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DEDICATION

I dedicate my dissertation work to my family. A special feeling of gratitude to my loving wife Florence whose words of encouragement and push for tenacity ring in my ears. And to my wonderful children Ashleigh and Aeydian.

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I would like to express my sincere gratitude to my supervisor, Dr S Abel for the continuous support of my study and related research.

ABSTRACT

The aim of the study was to explore the sustainable project financing options for mining financial performance. There is a low level of mining financing in Zimbabwe, which is negatively impacting on the contribution of the sector towards GDP and economic development which s has motivated the researcher to carry out the study. Theoretical and empirical literature was reviewed. The research was carried out in the mining sector using a survey. Quantitative research methods were adopted. A total of 100 questionnaires were administered to 33 mining companies. The reliability of the instrument was tested for reliability using Cronbach alpha which very high at 0.913 after a pilot test. Data was analysed using SPSS. Descriptive statistics, factor analysis and the correlation analysis were mostly used to analyse that data. The funding options were therefore correlated with financial performance to analyse their relationship. A positive and significant correlation was identified on all funding mechanisms identified in the factor analysis. The study concluded that the sustainable funding options available in the mining sector of Zimbabwe are project finance, finance by private equity, public bonds, corporate bonds and loans from banks and other financial institutions. The availability of funding options results in increased total annual revenues and increase in profitability. The study concluded that factors that affect mining financing are Project finance, Financing from private equity funds, Convertible loans, Public bonds, Corporate bonds, Government bonds. The ability of the sector to attract financing require that the laws governing mining in the country be transparent and investor friendly. Other issues that would require attention include the current indigenization laws should be clarified; the Staff Monitored Programme adhered to, the mining supporting infrastructure e.g. railway lines attended to.

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CHAPTER ONE

1.0 Introduction

The financing of mining projects and operations is of fundamental value to Zimbabwe, especially given the high importance of the sector in national economic development. However, funding options seem to be limited and are thus construing the viability of mining operations in the country. The focus of this study was on the sustainability of project financing options and how they can influence financial performance of mining companies in Zimbabwe. This chapter contains the background of the study, statement of the problem and objectives of the intended research. Also detailed are the significance of the study, its scope, dissertation outline and the chapter summary.

1.1 Background

Mining plays an active and key role in the economic development of nations the world over. For example, for gold alone, the World Gold Council (WGC) (2015) reported that, in 2012, gold mining contributed US$210 billion to the global economy, while downstream beneficiation in jewellery and investment products directly contributed a further US$110 billion. WCG(2015) noted that some countries are very reliant on gold mining, such as Papua New Guinea (15% of GDP), Ghana (8% of GDP), and Tanzania (6% of GDP) (WGC, 2015). In others, it is a key source of employment, for example, creating 98,000 jobs in China, 134,000 in Russia, and 146,000 in South Africa (WGC, 2015). In Botswana, Malema (2012) notes that mining has contributed on average 40 percent to total GDP. The financing of mines in this country has often been through government partnerships with private multinational companies (MNCs), with the example that mining of diamonds is under the auspices of Debswana, a joint venture between DeBeers and the Botswana Government.

Capital boycott of Zimbabwe led by international financial institutions and governments in response to exploding inflation, rocketing domestic interest rates and exchange rate collapse was soon reinforced by the introduction of economic &financial sanctions against the country which

hit hard on the mining sector predominantly capitalized by equipment originating from within sanctioning governments jurisdiction. Several of the larger established mining houses, as well as several junior players, slowed or shut down their operations temporarily as they considered the options for divesting and leaving the country. Commodity prices also never made it easier as their volatility made the operations highly sensitive to the impact of most external factors. Resultantly, a lot of more mining companies mothballed on working capital challenges.

Following the stable political and macroeconomic environment that persisted since 2009 as a result of the signing of the GPA and the adoption of the use of multiple currencies (mostly United States Dollar and South African Rand), a quasi-conducive environment for business planning and project execution emerged and Zimbabwe's mining sector thus embarked on a growth path. On the back of a strengthen commodity market the mining sector was poised to grow however underpinned by a robust investment to fund current and new projects. A census carried out by the Chamber of Mines – Zimbabwe, revealed that the sector required at least $3Bn to increase production capacity to match growth projections within a five-year period.

Table 1.1: Funding requirement by commodity.

Mineral	**Minimum Funding Requirement (USD Billions)**	**Expected Growth in Output by 2015 if Investment is Realized Timeously**
Gold	1.00	455%
Platinum Group Metals	1.20	40%
Ferrochrome	0.25	160%
Nickel	0.11	400%
Coal	0.28	218%
Diamonds (Kimberlite only)	0.30	100%

Source: Chamber of Mines - Zimbabwe

Considering the adoption of mining as the cornerstone of economic resuscitation by the Zimbabwean government, injection of funding into the various operations exploiting the wide array of commodities and different stages was prudent. Historical funding mechanisms which prevailed in the pre-hyperinflation era were characterized by private equity placements, project capital and venture capital. Skewed away from market orientation, the conventional funding options had to be complimented by innovative sources of funding which necessitated government to take leading role in constructive policy reforms to create conducive environment. As such, government mediated funding frameworks aimed at encouraging interaction between itself, mining entrepreneurs and investors to align goals and expectations when undertaking a mining investment.

The level of capital mobilization failed to meet investment needs into the sector based on unsupportive policy reforms enacted by government compounded by the impacts of poor prospectus of operations demonstrated by mining operators. Consequently, the sector failed to tap into pertinent funding options such as the capital markets and money markets which currently do not even provide for financing opportunities for small to medium size mining enterprises. In addition, the banking sector essentially does not share in the significant upside potential that is inherent in most mining projects and therefore cannot realistically be expected to take on more risk than is concomitant with a debt return, rather than an equity return (Benning, 2000). As a result, the banks restricted themselves to short-term facilities only for working capital requirements.

1.2.1 Mining Growth

Since the stimulation of the Zimbabwean economy by introducing multi-currency trading and liberalization of minerals marketing, frontline investment poured into the mining sector boosting minerals output and mining gross domestic product contribution. Gold, platinum, ferrochrome, and diamond mining companies received extensive capital to either resuscitate or ramp up output leading overall sector performance. However, the trend of growth of mining output reveals poor sector performance declining tremendously from 2010 from 37.4% to as low as -3.5% in 2014 owing to a variety of factors that include under-capacitation of small scale mining, prolonged mine closures, inadequate funding to develop new mines and lack of capital to fund mineral

output beneficiation assets. Revenues have also declined with $1.86Bn reported in 2015 against $1.9Bn in 2014(Muganyi, 2016). It is envisaged that the sectors' performance declined owing to financing constraints thereby contradicting the thrust to catalyze economic growth.

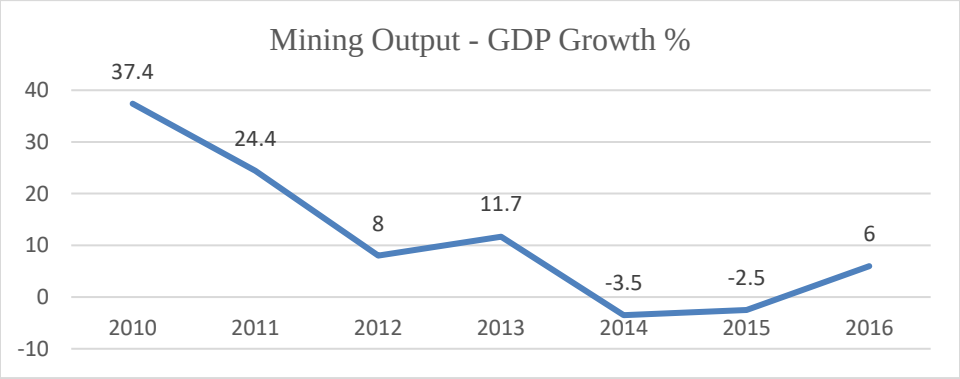


Figure 1.1: Mining GDP Growth; Source: Ministry of Finance

1.2.2 Mine closures and idle operations

Zimbabwe is endowed with mineral wealth and since independence to date over 1000mines have been developed and commissioned into production. The turbulent economy however mothballed several operations spanning the wide commodity landscape of Zimbabwe and currently with the economic reforms instituted to date to allow turnaround only 30% of the mining companies have either resumed operations or have been commissioned into production. The performance of the sector is critically inhibited by idle capacity due to capital shortages to bail out dormant assets. A snapshot mining sector output by commodity of the pre-hyperinflation period and current reveals a systematic gap which points out to downward shift in operating entities. It is critical for the performance of the sector to resuscitate existing mining operations.

The graphs below indicate how output in the key commodity facets has remained subdued even after the economy received stimulus from reforms that took after hyperinflation in 2009. This inferes that a substantial number of operations contributing to the sectors record performance in the late 90s remained under care and maintenance or on shutdown due to failure to secure

funding to resusciatate despite sitting on vast exploitable mineral reserves. As a result, overal performance of the sector continues to perform below projections.

Gold output highlights:

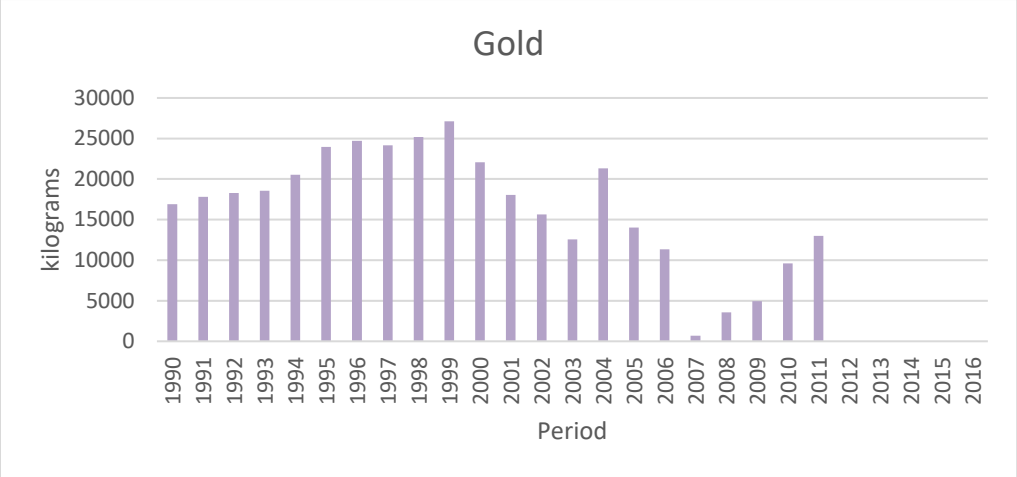


Figure 1.2: Gold Output

Source: Chamber of Mines (2015)

Gold output originates from both large-scale operators and rudimentary small-scale miners who have had no access to formal lines of credit to finance sustainable operation. Mining houses such as Metallon continue to lack expected contribution to output as they are running 1 out of 4 large scale operations.

Coal output highlights:

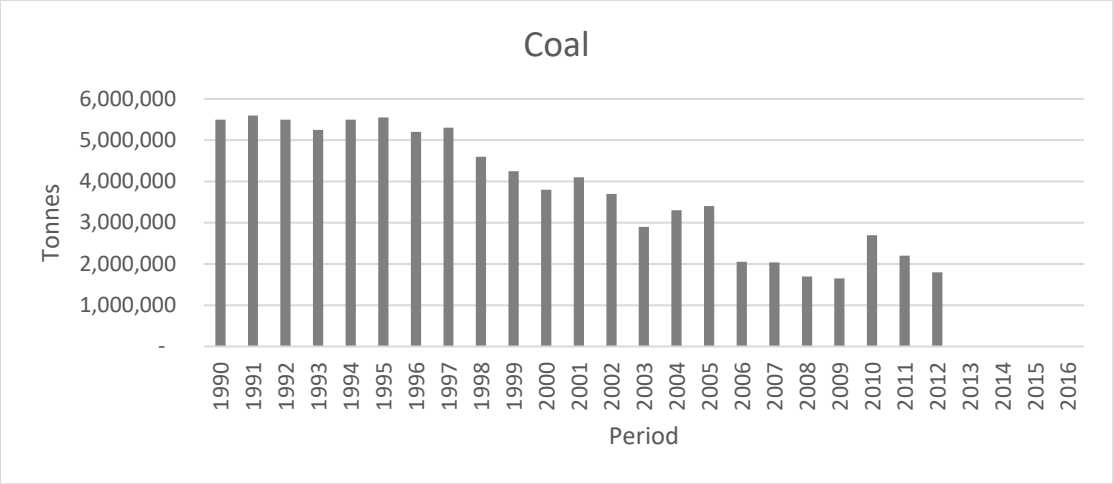


Figure 1.3: Coal output from the Zambezi basin; Source: Chamber of Mines AGM

State owned enterprise Hwange Colliery is struggling to secure funding for the underground operations which generates 75% of the revenue through export grade coking coal. As a result, the commodity has no contribution to export earning since output is dominated by power coal mined and sold locally to Zimbabwe Power Company for power generation.

Asbestos output highlights:

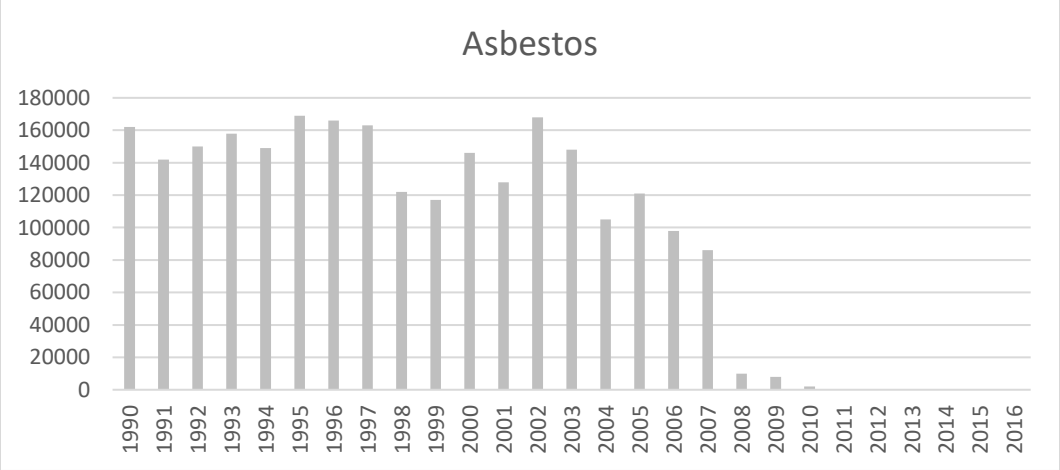


Figure 1.4: Asbestos output from AA Mines.

Source: Chamber of Mines AGM

The once symbolic AA-Mines which exploited the vast fibrous deposits of Mashava for white asbestos have been reduced to shell infrastructure, with no reasonable prospects to obtain a

suitable funding mechanism to re-capitalize owing to a prolonged shutdown which essentially depreciated all fixed assets and downgraded the investment grade to almost Greenfield.

