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The Impact of Systematic Risk determinants on Predicting Banking Failure in a Non-Interest Economy

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Abstract:

This article aims to study the impact of systematic determinants on banking failure in Sudan during 2010 – 2018. During this period Sudanese banks witnessed acute financial crises which are manifested in their inability to meet customers' withdrawals. The inflation rate and the exchange rate have been selected as proxies for the systematic risk. Liquidity fluctuation which is measured by the volatility in current ratio stands for banking failure. Variations in the response of banks liquidity to fluctuations in the exchange rate and inflation rate have been examined. The article also examined whether there are significant differences between banks' liquidity. Analysis of variance (ANOVA test) and regression analysis have been used in testing the hypotheses. The research found that, the impact of inflation and exchange rates fluctuations on banking failure is statistically insignificant. There are also no significant differences in the response of banks liquidity to inflation rate fluctuations except the case of Sudanese French and United Capital Banks. The same holds true for the response of all banks' liquidity to exchange rate fluctuations except the case of Gezira Jordanian Bank. The research found out significant differences between banks' liquidity. Therefore, banking failure during the period of study could be attributed to factors other than the inflation and exchange rate fluctuations.

Key words : Inflation, Exchange rate, systematic risk, bank failure.

Introduction:

Business failure is not a recent economic phenomenon. It has been a common phenomenon throughout the history. Historically, it was observed at the economies of all most all countries. Business failure may strike a single firm, or an industry, or even the whole economy. New York stock exchange recession of 1928 and 1984, which stroke the United States economy are famous examples of

business failure at the macroeconomic level. Despite the accumulated knowledge gained from the long experience about why business failed and the lesson derived from the exposure of some economies to the risk of business failure; still business failure is unpredictable and viewed as the most awful nightmare that a firm could ever dream of. Some factors of business failure are endogenous while some other factors are exogenous. The endogenous factors are related to the inefficiency of management in making an optimal and balanced use of the available resources for profit maximization. The exogenous factors are related to the instability of the major macroeconomic parameters such as the exchange rate, inflation rate, interest rate, and money supply. In the banking sector factors of business failure will be directly manifested in the inability of banks to meet customers' withdrawals from their current accounts. Therefore, failure of banks to meet customers' withdrawals from their current accounts should not be viewed as a cause of business failure; it's rather an effect.

Sudanese banks witnessed an acute liquidity crisis in the second decade of the 21th century which is couched in their inability to meet clients' withdrawals from their current accounts. The liquidity problem had been serious and not witnessed in the Sudanese bank ever before. The Central Bank found no other way to provide financial aid to the commercial banks and the commercial banks limit depositors accessibility to their accounts in an attempt to solve cash problems. The business failure is hypothesized to be related to unfavorable changes in specific systematic risk determinants which are inflation rate and exchange rate.

Objectives of the research:

The research aims to measure and test the impact of the hypothesized systematic risk determinants on the prediction of the financial failure in the

Sudanese banking sector during 2010 - 2018.Exogenous factors have been thought of as a possible reason for the observable bank failure to meet client withdrawing, rather than endogenous factors because of the acute bank panic which stroke all Sudanese banks. The selected exogenous factors are inflation and exchange rate.

The rest of the paper is organized as follows; section 1 development of the research hypotheses. Section 2 methodology of the research. Section 3 literature review. Section 4 research data. Section 5 data analysis and hypotheses testing. Section 6 findings and interpretation.

1. Development of the research hypotheses:

Factors of systematic risk which are hypothesized as stimulants to the general trend of banking performance are the inflation and exchange rates. The inflation rate is a benchmark used to measure the depreciation in the value of the national currency due to a contraction in the economy or an excessive supply of money without a parallel increase in the GDP. The exchange rate measures the number of national currency units paid for the acquisition of one unit of a foreign currency. A steady increase in the exchange rate denotes deterioration in the value of the local currency. A noticeable increase in these two variables weakens the purchasing power of the local currency and consequently leads to excessive bank drawings; a phenomena known in the banking literature as" Bank run". As currency depreciates in value, investors and consumers need more money in order to restore the same level of operation and consumption they have had in the last period. However, in a non-interest economy, where no reward is expected on keeping ones saving in the banking system during inflation, risk avert investors withdraw their banking deposit and allocate it to an inflation protected investment opportunities, like premises and land. Consequently, this leads to more bank

drawings. The increase in bank drawings lead to an increase in the volume of currency with public which adversely affect the liquidity standing of the commercial banks. The bank withdrawing which is manifested in the increase in the volume of currency with the public is projected as an intermediary variable. The two independent variables have been hypothesized on the basis of the result of a pilot interview with the key officers in the banking sector. The proxy used to stand for the likelihood of bank failure is the liquidity position as benchmarked by the liquidity ratio. The hypotheses addressed by the research could be stated as follows:

Hypothesis1: An increase in the inflation rate leads to a statistically significant increase in bank withdrawing which in turn adversely affects the bank liquidity

Hypothesis2: An increase in the exchange rate leads to a statistically significant increase in bank withdrawing which in turn adversely affects the bank liquidity

Hypothesis3: There are *statistically* significant differences between banks liquidity reaction to inflation rate fluctuations.

