Journal of Financial, Accounting and Managerial Studies
ISSN 2352-9962/E-ISSN 2572-0147
Vol 08, Number 01 - March 2021

OEB Univ. Publish. Co.

The relationship between financial inclusion and financial stability- Empirical evidence from the North African countries

العلاقة بين الشمول المالي والإستقرار المالي– أدلة تجريبية من دول شمال إفريقيا

Boulenfad Abir [1]*, Hacini Ishaq [2]

[1]Laboratory analysis, foresight and development of jobs and competencies, University of Mascara, abir.boulenfad@univ-mascara.dz

[2] Department of finance, university of mascara, ishaq_Zida@yahoo.fr

Date of receipt: 30/10/2020 Date of revision: 01/02/2021 Date of acceptation: 04/03/2021

ملخص

تهدف هذه الدراسة إلى تحليل طبيعة العلاقة بين الشمول المالي والاستقرار المالي في دول شمال إفريقيا، وذلك عن طريق استخدام لوحة البيانات (Panel Data) خلال الفترة 2004-2016.

من أهم النتائج المتوصل إليها وجود علاقة إيجابية بين الشمول المالي والاستقرار المالي في شمال إفريقيا.

الكلمات المفتاحية: الشمول المالي، الاستقرار المالي، دول شمال إفريقيا.

Abstract

The study aims to analyze the nature of the relationship between financial inclusion and financial stability in the countries in North Africa. The study used the Panel Data method during the period 2004-2016.

One of the most important findings is that there is a positive relationship between financial inclusion and financial stability in North Africa countries.

Keywords : financial inclusion, financial stability, North Africa.

.

* Corresponding Author: Boulenfad Abir, Email:abir.boulenfad@univ-mascara.dz

1. INTRODUCTION

Financial inclusion has been a major challenge in North Africa since the last decade. Despite the significant development of financial services in this region, the majority of people can’t reach many financial services.

According to the International Monetary Fund, the Arabic countries are at the lowest level in terms of financial inclusion, in which only 18% of the population have accounts in the financial institutions, and do not exceed 13% for women. (Union of Arab Banks, 2016) The saving rate of adults in the financial institution is very weak; 29% in UAE, and 6% in Egypt and Morocco. On the lending side of financial institutions and credit card users over the age of 15 years, the ratios in Arab countries are still low, as the percentage in 2014 was 13%, but in the rest of the world, it was 22% (World Bank, 2017). Recently, the North Africa region has witnessed a significant improvement in many criteria of financial inclusion. Thus, the proportion of adults, who have an account, was increased gradually to reach 42.6 % in Algeria and 36.9% in Tunisia in 2017. More adults had access to loans from financial institutions 8.5% and 6.3% respectively. (Banque Européenne D’investissement, 2018). Financial inclusion is important for regulators and policy-makers it enhances the competition among financial institutions through the diversification and the quality of the financial products. This leads to attracting more borrowers and loans, which contributes to economic growth and achieving financial stability. (Banque D'Algerie, 2018, p. 02).

Maintaining financial stability over the past decade has become a crucial objective of the policy-makers. the International Monetary Fund, World Bank, and the Bank for International Settlements, have issued several reports on the importance of financial stability. They devoted their activities and efforts to the development of programs and policies for achieving financial stability and consequently the economic sustainability (Rima, 2011, p. 22). North African countries have witnessed remarkable progress in recent years in maintaining financial stability. The probability of default, as an indicator of the financial stability, has declined significantly over the recent years in the region. For example, the default rate in Tunisia and Morocco was 4% in 2005, while in 2012; it was 2.19% and 4.79% respectively. (González, Razia, Vivel Búa, & Sestayo, 2017, p. 06).

Recently, there has been a strong tendency in the literature to investigate the relationship between financial inclusion and the financial stability. (Khan, 2011, p. 05) See that high financial inclusion improves the effectiveness of the monetary policy through achieving financial stability's objective. (Čihák, Demirgüç-Kunt, Feyen, & Levine, 2012, p. 15) Argued that the rapid expansion of financial inclusion and the high rate of granting loans without respecting credit risk standards affects negatively the financial stability. Therefore the relationship between financial inclusion and financial stability is not absolute, but it subjects to many factors that mediate the relationship. In light of the foregoing, the following problem can be raised:

What is the nature of the relationship between financial inclusion and financial stability in North African countries.

