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Research article

THE IMPACT OF DEBT FINANCING ON PRODUCTIVITY OF SMALL AND MEDIUM SCALE ENTERPRISES (SMEs): A CASE STUDY OF SMEs IN MASVINGO URBAN.

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1. Abstract

Small and medium scale enterprises are considered important in both developed and developing countries. They are produce goods and services which help to increase economic growth and contribute significantly to employment creation. Although they play a crucial role in economic growth and employment their operations are often crippled by lack of adequate financing from financial institutions. The main purpose of this research was to investigate the impact of debt financing on the operations of SMEs in Masvingo. Both qualitative and quantitative research designs were used in the study. The study used a sample of 80 SMEs. Primary data was collected by means of a survey. Secondary data from SMEs records was used in the study. The data was analysed using SPSS 19. The results from the study showed that debt finance had a positive impact on productivity of SMEs. The study also established that firms which received adequate funding from banks improved their productivity. Another finding of the study was that the cost of borrowing was too high to enable firms to borrow adequate amount of required finance investment. The study concluded that a reasonable level of debt in the capital structure of the SMEs helped to improve their productivity. The study recommends that financial institutions offer long-term debt to SMEs to enable them to invest in capital equipment to increase productivity in future. The study also recommends the lowering of interest rates to motivate SMEs acquire enough funds to invest in capital equipment.

Key Words: Small and medium scale enterprises, debt finance, capacity utilisation, productivity, investment

2. Introduction

The Zimbabwean economy experienced a severe economic crisis between the year 2000 and 2009. The Gross Domestic Product (GDP) continually declined over the period due negative growth rates in manufacturing, agriculture and mining which contracted by -9.5%, -79.4% and -9% respectively (Zimbabwe Ministry of Finance ,2010). The economic decline resulted in a harsh environment for firms to operate and many closed down. The level of interest rates was high and unstable to enable firm carry out accurate capital budgeting. Investment therefore declined resulting in deterioration of infrastructure in industry. Capacity utilisation in the manufacturing sector fell to 18.9% in 2008.

In 2009 the economy was dollarized. Firms account balances deteriorated to zero. This was at a time SMEs were thirst for investment as there was great need to invest in machinery to re-start operations. Banks were experiencing liquidity challenges. According to the Reserve bank of Zimbabwe (2012) the financial institutions continued to receive deposits which were short-term in nature which compromised their intermediary role as they could not give long-term loans to enable firms to invest in machinery and equipment. The inability for banks to

issue long-term loans and liquidity challenges of banks affected SMEs access to financing from banks. According to UNDP (2010), country specific surveys carried out in Sub-Saharan Africa based on interviews of SME operators, lack of capital is the most important constraint binding to their operations and expansion.

The operations of SMEs require capital which can be raised in different ways. One way of raising capital is through debt from financial institutions. Debt finance can be short-term or long-term in nature. SMEs can use debt finance to start-up or expand their operations. The purposes of finance are investing in capital and meeting working capital requirements. Marcouse et al (2003) argued that both working capital and money for capital expenditure have to be found before business starts to generate any income. Working capital is needed for the day to day running of the business (Paul, 2004).

In Zimbabwe SMEs can access finance from Small Enterprises Development Corporation (SEDCO), Commercial banks, and Microfinance Institutions. Despite heavy funding from SEDCO and financial institutions, many SMEs are struggling to survive. The main objective of this study was to investigate the impact of debt finance on the operations of SMEs in Zimbabwe from 2009 to 2012. The sub-objectives of the study were to establish the level of debt finance employed in the capital structure of SMEs and identify the effects of debt finance on the productivity of SMEs. The study used regression model to investigate the impact of debt finance on the operations of SMEs. Primary data was also collected through a survey and analysed using SPSS. The results from the study showed that for some SMEs, debt finance improved the level of productivity. Long-term debt finance was found to be a critical factor that influenced productivity of SMEs. The cost of borrowing was found to be too high for SMEs to continue being viable.