1.2 Statement of the problem

The problem is that there is a low level of mining financing in Zimbabwe, which is negatively impacting on the contribution of the sector towards GDP and economic development. The low level of mining sector financing realised in most mining firms indicate that the current financing options are not viable and effective in ensuring project implementation and success. Understanding the ways through which mining projects can be financed, as well as the levels of effectiveness of each of the options, could be of benefit in ensuring project and firm success in mining operations, which could boost sectorial contributions in the economy.

1.3 Research objectives

The study seeks to:

- Identify the major funding options available for mining projects in Zimbabwe.
- Establish the effect of each funding option on the total annual revenues of the mining sector.
- Determine the factors affecting funding options in the mining sector

1.4 Research questions

The following are the questions necessitating the study:

- What are the major funding options available for mining projects in Zimbabwe?
- What effect does each funding option have on the financial performance of the mining sector?
- Which factors affect funding options in the mining sector?

1.5 Research Hypothesis

H0: There is no relationship between funding options and financial performance of mining firms

H1: There is a positive relationship between funding options and financial performance of mining firms

1.6 Scope of the research

The research is confined to the mining sector in Zimbabwe. As part limitation, this study is limited to medium to large scale mining operators and excludes small scale artisanal entrepreneurs owing to accessibility. In addition, the study is limited to periods from 2015 to date. The management of the mining sector were targeted.

1.7 Rationale of the study

In this section, the justification of the study is discussed. This includes the theoretical, methodological and the practical justifications.

1.7.1 Theoretical

Most previous studies have used various theories to explain firm performance. However, this study makes an important contribution to literature on the drivers of mining performance in developing economies by using the Resource-based View (RBV).

1.7.2 Methodological

Most studies in Zimbabwe have focused on the manufacturing sector as their target populations. This study, however, moves away from the manufacturing sector and focuses on mining firms in the country. The study also moves away from reliance on interpretivism as the research philosophy and makes use of pragmatism to help explain the issues of mining finance and performance.

1.7.3 Practicality

Practice and policy wise, the study led to the development of a conceptual framework for investigating how best to fund mining projects in order to make them more competitive, survive and grow, as well as how they can effectively contribute towards Zimbabwe's economic development.

1.8 Organization of the study

The general framework of the main report will comprise of five chapters. The first chapter will be on the introduction of the study, while the second chapter shall give an in-depth analysis of the literature with the theoretical and conceptual framework outlined and empirical review. The third chapter will highlight the research methodology in terms of how data is going to be collected, the research design used and instruments of data collection. Chapter four will contain data presentation, analysis, and discussion while summary, conclusion and recommendations will be presented in chapter five.

1.9 Chapter summary

This chapter presented the basic concepts behind the research. The topical issue of the study will be sustainable mining project financing options for national economic recovery in Zimbabwe. The objectives of the study include the needs to identify the major funding options available for mining projects in Zimbabwe; to establish the effect of each funding option on the total annual revenues of the mining sector; to determine the relationship between each funding option and the contribution of mining to national GDP and to suggest a funding framework for Zimbabwe's mining sector. This chapter also presented the research background, the problem statement, the scope of the study as well as its limitations and delimitation. In the next chapter, the literature related to the study is reviewed.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The aim of this chapter is to review literature to locate the study within the pertinent academic discourses. In this light, the chapter contains reviews of both theoretical and empirical literature on the areas concerning the research hypotheses. Initially, a discussion of literature on the theoretical framework adopted in the study is done. This is followed by reviews of literature on the theoretical framework of the study, consisting of the Pecking Order Theory and the Resource-based View (RBV); a review of empirical literature; and a summary of the key literature gaps. A section discussing the conceptual framework is also presented towards the end of the chapter.

2.2 Literature search strategy

The quality of a literature review and the research itself is determined by the rigour of the literature search procedures. The researcher's literature search strategy was multi-pronged and involving access to quality peer-reviewed journal articles from Jstor, Ebsco Host, and Google scholar, which were supplemented by conference papers. Key words used in the search were funding mechanisms, financial performance, and mining sector

2.3 Theoretical framework

The theoretical framework of the study will be informed using two theories, namely the Pecking Order theory and the Resource-based view (RBV).

2.3.1 Pecking Order Theory

The financing preferences of firms are often explained using Myers' (1984) pecking order theory. According to Myers, business managers prefer internal to external financing and debts to external equity. In summary, the 'POH' states that businesses adhere to a hierarchy of financing sources and prefer internal financing when available; if external financing is required, debt is

preferred over equity. Although this theory was developed for large, quoted companies, it is equally applicable to small firms. Firms tend to use cash credit as a first choice for financing their WC needs. However, the excessive reliance on the banking system for WCF exerts some pressure on the banks, and a significant portion of their available resources are first channelled to the large firms (Narasimhan&Vijayalakshmi, 1999). Narasimhan and Vijayalakshmi also noted that the long-term sources of funds for WC appear to be dominant in many industries and that cash credit is the next major source for financing WC. Another important dominant source for funding the WC requirement is trade credit. Trade credit is usually called a spontaneous source of finance and is normally available as part of the trade terms. Olomi (2008) reported that medium-sized textile firms with limited access to the long-term capital markets tend to rely more heavily on owner financing, trade credit and short-term bank loans to finance their operations. The test of pecking order theory by Sen and Oruc (2008) confirmed the existence of tax shield benefit from the use of debt, but information asymmetry problem and bankruptcy costs may outweigh this benefit and in turn deteriorate net present value of the firm.

2.3.2 The Resource-based View (RBV)

This study will make use of the Resource-based View (RBV) as its guiding theory. The RBV alleged that a firm compete based on unique resources that are valuable, rare, difficult to imitate, and non-substitutable by other resources. The RBV provides an overview of how a firm's resources and capabilities can make it achieve competitive advantage (Terjesena et al, 2011). Capabilities are commonly described as complex bundles of skills and amassed knowledge that allow firms to organize activities and make use of their assets. A considerable number of studies have proven a major relationship exists between firm performance and these functional capabilities (Krasnikov and Jayachandran, 2008). Furthermore, Song et al (2007) added that firms possess several kinds of resource and capabilities, amongst which some are strongly related to performance enhancement. A firm's survival depends on its ability to generate new resources, improve its capabilities, and make itself unique to gain competitive advantage (Yu et al, 2014).

RBT emphasizes the firm's resources as the fundamental determinants of competitive advantage and performance. The principle behind this theory is that firms achieve sustainable competitive advantage by continuously developing existing resources and creating resources as well as

capabilities in response to the dynamic market conditions (Day, 2011). Resources are valuable when they allow the firm to take advantage of opportunities in the environment and/or withstand competitive threats which justifies both the possession and utilization of resources (capabilities) should be in place for firms to achieve competitive advantage. Resources and capabilities in this context are conceptualized as bundles of tangible and intangible assets, including a firm's management skills, its organizational processes and routines, and the information and knowledge it controls that can be used by firms to help choose and implement strategies (Naidoo, 2010).

From a financing perspective, resources may be defined as the assets available to marketers and others within the organization that, when transformed by the firm's capabilities, can create valuable outputs (Morgan, 2011). These valuable outputs will serve as bases from which a firm's competitive advantage will be built and will remain sustained within the firm as such resources differ in value, rarity, inimitability, and sustainability (Barney, 1991). As such, resources provide the raw materials for firms' business and marketing strategies (Morris et al., 2010) and such raw materials will make a firm unique in the industry as it does not have strategically equivalent substitutes.

When it comes to financial strategy, RBT argues that the deployment of appropriate resources enhances the effective formulation of strategy based on a unique resource a firm possesses. Besides, the financial resources are deployed to effectively execute the soundly formulated marketing strategy so that the strategies will help companies realize their financial objectives. Such effective marketing strategy implementation requires the ability to acquire, combine, and deploy needed resources (Olson et al., 2005). This capability therefore encompasses processes such as those acquiring and allocating required resources from inside and outside the organization (Crittenden and Crittenden, 2008), and monitoring internal and marketplace progress (Srivastava, et al., 1999) to enable intended financial strategies to be quickly translated into consistent goal directed action outcomes. As a result, resources shape and enhance effective marketing strategy formulation and determine the extent to which the formulated strategy will be put into implementations (Morgan et al., 2012).

The RBV is a critical model in relation to performance increase in mining firms if they manage to capitalize their internal resources to enhance their competitive advantage and stay abreast of the dynamic global business environment.

2.4 FUNDING MECHANISMS FOR THE MINING COMPANIES

Vallerrie (2010) indicated that there are several financing options available for mining projects. In a study carried out by Leeman (2006) effective funding mechanism have a direct impact on the performance of the mining sector and this was supported by BAZ (2014) that Zimbabwean mining companies need alternative funding mechanisms in order to perform in a depressed economy.

Literature has shown various ways for financing mining companies. This section provides literature on the funding mechanisms. These mechanisms are Project finance , Financing by IPO or Private Placement, Financing from Private Equity Funds, Royalty agreements, Escrow account arrangement, Streaming arrangements , Convertible loans, Public bonds , Loans from Banks and Other Financial Institutions , Joint venture partnerships ,Off-take finance or contract financing ,Corporate Bonds, Trusts, Equipment financing , Export Credit Agencies (ECAs), Development Finance Institutions (DFIs), Government Bonds and Financial Leasing

2.4.1 Project finance

Mapleleaf (2011) defined Project finance as a funding mechanism that relies on a future stream of cash flow from a project as the main source of repayment, and uses the project's assets, contracts, rights and interests as security for the loan. Typically, this funding mechanism is not captured on the balance sheet and thus does not take up debt capacity of an organisation as projects are normally isolated from the going concern business of sponsors. According to Benning (2000) cited in African Development Bank (2014), Project finance has rapidly become the most important form of funding for sponsors of mining projects, and funding packages are normally uniquely structured to suit the characteristics of a specific project. BAZ (2014) elaborated that due diligence exercises done by competent persons are mandatory prerequisites for the risk assessment exercise of a project undertaken to evaluate robustness of projected cashflows. One of the main attractions of project finance is the ability to allocate the risks to the project participants (lender, contractor, technology providers, etc.) to avoid the sponsor sitting with all these problems (Benning, 2000).

2.4.2 Loans from Banks and Other Financial Institutions

Jianglan (2012) cited that traditionally, mining enterprises have used their assets as collateral to obtain loans from banks or other financial institutions. Apart from mining leases for production or exclusive prospecting licenses for exploration, mining houses have tended to collateralize tangible assets in the form of immovable assets, equipment, and real estate with banks to secure loans. Mining leases and exploration rights are generally neither liquid nor do they carry reasonable prospects of generating future cash-flows due to uncertainty and thus have proven difficult to securitize. Wang (2012) study on financing mechanisms established that it is easier for large-scale state-owned mining enterprises to get financing from banks because they are state-owned and have enough assets as compared to small to medium scaled private enterprises. Guo (2009) indicated that the actual value of mineral titles is, to a large extent, based on acquired technology and information, and their value is very difficult to measure because they are subject to such uncertainties.

Wang (2012) found that, although it is theoretically legal to use mineral titles as assets, in real banking practice, mineral titles are not commonly recognized by most banks as legal mortgage objects. The examination criterion of titles and leases depends on the economic valuation derived which is premised on technical information acquired through a due process. Due to uncertainties arising on assumptions, the value is complex to derive. Banks and financial institutions tend to reject such collateral proposed on loans applications. Wang (2012) added that small-scale mining enterprises find it even more difficult to get financing from banks or other financial institutions because they may have private investors instead of the state and do not have extensive assets, such as real estate or land-use rights, but do have exploration and production mineral titles.

2.4.3 Financing by IPO or Private Placement

Private mining enterprises upon meeting specific requirements can acquire funding through initial public offering (IPO) on stock markets were their stock trades freely under market fundamentals influenced by their performance. Enterprises exhibiting strong growth characteristics hinged on robust strategic plans normally attract investors looking forward to

steadying returns on the stock markets. Private placements are another option of obtaining funding wherein the organisation participates in nominating preferred shareholders. Private placements are done to raise capital by to issuing out outstanding shares to private investors or increasing stock on market. According to Wang (2012), these methods is only available for large-scale mining enterprises in good financial standing. Listings foster a sense of corporate citizenship which influences reputation and recognition thus putting an enterprise in a better position to raise more funds from the market for growth and development. In addition, enterprises trading publicly, are compelled to practice better corporate administration of assets and allocation of resources, thus performing exceptionally well. Furthermore, funds raised on stock markets are interest free and reduce financing cost of the business. However, existing shareholders might lose some control of the management of the corporation by diluting their shareholding percentage.

Wang (2012) found that conditions for IPOs are so high that it is impossible for small and medium-size enterprises to satisfy them. Only very large or state-owned enterprises can obtain financing by IPOs, while most small and medium-size mining companies are unable to get equity financing from the public stock market.

2.4.4 Financing from Private Equity Funds

Private equity funds of different types, such as venture capital, growth capital, and bridge capital funds, are generally considered an important financing method before financing from banks and an IPO (BAZ, 2014). Enterprises usually turn to private equity funds when they are seeking specific investors on their own. Nominated and mutually interested investors normally conduct due diligence on the enterprises before purchasing equity shares through a capital increase of the enterprise. Private equity funds for mining rights are specialized funds used for mining industry operations. They absorb capital from different types of investors, including state-owned enterprises, financial institutions, industrial groups, and individuals.

2.4.5 Royalty agreements

Brent (2009) defined royalty agreements as a form of upfront finance in return for future payment typically based on either a percentage of the value of the product produced or the profits or revenues generated from the mine. The Africa development guide (2012) argued that royalty agreements can be an attractive source of finance, offering a non-dilutive and non-controlling source of capital and a deferred repayment date only when the project yields revenue. For management, determining the true cost of capital that is the future loss of cash flow, together with the impact on the overall risk of the project can be difficult. Aghion, Comin and Howitt (2006) alluded that royalty arrangements can be ideal for struggling mining companies and the findings from their study proved that royalty arrangements cause mining companies to improve their productivity

24.6 Escrow account arrangement

BAZ (2014) held that escrow accounts arrangement entails establishing a bank account with a reputable bank for purposes of managing working capital drawdowns for specific projects on the understanding that proceeds from the sale of resultant products are deposited with the bank that controls the account. In a depressed economy such as the Zimbabwean economy where the risk attending to the economy are high, an Escrow account can be established offshore with a tight legal agreement/arrangement possibly with offshore guarantees, in order to support working capital requirements for mining companies. This arrangement will give comfort to the financiers whose fears will be based on non-performance (BAZ, 2014).

2.4.7 Streaming arrangements

Streaming arrangements are contracts for on-going supply of mineral production under which upon advance payments of a premium, the buyer agrees to purchase at a fixed, discounted and predetermined price, all or part of the mineral to be extracted by a mining company during a certain period or throughout the life of a mine (BAZ, 2014). The mining company receives an upfront payment, which enables it to develop, construct and or expand the mine. ADB (2012) and Shaw (2008) perceived streaming arrangements as effective funding mechanisms for mining companies in a depressed economy. In a study carried out by Banda (2013) in Zambia, the

mining companies in Zambia prefer to adopt streaming arrangement to resuscitate mining business.

