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The economic contribution of a development finance institution in South Africa: the economic contribution using the discounted economic profit model, and the social contribution using the social output index model.

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ABSTRACT

Development finance institutions have dual mandates, where they must contribute to development in the economy in which they serve, and simultaneously must maintain financial sustainability. The research explores the dichotomy; studies whether a trade-off in the dual mandate exists, and goes beyond the traditional accounting approaches to appraising financial performance. The soundness of financial independence of development finance institutions in South Africa has been emphasised by both the national government, through the National Treasury department, and the capital markets from which these institutions borrow. Thus, their ability to create value for their stakeholders is one important aspect to their continued existence. In South Africa, value creation in development finance institutions has not been studied and serves as the primary motivation for this research study.

The research has applied a value-based system, McKinsey's discounted economic profit model, to measure value creation or destruction of a development finance institution in its use of scarce capital resources. In addition to this, a theoretical framework has been applied to measure development impact, using the social output index model. The research design followed the holistic case study method, with a sample of one, employing the purposive technique.

The findings of this research revealed that value is being destroyed in the deployment of capital resources by the development finance institution, with recommendations thereof proposed. Secondly, the findings revealed that development impact is not maximised, and the results provide insight to decision-makers regarding informed allocation of resources. In exploring the dichotomy between financial performance and development impact, the findings lastly indicated the trade-off relationship can neither be confirmed or refuted, as the results are inconclusive in this regard.

KEYWORDS

Development finance institution, economic profit, social output index

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DECLARATION

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

Candace Abrahams

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09 November 2015

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CHAPTER 1: INTRODUCTION TO THE RESEARCH PROBLEM

1.1. Introduction

The research explores the dichotomy between financial sustainability and development outreach that a South African development finance institution must achieve under its dual mandate. In fulfilling their mandates, development finance institutions must make financial sustainability their guiding principle (Adesoye & Atanda, 2014).

The literature however asserts that sustainability of development finance institutions remains a key concern, as their capability in assigning credit remains weak, they perform poorly relative to commercial banks in emerging economies and that they typically exhibit higher loan loss provisions and lower profitability (Bertay, Demirgüç-Kunt, & Huizinga, 2015). Whilst financial sustainability has been purported as paramount in delivery of the development finance institution's mandate, Jouanjean & te Velde (2013) and Romero (2014) make the argument that development finance institutions are exposed to trade-offs in pursuit of their dual mandates which are viewed as conflicting and potentially mutually exclusive.

In terms of the literature, the main challenge vests with the manner in which development finance institutions are appropriately measured to determine their level of contribution to their economies, both from a financial and a developmental perspective. The literature provides very little evidence of both the evaluation and the appropriate methodologies to adopt for South African development finance institutions (Kwakkenbos & Romero, 2013). This research will appraise the Industrial Development Corporation of South Africa Limited (IDC), a state-owned South African development finance institution (IDC, 2014), in terms of both financial capability and development attainment. The IDC operates in the South African financial services sector, which includes commercial banks and other development finance institutions and development agencies.

The McKinsey discounted economic profit model and valuation techniques appropriate for financial services companies is applied to evaluate the economic profit of the IDC (Koller, Goedhart, & Wessels, 2015), using historical secondary data.

This model is a value-based system that goes a step beyond that of traditional accounting metrics, in that the true value or economic profit is measured relative to the deployment or use of capital, which in itself has an implied or implicit cost attached to it. The former accounting metrics only account for the explicit accounting costs and thus do not measure value of invested capital, whereas the McKinsey model accounts fully for both these explicit and implicit costs to determine how much value is being created.

Regarding its developmental mandate, using historical secondary data, the IDC is appraised by applying the social output index model developed by the World Bank, which will provide insight into the developmental areas that the IDC lends comparatively to, based on its portfolio composition (Francisco, Mascaró, Mendoza, & Yaron, 2008).

1.2. Research Title

The economic contribution of a development finance institution in South Africa: the economic contribution using the discounted economic profit model, and the social contribution using the social output index model.

1.3. Research Problem

It is apparent that development finance institutions have stated mandates and performance measurements that encapsulate financial performance measures. However, the financial metrics reported on do not explicitly indicate whether social benefits in excess of social costs is being generated, nor do these financial metrics reflect whether value is being created or destroyed in the deployment of their scarce resources (Francisco et al., 2008; Schreiner & Yaron, 2001).

In South Africa, the South African National Treasury ministerial department asserts that more research needs to be conducted in the financial oversight of development finance institutions (Teka, Erasmus, & Klingelhofer, 2011). The two main reasons for this urgency relates to:

- The risk of depletion of government reserves that can arise in the event of financial failure of the institutions; and

- Their resultant failure may under-achieve in implementing national objectives and addressing the market failures which they are supposed to serve (Teka et al., 2011).

The argument for the pursuit of financial sustainability of development finance institutions in South Africa is further demonstrated by the most recent credit opinion of the IDC by the Moody's credit rating agency, which emphasised that the South African government requires state-owned entities to "become viable and sustainable organisations without seeking financial assistance from the state" (Moody's, 2015, p.2).

Few studies have been undertaken using economic and value-based systems to evaluate the economic contribution and performance of commercial banks and development finance institutions. On the African continent, the economic value-added (EVA) approach has been applied to the Ghanaian banking sector to establish the determinants of bank performance (Owusu-Antwi, Mensah, Crabbe, & Antwi, 2015), and value creation has been appraised in the Nigerian banking industry (Oladele, 2013). Outside the African continent, the EVA approach has been implemented in Brazilian banks in Costa (2012), and in Indian banks and development finance institutions (Thampy & Baheti, 2000). Within the financial service sector in South Africa, the subsidy dependence index (SDI) model developed by Schreiner & Yaron (2001) has been applied to research in the appraisal of a rural financial institution's financial performance (Mkhosi, 2000); and appraisal of the commercial banking sector has been appraised using the CAMEL model (Ifeacho & Ngalawa, 2014).

Regarding South African development finance institutions, there have been no appraisals using a value-based system to assess value creation, nor have there been any theoretical models used such as the social output index OI to appraise their developmental or social outreach. This research will appraise both of the financial and development aspects, using purposive non-probability sampling (Saunders, Lewis, & Thornhill, 2009) of the IDC.

1.4. Research Motivation

In recent times, the South African National Treasury has indicated that state-owned enterprises must become less reliant on the national reserves in carrying out their operations, but rather that they become self-sufficient and financially independent to reduce the burden on the national reserves (Moody's, 2015). In addition, a global survey of development banks by Luna-Martinez & Vicente (2012) state that the issue of self-sustainability is a growing concern with more than 50% of development banks' that they have surveyed highlighted their ability to become self-sustainable without dependence on government budget allocations as being challenging. It is on the basis of a national imperative of self-sustainability for South African development finance institutions that this research is considered relevant.

In Oladele (2013), financial profitability has also been cited as an important objective in the pursuit of value creation. However, an entity can reflect accounting profits but may still be destroying economic value (Ward & Price, 2005). Regarding development finance institutions, Schreiner & Yaron (2001) state that, to justify its continued existence is to observe that it is adding value to society when its social benefits outweigh its social costs. In other words, value is created when the returns or economic profit generated exceed the opportunity costs associated with the invested capital, measured by the cost of capital (Koller et al., 2015). It is therefore important to look beyond accounting profits to establish value creation by an entity, by fully accounting for the cost of capital. The McKinsey theory in Koller et al. (2015) will be applied to the economic profit evaluation of this research.

As a self-funding state-owned enterprise, long-term sustainability is core to the IDC's ability to provide continued contribution to economic development in South Africa. The IDC considers its long-term sustainability in terms of its financial, social and environmental capabilities (IDC, 2014). Romero (2014) states that development finance institutions should operate in such a manner where they direct their capital towards the national objectives of their economies as this directly links their involvement to addressing the market failures present domestically. In this context, the aims and objectives of the IDC are clear. However, there are no standardised criteria on which these developmental outcomes can be reliably measured, making evaluation of the performance of the IDC challenging (Qobo & Motsamai, 2014). The social output index model by Francisco et al. (2008) will be applied to the social development evaluation of this research, to evaluate the extent of the IDC's social contribution.

1.5. Research Scope

This research will evaluate the historical performance of the IDC from an economic profit and developmental perspective. The research will however begin by exploring the market in which the IDC and other development finance institutions' operate, their role and rationale supporting their existence, and will further provide literature on the current and proposed performance evaluation techniques.

1.5.1. Overview of the IDC

The IDC was established in 1940 under the Industrial Development Act No. 22 of 1940 (IDC, 2015b). The IDC operates as an independent entity, with formal boards established and adheres to local governance and regulatory frameworks. The IDC participates in the South African financial market, as provider of development finance through debt and equity instruments, with debt facilities provided at concessionary interest rates (IDC, 2015b).

As an instrument of government, the IDC is required to actively contribute to economic development of the country and the African region, with job creation as its core mandate (IDC, 2014; Qobo & Motsamai, 2014).

The IDC is self-funding and obtains its funding through income from its loan and equity investments, as well as through raising capital or borrowings from other institutions such as commercial banks and other development finance institutions. The investment mandate is driven by the adoption of national government policies under the National Development Plan (NDP), the Industrial Policy Action Plan (IPAP) and the New Growth Path (NGP) (IDC, 2014), where specific sectors are identified for investment that are in alignment with these national policies.

Through these investments, the IDC implements its strategic objectives and key outcomes relating to job creation, regional development and integration as well as empowerment of black industrialists and communities (IDC, 2014).

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1.5.2. Performance highlights of the IDC for the financial year ended 2015

A summary snapshot of the impact to the South African economy by the IDC is depicted in figure 1.

Figure 1 reflects the significant achievement in the value of its approvals and disbursements, development achievement towards job creation, lending to, inter alia, small and medium enterprises (SME's) and the green economy. Whilst these achievements are considered significant in their own right, further analytical assessment of the IDC portfolio through the application of the social output index model is undertaken for this research (IDC, 2015a).

Figure 1: IDC performance highlights 2015

R11.5 BILLION overall funding approvals	R10.9 BILLION funds disbursed
20 388 jobs created/saved	R5.9 BILLION approved for black empowered and black owned companies
R5.2 BILLION approved for the manufacturing sector	R756 MILLION approved for businesses with women ownership of more than 25%

R1.8 BILLION approved for investments in 10 other African countries	R2.0 BILLION approved for 111 SMEs
R14 BILLION In support of the REIPPPP over last four years	655 MW Of IDC supported REIPPPP investments connected in 2014/15
R943 MILLION Additional funds disbursed by sefa to 1 246 SME's	R159 MILLION approved for businesses with youth ownership of more than 25%

Source: (IDC, 2015a)

In its 2015 financial performance highlights (IDC, 2015a), the IDC has identified the following positive factors regarding its performance:

- Growth in year-on-year funding approvals which include targeted sectors and community development;
- Increased pre-tax profits year-on-year by 11%;

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- Capital raising through the issuance of a ZAR1.5 billion public bond to fund commitments; and
- Financing of the IDC sefa subsidiary by ZAR1.1 billion to fulfil its own mandate of small, medium and micro enterprises (SMME) development.

Graphical analysis of its financial performance in figure 2 reflects that the revenue and profitability has been flat over the last four financial years. However, the total comprehensive income has been volatile with a significant reduction in the 2015 financial year-end due to losses sustained from other comprehensive income. Per figure 3, the balance sheet position remained robust with a low debt-to-equity ratio of 27%, compared to the 2014 year-end ratio of 20%, reflecting a modest increase in its financial leverage (IDC, 2015a).

Figure 2:

IDC revenue (2012 - 2015)
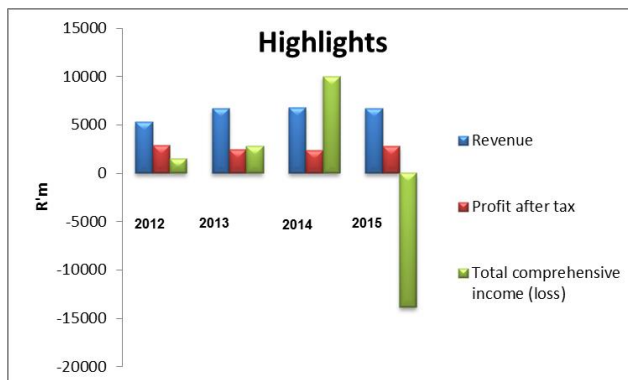
Figure 3:

IDC debt-to-equity ratio (2011 -2015)

Source: (IDC, 2015b)
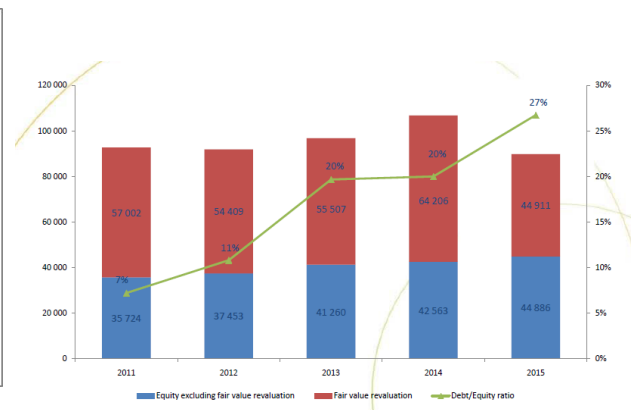
Regarding its sources of income, the IDC differs to a commercial bank, where the IDC earns its income from interest on its loans and dividend income from its equity investments, and combined represents more than 80% of its total revenue as depicted in figures 4 and 5. The IDC does not generate income from transactional banking, deposits and other traditional banking income streams as noted in commercial banks (EY, 2015), as the IDC is not a deposit-taking institution.

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Figure 4: IDC sources of income 2015

Sources of Income 2015

- Dividend income (listed)
- Dividend income (unlisted)
- Fee and other income
- Interest on loans
- Money market income
- Preference share income

Values shown: 2744, 758, 1063, 2157, 417, 119
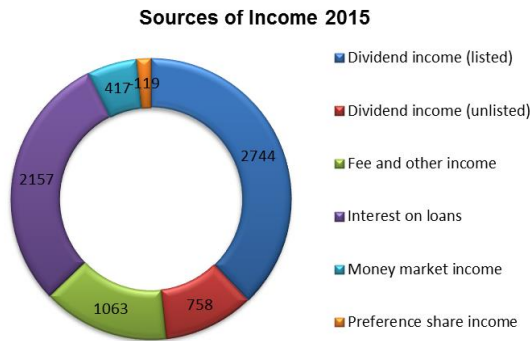
Figure 5: IDC sources of income 2014

Source of Income 2014

- Dividend income (listed)
- Dividend income (unlisted)
- Fee and other income
- Interest on loans
- Money market income
- Preference share income

Values shown: 3246, 670, 838, 2071, 367, 147
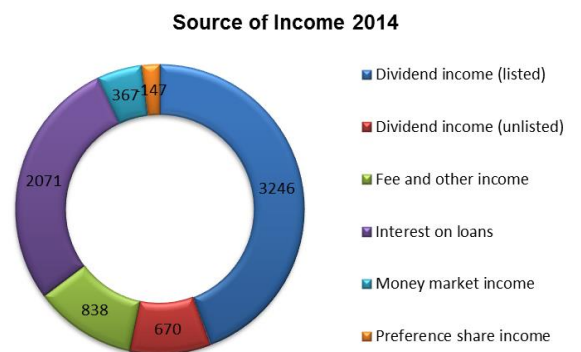
Source: (IDC, 2015a)

Whilst the IDC has demonstrated successes, it is not without challenges, in particular relating to its ability to contribute to job creation and the high level of impairments, as depicted in the figures 6 and 7. As can be seen from figure 6, the most productive year, in the context of development, was in 2012 and since then, the IDC's contribution to employment in the economy has been much lower. Figure 7 shows a rising impairment trend, similar to the trends identified in other development finance institutions that are plagued by higher credit losses (Bertay et al., 2015).

Figure 6:
IDC job creation (2011 - 2015)
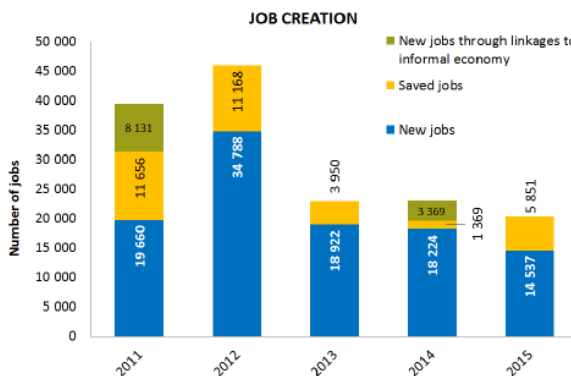
Source: (IDC, 2015a)

Figure 7:
IDC impairment position (2011 – 2015)
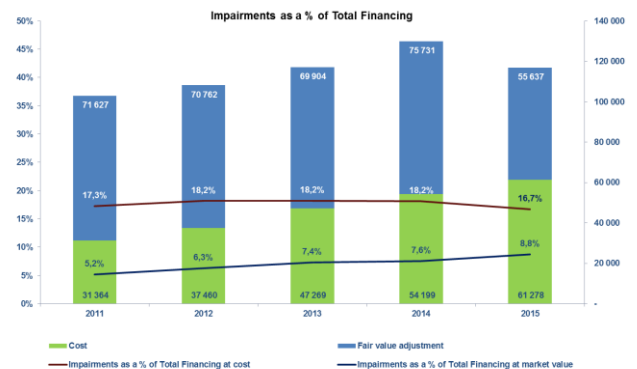
Source: (IDC, 2015a)

The high impairment position is not unique to the IDC, where Luna-Martinez & Vicente (2012) notes a criticism of development finance institutions that their asset quality and loan collections is in some instances low with a resultant high ratio of non-performing loans (NPLs). Table 1 shows their survey data results for NPL ratios, as at 2009.