1.1. Study objectives:

The main objective of this study is to know the extent of the relationship between financial inclusion and financial stability in the north African countries. Its also tries to shed light on the concept of both financial inclusion and financial stability on the one hand, and on the other hand it aims to know the degree of financial inclusion in north African countries in the end, a presentation of the various findings.

1.2. Research methodology:

In order to reach credible results, We have used the descriptive analytical approach, by using the panel data method during the period 2004-2016.

1.3. Previous Studies

The main focus of this research is to explore the relationship between financial inclusion and financial stability; these are some of previous studies that help us figure out the relationship like;

(Danjuma, 2018) Studied the effect of financial inclusion on financial stability in Nigeria in 2012. He used the percentage of companies that have a bank's account, and whether he has a savings account and whether he uses Online and mobile banking services as variables of financial inclusion. For financial stability he used z-bank and banks' non-performing loans. The study reached a set of results; the most important is that increasing financial inclusion affects the stability of the financial system as a whole. Also he found that increased financial inclusion is linked to financial stability. Therefore, it recommends that policy makers and regulators strive to realize financial inclusion to ensure financial system stability.

(Hirwa & Nasiri, 2015) Explored the relationship between financial stability and financial inclusion in sub-Saharan countries in Africa. The study used a GMM method in 35 sub-Saharan African countries for the period 2004-2011. The variables used are the bank-z score for financial stability. Deposits outstanding of commercial banks and Owed banks from commercial banks for financial inclusion. GDP per capita, and the financial crisis are used as control variables. The study reached a set of results; the most important is that Deposits outstanding with commercial banks negatively affects the financial stability. This means that the deposit of banks is less diversified in the African sub-Saharan and loans of commercial banks have a positive effect on financial stability. Financial crisis, have a negative impact on financial stability.

(Morgan & Pontines, 2014) Studied the relationship between financial stability and financial inclusion. They used data for the period 2005-2011. For measuring the financial inclusion, they used loans for small and medium companies as a percentage of the total OLCB, and the number of borrowers from small and medium companies as a percentage of the total number of borrowers. The financial stability was measured by two variables; Bank Z-score, and bank NPLs. The GMM method was used for estimating the study model. They concluded that the financial inclusion and financial stability completes each other. The evidence is that increasing the share of lending to small and medium-sized enterprises enhances the financial stability, mainly by reducing the number of bad loans and reducing the possibility of default by the financial institutions.

Previous studies that descuse the relationship between financial inclusion and financial inclusion, such as **(Danjuma, 2018)** and **(Morgan & Pontines, 2014)** exploring that there is a positive relationship between financial inclusion and financial stability, while the study **(Hirwa & Nasiri, 2015)** confirmed that bank deposits negatively affect financial stability while loans positively affect it.

Through previous studies, we notice that most studies do not affect North African countries or the Arab world, so through our study we will try to shed light on the extent of the relationship between financial inclusion and financial stability in North African countries, especially as they consider as the lowest level in terms of financial inclusion in the world.

2. Financial Inclusion:

Financial inclusion is the process of ensuring timely access to financial services and credit to vulnerable and low-income persons at a reasonable cost. However, financial inclusion primarily represents access to a bank account supported by insurance deposit, access to credit and payment services with low costs. (Hirwa & Nasiri, 2015, p. 40). The inclusion of all social categories in the financial system will help them to launch their projects and make good decisions for the sustainability of their business. (Aduda & Kalunda, 2012, p. 100).

The World Bank defines financial inclusion as "the proportion of individuals and companies that use financial services". This definition focuses on the actual use of financial services rather than the potential ability to use these services. Moreover, "access" means affordable access accompanied by guarantees, such as appropriate regulation of companies providing financial services, laws, and institutions to protect consumers from inappropriate products, deceptive practices, and aggressive collection practices. (Yoshino & Morgan, 2018, p. 35).