Vale (2012) illustrated that streaming can be an attractive source of finance for the mining majors also, with its US$1.9 billion deal with Silver Wheaton, in return for an amount of gold equal to 25% of the life of mine gold production from its Salobo mine, as well as 70% of the gold production, for a 20-year term, from its Sudbury mines located in Canada.

2.4.8 Convertible loans

These can provide an attractive source of capital in periods of volatility, providing downside protection but also the potential for participation in future upside. However, from a company's perspective, the dilution impact of convertibles is merely delayed (assuming the bond converts), albeit to a point of time where valuations are more easily determined. According to Wang (2012) the financing of this nature can be costly. These instruments bring a risk of default should the company not be able to meet the principal repayments on maturity if market conditions deteriorate.

2.4.9 Public bonds

Meyer (2014) argued that public bonds continue to play an important role in financing large-scale projects, particularly for those with investment-grade credit rating. Producers are also able to access a wider pool of debt, including commercial loans where access to cash flows brings the ability to service such debt. But there are other sources of finance to consider alongside this and traditional project finance and equity.

2.4.10 Joint venture partnerships

Mcbride and Wang (2009) held that a joint venture is a temporary partnership that two companies form to gain mutual benefits by sharing costs, risks, and rewards. In this case the mining companies need to look for partners who brings in money, capital, and relevant skills.

The arrangement should have the exit strategy and should have a predefined lifespan. Shaw (2008) argued that Joint-venture (JV) partners are likely to be considered on a more regular basis for large projects with significant capital outlays. While the overall valuation dynamics need to be carefully thought through, the involvement of another partner can help de-risk a project and provide greater flexibility if initial capital outlay is reduced.

2.4.11 Off-take finance or contract financing

Off-take finance or an agreement between a producer of a resource and a buyer of a resource to purchase/sell portions of the producer's future production. An off-take agreement is normally negotiated prior to the start of a mining project to secure a market for the future output of the facility. This type of arrangement is suitable for minerals such as chrome (BAZ, 2014).

2.4.12 Corporate Bonds

According to BAZ (2014), other types of financing instruments have been used more frequently due to lower interest rates, such as short-term financing bills and mid-term notes. Short-term financing bills and mid-term notes are financial instruments issued by nonfinancial institutions in the interbank bond market. The major benefit of such instruments is that interest gaps are determined by issuing enterprises though in consultation with underwriters therefore one would expect them to be structured competitively. However, specific rates can be determined by public bidding on the market.

Large-scale state-owned enterprises also participate in the corporate bond market under a framework approved by the governing authorities. For example, corporate bonds issued by companies owned by the central government must be determined by the State-owned Assets Supervision and Administration Commission of the State Council and be granted and registered by the Securities Regulatory Committee (Deloitte, 2012).

2.4.13 Trusts

In a study carried out by Xu (2010) on the funding mechanisms in China, the findings established that problems surrounding mining leases and titles proposed as collateral can be mitigated by opting for trust funds. Assessment of assets proposed for collateral or security is not as rigorous and strict as that of bank loans. The typical process for a trust project is as follows: The promoter of the project, also known as the principal of the trust, designates the securitized mineral titles as trust assets. Ownership of the trust assets is then transferred to the trustee (the trust company). After evaluation and upgrade of the securities credit, comparatively highly qualified negotiable securities are issued to investors. Wang (2012) elaborated that the funds collected from the investors are entrusted to an enterprise specializing in operation and management of mineral titles. This enterprise pays the profits earned to the investors after deducting a commission and fees.

According to Bowfield (2013) in a Canadian study established that trusts were designed for unsatisfactory conditions in the mining sectors and when many related laws and policies were incomplete. It was established in the study that, in recent years, several trust companies have actively explored financing the energy and mining industry by means of multiple transaction structures, including equity interest, credit, profit-earning mechanisms, and pledges from third parties. In addition, many new methods have been utilized, including option agreements concerning the transfer of the profit rights from the trust, funds involving a parent fund and a subsidiary, amongst others.

2.4.14 Development mining institutions

The Global Mining Finance Guide (2012), Development finance institutions (DFIs) provide credit in the form of loans, equity stakes and risk guarantee instruments to companies investing in developing countries. Developing countries typically present higher project and country risks that commercial banks may be unable to bear, and as such, DFIs will require strict compliance with social and environmental standards. The diligence involved, as a result, can be significant and may also put additional cost burden on the project going forward to meet those high standards. But, in turn, this can reduce the cost of future capital and the process to attain it, as investors are likely to have greater confidence in the project in the knowledge that it has already

been subject to such scrutiny. Mutwiwa and Fondo (2012) suggested that cconsideration should be given as to whether the Project is sufficiently strategic or important to the continued development of the region so to entice DFIs to become involved. Consider making an application to the DFIs interested in the region where the Project is located. Often DFIs will be focused on different aspects of the Project compared to commercial lenders and any environmental, social or development incentives in the Project should be highlighted (such as the development of local infrastructure

According to Duo (2010) the mandate of DFIs has been to support commercial lending into strategically important Projects in developing countries. DFIs have sought to complement commercial lending rather than replace it and have traditionally only underwritten around 30 per cent of the overall debt. However, with little to no commercial liquidity available, a lot of attention has been given to DFIs and borrowers have been looking to DFIs to fill the gap left by commercial lenders.

2.4.15 Equipment financing

McCann (2014) realized that assets can be used to raise finance in a mining company. Financing could be raised off the back of existing equipment or carved out of the assets secured by project finance banks to raise additional financing. Equipment suppliers may be willing to enter buy back arrangements whereby they agree to repurchase the equipment at the end of the Project thus providing additional comfort to equipment financiers.

Alternatively, the supplier of equipment may be willing to provide the equipment on a lease buy arrangement whereby the supplier leases the equipment to the Project (taking security over the equipment) and at the end of the Project the equipment is purchased by the Project for a price discounted by a percentage of the lease payments. There may be certain tax advantages to this arrangement if a tax lease structure can be achieved. Borrowers should consider their obligations for maintenance, insurance, and repair of the equipment during the Project.

2.5 Factors affecting funding options

According to Mulkey and Hodges (2010), investment is the decision to commit funds on long term assets that in expectation of benefiting in the future. The first aspects of investment are the

evaluation of the prospective profitability of new investments. This calls for cost of capital which is the measure of a cut off rate against which the prospective return can be compared. Investment appraisal techniques can be categorized into two: Discounted criteria i.e. this one considers time value of money and include: Net present value (NPV); internal rate of return (IRR) and Profitability index (PI) and the Non-discounted criteria. These are traditional techniques which do not consider time value of money and include: Payback period (PBP) and Accounting rate of return (ARR) (Dwivedi 2006).

Eita and Du Toit (2007) found that the factors affecting funding are categorised according to three players in the mining sector investor sphere, government sphere, and mine sphere.

2.5.1 Investor sphere

As investment and funding largely emanates from different mechanisms all underpinned by investors looking for return, it is prudent to note that, in the more standard Capital Asset Pricing Model (CAPM), an investments' riskiness is assessed against market return rather than consumption.

2.5.1.1 Country Risk

Country's risks in investment refer to the degree of uncertainty that exists about the Occurrence of a future planned event. Certainty refers to a situation where there is only one outcome to a decision and this outcome is known precisely. Risk refers to a situation where there is more than one possible outcome to a decision and the probability of each specific outcome is known or can be estimated. Risk requires that the decision maker know all the possible outcomes of the decision and have some idea of the probability of each outcome's occurrence. Risk can be measured using the standard deviation.

In Zimbabwe, given recent history of hyperinflation, political unrest and debt default, there is a high level of country risk. Damodaran (2009) provides estimates of country equity risk based on Moody's country rating. Zimbabwe is not included in the database, but Damodoran (2009) further estimates that countries with the lowest Moody's ratings have a risk premium of 15

percent over the premium for a mature equity market. Ultimately, this premium would be added to an estimate of the risk premium for an investment in lower rated countries. Topal (2008) noted that the standard discount rate for mining projects which accounts for standard risks in mining is 12-15 percent. Consolidation of Damodoran and Topal's views would imply a record high investor required rate of return between 27 – 30 percent for mining investment which makes it difficult to attract conventional investor participation for the market.

Most managers or businesspeople faced with alternative projects of equal expected value of profit but different co-efficient of variation or risk will generally prefer the less risky. These types of investors are called risk averse. Those who choose the riskier projects are called risk seekers or takers. There are those who are indifferent to risk they are neutral. Therefore, the investing in a country depends on changes in the business environment that may adversely affect operating profits or the value of assets in a country. Financial factors such as currency controls, devaluation or regulatory changes or stability factors such as mass riots, civil wars and other potential events contribute to company's operational risk (Bende-Nabende, 2002).

Downham (2013) asserted that with mining stocks lagging the world share indices and bank financing still difficult to achieve, conventional funding routes for mining companies are closed or problematic for now. Ernest and Young (2009) further augmented the position by analyzing models for financing mining sectors at various stages with various private capital options.

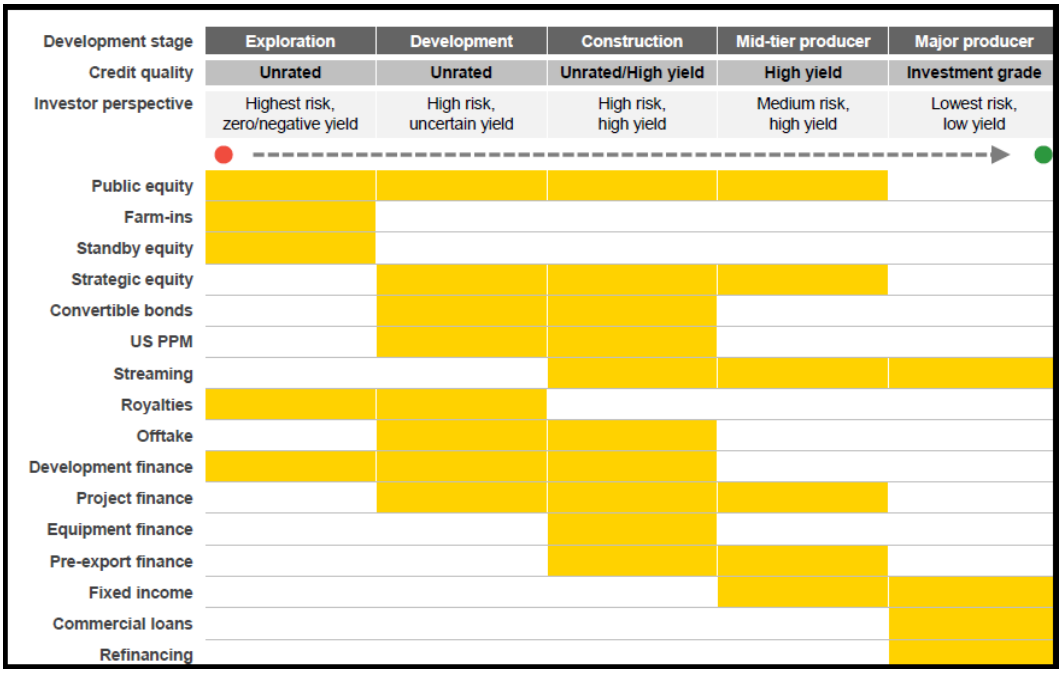


Figure 2.1: Funding options.

Source: Downham (2013)

Bankers Association of Zimbabwe (2013) argue that the mining sector requires a paradigm shift from the traditional/conventional options for mining ventures to more non-conventional sourcing and methodologies which essentially follow where the money is posited.

2.5.1.2 Capital budgeting decisions

Capital Budgeting decisions entails planning of capital expenditure to achieve long term goals of the firm or investor. The amount of money committed to long lived assets or projects is usually large and it is called capital outlay (Potts, 2002). Investment in the mining sector involves commitments of funds or capital to projects that will take many years. Most of the mining projects have a lifetime of more than five years. Mining projects involve uncertainties and risks which affect the risk profile of the firm due to fluctuations in the cash flows. The mining investment decisions once taken are almost irreversible and therefore ultimately the best alternative on the use of the capital investment should be considered.

Determining the relationship between the changes in the level of investment expenditure and the factors analysed is a fundamental issue for assessing developmental activity in mining plants. A

relatively precise determination of these relationships which describes the importance of individual factors as a formalized function irrespective of their aggregate category (a coal mine, a mining company, the trade, the industrial sector) allows for an objective assessment of prior investment and production activity (Gawlik, 2008). Therefore while making capital budgeting decisions and especially in the investment in the mining projects, the following factors must be considered namely; The economic life of the mining projects, the availability of the initial capital outlay, the amount and timing of the cash flows, whether there will be need for additional capital requirements, how the mining investment project will impact on the entire firm, how the initial capital outlay will be phased out (Pandey, 2008). Therefore in capital Budgeting decisions; project evaluation techniques are employed which must take into account the time value for money, it must also consider the cash flows of the investment, and the technique should give decision criteria on which projects are viable economically and those which are not (Pott, 2002).

2.5.1.3 Venture capital firms.

Venture capital can be linked to the savings culture and living standards in the country. Venture capital is normally provided by investment funds and wealthy individuals; there is also an element of risk-taking culture that needs to develop. The government can also boost this type of investment by legislation,

2.5.1.4 Banks lending criteria.

Zimbabwean banks have not been upcoming in lending mining companies due to economic challenges. There need to be ways of apportioning certain bank profits' as risk investment money. This will have the dual function of increasing the banks' shareholder value and helping to boost investment in the minerals sector.

2.5.1.4 Asset exit clauses

Local regulations must allow investors to realize profit and exit an investment after taking a project down the value chain. They are not in a project to operate it until the assets are wound up but invest with the aim of exiting when the asset value has appreciated, and the time is right.

2.5.2 Government sphere

2.5.2.1 Institutionalization of mining laws

Chidhakwa (2016) affirmed robust institutionalization of mining laws provide for improved and competitive mining legislative framework, which offers a conducive investment environment for local and foreign investor whilst simultaneously curtailing prejudice to national fiscus. North (1990), concurred with Williamson (2000) in that institutions are relevant for enactment of set laws and policies. The institutional framework is considered to comprise of fundamental political, social, and legal guidelines that govern the principles for production, exchange, and distribution thereby defining the conditions under which businesses transacts (North, 1990). Institutions are generally born out of relevant legislation governing the business facet and operate under rules, laws and contract that represent choices preferred to give structure to its activities.

The government must endeavor to promote efficient transactions by clearly stipulating in black and white what is acceptable and what is not. If inefficient transactions are costly, and that institutions mitigate costs of transacting in a society, it can be derived that efficient markets depend on market-based supporting institutions. Davis and North (1971) emphasized that the formal institutions of a society, those political, social, and legal rules of the game that a country has in place have important consequences for foreign and local investors. It therefore implies that investors consider as efficient marketplaces, those destinations where governments have established formal institutions to govern sound policies. These destinations are more likely to harness investment than others.

