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An In-Depth Study on Challenges Faced By Junior Coal Mining Companies in South Africa

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Abstract

This paper revels the inception of junior coal mining companies into the coal space in South Africa. Even though they are supported by other entities like the government, Eskom and Transnet they still face a lot of challenges in operations, finance, logistics, equipment, and other issues leading to high risk of companies shutting down. Literature review outlines the big coal mining houses and their contribution in the coal industry. Due to that there is little knowledge about junior coal mining companies the researcher conducted an explorative descriptive design method which included questionnaires and interviews on 85 junior companies. The results show that they do contract mining, hire transportation, and they get most of their finance from the private investors. In conclusion the public and private sector should do more in order to ensure the survival of junior coal mining companies.

1. Introduction

The South African coal industry has of late witnessed a number of junior coal companies joining the sector. However, these junior companies seem to be facing a number of challenges, particularly in production processes. A junior company is defined by Mitchell (2016) as prospecting organizations who are just associated with the beginning phases of mining. Anyway, in South Africa, it implies a black economic empowerment organization (BEE) or a small scale mining activity and there is an expanding number of junior coal mining organizations in South Africa, which account for 30% of the coal production according to Prevost (2013).

Junior coal miners are supported by the government through the mining charter of 2016 which encourages 26% black ownership (Broad Based Black-Economic Empowerment) in mining companies. On the other hand, junior coal miners are supported by Eskom which wants them to supply 40% of thermal coal (Eskom, 2016). Based on this, Richards Bay Coal terminal in conjunction with Transnet increased its capacity to boost junior coal miners (Kolver, 2014). Regardless of all this support junior coal miners still face a lot of challenges in operations, finance, skilled personal, equipment, legal documentation, safety, environment, and other issues leading to high risk of companies shutting down. According to Deloitte (2016) reports states that as exploration dwindles, junior miners continue to fight tooth and nail for survival and, despite these headwinds, governments still expect miners to help bolster their economies through taxes, royalty fees, shares of profit, infrastructure spend and community investments.

2. Literature Review

According to Hartnady (2011), coal crisis in South Africa which has been caused by absence of re-investment by the major coal mining entities like Anglo Coal, BHP Billiton, Exxaro, Sasol, and Glenco, which opened up opportunities for junior coal mining companies, with the assistance received from the government, Eskom, Transnet and Richards Bay Coal Terminal. Prevost (2003) "the South African coal industry is rapidly approaching a stage of stagnation, mainly due to a lack of re-investment by the main producers, when the industry has therefore recently not been able to raise its production. On the contrary, the industry is steadily decreasing its coal

production output and exports. Around this time, most of the large collieries with an output of more than 10 million tons per year will close down or their reserves will be near exhaustion. If by then the industry has not been re-structured to generate more small mines with lesser output, it will be too late"

According to the publication released by PWC (2013), the big five coal mining companies are listed on the Australian stock exchange, London stock exchange, New York stock exchange, and Toronto stock exchange. So this means that these large coal mining house are foreign listed companies with assets in South Africa and investors are disposing off their assets which is creating opportunity for local junior coal mining companies. This situation expressed during the 1990s by a procedure of legitimization, of which various huge mining companies created and this, in the end, prompted the 'huge six': Anglo Vaal, Anglo American Corporation, Rand Mines, Johannesburg Consolidated Investments, Gencor and Gold Fields. These six mining houses controlled the business for the vast majority of the twentieth era. It is of good consideration to take recognition of that the six large mining companies after World War II still commanded the exchange in 1990. Anyway, during the 1990s a rebuilding procedure started and the vast majority of the previously stated mining houses delisted from the Johannesburg Stock Exchange and also converged with other global mining organizations or recorded their head workplaces on universal trades, for example, on the London Stock Exchange. The mining business in South Africa had grown all-inclusive and this could have had huge influence on how the business would work at a nearby dimension. It additionally opened up open doors for new rising organizations, equally South African and global, to extract South Africa's rich mineral assets. (Mitchell, 2002).