2.2. The importance of financial inclusion:

Financial inclusion has become the primary focus of many governments and financial regulators, Therefore, it is difficult to envision the sustainability of financial stability if a large part of the population and companies are financially excluded and consequently excluded from the economic sphere. Financial inclusion encourages competition between financial institutions which pushes them to diversify their products and services to protect their market share and maintain them. the financial inclusion has become more socially important regarding the increased interest for the low-income population, women, and small enterprises to integrate them into the formal financial sector. Hence, this serves the public interest by creating jobs, reducing poverty, improving income distribution, and raising living standards. (Banque D'Algerie, 2018, p. 02).

Financial inclusion stimulates the bank deposits which contributes to securing a more stable deposit base for banks during distressing times.

Financial inclusion also enables people to face unexpected situations such as illness and loss of employment. Also, financial inclusion reduces the procyclicality risk; a substantial increase in the number of small savers via greater financial inclusion would increase both the size and stability of the deposit base of banks, which would reduce banks' dependence on "non-core" financing, which tend to be more volatile during a crisis, and this improves the banking system stability. (Ozil, 2018, p. 07).

2.3. The main pillars of financial inclusion:

(Marouane & Rachid, 2018, p. 95) See that the success of the financial inclusion in any country depends on the availability of some conditions:

- Financial infrastructure: it is necessary to meet the requirements of financial inclusion and it is the most important factor for adopting the financial inclusion. This infrastructure includes;

- An appropriate legislative environment that includes all instructions and regulations that promotes financial inclusion.

-Vast network of banks and financial institutions' branches spread over the country's territory

- Modern financial services that used the information technologies such as; e-banking, phone banking, ATMs…ect

- Developed payment and settlement systems that facilitate the financial transactions locally and at the international level.

- Financial protection for the customers: That ensures a fair, transparent treatment, and facilitating access to financial services at low costs and with better quality. Providing the necessary information, financial consulting services, and protecting personal information.

-Serving society's needs: The financial's products and services should meet the demand and the characteristics of society.

-Financial Education: Adopting a strategy for financial education and financial literacy, ensuring the involvement of all institutions concerned.

2.4. Financial inclusion measures:

(Jaabi, 2017, p. 17482) See tha Financial inclusion can be measured by several dimensions that are mentioned in the following:

- Access which mean Accessibility is the ability to use financial services and products from institutions. It analysis the potential risks of opening and using a bank account, such as branches and ATMs). It is also possible to obtain a founding agent for access by calculating the number of open accounts through financial institutions and estimating the percentage of the population who have an account.

-Quality which meanincludes the consumer experience, which can be distinguished through consumer opinions toward the products currently available. Therefore, quality is used to measure the nature of the relationship between the financial service provider and the consumer in addition to the options available and the extent to which consumers understand these options.

-Usage which is The usage focuses on the continuity of financial service and product use To measure usage, we need to know details about the regularity, frequency, repetition, and duration of use over time.

Impact which Measuring changes in the lives of consumers that can be attributed to the usage of a financial device or service.

3. Financial stability:

3.1. Definition of financial stability:

Financial stability is a situation in which a financial system, which includes financial markets and institutions, can face the shocks, which are adequate to notably mess up the distribution of savings to lucrative investment. (Siddik & Sajal, 2018, p. 35).

financial stability represents the ability of the financial system of the allocation of the economic resources and the effectiveness of other economic operations, and financial risk management and maintaining its ability to perform this primary function in the first place through self-correcting mechanisms. So, the financial stability definition is multifaceted. (Blinder, 1998, p. 54).

Financial stability is defined as "a condition in which the financial system is not unstable", and it can also mean a situation in which the three components of the financial system - financial institutions, financial markets, and financial infrastructure are stable, where the stability of financial institutions indicates a situation in which individual financial institutions sound enough to perform sufficient financial intermediation tasks, without the assistance of external institutions including the government. The stability of financial markets means a situation in which there is no significant disruption of market transactions, with no significant deviation in the prices of financial assets from economic fundamentals. The stability of financial infrastructure refers to a situation in which the financial system is well structured to ensure the smooth operation of market discipline. (bank of korea).