Mothomogolo (2012) further states some factors that are controlled within the government sphere to motivate investment.

2.5.2.2 Mining rights application process.

There is a need to fast-track mining rights application process. The lead time on this process is currently between 18-36 months. This might deter investment in the sector, especially where the

venture capital is sourced from foreign countries. The introduction of an electronic application system will certainly help to reduce lead times to approval.

2.5.2.3 BB-BEE requirements

The Business Economic empowerment policies must be conducive for investors. Zimbabwe has its indigenisation policy which requires companies in the minerals sector to show 52%-49% local and foreign ownership, respectively. However, Chidhakwa (2016) argued that the policy has shunned investors. Government should ensure that the BB-BEE requirements are done in a way that does not deter investment. The requirements of the policy need to be implemented properly, the key point here being the impacts on project value, as this is what drives investments.

2.5.2.4 Security of tenure and transfer of title

There is need of consultation by entrepreneurs with communities or individuals on whose land minerals occur, to negotiate permission to use land for mining operations through lease or rental agreements.

2.5.2.5 Royalty tax

The government should look to refining the Royal tax, with the aim of encouraging investments in the minerals sector. Some organizations are seeking a tax deferral during the construction period of a mining project, and this will greatly improve the NPVs of new projects, making them more attractive to investors (Motomogolo, 2012).

2.5.2.6 Venture capital incentive

Mothomogolo (2012) stated that the venture capital investment allows an investor to claim funds invested in a new mining project start-up against tax. Here the government also needs to refine the law further and increase thresholds from the levels currently stipulated and increase the rebate rate to encourage more people to invest.

2.5.3 Mine Operator Sphere

McMann (2010) indicated that for mining companies the state of the world's financial markets is troubling and options available to raise finance require innovation which promulgates from an understanding of the rules of engagement.

2.5.3.1 Technical information

This implies mine operator have a role to play in as far as certain technical expectations are concerned that support the various forms of funding available to mineral developers from the mining finance community. SRK (2014) further asserts that there is broad acknowledgement that the nature of the technical information available largely follows the development status of the mineral assets, and accordingly is largely independent of the nature of funding/ financing options pursued. To this extent, the success of obtaining funding sought can be assumed to rely on how the level of technical information available is incorporated into various key supporting documentation required for the funding process.

2.5.3.2 Skilled and technical staff

Mutiwa and Fondo (2012) argued that some projects need highly skilled and technical staff. Mining projects need highly skilled technical staff for the successful initiation planning and implementation, monitoring and evaluation and even closure. Salaries and wages are also highly competitive for technical staff and other skilled staff (Bond and Meghir, 2004).

2.5.3.3 Labour related issues

Labour related issues play a vital role in shaping the profit and returns that the investor will eventually get. Labour movement creates a new centre of power and employees may listen more to the leaders of the labour movement than their employers that creates confusion to investors.

2.6 Review of empirical literature

One of the key challenges in studying the mining sector has been the issue of the methodology, as the diversity of analytical scientific methods seem problematic in coming up with valid generalisations. For example, the study by Ejiba and Omolade (2016) examined aggregated GDP time series data for the period 1991-2010 to analyze the contributions of each sector to Nigeria's GDP growth; and observe deficiencies inherent in the use of Ordinary Least Square (OLS) technique in GDP studies. Secondary data was used for the study and the data was sourced from the Central bank of Nigeria (CBN), and the National Bureau of Statistics (NBS). Analysis was carried out using graphs, tables, OLS regression technique, pairwise correlation, and Generalized Ridge Regression Analysis (GRR). Findings showed an increasing trend in aggregate GDP for the study period, with an average GDP growth rate of 4.98% (Ejiba and Omolade, 2016). Severe multicolinearity was detected in the GDP time series data using OLS regression with poor relationships, and high R2 value but few significant variables. The pairwise correlation coefficients also showed the presence of moderate to severe multicollinearity in the aggregate GDP variables (Ejiba and Omolade, 2016). As a result, Ejiba and Omolade (2016) concluded that it would be more appropriate for researchers in GDP time series studies to account for the problem of multicollinearity by utilizing Ridge regression technique for estimation since all Ridge regression models give more robust estimates than the OLS models.

A significant amount of studies has focused on mining in other countries which are not within the contexts of developing African countries like Zimbabwe. For example, Ajmar (2014) investigated the relationship between economic growth and different components of industrial sector of the economy of Pakistan. Secondary data for 61 years from 1950 to 2010 was used and the first step in the empirical analysis involved testing the time series characteristics of the data series using ADF tests. Simple linear regression and time series techniques were applied to estimate the relationships. Regarding the hypotheses of the study, it was concluded that the entire hypothesis, has a positive impact on GDP, partially accepted since in simple linear regression all the components of industrial sector show a positive relationship with GDP except mining and quarrying sector that not only shows the negative relationship but also gives an insignificant result (Ajmar, 2014). Mohd, Liew, Ghazali and Zawawi (2013) examined the causal relationship

between the mining and construction sectors of Malaysian economy. The Granger causality model used to investigate the link and direction of link between construction and mining and quarrying sector of Malaysia. The quarterly data series for the study is obtained from Statistics Department Government of Malaysia. The results of the Granger causality analysis showed that there is a unidirectional relationship between the sectors, and mining and quarrying sector has had a significant effect on construction sector during study period 2001-2010 (Mohd et al., 2013).

Sultan and Mustafa (2015) investigate the effect of capital structure on profitability among listed firms in Iraq and employ OLS regression analysis on panel data from firms within the industrial sector for the period (2004-2013). The study concludes that total debt ration positively and significantly affects ROA and ROE in the sample. Vatavu (2015) examines the relationship between capital structure and financial performance in 196 Romanian companies listed on the Bucharest Stock Exchange and operating in the manufacturing sector, over a period of eight-years (2003-2010). Results of this study reveal that ROA is significantly and negatively affected by TD ratio. Similar results have been reported by Chakraborty (2010) from an analysis of the determinants of capital structure of Indian firms using a panel of 1169 non-financial firms listed in either the Bombay Stock Exchange over the period 1995–2008 as well as Cheng's (2009) study of the relative effects of debt and equity financing on the operating performance of Taiwanese listed companies over the period from 1995 to 2004. Equally, Bokhari and Khan (2013) found a negative relationship between total debt and ROA and ROE among Pakistani's non-financial sector firms. Mwangi, Makau and Kosimbei (2014) investigated the relationship between capital structure and the performance among 42 non-financial companies listed at Kenya's Nairobi Securities Exchange covering the period 2006 - 2012. Analysis of panel data through feasible generalised least square (FGLS) regression techniques revealed that financial leverage was significantly and negatively associated with ROA and ROE.

Gabrijelcic, Herman and Lenarcic (2013) analysed the decisions relating to the capital structure in engineering. Tobin's Q, Gross profit margin and ROA were used to measure the firm's performance while capital structure measured from Total debt to total Assets, Short term debt to total assets and Long-term debt to total assets. The results showed that increase in debt cause the decrease in performance. Umar et al., (2012) investigated the impact of capital structure on

performance of companies. The data have collected from secondary source which was Karachi stock exchange. There was inverse relationship between debt and performance of companies. It suggested that managers should not use more debt as compare to equity and projects should be supported from internal resources which is retained earnings. Javed et al. (2014) evaluated impact of capital structure on the performance of companies. The study concluded that there is a mixed relationship between the performance of companies and the capital structure.

A few studies have focused on the African setting, although the aims of such studies widely differ and hardly address the issue of mining finance. In the case of Tanzania, Poncian and George (2015) contend that the challenge has been translating growth in extraction activities into inclusive and sustainable socio-economic development and transformation. The focus of their study was to examine challenges of translating resource extraction into inclusive and sustainable socio-economic development in Tanzania. It was found that instead of being of benefit to all, mineral resource extraction has only served to put Tanzania into the map of foreign capital flows but with limited benefits to the local citizens (Poncian and George, 2015). Still on Tanzania, Magai and Márquez-Velázquez (2011) analysed the factors that reduce the mineral sector's contribution to the Tanzanian government's revenue. They found that the government has enacted tax laws that are overly favourable to multinational mining companies, and partially due to the business practices of the companies themselves.

Several studies can also be found on mining in Zimbabwe, even though, again, the focus is far away from the issue of mining finance. For instance, Mahonye and Mandishara (2015) investigated the role of mineral resources in economic development and how the extractive sector impacts the overall performance of the economy. The economic growth model was analysed using human capital, population growth, property rights, and political rights, share of mineral exports to total exports, real growth of mining, real growth of agriculture, real growth of manufacturing and growth in foreign direct investments for the period 1970 – 2008, and the study employed the Ordinary Least Squares (OLS) since it is the widely used model in the field of study. The findings showed that real manufacturing growth, real mining growth, share of mineral exports to total exports, property rights and political rights are important determinants of economic growth (Mahonye and Mandishara, 2015).

The study by Kaseke, Chaminuka and Musingafi (2015) was conducted through consultative workshops, focus groups and interviews of key informants from different provinces. Secondary document review was also done to support information gathered from the consultations. The study indicated that there should be specific laws and policies on how mining companies give corporate social responsibility (CSR), the operation of community trusts which were stipulated in the Indigenization and Empowerment Act (Chapter 14:33) should be clear and transparent and the needs of small scale miners should be taken into consideration so that they can also effectively contribute to the revenue of the country and the communities they are operating in (Kaseke et al., 2015).

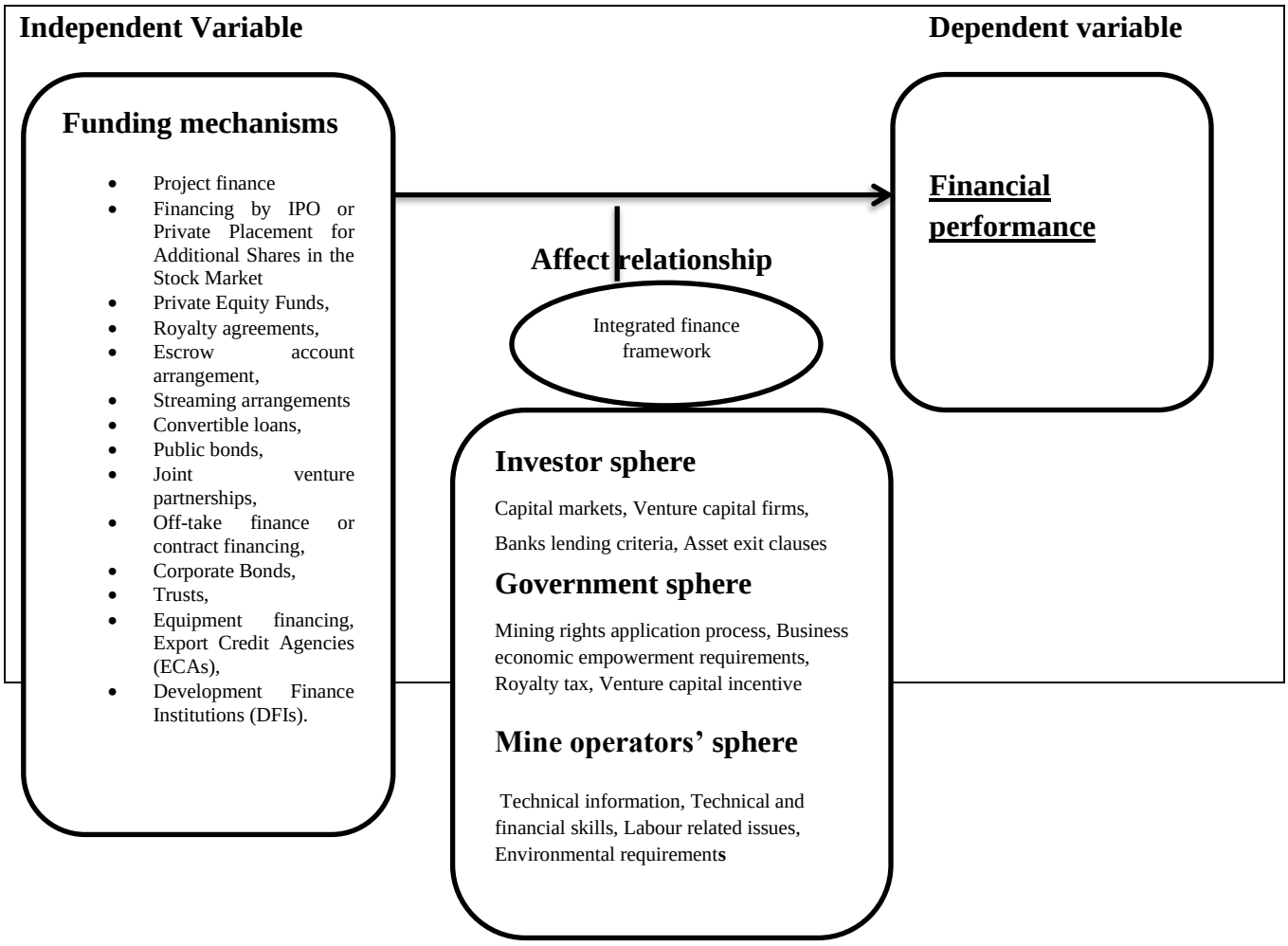
2.7 Literature gaps

Very few studies have focused on the sources of mining finance. In a study on mining in Mongolia, Mungunzul and Chang (2016) found that since the transition to a market economy in the 1990s, Mongolia has received substantial amounts of FDI annually. Mining companies accounted for 56% of aggregate FDI, which turned mining into a competitive and modern industry and created the possibility to expand into areas in both upstream and downstream industries. Investment in the mining sector has also served as an anchor for large-scale infrastructure projects, especially in railroads and electricity (Mungunzul and Chang, 2016). Corporate finance literature across both developed and developing markets provides contradictory theoretical predictions on the relationship between mine financing and performance, particularly in the terms of contributions towards economic development. Whereas some scholars predict positive effects of mine finance on financial performance (Fosu, 2013), other scholars support negative influences especially when firms are highly indebted (Margaritis and Psillaki, 2010). Bokhari and Khan (2013) analyse the impact of capital structure on firm's performance in Pakistani's nonfinancial sector over a 7-year period from 2005 to 2011 and establish that both short-term debt (STD) and long-term debt (LTD) have a significant negative effect on ROA as well as negative effects on ROE. Addae, Nyarko-Baasi and Hughes (2013) analyse the effects of capital structure on profitability of 34 out of 35 firms listed on the Ghana Stock Exchange over a five-year period from 2005 to 2009. The OLS regression analysis in this study show that there is a statistically significant positive relationship between ROE and STD but

a significantly negative relationship between ROE and LTD. However, the results revealed a statistically negative relationship between ROE and total debt (TD).

2.8 Conceptual Framework

Figure 2.2 Conceptual framework of the study. Source: Researcher (2019).