Hypothesis4: There are *statistically* significant differences between banks liquidity reaction to exchange rate fluctuations.

Hypothesis4: There are no statistically significant differences between bank liquidity ratios

2. Methodology of the research:

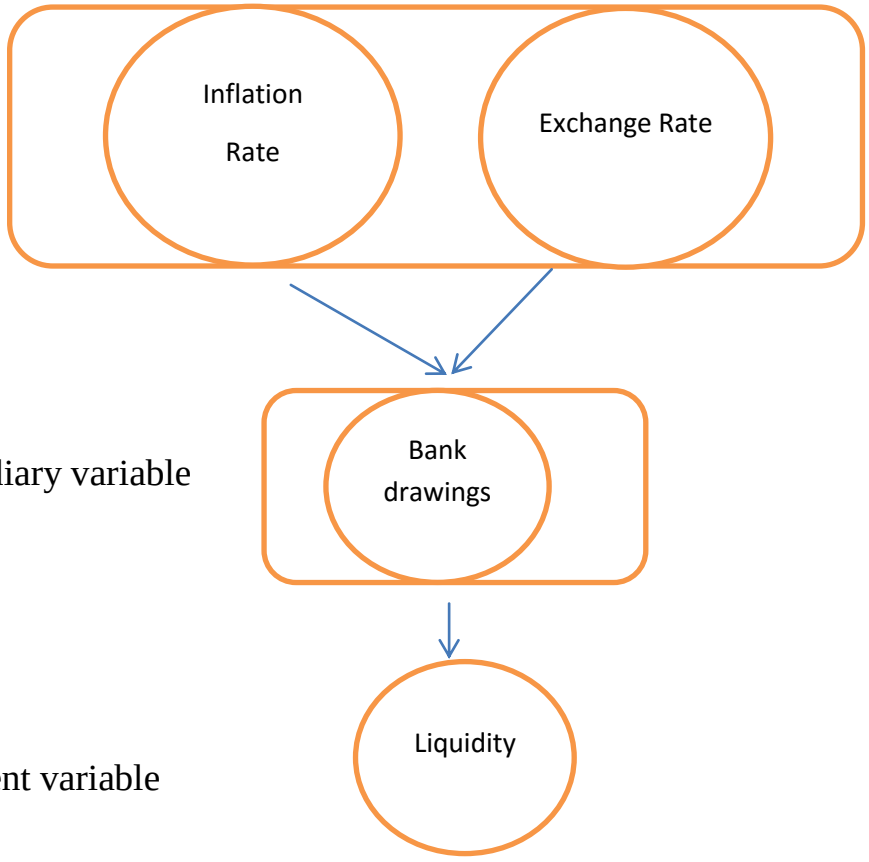
Seven banks which represent 30% of the total universe have been randomly selected. Secondary data which covers nine years (2010-2018) have been extracted from the sample records are used in testing the research hypotheses. ANOVA test and regression analysis are used for the identification of the association and the

linear relation between the independent and the dependent variables. Coefficient of determination is calculated in order to identify the ability of the independent variables to explain variations in the dependent variable. Liquidity ratio is calculated by dividing current assets over current liabilities. Two variables have been selected as a proxy for the systematic risk; the exchange rate and the inflation rate. Banks' client withdrawals have been used as an intermediary variable.

Figure (1)