3.2. The importance of financial stability:

The importance of financial stability can be realized by looking at the global effects of the financial crisis on the financial sector as follows:

First: Financial stability is important because it reflects the integrity of the financial system, which in turn plays a major role in enhancing confidence in the system and preventing the occurrence of risks that could destabilize the economy. financial instability can affect growth and cause social perturbations, which increase financial risks and excessive fluctuations in asset prices and end in financial and banking crises. On the other hand, the importance of financial stability is highlighted by the great interest of international financial institutions to preserve it, as the financial turmoil stands at the top of the risks that threaten the stability of the global economy (Rima, 2011, p. 22).

Second: The absence of financial stability affects economic growth. The mortgage crisis that started from America and spread to others, the International Monetary Fund reconsidered its expectations regarding economic growth for 2013 and the next year. In its reviews issued in April this year, the Fund stated that the more severe the financial crises and the longer they stay, the lower the economic growth rates.

Third: the financial crises are catastrophic at all levels, economic, political, social. such as the Asian crisis or the crisis of banks in Japan at the end of the eighties and early nineties, then the financial crisis that struck Turkey in 2001 and 2002, which led to the failure of an Islamic finance bank and ten conventional banks, including eight state-owned, and a total loss of 3.5 from the GDP, and then the mortgage crisis in which the global economy lives its consequences and effects. As a result of the aforementioned and other effects of the financial turmoil, the issue of achieving financial stability has come to the forefront among the major concerns. That concern the business, meetings, and meetings of the concerned authorities, individuals, and institutions at the global level

(Belouafi, 2008, p. 71).

3.3. **strategic axes of maintaining financial stability:**

We can identify three main axes:

First: the existence of a satisfactory macroeconomic framework.

Second: the stability of financial institutions and that of markets

Third: the methods of regulation and supervision of payment systems

The expansion of financial operations and the close relationships between financial institutions and markets have already resulted in a significant increase in payments, settlements and guarantee exchanges, which are often the counterpart to these regulations. As a result, payment systems and their security environment have become a major driver of financial stability. (PATAT, 2000, p. 52).

4. The relationship between financial inclusion and financial stability:

This study focuses on the relationship between financial inclusion and financial stability. In other words, does financial inclusion boost financial stability?. However, researchers have suggested both positive and negative effects, some of which are:

According to (Khan, 2011, p. 05) has suggested that financial inclusion can lead to achieving financial stability. The financial inclusion helps banks to diversify their assets by increasing loans lending to small companies. This would diversify the banks' loan portfolio by reducing the relative size of borrowers in the overall portfolio, which reduces the portfolio's volatility and reduces the bank's risk.

(Han & Melecky, 2014, p. 16) Showed that financial inclusion has a positive impact on financial stability in high-income and middle-income countries, because the increase of the Financial inclusion can improve commercial bank liquidity and increase the banks' capacity for financing the economy. In contrast, the lower middle income countries, financial inclusion may lead to potential instability in their financial systems. (Dienillah, Anggraen, & Sahara, 2018, p. 12).

Another point of view, low-income those adopted the financial inclusion policy enjoy relative immunity from economic cycles, and the financial inclusion increases the stability of deposit rules and loans. (Hannig & Jansen, 2010, p. 34). Also, the lack of opportunities for small and medium enterprises and small entrepreneurs leads to negative impacts on employment growth because this category is more labor intensive in their operations. (Prasad, 2010, p. 22).

Also, financial inclusion can promote income equality across the population, which leads to realizing the social equity. Thus, social equity means that more employment, less social affliction, and economic welfare, which contributes to the stability of the economic and financial systems. (Rahman, 2014, p. 04).

(Khan, 2011, p. 17) Assumed that financial inclusion can negatively affect the financial stability, regarding the fact that the loans' expansion leads to override the lending standards, which shakes the financial stability and triggers the financial crises, and the sub-prime" crisis in 2008 is good evidence. (Chiwira, Tadu, & Muyambiri, 2013) Agreed that the excessive loans and the aggressive credit policy possibly affect the quality of the credit portfolio of banks and financial institutions, and consequently sows the seeds of the financial fragility and instability.