2.9 Chapter summary

This chapter presented key scholarly arguments pertaining to the topical issues in this study. Literature on the key objectives of the study was presented. The chapter contained reviews of literature on the theoretical framework, empirical literature, and literature gaps. The conceptual framework was also presented. The following chapter settles on the methodology adopted for the answering of these research objectives.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The focus of the present chapter is on the research methodology of the study. As such, this chapter will cover the aspects of research philosophy, research design, population, sample size, sampling procedures, research instruments, data collection procedures, data analysis and presentation, reliability and validity and ethical issues.

3.2 Recap of research aim, main objective, major questions

The objectives of the study were to identify the major funding options available for mining projects in Zimbabwe, to establish the effect of each funding option on the total annual revenues of the mining sector and to determine the factors affecting funding options in the mining sector

The research questions were what are the major funding options available for mining projects in Zimbabwe, what effect does each funding option have on the financial performance of the mining sector? and Which factors affect funding options in the mining sector?

The research sought to test the hypothesis that.

H0: There is no relationship between funding options and financial performance of mining firms

H1: There is a positive relationship between funding options and financial performance of mining firms

3.3 Research design

Kumar (1999) defines a research design as a framework which can be used to guide, collect, and analyze research data. In particular, the research design of the study will follow the research onion process suggested by Saunders et al., (2011). The common research designs highlighted by Murray (2015) are explanatory, descriptive, and exploratory designs. A descriptive research

attempts to systematically describe a situation, problem, phenomenon, service, or program, or describes attitudes towards an issue. An exploratory research helps in the understanding of the problem and it tackles new problems with which there are no previous studies or where little research has been done. Hence, exploratory research is done to provide better understanding of the situation under study but however, not coming up with the conclusive answers to the problems. Exploratory design is usually used when the research problem is in the preliminary stage and when the topic is new, and it is usually performed through literature search and in-depth interviews.

Explanatory research seeks to investigate the cause-and-effect relationships between variables under study and the researcher had to test hypotheses of the study to establish the relationship between variables. The main aim of explanatory research is to confirm or disconfirm theory and variables are clearly defined (Visagie, 2010). This is achieved by using quantitative data. This study adopted an explanatory research design to explain the sustainable finding options for the mining sector to improve financial performance. Quantitative data was collected using structured questionnaires through a survey done in the mining sector. The study sought to test hypotheses to analyse the relationship hence explanatory research design was the most suitable for this study.

3.3.1 Research philosophy

There are basically two research philosophies which are positivism and phenomenology (Denscombe, 2014). A research philosophy is a worldview underlying the theories and methodology of a scientific subject (Wood, 1997). The major research paradigms that dominate literature are the positivism paradigm as well as the phenomenology paradigm. In this study, the researcher made use of pragmatism, which is a mixture of positivism and interpretivism. This is a more relevant research paradigm to use as it combines the strengths of one research paradigm to compliment the weaknesses of the other, as explained by Saunders *et al.* (2009). Positivism approach was achieved through a lirket scaled questionnaire administered to the staff and management of the mining sector. The questionnaire measured the factors affecting funding mechanisms in the mining industry. A positivism approach was preferred economical way of data collection, data can be easily compared, and the research can control the research process.

However, it has its shortfalls where there is no option for the respondent to expand their views since the questionnaire is standardised.

3.3.2 Research approach

Leedy and Omrod (2001) explains that an inductive method proposes an immersion in the details and specifics of the data to discover important categories, dimensions and interrelationships and begins by exploring genuinely open questions rather than testing theoretically derived (deductive) hypothesis. Inductive approach was not used in this research for it goes hand in hand with qualitative data.

Deductive approach to research therefore uses empirical observation to test theory or hypotheses which is the aim of this study. According to Lancaster (2005), the first step in deductive research is the generation of theory or hypotheses. Leedy and Ormrod (2001) argue that deductive logic begins with one or more premises which are self-evident and widely accepted truths. From the premises reasoning then proceeds logically toward true conclusions. The theory can be generated in several ways that include a desire to work out a solution from a given problem or from an idea based on previous experience or from a literature search. The generation of theory is then followed by data collection, testing and the confirmation or rejection of the hypotheses (Bryman and Bell, 2003). The study used deductive approach due to its quantitative nature. It sought to do a factor analysis. A quantitative data was collected through a structured questionnaire and several statistical tests were done basing on the hypothesis of the study.

3.3.3. Research strategies

Mourton (2011) says that a research design serves the purpose of planning the research project and enhancing the validity of the research findings by providing the research project with a specific structure. A research design therefore is a plan used to gather data and answer the research question. These include case studies, experiments, forecasting, subjective research, action research and surveys. This research is a survey done with the staff and management of the mining sector and this was deliberated after a brief explanation of their strategies available to researchers.

The use of surveys permits a researcher to study more variables at one time than is typically possible in laboratory or field experiments. Data can be collected about real world environments. Comparing with other research methodologies, this has proved the most suitable when dealing with a causal effect relationship. It clarifies the dependent, independent, and extraneous variables.

This study used the survey method because of the advantages mentioned above. Since this study expect the staff and management in the mining sector to respond to a questionnaire on the influence of innovation to growth, a survey method enabled the researcher to attract a large group of people at one point in time through the questionnaire. The survey method allowed for more variables to be studied at one time.

3.4 Research instruments

Several data collection methods can be utilized. Some of the prominent methodologies include observations, interviews, and questionnaires. Data collection methods can be utilized individually or in combination to achieve the desired outreach. The research instrument used in this study was a questionnaire.

3.5 Questionnaires

Wegner (2008) defines a questionnaire as a data collection instrument that consists of questions that the respondents are supposed to answer. Questionnaires include structured interviews, telephone interviews as well as participant administered questionnaires. Questionnaires can be used for descriptive or explanatory research (Saunders *et al.*, 2003).

Questionnaires typically have the advantage of minimizing interviewer bias as well as achieving immense outreach cost effectively due to ease of distribution and collection. The latter is also attributable to technological advancement in conveying information. In addition, questionnaires acquire data simultaneously enhancing time management and can also be structured to simplify data streamlining.

A self-administered structured questionnaire was used as a research instrument for this research because of its advantages. Participants were comfortable to give information freely and anonymously using a questionnaire. A questionnaire was found to be the most appropriate method to the topic, which required some level of confidentiality. The benefits of the questionnaire included the ability to capture information from many people at the same time and the ability to organize and group data through structured questions. A questionnaire was also used to ensure that responses were more truthful than they would be in a personal interview. Due to time constraints on the part of the mining staff and management, the questionnaire was the best instrument for the study due to its versatility, simplicity and provision of a list of possible answers from which the respondents could choose.

Self-administered questionnaires can be handed out randomly wherever the target population can best be reached (Wegner, 2008). For this research, the questionnaires were distributed randomly by email to the staff and management of the mining sector. They were also collected in the same regard by the researcher.

The questionnaire was structured such that the first section of the questionnaire asked about the general demographic information of the respondents. Kangasharju (2000) argues that this section is important as statistical significance variance can be checked for all demographic variables that impact innovation and growth. All the other sections were asked in line to the objectives of the study as indicated by Wegner (2008) that when designing a questionnaire, attention should be paid to the type of questions to include, order of the questions and wording and structure of the questions to ensure that relevant, unbiased and accurate data of the correct type is gathered in line with the research objectives. In this research, a structured questionnaire was used to collect information from the staff and management of the mining sector.

The inclusion of '*other – please specify'* questions were used to make sure that there is clarity from the participant. Since the study is a factor analysis the questions requested respondents to indicate the extent at which each funding mechanism impact performance of the mining sector thus a five-point Likert scale where 5 = greatest extent and 1 = least extent. Respondents were also asked to indicate the factors affecting funding in the mining sector according to their

importance using a five-point Likert scale where 5 = most important and 1 = least important. Each question in the questionnaire was checked for its coverage, whether the respondent would be willing to answer the question. All questions were checked to ensure that they were asking relevant information.

3.6 Population and sampling techniques

Saunders *et al.* (2012) define a population as the full set of cases from which the sample is taken. Welman and Kruger (2002) define it as an object which is being studied. It can be organizations, events, individuals, human products, or the conditions to which they are exposed to. In this study, the population consisted mining companies affiliated to the Chamber of Mines of Zimbabwe. This population was identified purposively as data sought after was typically unique to organizations that were recognized by institutions and operating formal sector. As such, this ensured that only legally incorporated mining companies will participate.

3.6.1 Sample size

Approximately, there are 33mining companies affiliated with the Chamber of Mines of Zimbabwe. Both the population and sample size are relatively low therefore to fulfill the academic requirements of this research a census will be conducted. In coming up with the appropriate sample, there are other factors to be considered. These include the degree of precision with which the researcher wishes to draw conclusions or makes predictions about the population under study and the heterogeneity or homogeneity of the population (Leedy and Omron, 2000). A census should therefore be representative enough to enable the researcher to minimize bias and draw reasonable conclusions. The exact size of the census is 33.

3.7 Questionnaire administration

The researcher used a self-administered structured survey questionnaire to gather data from targeted respondents. With the help of enumerators, the researcher self-administered the questionnaires to the mining companies, At least three questionnaires were left per each mining company during working hours. Those who were busy were given two weeks to complete the

questionnaire with follow ups done to increase the response rate. Follow up were done after end of week one.

3.8 Data Analysis, Gathering and Process

Data analysis is a process of analysing the collected data, screening responses for anomalies, and organising data with the aim of revealing valuable information and coming to logical conclusions for decision making (Zigmund, 2003).

The Statistical Package for Social Sciences (SPSS) Windows was used to analyse data in this study. The questionnaire had questions formatted on a five-point Likert-type scale. The data were first examined using descriptive statistics to identify the frequency distributions. The Kolmogorov-Smirnov and Shapiro Wilk test of normality was carried out to ascertain whether the data followed normal distribution or a non-normal distribution. Results from this test determined whether parametric or non-parametric test would be used in data analysis. Correlation analysis was used to establish the association among the factors and then regression analysis was used to identify the causal relationship between the variables under study. ANOVA technique was used to test the significance of each independent variable to the dependent variable.

3.9 Research limitations

There were several limitations to the study, these are listed below.

- The mining employees are generally busy and always in the fields. This could have compromised participants' responses since sometimes they give hurried responses.
- Due to resource limitations, the researcher could not take on a bigger sample. However, it is believed the research would still be of value because new information uncovered by the researcher will add to the body of knowledge in this field.

3.10 Reliability and validity

3.10.1 Reliability

In the view of Sekeran (2003, p.203), the reliability of a measure "indicates the extent to which it is without bias and hence ensures consistent measurement across time and across the various items in the instrument." Reliability is the instrument which measures the repetition of the research findings, whilst the validity is the extent to which research findings accurately represent what is really happening in the situation (Kothari, 2004). An effective research instrument needs to measure what it intends to focus on to attain its objectives (Kothari, 2004). Data reliability entails that when data is processed into information it should be free from material error and bias and can be depended upon by users.

Reliability refers to consistency of a measure when an experiment is repeated several times using the same method (Joppe, 2000). To determine reliability before data collection the researcher will be informed by literature of how others who conducted a similar study measured the variables in the study. Cronbach Alpha will be used to determine reliability after data collection. Validity according to Joppe (2000) is one when results obtained are truthful and credible. Before data collection the researcher will test for discriminant validity by comparing average variances extracted (AVE) against squared inter construct correlation.

In this study, the reliability was tested using the Cronbach Alpha coefficient.

3.10.2 Validity

The validity of data from a study refers to "the confidence we place in the cause-and-effect relationship" (Sekeran, 2003, p. 149). Validity can be defined as the degree to which a test measures what it is supposed to measure (Kothari, 2004). An effective research instrument needs to measure what it intends to focus on to attain its objectives. There are three basic approaches to the validity of tests and measures as shown by Mason and Bramble (1989). These are content validity, construct validity, and criterion-related validity. Similarly, generalisability can be defined as the ability of the measured research goals to be applied to the general contexts obtaining in each field or discipline, despite the use of a sample in a study (Leedy, 1996).

To ensure that the results obtained in this study were valid, the researcher undertook a pilot study to test the questionnaires. The pilot study was undertaken a week before the final distribution of the questionnaires to the research participants. Those participants who had been included in the pilot study were excluded from the final study. The pilot test of the questionnaires helped to ensure that they were effective in measuring the intentions for which they were designed to meet the objectives of the study. Any errors found during the pilot testing phase, such as the existence of vague or leading questions, were eliminated by either restructuring or deleting the questions. The researcher also made sure that he was personally involved in the distribution of the questionnaires to avoid unforeseen errors that could occur due to delegation and to avoid excessive use of intermediaries who could possibly disturb the data collection and analysis process. Triangulation was also implemented as a strategy to put checks and balances on the use of the research tools and hence to help make sure that the resultant findings were reliable and valid.

3.11 Ethical considerations

This study followed the ethical procedures before, during and after the study as recommended by the university. Ethical considerations were observed at each stage of the study that is at data collection, data analysis, reporting of findings, conclusions, and recommendations.

3.11.1 Informed consent

The study also aimed at achieving the informed consent of the participants. Denscombe (2010, p. 332) states that respondents in a study "must have sufficient information about the research to arrive at a reasoned judgement about whether or not they want to participate." The informed consent in this study was therefore achieved by availing as much information about the study as possible to the potential participants and not forcing or coercing them to participate in the study. Information on the aims of the study, the background of the researcher and her institution was provided on the cover page of the research questionnaire and was explained by word of mouth before any interviews.

The researcher fully informed the respondents the purpose of the study. Therefore, their individual rights which include the right to consent, anonymity, confidentiality, privacy, and full

information on the nature of the research as well as the risks and benefits will be observed. In this research participants entered the research on their free will/voluntarily, knowingly and in a clear and manifest way. The researcher made sure that data collected will not be used for any other purposes except for the purposes of this research. The consent of the participants was requested as a ticking section on the questionnaire and verbally for the interviews. The informed consent helped the participants to be aware that they would be involved in the study and could be required to fill out the questionnaire or to be recorded.

3.11.2 Transparency

During data collection the researcher did not interfere with the respondents to ensure transparency. After data collection the researcher ensured that results found are not faked but will be reported as they are.

3.11.3 Anonymity

The study also ensured that the anonymity of the participants is protected. The anonymity of the participants is an important principle as it helps not only to protect the participants' interests but also to avoid the victimization and harm that they may suffer if their identities are known, as suggested by Saunders *et al.* (2011). Anonymity is important in a research as it allows the protection of the respondents' identities as revealing it might be detrimental to them one way or the other and exists when the final responses cannot be linked to a specific respondent. To protect the anonymity of the participants in this study, the researcher did not include their names, professional and personal profiles, photographs or any other in the entire research process. The participants also did not know each other and as such, both the questionnaires and interviews were conducted strictly on a one-to-one basis with the researcher. The researcher also did not keep any list of names, client numbers, identification, or any other personal details of the participants during the study.

3.12 Chapter summary

This chapter focused on research design, population, sampling procedure and sample, research instruments, data collection procedure and data analysis methods. The data collection

instruments utilized in the study were questionnaires. The advantages and disadvantages of these instruments were outlined. The next chapter will be on data presentation, interpretation, analysis, and discussion of the findings made in the study.