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Their data shows that the performance of development banks varies as the level of non-performing loans has a wide range and therefore this makes it difficult to establish comparatively how well IDC is performing against such a wide array of performance results (Luna-Martinez & Vicente, 2012).

Table 1: Non-performing loans percentage for development banks

Percentage (%) of development banks (DBs) in the sample	NPL ratios as a percentage of the DB portfolio
55% of DBs	NPL ratio below 5%
30% of DBs	NPL ratios between 5 – 30%
15%	NPL ratio in excess of 30%

Data source: (Luna-Martinez & Vicente, 2012)

1.5.3. External performance evaluation of the IDC

Part of the IDC's funding is raised through the capital markets, with its most recent capital raising effort being the issuance of a public bond in South Africa (IDC, 2015b). As a result, the investment risk of the institution is periodically reviewed by credit rating agencies such as Moody's and Fitch.

The most recent credit rating by Fitch affirms IDC's "national long-term rating at AA+(zaf)" (Fitch, 2015, p.1) with a stable outlook. The rating opinion highlights that IDC is self-supporting, with a high degree of capitalisation to meet its internal operating requirements. The rating agency further asserts that they do not foresee the need for IDC to obtain equity support from its shareholder in the near term and that they expect the entity to remain profitable in the medium term (Fitch, 2015).

Fitch concludes that a more positive rating action will be borne by more formal government support through the guaranteeing of the IDC's liabilities. Conversely, should IDC become less of a strategic asset to the South African government, in the form of ownership, control or reduced probability of support, this could result in a negative rating action (Fitch Ratings, 2015).

Such an opinion could provide some comfort to the South African National Treasury department who have highlighted their concerns of financial dependence on the state by its state-owned enterprises (Teka et al., 2011).

In the Moody's credit opinion, the IDC has been rated as stable under the Moody's government-related issuer (GRI) rating methodology, with a rating of Baa2 long-term issuer rating. However, the rating agency has highlighted the call for viable and self-sustainable South African state-owned entities by the South African government, to reduce dependence on national reserves. In the rating agency's view, the key factor that could aid in a rating upgrade for the IDC stems from its ability to improve its profitability and the quality of its asset portfolio. Moody's has alluded to this as being important to the future of IDC, given the institution's intention of increasing its leverage to fund its growth objectives (Moody's, 2015).

The notion therefore of continued monitoring and evaluation of the financial performance of the IDC is given. This research undertaking however is to advance from the traditional accounting measures of sustainability to measures of economic value and the drivers of value creation which give rise to long-term sustainability.

Evaluation of the IDC's economic performance is considered valuable in providing impetus to credit rating agencies opinions especially when the economic performance outcome is positive which can contribute to a higher credit rating.

CHAPTER 2:   LITERATURE REVIEW

2.1.   Introduction

Development finance institutions have a dual role or purpose in the economies that they serve, in that they must achieve developmental and social outcomes whilst simultaneously remaining financially sustainable, on a stand-alone or independent basis (Romero, 2014; Runder, 2014; Thilakasiri, Nash, & Perrault, 2012). Regarding the IDC and other South African state-owned entities, financial independence and sustainability is important to their operational objectives (National Treasury, 2015; Teka et al., 2011).

This chapter examines two distinct theories to measure the performance of a South African development finance institution in fulfilling its dual purpose. From a financial perspective, McKinsey's discounted economic profit theory is used as the foundation for measuring the extent to which the IDC earns net returns in excess of its cost of capital, illustrated by positive economic profit (Koller et al., 2015). In terms of its social imperatives, the research uses the social output index model measure the degree to which social objectives are achieved, through its investment decisions or lending activities (Francisco et al., 2008).

The literature reviewed in this chapter begins by first understanding the role of financial markets (Beck, 2014; Culpeper, 2012; Damodaran, 2009), followed by the role played by development finance institutions in financial markets in addressing a market failure. It has been widely established that this market failure reasserts the importance of development finance institutions to the economies in which they operate, by filling this funding gap (Adesoye & Atanda, 2014; Calice, 2013; Gumede, Govender, & Motshidi, 2011; Kwakkenbos & Romero, 2013; Ndikumana, 2007).

In so doing, the manner in which development finance institutions have been measured, the concept of financial sustainability of these institutions and the challenges in performance evaluation of the developmental impact is made known (Francisco et al., 2008; Kingombe, Massa, & te Velde, 2011; Massa, 2011). Understanding of these shortcomings argues for a review of appropriate performance measures, both on an economic and developmental basis.

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The second part of the literature reviewed observes the theories appropriate in measuring the outcomes of the development finance institution's dual purpose. The literature reviews the concept of value and examines an appropriate model to measure and understand the drivers of value (Atanda, 2015; Costa, 2012; Koller et al., 2015; Sharma & Kumar, 2010). This aspect relates to the first element of the research objective, which is assessing the economic profit of the development finance institution. The second element of the research objective is achieved through review of the literature of a model to measure the social outcomes and developmental impact of the development finance institution (Francisco et al., 2008; Schreiner & Yaron, 2001).

2.2. The role of the financial markets

(Dhanabhakyam & Kavitha, 2012) state that banks serve as financial intermediaries and that their role, as deposit-taking institutions, is to link providers of capital (e.g. depositors) with borrowers of capital.

With regard to financial markets' the presumption is held that, prior to the global financial crisis, all market-based finance is contributory to economic growth and development with little downside risk. However, the lessons from the global financial crisis in 2007 have demonstrated that the financial markets, despite their contribution to economic development and growth, can become unstable and harmful to economic progress if not managed properly (Beck, 2014; Culpeper, 2012).

Following from this, increased regulation of the financial services sector has been put in place to mitigate against unsustainable levels of risk to protect markets from instability and shocks, in particular through increased supervision and minimum capital adequacy requirements. Whilst this is in the interest of the public at large, it has several implications on the lending capacities of banks, with higher costs of capital ensuing, resulting in higher lending rates as well as more prudent credit extension. The resultant impact is that banks are unable to serve all economic agents requiring credit either as a result of unattractively high lending rates or that the banks have no risk appetite to provide credit (Beck, 2014; Culpeper, 2012; Mura & Buleca, 2012).

When economic agents become excluded from borrowing in the financial markets, a market failure in the provision of credit emerges. Without access to capital, enterprise growth capabilities are limited and economic and social development becomes constrained (Culpeper, 2012; Mura & Buleca, 2012). It is this market failure or funding gap that gives rise to the role of development finance institutions.

2.3.   Historic analysis of banking firms in South Africa

The South African Reserve Bank (SARB) and major auditing firms conduct periodic reviews of the banking sector in South Africa and Sub-Saharan Africa. According the EY, the South African banking market is the largest on an African regional basis, measured by the ratio of assets to gross domestic product at 115% (EY, 2015). The banks included in the review included the five largest commercial banks that account for 90% of the banking sector assets. During the 2014 period under review, South African banks' earnings grew at an overall rate of 11.6% primarily driven by slowing impairments, rising margins, improved efficiency ratios and continued growth in advances. The key performance indicators of South African banks reflected strong performance, with the results depicted in table 2 (EY, 2015; PwC, 2015, South African Reserve Bank, 2015). The performance indicators for the two auditing firms are consistent, with the SARB indicators fairing slightly lower in most instances.

Table 2. South African banks' performance indicators

Performance indicator	EY (%)[1]	PwC (%)[2]	SARB (%)[3]
Net interest margin	4.3	4.34	3.90
Capital adequacy ratio	15.2	15.4	14.53
Loan to deposit ratio	83.2	-	
Return on assets	1.6	-	1.10
Return on equity	17.8	18.2	14.93
Nonperforming loans ratio	2.5	2.8	-
Impaired advances to gross loans and advances	-	-	3.28
Cost to income ratio	-	54.9	54.24

[1] Source: (EY, 2015), [2] Source: (PwC, 2015), [3] Source: (South African Reserve Bank, 2015)

Figure 8 shows that since 2007, the net interest margin is on an upward trajectory, owing to product re-pricing, selective product origination as well as hikes in the interest rates (EY, 2015). Regarding moderating credit risk, simultaneous to rising net interest margins, figure 9 shows the credit impairment ratio continued to decline favourably since 2012, driven by reduced appetite for unsecured lending as the banks viewed the credit risks in this segment as too high, and stronger corporate loan portfolios (EY, 2015).

PwC's quarterly review of four of the South African largest banks (PwC, 2015), depicted table 3 above, reflects a similar net interest margin ratio of 4.34% as at the first quarter of 2015, down from 4.64% in the second quarter of 2014. The review by PwC attributes this deterioration to declined economic sentiment, Basel III regulatory changes to the liquidity coverage ratio requiring a minimum ratio of 60% as at 01 January 2015, asset and liability mix and pricing as well as movements in foreign exchange rates (PwC, 2015). The net interest margin, as measured by the net interest income to gross loans and advances (PwC, 2015), is positive but lower for the IDC at 3.3% (IDC, 2015b), as compared to the commercial banks.

Figure 8:

SA banks – annual net interest margin
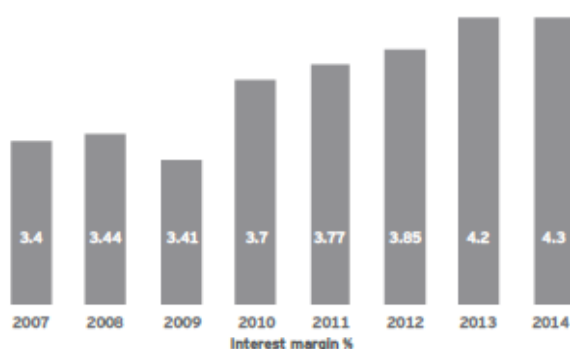
Source: (EY, 2015)

Figure 9:

SA banks – annual credit impairment ratio

Source: (EY, 2015)

Figures 10 and 11 reflect the overall banking sector's performance, that revealed year-on-year increased headline earnings at 5.5% in 2014 (2013: 5%), despite a reduction in lending since 2008 following from the global financial crisis to single-digit growth levels to the present (EY, 2015).

Figure 10: SA banks – headline earnings
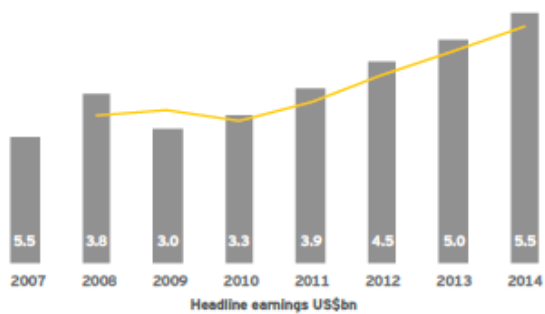
Source: (EY, 2015)

Figure 11: SA banks – lending growth
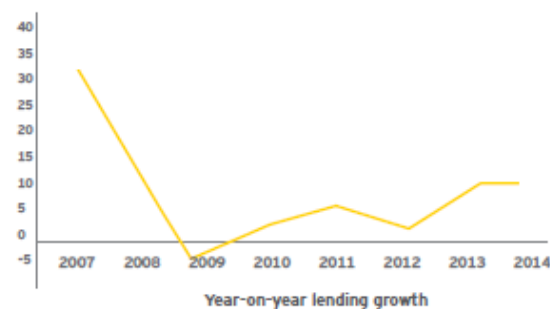
Source: (EY, 2015)

In terms of operational efficiency, one key metric measured by the financial services sector is the cost-to-income ratio, where PwC reports the overall ratio at 54.9% (PwC, 2015). The South African Reserve Bank recorded the overall cost-to-income ratio for the banking sector at 54.24% in 2015 and 53.88% in 2014 (SARB, 2015).

2.4. Performance evaluation of financial services firms

An array of studies and research into the performance of banks has been conducted in recent times, and include financial ratio analysis, peer analysis through benchmarking, and variance analysis of actual performance to budget (Jha & Hui, 2012). In particular, the CAMEL model has been applied to appraise bank performance, across commercial banks and state-owned banks (Haque, 2014; Jha & Hui, 2012; Misra & Aspal, 2013; Nazir, 2010; Ongore & Kusa, 2013; Shukla, 2015; Waleed, Shah, & Mughal, 2015). The CAMEL model is ratio based to evaluate the performance of a bank.

A research study on South African banks by (Ifeacho & Ngalawa, 2014) has also noted, using financial ratios as proxies in the CAMEL model. Ifeacho & Ngalawa (2014) have applied a multiple regression model to test the significance of certain bank-specific variables and macro-economic determinants relative to the return on equity and return on assets ratios as the dependent variables representing the measure of bank performance. Their research finds that all bank-specific variables are statistically significant for both return on equity and return on assets. The CAMEL model has been purported as a good methodology to evaluate the performance of a financial institution as it evaluates liquidity, solvency and efficiency (Shukla, 2015).

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However, these ratios are primarily accounting ratios and thus do not take account of the opportunity cost inherent in the use of capital invested (Atanda, 2015), thus they do not measure value created or destroyed. It is for this reason that the CAMEL model has not been applied to this research, as the aim of this research is to measure the value added by the IDC in its use of capital, which is a value-based measure beyond that of traditional accounting metrics.

2.5. Development finance institutions

2.5.1. The rationale for development finance institutions

Regarding economic development, this can be defined as the manner in which governments foster and enable economic activities and participation for commercial development and social upliftment, through the setting of enabling policy frameworks, the provision of infrastructural foundations and establishment of sound institutions, all of which should serve as a stimulus for entrepreneurial activity (Toma, Grigore, & Marinescu, 2014).

In the provision of credit to address market failures, government intervention is required in the form of direct credit extension, through their national development banks, to serve the 'un-banked'. The un-banked population includes small and medium enterprises, which are regarded as integral to job creation, economic development and income creation. The literature states that entrepreneurial enterprises act as a stimulus for competition as more firms enter the market; they facilitate knowledge spillovers as they identify commercial opportunities, and they generate diversity and uniqueness of enterprises, which has an influence on growth (Culpeper, 2012; Toma et al., 2014).

In South Africa, both the business sector and government have indicated that small and medium enterprises are paramount to the economy as a whole. However, the market failure in the provision of credit persists in this economy, acting as an inhibitor to development. The business sector and government state that profitmaking is the primary aim of the traditional or commercial banks through the extension of credit to viable businesses and enterprises, thus their role is limited in addressing the needs of the small and medium enterprises (Culpeper, 2012; NCOP Trade and International Relations Committee, 2012).

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Romero (2014) states that social outcomes do not form part of the primary objective of traditional banks, an outcome inextricably linked to development finance institutions' mandates and goals. The United Nations Secretary-general, in his 2013 address of the UNCTAD, further emphasised that government intervention, through low-cost lending by development finance institutions at a cost cheaper than that of traditional banks, is relevant and necessary in the drive towards economic growth (United Nations, 2013).

2.5.2. The role of development finance institutions

Alternative providers of finance are paramount to the provision of access to 'risk capital' for private enterprises classified as high risk. One such alternative provider is the development finance institutions. These institutions can finance enterprises directly, or they can serve to mitigate idiosyncratic risk present in transactions viewed as too high risk for traditional banks through the provision of credit guarantees. The latter indirect funding mechanism serves to 'crowd-in' private commercial banks and reduce the risk aversion of providing funding to privately owned enterprises (Beck, 2014; Runder, 2014).

(Bertay et al., 2015) suggests that state-owned banks enable credit stabilisation over business cycles and market contractions. Luna-Martinez & Vicente (2012) have also emphasised that participation by development banks during depressed economic periods is warranted as they fill a gap in the market when traditional banks encounter contractionary periods of lending which counters economic activity in markets.

In defining a development finance institution, they are generally semi or fully-owned government entities, that strive to make a profit and simultaneously achieve development outcomes. This dual role is termed 'additionality', which refers to the uniqueness of the value created by development finance institutions. The main types of additionalities that development finance institutions provide are either in the form of demonstration, financial, and design policy additionalities (Runder, 2014).

By further explaining their dual purpose, development finance institutions must drive national policy objectives, by fulfilling financial services market failures, with the simultaneous requirement of making profitable investments (Thilakasiri et al., 2012).

In addition, it is asserted that development finance funding is directed to these affected sectors of an economy and their funding is prioritised as key to economic development, such as for the creation of jobs (Adesoye & Atanda, 2014; Calice, 2013; Jouanjean & te Velde, 2013; Ndikumana, 2007; Runder, 2014).

In South Africa, the two major development finance institutions are the Development Bank of Southern Africa (DBSA) and the Industrial Development Corporation (IDC) where these institutions address market and development failures (Gumede et al., 2011). The IDC's mandate facilitates the implementation of the national objectives of the country, notably the NGP, IPAP and the NDP national policies (IDC, 2015b).

2.5.3. The structure of development finance institutions

Development finance institutions and development banks vary in size, mandate, reach and scope. They can take the form of multilateral banks such as the International Finance Corporation (IFC), or in the form of bilateral or national development banks. The latter are wholly or partially owned and controlled by the government and their mandates require them to operate in sectors of the economy where the market fails, thus they assume higher levels of risk in the provision of finance to private enterprises. Their large and mostly sovereign-backed balance sheets allow these institutions to assume more risk, accept longer maturity profiles and potentially lower returns as compared to traditional banks (Kwakkenbos & Romero, 2013).