According to (Morgan & Pontines, 2014, p. 06) Banks can increase reputational risk if they outsource various functions such as credit assessment to reach out to small borrowers. Finally, If financial institutions are not regulated properly, an increase in lending may reduce the overall effectiveness of the regulation in the economy and increase the risks to the financial system.

5. RESULTS AND DISCUSSION

5.1. Data Sources and Their Description:

The study investigates the impact of the financial inclusion on financial stability in the context of the countries in North Africa (Algeria, Tunisia, Morocco, Libya, Egypt) during the period of 2004 to 2016. The data were retrieved from various sources, according to availability, where data on financial inclusion was extracted from the World Bank's financial inclusion database, and data on financial stability were also obtained from the Access Survey database The financial statements of the International Monetary Fund. The control variables were collected from the global financial development database.

5.2. Variables Selection:

5.2.1. Dependent variable:

This study considers the financial stability as a dependent variable. In the previous studies, like (Morgan & Pontines, 2014).a number of variables are used as an indicator of financial stability, such as Z-score bank, Non performing loans… Etc. the data availability, in our study we used the bank Z-Score.

5.2.2. Independent variables:

Financial inclusion is an independent variable. The previous studies like (Morgan & Pontines, 2014) have adopted a set of indicators to measure the financial inclusion; number of bank branches per 1,000 people, number of ATMs for every 1,000 people, OLCB ..Etc. This study used loan index (OLCB) due to the scarcity of data in North African countries.

5.2.3. Control's variables:

The study included control variables that affect the relationship between the financial inclusion to financial stability, and they are money supply and the financial crises. The variable of the financial crises is used to capture the effect of the financial crisis of 2008.

In the table below an explanation of the study variables codes.

Table 1. Variable codes.

Variables	explanation
BZ	Bank-z-score
OLCB	Outstanding loan from commercial banks
MS	Money Supply
CRISIS	Financial Crisis

Source: prepared by researchers.

5.3. The Model:

In order to investigate the relationship between financial inclusion and financial stability, the study used the following model:

$$\mathbf{Finstab_{i,t} = \alpha + B_1(Fininclusion_{i,t}) + B_2 x_{j,i,t} + \varepsilon_{i,t}}$$

Where:

$Finstab_{i,\ t}$: is the financial stability of the country *i* in the year *t*. $Fininclusion_{i,t}$ is the financial inclusion of the country *i* in the year *t*. x_j are the control variables. ε is the error term.

To prove the basic research hypothesis, the study adopted the panel data analysis.

4.4. Variables Statistical description:

The following table (2) shows descriptive statistics of the study variables; Bank-Z-Score, loans owed OLCB, money supply.

Table 2. Variables Statistical description

	ZS	OLCB	MS
Mean	23.33269	41.65042	74.47343
Median	19.20015	38.39260	63.78484
Maximum	47.72820	113.9530	238.7364
Minimum	8.128330	1.010102	16.97168
Std. Dev.	10.29359	26.49663	51.11616
Skewness	0.474203	0.434422	2.105309
Kurtosis	2.031989	2.568324	7.220821
Sum	1213.300	2165.822	3872.618
Sum Sq. Dev.	5403.862	35805.64	133256.0
Observations	52	52	52

Source: eviews 10 program outputs.

Bank-Z-score displays an average 23.33, and a standard deviation of 10.29. Average loans equals 41.65, and the standard deviation equals 26.49. Average money supply is 74.47 standard deviation is 51.11. The financial crisis is a dummy variable which is equal 1 at 2007 and 2008 and 0 elsewhere.

5.5. Data Analysis:

5.6. Stationarity:

The stationarity of the variables was tested with unit roots tests of panel method; Levin, Lin & Chut test, Pesaran test, ADF - Fisher Chi-square test. The following hypothesis can be formulated:

H0: There is unit root (no stationary).

H1:There is no unit root (stationary).