The five largest mining groups in South Africa are BHP Billiton, Anglo Coal, Sasol, Exxaro and Xstrata, they supply almost 74% – 80% of the commercial coal in South Africa (Dabrowski 2008, Mining Weekly 2010). There are Forty-two coal mining companies in South Africa (DME, 2009), even though six companies namely SASOL Mining, Anglo Coal, BHP Billiton, Exxaro Coal, Kumba Resources and Xstrata Coal are accountable for about 90% of the country's commercial coal output. But the GCIS argue say that eight largest mines are accountable for 61% commercial coal of production (Rafey, 2011). According to Eberhard (2011), argues that a great amount of the coal steam for export and domestic markets is produced by eight mega-mines, with an output of greater than 10 Mtpa each, seven companies are located in the Central Basin. The Five big mining entities contribute up to 80% of coal output in South Africa: Exxaro, Anglo-American, BHP Billiton, Sasol and Glencore. This statement is also emphasized by Steyn (2009) who also says the same statement. According to DME (2015) above 71% of the marketable coal output was provided by mines controlled by the three largest mining groups, 23% Sasol, 26% Ingwe (BHP Billiton) and 22% Anglo Coal. The seven largest coal mining companies were accountable for 55% of the aggregate production. Six large mines had an output of 19%, nine medium sized mines had an output of 14% and 32 junior coal mines made up the remaining 12%.

A small (by tonnage) junior mining segment makes up the rest of generation, including organizations which have become out of expansive Black Economic Empowerment bargains, for example, African Rainbow Minerals, or Shanduka Coal; listed outside South Africa, and small-scale locally-based mining organizations (Burton, and Winkler, 2014). South African junior coal mining companies now account for about 30% of the country's total annual production and this has been enabled by the Black Economic Empowerment which was brought into action in 1994 and also through Eskom according to SACRM (2013). According to Steyn (2009), the 30% of total production of coal in South Africa is divided into many junior coal companies and the share percentage are as follows; Shanduka is the fore front-runner in relations to junior coal mining organization, generating 50% of JMS produced coal. Worldwide, Petmin, Kuyasa, Anker, Umcebo and Mashala have an output between 4% and 6% of JMS produced coal, and the balance of companies are grouped under "Others". The other JMS companies contribute amongst 1% and 3% of annual output.

3. Research Methodology and Research Design

3.1Exploratory descriptive design

Exploratory research studies what has not previously been studied or little is known about the study and endeavours to ascertain new information, new considerations, new sympathies, and new implications and to explore factors related to the challenges facing junior coal miners in Mpumalanga (Ehsan et al., 2017 and Saunders et al., 2018: 1893-1907). The research design was exploratory because it met the principles portrayed by Polit and Beck (2018:216), this research attempted to explore the full nature of the phenomenon and the method in which it becomes manifested. Results of exploratory studies are not certainly generalisable to a larger population but provide a better appreciation of the sample being examined (Burns & Bush 2010:57, Grove, & Gray, 2018). The researcher deemed this approach to be suitable for gaining a better understanding. Given (2008:327) refers to

a wide range, deliberate, methodical data gathering designed to exploit discovery of oversimplification based on narrative and clear understanding of an area. Such research is, reliant on the perspective taken, a idiosyncratic way of conducting science as a scientific procedure. It is equally a distinct methodological approach, separate from verification or confirmation, and a prevalent personal orientation of the exploratory researcher.

Exploratory research explores the significant aspects to ascertain a suitable explanation of the realism of the current context (Brink & Wood 1998:283-286). Descriptive research offers a detailed description of features on a particular individual, event or industry in real circumstances (Polit & Beck 2018:229). A descriptive research methodology may be applied with the intention of for the purpose of coming up with a theory, detecting challenges on present processes, explaining the processes, drawing conclusions, or establishing activities in related situations or circumstances (Saunders *at al*, 2015:176). The aim of a descriptive research methodology is to identify the opinions and understandings of the respondents about the phenomenon under study (Burns & Grove 2017:293). This paper endeavoured to ascertain and define elements that resulted in the process challenges faced by junior coal miners in South Africa.