Research problem

Independent variables: systematic risk determinants



Source: Researcher's work

3. Literature review:

Banking institutions serve specific macro and micro economic objectives. At the macro level they play collectively the role of an economic stabilizer particularly in the capitalistic economic system. Through the periodical change in the rate of interest prescribed by the central bank, as part of the capitalistic monetary policy, they prevent the economy from skewing towards one of the two extreme economic positions; inflationary or deflationary situations. Those two opposite economic situations normally occur due to over or undersupply of money. Also the Central Bank, through the banking institutions, may increase the direct rate of exchange in order to increase foreign investors' demand for local currency. In essence, an increase in the direct rate of exchange is devaluation in the value of local currency. Banks also activate the whole economy by attracting savings of individuals and corporate bodies so as to be used where fund, in the various economic sectors, is needed. In the capitalistic economy, the rate of interest is used by the Central Bank, other things being equal, as stimulant for attracting savings of individuals and firms so that they could be used in financing the various economic sectors. Bank performance boosts the economic growth by making fund available for investors to borrow (Osundina and et al, 2016). The Central Bank may also increase the rate of interest in order to maintain the value of bank deposit during periods of inflation. Anders Vredin (2015) argued that controlling the interest rate was the best approach for the Central Bank to stabilize the economy. Sudan is ruled by a non-interest economy, where the traditional Islamic modes of Musharaka, Murabaha, and Mudaraba are used in funding the economic activities. Depositors expect no return on their savings even when there is

steady increase in the inflation rate. Therefore, the only impetus for depositing money in the commercial banks is the physical safety, which is not the primary concern of the rational investor who seeks for wealth maximization**.** The expected rate of inflation was used in this study as an explanatory variable because of reasons related to the nature of financial markets in Sudan as explained in Eisa study of 2016. At the micro level, banks supply firms with the necessary fund collected from savings so as to be used in financing business growth. Confidence inspires people to deposit their savings in banks. People confidence in the banking sector was not born all of a sudden, but rather historic accumulation of a long experience people has built from their interaction with banking sector under a legal and regulatory system. The creation of bank confidence is a long-term building aspect of the banking institutions. However, the cardinal factor in the confidence building process is the readiness of the bank to meet clients on demand cash withdrawals from their current accounts. No doubt, confidence is the foundational pillar of banks survival. That is whey any cracks on the customers' confidence in banks will eventually end up with bank run (Ovidiu Stoica and (Bogdan Capraru, 209). Bank run is related to bank panic; which is a notable banks failure to meet customers' daily withdrawals from their current accounts.

Banks face various types of financial risks which threaten the working capital structure, and the long-term sustainability of the business. Liquidity risk has always been present in the banking industry, causing banks to liquidate or disappear. S. Claassen and J H. Van Rooyen (2012) have reported six components of liquidity risk. Liquidity risk has been defined as some of which are related to the external economic environment and the

others are related to the internal economic environment of the business. Financial risks due to external macroeconomic factors, such as acute inflation and exchange rate fluctuations are known as systematic risk, while those related to internal factors such as curtailing a line of production or losing a customer are known as unsystematic risk. There are different mathematical models for calculating bank liquidity such as liquidity coverage ratio (LCR), loan-to-deposit ratio (LDR), individual liquidity adequacy standard, (ILAS) current ratio (CR) individual liquidity guidance (ILG). Some of these measures are regulatory like LCR and ILAS which have been developed and used in the United States by the Financial Service Authority in 2010 to control banks liquidity (Ryan N. Banerjee and Hitoshi Mio, 2014). Others are professional such as LCR and CR which have been widely used in the measurement of corporate liquidity. The selection of the model for the measurement of liquidity depends on the availability of data. A number of researchers such as Vlasta et al, 2016, Ehsan and Iman 2014 Osundina and et al (2016) have studied the relationship between exchange rate fluctuations and banks' liquidity. They have concluded that, there is a negative association between exchange rate fluctuations and bank failure. Exchange rate fluctuations measures the degree to which the exchange rate moves or varies over a period of time (Elfaki O;2017). All these researches examined the impact of exchange rate fluctuations on bank liquidity on the ground that banks are intermediaries in foreign currency transactions. Volatility of bank liquidity is one of the major factors of bank failure same as undercapitalization, fraud and safety (Rosalind L and Haluk U; 2014). The studies tend to construct an early warring model, which managers to make predictions about the likelihood of bankruptcy event (Taha Zaghdoudi, 2013). There is no one definition for the term liquidity. Some definitions

tend to be conceptual while others tend to be technical. The literature on bank crises distinguished between two types of liquidity; market and funding liquidity. Market liquidity is the cost of selling fixed assets and it is always high when the selling price of the asset, net of transaction expenses, approximates the its present value. Funding liquidity, which is the concern of this study, is the ability to supply cash when needed.

