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Business Repayment Capacity and Credit Rationing Among Registered Small and Medium Enterprises in Kiambu County, Kenya

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Abstract:

Several policies have been developed and implemented with intention to reducing credit rationing among Small and Medium Enterprises (SMEs) worldwide. Despite all these efforts, SMEs in Kenya hold at most 17.4 percent share of a mount of loans available in the credit market. Empirical evidence on business repayment capacity and credit rationing, documents variation in methodological aspects as well as conceptual outlook. These empirical and methodological gaps form a motivation for the current study. Hence, the study sought to establish the effect of business repayment capacity on credit rationing among registered Small and Medium Enterprises in Kiambu County, Kenya. The study adopted positivism philosophy and utilized explanatory study design. The target population was 41,115 registered, active SMEs in Kiambu-County, out of which, a sample size of 397 was purposely selected. Using logit analysis, the study found that business repayment capacity has a statistical significance effect on likelihood of SMEs being credit rationed as indicated by p-values of ($p = 0.000$). Additionally, the study found a statistically significant moderating effect of inflation on the relationship between business repayment capacity and credit rationing ($p=0.0017$). In view of the findings, the study recommends that SMEs in Kiambu County should improve on the repayment capacity by managing their sales and expenses in a manner to improve on their net profits. Further, due to the fact that determination of repayment capacity of SMEs may be difficult in the presence of information asymmetry, the study recommends to the registrar of businesses that there should be enforcement of financial reporting by the SMEs. The existence of moderating effect of inflation is an indication that the government should maintain inflation rate as per Vision 2030 projections at one-digit figure.

Keywords: Repayment capacity, credit rationing, inflation, logit model, moderating effect and small and medium enterprises

1. Introduction and Background

According to Domeher, Musah and Poku (2017), SMEs promote innovation and proprietorship, they are labor intensive and have no huge capital requirement. Despite this contribution and against little capital requirement, Stein, Ardic and Homes (2013) note that SMEs are subject to more frequent credit rationing than large enterprises. Financial Sector Deepening (2015) SMEs recognize credit rationing as a major predicament to their growth and economic potential. Stein, Ardic and Homes (2013) observe that SMEs financing gap is within the range of 2.1 to 2.6 trillion British pounds. World Bank (2015) indicates that the proportion of SMEs financing to total lending in the world averages 23.4 percent compared to that of large enterprises which on average is above 70 percent.

Reflecting the SMEs' precarious credit position in Kenya, World Bank (2014) contends that on average, only 43 percent of loan applications are approved out of applications received in a specific year and by extension, most of them receive less amounts than amount applied. This is despite the fact that Kenyan SMEs provide one of the most prolific sources of employment creation, income generation and poverty reduction (Ngugi & Bwisa, 2013; Ong'olo & Awino, 2013). Kenya Projects Organization (2012) notes that Kenya Local Government Reform Program spurred as early as 1999, enabled single permit, hence increasing recognition of SMEs by financial institutions. According to Central Bank of Kenya (2015), the collaboration of International Finance Corporation, Central Bank and Ministry of Finance in 2007 resulted to establishment of credit reference bureau whose objective was to benefit SMEs. According to Government of Kenya (2012), the Micro and Small Enterprises Act, 55(2012) indicates that establishment of Micro and Small Enterprise Development Fund was aimed at providing affordable and accessible credit to micro and small enterprises. Despite all these efforts,

World Bank and Central Bank of Kenya (2015) reveal that on average, SMEs in Kenya hold at most 17.4 percent share of a mount of loans available in the credit market, despite contributing over 20.5 percent of aggregate banks net income.

Credit rationing is a loan application outcome such that lenders award less amounts of credit than the amount applied by the borrower applied (Columbia Business School, 2005). World Bank (2015) observes that when credit rationing exists, business entities receive inadequate financing, which restricts SMEs growth, and this ultimately results to negative impact on the national economy. According to International Finance Corporation (2015), credit rationing is worldwide problem but strongly felt in developing counties. In United Kingdom, Mitton (2008) demonstrates that the capability of credit proportioning prompting social avoidance has made credit apportioning to be one of the needs of the legislature. In United States of America, Appleyard (2013) affirms that the presentation of Credit Regulatory Authority of 1977 was to drive loaning to underserved networks, which are racial separated, and to downsize credit by banks, all which have not yet been completely accomplished. Explaining the precarious position of SMEs, Wehinger (2013) contends that many African banks are foreign owned and normally reallocate liquidity from their overseas branches to their home economy. More to this, African governments have turned to be strong borrowers and this has consequently crowded out private borrowing to the detriment of SMEs.