3. Statement of the problem

For an economy to grow, there need for firms to operate efficiently in production. This can be achieved when firms have enough funds for investment in productive new technologies. Firm can invest using internal funds, debt or equity. Zimbabwean firms emerged from a severe economic-downturn which resulted in dilapidated infrastructure .There is need for massive investment in machinery and latest technologies in order to raise the operations of the firms. Many SMEs are closing down operations although financial institutions have been financing them. In addition to support from the financial institutions, the government established the Zimbabwe Economic and Trade Revival Fund (ZETRF) in 2010 and Distressed and Marginalised Areas Fund (DiMAF) in 2011 to finance the operations of firms. The Central bank also came up with a law which forces banks to restructure their loan portfolios so as to allocate at least 30% of their loan book to SMEs. Despite all these efforts the operations of firms continue to a cause of concern. If the situation is not arrested many more firms will continue to close down. The aim of this study is to investigate the impact of debt financing on the operations of firms.

4. Research objectives

The current study was premised on the following objectives:

- Identify the type of debt financing offered by financial institutions.
- Establish the impact of debt financing on the levels of investment by SMEs.
- Assess the effects of debt financing on the productivity of SMEs.
- Establish if SMEs are adequately funded by financial institutions.
- Assess the impact of interest rates on the operations of SMEs.

5. Significance of the Study

SMEs are important in the economic growth of any country. This study will help to establish some of the factors that are constraining the operations of SMEs in Zimbabwe. The study will focus on the impact of debt financing in post crisis era of Zimbabwe. Studies which were done in Zimbabwe were done before the crisis when the Zimbabwean economy was not dollarised.

6. Theories of Capital Structure

There are four main theories of capital structure. The Net Income approach puts forward the argument that leverage or capital structure can affect the cost of capital and hence the value of the firm. Recent research (David and Olorumfemi, 2010) found that the overall cost of capital will be reduced and the value of the firm increased as the ratio of debt in a firm's capital structure is increased. David and Olorumfem go on to state that as the ratio of debt is increased in the capital structure the WACC falls and approaches the cost of debt. The Net Income approach assumes that an optimum capital structure exists and will be attained when the value of the firm is maximised. This occurs when the weighted average cost of capital is at its minimum.

The traditional theory like the Net income approach, also assumes that an optimal capital structure does exist and depends on the level of gearing (Zhanje and Kwesu, 2003). The argument is based on the reasoning that since interest on debt is tax deductible, as debt is moderately increased, the weighted average cost of capital falls leading to an increase in the value of the firm. The weighted average cost of debt will fall because the moderate increase in debt does not increase the overall risk of the firm and hence the shareholders will not increase their required rate of return. However, as more and more debt is employed, an optimal point will be reached. Any further increase in the debt ratio result in an increase in weighted average cost of capital as the overall risk of the firm is increased and the shareholders will ask for an increase in the required rate of return on capital.

The modern theory of capital structure was put forward by Miller and Modiglian (MM) (1958, 1963). The theory is based on the assumptions that there are no transactions costs, investors have homogeneous expectations, stocks and bond are traded in perfect markets and that the debt of firms and individuals is riskless. According to Zhanje and Kwesu (2003), the MM theory is based on the proposition the capital structure is irrelevant to the value of the firm. The other proposition is that leverage increases the firm's expected earnings but does not increase the value of the firm because the increase in the earnings is offset by the increase in the required rate of return. The MM theory argues that there is no optimal capital structure because the advantages of debt would be exactly counteracted by the increase in the cost of equity, thus increasing the value of the firm. However, as more and more debt is employed, the shareholders will ask for increase return to compensate for the increased risk. The increase in require rate of return will result in an increase in weighted average cost of capital.

7. Literature Review

Firms need capital in their operations. They can finance their operations using internal funds, debt and equity. Debt finance is raised by borrowing from financial institutions. A lot of research has been carried out focusing on the impact of debt financing on performance of firms. The results from these studies are inconsistent.

Cecchetti et al. (2011) studied the effects of debt on firms and concluded that moderate debt level improves welfare and enhances growth but high levels can lead to a decline in growth of the firm. Rainhart and Rogoff (2009) argued that when debt impacted positively to the growth of a firm only when it is within certain levels. When the ratio goes beyond certain levels financial crisis is very likely. The argument is also supported by Stern Stewart and Company which argues that a high level of debt increases the probability of a firm facing financial distress. Over borrowing can lead to bankruptcy and financial ruin (Ceccetti et al., 2011). High levels of debt will constrain the firm from undertaking project that are likely to be profitable because of the inability to attract more debt from financial institutions.

