th>Very Low</th>
<th>Low</th>
<th>Average</th>
<th>High</th>
<th>Very High</th>
</tr>
</thead>
</table>

21) General comments in relation to the impact of cost allocation method to your business?
9.4 Appendix D

Questionnaire Covering Letter

To whom it may concern:

Subject: Questionnaire for MCom Research Project

My name is Vusi Ndwandwe, a Master in Commerce (MCom) student at University of Johannesburg. As part of MCom’s degree academic requirements I am required to complete a research report. The research should investigate and analyse topics of interest to the business community and should attempt to contribute to the broader academic body of knowledge. To this end, I have elected to conduct research into determining the framework for selecting appropriate product cost systems for banking industry in South Africa. In essence, the research attempts to gain a deep understanding on the strategic factors and context that senior executives should consider in selecting the appropriate product cost systems so that it plays its appropriate role in decision-making processes of the organization.

In the course of research, students are typically required to engage with professionals and experts who can provide insights which contribute to the completion of the research. You are considered to have appropriate skills, knowledge and experience to participate in this survey. It would be greatly appreciated if you were able to assist by filling in the following questionnaire. The survey results will be aggregated in order to ensure anonymity of participants. Should you have any queries with regard to the research project, you may contact me or my supervisor, Professor Udi Ojiako, via telephone on (011) 559 4982 or alternatively via email on uojiako@uj.ac.za.

Regards

Vusi Ndwandwe

Student No : 80981427