Helsen and Chmelar (2014) and Farinha, and Felix (2014) have identified possible factors contributing to financial credit rationing and agree that they emanate from supply and demand market disequilibrium. However, some scholars argue that financial credit rationing, arise due to demand factors and not supply factors. Among these scholars, Aduda, Magutu and Wangu (2012) assert that supply for financial credit is rampant from both formal and informal financial institutions, and even with all this supply, SMEs continue to face myriad of challenges in trying to access financial assistance from these financial institutions. From macroeconomics point of it, Harvie (2011) asserts that access to finance and terms attached to it are also impacted by factors beyond the control of the SME. In support, Akinkoge, Sanusi and Moses (2015) articulate that there is sufficient evidence from the theory that inflation derives down the rate of return on assets as well as lendable money and this in general increases credit market friction leading to credit ration. It is against this background that the study sought to investigate the effect of business repayment capacity on credit rationing among SMEs in Kiambu County, Kenya.

1.1. Statement of the Problem

Empirical evidence on business repayment capacity and credit rationing, documents variation in methodological aspects as well as conceptual outlook. For instance, Ata, Korpi, Ugurlu and Sahin (2015) studied on credit rationing and the bank's lending process in Gaziantep region in Turkey. The study found that, past credit repayment behavior, and cash holdings had a statistical significance effect in the banks' lending process. However, the study did not factor any possible moderating effect of inflation on the relationship between business repayment capacity and credit rationing. Ahiawodzi and Sackey (2013) investigated credit rationing in the private sector in Ghana and found that demand and supply factors are jointly significance in explaining credit rationing. The study combined specific business attributes and external economic factors (particularly interest rates) as independent variables. Thus, the study could not determine the possible effect of business repayment capacity as a standalone variable. Further, the inclusion of interest rate as a variable in the study underscores previous studies (Beck, Hanand & Muravyev, 2013; Saeed & Schevermann, 2014) which support that the lending rate (interest rate) has a statistical insignificance effect on credit rationing among SMEs. Hence, this formed a good basis for an empirical investigation to address the knowledge gap.

From the Kenyan perspective, the available empirical evidence (Mutiria, 2017; Kathuku, 2017; Mungiru & Njeru, 2015; Njiru, 2014; Wakaba, 2014) in Kiambu County has largely addressed challenges faced by SMEs when accessing credit. Little attention has been given on the effect of business repayment capacity on credit rationing. Further, Mutiria (2017) acknowledges that there is very little documentation on SME financing exists in the context of Kiambu County, Kenya. It is on this basis that the current study specifically analyzed the effect of business repayment capacity on credit rationing among registered SMEs in Kiambu County.

2. Review of Literature

2.1. Theoretical Review

The study is underpinned on three theories namely: credit rationing theory, resource-based theory, and monetarist theory of inflation. Credit rationing theory was put forward by Stiglitz and Weiss in 1981 (Malhotra, 2015). According to Helsen and Chmelar (2014), the theory indicates that there is an optimal interest rate beyond which the expected return to the bank will decrease, whose consequence is that for any excess demand at the optimal interest rate level, the banks will have with no option rather than to ration credit. Jinand and Zhang (2019) assert that credit rationing is strongly experienced by the lenders when credit market is characterized by information asymmetries, which refers to information imbalance between the parties involved in a given economic transaction.

Resource based theory was developed by Wernerfelt in 1981 (Khalid and Paul, 2014; Mar, Bora, Seref, Kiran, & Mohamed, Abou, 2017). According to Pilar, Sabina, Jose, Jesus and Alfonso (2018), the theory indicates that the performance of any firm is determined by its internal attributes and capabilities. Margaret and Godwin (2015) outlines that an important lesson of the resource-based theory in business finance is that it allows identification of the resources associated with successful and unsuccessful access to bank credit. As indicated by Nega and Hussein (2016) and Esseim and Arene (2015), the achievement of SMEs in getting formal credit depends on its inward strength.