3.2 Population Sample

Gray, Grove & Sutherland (2017:53) allude to population as all the components that represents the focus for inclusion in a study. Gray, Grove & Sutherland (2017: 330) define eligibility criteria as "a list of characteristics that are required for the membership in the target population". Target population of this research was in South Africa focusing in Mpumalanga junior coal miners are more concentrated as illustrated in figure 1.1. These were viewed by the researcher as accessible as they could easily be contacted and were able to give meaningful contributions and feedback to the research.

Figure 1.1 Map of Mpumalanga

The sampling frame of companies was obtained from the Department of Minerals list that was found on their data base which does not have all the companies due to the spontaneous mushrooming and shut down of these companies in the industry. This study involved random selection from the listed companies. Therefore, the internal and external validity was expected to be high. Random selection gives each participant, an equal chance of being selected and as a result reduced an element of bias.

3.3 Research Instruments

Primary data was used to get first-hand information in relation to the current position of junior coal mining companies. The researcher constructed questionnaires on google forms and personal interviews.

Personal interviews involved one on one interviews through the phone with respondents which had been arranged through prior appointment. Personal interviews were conducted in several ways, telephone, skype, video phoning, and face to face interviewing while the respondent filled in the questionnaire. These methods were employed because they are quite flexible and it aids the researcher to collect a large amount of information. The use of interviews eliminated uncertainty as to whether the questions were fully understood. This was particularly

important where the answer to one question determined what the next question would be. The researcher could use facial experiences and voice tones to study participant's behaviour.

4. DATA ANALYSIS, INTEPRETATION AND PRESENTATION

In this study, 120 questionnaires were distributed to junior coal mining companies and 85 respondents replied and 35 did not reply. According to Saunders et al. (2018) a 71% response rate is high enough to warrant validity of the study findings.

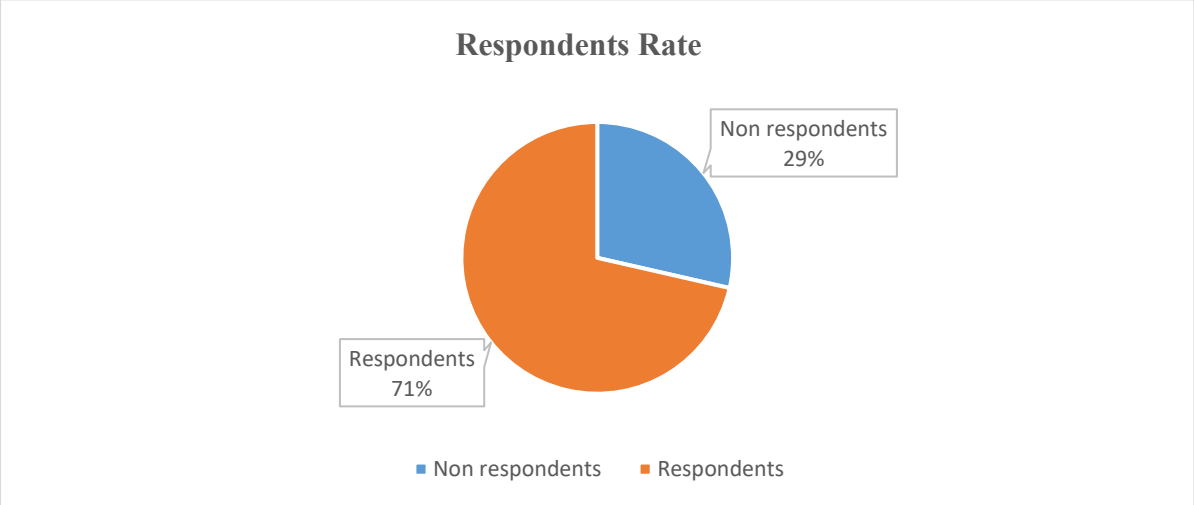


Figure 1: Respondents Rate

How the company conduct its mining activities.
The study also intended to find out how the companies mine the product and the results were as illustrated in the figure below.