S. (Claassen, J.H.and Van Rooyen, 2012; Philip Strahan, 2008; Olivier et al, 2019). Mathias. D and Kleopatra .N (2010) defined funding liquidity as the ability to settle obligations with immediacy. Funding liquidity risk consequently takes on the reverse, which is the inability of the bank to settles its obligations when they become due. Ehsan and Iman, (2014), have studied the impact of exchange rate and inflation rate fluctuation on deposits of Meli Bank. The research concluded that, there is a negative relation between exchange rate fluctuation and bank current deposits. The focus of the research is on the current deposit not on the bank liquidity. C.O sundina et al., (2016), made research on the impact of exchange volatility on bank performance in Nigeria covering a period of ten years between 2005 -2014.Two parameters have been selected as proxies for bank performance. The ROA stands for profitability while LDR stands for bank liquidity. They had found that there is an insignificant relationship between exchange rate fluctuation and bank profitability, while the relation between exchange rate fluctuation and bank liquidity had been proved as a significant negative relation. Inflation is the silent killer of financial institutions. Inflation is a chronic epidemic in many parts of the world, that is needs to be reexamined even when economies are stable (Miguel and et al; 2018). Researchers examined the impact of inflation on banking

performance. John H.et al, (2001) had found a negative non-linear relation between inflation and banking performance. They have asserted that, for economies with inflation rate exceeding 15%, there is a discrete drop in financial sector performance. Osama Eltayeb. (2014) has explored the impact of exchange rate fluctuations on banking performance. He has selected return on equity as a proxy for bank performance. Osama has found an inverse relation between exchange rate fluctuations and bank performance. Samira Seed and Jihad Mohamed (2021) concluded that inflation has an impact on certain macroeconomic parameters such gross domestic product, money supply and government expenditure. Diyaeldin. A (2020) in his study of factors affecting liquidity; found that deposits have an inverse relation with bank liquidity while there is no relation between inflation and bank liquidity. Perhaps the only one paper, to the extent of knowledge, that have examined the impact of inflation and exchange rate together on bank performance is one forwarded by Dlani and Tugut in 2020. The return on equity, which is the dependent variable, was used as a proxy for bank performance. The independent variables were the exchange rate and the inflation rate. Delani and Turgut (2020) found out a significant inverse relationship between inflation and return on equity and there is a weak relationship between exchange rate and the return on equity.

4. Research data:

Secondary data has been collected from the annual financial reports of the seven banks, for nine years during 2010 -2018. The data extracted from the financial reports includes current assets and current liabilities which have been presented respectively in table (1) and table (2).Table (3) portrays the banks' liquidity ratios. Table (4) presents data about inflation and exchange

rate which have been extracted from the records of the Central Bureau of statistics

Table (1) Current assets in S.G (2010-2018)

Shamal Islamic Bank	Baraka Bank	Fisal Islamic Bank	Gezira Jordanian Bank	Sudanese Islamic bank	United capital bank	Sudanese French Bank
733781144	681845	3260774	325374070	593838322	817416935	1145363390
789463369	857509	2622677392	342769493	853545961	947561070	1504302865
1086041661	1394870	5321815731	633475348	1241135018	1451468309	2262122126
1226598328	1725542	6614700389	736950289	1181628175	1622100795	2356441547
1496289881	1960964	8099604610	8563990416	1112352282	1916597144	2666806924
1796291860	2060255	11705049361	11705049361	1330087122	1939301771	2785141816
2165212576	2186464	14662329055	1700412456	1961178538	2091528256	2866008391
3226350744	4090894786	26062695638	25949933	2850376628	2054894242	4325035681
5050906053	8464752909	49996486	49996820	6201703788	4904802866	8564905169

Source: Banks annual financial reports (adapted)

Table (2) Current liabilities in S.G(2010-2018)

Shamal Islamic Bank	Baraka Bank	Fisal Islamic Bank	Gezira Jordanian Bank	Sudanese Islamic bank	United Capital Bank	Sudanese French Bank
649999078	636626	3161366778	2058843137	523631362	577056784	1214767402
690146422	805546	3447596712	2425987338	773621951	682259738	143217805
9929361	1337175	51106595	48025525	1173752	1122536	2175576

59		93	3	263	003	762
1115265853	1658483	6440904820	589468330	1101303748	1265308113	2257085451
1378044703	1855733	7984057553	7984057554	846475282	1523972158	2519135165
1718949785	1954390	11622362648	11622362648	1318896551	1539283510	2627941058
1950737421	2355716	14710663635	1549299815	1665197257	1718100510	2722314252
3062498825	3823039810	26018489619	26018490	2790807345	1653889602	4177975752
4960840020	7846526791	48971774	48971774	6691137719	4642425265	8785579185

Source: Banks annual financial reports (adapted)