Monetarist theory of inflation was developed by Milton Friedman in 1867. The theory outlines that inflation is caused by growth of money supply, such that the faster the growth, the faster the growth of inflation. In relation to credit

market, Akinkoge, Sanusi and Moses (2015) note that the theory articulates that with increased money supply, the market players start expecting inflation and the credit lenders insist on higher interest rates to offset an expected decline in purchasing power over the life of their loaned funds.

2.2. Empirical Review

The study reviews various empirical evidence to document research gaps. According to Njeru, Shano and Wachira (2016), repayment capacity is the ability of the borrower to reimburse the credit as stipulated in the loan agreement, and depicts the likelihood of effective reimbursement of the advances. Munguti (2013) indicates that reimbursement ability can be assessed as indicated by the incomes of the business and other unexpected income sources. Ngugi and Nasieku (2016) contend that for SMEs, it is not pure cash flows, which ought to be assessed, but amounts retained in the business as net gain subsequent to dealing with family costs.

Empirical evidence on business repayment capacity and credit rationing documents variation in methodological aspects as well as conceptual outlook (Ata, Korpi, Ugurlu & Sahin, 2015; Farinha & Felix, 2014; Helsen & Chmelar, 2014; Ahiawodzi and Sackey, 2013). These empirical and methodological gaps form a motivation for the current study. For instance, Ata, Korpi, Ugurlu and Sahin (2015) studied on credit rationing and the bank's lending process in Gaziantep region in Turkey and found that cash holdings of a business had a statistical significance effect in the banks' lending process. However, the study considered only a one sector of SME viz: - manufacturing, and hence generalization of these findings to other sectors may result to wrong conclusion. Further, the study did not factor any possible moderating effect of inflation on the relationship between business repayment capacity and credit rationing.

Farinha and Felix (2014) studied credit rationing for Portuguese SMEs with an objective of developing model for determining probability of SMEs being rationed. The study found that a considerable fraction of Portuguese SMEs had been affected by credit rationing, and credit supply largely depended on the SMEs ability to generate cash-flows and reimburse their debt. However, the study adopted descriptive design and combined both business repayment capacity and macroeconomics variables as independent variables.

Ahiawodzi and Sackey (2013) investigated credit rationing in the private sector in Ghana and found that demand and supply factors are jointly significance in explaining credit rationing and even though interest rates may be liberalized as a way of ensuring credit allocation, the commercial banks would still ration out credit. The study combined business repayment capacity among other factors as independent variables. Thus, the study could not determine the possible effect of business repayment capacity as a standalone variable. Further, the inclusion of interest rate in the study underscores previous studies (Beck, Hanand & Muravyev, 2013; Saeed & Schevermann, 2014) which support that the lending rate (interest rate) does not have significance effect on credit rationing among SMEs. It is on this basis that the current study will specifically analyze the effect of business repayment capacity on credit rationing among registered SMEs in Kiambu County.

3. Research Methodology

3.1. Research Philosophy and Design

The study adopted positivism philosophy. Scotland (2012) asserts that positivism philosophy assumes classification of the social environment in an objective way for the purpose of observation and analysis of data. The positivism philosophy was suitable for this study since events of interest are objective, external and independent of each other. Further, the philosophy does not assume socialization and interaction of social reality as stipulated by social constructivism philosophy. The study employed explanatory research design. According to Wyk (2011) and Sanders et al (2007), the main aim of explanatory study is to identify any causal links between factors or variables that pertain to a research problem. Explanatory research design was necessary since the study attempted to explain how business repayment capacity affects credit rationing among the registered SMEs in Kiambu County.

3.2. Empirical Models

In order to determine the effect of business specific factors on credit rationing, the study used binary logit regression model. Williams (2015) and Muchabaiwa (2013) pinpoint that binary logit regression model is used to determine the likelihood of the outcome of a categorical dependent variable based on one or more independent variable. The current study hypothesized linear probability model connecting the dependent variable and the independent variables as follows: -

$$\ln \left[\frac{P}{1-P} \right] = \alpha + \sum_{i=1}^k \beta_i X_i \dots \dots \dots (1)$$

Where: CR= Credit rationing status (1= for partial credit award and 0 = denied credit); α = Constant of the model; β =

Coefficient of the model ;X =Repayment capacity of SME; i = Specific SME and k = Number of independent variables under study.