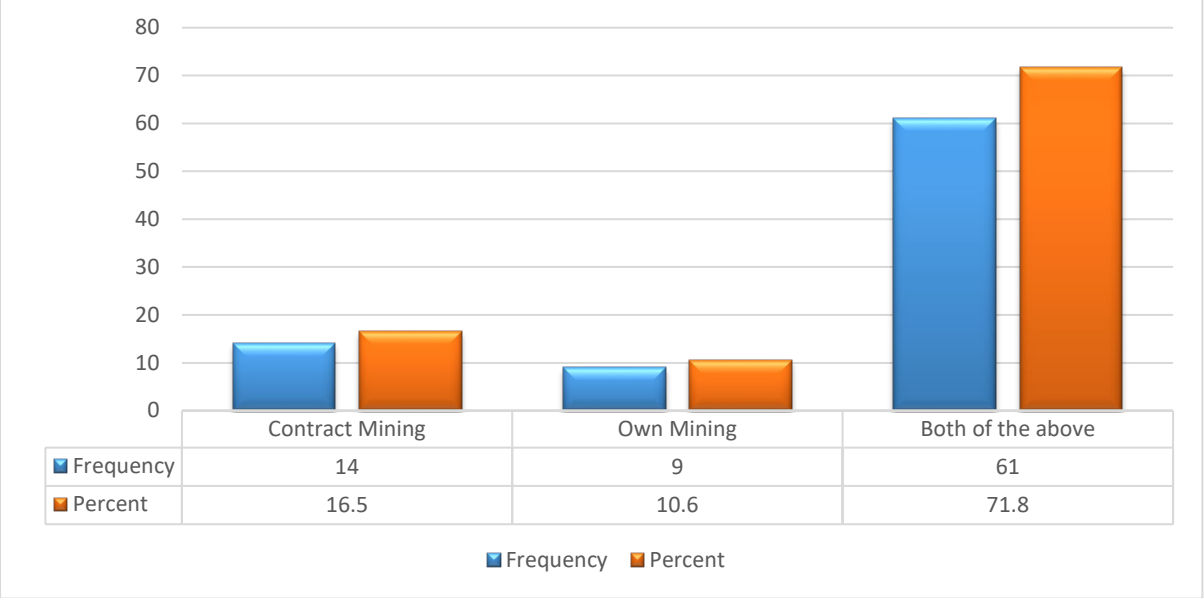
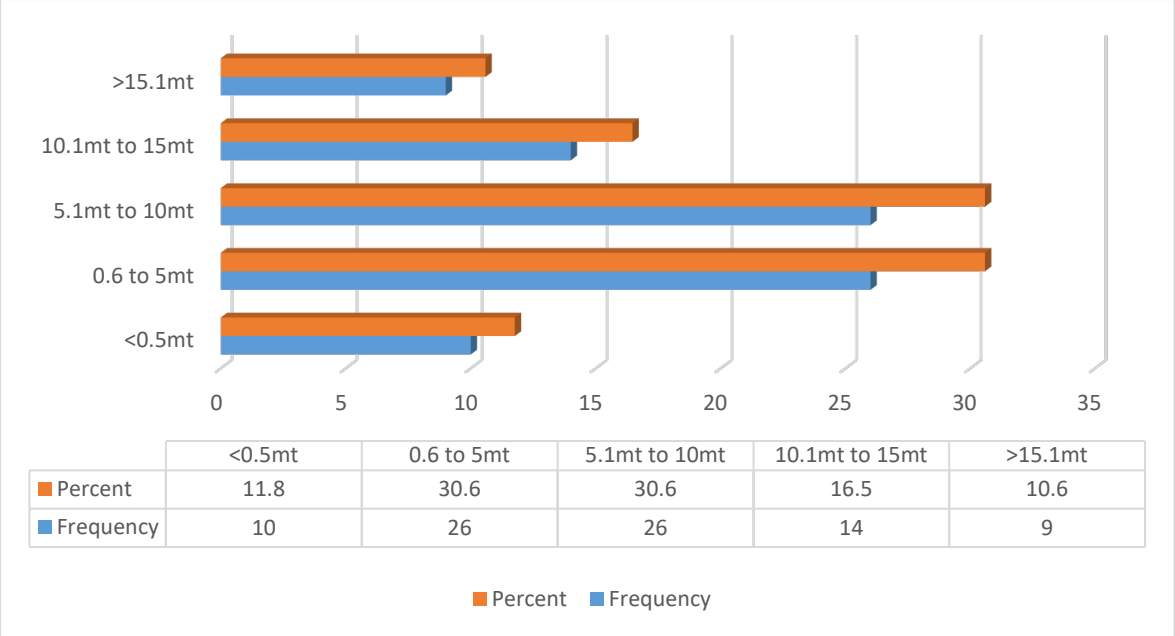