Table 3. The stationarity of the variables

Variables	**Levin, Lin & Chut t**		**Im, Pesaran and Shin W-stat**		**ADF- Fisher Chi- Square**	
	Statistic	**Prob.**	**Statistic**	**Prob.**	**Statistic**	**Prob.**
BZ	-4.15161	0.000	-2.55488	0.0053	20.4598	0.0087

OLCB	-6.68549	0.000	-5.75847	0.0000	40.7596	0.0000
MS	-4.34377	0.000	-4.11488	0.0000	29.6429	0.0002

Source: eviews 10 program outputs.

The results of these tests for the Bank-Z-Score variable indicate that the p-value is less 0.05, and therefore the null hypothesis is rejected, thus there is no unit roots and the variable is stationary at the level. P-value of OLCB variable is less than 0.05, there is no a unit roots and the variable is stationary at the level. MS is stationary and there is no unit roots.

5.7. Hypothesis Testing:

5.7.1. Hausman Impact Test:

The study performed the Hausman test to choose between the fixed effects model and random effects model (REM), by testing the following hypothesis:

H0: Random effects model is the appropriate model.

H1: the fixed effects model is the appropriate model.

Table 4. Test cross-section random effects

Test	Chi-Sq Statistic	Chi-Sq d.f.	Prob.
Cross-section random	0.237688	3	0.9713

Source: eviews 10 program outputs

The results of this test indicate that the calculated value was 0.237688 and the probability value is 0.99713 and it is greater than the 0.05, therefore, we can't reject the null hypothesis H0. So, the appropriate model is the random effects model.

5.7.2. Model Estimation:

Table (4) shows that the explanatory power of the model is 43.61 %, which means that the independent variables explain 43.61% of the variation in the financial stability, while 56.39 % is explained by other factors. F-statistic indicates that the model is suitable for the data in which P-value is less than 0.01.

Table 5. Random effects model estimation.

Test cross-section random effects

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	17.8880	2.255834	7.930013	
OLCB	0.227939	0.071541	3.186122	0.0025
MS	-0.096502	0.030287	-3.186226	0.0025
CRISIS	20.39027	3.498829	5.827741	0.0000
R2 : 0.436				
S.E.R : 7.967				
F-statistic : 12.37				
Prob(F-statistic) : 0.000				
D.W : 1.593				

Source: eviews 10 program outputs

The table (4) also shows that:

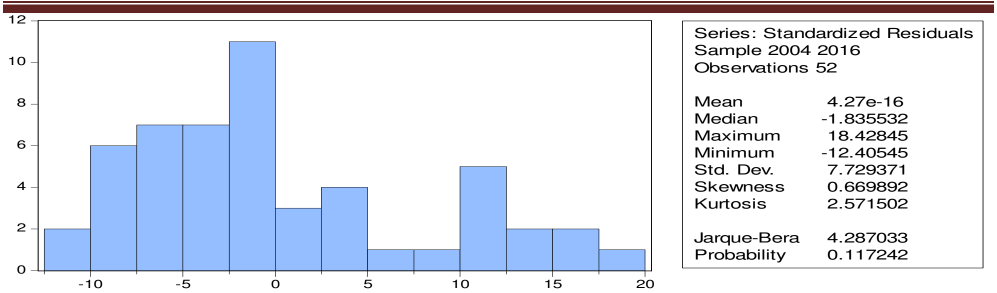
- There is a positive (0.2279) effect of the financial inclusion (OLCB) on the financial stability (Z-Score), and this effect is statistically significant at 0.05 level, which mean there is a direct relationship between the tow variables, that is, the greater the percentage of financial inclusion, the greater the degree of financial stability.

- There is a negative (-0.0965) effect of money supply on the financial stability (Z-Score), and this effect is statistically significant at 0.05 level, which mean there is an inverse relationship between the tow variables, that is, the more of the money supply is offered, the lower the degree of financial stability.

-There is a positive effect (20.39) of the financial crisis on the financial stability (Z-Score), and this effect is statistically significant at 0.05 level, this is because the countries under study were not affected by the global crises during the study period.

In order to diagnose the model, the figure (1) presents the normality test of model's residuals using Jarque-Bera test.

Fig.1. Normality test of residuals.



Source: eviews 10 program outputs

The P-value of JB (0.1174) is greater than 0.05, so the null hypothesis of normality is not rejected, and we conclude that the residuals distribute normally around the mean which equals 0.