The nature of debt is an important determinant of productivity of a firm. Jaramillo and Schiantarelli (1996) stated that the availability of long-term finance allows firms to improve their productivity. If a firm has access to long-term debt finance, it can invest in new capital and equipment which helps to increase productivity. According to Marcouse et al. (2003), by investing in more modern and sophisticated machines, productivity per worker increases. Ventire et al. (2004) adds that modern know-how fuels greater output per unit of effort. The firm can also invest in new technologies which are more productive. The inability to access long-term finance can force firms to use short-term debt to finance long-term projects. This will create mismatches of assets and liabilities and depletes working capital. Depletion of working capital will negatively affect firm operations. It is crucial that the primary source of loan repayments should be cash flows from the project.

A high proportion of debt in the capital structure of a firm will harm investment using internal funds. A study by Yuan and Kazuyuki (n. d.) using a sample of Chinese listed companies showed that total debt ratio had a negative impact on fixed investment. A firm with a high debt ratio will channel most of its income to debt repayments thereby forgoing investment using internal funds. As more debt is employed in the capital structure of a firm, the business risk also increases. He and Matvos (2013) stated that leveraging may increase the risk of bankruptcy and financial distress during temporary industry and economy-wide downturns. It will become increasingly difficult to attract more debt for investment purposes as creditors will charge high interest rates to compensate for the high business risk. Yuan and Kazuyuki argued that creditors will be reluctant to lend more funds to a highly indebted firm which can result in underinvestment. Firm operations will be affected if insufficient investment is undertaken.

Ahmad, Abdullar and Roslan (2012) carried a study in Malaysia which sought to investigate the impact of capital structure on firm performance by analysing the relationship between return on assets (ROA), return on equity (ROE) and short-term debt and total debt. The study established that short-term debt and long-term debt had significant relationship with ROA. It was also established that ROE had significant relationship with short-term debt, long-term debt and total debt.

The study by Ebaid (2009) partially agreed with Ahmad et al (2012). In the study Ebaid wanted to establish the relationship between debt level and financial performance of companies listed on the Egyptian stock exchange. The study used return on assets, return on equity and gross profit margin as dependent variables and short-term debt, long-term debt and total debt as independent variables. The results from the study showed that there was a negative impact of short-term debt and total debt on return on assets (ROA). The study also concluded that there was no significant relationship between long-term debt financing AND ROA. Ebaid also concluded that there was insignificant relationship between total debt, short-term debt and long-term debt and financial performance measured by gross profit margin and ROE.

Soumadi and Hayajneh (2012) studied the relationship between capital structure and corporate performance on Jordanian shareholdings firms. The study used multiple regression models by least squares (OLS) to establish the link between capital structure and corporate performance of firms over a period of 5 years. The results showed that capital structure was associated negatively and statistically with the performance of the firms in the sample. Another finding from the study was that there was there was no significant difference to the impact of financial leverage between high financial leverage firms and low financial leverage firms in their performance. The study also concluded that the relationship between capital structure and firm performance was negative for both high growth firms and low growth firms.

Maritala (2012) examined the optimal level of capital structure which enabled a firm to increase its financial performance. The study found that there was a negative relationship between the firm's debt ratio and financial performance measured by return on assets and return on equity.

Fosu (2013) did a research in South Africa which investigated the relationship between capital structure and corporate performance paying particular attention to the degree of competition. The paper examined the extent to which the relationship between capital structure and corporate performance depended on the level of product market competition. The findings from the research showed that there was positive relationship between capital structure and corporate performance. The study also found out that product market competition enhanced the performance effect of leverage.

Very recent research (Ogebe, Patric and Alewi, 2013) investigated the impact of capital structure on corporate performance in Nigeria from 2000 to 2010.The study paid particular attention to macroeconomic variables (Gross Domestic Product and inflation) on firm performance. The study concluded that there was a strong relationship between leverage and corporate performance. The study concluded that there was a significant negative relationship between capital structure and corporate performance. The negative relationship was also confirmed by Mumtaz et al (2013) in their study in Pakistan. They wanted to establish the relationship between leverage and firm performance. The findings from the study showed that financial performance of firms was significantly negatively affected by their capital structure. Further research (Saeed, Gull and Rusheed ,2013) examined the impact of capital structure and corporate performance using multiple regression models to estimate the relationship between capital structure and corporate performance of the banking performance. The findings from the study showed that there was a negative relationship between capital structure and performance of the banking industry.