Funding options vary, ranging from a mix of pure debt to direct equity, with mezzanine debt and quasi-equity in between, as well as export finance credit loans and guarantees. In most instances, funding is in some instances provided at concessionary or subsidised rates to address the stated market failure (Culpeper, 2012), thus development finance institutions achieve partial or full cost recovery (Gumede et al., 2011).

With regard to their sources of funds, development finance investments can be funded through recapitalisations from shareholders (private and state-owned) or through the reinvestment of profits, borrowings from the capital markets (Kingombe et al., 2011), or from public deposits and budget allocations from the government (Luna-Martinez & Vicente, 2012).

2.6. Challenges in performance evaluation of development finance institutions

Development finance success is demonstrated by effective financing of development projects and through their role of enabling industrialisation and economic development outcomes. Following from the global financial crisis, one example of such a successful institution is the Brazilian Development Bank (BNDES) through its countercyclical lending, at subsidised lending rates, aimed at job creation and preservation, infrastructure and industry development (Gumede et al., 2011). However, no measure of economic profit and value creation was conducted in the assessment of the development finance success in this literature. The implication may therefore suggest be that developmental outcomes outweigh the financial performance of a development finance institution, and thus supports the trade-off view by (Jouanjean & te Velde, 2013; Romero, 2014).

In South Africa, several development finance institutions exist, all of which are governed by the common purpose of contributing to the country's development state objectives. The largest two, the IDC and DBSA, have mandates that include achievement of developmental objectives in the home country and on the African continent. Key to these objectives is the creation of jobs and support of targeted economic sectors (Qobo & Motsamai, 2014).

Over and above development finance institutions' own requirements to deliver, governments must act responsibly in the use and allocation of public funds to achieve impactful outcomes in respect of broader social and economic development. However, without the requisite metrics in place these developmental outcomes cannot be measured nor can it be evaluated as to whether the funding is being directed to the intended beneficiaries. From a social and development perspective, the absence of reliable developmental measures hinders a government's ability to efficiently allocate and direct financial resources (Kwakkenbos & Romero, 2013). Regarding the IDC, development finance is extended through debt and equity instruments, with debt facilities provided at concessionary interest rates. Whilst the aims and objectives are clearly spelled out, there is no standardised criteria on which these developmental outcomes can be reliably measured, making performance evaluation challenging (Qobo & Motsamai, 2014).

This research applies the social output index model to provide a framework for monitoring and evaluation of social objectives (Francisco et al., 2008); and the outcomes provide the requisite information for the government and the development finance institution to make informed decisions regarding efficient resource allocation, in the context of achieving developmental outcomes.

2.6.1. Sustainability of development finance institutions

Romero (2014) concurs with the dual-purpose mandate however, states that in pursuit of these two objectives, a trade-off may exist between development and profit-making for development finance institutions in implementation of their mandates.

In African development finance institutions, poor asset quality is prevalent with high non-performing loan ratios that threaten profitability and the extent to which these institutions can further capitalise themselves without government support (Adesoye & Atanda, 2014; Calice, 2013; Luna-Martinez & Vicente, 2012). This dichotomy between development and profitability can therefore threaten the very existence or relevance of the development finance institution, however the extent to which trade-offs befall the IDC forms part of this research.

2.7. Financial performance measurement

Traditional accounting measures have long since been the main measure of corporate performance of enterprises (Francisco et al., 2008; Kingombe et al., 2011). These accounting metrics focus more on profit maximisation, which makes it difficult to ascertain whether or not an enterprise is creating or destroying value (Atanda, 2015).

The use of traditional accounting metrics also has the capacity to over or under-estimate the impact on income and profits when development finance institutions receive subsidy income to fund their operations (Francisco et al., 2008). Institutions can therefore falsely appear profitable on the basis of accounting metrics (Alam & Nizamuddin, 2012). According to Yaron (2004), this can impair a stakeholder's interpretation of the effectiveness of the institution, as the inclusion of subsidy income can distort the true level of profitability.

Evaluation techniques of financial performance beyond that of accounting metrics exists, with economic metrics that take full account of investors' cost of capital to measure value creation, which is unachievable by traditional accounting metrics as they ignore the cost of capital (Atanda, 2015; Ward & Price, 2005). These value-based systems or financial techniques include, inter alia, economic value added (EVA) in Costa (2012), the discounted economic profit model in (Koller et al., 2015) and residual income in (Munteanu & Brezeanu, 2012).

2.7.1. Opportunity costs and economic profit

Opportunity cost or economic cost is defined as "the value of the best forgone alternative use" (Besanko, Dranove, Shanley, & Schaefer, 2013, p.19). Therefore, from an investor's point of view taking account of opportunity cost is appropriate when making investment decisions between alternative investment options, because firms earn economic profits only when the profit or earnings that it generates, is sufficiently higher than the opportunity cost associated with the capital invested (Kimball, 1998).

The theory by Koller et al. (2015) further explains that the cost of capital represents the premium for assuming risk by an investor; in other words it is the rate of return that an investor expects to earn for the use of his capital.

Economic profit is therefore in the interest of all stakeholders of a company, in particular the shareholders who invest in them. The application of economic profit thus channels all stakeholders' to the key objective of creating and increasing value (Bell III, L. W. W., 1998), and therefore enables efficient allocation of capital (Aggarwal, 2001). In value creating companies, shareholder commitment is reinforced through further capital investments to fund growth, as their capital that is deployed within the company generates profits in excess of their opportunity cost.

To illustrate the substance of opportunity cost, the difference between accounting profit and economic profit is distinguished in equation 1 and equation 2.

Equation 1: Accounting profit

Accounting profit = sales revenue – accounting cost

Source: (Besanko et al., 2013)

Equation 2: Economic profit

Economic profit = sales revenue – economic cost

= accounting profit – (economic cost – accounting cost)

Source: (Besanko et al., 2013)

When economic profits are zero, the firm is generating accounting profits at the opportunity cost of the capital invested; and when economic profits are positive, this profit is in excess of the cost of the capital invested, thus creating value for the investor (Besanko et al., 2013).

Accounting costs are referred to as explicit costs, whilst the opportunity costs or economic costs are referred to as implicit costs (Besanko et al., 2013). These implicit costs have significant implications on the value of a company, where accounting profit only takes cognisance of explicit costs. Economic profit however, takes full account of the explicit and implicit costs, and in the process demonstrates a company's ability to earn profits in excess of its cost of capital (Bell III, L. W. W., 1998).

The application of economic profit can be further extended in the value creation process by aligning performance incentives to economic profit, as opposed to a traditional accounting metric. This avoids compensating employees in situations when value is being destroyed despite the illusion of profits from the accounting metrics (Aggarwal, 2001; Bell III, L. W. W., 1998; Kimball, 1998).

2.7.2. Opportunity costs and the subsidy dependence index (SDI)

Social costs that stem from the use of public funds or subsidies from governments by development finance institutions are similar to the concept of opportunity costs (Schreiner & Yaron, 2001).

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In their theory, Schreiner and Yaron (2001) developed a methodology for determining the value added by a development finance institution, namely the subsidy dependence index (SDI) model. The SDI model aims to measure the level of independent financial sustainability or the degree of subsidy dependence where the latter highlights the extent of the financial costs associated with the use of public funds stemming from government subsidies. Regarding the use of the SDI model, for development finance institutions that do not rely on subsidy support from the government to operate, they are referred to as being subsidy independent.

Application of the SDI model by Francisco et al. (2008) demonstrates factors that contribute to subsidy dependence by development finance institutions; an example is the prevalence of high loan losses in portfolios that require additional subsidy income to fund these losses.

The SDI model has been applied in prior research in appraising the financial sustainability of a rural finance institution in Kwa-Zulu Natal, South Africa (Mkhosi, 2000). However, this model is not being applied to this research, as a result of its main limitations highlighted in Schreiner & Yaron (2001), namely:

- It ignores the time value of money; and
- Its measure of subsidy independence, does not guarantee or translate into self-sustainability.

Therefore both the SDI model and traditional accounting measures fall short in depicting the economic performance of development finance institutions, as both ignore the time value of money and the latter makes no adjustments to the accounting ratios as a result of subsidy income, relying solely on explicit costs. Using the McKinsey discounted economic profit model, this research explores the concept of value that incorporates explicit costs in accounting metrics coupled with implicit costs, or opportunity costs, to ascertain value created in the use of invested capital.

2.8. Value creation

In the McKinsey theory on valuation, Koller et al. (2015) state that a firm is principally measured by its ability to create current and future value for its shareholders, because value considers the long-term interests for all stakeholders concerned. In the process of value creation and value maximisation, over the long-term stakeholder interests are also maximised (Koller et al., 2015). This is consistent with the views of Besanko et al. (2013) and Bell III, L. W. W. (1998), that decision-making based on economic profit outcomes enables the process of value creation.

Value maximisation as such extends beyond previous aims of profit maximisation, where the latter concentrates more on measuring accounting metrics to determine profit maximisation (Reddy, Rajesh, & Reddy, 2011). In value maximisation, both sources of capital are explored, namely both debt and equity. Thus the costs of both debt and equity form an intricate part of measuring value (Reddy et al., 2011; Sharma & Kumar, 2010). Reddy et al. (2011) argue, through empirical evidence conducted in their research, that EVA is the most appropriate tool in measuring value created or destroyed by a firm, and that a high correlation between EVA and shareholder wealth creation exists. The literature suggests that EVA is a far more superior measure of value creation than that of traditional accounting measures (Reddy et al., 2011), as these fail to incorporate the opportunity cost or cost of capital used in directing shareholders' resources in the pursuit of shareholder maximisation, as EVA measures the returns generated net of the cost of capital. Thus EVA can be seen as a much more reliable approximation of true economic profit (Sharma & Kumar, 2010), where economic profit is yielded when returns on invested capital exceed the cost of capital (Costa, 2012). The EVA model in equation 5, appendix 3, is similar to the McKinsey discounted economic profit model in equation 6 in section 2.9.

Regarding the key drivers of value, these stem from growth and the return on invested capital (ROIC) (Koller et al., 2015), where the future cash flows generated is in excess of the cost of capital. The framework used in this research to measure value is the McKinsey discounted economic profit model (Koller et al., 2015).

It must be further noted that whilst they refute traditional accounting measures as being adequate in evaluating value creation, (Reddy et al., 2011) state that the use of these accounting metrics do not need to be abandoned altogether.

Instead, measures such as return on capital employed (ROCE), return on net worth (RONW) and earnings per share (EPS) can still be evaluated alongside the performance measurement of value creation, because these three metrics do include 'capital employed' in their formulae (Reddy et al., 2011). Other literature further asserts that accounting profit cannot be ignored, as it is this profit that is transformed into economic profit after making appropriate adjustments to the net operating profit after taxes (NOPAT) (Alam & Nizamuddin, 2012). The latter is also a key metric in the McKinsey discounted economic profit model and is denoted by net operating profit less adjusted taxes (NOPLAT) (Koller et al., 2015), reflected in the research in equation 6.

Koller et al. (2015) further asserts that in the process of value creation, no trade-off should occur amongst interested stakeholders and that all stakeholders benefit in this process. These benefits can accrue in the form of more jobs, improved economies and societies. Therefore the dichotomy and trade-off between financial sustainability and development outreach for development finance institutions should not be present in pursuit of value creation, which this research aims to explore, as postulated by Jouanjean & te Velde (2013) and Romero (2014).

2.8.1. Studies on value creation in banks and development finance institutions

Munteanu & Brezeanu (2012) conducted a study of Romanian banks listed on the Bucharest stock exchange using two value-based measures, residual income (RI), which is a simplified version of EVA to estimate value creation; and the standardised market value added (MVA). Refer to equation 3 in appendix 3 for the residual income equation, and equation 4 in the appendix 3 for MVA. Their results, as measured using data over the 2005-2011 periods, show one value-creating bank, one value-destroying bank and two value-preserving banks as the latter two did not create nor destroy value.

Costa (2012) implemented EVA, refer to equation 5 in appendix 3, in the Brazilian bank, Banco Bradesco, to evaluate the extent to which value is created and provides suggestions for improvements in value. In his research, Costa (2012) states that EVA can enable value creation in four ways, *ceteris paribus*:

- Achieve higher returns on existing invested capital either through higher revenues or driving down expenses, or both. This is consistent with research by Bell III, L. W. W. (1998);

- Reduce the cost of capital through an optimal mix of debt and equity;
- Invest in value creating projects which exhibit positive net present value (NPV) and divest in those that yield negative NPV;
- Employ a longer period over EVA to preserve competitiveness

In his results, Costa (2012) suggested that a bank that exhibits lower asset quality is primarily as a result of riskier customers and that these loans should carry higher risk premiums in their pricing structures to account for increased probability of default. Costa (2012) states that when risk premiums are increased, based on probability of default, and are larger than the loss on the defaulted loans, the bank would create value; and where the reverse occurs, value is destroyed.

The research conducted by Thampy & Baheti (2000) show that most Indian public and private sector banks are not yielding profits above their cost of capital and in fact have destroyed value. Thampy & Baheti (2000) state this as a concern where banks rely on the capital markets to raise funds as an inability to demonstrate positive EVA makes it challenging to obtain capital and thus can constrain growth in the banking sector and the economy as a whole. A more recent study in Indian banks by Raiyani & Joshi (2012) also revealed that, under EVA evaluation, several have destroyed value with a few banks actually creating value over the periods 2005-2006 and 2007-2008. Their study further revealed that the EVA percentage is higher for private banks than for public banks because of lower invested capital by the private banks, and this is consistent with one of the suggested mechanisms of increasing value by Bell III, L. W. W. (1998).

In comparing the equations of the residual income and EVA equations, these are similar in their approaches to arrive at output that measures value. These two equations are also similar to the McKinsey discounted economic profit model which is applied to this research, as discussed in the next sub-section. In the analysis of the results of this research, consideration will be given to the research outcomes of Costa (2012) and Munteanu & Brezeanu (2012).

2.9.   The Discounted Economic Profit Model

McKinsey's discounted economic profit model in Koller et al. (2015) provides the foundation for measuring the economic benefit or loss that an investor yields in the use of invested capital, where that capital has an associated cost attached to it.

Equation 6: Discounted economic profit model

Economic profit = NOPLAT – (Invested capital x WACC)

Source: (Koller et al., 2015, p.150)

where,

NOPLAT = net operating profit less adjusted taxes

Invested capital = total funds invested

WACC = weighted average cost of capital, representing opportunity cost.

Equation 7: Weighted average cost of capital (WACC)

$$\text{WACC} = [^D/_V \times k_d (1 - T_m)] + [^E/_V \times k_e]$$

where,

k_d = cost of debt

k_e = cost of equity

$^D/_V$ = target level of debt to enterprise value using market-based values

$^E/_V$ = target level of equity to enterprise value using market-based values

T_m = the company's marginal income tax rate

Source: (Koller et al., 2015)

Invested capital comprises of debt plus debt equivalents and equity plus equity equivalents.

Cost of debt (k_d) is calculated using the yield to maturity of the company's long-term, option-free bonds for companies that exhibit investment grade. The after-tax cost of debt is calculated by multiplying the cost of debt by one less the marginal tax rate (Koller et al., 2015).

Cost of equity (k_e) is driven by three key factors namely: the risk-free rate of return, the market-wide risk premium and an adjustment for risk inherent in the company represented by its beta. The cost of equity is calculated by applying the capital asset pricing model (CAPM) (Koller et al., 2015).

> **Equation 8: Capital asset pricing model (CAPM)**
>
> $$E\ (R_i) = r_f + \beta_i \times [E\ (R_m) - r_f]$$
>
> where,
>
> $E\ (R_i)$ = expected return of security i
>
> r_f = risk-free rate
>
> β_i = stock's sensitivity to the market
>
> $E\ (R_m)$ = expected return of the market
>
> Source: (Koller et al., 2015)

Appendix 1, table 3 reflects a summary of the components and required data for determining WACC.

The major difference between calculating accounting profit and economic profit relates to the charge associated with total capital. In accounting profit, the cost of debt is account for in the form of interest charges, and it ignores the charges or opportunity costs associated with equity capital that is incorporated into the WACC. Estimating the cost of equity however can prove challenging in the calculation of economic profit (Bell III, L. W. W., 1998).

Secondary data, from the published and unpublished IDC data sources, has been used to measure the economic profit of the IDC over the periods 2012 to 2015. In addition to deriving the economic profit outcomes, analysis of the drivers of this profit has been conducted to provide insight into how this can be improved for future financial periods, where the mechanisms for increase economic profit and value are discussed in the next sub-section.

2.9.1. Increasing economic profit and value

The first manner in which economic profit can be increased is from higher profit before interest and taxes (PBIT) to increase the NOPLAT, achieved either by driving higher sales or by managing costs downwards, or both (Bell III, L. W. W., 1998).

Secondly, lowering the quantity of capital employed by optimising the investment in fixed assets and minimising capital invested in current assets, or determining the optimal combination of the total capital required at the lowest possible cost, provides a means to raise value. The latter is feasible in companies that are considered 'under-leveraged', where more expensive equity capital is held relative to cheaper debt (Bell III, L. W. W., 1998). By changing the capital structure mix between debt and equity, through an optimal increase in leverage or debt, *ceteris paribus*, the overall WACC reduces lowering the capital charge and increasing the value.

The study conducted by Oladele (2013) suggests that shareholder value can be increased by two key factors, namely through the increased profitability and adoption of sound dividend policies, where the latter is considered a positive signal to the market in the context of a company's future value.