5.8. Discussion:

The positive effect between financial inclusion and financial stability explains that the increase in financial inclusion through merging the disadvantaged groups and increasing lending contributes to financial stability by stabilizing the rules and deposit and loans, and increasing the intrest rate that banks obtain through lending.

This is also what (Al-Smadi, 2018) and (Morgan & Pontines, 2014) agreed with our explanation.

The positive impact of the financial crisis reveals that the financial crisis of 2008 did not harm the stability of the banking systems in the countries under study. One of the explanations of this evidence is that when the crisis started in the USA in the middle of 2007 the banking authorities in the North African countries adopted a series of policies to immunize the banking system. In addition, the banks' managers made the banks' risk under control by eliminating the risky assets, avoiding the risky transactions, increasing their reserves and strengthening the liquidity, all these procedures before the crisis reached in the region. However, as opposed to the findings of (Chiwira, Tadu, & Muyambiri, 2013) found that the mortgage crisis in USA (2008) adversely affected on financial inclusion and financial stability. During that period, financial inclusion and the increase in credit where encouraged, this led to fiancnail fragility and financial instability.

The negative effect of the money supply on the financial stability is due to the increase in the rate of inflation that occurs through the expansion of the money supply, and thus the disruption in the performance of banks, which in turn leads to financial instability.

And this is what (Williams, 2010) agreed with our explanation.

6. CONCLUSION

Based on the great importance of financial inclusion and financial stability in North African countries, this study focused on studying the relationship between these elements in a sample from North African countries during the period 2004-2016. The financial stability is measured by the Bank-Z-Score and financial Inclusion is measured by the ratio of loans owed, in addition to the control variables.

The most important finding is the positive effect of financial inclusion on financial stability in North African countries. Moreover, there is a negative impact of the money supply on the financial stability in North African countries and this is due to the increase of the inflation rate that destabilized the financial system. Finally, the financial crisis did not destabilize the financial systems in these countries due to the fact that North African countries took their necessary precautions before the crisis occurred, by raising banks' reserves and enhancing liquidity.

Through the results of this study, a set of suggestions can be presented:

- It is necessary for policymakers to take into consideration the financial inclusion in the planned reforms and policies in order to stabilize the financial system.
- Financial inclusion programs should be managed properly because the failure of these programs imposes systematic risks to the financial system, and thus will become a source of financial instability.
- Adopting innovation and technology in providing financial services to keep pace with developed countries.

7. Bibliography List :

7.1. Books :

-Blinder, A. S. (1998). *Central Banking In Theory And Practice.* Cambridge, London, England: First MIT Press paperback edition.

7.2. Journal article :

-Aduda, J., & Kalunda, E. (2012). Financial Inclusion and Financial Sector Stability With Reference To Kenya: A Review of Literature . *Journal of Applied Finance & Banking, vol 2, no 6,* , 95-120.

-Al-Smadi, M. (2018). The role of financial inclusion in financial stability: lesson from Jordan. *Banks and Bank Systems, Volume 13, Issue 4* , 31-39.

-Belouafi, A. M. (2008). Islamic Banking and Financial Stability, Empirical Analysis Discussing the results of a working paper issued by the International Monetary Fund. *King Abdulaziz University Journal, Islamic Economics, Vol 12, Issue 2* , 71-96.

-Chiwira, O., Tadu, R., & Muyambiri, B. (2013). Financial inclusion and financial stability: the important role of financial regulation in explaining the relationship Empirical review . *Journal of Research in International Business and Management, ISSN: 2251-0028, Vol 3* , 139-149.

-Danjuma, A. (2018). inancial inclusion and financial stability: Survey of the Nigeria's financial system. *International Journal of Research in Finance and Management, 1(2)* , 47-54.

-Dienillah, A. A., Anggraen, L., & Sahara. (2018). Impact Of Financial Inclusion On Finanaial Stability Based On Income Group Countries. *Bulletin of Monetary Economics and Banking journal, Vol 20, N° 4* .

-El-Tamimi, Z. A., & Khadidja, A. H. (2016). Vector Autocorrelation Analysis (var) and error correction (VEC) approach for Panel Data with case application: National accounts of the Gulf Cooperation Council countries for the period 1970-2012. *Gulf Economy Magazine, Issue 03* .