CHAPTER FOUR

DISCUSSION AND ANALYSIS OF FINDINGS

4.1 Introduction

The objective of the previous chapter was to present the research methodology. The two chapters have a direct relationship with all the chapter and with the previous chapter in sense that it then uses proposed analysis methods to present and to analyze the research objectives. The data collected was entered, managed, and analyzed using the statistical package called SPSS version 20. This analysis was presented in the form of descriptive analysis, reliability analysis, normality tests, correlation analysis, regression analysis and hypothesis testing. In an endeavour to ensure clarity and simplicity, tables and graphs were used in presenting the analysis and interpretation of the collected data.

4.2 Response Rate

According to Neuman (2000), the standard acceptable response rate of self-administered questionnaires is 64%. In this study the researcher administered 100 questionnaires to the target group and managed to get 60 back. This represents a response rate of 60% which is, according to the statement from Neuman, warrant validity and reliability of the study findings.

4.3 Demographic Analysis

This section provides an analysis of the demographic data that was collected during the survey. The demographics data which was collected for this study was the age, gender, and qualification. The analysis done using the descriptive statistics and the test of significant difference.

4.3.1 Gender

Table 4.1: Gender

A1gender	Mean	N	Std. Deviation	Median	Kurtosis
male	4.03	40	.698	4.00	2.335
female	3.65	20	1.226	4.00	.412
Total	3.90	60	.915	4.00	2.306

The table above shows that the mean response for male was 4.03 and that for the female was 3.65.

4.3.2 Education Levels of Respondents

Table 4.2: Education

Highest Qualification	Mean	N	Std. Deviation	Median	Kurtosis
Certificate	3.57	7	.535	4.00	-2.800
Diploma	3.36	14	1.082	4.00	1.817
Graduate	4.03	32	.822	4.00	1.757
Postgraduate	4.71	7	.488	5.00	-.840
Total	3.90	60	.915	4.00	2.306

The table above shows that average mean response on the national recovery of the company ranged from 3.57 to 4.71 implying that they all agreed that there is reasonably high financial performance in their mining company

4.4 Reliability Test

For a research instrument to be considered credible it must be valid and reliable (Sandada, 2015). Therefore, it was deemed imperative to ensure that the questionnaire measured what it was supposed to measure. Reliability test was also conducted to ensure that the questionnaire could be depended upon to secure consistent results upon repeated application in future research studies. The reliability of the scale is the degree to which a set of items measure the same construct (Hair et al, 2010). According to Malhotra (2007), a scale is reliable if the Cronbach`s Alpha values are equal to or exceed the recommended threshold of 0.70. From the computation of the Chronbach's Alpha, a significantly notable overall statistic was observed for the questionnaire, whilst the alpha statistics for the variables under study was significantly higher than the minimum threshold of 0.70.

The summarized tables below show the final reliability scores

Table 4.3: Reliability

Reliability Statistics

Cronbach's Alpha	N of Items
.913	31

The table indicates that the reliability scores for all the variables under study were perfectly above 0.70 which imply that the scores were acceptable, and the research instrument was reliable.

The table above shows that the reliability score for the dependent and the independent variables was 6.92 which is approximately equal to 0.7 and hence the data was reliable. The following table shows the reliability score if an item was deleted.

Table 4.4 Variable reliability

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Financing options	40.81	56.085	.464	.915
Factors affecting financing option	40.71	56.071	.600	.908
Financial performance	40.71	55.036	.635	.906

The table revealed that all the reliability scores were above 0.7 even after one item was removed. This justifies the findings above. The following section provides a test of the normality of the data.

4.5 Normality Test

The normality test can be conducted through either the Shapiro-Wilk test or Kolmogorov-Smirnov test and the decision on which test to use between these two is based on the sample size of the research study. The Shapiro-Wilk test is usually appropriate for small sample sizes (<1000 samples) whilst the Kolmogorov-Smirnov handle sample sizes greater than 1000 samples. The normality test establishes how data is distributed. On a normality test, a p value greater than 0.05 **(p>0.05)** indicates that the data is normally distributed signifying that the sample selected does not differ significantly from the population of the study and Parametric statistical tests can be performed using this data. On the other hand, if the p value is less than 0.05 **(p<0.05)**, then the data is not normally distributed as a result sample differs significantly from the population and this calls for the performance of Non-Parametric statistical tests on the data.

The sample size of this research study constituted of 60respondents and the Shapiro-Wilk test was deemed the most appropriate for normality analysis since the Kolmogrov-Smirnova test is suitable for very large samples. Table 4.5 depicts the SPSS analysis of the normality test.

Table 4.5: Tests of Normality

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Financing options	.284	59	.000	.868	59	.000
Factors affecting financing option	.348	59	.000	.801	59	.000
Financial performance	.421	59	.000	.661	59	.000
a. Lilliefors Significance Correction						

From the analysis, the p-values in the Sig. column portrayed that all the twelve (12) variables under study were below 0.05 **(p<0.05)**. In this case, with significance levels less than 0.05 **(p<0.05)** it meant that the data was not normally distributed, and the Researcher had to use Non-Parametric statistical tests in analysing the data.

4.6 Mining Financing Options

4.6.1 Descriptive Analysis

This section provides an analysis of the descriptive statistics from mining financing options. The descriptive analysis shows the level of agreement on the question items that describe the first objective of the study. The mean response was used to explain the level of agreement where the Likert scale used rated 1= strongly disagree, 2= Disagree, 3 =neutral, 4 = Agree and 5 =strongly agree. The table below shows the mean responses.

Table 4.6 Descriptive analysis: Mining funding options

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Project finance	60	1	5	3.45	1.064
Financing by IPO	60	1	5	3.58	.829
Financing from private equity funds	60	1	5	3.88	.889
Royalty Agreement	60	1	5	4.00	1.022
ESCROW accounts	60	1	5	3.70	.922
Streaming arrangements		1	5	3.65	1.064
Convertible loans	60	1	5	3.44	.829
Public bonds	60	1	5	4.58	.889
Loans from banks	60	1	5	3.80	1.022
Joint venture partnerships	60	1	5	3.62	.922
Offtake finances	60	1	5	3.90	1.064
Corporate bonds	60	1	5	3.78	.829
Trusts		1	5	3.90	.889
Equipment financing	60	1	5	3.80	1.022
Export credit agencies		1	5	3.94	.922
Development finance institutions	60	1	5	3.70	1.064
Government bonds	60	1	5	3.58	.829

The table above shows that respondents agreed to all mining financing options used in the mining sector. It is noted that none of the funding mechanisms involved qualified as most important implying that the sector envisages the mechanisms complement each other without a single dominating mechanism.

The figure below shows a histogram which was used to calculate the over mean response and the overall standard deviation.

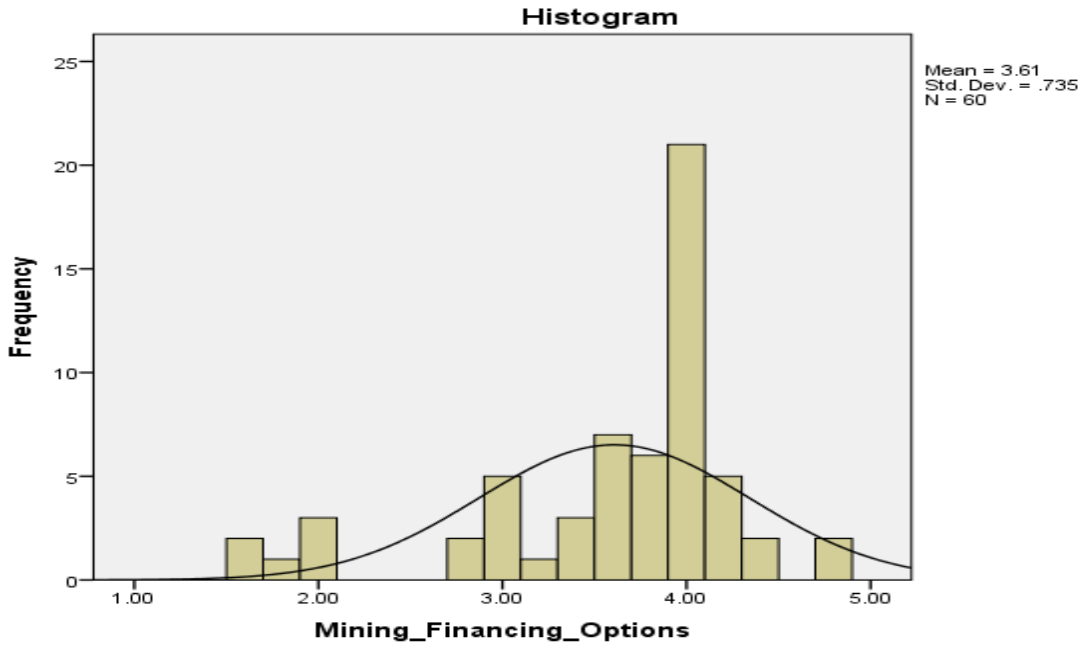


Figure 4.1: Mining Financing Options

The overall mean score was 3.61 which is approximately equal to 4 and hence it implies that respondents agreed to all the mining financing options as being existent at their companies. The following analysis provides an analysis of the for the mining fiancé options.

4.6.2 Factor Analysis: Mining Financing Options

According to Field, (2005) Kaiser recommends that Kaiser-Meyer-Olkin values between .5 and .7 are acceptable. Values between .7 and .8 are good values, those between .8 and .9 are great values while .9 values and above are superb values.

For these data, a KMO measure of sampling adequacy value of .785 was obtained. The value falls into the range acceptable which made the researcher confident that factor analysis is appropriate for this data. The value was reasonable enough to conduct a factor analysis.

Table 4.7: Testing Conditions to Justify use of Factor Analysis (KMO and Bartlett's Test)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.785
Bartlett's Test of Sphericity	Approx. Chi-Square	117.952
	df	10
	Sig.	.000

The Bartlett's Test of Sphericity was also considered which produced a p-value =0.000. This value was highly significant to make factor analysis appropriate. According Field (2009), a p-value which is smaller than 0.05, is significant indicating a significant correlation structure which makes factor analysis appropriate. In this case p= 0.000 signified a strong enough correlation structure telling us that the R- Matrix is not an identity matrix suggesting that there are some relationships between the variables the researcher intends to measure.

4.6.3 Factor Extraction

For these data SPSS output listed Eigenvalues in terms of variance explained, associated with each linear component before extraction, after extraction and after rotation. Table 4.7 shows one factor was extracted which have Eigenvalues > than one (1) explaining relatively large amounts of variance. The variance explained had cumulative percentage of 79. 647%. Rotation in the

Rotation Sums Squared Loading column helps optimise factor structure hence equalising the importance of extracted factor.

4.6.4: Total Variance Explained

Table 4.8: Total Variance Explained – External Factors

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.978	27.657	27.657	4.978	27.657	27.657
2	3.015	16.751	44.408	3.015	16.751	44.408
3	2.052	11.397	55.805	2.052	11.397	55.805
4	1.706	9.478	65.283	1.706	9.478	65.283
5	1.370	7.612	72.895	1.370	7.612	72.895
6	1.215	6.751	79.647	1.215	6.751	79.647
7	.939	5.217	84.864			
8	.850	4.720	89.583			
9	.620	3.444	93.028			
10	.421	2.340	95.368			
11	.329	1.829	97.197			
12	.236	1.312	98.510			
13	.154	.857	99.367			
14	.079	.440	99.806			
15	.024	.136	99.942			
16	.008	.043	99.985			
17	.003	.015	100.000			
18	-2.446E-016	-1.359E-015	100.000			

Extraction Method: Principal Component Analysis.

From the foregoing, 6 components with eigenvalues greater than 1.0 were extracted, and all explained of 79.647% of the total variation. The first component/factor had a variation contribution of 27.657%, while the second component had a variation contribution of 16.751%. The third component had a variance contribution of 11.397%, and the fourth component a

contribution of 9.478%, the fifth had a variance of 7.612% and the sixth had a variance of 6.751%. The corresponding scree plot is presented below:

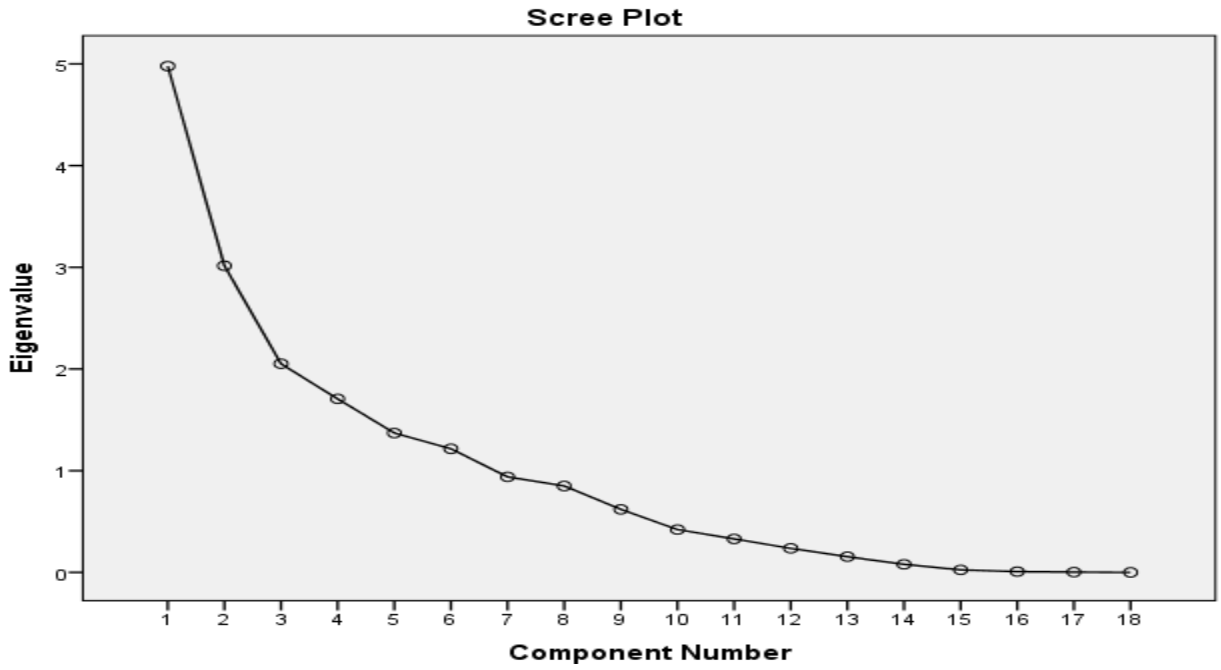


Figure 4.2: Scree Plot – Funding options

4.6.4 Rotated component matrix

Table 4.9: Rotated Component Matrix

Component Matrix						
	Component					
	1	2	3	4	5	6
Project finance	.828					
Financing by IPO						

Financing from private equity funds		.785				
Royalty Agreement	.					
ESCROW accounts						
Streaming arrangements						
Convertible loans			.726			
Public bonds						
Loans from banks						
Joint venture partnerships						
Offtake finances						
Corporate bonds					.720	
Trusts						
Equipment financing						
Export credit agencies						
Development finance institutions				.645		
Government bonds				.		742
Finance leasing						
Extraction Method: Principal Component Analysis.						
a. 6 components extracted.						