2.9.2. Limitations of the discounted economic profit model

The above discounted economic profit model is used to measure the economic contribution of an enterprise. However, Damodaran (2009) points out that the model has its limitation in so far as valuation of financial services companies are concerned, as they differ from that of non-financial enterprises, primarily in terms of:

- The cost of capital: Financial services companies, by their nature, have high levels of debt on their balance sheets as compared to non-financial companies. Taking these high levels of leverage into account, when estimating the cost of capital, has significant influence on the valuation outcome as the inclusion of debt in the cost of capital will result in unreasonable discount rates (Damodaran, 2009; Koller et al., 2015).
- Cash flow: The present and future cash flows of a financial services company differs from that of non-financial services firms as these cash flows comprise both the operational and financial activities of the financial services firm, referred to as equity cash flows. In the case of non-financial services companies, the cash flows represent the operations of the firm that are discounted at the WACC. As such, the equity cash flows of a financial services company are discounted by the equity cost of capital (K_e) and not by the WACC (Costa, 2012; Damodaran, 2009; Koller et al., 2015).

Damodaran (2009) further highlights challenges in valuing financial services firms stating that it is attributable to the difficulty in estimating the cash flows and the strict regulatory environments in which they operate. The latter has implications on the manner in which banks can capitalise themselves and influences their decisions regarding reinvestment and growth. Thus, periodic changes to these regulatory rules can have a major impact on company value.

The alternative approach to value financial services companies is the equity discounted cash flow (DCF) model (Koller et al., 2015), as this model measures the equity cash flows discounted at the equity cost of capital. This model is considered more appropriate as a valuation technique for financial services companies as it addresses the above limitations of this type of entity (Koller et al., 2015).

2.9.3. The cash-flow-to-equity discounted cash flow (DCF) model

In Koller et al. (2015), the cash-flow-to-equity DCF, in equation 9 appendix 3, values the cash flows to equity (CFE), derived from the net income (NI) and is discounted at the cost of equity (K_e). The equity value of a financial services firm equals the present value of its future cash flow to equity, discounted at the cost of equity (k_e) (Koller et al., 2015, p. 718).

Whilst the equity DCF method allows for appropriate valuation of a bank, it does not indicate the sources of value of a bank. A bank earns its net interest income through a margin or 'spreads' from the interest differential in the funds that it lends out and what it pays to deposit holders; and through the mismatch in maturities in its short-term borrowings and long-term lending (Koller et al., 2015).

This research is not conducting a valuation of a development finance institution, but rather it aims to measure the economic contribution of the IDC. Therefore the cash-flow-to-equity DCF will not form the theoretical approach to this research, as it limited to valuing the future cash flows of a financial services company where the research aims to apply a historical analytical research design using the discounted economic profit model to evaluate the extent of value creation by the IDC.

Regarding financial services companies, Koller et al. (2015) provides a theoretical framework for unpacking value creation beyond that of the cash-flow-to-equity DCF method, by conducting an economic-spread analysis of the primary source of the bank's income, the net interest income.

2.9.4. The economic-spread analysis

Bank earnings is considered the universal measure for evaluating the financial performance of a bank (Ifeacho & Ngalawa, 2014), and that, ceteris paribus, higher income levels lead to higher profits thus reasserting bank stability and lowering bankruptcy risk (Ifeacho & Ngalawa, 2014; Ongore & Kusa, 2013). Earnings are generally measured by the return on assets and return on equity ratios as these are profitability ratios, as well as by net interest margin and the margin spread ratio (Ifeacho & Ngalawa, 2014). The economic-spread analysis enables evaluation of performance and value creation of a financial services company (Koller et al., 2015).

The economic spread analysis measures the difference between the interest rate on loans and the matched-opportunity rate (MOR) for loans, multiplied by the opening outstanding loan amount (Koller et al., 2015). The MOR represents the cost of capital for the loans, and is the opportunity cost for "investments in the financial market with similar duration and risk as the loans" (Koller et al., 2015, p.726). The after-tax economic-spread is calculated by the following equation:

Equation 10: Economic-spread (after tax), method 1

$S_{AT} = L\ (r_L - k_L)\ (1-T) - \text{TPE} - \text{TMM}$

where,

S_{AT} = the after-tax economic spread

(r_L) = the interest rate on the loans

k_L = the matched-opportunity rate (MOR) for the loans

(L) = the amount of the loans

T = tax rate

Source: (Koller et al., 2015)

Equation 11: Tax penalty on equity (TPE)

TPE = tax penalty on equity = T x L x e_L x k_D

where,

e_L = the required equity capital divided by the amount of the loans outstanding

k_D = the MOR for deposits

Source: (Koller et al., 2015)

Equation 12: Tax on the maturity mismatch (TMM)

TMM = tax on the maturity mismatch = T x L (k_L - k_D)

Source: (Koller et al., 2015) (p. 726)

The TPE is the taxes on the spread which arises as there is no tax shield on equity, unlike for debt. The TPE theory therefore suggests that, all things being equal, the higher the reliance on equity funding, the less value the bank will create. The TPE essentially represents the matched-capital charge, which is the portion of the net interest income or charge for the return that shareholders would expect in return for an investment in a perfectly matched bank. The equation of the TPE is as follows:

In most instances, banks will encounter a mismatch in the maturity profiles of their assets (loans) and liabilities (deposits). Thus the tax on the maturity mismatch (TMM) must be calculated and included in the economic spread-analysis calculation to fully encapsulate the value created or destroyed through the mismatched-capital charge. This component of net interest income is the compensation for risk borne by the shareholders (Koller et al., 2015).

The economic spread from a bank's assets and liabilities must be evaluated in conjunction with its net interest income. The economic spread reveals how much of the net interest income actually represents value or growth when the economic spread is positive and adequate to meet operating expenses. The link between the economic spread and the net interest income is such that the economic spread analysis allows evaluation of the make-up value in the net interest income which shows how much value is actually being, represented by the economic spread, created after taking account of the matched-capital charge and mismatched capital charge (Koller et al., 2015). This is calculated by the following formula:

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Equation 13: Economic-spread (after tax), method 2

	Net interest income (after-tax)	$(1-T)(L * r_L - D * r_D)$
Less:	Matched-capital charge	$(L-D) k_D = L \times e_L \times k_D$
Less:	Mismatched-capital charge	$L * (k_L - k_D)$
	Economic spread	

Source: (Koller et al., 2015)

Thus to create value, the bank must yield net interest income in excess of its matched and mismatched-charges plus its operating expenses. Where banks are failing to meet these explicit and implicit costs, value is being destroyed.

In the case of the IDC, its structure differs from that of a traditional commercial bank where the IDC makes a large proportion of investments in the form of equity and not only debt (IDC, 2015b); and secondly, the IDC is not a financial intermediary or deposit-taking institution, where the spread on deposits forms a part of the economic-spread analysis. Thus the extent of income on the basis of net interest income only would be inadequate for evaluation of the IDC as a large proportion of its income is in the form of dividends from equity investments, where equity derives no taxable benefit as is the case for debt. This taxable benefit also forms a part of the economic-spread analysis (Koller et al., 2015), thus rendering it not optimal as a measurement technique for the IDC.

Contrasted to the commercial banks, the IDC holds a larger proportion of equity, with a reported debt-to-equity ratio of 28% as at 31 March 2015 (IDC, 2015a). It is therefore inappropriate to assume that the IDC is completely likened to a commercial bank, as its structure differs vastly, both in its funding products as well as in its cash flow generation and balance sheet structure.

2.9.5. Regulatory impact on financial services firms equity capital

Heightened banking supervision and regulation by the Basel Committee on Banking Supervision, after the global financial crisis, has influenced the way in which banks operate (Koller et al., 2015).

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Amongst other regulatory requirements, banks are required to hold minimum capital reserves relative to the lending that it does in the market. These regulations by Basel are being phased in until the year 2019 when banks must be fully compliant (Koller et al., 2015).

However, the capital that the banks must hold is not a simple and straightforward summation of its total assets as the bank's exposure in the market varies across several sectors and, secondly the liquidity of these assets is not equal. This in itself affects the riskiness of the bank's assets. The banks therefore must calculate their capital based on their risk-weighted assets (RWA) that takes account of the riskiness and liquidity of their asset classes that they hold (Koller et al., 2015).

Calculating the RWA of a bank for valuation purposes is challenging as the models used are not published by the banks, instead they simply report on the total RWA number thus requiring an observer to make estimations and assumptions as to how the bank arrived at the total RWA number. Estimations are made by using the Basel guidelines for the different asset classes in the credit risk portfolio, and assumptions in the market risk and operational risk portfolios. The end result is such that the minimum capital adequacy levels must comply with those set out by Basel, where the legal minimum for a bank's common-equity tier 1 is 4.5% of its RWA. An additional capital buffer of 2.5% of RWA is deemed prudent to manage against losses that result in adverse movements in the capital reserves (Koller et al., 2015). Development finance institutions are generally not deposit-taking institutions like commercial banks and thus do not have to comply with the capital adequacy rules by Basel.

Analysis and interpretation of the economic profit result will provide insight into the manner in which the IDC creates value and where it falls short. These research findings will enable recommendations to be put forward as to how the IDC can increase its ability to create value and contribute positively to economic progress in the South African economy.

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Having said this, the IDC is not purely likened to a commercial bank whose primary objective is profit-making, thus cognisance of its ability to contribute to social and developmental outcomes must also be considered. This observation of the IDC's developmental mandate will be conducted using the social output index model developed by (Francisco et al., 2008).

2.10. Social and developmental impact of development finance institutions

In the comparisons of development finance institutions conducted by Kingombe et al. (2011), it is apparent that different approaches are used to measuring their development impact. Qualitative and/or quantitative indicators are used in development impact measurement frameworks. The quantitative indicators such as financial returns, job creation and skills development evaluate the direct effects of their investments. Kingombe et al. (2011) however does conclude that there is very little research in this regard.

A further challenge presented in the literature indicates that there is no homogeneity in evaluating and assessing the development impact of development finance institutions and multilateral institutions, where the latter employs *ex-ante* and/or *ex-post* assessments and evaluations (Kingombe et al., 2011; Massa, 2011).

According to Kingombe et al. (2011), each institution has its own impact assessment methodology, examples include the development outcome tracking system (DOTS) employed by the International Finance Corporation (IFC), the corporate policy project rating (GPR) employed by the German Investment Corporation (DEG), and the transition impacting monitoring system (TIMS) employed by the European Bank for Reconstruction and Development (EBRD). Massa (2011) also indicates tools by other institutions such as the Development Effectiveness Framework (DEF) by the Inter-American Development Bank (IADB), the African Development Bank (AfDB) with the annual portfolio performance review, and the monitoring and evaluation tool employed by the UK's development finance institution, the CDC.

In the case of the IDC, there is no defined methodology in assessing development impact, with the exception of direct reporting of development targets as established, as evidence in their corporate plan (IDC, 2015b).

The two main DFIs in South Africa, the IDC and the DBSA, do not have any objective criteria upon which their development impact can be measured (Qobo & Soko, 2015). No existing theoretical frameworks are currently applied to measuring the development impact of South African development finance institutions, including the IDC.

In considering the above multilateral institutions' methodologies as a benchmark or proxy to measure the development impact of the IDC, it is not considered appropriate as the IDC differs vastly from the above institutions, in that the IDC is more of a national development bank or bilateral institution. Secondly, these methodologies are internally developed, suited and adapted to the specific mandates and structures of these multilaterals. As such, the IDC and other South African development finance institutions would need to adopt their own development impact tools or apply an appropriately suited theoretical model to measure same. The latter is proposed for this research and the World Bank social output index model is being applied to appraise the IDC's development impact as an introductory method of evaluating development impact, in the absence of current models adopted. Given the limited scope of development impact tools for South African development finance institutions, this is considered an area for further research.

2.11. The social output index (OI) model

The social output index (OI) is a model to determine the extent to which development finance institutions' achieve their social objectives. The model has been developed by the World Bank, where Francisco et al. (2008) have applied the model to two development finance institutions, Banadesa in Honduras and Banrual in Guatemala, where one is considered subsidy dependent and the other is subsidy independent under the SDI model application.

In the application of the OI model, according to Banadesa's 2003 bank-level data, calculated on an income basis, Banadesa lends comparatively less to low-income individuals than the levels as desired by its government. In the evaluation of the Banrual development finance institution, assessment of its bank-level data calculated on a product basis, Banrual lends comparatively more to low-income groups and achieves its social development objectives (Francisco et al., 2008).

In application of the OI model, it is considered an adaptable framework as evaluation of bank-level data can be conducted in various ways such as on an income, product or government-specific target groups. The model is flexible irrespective of a development finance institution's structure and operating model, asset quality or its target market(s). The main benefit of applying the model is that it affords the decision-makers, at a national policy level, the opportunity to evaluate more granularly the extent of fulfilment of social objectives. This is especially important in instances where the development finance institution obtains financial support from the government in the form of subsidies as the OI model can serve as a monitoring tool. This therefore aids in effective strategy development and business planning by efficiently directing resources for their intended purposes (Francisco et al., 2008).

A further benefit of using the OI model is that it allows for more transparency in communicating a development finance institution's ability to achieve its outreach programs or developmental mandates. Transparent communication of performance for development finance institutions is of utmost importance as they predominantly use public funds in implementing their mandates, evidenced by those that are considered subsidy dependent, thus their level of scrutiny is high and the OI provides a basis to refute perceptions or claims of under-achievement of its developmental mandate (Francisco et al., 2008).

The limitation of this methodology relates to access and adequacy of data, as well as the degree of subjectivity in the estimation of the variables and weightings in the model by an observer or researcher outside of the development finance institution. However, where development finance institutions are themselves applying the model, these limitations are lowered as data is readily available to them, and the model thus affords the development finance institution a method of proving their success in the deployment of scarce public resources (Francisco et al., 2008).

In the absence of other academic theory to evaluate development impact, the research will apply the OI model to measure the impact of the IDC in fulfilment of its own development and social objectives.

2.11.1. Application of the OI methodology

The design of the OI model is dependent on the objectives of the development finance institution. The process involves identifying and selecting specific quantifiable output variables, with a weight attached to each variable. Based on the availability of data, output variables can be granular, i.e. at the business unit level or it can be broader, i.e. at specific income groups, loan sizes and/or targeted sectors based on national priorities set by the government (e.g. women empowerment or industrial development) (Francisco et al., 2008).

The assumption in the model is that a high correlation exists between the size of the loan granted by the development finance institution and the borrower's income. The correlation assumption in the model allows for the use of the loan size as a proxy for the borrower's income in order to determine outreach by the development finance institution. However, variables other than loan size or borrower's income, where 'income' is categorised into different classes such as small and medium enterprise lending, retail lending, corporate lending etc. can also be applied to the OI model to measure other forms of social development based on the institution's key objectives. This assumption thus allows inference about the extent to which the institution lends comparatively to on the basis of such target or income groups.

The first step in using the OI model involves grouping the portfolio into specific 'loan' or 'income' groups or targeted sectors, denoted by (Li) and these groupings are "divided into n distinct groups, where a lower i represents lower income" (Francisco et al., 2008, p.13), starting at 1. For these groups, weights are estimated, expressed by α_i, where the sum of α_i equals to 1 (Francisco et al., 2008).

Whilst the setting of weightings is a subjective exercise, the underlying assumption is that development finance institutions have specific goals to target lower-income groups. This therefore implies a larger weighting is attached to this output variable (Francisco et al., 2008). Algebraically, the weighted output index (OI^w) is expressed as follows in equation 14.

Equation 14: Weighted output index (OI^w) (output index model)

$$OI^w = \frac{\sum_{i=1}^{n} L_i \alpha_i}{\sum_{i=1}^{n} L_i}$$

Source: (Francisco et al., 2008)

The above equation provides a ratio of the summation of the weighted loan groups to the total outstanding loans. This ratio is the numerator in the Z equation to calculate the extent that the development finance institution lends comparatively to a specific target group (Francisco et al., 2008).

Where the development finance institution has no specific or targeted lending groups as part of its developmental strategy, the weights would be equivalent with the non-weighted output index (OI^{nw}) expressed as:

Equation 15: Non-weighted output index (OI^{nw}) (output index model)

$$OI^{nw} = \frac{1}{n}$$

Source: (Francisco et al., 2008)

The above equation provides a ratio of the non-weighted portion of the development finace institution's portfolio. This ratio is the denominator in the Z equation to calculate the extent that the development finance institution lends comparatively to a specific target group (Francisco et al. 2008).

The second step involves calculating a discount ratio (Z) that measures the extent to which the development finance institution lends comparatively to a specific target group. The discount ratio (Z) is given by:

Equation 16: Z-discount ratio (output index model)

$$Z = \frac{OI^{nw}}{OI^w}$$

Source: (Francisco et al., 2008)

The Z ratio interpretation is measured between a range of less than 1 to greater than 1. The output of this range is interpreted as follows:

If $Z < 1$: Government lends comparatively more to lower income groups

If $Z = 1$: Government lends comparatively the same across income groups

If $Z > 1$: Government lends comparatively less to lower income groups

Source: (Francisco et al., 2008)

Step three involves calculating the weighted cost of the subsidy Cw, in equation 17.

Equation 17: Weighted cost of subsidy (Cw)

$Cw = Z * C$,

where C is the actual cost of the subsidy, where a development finance institution receives a subsidy from the government.

Interpreting Cw:

If $Cw < C$, "society benefits from an enhanced societal gain because of the greater allocation of subsidies to lower income groups" (Francisco et al., 2008, p.14). In other words, the net cost of the subsidy to society is lower. The opposite holds true when $Cw > C$.

Source: (Francisco et al., 2008)

In applying a slice-and-dice technique to divide the portfolio into different and specific segments (Ellen, 2015), the outcome or result of the OI's Z ratio provides a measure of the degree of lending to a particular target group or segment, such as those outcomes in the Banadesa and Banrual development finance institutions in (Francisco et al., 2008). It ultimately provides an assessment of the development finance institution's contribution to social objectives.