To determine the moderating effect of inflation on the relationship between business repayment capacity and credit rationing, the study adapted moderating logit regression model by Newsom (2016) & Marshall (2007) as follows:

$$\ln \left[\frac{P}{1-P} \right] = \alpha + \beta_1 X + \beta_2 Z + \beta_3 X * Z \dots \dots \dots (2)$$

Where: ln = Natural logarithm; α = Constant of the model; β_1 , β_2 and β_3 = Coefficients of the model; P=Probability of being partially awarded; X= Independent variable and Z = moderating variable

3.3. Target Population and Sample Size

The target population of interest for this study was 41,115 registered SMEs in Kiambu County as from 2013 to 2017. The sample size was three hundred and ninety-seven (397), and it was determined by the use of Slovin's formula (1967): $n = N / (1 + N(e)^2)$; Where: n = Sample size;

N = Population size; e = Margin of error. Using margin of error of 5 percent, the size of the sample was calculated as follows: -

$$\begin{aligned} n &= N / (1 + N(e)^2) \\ &= 41,115 / (1 + 41,115 * 0.05^2) \\ &= 397 \text{ Small and Medium Enterprises} \end{aligned}$$

To identify the specific sample units, the study used purposive random sampling. This was based on the study's inclusion exclusion criteria viz: -applied for a credit once within the study period (2013-2017) and obtained less amounts than the amount applied. The respondents of the study were the proprietors and, in their absence, the managers of the sampled SMEs.

3.4. Data Collection Instruments, Data Collection Procure and Data Analysis Methods

The study used structured questionnaire to collect data relating to business repayment capacity and credit rationing. The respondents were the proprietors and, in their absence, the managers of the sampled SMEs. Sekara (2000) supports the use of a questionnaire since it is cheaper, quick to administer, avoids interviewer effects, has higher anonymity and it has wide respondents. The data on inflation was collected by the use of data collection sheet. Zaki1, Bulgiba, Nordin and Ismail (2012) reckon that data collection may result to measurement error, which may affect the ability to find significance results in a research. This can also result to significance damage to the interpretability of scores or functionality of a testing instrument. To avoid such occurrence, the study undertook both reliability and validity tests on the data collection instruments and the results did not show any concern to undertake analysis of data.

Wooldridge, (2015) and Mordkoff, (2016) observes that any research undertaken should avoid model misspecification which can lead to adverse effects on sampling property of both estimators and tests. In compliance to this, the study undertook the following diagnostics tests: normality test, multicollinearity test, linearity of dependent and independent variables, overall model evaluation test, goodness of fit tests, tests of individual predictors, validations of predicted probabilities test and odd ratios. The results of these tests satisfied the statistical requirements of evaluating logit regression model, hence did not show any concern to undertake hypotheses testing.

4. Results and Findings

4.1. Hypotheses Testing

Logistic regression analysis was conducted at significance level of 0.05 to determine the effect of business repayment capacity on credit rationing for 397 registered SMEs in Kiambu County, Kenya. A null hypothesis was formulated that there is no statistical significance effect of business repayment capacity on credit rationing among registered Small and Medium Enterprises in Kiambu County, Kenya. The rule of the thumb is that the null hypothesis should be rejected if the computed probability value (P-value) is less than significance level of 0.05. The findings of the logit regression analysis are in Table 1.

	B	S.E.	Wald	Sig.	Exp(B)
Repayment Capacity	0.097	0.015	44.742	0.000	1.102
Constant	1.386	0.159	76.207	0.000	3.999

Table 1: Logit Regression Results

Source: Research Data, 2019

The results in Table 1 show that the coefficient value (β) of repayment capacity of 0.097, Exp(B) value of 1.102 and p-value of 0.000. The coefficient value (β) of 0.097 indicates that there is a direct relationship between business repayment capacity and likelihood of SME being credit rationed among registered SMEs in Kiambu County, Kenya. The Exp (B) value of 1.102 indicates that the SME with strong repayment capacity was 1.102 times more likely to be partially awarded credit rather than denied, compared to SME with weak repayment capacity.