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8. Methodology

8.1 Population and sample of the study

The population which was selected included all SMEs in Masvingo. A sample of the study made up of 80 SMEs was randomly selected from this population.

8.2 Hypothesis

The study was premised on the following hypothesis:

H_1: *Debt financing is positively related to productivity in a firm.*

H_2: *Increases in the level fixed investment and firm productivity are positively related.*

H_3: *High interest rates result in operational challenges for highly levered firms.*

8.2. Data Collection

The study used primary and secondary data. Primary data were collected by means of questionnaires. This data was analysed using SPSS packages. Secondary data on changes in output, interest rates, debt ratio and new investment were collected from company records. The data were analysed using multiple regression analysis.

8.3 Regression Model of the study

The multiple regression models that were used in the study were of the form given below:

$Productivity = C + \beta_1 D + \beta_2 r + \beta_3 \Delta \mathrm{I}$

Where : C *represents the constant* D *represents the Debt ratio* r *represents the interest rates* ΔI *represents new investment*

8.3.1 Productivity efficiency

Productivity measures efficiency of a firm. It measures output in relation to inputs. In this research productivity will be measured as the relation between output and debt financing. The amount of output per dollar borrowed is used to measure productivity in this study.

8.3.2 Debt Ratio

The debt ratio is calculated by dividing total debt by total assets. The ratio measures the extent to which total liabilities are covered by total assets. High debt levels (leverage) increases the interest bill of a firm. As interest payment increase the availability of working capital in the business will decrease. High leverage also increases the risk of financial distress if there is slump in economic activity.

8.3.2 Interest Rates

Interest rate represents the cost of borrowed funds. As interest rates increase, firms are forced to pay more out of their earnings to service loans from banks. High interest payments reduce funds available to be invested in the business. Working capital is also reduced. Reduced investment and working capital may affect the operations of a firm.

8.3.2 Investment

Investment in equipment is an important factor which contributes to high levels of productivity. Replacement of dilapidated equipment with modern equipment is one way to increase productivity in an organisation.

9. Data Analysis and Discussion

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.720[a]	.518	.453	.10388

a. Predictors: (Constant), Investment, Debt Ratio, Interest

From the model summary above, it can be concluded that there is a strong relationship between the dependent and independent variable. The R Square measures the proportion of variance in the dependent variable which is

explained by the independent variables. In table 1 above, the R Square value of about 52% means that about 52% changes in productivity are caused by changes in interest rates, debt financing and investment.

Table 2: ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.255	3	.085	7.890	.001[a]
	Residual	.237	22	.011		
	Total	.493	25			

a. Predictors: (Constant), Investment, Debt Ratio, Interest

b. Dependent Variable: Productivity

From table 2 above, the significance is 0.001 (p=0.001) which is below 0.05 and therefore, there is a statistically significance difference between our variables.

Table 3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.134	.081		1.656	.112
	Interest	-.002	.010	-.075	-.248	.807
	Debt Ratio	.354	.255	.304	1.387	.179
	Investment	.907	.456	.548	1.990	.059

a. Dependent Variable: Productivity

The regression equation showing the influence of debt financing, interest rates and investment on operations of SMEs deduced from the study takes the form:

$$Productivity = 0.134 - 0.002r + 0.354\ D + 0.907\ \Delta I$$

The equation shows there is a positive relationship between changes in investment and debt financing and productivity. Therefore, hypotheses 1 and 2 are accepted. Interest rates have a negative impact on the operations of SMEs.

The results from survey of the study showed that most of the SMEs that that obtained debt financing invested it in fixed assets of the business. The investment in fixed assets resulted in increased productivity. The information in table 3 shows the indirect impact of debt financing on productivity of SMEs.

Table 4: Use loan * Productivity Cross tabulation

Count					
		Productivity			
		Increased	Decreased	No change	Total
Use loan	Investment in fixed assets	36	5	3	44
	Working capital	11	0	18	29
	Other	1	0	6	7
Total		48	5	27	80

The information in the above table shows that 36/48 (75%) of the SMEs that obtained debt financing invested the money in the business. Investment is the purchase of assets that are used for further production. Further analysis of the information shows that 81% of the investment resulted in increased productivity.