The economic profit measure of the development finance institution through the discounted economic profit model provides insight into the economic performance on a commercial basis. However, a development finance institutions plays a dual role and is not limited to that of pure financial gain. As previously indicated, in its use of public funds development finance institutions must also deliver on a developmental mandate that the OI model purports to disclose. The results of the performance of the development finance institution's development impact is analysed and interpreted in conjunction with the economic profit measures, which may or may not infer a trade-off in its dual mandate.

2.12. Conclusion

There is little research conducted in evaluating the effectiveness and impact of development finance institutions. Opportunities for further research remain, in order to expand understanding of these institutions and their impact on policy planning and implementation (Culpeper, 2012). However, having the right metrics and measurements in place to inform the impact assessment for decision-making is crucial as the first step in the process of adequately evaluating these institutions.

As stated, development finance institutions are heterogeneous in their impact assessments, and there is no single approach used across these institutions (Kwakkenbos & Romero, 2013).

Financial appraisals of development finance institutions have been done as demonstrated in the literature, however no such value-based measurement has been conducted for South African development finance institutions. Costa, (2012) highlights areas for further research relating to application of the EVA framework, a value-based methodology likened to the discounted economic profit model, in other banking firms.

Research by Munteanu & Brezeanu (2012) in Romanian listed banks suggests that market and value-based performance measures, such as residual income and EVA, provides a more realistic estimation of value creation, as compared to traditional accounting metrics which do not provide a true approximation of economic profit. In Ghana, Owusu-Antwi et al. (2015) have measured the financial performance in Ghanian banks using the economic profit model.

This research aims to contribute to the branch of academic research engaged in using economic models to measure the financial performance of a development finance institutions in South Africa. Simultaneously, this research will contribute in evaluating the social and development impact relative to the institution's development mandate. From a policy perspective, the research also contributes to the business and public sector by providing decision and policy-makers with more robust tools to inform the allocation of scarce resources efficiently to enable long-term sustainability of the development finance institution, in line with such policy imperatives.

CHAPTER 3:   RESEARCH QUESTIONS

3.1.   Introduction

The literature review provides rich evidence of the role played by development finance institutions in the economies that they serve, as well as the dichotomy between profit and development (Adesoye & Atanda, 2014). Whilst their purpose is well laid out, what is not clear is how well such institutions fulfil this dual purpose (Francisco et al., 2008), and whether trade-offs between profit and development occurs (Jouanjean & te Velde, 2013; Romero, 2014). Value-based systems such as EVA has been used to evaluate development finance institutions in economies, however no such evaluation has been conducted for a South African development finance institution. As such, this research will add to this branch of academic research.

3.2.   Research Question One
To what extent does the IDC generate positive economic profits?

The literature review demonstrates financial performance metrics to evaluate commercial banks and development finance institutions (Alam & Nizamuddin, 2012; Francisco et al., 2008; Ifeacho & Ngalawa, 2014). However, economic theory provides insights into the shortcomings of these measures, as they do not in essence, measure the value added or value created and sustained (Atanda, 2015), where the McKinsey literature provides foundational theory on defining value as well as appropriate techniques to measure value (Koller et al, 2015).

As used in prior research, traditional accounting metrics measure earnings only and do not take account of the economic costs associated with equity capital. An alternative value-based measure applied to this research question is the discounted economic profit model, to evaluate the extent to which the IDC creates value for its shareholder, thereby demonstrating its financial contribution to economic development of the South African economy (Koller et al, 2015).

3.3.   Research Question Two
Which factors are the most important drivers of economic profit for the IDC?

The value-based measure of economic profit will provide insights into the levers of value creation. The literature review also asserts that value is created from two key sources: increased profits and a lower cost of capital (Bell III, L. W. W., 1998). In respect of profits, strategies can be designed to drive profits higher, thereby enabling increased value. Conversely, adjusting the levers associated with the cost of capital enables reduction of this total cost (Koller et al, 2015). The results of the data in research question one will provide input into answering research question two, with resultant recommendations therein.

3.4.   Research Question Three
Does the IDC deliver in achieving its social objectives and development impact?

This research question attempts to explore the effectiveness of the IDC's social and developmental purpose by applying the OI model (Francisco et al., 2008). In its application, the model will demonstrate where resources are currently being directed.

In answering this research question, the results will provide guidance to those entrusted to direct the development finance institution's resources for future strategic objective-setting so as to maximise its developmental impact. The outputs of the OI model will guide the decision-makers in appropriately allocating future resources in alignment with its strategic objectives in as far as developmental outcomes are concerned.

3.5.   Research Question Four
Do trade-offs between profit and development exist for the IDC?

The literature review postulates that in fulfilling its dual purpose, development finance institutions encounter trade-offs between financial sustainability and development outcomes (Jouanjean & te Velde, 2013; Romero, 2014). The analysis of the economic profit results in research question one and output of the OI model in research question three will demonstrate whether or not such a trade-off exists for the IDC.

CHAPER 4:   RESEARCH METHODOLOGY

4.1.   Introduction

The aim of the research is to explore the extent to which the IDC, a South African development finance institution, generates economic profits and simultaneously development outcomes whilst pursuing its dual purpose. In South Africa, there has been no study conducted into the economic performance and developmental performance of a development finance institution. The closest study to date is that of Mkhosi (2000) where the research used the SDI model to appraise a rural finance institution (RFI) based in Kwa-Zulu Natal, using a case study research design.

Recent calls have been made urging development finance institutions to make financial sustainability its guiding principle (Adesoye & Atanda, 2014). The National Treasury of the Republic of South Africa has also emphasised that state-owned enterprises become self-sustainable in an effort to reduce dependence on the national fiscus (Moody's, 2014). McKinsey's discounted economic profit model theory in Koller et al. (2015) is used to appraise the performance of the IDC, a South African development finance institution.

Development finance institutions are expected to fulfil a dual purpose role, addressing development in accordance with national policies whilst remaining financially sustainable (Romero, 2014). However, how well these institutions direct their capital to these key constituencies is not adequately measured and their results do not explain how efficiently their invested capital is being allocated. In evaluating the development impact of the IDC, the social output index model by Franciso et al. (2008) is used. It is on the basis to contribute to academic research that this research study of a South African development finance institution has been conducted.

4.2.   Research Design

Saunders & Lewis (2012) state that the case study method is appropriate when the research attempts to investigate a specific area. Similarly, Mkhosi (2000) applied the case study method in his research study.

A further benefit of the case study research design is that it caters for research exploring existing theories (Saunders et al., 2009), wherein the discounted economic profit model and social output index model have been applied to the research. Saunders et al. (2009) describe the holistic case study design in research concerned with an organisation at the organisational level, and this design has been used for this research.

Quantitative designs can differ based on (i) the number of contacts with the study population, (ii) the reference period of the study and (iii) the nature of the investigation (Kumar, 2011). For this research the reference period quantitative design is most appropriate, and will apply a retrospective study time-fame to explore the research problems. This is overlapped with the holistic case study method discussed above.

Kumar (2011) further highlights that for a case study method to be robust, the subject explored must be either very representative in order to make generalisations or it must be atypical of that study population. The IDC is the only development finance institution in South Africa that is self-funding and self-supporting, with no periodic budget allocations obtained from the National Treasury of the Republic of South Africa, rendering it atypical when compared to other government-supported development finance institutions. The drawback to this research design is that it is harder to establish general findings (Kumar, 2011), thus the findings and recommendations cannot be generalised across the entire population, but rather provides a basis for further research on a generalised basis

4.3.   Method of Analysis

The research itself is analytical, using quantitative secondary data in its design and addresses the research questions using the case study method. The secondary data has been collected and used from both published and unpublished sources of the IDC and the research is chronological over the period from 2011 to 2015 (Saunders & Lewis, 2012).

4.4. Unit of Analysis

The unit of analysis is the IDC, at the organisational level, and this corresponds to the holistic case study design (Saunders et al., 2009). Analysis of the IDC's financial and developmental performance is being researched under this holistic approach.

4.5. Population

The population consists of 12 development finance institutions in South Africa (Public Sector Manager, 2011). Given the challenge in accessing and obtaining all of these institutions data for this research, a sample of one has been selected from the population.

4.6. Sampling Method and Size

A sample is a sub-group of the population that the research studies (Kumar, 2011). Relating to the case study research design, non-probability, judgemental sampling has been used in the selection of the IDC as the sample (Kumar, 2011; Saunders et al., 2009). The sampling techniques referred to in appendix 2, figure 12 describes the different non-probability techniques used to arrive at the most appropriate sampling technique. To re-affirm the appropriate sampling technique, the decision-tree by Saunders et al. (2009) enabled establishment of the purposive technique as best suited for this research. The drawback of the non-probability sampling technique however does not statistically represent the population (Saunders et al., 2009).

Saunders & Lewis (2012) further highlight that the sample size in non-probability designs is dependent on the research itself, taking into account the research objective and research questions stemming from this. For this research, a sample of one from the population, the IDC, has been chosen for the sample size.

4.7. Data Collection

For the case study design, secondary data has been collected from public platforms namely published annual financial results as well as through access to unpublished company data, comprising of historical and forecasted financial records and documents of the IDC (Kumar, 2011).

The limitation associated with the collection of secondary data relates to the availability of the data, its format and quality which can result in validity and reliability weaknesses, personal bias, availability bias that can weaken the result findings (Kumar, 2011).

4.8.   Data Analysis

To address the research questions, the data used in the research is recorded in Microsoft Excel 2010. Given that the sampling technique is non-probability, the results are not statistically measured (Saunders et al., 2009).

As a result of the amount of the estimations required in applying both the discounted economic profit model and the social output index model, the results may be subject to observer bias which may therefore influence the findings and conclusions. Saunders & Lewis (2012) state that observer bias can impact on the reliability of the data analysis procedures and cognisance of this has been taken into account.

4.9.   Research Limitations

Regarding secondary data, its use is not without limitations. It may not be value-neutral and because it was originally collected for a different purpose, it may be lacking in meeting the needs of this research (Saunders & Lewis, 2012).

Saunders et al. (2009) further describe the limitations inherent in this research design. The design may be subject to external validity, which describes the degree to which the research results are generalisable. The holistic case study method of a sample of one therefore does not allow the findings and conclusions to be generalised for the entire population, especially if the unit of analysis has atypical characteristics.

As a result of the above limitations, the inability to make generalisations for the entire population is in itself a cause for further research.

4.9.1. Validity bias

Validity bias may be introduced through subject selection, as a result of the purposive technique applied in selecting the sample (Saunders & Lewis, 2012).

4.9.2. Estimating opportunity cost for the discounted economic profit model

Several estimations will be required in determining the cost of capital (Damodaran, 2009; Koller et al., 2010). The estimations affect the economic profit output directly, and can thus affect the findings and conclusions of the research.

4.9.3. Measurement of development impact

This area of research is limited with only one known theoretical and quantifiable measure of social objectives, the social output index model. The model in itself has its own limitations where subjectivity in regards to weights applied in the OI_w formula is required. An over or under estimation of the weights can yield a different outcome with commensurate findings and conclusions, rendering the potential for bias in the research.

CHAPTER 5: RESULTS

5.1. Introduction

This chapter presents the results to address the research questions in chapter 3. The results analysis has been conducted by following the research design discussed in chapter 4. In establishing the results for both the discounted economic profit model and the social output index model, assumptions and estimations have been made in conjunction with the secondary data applied. Due to the non-probability purposive method applied to the sample, the risk of validity bias remains.

As indicated in chapter 4, the case study method has been applied and the sample of one is represents the IDC, with a chronological analysis of the organisation's historical performance between 2011 to 2015.

5.1.1. Discounted economic profit results

Secondary data originating from the IDC's annual financial statements and company-specific data have been used to calculate the inputs to the model. The statement of financial position and the statement of comprehensive income of the IDC over the period studied is presented in table 4 and table 5 respectively.

Using the data from tables 5 and 6, as well as other company-specific data, the inputs to the calculations for the discounted economic profit result are reflected in sub-sections 5.1.1.1. to 5.1.1.3.

Table 4: Statement of financial position

Figures in Rand million	Audited 2015	Audited 2014	Audited 2013	Audited 2012	Audited 2011
Assets					
Cash and cash equivalents	7 714	7 250	8 043	7 117	5 237
Derivative financial instruments	-	60	49	6	4
Trade and other receivables	1 069	906	790	275	224
Inventories	4	13	11	10	11
Current tax receivable	260	-	-	56	-
Loans and advances	21 760	20 298	18 297	15 070	9 294
Investments	35 159	46 645	50 190	49 724	49 471
Non-current assets held for sale and asset disposal groups	-	-	-	-	-
Investments in subsidiaries	43 415	49 577	37 239	31 515	31 235
Investments in associates, joint ventures and partnerships	15 624	12 721	11 008	12 326	14 018
Deferred tax	-	-	-	-	-
Investment property	15	15	15	9	9
Property, plant and equipment	129	120	121	110	150
Biological assets	-	-	-	-	4
Intangible assets	-	-	-	-	-
Total Assets	**125 149**	**137 605**	**125 763**	**116 218**	**109 657**
Equity and Liabilities					
Equity attributable to Equity Holders of the Company					
Share capital	1 393	1 393	1 393	1 393	1 393
Reserves	60 114	76 740	69 134	68 219	69 570
Retained income	23 353	21 736	20 382	19 453	17 310
	84 860	99 869	90 909	89 065	88 273
Non-controlling interest		-	-	-	-
Total Equity	**84 860**	**99 869**	**90 909**	**89 065**	**88 273**
Liabilities					
Bank overdraft	-	-	-	-	-
Derivative financial instruments	50	19	6	3	8
Trade and other payables	1 262	992	874	846	692
Current tax payable	-	42	116	-	16
Retirement benefit obligation	182	162	155	135	112
Other financial liabilities	33 566	29 017	25 655	17 814	13 895
Deferred tax	5 119	7 261	7 712	8 003	6 234
Provisions	48	67	39	48	53
Share-based payment liability	62	176	297	304	374
Total Liabilities	**40 289**	**37 736**	**34 854**	**27 153**	**21 384**
Total Equity and Liabilities	**125 149**	**137 605**	**125 763**	**116 218**	**109 657**

Source: (IDC, 2011; IDC, 2012; IDC, 2013; IDC, 2014; IDC, 2015b)

Table 5: Statement of comprehensive income

Figures in Rand million	Audited 2015	Audited 2014	Audited 2013	Audited 2012	Audited 2011
Revenue	5 476	5 690	5 742	4 584	3 524
Cost of sales	-	-	-	-	-12
Gross Profit	**5 476**	**5 690**	**5 742**	**4 584**	**3 512**
Finance costs paid	-1 170	-837	-554	-347	-315
Gross profit after financing costs	**4 306**	**4 853**	**5 188**	**4 237**	**3 197**
Other income	398	352	171	70	-
Net capital (losses) / gains	427	1	-30	878	353
Operating expenses	-3 413	-3 253	-3 625	-2 957	-2 162
Operating profit	**1 718**	**1 953**	**1 704**	**2 228**	**1 388**
Profit/(Losses) from equity accounted investments	3	2	-1	-6	-7
Profit before taxation	**1 721**	**1 955**	**1 703**	**2 222**	**1 381**
Taxation	-54	-551	-183	-29	-83
Profit for the year	**1 667**	**1 404**	**1 520**	**2 193**	**1 298**
Other comprehensive income					
Items that will not be reclassifed to profit or loss:					
Common control transactions	-	-	1 222		
Profit/(Losses) on property, plant and equipment revaluation	17	1	24	9	-12
Remeasurements on net defined benefits	-10	1	-		
Income tax relating to items that not be reclassified	7	-	-		
Total items that will not be reclassified to profit or loss	**14**	**2**	**1 246**	**9**	**-12**
Items that may be reclassified to profit or loss:					
Exchange differences on translating foreign operations	-	-	-		
Available-for-sale financial assets adjustments	-18 700	7 146	-998	543	11 639
Other reserves from subsidiaries	-	-	-		
Share of comprehensive income of associated and joint ventures	-23	-20	-51	-38	22
Income tax relating to items that may be reclassified	2 083	478	177	-1 865	-1 113
Total items that may be reclassified to profit or loss	**-16 640**	**7 604**	**-872**	**-1 360**	**10 548**
Other comprehensive income for the year net of taxation	**-16 626**	**7 606**	**374**	**-1 351**	**10 536**
Total comprehensive income for the year	**-14 959**	**9 010**	**1 894**	**842**	**11 834**
Profit for the year attributable to:					
Owners of the parent	1 667	1 404	1 520	2 193	1 298
Non-controlling interest	-	-	-	-	-
	1 667	**1 404**	**1 520**	**2 193**	**1 298**
Total comprehensive income for the year attributable to:					
Owners of the parent	-14 959	9 010	1 894	842	11 834
Non-controlling interest	-	-	-		
	-14 959	**9 010**	**1 894**	**842**	**11 834**

Source: Source: (IDC, 2011; IDC, 2012; IDC, 2013; IDC, 2014; IDC, 2015b)

5.1.1.1. Weighted average cost of capital (WACC) inputs

The average cost of equity and average cost of debt are reflected in table 8 have been obtained from the company-specific data and has been applied to the WACC inputs. Table 6 depicts the March period's cost of equity figures. Table 8 depicts the average cost of equity for each annual period, as this calculation is conducted periodically, thus the average has been utilised.

In addition, table 7 also reflects the average cost of debt, obtained from the secondary data and together with the cost of equity, these constitute inputs to the WACC.