From the analysis, it can be concluded that there were essentially 6 prime financing options in the mining sector of Zimbabwe and these mechanisms are:

Factor 1: Project finance

Factor 2: Financing from private equity funds

Factor 3: Convertible loans

Factor 4: Public bonds:

Factor 5: Corporate bonds

Factor: 6: Government bonds

From the findings, 6 most important financing options for mining companies were identified. While other options available, the most preferred mining finance options were project finance, private equity funds, convertible bonds, public bonds, corporate bonds, and government bonds.

4.7: The effect of each identified funding option on the financial performance of the mining sector

The research sought to investigate the effect of each identified mining financing option on financial performance of the firm. A correlation analysis was therefore run to find the effect of each financing options.

4.7.1 Correlation Analysis

A spearman correlation was used to determine the relationship among variable because the data was non-normally distributed hence non-parametric tests were used. Correlation ranges from -1 for a perfect negative relationship to +1 for a perfect positive correlation. A positive relationship means there is an association of high values of one variable with high values of the other variable exists and it is vice versa for a negative relationship. In this section the main objective together with sub objectives will be partially answered whereby we get the association between the independent variables (financing option) and the dependent variable (performance), significance of the association and the direction. However, the magnitude of the association with be addressed by regression analysis. The table below shows the correlation analysis results. Magnitude quantifies the strength of the relationship whether it is weak (between 0.1 and 0.3), moderate (between 0.3 and 0.5) or strong (above 0.5) (Saunders et al., 2009). Statistical significance measures whether the relationship depicted could have happened by chance or not.

Table 4.10: Correlation Analysis

			Performance
Spearman's rho	Performance	Correlation Coefficient	1.000
		Sig. (2-tailed)	.
	Project finance	Correlation Coefficient	.323
		Sig. (2-tailed)	.012
	Private equity	Correlation Coefficient	.374
		Sig. (2-tailed)	.003
	Convertible loans	Correlation Coefficient	.361
		Sig. (2-tailed)	.005
	Public bonds	Correlation Coefficient	.501
		Sig. (2-tailed)	.000
	Corporate bonds	Correlation Coefficient	.455
		Sig. (2-tailed)	.000
	Government bonds	Correlation Coefficient	.410
		Sig. (2-tailed)	.020

Since the dataset was not evenly distributed and thus compelled to perform non-parametric tests, there was use of Spearman's rank correlation coefficient in the correlation analysis. The correlation analysis results show the following.

There is a positive, and statistically significant relationship between project finance and financial performance [$r=0.323$, $p<0.01$ ($p=0.012$)].

There is a positive, and statistically significant relationship between private equity and financial performance [$r=0.374$ $p<0.01$ ($p=0.003$)].

There is a positive, and statistically significant relationship between convertible loans and financial performance [$r=0.361$, $p<0.01$ ($p=0.005$)].

There is a positive, and statistically significant relationship between public bonds and financial performance [r=0.501, p<0.01 (p=0.012)].

There is a positive, and statistically significant relationship between corporate bonds and financial performance [r=0.455, p<0.01 (p=0.000)].

There is a positive, and statistically significant relationship between government bonds and financial performance [r=0.410, p<0.01 (p=0.020)].

4.8 Factors affecting Mining Financing Options

4.8.1 Descriptive Analysis

This section provides an analysis of the descriptive statistics on the factors affecting the financing options in the mining companies. The descriptive analysis shows the level of agreement on the question items that describe the first objective of the study. The mean response was used to explain the level of agreement where the Likert scale used rated 1= strongly disagree, 2= Disagree, 3 =neutral, 4 = Agree and 5 =strongly agree. The table below shows the mean responses.

Table 4.11: Descriptive analysis

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Politics	60	1	5	3.75	.895
Interest rate	60	1	5	3.65	.799
Technical information	59	2	5	3.83	.769
Skilled and technical staff	60	1	5	3.57	1.095
Currency crisis	60	2	5	3.80	.989
Inflationary pressures	60	1	5	3.65	.799
Policy inconsistencies	60	1	5	3.70	.799

Liquidity crunch	59	2	5	3.83	1.195
Technical information	60	1	5	3.90	.889

The table above shows that respondents agreed to all the factors suggested in the research instrument as justified by the mean responses which were all greater 3.5. The results imply that mining financing option is affected by several factors. The most affecting factors will be identified in the factor analysis that was conducted.

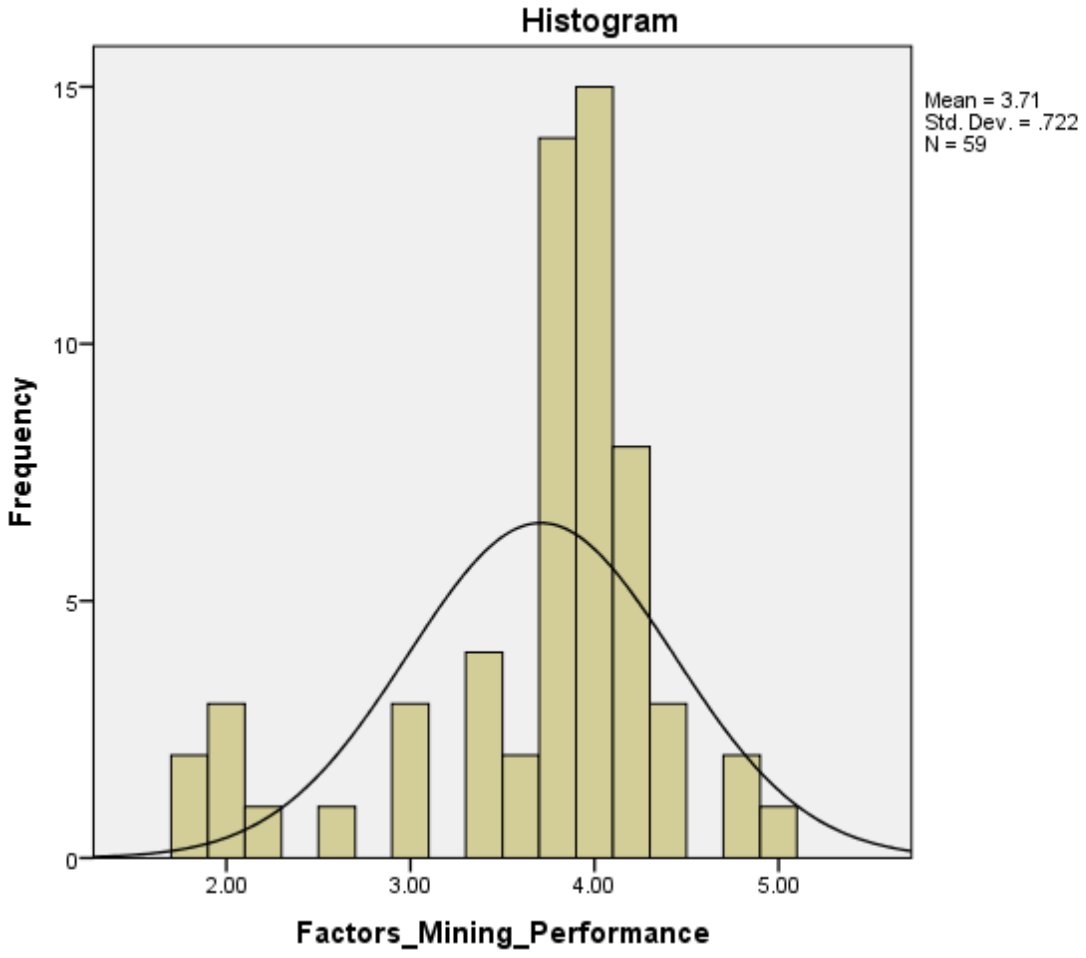


Figure 4.3: Factors affecting mining companies

The overall mean score was 3.71 which is approximately equal to 4 and hence it implies that respondents agreed to all the factors affecting mining companies. The following analysis provides an analysis on the mining financing options.

4.8.2 Factor Analysis: Mining Financing Options

To test the feasibility of carrying out a factor analysis, a KMO Bartlett test was run. For these data, a KMO measure of sampling adequacy value of .769 was obtained. The value falls into the range acceptable which made the researcher confident that factor analysis is appropriate for this data. The value was reasonable enough to conduct a factor analysis.

Table 4.12: Testing Conditions to Justify use of Factor Analysis (KMO and Bartlett's Test)

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.769
Bartlett's Test of Sphericity	Approx. Chi-Square	149.948
	df	10
	Sig.	.000

The Bartlett's Test of Sphericity was also considered which produced a p-value =0.000. This value was highly significant to make factor analysis appropriate. According to SCS (2011) and Field (2009), a p-value which is smaller than 0.05, is significant indicating a significant correlation structure which makes factor analysis appropriate. In this case p= 0.000 signified a strong enough correlation structure telling us that the R- Matrix is not an identity matrix suggesting that there are some relationships between the variables the researcher intends to measure.

4.8.3 Factor Extraction

For these data SPSS output listed Eigenvalues in terms of variance explained, associated with each linear component before extraction, after extraction and after rotation. Table 4.7 shows 4

extracted factors which s Eigenvalues > than one (1) explaining relatively large amounts of variance.

Table 4.13: Factors affecting mining finance options: Total Variance Explained

Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.360	33.598	33.598	2.980	29.797	29.797
2	1.717	17.173	50.771	1.641	16.413	46.210
3	1.328	13.284	64.055	1.614	16.140	62.349
4	1.071	10.707	74.762	1.241	12.413	74.762
5	.788	7.881	82.644			
6	.639	6.390	89.034			
7	.419	4.193	93.227			
8	.296	2.960	96.186			
9	.265	2.645	98.832			
10	.117	1.168	100.000			

Extraction Method: Principal Component Analysis.

From the foregoing, 4 components with eigenvalues greater than 1.0 were extracted, and all explained of 74.762% of the total variation. The first component/factor had a variation contribution of 29.707%, while the second component had a variation contribution of 16.413%. The third component had a variance contribution of 16.140%, and the fourth component a contribution of 12.413%. The corresponding scree plot is presented below, to confirm the number of extracted values.

4.8.4 Scree Plot

The scree plot retains the same 1 factor.

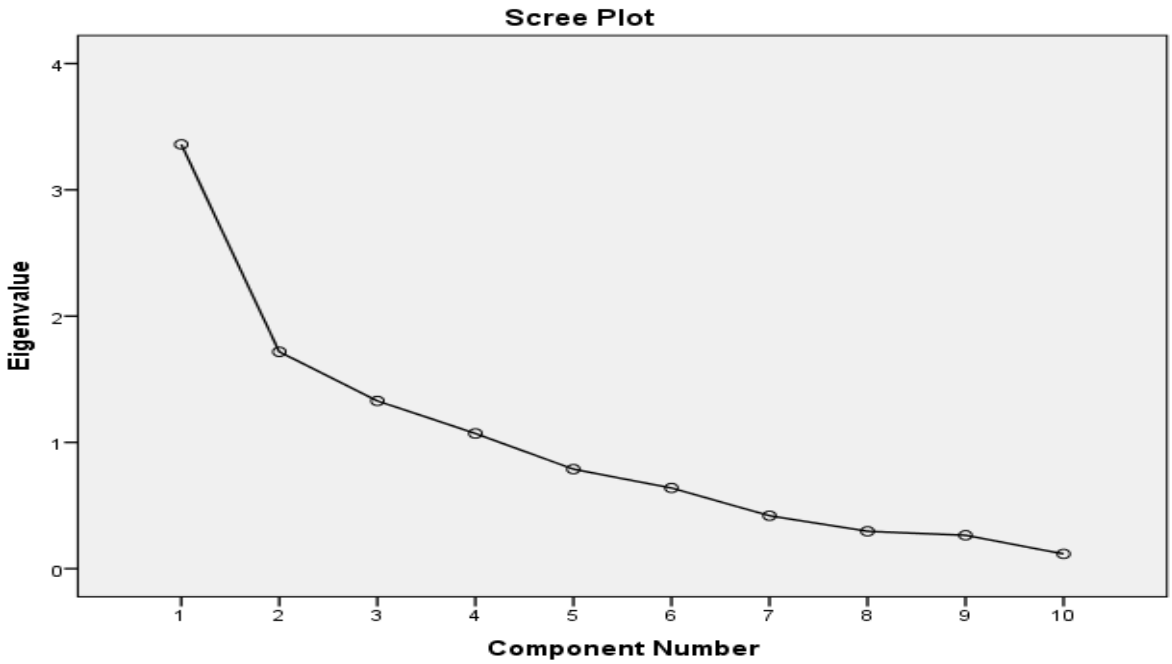


Figure 4.4: Scree Plot (factors affecting mining financing options)

The scree plot above generally justifies the identified mining financing options.

4.8.5 Factor Loadings

Table 4.14 shows the rotated factor matrix for each variable on to each factor.

Table 4.14: Mining Financing Options: Factor Loadings Rotated Component Matrix[a]

a				
	Component			
	1	2	3	4
Liquidity crunch	.570	-.527	.129	.176
Interest rate	.702	-.138	.080	.043
Currency crisis	.700	-.015	.002	.070
Inflation pressure	.858	.103	.193	-.142

Liquidity crunch	.731	-.081	.188	.088
Skills and competence	.288	.861	.058	.190
Technical information	.804	.063	.049	.659
Labour issues.	-.315	.760	.066	-.970
Politics	.132	.009	.892	-.099
Policy inconsistencies	.193	.052	.845	.098

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Factor 1: Economic factors

Liquidity crunch

Interest rate

Currency crisis

Inflation pressure

Liquidity crunch

Factor 2: Human resources

Skills and competence

Labour issues.

Factors 3: Regulatory framework

Politics

Policy inconsistencies

Factor 4: Technical information

New technologies

4.9 Discussion of Findings

This section provides the discussion of the findings which were done in relation to the literature review provided in chapter two of this study. The discussion used the major findings of the factor analysis and the correlation analyse that were carried out.

4.9.1 Major funding options available for mining projects in Zimbabwe

The finding that all the funding options were being practiced in the mining sector of Zimbabwe and with Pre export financing was consistent with Myers who highlighted that business managers prefer internal to external financing and debts to external equity.

Project finance

The analysis reveals that project finance is one of the dominant funding mechanisms in the mining industry of Zimbabwe. Mapleleaf (2011) elaborated on how prominent the sector securitizes its assets, contracts, and rights to obtain funding through demonstration of future cash flows which are the source of repayment. The findings therefore align to this assertion wherein each project is evaluated against its merits and funds issued on the bases of robust performance and security. In addition, Benning (2000) cited in African Development Bank (2014) reinforces this outcome in taking a position that project finance has become the most important form of funding for sponsors in mining projects. Benning (2000) further elaborates that funding packages are tailored made to suit project salient features.