Figure 2: Mining activities

Figure 2 Illustrates that 17% of the respondents said they hire contractors, 72% use both methods the contractor and owner mining as to spread the risk and profits. On the other hand 11% of the respondents do their own mining because they have all the resources. Hiring contacting companies seems to be dominating because junior coal miners don't have the capital to buy mining equipment and in general, mining engineers are few in South Africa. It is difficult to find someone with the expertise and being paid low salary. During the interviews the researcher found out that miners were not the only people who were outsourced, but also other expertise like geologists and environmentalist were outsourced. Companies that do their own mining seem to have grown and can source almost

everything internally. Those companies which do both said they are trying to reduce the cost of hiring mining contractors of which the hired company will take up to 80% of the profits from the sale of products but it depends with terms and conditions of the contract.

The Annual average production tones (mt)



	<0.5mt	0.6 to 5mt	5.1mt to 10mt	10.1mt to 15mt	>15.1mt
Percent	11.8	30.6	30.6	16.5	10.6
Frequency	10	26	26	14	9

Figure 3: Tonnage

Figure 4 illustrates that 12% of the companies produce less than 0.5mt, 31% produce 0.6 to 5mt, another 31% of the companies produce 5.1 to 10mt, 17% produce 10.1 to 15mt, 11% produce more than 15.1mt.

Does the company have a contract with either Eskom, Sasol or other markets?