Table 6: Annual cost of equity

	Mar-15	Mar-14	Mar-13	Mar-12
Risk-free rate	8,0%	8,2%	7,5%	9,6%
Equity risk premium	6,0%	4,0%	4,0%	2,9%
Beta	1,1	1,1	1,2	1,1
Nominal cost of equity	14,5%	12,6%	12,2%	12,8%

Table 7: Average cost of equity and average cost of debt

WACC Inputs:	2015	2014	2013	2012	2011
Average cost of equity	14,73%	12,33%	12,34%	11,87%	11,87%
Average cost of debt	5,4%	4,5%	4,0%	3,6%	6,4%

In table 8, the invested capital has been calculated using figures from the statement of financial position in table 4. Whilst it is appropriate to include only interest-bearing debt in the calculation, the interest-free loans from subsidiary companies have also been included, with reasons thereof discussed in chapter 6.

Table 8: Invested capital

Invested Capital	2015	2014	2013	2012	2011
Retained income	84 860	99 869	90 909	89 065	88 273
Interest-bearing debt*	33 566	29 017	25 655	17 814	13 895
Total Invested Capital	**118 426**	**128 886**	**116 564**	**106 879**	**102 168**
Debt: Total Invested Capital	28%	23%	22%	17%	14%
Equity:Total Invested Capital	72%	77%	78%	83%	86%
* This includes the interest-free loans from subsidiaries					
*Interest-free loans from subsidiaries	11 015	9 870	8 858	7 826	7 150
Debt-to-equity ratio	39,6%	29,1%	28,2%	20,0%	15,7%

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In arriving at the economic profit, the invested capital calculation is important as it provides the weighted proportions of debt and equity to total invested capital, also referred to as the company's capital structure; and these weighted proportions are inputs into the WACC calculation to determine the capital charge. The capital charge is calculated from the multiplication of the WACC by the total invested capital, and this is reflected in table 12 and table 13 results.

Table 9 below reflects the WACC based on the actual capital structure of the IDC over the study period.

Table 9: WACC result (calculation based on the actual annual capital structure)

	Audited 2015	Audited 2014	Audited 2013	Audited 2012	Audited 2011
WACC:	*11,65%*	*10,29%*	*10,25%*	*10,32%*	*10,88%*
Cost of Equity	**14,73%**	**12,33%**	**12,34%**	**11,87%**	**11,87%**
Pre-Tax Cost of Debt	5,4%	4,5%	4,0%	3,6%	6,4%
Tax rate	28%	28%	28%	28%	28%
After-Tax Cost of Debt	**3,9%**	**3,3%**	**2,8%**	**2,6%**	**4,6%**
Total Capital	118 426	128 886	116 564	106 879	102 168
Equity	84 860	99 869	90 909	89 065	88 273
Debt	33 566	29 017	25 655	17 814	13 895
Equity:Capital	**72%**	**77%**	**78%**	**83%**	**86%**
Debt:Capital	**28%**	**23%**	**22%**	**17%**	**14%**

However, it must be noted that the capital structure in table 9 is based on the actual invested capital position, and additional calculation is presented based on the targeted capital structure in table 10.

The IDC's target debt-to-equity ratio as defined in its constitutional documents states that it can increase its leverage up to a debt-to-equity ratio of 40%. The most recent financial period's leverage position is at the target ratio of 29%, whilst all prior years are well below this. As a result, a second WACC calculation is presented using the target debt-to-equity ratio of 40% for all periods, which translates into a debt to total invested capital of 29% and an equity to total invested capital of 71%, presented in table 10.

Table 10: WACC result (calculation based on the target capital structure)

	Audited 2015	Audited 2014	Audited 2013	Audited 2012	Audited 2011
WACC:	*11,58%*	*9,70%*	*9,59%*	*9,18%*	*9,77%*
Cost of Equity	**14,73%**	**12,33%**	**12,34%**	**11,87%**	**11,87%**
Pre-Tax Cost of Debt	5,4%	4,5%	4,0%	3,6%	6,4%
Tax rate	28%	28%	28%	28%	28%
After-Tax Cost of Debt	**3,9%**	**3,3%**	**2,8%**	**2,6%**	**4,6%**
Equity:Capital	**71%**	**71%**	**71%**	**71%**	**71%**
Debt:Capital	**29%**	**29%**	**29%**	**29%**	**29%**

5.1.1.2. Net operating profit less adjusted taxes (NOPLAT)

The net operating profit less adjusted taxes (NOPLAT), reflected in table 11, is calculated from the operating profit, obtained from the statement of comprehensive income in table 6. An adjustment to include the other comprehensive income has been assumed in arriving at the NOPLAT, with the reasons thereof discussed in chapter 6. The adjusted taxes are calculated using the South African corporate tax rate of 28%.

Table 11: Net operating profit less adjusted taxes (NOPLAT)

NOPLAT:	2015	2014	2013	2012	2011
Net Operating Profit	-17 005	9 079	655	2 733	13 049
Adjusted Taxes (@ 28%)	4 761	-2 542	-183	-765	-3 654
NOPLAT	*-12 244*	*6 537*	*472*	*1 968*	*9 395*
Adjusted NOPLAT	**-17 005**	**9 079**	**655**	**2 733**	**13 049**
Operating Profit	1 718	1 953	1 704	2 228	1 388
Available-for-sale financial assets adjustments	-18 700	7 146	-998	543	11 639
Share of comprehensive income of associated and joint ventures	-23	-20	-51	-38	22

The inputs from the WACC and NOPLAT are applied to the discounted economic profit model to calculate the economic profit result.

5.1.1.3. Discounted economic profit result

Tables 12 and 13 reflect the final economic profit results, where results from table 14 are based on the actual capital structure, and the results from table 15 are based on the target capital structure.

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Table 12: Economic profit result (based on the actual annual capital structure)

	Audited 2015	Audited 2014	Audited 2013	Audited 2012	Audited 2011
Invested Capital[1]	118 426	128 886	116 564	106 879	102 168
x WACC[2]	11,65%	10,29%	10,25%	10,32%	10,88%
Capital Charge	13 800	13 258	11 951	11 034	11 121
NOPLAT[3]	-12 244	6 537	472	1 968	9 395
- Capital Charge	-13 800	-13 258	-11 951	-11 034	-11 121
Economic Profit	-26 043	-6 721	-11 479	-9 066	-1 725

[1] Invested Capital comprises retained earnings and interest-bearing debt

[2] WACC calculation based on the actual (annual) debt-to-equity ratio

[3] NOPLAT (Adjusted for Other Comprehensive Income Earnings)

Table 13: Economic profit result (based on the target capital structure)

	Audited 2015	Audited 2014	Audited 2013	Audited 2012	Audited 2011
Invested Capital[1]	118 426	128 886	116 564	106 879	102 168
x WACC[2]	11,58%	9,70%	9,59%	9,18%	9,77%
Capital Charge	13 715	12 500	11 177	9 809	9 978
NOPLAT[3]	-12 244	6 537	472	1 968	9 395
- Capital Charge	-13 715	-12 500	-11 177	-9 809	-9 978
Economic Profit	-25 959	-5 963	-10 706	-7 841	-583

[1] Invested Capital comprises retained earnings and interest-bearing debt

[2] WACC calculation based on the target debt-to-equity ratio

[3] NOPLAT (Adjusted for Other Comprehensive Income Earnings)

5.1.2. Social output index results

Secondary data originating from the IDC's internal data on annual approvals have been used to calculate the inputs to the model. The data is chronological over the financial periods from April to March each year, over the 2012 to 2015 periods. Data obtained for the 2011 period was incomplete and thus the results therein could not be relied upon and have been excluded. The results are reflected in sub-sections 5.1.2.1. to 5.1.2.4 to address the research questions in chapter 3.

5.1.2.1. Output index results for 2015

The output of the OI model in table 14 yields a Z-score greater than 1, indicating that the IDC lends comparatively less to low income groups or SME's.

Table 14: Output Index (OI) Z-score for 2015

Annual Lending Per Income Group (2015)					
Revenue (ZAR)	Number of Loans	Amount in ZAR	Income Group	Total amount per Income Group	Weights
<67m	192	2 009 680 284	Low	2 009 680 284	0,5
68m-150m	54	1 552 083 730	Medium	1 552 083 730	0,3
>150m	97	7 917 089 782	High	7 917 089 782	0,2
	343	11 478 853 797	3	11 478 853 797	1
OI^w					0,27
OI^{wn}					0,33
Z					1,25

A second calculation of the 2015 data has been conducted, analysing of the portfolio based on whether the IDC facilitates and enables the establishment of new business enterprises and is depicted in table 15.

The outputs of the OI model in table 15 yields a Z-score greater than 1 in both instances, indicating that for new business enterprises, the IDC lends comparatively less to low income groups or SME's; and for existing enterprises, the IDC lends comparatively less to low income groups or SME's.

Table 15: Output Index (OI) Z-scores for new versus existing enterprises (2015)

Annual Lending Per Target Sector - Funding of New versus Existing Business Enterprises					
	New Business Enterprises		Existing Business Enterprises		
	Value	Number of Loans	Value	Number of Loans	Weights
Low	1 391 413 089	81	1 014 040 163	52	0,5
Medium	1 074 184 270	22	907 777 659	23	0,3
High	3 977 900 473	41	6 006 591 536	25	0,2
	6 443 497 832	144	7 928 409 358	100	
OI^w	0,28		0,25		
OI^{wn}	0,33		0,33		
Z	1,18		1,33		

5.1.2.2. Output index results for 2014

The output of the OI model in table 16 yields a Z-score greater than 1, indicating that the IDC lends comparatively less to low income groups or SME's.

Table 16: Output Index (OI) Z-score for 2014

Annual Lending Per Income Group (2014)					
Revenue (ZAR)	Number of Loans	Amount in ZAR	Income Group	Total amount per Income Group	Weights
<67m	143	1 342 749 885	Low	1 342 749 885	0,5
68m-150m	38	1 379 417 923	Medium	1 379 417 923	0,3
>150m	75	13 792 423 521	High	13 792 423 521	0,2
	256	16 514 591 329	3	16 514 591 329	1
OI^w					0,23
OI^{wn}					0,33
Z					1,43

The outputs of the OI model in table 17 yields a Z-score greater than 1 in both instances, indicating that for new business enterprises, the IDC lends comparatively less to low income groups or SME's; and for existing enterprises, the IDC lends comparatively less to low income groups or SME's.

Table 17: Output Index (OI) Z-scores for new versus existing enterprises (2014)

Annual Lending Per Target Sector - New Entrepreneurs					
	New Entrepreneurs		Existing Entrepreneurs		
	Value	Number of Loans	Value	Number of Loans	Weights
Low	733 981 005	70	608 768 880	67	0,7
Medium	750 466 608	11	628 951 315	25	0,2
High	1 778 327 703	14	12 014 095 818	56	0,1
	3 262 775 316	95	13 251 816 013	148	1
OIw	0,26		0,13		
OIwn	0,33		0,33		
Z	1,29		2,52		

5.1.2.3. Output index results for 2013

The output of the OI model in table 18 yields a Z-score greater than 1, indicating that the IDC lends comparatively less to low income groups or SME's.

Table 18: Output Index (OI) Z-score for 2013

Annual Lending Per Income Group (2013)					
Revenue (ZAR)	Number of Loans	Amount in ZAR	Income Group	Total amount per	Weights
<67m	199	1 984 264 840	Low	1 984 264 840	0,5
68m-150m	64	1 627 191 885	Medium	1 627 191 885	0,3
>150m	110	12 197 377 238	High	12 197 377 238	0,2
	373	15 808 833 963	3	15 808 833 963	1
OI^w					0,25
OI^{wn}					0,33
Z					1,34

The outputs of the OI model in table 19 yields a Z-score greater than 1 in both instances, indicating that for new business enterprises, the IDC lends comparatively less to low income groups or SME's; and for existing enterprises, the IDC lends comparatively less to low income groups or SME's.

Table 19: Output Index (OI) Z-scores for new versus existing enterprises (2013)

Annual Lending Per Target Sector - New Entrepreneurs					
	New Entrepreneurs		Existing Entrepreneurs		
	Value	Number of Loans	Value	Number of Loans	Weights
Low	1 326 251 331	92	658 013 509	71	0,5
Medium	511 435 929	13	1 115 755 956	42	0,3
High	1 908 165 780	17	10 289 211 458	68	0,2
	3 745 853 040	122	12 062 980 923	181	1
OI^w	0,32		0,23		
OI^{wn}	0,33		0,33		
Z	1,04		1,48		

5.1.2.4. Output index results for 2012

The output of the OI model in table 20 yields a Z-score greater than 1, indicating that the IDC lends comparatively less to low income groups or SME's.

Table 20: Output Index (OI) Z-score for 2012

Annual Lending Per Income Group (2012)					
Revenue (ZAR)	Number of Loans	Amount in ZAR	Income Group	Total amount per Income Group	Weights
<67m	278	2 178 143 603	Low	2 178 143 603	0,5
68m-150m	73	1 925 233 847	Medium	1 925 233 847	0,3
>150m	127	13 408 166 321	High	13 408 166 321	0,2
	478	17 511 543 771	3	17 511 543 771	1
OI^w					0,25
OI^{wn}					0,33
Z					1,34

The outputs of the OI model in table 21 yields a Z-score greater than 1 in both instances, indicating that for new business enterprises, the IDC lends comparatively less to low income groups or SME's; and for existing enterprises, the IDC lends comparatively less to low income groups or SME's.

Table 21: Output Index (OI) Z-scores for new versus existing enterprises (2012)

Annual Lending Per Target Sector - New Entrepreneurs					
	New Entrepreneurs		Existing Entrepreneurs		
	Value	Number of Loans	Value	Number of Loans	Weights
Low	1 002 537 751	110	1 175 605 852	102	0,5
Medium	470 068 395	16	1 455 165 452	38	0,3
High	5 846 011 848	23	7 562 154 473	69	0,2
	7 318 617 994	149	10 192 925 777	209	1
OI^w	0,25		0,25		
OI^{wn}	0,33		0,33		
Z	1,35		1,34		

The next section of chapter 5 discusses each of the research questions from chapter 3 specifically.

5.2.   Research Question One

To what extent does the IDC generate positive economic profits?

The results indicate that, on an accounting basis, the IDC earns accounting profits in the periods 2011 to 2014, however an accounting loss is encountered in 2015, as shown in table 5. Beyond the accounting profits, and by taking account of the capital charge or economic costs associated with the invested capital, the economic profit of the IDC is negative in all financial periods, as shown in table 8. Table 9 depicts the economic profit result based on the capital charge calculated at the target debt-to-equity ratio, which yields a lower WACC and capital charge. At this rate, the economic profits of the IDC are still negative.

From a theoretical interpretation, value is being destroyed as the earnings are not sufficient to cover both the explicit costs as well as the implicit costs, where the latter is reflected in the capital charge.

5.3.   Research Question Two

Which factors are the most important drivers of economic profit for the IDC?

Based on the discounted economic profit equation, value is generated either through increased earnings, or accounting profits and/or through a lower capital charge. Table 5 reflects that the IDC earned operating profit ranging between a low of approximately ZAR1.2 billion and a high of approximately ZAR2.1 billion over the period analysed, equating to a 75% difference between its high and low operating profitability.

In table 6, the WACC has been increasing year-on-year from an average annual rate of 11.87% in 2011 to 14.73% in 2015. The components of the WACC show that the lower cost component of its financing charge comes from debt, however based on the capital structure most of the financing is through equity, which has a higher cost attached to it.

The IDC can aim to improve its economic profit and thus value creation, through the increase in its NOPLAT, stemming from interest income and non-interest income earned and growth in investments in the portfolio.

Such investments however do not always yield the full expected returns and instead result in an impairment charge, that is included in the expenses in table 5. Managing these impairment charges have already been identified by the IDC as an area for improvement in its annual results announcement for 2015 (IDC, 2015a). However, given the significance of the negative economic profit yielded, this on its own is not sufficient to contribute to value creation at the current profitability levels.

In addition, the capital charge can be lowered to yield higher economic profit through changes in its capital structure, where debt has a lower cost attached to it; and/or through lowering its invested capital on its balance sheet by returning capital to the shareholders. Increased leverage to lower the WACC, and a subsequent lowered capital charge, must be sought to enable a positive economic profit. However, an optimal level of higher leverage must be evaluated to the extent that the increased risks associated with higher leverage do not increase the cost of equity to levels that render the WACC higher overall.

The results overall indicate that the IDC can aim for positive economic profit through increased operating activity and higher profitability and by a reduced capital charge through the lowering of its WACC or lowering of its total invested capital.

5.4.   Research Question Three
Does the IDC deliver in achieving its social objectives and development impact?

With regard to the funding of SME's, the results in tables 14 to 21 in section 5.1.2 indicate that the IDC lends comparatively less to SME's, and in all financial periods from 2012 to 2015 analysed, the Z-scores of the OI model are greater than 1.

The results further indicate that when funding new business enterprises, the IDC also lends comparatively less to SME's. There is only one period, in 2013, that the funding of new business enterprises, where the Z-score is near close to 1 in table 19. Where a Z-score equals 1, this indicates that the lending is comparatively the same across groups. In this case, it could be argued that in this period the IDC lends comparatively the same across income-groups of newly established enterprises.

Overall, the results indicate that there is room to direct and re-allocate resources to fund more SME's, both existing and new enterprises.

5.5. Research Question Four

Do trade-offs between profit and development exist for the IDC?

The case to be made that trade-offs exist requires that one objective is achieved at the expense of another. For this research, the profit objective and development objective have been examined to establish whether a trade-off exists.