Financing from private equity funds

The study established that financing from private equity funds is one of the commonly practiced funding mechanisms in the industry. BAZ (2014) considered private equity funds as an important funding option called on ahead of other options. BAZ (2014) argues that the mining industry is sensitive on control and ownership of enterprises due to scale of investment and would normally turn to private equity in the form of venture capital, bridge funds or growth capital seeking specific investors. The study seemingly supports this notion in revealing this characteristic of the mining sector.

Convertible loans

The study found that a convertible loan is amongst the most practiced funding mechanisms in the country as evidenced by a loading factor of 0.720. Wang (2012) cautions that convertible loans in their nature can be costly but at the same time agrees that during periods of volatility they are generally attractive as they provide downside protection yet aligning for participation in future upside. The Zimbabwe mining sector typically went through a volatile period during hyperinflation and low commodity prices during which most creditors converted through scheme of arrangements therefore the study reveals the importance of such arrangements in the mining sector.

Public bonds

In the study it was found that public bonds are one of the funding mechanisms that are in use in the industry. Meyer (2014) cited the limitation of public bonds as being associated with investment-grade credit rating such as listed enterprises. Typically, the penetration of the mining sector into the Zimbabwe Stock Exchange or any other offshore listing for that matter is low and therefore credit rating is an apparent issue. In this, regard the study reveals the presence of the funding option and the relatively low dominance.

Corporate bonds

The study also found that corporate bonds are some of the ways the mining companies are being funded. According to BAZ (2014) interest rates significantly contribute preference and availability of funding instruments. Lower interest of corporate bonds especially from large scale state-owned enterprises implies they are sought after on condition of availability.

Government bonds

Government bonds were found to be a way. Problems attributable to state-controlled marketing and remittance of revenue from commodities sales to the sector players pushed government to participate in funding options by issuing bonds against monies that would have not been remitted to producers. According to the Chamber of Mines the government is becoming a key player in

funding particularly the gold mining sector with bonds and treasury bills as it seeks to compensate monies owed to gold producers through marketing channels enacted by the Gold Act. It therefore becomes clear from the study that sector participants have identified this and are attributing it as a funding option available.

4.9.2 Effect of each funding option on financial performance of the mining sector.

The established relationship between the performance of the mining company and the suggested factors was supported by Sultan and Mustafa (2015) investigate the effect of capital structure on profitability among listed firms in Iraq and employ OLS regression analysis on panel data from firms within the industrial sector for the period (2004-2013). The study concludes that total debt ration positively and significantly affects ROA and ROE in the sample.

The positive relationship between the funding options and the Mining GDP was supported by Zawawi (2013). In his study it was concluded that the entire hypothesis, has a positive impact on GDP, partially accepted since in simple linear regression all the components of industrial sector show a positive relationship with GDP except mining and quarrying sector that not only shows the negative relationship but also gives an insignificant result (Ajmar, 2014). Mohd, Liew, Ghazali and Zawawi (2013) examined the causal relationship between the mining and construction sectors of Malaysian economy.

Bokhari and Khan (2013) found a negative relationship between total debt and ROA and ROE among Pakistani's non-financial sector firms. Mwangi, Makau and Kosimbei (2014) investigated the relationship between capital structure and the performance among 42 non-financial companies listed at Kenya's Nairobi Securities Exchange covering the period 2006 - 2012.

4.9.3 The factors affecting mining finance options

Economic factors

In Zimbabwe, given recent history of hyperinflation, political unrest and debt default, there is a high level of country risk. Damodaran (2009) provides estimates of country equity risk based on Moody's country rating. Zimbabwe is not included in the database, but Damodoran (2009) further estimates that countries with the lowest Moody's ratings have a risk premium of 15

percent over the premium for a mature equity market. Ultimately, this premium would be added to an estimate of the risk premium for an investment in lower rated countries. Topal (2008) noted that the standard discount rate for mining projects which accounts for standard risks in mining is 12-15 percent. Consolidation of Damodoran and Topal's views would imply a record high investor required rate of return between 27 – 30 percent for mining investment which makes it difficult to attract conventional investor participation for the market.

Human resources

The study revealed that human skills and competence affect financing option in the mining industry. Mutiwa and Fondo (2012) argued that some projects need highly skilled and technical staff. Mining projects need highly skilled technical staff for the successful initiation planning and implementation, monitoring and evaluation and even closure. These attributes have the effect of attracting funding by giving investors the confidence in the competency of management in facilitating their return on investment. The study ultimately acknowledges the presence of highly competent mine operators in the mining sector.

Regulatory framework

The research established the regulatory framework affect the mining financial options. Chidhakwa (2016) affirmed robust institutionalization of mining laws provide for improved and competitive mining legislative framework, which offers a conducive investment environment for local and foreign investor whilst simultaneously curtailing prejudice to national fiscus. North (1990), concurred with Williamson (2000) in that institutions are relevant for enactment of set laws and policies. The institutional framework is considered to comprise of fundamental political, social, and legal guidelines that govern the principles for production, exchange, and distribution thereby defining the conditions under which businesses transacts (North, 1990). Institutions are generally born out of relevant legislation governing the business facet and operate under rules, laws and contract that represent choices preferred to give structure to its activities.

The government must endeavor to promote efficient transactions by clearly stipulating in black and white what is acceptable and what is not. If inefficient costly, and that institutions mitigate costs of transacting in a society, it can be derived that efficient markets depend on market-based supporting institutions. Davis and North (1971) emphasized that the formal institutions of a society, those political, social, and legal rules of the game that a country has in place have important consequences for foreign and local investors. It therefore implies that investors consider as efficient marketplaces, those destinations where governments have established formal institutions to govern sound policies. These destinations are more likely to harness investment than others.

Technical information

SRK (2014) asserts that there is broad acknowledgement that the nature of technical information available largely follows the development status of the mineral asserts. In line with this the Zimbabwe mining sector is dominated by shut operations that have demonstrated capability through previous spates of operations thus deemed to be retaining a wealth of technical information from operating experience. BAZ (2014) suggests thorough due diligence to achieve desired levels of technical information to motivate funding. The study exposes the presence of the technical information derived from solid operating experience and its positive contribution to funding as a result.

4.10 Chapter Conclusion

This chapter provided the analysis of the study findings and the related discussion which were done in relation to the literature review. The research identified the prime funding options that are used in the mining industry through a factor analysis. A correlation analysis was done to measure the impact of the identified factors to financial performance of the mining companies. A positive and significant impact was established on all the factors. The factors affecting mining performance were also revealed through a factor analysis. The next chapter provides the conclusions and the recommendations of the study.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the conclusions and the recommendations of the study basing on the findings from the previous chapter four. From this chapter, the achievement of research objectives and the answer to the research questions will be outlined. The chapter explains the theoretical, methodological, and empirical contribution of the research. It also provides the recommendation of the research that are directed to the policy makers and the management of mining sector. The generalisation of findings, limitations and the areas of forms that last sections of the chapter.

5.2 Achievements of research objectives and aims

The aim of the research was to assess the influence of mining project financing options for national economic recovery in Zimbabwe. The sub-objectives were to identify the major funding options available for mining projects in Zimbabwe, to establish the effect of each funding option on the total annual revenues of the mining sector and to determine the relationship between each funding option and the contribution of mining to national GDP.

The objectives were achieved by gathering relevant literature to the study, collecting quantitative data in the mining sector using a structured questionnaire which was designed guided by the research objectives of the study. The data collected was analyzed in accordance with the research objective. Conclusions were made on the hypothesis basing on the correlations and regression analysis. The following section provides the conclusions that were made from the findings.

5.3 Conclusions

5.3.1 The major funding options available for mining projects in Zimbabwe

The study concludes that the funding options available in the mining sector of Zimbabwe are project finance, finance by private equity, public bonds, corporate bonds and loans from banks and other financial institutions. Government bills and bonds are also another finding option available

5.3.2 The effect of each funding option on the financial performance of the mining sector

The study concluded that if mining funding options and financial performance influence each other. The availability of funding options increase on total annual revenues and there will be an increase in profitability. Funding will lead to Infrastructural development, mining exports increases, new technologies will be introduced, and the GDP will rise.

5.3.3 The factors affecting mining financing options

The study concluded that factors that affect mining financing are Economic factors
Human resources, Regulatory framework, and Technical information.

5.4 Contribution

5.4.1 Theoretical

The empirical results of the study enhance the understanding of mining funding options and national economic recovery. By growing body of literature supporting the positive impact of economic recovery.

Despite the growing body of literature that supported the positive impact of funding options to national economic recovery, a significant number of studies still have some insignificant relationship between funding options and recovery.

5.5.2 Methodological

Finally, a methodological contribution relates researcher's ability to use the research design and survey method in this study. This research contributed to methodology because it was able to

use quantitative methods to gather data in the mining sector. However, using quantitative alone creates a research gap because of its limitations. Other researchers can use other research methods for future studies to broaden the amount of data collection and accuracy of responses. Methods like focus groups, case studies as well can also be employed to gather research data. The methods yield valid, verifiable and reliable data. Qualitative methods can also be employed in future research since the current study used quantitative analysis. However, the draw backs of qualitative analysis should be taken into consideration particularly lack of objectivity and failure to generalise findings.

5.5.3 Empirical

The research study endeavored to provide both academic and practical contributions to the existing body of literature on funding options and economic recovery. On the academic side, the study contributed fundamental literature in the mining sector. The study also seeks to provide empirical evidence to substantiate other researches that were conducted especially in Zimbabwe

5. 6 Policy recommendation

The ability of the mining sector to access financing in a depressed economy like the one currently characterizing the country requires that the mining companies to be innovative and look beyond the borders. The ability of the sector to attract financing require that the laws governing mining in the country are transparent and investor friendly. Other issues that would require attention include the current indigenization laws should be clarified; the Staff Monitored Programme adhered to, the mining supporting infrastructure e.g. railway lines attended to.

5.7 Managerial recommendations

5.7.1 Royalty Agreements

It is recommended that the mining sector should use Royalty agreements. This is a form of upfront finance in return for future payment typically based on either a percentage of the value of the product produced or the profits or revenues generated from the mine. Royalty agreements can be an attractive source of finance, offering a non-dilutive and non-controlling source of capital and a deferred repayment date only when the project yields revenue. Royalty arrangements can

be ideal for struggling mining companies and the findings from their study proved that royalty arrangements cause mining companies to improve their productivity.

5.7.2 Escrow accounts

Escrow account arrangement can work in depressed economy such as the Zimbabwean economy where the risk attending to the economy are high, an Escrow account can be established offshore with a tight legal agreement/arrangement possibly with offshore guarantees, in order to support working capital requirements for mining companies. This arrangement will give comfort to the financiers whose fears will be based on non-performance.

5.7.3 Streaming arrangements

Streaming arrangements can be used by the sector. These are contracts for on-going supply of mineral production under which upon advance payments of a premium, the buyer agrees to purchase at a fixed, discounted and predetermined price, all or part of the mineral to be extracted by a mining company during a certain period or throughout the life of a mine. Streaming arrangements are effective funding mechanisms for mining companies in a depressed economy.

5.7.4 Joint ventures

The sector can use joint venture which is a temporary partnership that two companies form to gain mutual benefits by sharing costs, risks and rewards. In this case the mining companies need to look for partners who bring in money, capital and relevant skills. The arrangement should have the exit strategy and should have a predefined lifespan. These can be considered on a more regular basis for large projects with significant capital outlays.

5.7.5 Equipment financing

The sector can also use Equipment financing. Assets can be used to raise finance in a mining company. Financing could be raised off the back of existing equipment or carved out of the assets secured by project finance banks to raise additional financing. Equipment suppliers may be willing to enter buy back arrangements whereby they agree to repurchase the equipment at the end of the Project thus providing additional comfort to equipment financiers.

5.7.6 Export credit agencies

Export Credit Agencies (ECAs) is another source of finance and credit support to consider are ECAs. While ECAs have been active in mining projects for many years, given the current lack of commercial liquidity, consideration should be given to whether the Project can be structured to increase the country content to involve one or more ECA.

5.8 Generalization of findings

This research was carried out in the mining sector in Zimbabwe. A bigger sample was used, and the sampling met the requirements of the probability sample the findings can be generalized to mining sector. The generalizability of the study is given credence by the consistency of the findings with contemporary extant literature. To enhance generalizability, the study can be extended to other sectors other than the mining.

5.9 Research limitations

The quantitative approach used in this research has a limitation that it lacks in depth information as compared to qualitative research. The policy issue tackled in this research of mandatory and voluntary approaches require a qualitative research that would bring out the attitudes of companies especially towards the funding options and recovery of the national economy. In depth interviews and focus groups would reveal more for policy recommendations. This research was cross sectional because of the cost and time limitations.

5.10 Areas of further research

This research was purely quantitative and may not have exhausted on mining funding options and financial performance, hence a further study can be carried out using qualitative methods to yield detailed results.

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APPENDICES

Appendix A: Research Introductory Letter

UNIVERSITY OF ZIMBABWE

FACULTY OF COMMERCE

GRADUATE SCHOOL OF MANAGEMENT

My name is Robert Sibanda. I am a student from the University of Zimbabwe studying towards a Master's in Business Administration. I am carrying out a research in part fulfillment of the requirements of this program. The title of the study is "Sustainable mining project financing options for national economic recovery in Zimbabwe."

This questionnaire seeks to obtain your views on the sustainability of mining finance options. Your honest response to the questions that follow will contribute immensely to this research and will be used strictly for academic purposes.

Any information provided will thus be treated with utmost confidentiality. Should you require any clarifications, please feel free to contact the undersigned.

It should take you between 10 to 15 minutes to complete the questionnaire.

Thank you in advance.
Sibanda, Robert

Cell No 0773 046 614

Date…….

Appendix B: Research Questionnaire

Please tick the appropriate responses in the boxes provided.

SECTION A: DEMOGRAPHIC INFORMATION

1. Gender

Male	
Female	

2. Age group

Below 25	
26 – 35	
36 – 50	
Above 50	

3. Highest academic qualification

Certificate	
Diploma	
Graduate	
Postgraduate	

SECTION B: RESEARCH DATA

The following boxes contain statements which you will need to validate by ticking the appropriate response level as it exists in your organisation. The scale used is as follows:

1 = lowest possible extent (0-19%). 2 = Low extent (21-40%). 3. Fair extent (41-59%) 4 = High extent (60-70%) 5 = highest possible extent (71%-100%).

	1	2	3	4	5
Mine financing options					
Equity					
Off-taker loans					
Royalty agreements					
Pre-export finance					
Streaming					
Corporate bonds					
Trusts					
Equipment financing					
Export credit agencies					
Development finance institutions					

Government bonds					
Finance leasing					
Corporate bonds					
Trusts					
Equipment financing					
Export credit agencies					
Development finance institutions					
Factors affecting mine performance					
Politics					
Interest rate					
Technical information					
Skilled and technical staff					
Liquidity crunch					
Currency crisis					
Inflationary pressures					

Policy inconsistencies					
Liquidity crunch					
Technical information					
Extent of economic performance					
GDP					
Financial performance (sales, profits)					