Table (3) Liquidity ratios

End of year	ShamalIsIslamic Bank	Baraka Islamic Bank	Fisal Islamic Bank	Gezira Jordanian Bank	Sudanese Islamic Bank	United Capital Bank	Sudanese French Bank	Average liquidity
2010	1.13	1.07	1.03	1.58	1.13	1.42	1.04	1.16
2011	1.14	1.06	.76	1.4	1.10	1.39	1.05	1.13
2012	1.09	1.04	1.04	1.3	1.06	1.29	1.04	1.12
2013	1.1	1.04	1.03	1.25	1.07	1.28	1.04	1.11
2014	1.09	1.06	1.01	1.07	1.31	1.25	1.06	1.12
2015	1.04	1.05	1.0	1.0	1.0	1.26	1.06	1.06
2016	1.11	**.93**	0.99	1.07	1.18	1.22	1.05	.9
2017	1.05	**1.07**	1.0	.99	1.02	1.24	1.03	1.06
2018	1.02	1.08	1.02	1.02	.92	1.05	.97	1.01
Average	1.09	1.04	.99	1.08	1.o9	1.27	1.04	1.07

Source: Banks annual financial reports

Table (4) Inflation rate and growth in currency with public

End of year	Inflation rate	Exchange rate	Growth in currency with public	Average liquidity
2010	15.4	2.32	100%	1.16
2011	18.9	2.8046	125%	1.13
2012	44.4	5.3371	164%	1.12
2013	41.9	5.97	187%	1.11
2014	25.7	6.2207	230%	1.12
2015	12.6	5.0953	269%	1.06
2016	30.5	5.158	375%	.9
2017	25.1	5.1266	599%	1.06
2018	66.44	5.2	761%	1.01

Source: *Central Bureau of statistics (2018) (adapted), base year 2010 &Bank of Sudan Reports (2011-2017)*

5. Data analysis and hypotheses testing:

To study the impact of inflation rate and exchange rate on liquidity Ratios, The researcher collect data from seven banks (Shamal , Barka , Faisl islamic bank , Gezira ,Sudanese Islamic, United capital bank and Sudanese French bank) contains (inflation rate, Exchange rate, Bank drawings and liquidity).

To achieve the objectives of the study, the following statistical methods were used:

1. Graphic formats.
2. The frequency.
3. Descriptive statistics.
4. Analysis of variance.
5. Regression analysis.

Hypothesis one:

H_0: An increase in the inflation rate doesn't lead to a statistically significant increase in bank withdrawing which in turn adversely affects the bank liquidity

H_1: An increase in inflation rate leads to statistically significant increase in bank withdrawing which in turn adversely affects the bank liquidity

Table (5) ANOVA test for the relation between inflation rate and bank liquidity

	Minimum	Maximum	Mean	S.D	F	ANOVA P-value	R
Inflation rate	12.60	66.44	31.22	17.12	2.505	.157	0.264
Average liquidity	1.01	1.16	1.09	.05			

Table (5) shows the mean and std. deviation for the dependent and the independent variables. R-square is (.264) which means that 26% of liquidity variations caused by inflation rate, and 74% caused by random variations.

F-test P-value (.157) is greater than 0.05 at all times, so we accept the null hypothesis (H0). Therefore, increase in inflation rate doesn't lead to statistically significant increase in bank withdrawing which in turn adversely affects the bank liquidity, at 95% confidence level.

Table (6). Model coefficients

Model Coefficients				
	B	Std. Error	t	p-value
(Constant)	1.137	0.031	37.258	0.000
Inflation rate	-0.001	0.001	-1.583	0.157

Table (6) shows the value of slope and the section of the regression line. The section is (1.137) and the slope is (-0.001), where the p-value indicated a non-significant parameter (inflation rate).

Hypothesis two:

H_0: An increase in exchange rate doesn't lead to statistically significant increase in bank withdrawing which effect on bank liquidity

H_1: increase in exchange rate leads to statistically significant increase in bank withdrawing which in turn adversely affects the bank liquidity

Table (7). ANOVA test for the relationship between exchange rate and bank liquidity

	Minimum	Maximum	Mean	S.D	F	ANOVA P-value	R
Exchange rate	2.32	6.22	4.80	1.34	1.881	.213	.212
Average liquidity	1.01	1.16	1.09	.05			

Table (7) shows the mean and std. deviation of the dependent and the independent variable. R-square is (.212) which means that 21% of liquidity variations caused by inflation rate, and 79% caused by random variations.

The F-test P-value (.213) is greater than 0.05 at all times, so we accept the null hypothesis (H0). Therefore, increase exchange rate doesn't lead to statistically significant increase in bank withdrawing which effect on bank liquidity, with a 95% confidence level.