The results from the economic profit model show that the IDC is not earning economic profits above its cost of capital. Similarly, the OI model shows that in the case of SME funding, the IDC is not achieving this objective.

Therefore from the results of the research for both models, it is inconclusive to make the argument that trade-offs exist between economic profit and development for the IDC. The results also do not confirm that trade-offs do not exist for a development finance institution.

5.6. Concluding Remarks

In contribution to the body of knowledge for this branch of academic research, the analytical results show that the South African development finance institution does not create value nor does it exceed in its development contribution to the funding of existing SME enterprises and new SME enterprises.

This research should provide insights to decision-makers to apply such theoretical frameworks in their objective-setting so that resources are directed optimally to enable maximum impact, both financially and socially.

CHAPTER 6: DISCUSSION OF RESULTS

6.1. Introduction

The results of the research findings from chapter 5 are discussed herein, where the format for discussion is similar to that presented in the previous chapter, where each of the research questions of chapter 3 are addressed separately. The research questions have been addressed through the literature review, and research findings are compared to prior research and studies in the literature review.

6.2. Research Question One

To what extent does the IDC generate positive economic profits?

The economic profit results are reflected in table 12 and table 13. A positive result indicates that economic profit is earned above that of accounting profit and that value is being created for the shareholders of the invested capital. A negative result indicates that value has been destroyed (Besanko et al., 2013).

The economic profit is calculated by subtracting the capital charge associated with invested capital from the net operating profit less adjusted taxes (NOPLAT), where the capital charge is estimated by multiplying the WACC to the invested capital (Koller et al., 2015). The WACC percentage has a material effect on economic profit, and the sensitivity of the WACC shown in table 12 and table 13 reflects that, *ceteris paribus*, the economic profit improves as the WACC reduces.

6.2.1. Inputs to the economic profit results

In calculating the economic profit results, several inputs herein had to be calculated first. These inputs are reflected in chapter 5 as follows:

- The accounting metrics and figures from the statement of financial position and statement of comprehensive income presented in table 4 and table 5 respectively. Table 5 reflects the accounting profit, which is the starting point in arriving at the NOPLAT (Alam & Nizamuddin, 2012); and from table 4 the capital structure is obtained from the invested capital (Koller et al., 2015);

- The inputs to the WACC calculation are reflected in table 6, table 7, and table 8. Table 6 reflects the cost of equity, and table 7 reflects the average cost of equity and average cost of debt, using historical secondary data. It is important to highlight that the cost of equity has been calculated by the IDC using the CAPM method, which is consistent with the literature in Koller et al. (2015) and KPMG (2013). Table 8 reflects the invested capital for each period that is calculated from table 4, and provides the actual capital structure, represented by the debt-to-total invested capital and equity-to-total invested capital weightings.
- Table 9 reflects the WACC result, based on the actual annual capital structure. Table 10 is similar to table 9, with the exception that the WACC is calculated based on the target capital structure of a debt-to-equity ratio of 40%, which translates into a debt-to-total invested capital weighting of 28% and an equity-to-total invested capital weighting of 72%;
- The NOPLAT is reflected in table 11 and is based on the adjustments to the accounting profits reflected in table 5. Further discussion on the NOPLAT calculation reflected in section 6.2.2.3 and 6.2.2.4.

6.2.2. The economic profit results

In table 12, the economic profit result is measured by its actual capital structure and shows that the IDC is not generating profits in excess of its cost of capital. Similarly, using the target capital structure and commensurate WACC from table 10, the IDC does not generate economic profits as shown in table 13. By definition, the IDC is thus destroying value (Besanko et al., 2013), in carrying out its operating activities.

The results are not surprising, as it has been found in the literature review that, in most instances, the private and public banks do not generate positive economic profits when appraised using value-based systems (Munteanu & Brezeanu, 2012; Raiyani & Joshi, 2012; Thampy & Baheti, 2000). Whilst the research shows very little evidence of value creation when applying value-based systems, value destruction is cause for concern for public and private banks that rely on the capital markets to raise funds; and where returns generated are below the cost of capital this makes it challenging to entice investors to invest their capital (Thampy & Baheti, 2000).

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Equally important is that these financial institutions, whether public or private, pursue value creation in order to maintain their financial independence and positive market sentiment. For development finance institutions that are owned and controlled by the government, financial sustainability and financial independence is of utmost importance to ensure that they do not become a financial burden on the national fiscus (Teka et al., 2011).

It is important to highlight that in arriving at the final result, in some instances adjustments, estimations and assumptions must be made. For this research, the following must be noted in 6.2.2.1 to 6.2.2.5 regarding the manner in which the research findings have been established in chapter 5.

6.2.2.1. Invested capital

The traditional approach to calculating invested capital involves summation of the equity and liabilities of the company, where the assumption is financial liabilities are long-term sources of financing. However, this approach cannot be relied upon for financial services companies as the assumption about financial liabilities do not hold, and a better approach to arriving at invested capital for financial services companies can be done by subtracting non-financial liabilities from the invested capital on the balance sheet. This is referred to as the operating method (Costa, 2012).

Another method appropriate to financial services companies suggested and applied by Costa (2012) is to measure the risk-weighted assets, using the Basel standard-ratings based model, where the risk-weighted assets makes adjustments for risks inherent in financial services companies such as credit risk, market risk and operational risk. This method has not been applied to the calculation of invested capital in table 8 of chapter 5 as South African development finance institutions are not required to comply with the Basel regulatory requirements in this regard, primarily because they are not deposit-taking institutions.

The invested capital calculated in table 8 in chapter 5 has been determined using the operating method by Costa (2012). However, the liabilities included in the invested capital include both the interest-bearing borrowings and the interest-free loans from subsidiaries in the determination of the invested capital (IDC, 2015b).

The reason for this is that whilst they are interest-free on an explicit cost basis, upon consolidation of financial results between the parent and the subsidiary, such interest-free loans would attract an implicit cost with regard to true economic principals, thus these loans are not free of cost.

No further adjustments to the invested capital have been made as most of the assets in the statement of financial position are reported at their latest fair value (IDC, 2015b). Thus the economic profit results in chapter 5 are reflected at their 'true' economic value (Koller et al., 2015).

6.2.2.2. The cost of equity

Costa (2012) states that the use of the cost of equity calculated using the CAPM model may be challenging in emerging markets, where key variables or inputs into the model are non-existent. In the case of such markets, Costa (2012) provides a proxy for the cost of equity, being the after-tax returns in the interbank market rate, an approach that is applied in the Brazilian market.

As can be seen in table 6, the IDC derives its cost of equity using the capital asset pricing model (CAPM), which is consistent with market norms in the financial services industry in South Africa, based on KPMG's cost of capital and impairment testing study in 2012 (KPMG, 2013).

The IDC inputs to the WACC are readily available and thus no proxy has been applied, except in the 2011 period. For the 2011 year, the nominal cost of equity data was not obtained from the company-specific data, however an assumption has been made in this regard.

Assessment of the SARB data on South African interest rates (Global Interest Rates, 2015), in table 22, shows that the interest rate position from 2010 to 2012 shows modest movements in a downward trajectory, suggesting that the risk-free rate in 2011 should be close to the 2012 position. As such, the cost of equity for 2012 has been assumed for the 2011 period as well.

Table 22 - SARB latest interest rate changes

change date	percentage
july 23 2015	6.000 %
july 17 2014	5.750 %
january 29 2014	5.500 %
july 19 2012	5.000 %
november 19 2010	5.500 %
september 09 2010	6.000 %
march 25 2010	6.500 %
august 14 2009	7.000 %

Source: (Global Interest Rates, 2015)

In terms of the reasonability of the discounts rate applied to the research, literature for the South African market indicates that the cost of equity applied is realistic, where the average cost of equity for South African banks is in the range of 10-12% (Jones, 2015).

In a separate periodic study conducted by KPMG, the average cost of capital in 2012 was 13.5% and in 2011 was 12.3%, and the average cost of equity in 2012 was 14.16% and in 2011 was 13.58% (KPMG, 2013). Their study also revealed that most companies in South Africa adopt the CAPM model to determine their cost of capital, and in terms of the cost of capital parameters, the following was also noted (KPMG, 2013):

- The risk-free rate applied was based on the national government bonds with an average life of 13 years, and during 2012 the risk-free rate equated to 8.16%;
- The average market risk premium applied was 6% in 2012, and 5.7% in 2011;
- Historic betas from peer group betas were utilised in determining the cost of equity;
- The average after-tax cost of debt was 6.69% during 2012, and was 8.12% in 2011;

- Most companies calculated their debt-to-equity ratio based on book values, and the average debt-to-equity ratio was 32%.
- The overall average WACC determined by South African companies was 13.5% during 2012, and was 12.3% in 2011.
  Source: (KPMG, 2013)

For the most part, in observing the ratios in the KPMG report, the inputs in the cost of capital in the WACC calculations in chapter 5 are considered reasonable for the research conducted.

6.2.2.3.   The net operating profit after taxes (NOPAT)

Costa (2012) states that adjustments must be made to four key items in the financial statements to arrive at a more realistic NOPAT figure. These relate to loan loss provisions, deferred tax liabilities, goodwill arising from acquisitions, and non-operating income. Cognisance of these adjustments have been taken into account for the IDC calculations and are discussed in section 6.2.2.4.

6.2.2.4.   The net operating profit less adjusted taxes (NOPLAT)

Koller at al. (2015) states that the NOPLAT refers to the net operating profit less adjusted taxes; and it comprises of after-tax profit generated from core operations. It therefore excludes income from non-operating assets or financing expenses. NOPLAT is used in the discounted economic profit model as this profit represents profit available to all investors that include equity and debt providers, whereas net income represents profit available only to equity holders (Koller et al., 2015). Whilst the terminology is different between Koller et al. (2015) and Costa (2012), the components of NOPLAT and NOPAT are similar, thus the principles of both have been applied to the research.

It is appropriate to use NOPLAT in the model because the discount rate applied is the WACC, which is the cost of capital to all investors and not only equity providers, where the latter would require discounting equity cash flows by the cost of equity only (Koller et al., 2015).

In the case of the IDC the 'other comprehensive income', below operating profit in the statement of comprehensive income as depicted in table 6, has been included in the calculation of the NOPLAT for the results in chapter 5. The reason for this inclusion is due to an assumption being made, that this income is also derived from the operating activities of the IDC, where these investment assets reside in its equity portfolio and that it is considered an integral part of the company's operating income (IDC, 2015b). Further to this, the dividend income received from these investments is included in the revenue and as a result of this being recorded in the revenue, the growth in the assets, represented in the 'other comprehensive income', has also been included to arrive at the NOPLAT figures.

6.2.2.5. Marginal tax rate and after-tax cost of debt

The income tax rate for South African companies is 28% (South African Revenue Services, 2015), and has been assumed for the marginal tax rate in the calculation of the after-tax cost of debt for the WACC calculations in table 9 and table 10.

Compared to the average after-tax cost of debt of 6.69% during 2012 and 8.12% during 2011 in KPMG (2013), the IDC's cost of debt is much lower as the development finance institution has been able to attract borrowings at much cheaper borrowing costs than the market (IDC, 2015b). A lower cost of debt has a positive impact on the WACC and contributes to lowering the overall WACC.

6.3.   Research Question Two
Which factors are the most important drivers of economic profit for the IDC?

Bell III, L. W. W. (1998) and Costa (2012) both provide mechanisms to increase economic profit and thus value in a company, where value can be created through increased profits or through the reduction in the capital charge or cost of capital of the invested capital in the company.

6.3.1. Increased profitability

For the IDC, improvement to the profitability can be considered as one way to improve the economic profit. This can be achieved through higher income from net interest income and non-interest income on the revenue side, and/or through a reduction in the impairment charge on the cost side (IDC, 2015b). The former can be achieved through growth in assets to increase the overall net interest margin for loans as well as increased dividend income and fair value for the equity portfolio (Bell III, L. W. W., 1998).

The proposal to increase the net interest margin is considered realistic, given that the South African banking sector reflects an upward trajectory in the net interest margin over the 2007-2014 period in figure 8 of section 2.3, peaking at approximately 4.3% (EY, 2015; PwC, 2015). The IDC by contrast has earned a net interest margin of 3.3% (IDC, 2015b), which is still below the SARB average of 3.9% (South African Reserve Bank, 2015), indicating scope for an increase in line with the market average.

However, improvement to revenue may prove more challenging given that development finance institutions by their nature are expected to offer concessionary interest rates as compared to commercial banks (Culpeper, 2012; Qobo & Motsamai, 2014). Thus the ability to improve the net interest margin may prove challenging in the context of development finance institutions addressing a market failure.

Improvement in the total income from the above would require a review of the quality of the asset portfolio and/or re-pricing of the lending products (EY, 2015). Commensurate strategies would be required to improve the asset quality in order to lower the loan loss provisions and the impairment charge to the statement of comprehensive income. However, this can prove challenging as poor asset quality and high loan loss provisions are apparent in development finance institutions who perform poorly (Adesoye & Atanda, 2014; Calice, 2013), and thus the position of the IDC is similar to that found in other development finance institutions. The expectation therefore for a quick turnaround in the asset quality of the portfolio may be considered unrealistic, and perhaps inherent in the nature of development finance institutions given the riskier profile of their borrowers, compared to commercial banks.

The South African banking trend shows that credit impairments are on a downward trajectory since 2009 up until 2014 (EY, 2015), as depicted in figure 9. However, for the IDC, the impairment charge has remained sticky and slightly upward, as depicted in figure 7 (IDC, 2015a), and at a much higher level than its peers in the banking sector. However, mindfulness of the development finance institution's role to address a market failure created by the banks must be considered (Bertay et al., 2015; Culpeper, 2012; Luna-Martinez & Vicente, 2012), as the banks have been able to reduce their credit impairment ratio through contractionary lending to economic agents viewed as high risk (EY, 2015).

Another alternative and simplified solution to overcoming losses in poor asset quality loans regarding re-pricing is to charge a large enough risk premium above the loss on the defaulted loans (Costa, 2012), where the risk premium will offset these losses and generate value for the financial institution.

For development finance institutions, such a solution is not as straightforward as higher risk premiums such as those charged by commercial banks would negate their development mandate and their ability to fill the market gap in the financial sector.

Regarding expenses, reduction in the impairment charge however is but one type of operating expense that the financial institutions can manage downwards. A review of other operating expenses and employing other measures of cost discipline can also be made to improve profitability. Another material operating expense incurred by financial services companies relates to its cost-to-income, where the cost-to-income ratio is often quoted as a key ratio in evaluating bank performance. The IDC's cost-to-income ratio of 22% (IDC, 2015b) is much lower than the banking average depicted in table 2 of approximately 54% (EY, 2015; PwC, 2015; South African Reserve Bank, 2015). It can therefore be argued that the IDC's cost containment is well managed relative to its banking sector peers, and that it should therefore focus on ways to improve its revenue and manage the quality of its assets to reduce losses on default in order to contribute to a higher economic profit for all of its stakeholders.

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6.3.2. Reduction of the capital charge or invested capital

The capital charge reflects the implicit cost and is integral in determining economic profit. Such a reduction will have a positive impact to the economic profit result, therefore a company should consider all reasonable steps in reducing this implicit charge (Bell III, L. W. W., 1998; Costa, 2012). As can be seen from table 9 and 10, the capital structure has a meaningful impact on the WACC of the company and this in turn will have a major impact on the capital charge used in the discounted economic profit model. Whilst the results in tables 12 and 13 in chapter 5 show negative economic profits in both instances, the sensitivity shows that, *ceteris paribus,* with a reduction in the capital charge the economic profit improves.

The average cost of equity and of debt in table 7 in chapter 5 show that equity capital is significantly more expensive than debt capital. The results further show that in the WACC calculations, the capital structure of the IDC is skewed towards being primarily equity-funded, indicating that the capital charge or the WACC would lean closer to the cost of equity.

Thus the development finance institution could consider, *ceteris paribus*, higher leverage in order to reduce the capital charge, especially since its average cost of borrowings is much cheaper than the market average (IDC, 2015b; KPMG, 2013). Alternatively, the total invested capital could also be reduced, such as through capital redemptions to shareholders, in order to reduce the capital charge (Bell III, L. W. W., 1998).

6.4.   Research Question Three
Does the IDC deliver in achieving its social objectives and development impact?

The social output index model developed by Francisco et al. (2008) has been applied to the research to address this research question. The analysis has been conducted by analysing the portfolio by splitting the portfolio based on the size of the enterprise and secondly by the split in funding of new entrepreneurs versus funding of existing entrepreneurs.

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In the application of the model, assumptions have been made with regard to:

- the weightings and proxies for measurement;
- the categorisation of the income groups based on enterprise turnover, where the categories for low, medium and high have been established.

The secondary data affirms enterprises that are categorised as small and medium enterprises (SME) (IDC, 2015b), whilst an assumption has been made for medium and large enterprises that are not classified as SME in order to build the categories into the OI model. Based on the income groupings, SME's are categorised as low and represent all business with turnover less than ZAR67 million, medium-sized enterprises are those that are not SME's but have turnover below ZAR150 million and large enterprises are categorised as high, with turnover in excess of ZAR150 million. The assumption for the weights is that development finance institutions are biased towards lending to SME's (Francisco et al., 2008), and thus a high weighting of 50% has been applied for the low income group, 30% for medium sized enterprises and 20% for large enterprises classified as high.