Therefore, at p-value = 0.000, being less than the significance level of 0.05, the null hypothesis is rejected. The finding of the test is that the repayment capacity has statistical significance effect on credit rationing registered among Small and Medium Enterprises in Kiambu County, Kenya. In terms of the concerns of this study, this finding brings out the role which the ability to pay can have on credit rationing among the SMEs. This finding is also supported by a similar study by Ata, Korps and Sahim (2015), in which liquidity was used as a proxy for repayment capacity. The study found that liquidity had a statistical significance effect on credit rationing (Exp (B) of liquidity of 2.706, with corresponding Wald statistics and p-value of 3.602 and 0.024 respectively. The findings are also in agreement with the conclusion made by Farinha and Felix (2014) that, credit supply between 2010 and 2012 to Portuguese SMEs depended on the SME's ability to generate cash flows and reimburse the debts.

In an effort to resolve repayment capacity problem, United Nations Conference on Development (2016) recommends furnishing of financial statements by SMEs. Kenya Bankers Association (2016) notes that in absence of financial statements, credible financial information will not prevail and hence difficult to gauge the repayment capacity of a given SME. To close the gap, the institute of Certified Accountants of Kenya (ICPAK) has issued a specimen SME Financial

Statements, which should be utilized by the SMEs, whose ultimate goal is unbiased determination of repayment capacity of the SMEs.

The study further examined the moderating role of inflation on the relationship between business repayment capacity and credit rationing among the registered SMEs in Kiambu County, Kenya. A null hypothesis was formulated that there is no statistically significant moderating effect of inflation on the relationship between business repayment capacity and credit rationing among registered Small and Medium Enterprises in Kiambu County, Kenya. The results of moderating logit regression analysis are presented in Table 2.

	β	S. E.	Wald	df	Sig.	Exp(B)
Repayment Capacity	0.145	0.0401	13.075	1	0.000	1.156
Inflation	0.327	0.157	4.338	1	0.037	1.387
Repayment Capacity *Inflation	-0.291	0.122	5.689	1	0.017	0.748
Constant	1.925	0.693	7.716	1	0.005	6.855

Table 2: Moderating Effect of Inflation on the Relationship between Business Repayment Capacity and Credit Rationing Variable(S) Entered. Repayment Capacity, Inflation, Repayment Capacity*Inflation, Source: Study Data (2019)

The regression results presented in Table 2 show the coefficients values (β), Wald statistic and p-values at 5 percent significance level for the variables after including inflation as a moderating variable. The repayment capacity has coefficient value, likelihood ratio and p-value of 0.145, 13.075 and 0.000 respectively. The coefficient value ($\beta = 0.145$) indicate that there is a statistically significance (p-value = 0.000 < 0.05) direct relationship between repayment and likelihood of SME being credit rationed. Further, Wald statistic = 13.075, with p-value of 0.000, which is less than significance level of 0.05, indicates that business repayment capacity has statistical significance effect on the likelihood of the SME being partially awarded credit or denied credit.

In addition, the variable inflation has coefficient value, Wald statistic and p-value of 0.327, 4.338 and 0.037 respectively. The coefficient value ($\beta = 0.327$) indicate that there is a statistical significance (p-value = 0.037 < 0.05) direct relationship between inflation and the likelihood of SME being credit rationed. Further, Wald statistic = 4.338, with p-value of 0.037, which is less than significance level of 0.05, indicates that inflation have a statistical significance effect on the likelihood of SME being partially credit or denied credit. These findings support those of Gao, Gu and Hernandez-Verme (2012) and Akinkoge, Sanusi and Moses (2015) who found that periods of economic recession are marked with high level of inflation which is bound to increase credit rationing. However, the findings contradict those of Waters (2013) whose findings indicated that it is not existence of inflation that causes credit rationing but the actions of the government in an effort to reduce inflation during the periods of recession.

Lastly, the interaction between repayment capacity and inflation indicate coefficient value ($\beta = -0.291$), Wald statistic = 5.689 and p-value of 0.017. The coefficient value ($\beta = -0.291$), indicate that there is a statistical significance (p-value = 0.017 < 0.05) indirect relationship between interaction between repayment capacity and inflation and the likelihood of the SME being credit rationed. The value of Wald statistic = 5.689 with p-value of 0.017 at 5 percent significance level indicate that the interaction between repayment capacity and inflation have a statistically significant moderating effects on the likelihood of SMEs being partially awarded credit or being denied credit. The findings therefore support the results of Rigwi (2018) who found that inflation has moderate impact on new loan volumes and further that an increase in inflation prompts high rates of default, whose possibility of occurrence makes banks to ration.