Table (8). Model coefficients

Model Coefficients				
	B	Std. Error	t	Sig.
(Constant)	1.170	0.057	20.469	0.000

Exchange rate	-0.016	0.012	-1.372	0.213

Table (8) shows the value of slope and section of regression line. The section is (1.170) and slope is (-0.016). The p-value indicated a non-significant parameter (exchange rate)

Hypothesis Three:

H_0: There are no statistically significant differences between banks liquidity reaction to inflation rate fluctuation

H_1: There are statistically significant differences between banks liquidity reaction to inflation rate fluctuation

Table (9). ANOVA test for the variation of banks liquidity with inflation rate fluctuation

	Minimum	Maximum	Mean	S.D	F	ANOVA P-value	R
Inflation rate	12.60	66.44	31.22	17.12			
Shamal Bank	1.02	1.14	1.09	.04	1.643	.241b	.190
Baraka Bank	.93	1.08	1.04	.05	.015	.905b	.002
Fisal Islamic Bank	.76	1.04	.99	.09	.891	.377b	.113
Gezira Jordanian Bank	.99	1.58	1.19	.21	.470	.515b	.063
Sudanese Islamic bank	.92	1.31	1.09	.11	1.529	.256b	0.179
United capital bank	1.05	1.42	1.27	.11	8.424	.023b	0.546

Sudanese French Bank	.97	1.06	1.04	.03	13.106	.009b	.652

Table (9) shows the mean and std. deviation of variable and R-square for all banks

F-test P-value is greater than 0.05 at all times, so we accept the null hypothesis (H0). Therefore there are no statistically significant differences between banks liquidity reaction to inflation rate fluctuation, excepts in case of Sudanese French Bank and United capital bank where their reaction to inflation fluctuation is proved to be significantly differs from other banks at 95% confidence level.

Table (10) Model coefficient

Bank	Model Coefficients				
		B	Std. Error	t	Sig.
Shamal Bank	(Constant)	1.118	0.029	39.100	0.000
	Inflation rate	-0.001	0.001	-1.282	0.241
Baraka Bank	(Constant)	1.041	0.035	29.822	0.000
	Inflation rate	0.000	0.001	0.123	0.905
Fisal Islamic Bank	(Constant)	0.934	0.063	14.755	0.000
	Inflation rate	0.002	0.002	0.944	0.377
Gezira Jordanian Bank	(Constant)	1.282	0.156	8.212	0.000
	Inflation rate	-0.003	0.004	-0.686	0.515
Sudanese Islamic bank	(Constant)	1.175	0.079	14.849	0.000
	Inflation rate	-0.003	0.002	-1.236	0.256
United capital bank	(Constant)	1.409	0.055	25.480	0.000
	Inflation rate	-0.005	0.002	-2.902	0.023

Sudanese French Bank	(Constant)	1.078	0.012	86.312	0.000
	Inflation rate	-0.001	0.000	-3.620	0.009

Table (10) shows the value of slope and the section of regression line for each bank, where the regression coefficient for all banks aren't significant except in case of united capital and Sudanese French banks.