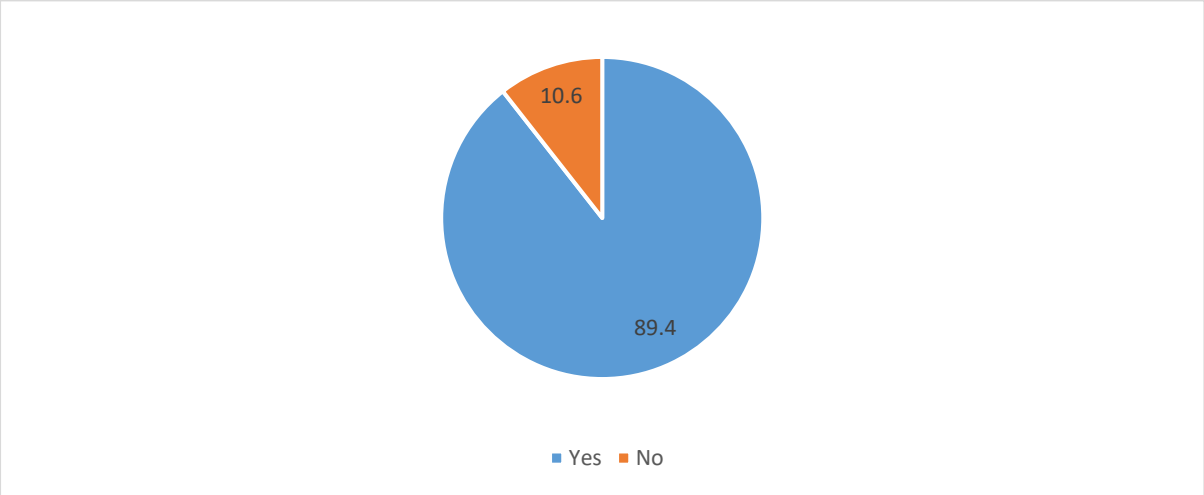


Figure 4: Supply Eskom or Sasol

Figure 5 illustrate that 89% of the respondents have a contract with Eskom and Sasol. These contracts seem to be of huge benefit to the junior coal miners since they have a ready market and they will be assured that they will make steady income from the proceeds of the sale of their product. 11% do not have a contract with Eskom or Sasol but 52% percent of their products they supply the domestic market. According to DME December (2008), the domestic market consists of the following industries, Cement, Brick and tile, Arcelor Mittal steel, Metallurgical, Chemical industry, Iron and steel, Merchants, Agriculture and other domestic uses. 46% goes to the export market which includes Asia, Africa, Europe and South American countries. 2% of the respondent did

not specify but they said other markets. On another not the companies which have contractual bounds with Eskom and Sasol also supply the domestic and export markets.

Type of Transport used for Ferrying Product to the Market

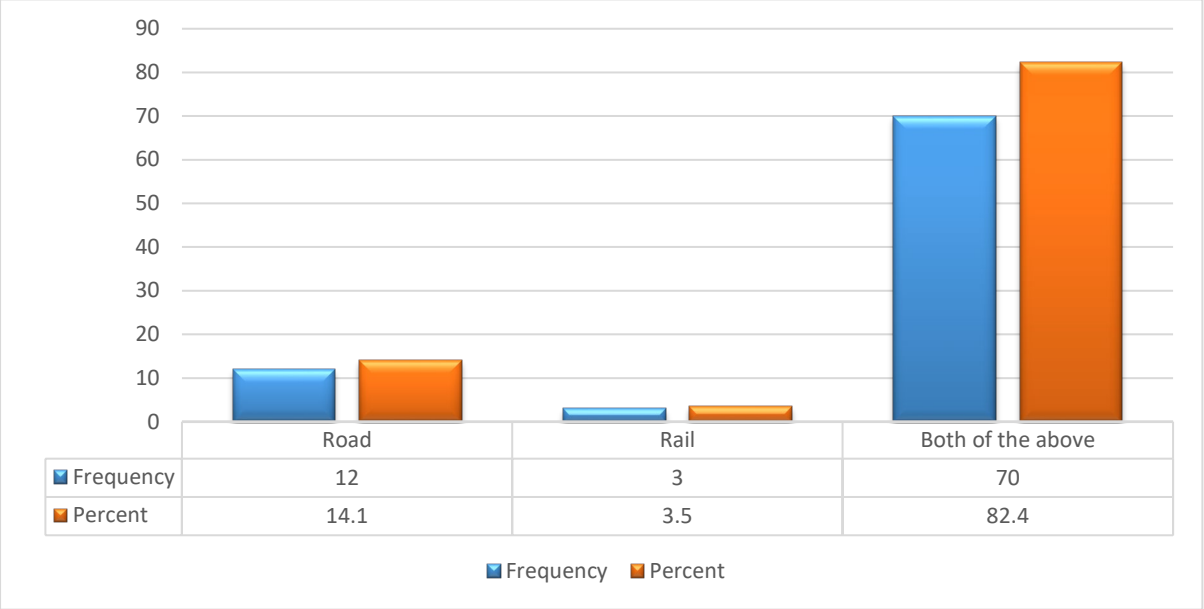


Figure 5: Type of transportation

Figure 6 illustrates that 14% of the junior coal miners use road to transport their products, 4% use rail transport and 82% use of both road and rail. Companies who use road transport usually supply the local market and the 13 Eskom power stations outlined in table 2.6 and figure 2.7 of the literature review. Rail transport is mostly used by the exporting companies to transport their products to the ports and the rail route is depicted in figure 2.10 of the literature review. Conveyor belts are used to transport coal to Eskom power-stations which are located near a mine but at the moment the junior coal miners who use conveyor belts usually rent space they do not own the equipment.