-González, L. O., Razia, A., Vivel Búa, M., & Sestayo, R. L. (2017). Competition, concentration and risk taking in Banking sector ofMENA countries. *Research in International Business and Finance* .

-Hirwa, A., & Nasiri, A. (2015). Financial Inclusion And Financial StabiIity In Sub-Saharan Africa (SSA). *the international journal of social sciences, vol 36, n1* , 39-49.

-Jaabi, S. A. (2017). Financial Inclusion And Financial Stability Nexus: Are They Synergies Or Trade-Offs. *International Journal of Development Research, Vol 07, Issue, 12* , 17479-17492.

-Marouane, B. Q., & Rachid, B. (2018). The reality and prospects for enhancing financial inclusion in the Arab countries. *Journal of Economics and Human Development, vol 09, Issue 01* , 90-105.

-Ozil, P. K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review, vol 18, N4* , 329-340.

-Rahman, A. (2014). The Mutually-Supportive Relationship Between Financial Inclusion and Financial Stability. *Alliance for Financial Inclusion, ISSUE 1*

-Siddik, M. N., & Sajal, K. (2018). Does Financial Inclusion Induce Financial Stability? Evidence from Cross-country Analysis, Australasian Accounting. *Business and Finance Journal, Volume 12, Issue 1.*

Union of Arab Banks. (2016). *The reality of financial inclusion in the Arab world.* Beirut: Journal of the Union of Arab Banks.

-Williams, J. C. (2010). Monetary Policy in a Low Inflation Economy with Learning. *FRBSF Economic Review* , 01-12.

-Yoshino, N., & Morgan, P. J. (2018). Financial Inclusion, Financial Stability And Income Inequality: Introduction. *The Singapore Economic Review, Vol 63, No 01,* , 1-7.

7.3.Internet websites:

-bank of korea. (s.d.). *definition and importance of financial stability.* Récupéré sur .bok.or.kr/eng: https://www.bok.or.kr/eng/main/contents.do?menuNo=400037#

-Banque D'Algerie. (2018, fevrier 20). *Brochure sur l'inclusion financiere.* Récupéré sur bank-of-algeria.dz: https://www.bank-of-algeria.dz/pdf/inclusion7.pdf

7.4. working paperes:

-Banque Européenne D'investissement. (2018). *Le secteur bancaire en Afrique de l inclusion financiere a la stabilité financiere.* département Analyses économiques de la BEI.

-Čihák, M., Demirgüç-Kunt, A., Feyen, E., & Levine, R. (2012). *Benchmarking Financial Systems around the World.* Washington, DC: Policy Research Working Paper,World Bank.

-Han, R., & Melecky, M. (2014). *Financial Inclusion for Financial Stability, Access to Bank Deposits and the Growth of Deposits in the Global Financial Crisis.* Policy Research Working Paper, World Bank.

-Hannig, A., & Jansen, S. (2010). *Financial Inclusion and Financial Stability: Current Policy Issues.* Tokyo : ADBI Working Paper Series.

-Khan, H. R. (2011). Financial inclusion and financial stability: are they two sides? *the Indian Bankers Association and Indian Overseas Bank.* Bancon: BIS central bankers' speeches .

-Morgan, P. J., & Pontines, V. (2014). *Financial Stability and Financial Inclusion.* Tokyo: ADBI Working Paper Series 488.

-PATAT, J.-P. (2000). *La stabilité financière, nouvelle urgence pour les banques centrales.* etudes, Bulletin De La Banque De France, N 84.

-Prasad, E. S. (2010). *FINANCIAL SECTOR REGULATION AND REFORMS IN EMERGING MARKETS:.* Cambridge: NBER WORKING PAPER SERIES.

-Rima, D. (2011). Systemic financial stability: building a composite index of the Algerian financial system for the period (2003-2011). *A thesis submitted for a PhD LMD* . Constantine, Faculty of Economic Sciences, Algeria.
-World Bank. (2017). *A comprehensive offer of financial inclusion.* Washington: World Bank.