Figure (2): Response of banks' liquidity to inflation rate fluctuation

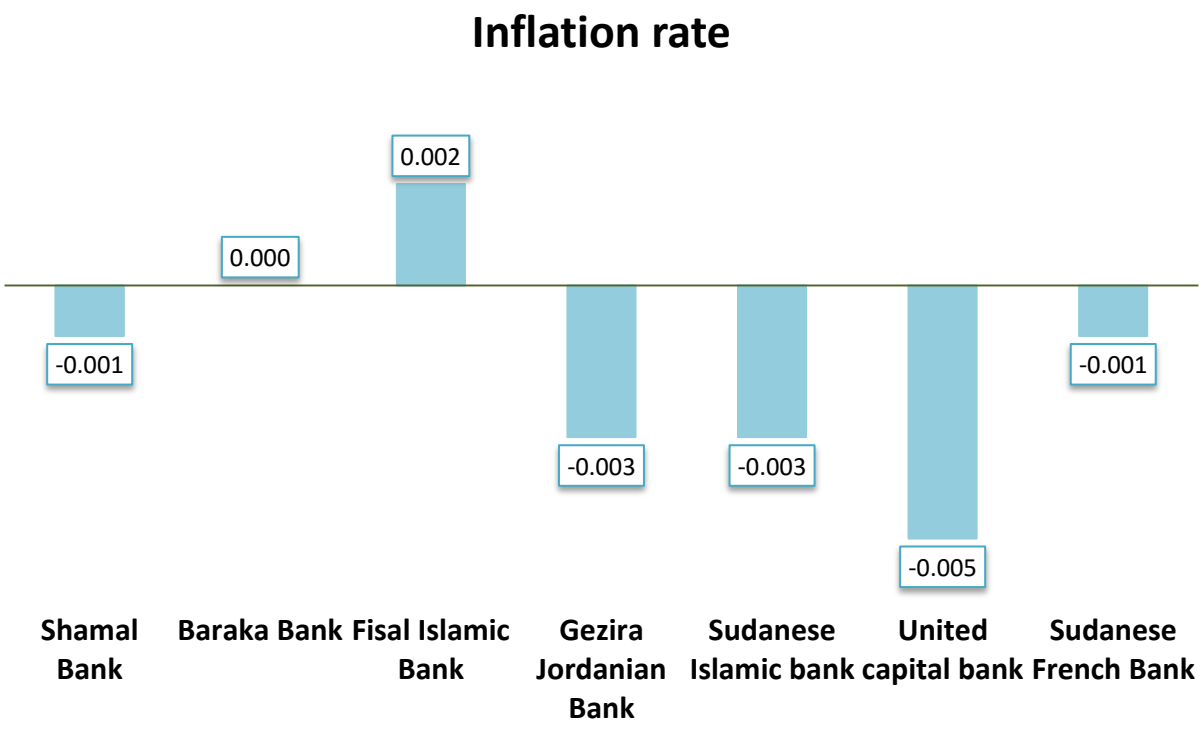


Figure (2) shows the response of banks liquidity to fluctuation in inflation rate, where value above line means there is a positive relation between liquidity and inflation rate, otherwise a negative relation.

Hypothesis four:

H_0: There are no statistically significant differences between banks liquidity reaction to exchange rate fluctuation

H_1: There are statistically significant differences between banks liquidity reaction to exchange rate fluctuation

Table (11) ANOVA test for the variation of banks liquidity with exchange rate fluctuation

	Minimum	Maximum	Mean	S.D	F	ANOVA P-value	R
Exchange rate	2.32	6.22	4.80	1.34			
Shamal Bank	1.02	1.14	1.09	.04	2.858	.135	.290
Baraka Bank	.93	1.08	1.04	.05	.294	.604	.040
Fisal Islamic Bank	.76	1.04	.99	.09	2.574	.153	.269
Gezira Jordanian Bank	.99	1.58	1.19	.21	8.830	.021	.558
Sudanese Islamic bank	.92	1.31	1.09	.11	0.023	.884	0.003
United capital bank	1.05	1.42	1.27	.11	5.133	.058	0.423
Sudanese French Bank	.97	1.06	1.04	.03	.014	.908	.002

Table (7) shows the mean and std. deviation of variables and R-square for all banks

The F-test P-value is greater than 0.05 at all times, so we accept the null hypothesis (H0). Therefore, there are no statistically significant differences between banks liquidity reaction to exchange rate fluctuation, except in the case of Gezira Jordanian Bank where its reaction to exchange fluctuation is proved to be significantly differs from other banks at 95% confidence level.