Further, the findings are in line with those of Murigi (2014) and Imbuga (2012) that during inflation, the repayment capacity of most business enterprises are highly impaired and recommends to the banks to adjust terms of the loans of the affected borrower to avert default. In support, a study by World Bank, Central Bank of Kenya and Financial Sector Deepening, (2015) and Kenya Bankers Association, (2018) that indicates that inflation is most significant obstacles to getting credit among the SMEs in Kenya. In an effort to manage an adverse effect of inflation, United Nations Development Programme (2015) notes that the blueprint strategy for development and growth -Vision 2030 recognizes that the SME sector is a crucial, despite working in an environment of rapid inflation. Geared to achieving Vision 2030, Government of Kenya, (2007) posit that a stable environment works well in favor of the poor who stand to lose terribly in the periods of high inflation. In pursuit of the aforementioned and for the purpose of achieving the big four agenda, Kenya Institute of Public Policy Research and Analysis, (2018) reckons that the government of Kenya has projected to maintain inflation rate at one-digit figure, whose expected outcome is efficient borrowing and lending in the Kenyan economy.

5. Conclusion, Recommendations and Areas for Further Research

5.1. Conclusion

The study makes several conclusions from the aforementioned findings. First, in view of repayment capacity on credit rationing, the study concludes that, repayment capacity as measured by SME'S net profits and proprietor's incomes from other sources, have statistical significance direct relationship with of likelihood SME being credit rationed. The direct relationship denotes that as the repayment capacity of the SME improves, the chances of SME being awarded partial credit rather than being denied will increase and hence the proprietors of SMEs should ensure that their respective SMEs have the capacity to repay the credit awarded.

In view of the moderating effect of inflation on the relationship between repayment capacity and credit rationing, the study concludes that inflation have a statistical significance direct relationship with the likelihood of SME being credit rationed. This direct relationship between inflation and credit rationing indicates that inflation, like business repayment capacity, inflation also predicts the likelihood of SME being partially awarded credit or denied credit. Additionally, there is statistical significance moderating effect of inflation on the relationship between business repayment capacity and credit rationing. Thus, the study concludes that inflation affects the relation between business repayment capacity and credit rationing, which finally influences the amount of credit received by the SMEs.

5.2. Recommendations

The study found that there is a statistical significance direct relationship between repayment capacity and the likelihood of SME being credit rationed. Further, the study found that repayment capacity has a statistically significant effect on the likelihood on SME being partially awarded credit or denied credit. In view of this, the study recommends to the government of Kenya to establish conducive business environment which will enable effective and efficient operations of the SMEs. For instance, goods and services produced by local SMEs should be protected from counterfeits goods and services, cost of input should review downwards and the tax system managed in a manner to encourage the establishment of SMEs. Despite the fact that specimen of necessary financial statements has been provided, most SMEs are yet to welcome the idea. It is behind this background that the study recommends to the registrar of businesses that there should be enforcement of financial reporting by the SMEs.

Finally, the statistical significance moderating effect of inflation on the relationship between business repayment capacity and credit rationing calls for a recommendation to the government of Kenya, that the Central Bank of Kenya, should develop inflationary policies which are directed to reduction, if not elimination of credit rationing among the SMEs. Further, through appropriate agencies, the government of Kenya should come up with policies which should ensure that inflation is maintained as per Vision 2030 projections of one-digit figure.

5.3. Areas for Further Research

The study found that repayment capacity has a statistically significant effect on the likelihood on SME being partially awarded credit or denied credit. Guided by this finding, further study can be done to determine the factors which may positively or adversely influence the repayment capacity of SMEs. By doing, the owners, or in their absence managers of SMEs will be empirically guided on how to manage these factors, and henceforth reduce the potential of experiencing credit rationing. Addition study can be done to develop workable model for determining probability of SMEs being rationed at a given repayment capacity level. This kind of a model can be a good tool to be used alongside the usual appraisal system.

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