The results interpreted are based on the output of the Z-score, given by:

- If Z < 1: Government lends comparatively more to lower income groups
- If Z = 1: Government lends comparatively the same across income groups
- If Z > 1: Government lends comparatively less to lower income groups
  Source: Francisco et al. (2008)

6.4.1. Output index results for all periods tested

The results for all of the financial periods evaluated from 2012-2015, from table 14 to table 21 in chapter 5 show that the Z-scores are greater than 1, implying that the IDC lends comparatively less to SMEs in both the income group category as well as in the second categories for SMEs in new and existing business enterprises. The results further show that there is only one period where the Z-score is fairly close to 1 in the 2013 financial period, in table 19 in chapter 5, implying that the IDC is somewhat lending comparatively the same across income groups.

Overall the results show that, based on developmental impact to lend to SMEs, the IDC is not achieving this with much room for improvement and re-evaluation of its resource allocation should be considered (Francisco et al., 2008).

6.4.2. Output index results implications on development impact

The results of the social output index model provide insight to decision-makers in terms of setting strategic objectives for priority sectors and economic agents, and for the decisions regarding resource allocation; in as far as developmental outcomes are concerned (Francisco et al., 2008). The results from section 5.1.2 in chapter 5 imply that the development finance institution should re-evaluate its strategic objectives by placing greater emphasis on lending to SME businesses to align its strategies to those within the national policies.

6.5. Research Question Four

Do trade-offs between profit and development exist for the IDC?

To state that the development finance institution is experiencing a trade-off in the execution of its dual mandate is to state that the one objective is achieved at the expense of the other (Jouanjean & te Velde, 2013; Romero, 2014). This is examined by comparing the financial performance and development impact results in chapter 5.

6.5.1. Financial performance versus development impact using accounting profit

The literature confirms that at present, most measures of financial performance are conducted using traditional accounting measures (Francisco et al., 2008; Kingombe et al., 2011). By evaluating the trade-off relationship on this basis, the IDC earns accounting profits from the financial periods 2012 to 2014, with the 2015 financial period being an exception. Compared to the development outcomes of the social output index model in section 5.1.2, it can be argued that a trade-off exists as the development finance institution is earning accounting profits whilst its developmental objectives are not maximised.

However, evaluation of financial performance using only accounting measures makes it difficult to ascertain whether or not the entity is creating or destroying value. A further challenge to relying on accounting measures only is that, in the case of development finance institutions that are reliant on subsidy income, these accounting measures are subject to under or overstatement (Atanda, 2015).

Thus for the purpose of this research, the evaluation of the trade-off relationship is conducted using the economic profit measurement against the development impact, discussed in section 6.5.2.

6.5.2. Financial performance versus development impact using economic profit

The dichotomy between financial performance and development impact is evaluated by comparing the development outcomes against the economic profit results in chapter 5.

Based on the results, it is inconclusive to state whether or not a trade-off exists in the fulfilment of the IDC mandate, as the outcomes of economic profit and lending to SMEs both yield a negative results. It therefore cannot be argued that the dual mandate of a development finance institution is mutually exclusive.

6.6. Limitations

The limitations of the research highlighted in chapter 4 are re-iterated in this chapter. The research has used secondary data, which according to Saunders & Lewis (2012), may not be value neutral. In addition, Saunders et al. (2009) further describe the limitations inherent in the research design and that it may be subject to external validity, which describes the degree to which the research results are generalisable.

In addition, validity bias may be introduced through subject selection, due to the purposive technique applied in selecting the sample (Saunders & Lewis, 2012). The holistic case study method of a sample of one therefore does not allow the findings and conclusions to be generalised for the entire population, especially if the unit of analysis has atypical characteristics (Saunders et al., 2009).

6.6.1. Assumptions in the discounted economic profit model

Several estimations have been made in arriving at the economic profit result. These include assumptions for the cost of capital, invested capital and NOPLAT (Costa, 2012; Damodaran, 2009; Koller et al., 2015). The assumptions and estimations directly impact the result, and can thus affect the findings and conclusions of the research.

6.6.2. Assumptions in the social output index model

This area of research is limited with, only one known theoretical and quantifiable measure of social objectives, the social output index model (Francisco et al., 2008). The model in itself has its own limitations where subjectivity in regards to the weights applied in the OI^w formula is required. An over or under estimation of the weights can yield changes in the results with commensurate findings and conclusions, rendering the potential for bias.

Whilst the limitations regarding the lack of foundational development impact assessment tools for South African development finance institutions remain (Kwakkenbos & Romero, 2013), the research has applied one known 'universal' model to test the extent to which the South African development finance institution delivers on its mandate (Francisco et al., 2008). Therefore the result and recommendations for development may not be the absolute solution, as no other method of testing development impact in South Africa has been found. This in itself is a cause for further research, in the context of measuring the development impact of South African development finance institutions.

6.7. Concluding Remarks

6.7.1. Financial performance

The result regarding the financial performance of a South African development finance institution, using a value-based system, infers that development finance institutions in South African are not adding value to their stakeholders. This result finding is similar to most of the development finance institutions across the world, in particular in the African region and in India (Munteanu & Brezeanu, 2012; Raiyani & Joshi, 2012; Thampy & Baheti, 2000). However, such performance and value destruction cannot be ignored.

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Negative economic profit has several implications for an organisation, as stakeholders become reluctant to re-invest further capital, where this capital is eroded (Thampy & Baheti, 2000). At a national government level, failure of state-owned entities, including development finance institutions, places a financial burden on the fiscus (Moody's, 2015; Teka et al., 2011). Thus, reviews in the strategic objectives in terms of growth, appetite for assuming risk and pricing thereof become critical considerations to ensure sustained financial independence of the development finance institution.

6.7.2. Development impact

Similarly to the concerns regarding financial performance, the ability of the development finance institution to deliver on its development mandate is also key to its existence (Calice, 2013). For this research, the result shows that there is much less lending to SME's than to other categories of enterprises or economic agents, whilst the government has defined SME's in its NDP as key to economic growth of the South African economy.

The result of the social output index model suggests that re-evaluation of the allocation of resources to priority sectors must be sought, in order to maximise delivery of the development mandate.

CHAPTER 7:   CONCLUSION

7.1. Introduction

Development finance institutions have a dual purpose to fulfil (Romero, 2014; Runder, 2014). Regarding financial performance, sustainability and financial independence of South African development finance institutions in particular, is of utmost importance to minimise its financial dependence on national government to remain operational (Moody's, 2015; Teka et al., 2011). However, South African development finance institutions also have to fulfil a developmental role and must contribute to the success of national policies in as far as societal contributions and economic growth is concerned (Qobo & Motsamai, 2014). Compared to traditional or commercial banks whose primary purpose is profit-making (NCOP Trade and International Relations Committee, 2012), development finance institutions are faced with a dichotomy between profit-making and development impact.

This research contributes to the body of knowledge regarding the performance of development finance institutions, by conducting research on a case study method of a South African development finance institution.

7.2. Findings

The research employed two distinct theories, the McKinsey discounted economic profit model in Koller et al. (2015) to evaluate the financial performance, as well as the social output index model in Francisco et al. (2008) to evaluate the development impact of a South African development finance institution. The rationale for employing these two theories is against the backdrop of a development finance institution's dual-purpose mandate (Romero, 2014; Runder, 2014), namely the attainment of high development impact and simultaneous high financial performance.

7.2.1. Economic performance of a South African development finance institution

The McKinsey discounted economic profit model has been applied to the research to evaluate the extent of value creation or value destruction (Koller et al., 2015), in the deployment of financial resources of the IDC. The research finding from the economic profit results in chapter 5 suggests that, whilst achieving accounting profits, the IDC is not creating value for its stakeholders when the full cost of capital is accounted for.

Suggestions to improve the economic profit have been made in chapter 6 and relate primarily to improvements in profitability, as this affects the NOPLAT, and a reduction in the WACC, as this affects the capital charge when calculating the economic profit (Bell III, L. W. W., 1998; Costa, 2012). The findings provide the development finance institution's management and key decision-makers with insights into where economic profits emanate from, and allows for granularity of effort into the areas of improvement for the creation of value.

7.2.2. Development impact of a South African development finance institution

The second aspect of the research applied the social output index model in Francisco et al. (2008) to evaluate the development impact of the IDC. The research finding from the social output index model results in chapter 5 indicate that, in terms of lending to SME's, the IDC is not comparatively fulfilling this role, as more lending occurs to other spheres of business in the economic sectors that the IDC serves.

Similar to the insights for value creation from the discounted economic profit model, the social output index model allows key decision-makers with insight into how best to allocate scarce resources for maximum development impact.

7.2.3. Trade-offs between profit and development

Based on the results and findings, it is inconclusive to state whether or not a trade-off exists in the dichotomy between profit and development impact, as the results from both of the models in the research questions 1 and 3 yielded negative outcomes. Thus for this research, neither profitability nor development impact appears to be favoured over the other, and thus the research can neither concur or refute the argument made by Jouanjean & te Velde (2013) and Romero (2014).

7.3. Concluding remarks

The results of the research findings, as highlighted in 7.2.1 and 7.2.2, are insightful as these financial and development evaluations can be conducted at the organisation level to monitor and project its own performance.

In addition, the application of the models applied to this research is profound for stakeholders and decision-makers concerned with the development finance institution, as the results and outcomes enhances informed decision-making and resource allocation (Francisco et al., 2008), to optimise the operations of the development finance institution in order to drive both the financial and development performance levels higher.

7.4. Recommendations

Regarding the findings for this research, it is proposed that the IDC, the South African development finance institution appraised herein, consider the following towards enhancement of financial and development performance:

- Lowering of its cost of capital, primarily through optimisation of its capital structure (Bell III, L. W. W., 1998; Costa, 2012);
- Profitability improvement through increased revenue and a higher net interest margin in line with market norms as given by the South African Reserve Bank (2015), EY (2015) and PwC (2015). Considerations for adjustments to pricing and raising risk premiums for assuming higher risk can contribute to improved net interest margins;
- Improvement to profitability through higher asset quality to stem high credit losses to reduce the impairment charge (Luna-Martinez & Vicente, 2012; Moody's, 2015).

7.5. Limitations of the research

Regarding development impact, the IDC has multiple levels within its development mandate that it must fulfil, as given in its integrated report (IDC, 2015b), whilst the research evaluated that of lending to SME's. Given that the scope for development is much broader, further research into the full development mandate to evaluate performance is warranted.

The research has been conducted using the holistic case study method in Saunders et al. (2009), to evaluate the economic and social contribution of a South African development finance institution.

However, this research design has its main limitation regarding generalisation of results. For this research, the findings and recommendations cannot be fully applied to and generalised to the entire population.

7.6. Areas for future research

Given the limitations of the holistic case study design, the research findings cannot be generalised for the entire population of development finance institutions in South Africa (Saunders et al., 2009). As such, it is proposed that further research into the performance evaluation of other South African development finance institutions be carried out in order to further establish whether or not the research questions hold same; and through this, more generalised recommendations for improvement of the performance of South African development finance institutions can be made.

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APPENDICES

**Table 3. Components and data for determining the WACC**

Component	Methodology	Data requirements	Considerations
Cost of equity	Capital asset pricing model (CAPM)	• Risk-free rate • Market risk premium • Company beta	Use a long-term government rate denominated in the same currency as cash flows. The market risk premium is difficult to measure. Various models point to a risk premium between 4.5% to 5.5% To estimate beta, lever the company's industry beta to company's target debt-to-equity ratio.
After-tax cost of debt	Expected return proxied by yield to maturing on long-term debt	• Risk-free rate • Default spread • Marginal tax rate	Use a long-term government rate denominated in the same currency as cash flows. Default spread is determined by company's bond rating and amount of physical collateral. In most situations, use company's statutory tax rate. The marginal tax rate should match marginal tax rate used to forecast net operating profit less adjusted taxes (NOPLAT).
Capital structure	Proportion of debt and equity to enterprise value		Measure debt and equity on a market, not book, basis. Use a forward-looking target capital structure.

Source: (Koller et al., 2010. p. 237)

Sampling techniques

Figure 12: Sampling techniques for non-probability sampling
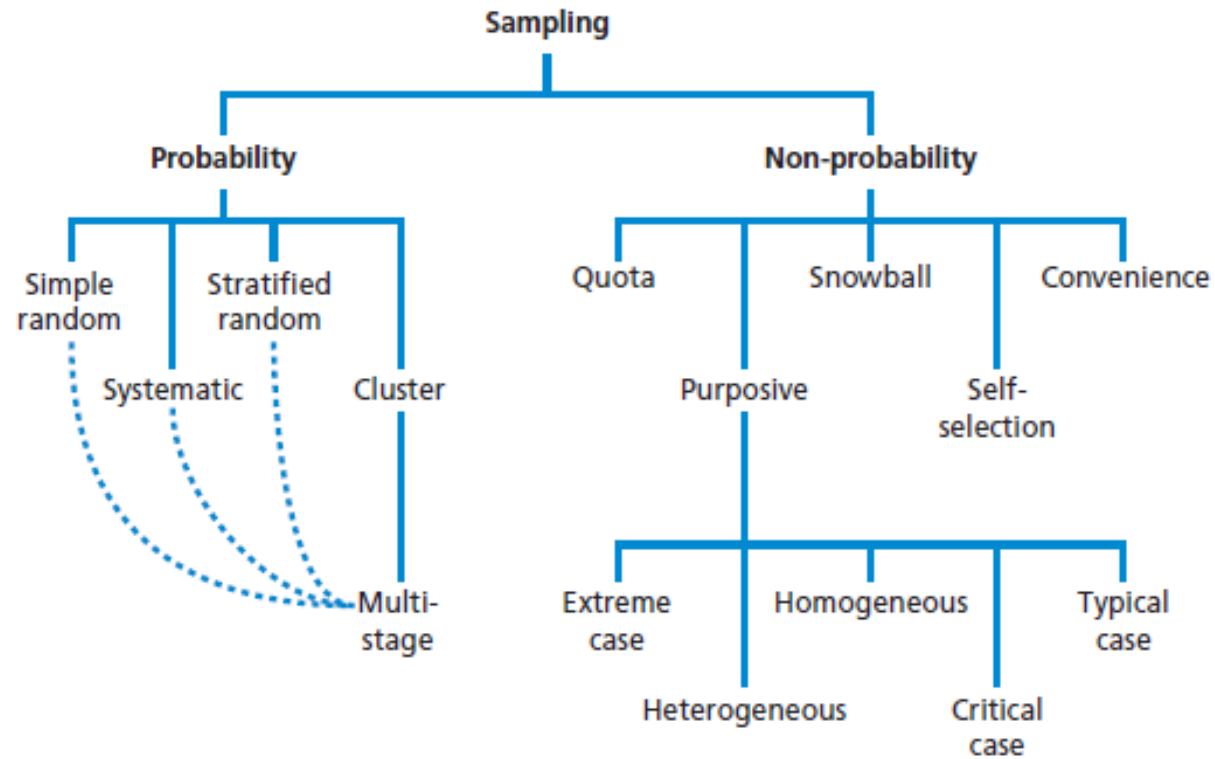
Source: (Saunders et al., 2009, p. 213)

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Equation 3: Residual income (RI)

Residual income$_t$ = net income$_t$ * (Ke$_t$ * Risk Capital$_t$)

Source: (Munteanu & Brezeanu, 2012)

Equation 4: standardised market value added (MVA)

MVA$_t$ = [Market value of equity$_t$ – Book value of equity$_t$] / average number of shares$_t$

Source: (Munteanu & Brezeanu, 2012)

Equation 5: Economic value-added (EVA)

EVA = NOPAT – (r$_e$ * E/(D+E) + (1-t)* r$_d$ * D/(D+E)) x K,

where,

Re = cost of equity, E = market value of equity, D= market value of debt, t = tax rate,

rd = the cost of debt, K = invested capital

Source: Costa (2012)

Equation 6: Cash-flow-to-equity (CFE) Discounted Cash Flow Model

Equity Discounted Cash Flow (DCF) Model

$$V_e = \sum_{t=1}^{\infty} \frac{CFE_t}{(1+k_e)^t}$$

where,

$CFE = NI_t - \Delta E_t + OCI_t$

(k_e) = Cost of equity

where,

CFE = equity cash flow

NI = net income

ΔE = the increase in the book value of equity

OCI = non-cash other comprehensive income

Source: (Koller et al., 2015)

Ethical Clearance

Gordon Institute of Business Science
University of Pretoria

Dear Mrs Candace Abrahams

Protocol Number: **Temp2015-01374**

Title: **The contribution of a development finance institution in South Africa: the economic contribution using an EVA approach and the social contribution using an OI approach.**

Please be advised that your application for Ethical Clearance has been APPROVED.

You are therefore allowed to continue collecting your data.

We wish you everything of the best for the rest of the project.

Kind Regards,

GIBS Ethics Administrator

Consent Letter Template

Memorandum

To: **General Counsel**

From: **Candace Abrahams**

Date: **25 June 2016**

REF.:   **Request to use IDC information in research**

SUBJECT: Approval for use of IDC internal information for research purposes

BACKGROUND

I am currently registered for Masters in Business Administration (MBA) with the Gordon Institute of Business Science (GIBS), University of Pretoria, and one of the requirements for the completion of the course is to do conclude a research topic. My proposed topic of research will be: "The contribution of a development finance institution in South Africa: the economic contribution using an EVA approach and the social contribution using an Output Index approach". This will require me to use some IDC information. This memo serves to seek permission to use IDC information from various sources and departments within the organisation, including but not limited to SAP, IDC reports, Financial Management department.

UNDERTAKING

No confidential information relating to IDC clients will be disclosed.

REQUEST

It is requested that permission be granted to use IDC internal information to conduct research.

Candace Abrahams
Senior Risk Manager: Risk Management Department

Approved:

Wendy Mathebula	**Bassy Makwane**
Head: Risk Management Department	**General Counsel**