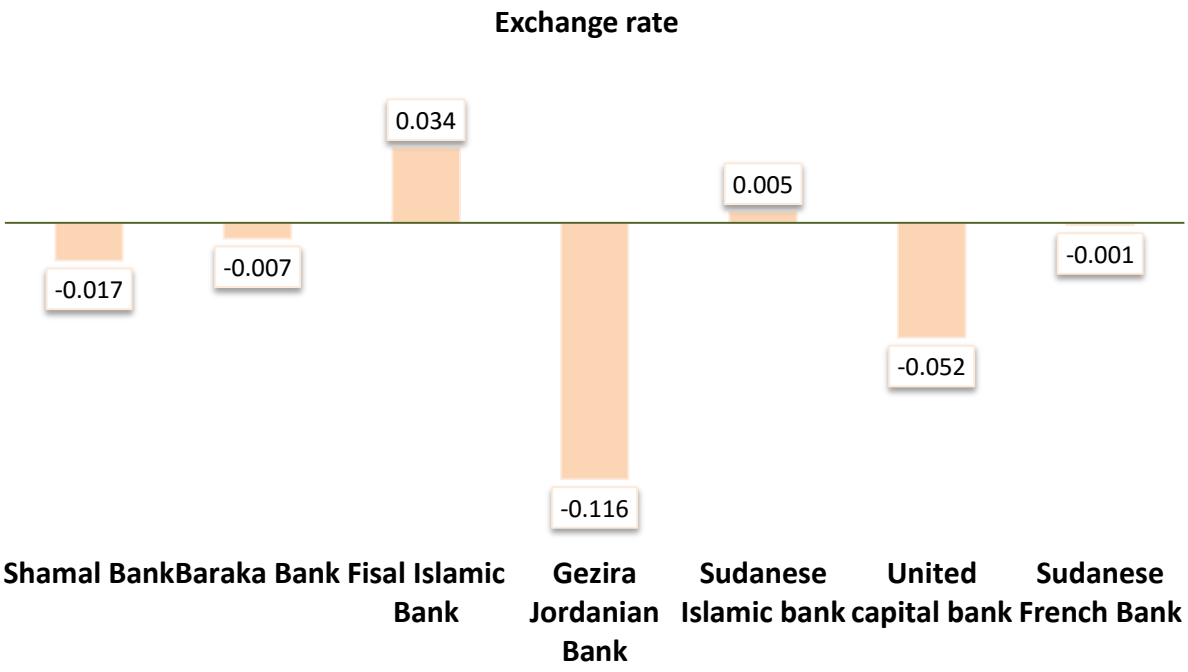
Table (12). Model coefficients

	Model Coefficients				
		B	Std. Error	t	Sig.
Shamal Bank	(Constant)	1.165	0.048	24.028	0.000
	Exchange rate	-0.017	0.010	-1.690	0.135
Baraka Bank	(Constant)	1.077	0.062	17.383	0.000
	Exchange rate	-0.007	0.012	-0.542	0.604
Fisal Islamic Bank	(Constant)	0.825	0.104	7.935	0.000
	Exchange rate	0.034	0.021	1.604	0.153
Gezira Jordanian Bank	(Constant)	1.745	0.194	8.987	0.000
	Exchange rate	-0.116	0.039	-2.971	0.021
Sudanese Islamic bank	(Constant)	1.065	0.158	6.746	0.000
	Exchange rate	0.005	0.032	0.151	0.884
United capital bank	(Constant)	1.514	0.113	13.411	0.000
	Exchange rate	-0.052	0.023	-2.266	0.058
Sudanese French Bank	(Constant)	1.042	0.038	27.227	0.000
	Exchange rate	-0.001	0.008	-0.120	0.908

Table (8)

Table (8) shows the value of slope and section of regression line for each bank, where the regression coefficient for all banks aren't significant except in the case of Gezira Jordanian Bank.

Figure (3:) Response of banks' liquidity to exchange rate fluctuation



Figure(3), shows the response of banks liquidity to fluctuation in exchange rate, where value above line means there is a positive relationship between liquidity and exchange rate, otherwise the relationship is negative.

Hypothesis Five:

H0: There are no statistically significant differences between bank liquidity ratios

H1: There are statistically significant differences between bank liquidity ratios

Table (13). ANOVA test the differences between banks liquidity ratios

Banks liquidity rate	N	Mean	Std. Deviation	F	ANOVA P-value
Shamal Islamic	9	1.09	.04	7.368	.000
Baraka Islamic	9	1.04	.05		
Fisal Islamic	9	0.99	.09		

Gezira Islamic	9	1.19	.21		
Sudanese Islamic	9	1.09	.11		
unite capital	9	1.27	.11		
Sudanese French	9	1.04	.03		
Total	63	1.10	.14		

The F-test shows that the P-value is less than 0.05 at all times, so we reject the null hypothesis (H0) and we accept the alternative hypothesis. Therefore, we can conclude there are significant differences between means of bank liquidity at all times, and at a 95% confidence level.

6. Findings and interpretation:

The research found that, the impact of inflation and exchange rates fluctuations on banking failure is statistically insignificant. That means, there are some other factors which have led to the acute liquidity crises experienced by Sudanese banks during 2010-2018. There are also no significant differences in the response of banks liquidity to inflation rate fluctuations except the case of Sudanese French and United Capital Bank. The same holds true for the response of all banks' liquidity to exchange rate fluctuations except the case of Gezira Jordanian Bank. The research found out significant differences between banks' liquidity. Previous researches findings disagree on the impact of the macroeconomic parameters on banks failure. Some have found that the relation between inflation rate and liquidity is negative; the study of Ehsan and Iman, (2014). while others found no relation between inflation and bank liquidity; the study of Diyaeldin A(2020). Therefore, it could be argued that he relationship between macroeconomic parameters and banks indices which stands for banking failure is not always stationary. For example, Osundina, and et al (2016) have found that the relation between exchange rate and profitability is insignificant while the relationship of inflation with liquidity is negative. However, they have concluded that, the effect of exchange rate fluctuations on bank performance via the selected measures is subjective. The absence of the interest rate as an economic stabilizer in the economy beside some other endogenous factors might be the main reasons behind the distortion of the workability of finance theories, in Sudan economy, as prescribed in the conceptual framework.

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