Table 5: Correlation between Investment and productivity

		Productivity	Investment
Productivity	Pearson Correlation	1	.583**
	Sig. (2-tailed)		.000
	N	80	80
Investment	Pearson Correlation	.583**	1
	Sig. (2-tailed)	.000	
	N	80	80

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation measures the strength of relationship between two variables. The correlation matrix above shows the strength of relationship between investment and productivity. The correlation is 0.583 is high which shows there is a significant relationship between the two variables. A positive Pearson's correlation coefficient also means that as investment increases, the second variable also increases.

Table 6 : Duration of bank financing

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	One year	32	40.0	40.0	40.0
	Two years	27	33.8	33.8	73.8
	Three	8	10.0	10.0	83.8
	Four years	3	3.8	3.8	87.5
	more than 4 years	3	3.8	3.8	91.2
	6	7	8.8	8.8	100.0
	Total	80	100.0	100.0	

The table above shows the tenor of bank financing from the results of the survey. An analysis of the data in the table shows that 73.8% of the SMEs which received debt financing got loans which were repaid in one or two years. Investment on the other hand needs to be financed using long -term loans. Jaramillo and Schiantarelli (1996) argued that long-term debt finance allows firms to increase their productivity. The tenor of debt financing will influence weather investment will be made or whether the funds will be invested in working capital. Projects with long gestation periods need to be financed using long-term loans.

Table 7: Impact of debt financing on productivity

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Increased	48	60.0	60.0	60.0
	Decreased	5	6.2	6.2	66.2
	No change	27	33.8	33.8	100.0
	Total	80	100.0	100.0	

Table 7 above shows the data on the impact of debt financing on productivity. The results show that 60% of SMEs which received debt financing reported increases in productivity. The results are compatible with the model that was developed which showed that there is a positive relationship between debt financing and productivity of SMEs.

Table 8: Debt financing is a source of working capital

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Yes	57	71.2	71.2	71.2

	No	20	25.0	25.0	96.2
	3	2	2.5	2.5	98.8
	11	1	1.2	1.2	100.0
	Total	80	100.0	100.0	

Small and Medium Enterprises (SMEs) also finance their working capital needs using debt financing. Analysis results from table 7 show that 71.2% of the SMEs which were included in the sample of this study indicated that debt financing increased the availability of working capital. Working capital allows a business to operate smoothly.

Table 9: High interest impacts negatively on investment

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Agree	61	76.2	76.2	76.2
	Disagree	18	22.5	22.5	98.8
	Not certain	1	1.2	1.2	100.0
	Total	80	100.0	100.0	

Debt financing is a two edged sword which when used wisely and in moderation can improve welfare but when used imprudently and in excess can result in disaster (Cecchetti et al., 2011). Bao (2010) stated that leverage imposes negative effects on investment. Not all SMEs enjoy increased productivity made possible by making use of debt financing. SMEs which over-borrowed reported a fall in investment caused by high interest payments. Analysis of the data in table 8 above shows that 76.2% reported that high interest rates negatively impacted on investment which according to the model which was developed above contributes significantly to increased productivity. The opportunity cost of high interest payments is investment which is forgone. The more a business pays out as interest the less money is ploughed back into the business.

11. Conclusions

From the findings of the study a number of conclusions were made. The study concluded that productivity in a firm was positively related to the level of debt financing and changes in investment. However, interest rates were found to be negatively related with the level of productivity. The study also concluded that expenditure on investment was an important determinant of productivity in SMEs operations. The level of debt financing must be moderate to avoid large interest payments which can prevent SMEs from investing using internal sources of finance. Internal sources of finance are cheaper that external sources. The risk is also lower when internal sources of finance are used. The study also concluded that the inability of banks in Zimbabwe impacted negatively on the productivity of SMEs.

12. Recommendations

From the above conclusions, the following recommendations were made. SMEs need to invest in capital goods in order to raise productivity levels. Pearson's correlation coefficient was found to be positive and large.

Another recommendation was that SMEs should use moderate debt levels in their capital structure. High levels of interest payments reduce the availability of internal funds for investment. The opportunity cost of high interest payments is therefore investment using internal funds which is forgone. It is also recommended that banks charge low interest rates to encourage SMEs to invest. High interest rates deter investors from using bank financing. Banks are also recommended to give long-term loans to enable firms to invest in equipment and machinery. It is difficult to make loan repayments of short-term debt financing that was used for long -term investments. Ideally the primary source of loan repayment should be cash flows from the project.

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