Challenges associated with the transportation channels used:

Road transport – about 80% of the junior coal miners we facing challenges of damaged roads, 15% were of the opinion that road transport is expensive yet it transports 30 tons of coal per truck, 5% were complaining about truck break downs.

Rail transport – most of the companies stated that rail is too slow and it increases the price of storage at the port. The other problem they mentioned was that the railway lines are far away from their mines and the port so they is a need to hire trucks between the mine and the railway station and between the railway stand and the sea port.

Way of raising Capital

The study also intended to find out how junior mining companies sourced their finance and the answers are shown below:

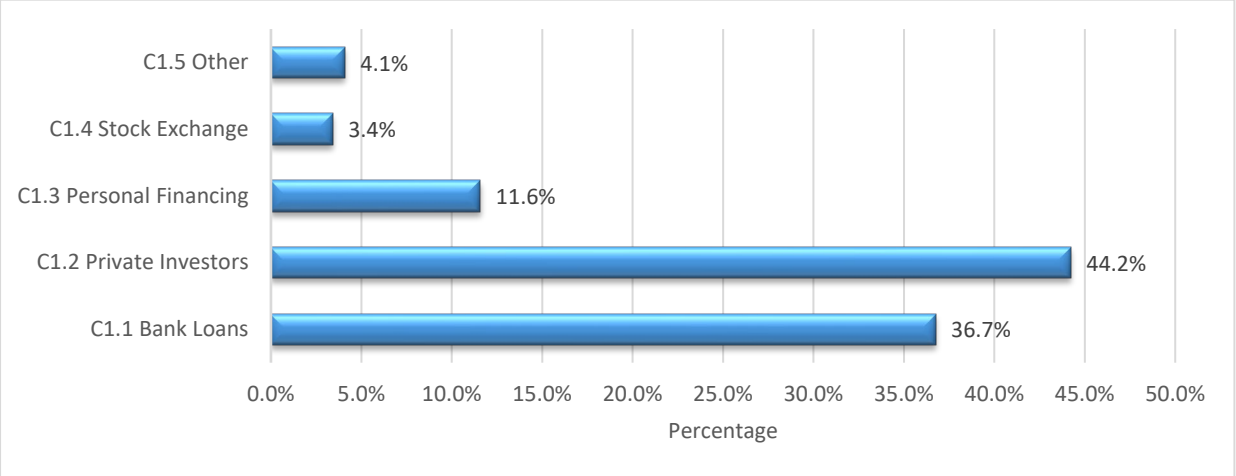


Figure 6: Sources of Finance

Figure 7 illustrates that 37% of the respondents said they sourced their finance through the banks, 44% of the companies said they get their finance from private investors, 12% raise their finance from personal financing, 3% raise finance from the stock exchange, 4% raise their finance from other sources like re-investment, internal financing, personal savings and bridge finance. During the interviews, junior coal miners explained why they get most of their loans from banks. The respondents said that they would have gotten a start-up contract from Eskom or Sasol and the bank would offer them the loan based on the contract. Other companies said they get their finance from private investors and mostly the Indians who are starting to invest in the junior coal mining companies and then export the product to India because there is shortage of coal in their country due to floods and poor quality of coal.

5. Conclusion

In conclusion this paper provided an insight into the challenges and support on junior coal mining companies. Although there is support much has to be done in order for the industry to survive the storm. If this is not done a lot of companies will shut down causing a spill over effect into job losses, load shading which will in-turn affect other industries.

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