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Application of the PCA To Analyse the Financial and Social Performance of MFIs in the MENA Region

Afef Tlili

PhD in Economics and researcher teacher, FSEGT, Tunis El Manar University, Tunisia.

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Corresponding Author:
Afef Tlili

ABSTRACT

This paper assesses the performance of MFIs in the MENA region. The purpose of this analysis is to determine the trade-off between financial and social performance in our sample. So how well do Arab MFIs in the MENA region perform? What is the orientation of these institutions? To answer these questions we followed a methodology that consists of two parts. The first step involves the use of the DEA method to assess the performance of the MFIs in our sample. The second step consists of applying PCA on the efficiency scores obtained from the DEA method, in order to determine the orientation of each entity examined.

KEYWORDS: microfinance, financial performance, social performance.

JEL Classification : G21 ; P27 ; P31.

INTRODUCTION

To give a notion of performance, it is interesting to focus on the content and the context to which it is applicable. Its measurement is constructed by indicators related to the type of activity carried out and its objectives. Microfinance is one of the means of combating poverty, by granting microcredits to disadvantaged people, to finance income-generating activities. It is characterized, like all areas, by consensus on the general objective and by internal conflicts. The best way to help the poor access financial services is through a balance between the IMF's two missions. Microfinance presents conflicting debates between two schools with contradictory thoughts: the institutionalist approach and the welfarist approach. The ideas of these two approaches vary between two characteristics of the sector, which are the solidarity aspect and financial sustainability of MFIs. To achieve their dual objectives, these institutions attach importance to both the profitability and the social impact of their activities. This overcomes the problem of the arbitrage between poverty reduction and the viability of the institution. It is better to understand how the two objectives complement each other, so that they can be improved as time goes on. The rapid development of this sector has led MFIs to adopt management mechanisms to better understand the performance of their institutions.

I. MFI PERFORMANCE : CONCEPTUAL FRAMEWORK

The goal of microfinance is to fight poverty. Like all areas, microfinance presents agreements and internal conflicts. The agreements concern its practices of integrating the poor in order to improve their living conditions, while conflicts revolve around the performance of its institutions. The common goal reveals a deep division on how best to help these people through access to financial services. The debates about how to serve the poor give rise to two contradictory approaches presented by institutionalists and welfarists. The ideas of these two currents are opposed in terms of the principle of solidarity and that of the profitability of MFIs. These two schools present two main opposing theoretical visions of how to reduce poverty. This is the opposition between the institutionalist vision and that of social welfare, which according to Morduch (2000) constitutes the «microfinance schism», where these two currents clash concerning the priority acts of MFIs. The two currents present conflicting thoughts on the issues of microfinance, which represent the debate built on the famous question of the financial viability of MFIs and the social scope of their intervention.

II. EVALUATION OF MFI PERFORMANCE

The dual economic and social objective reflects the importance given to the financial and social performance of MFIs, which goes beyond the question of the arbitrage between poverty reduction and the viability of the institution. It is necessary to understand how the two purposes complement each other, in order to improve both. In recent years, the microfinance sector has been considering a rapid development of its activities, which has prompted the heads

of MFIs to put in place management tools to better understand the performance of their institutions. MFIs are different from ordinary banks, the majority of which were non-profit-making, which do not necessarily follow an enrichment objective. Their activities focus on the financial self-sufficiency and coverage capabilities of low-income clients. Therefore, they have not operated under the same management instruments used by the traditional banking circuit. This has made it possible to establish performance indicators specific to microfinance, among which we mention the indicators covering operating costs which represent the interest income on expenses. MFIs have developed other performance ratios, which provide the necessary guidance on the quality of credit portfolios, operational efficiency and productivity of the institution. This information is useful in attracting capital, as these indicators help MFIs to obtain financial resources from banks and remitters. Rating agencies and audit procedures have prevailed in the microfinance sector, the activity of these actors lies in the evaluation of the performance of MFIs, by assigning them ratings and reports, each according to its own predefined procedures. The Validation of this information by experts is necessary to attract the attention of potential investors.

2.1. Measuring the financial performance of MFIs

The measurement of financial performance promotes financial transparency at the MFI level, the indicators used for this purpose concern "profitability; portfolio quality; efficiency and productivity; and financial management". These indicators give a clear picture of the financial performance of the MFI and the degree of risk borne by it with an overview of its financial situation.

2.2. Evaluation of the social performance of MFIs

Assessing the social performance of an MFI is a more delicate task than assessing financial performance. According to Copestake (2007), there are three elements that are frequently assessed : capacity to serve a broad clientele (breadth of outreach), capacity to reach people characterized by their disadvantaged social situation (depth of outreach) and the ability to improve the well-being of participants (quality of outreach). In this way, the effects of microfinance practices are particularly ambiguous. Social performance can consolidate the sustainability of MFIs over time. The solidarity imperatives of these institutions require additional costs specific to the training of clients and staff, the improvement of the information system, the monitoring of beneficiaries, and the provision of social services. However, this trend may reduce the MFI's costs in the future by improving the quality of its portfolio. It can also build customer loyalty, embed repayment discipline in customers, and improve employee productivity. The social performance of MFIs has four dimensions: "targeting the excluded and the poor; adapting products and services to the target clientele; improving the social and political capital of those served; and the social responsibility of the institution towards its beneficiaries."

III. SAMPLE ; VARIABLES AND DATA

Our sample consists of 18 Arab MFIs from the MENA region. The countries concerned in our study are 7, which are : Tunisia (Enda) ; Morocco (Alkarama, Attadamoune, FONDEP) ; Egypt (ABA, Al Tadamun, DBACD, CEOSS, Lead Foundation, SBACD) ; Palestine (Faten, Asala) ; Jordan (Alwatani, DEF, MFW, Tamweelcom) ; Lebanon (Almajmoua) ; and Yemen (National microfiance foundation). Our choice is not arbitrary. We considered MFIs that present websites, on which they put their reports and specific information about their activities. In these sites MFIs present their CA (Board of Directors). We also chose MFIs that are rated by a number of diamonds according to the rating adopted by Mix Market. MFIs with more than 4 stars are considered the most transparent in terms of information, as the accounting information disseminated by these organizations has a high level of reliability. MFIs with 4 diamonds disclose information that provides indicators of their scope and impact on the beneficiaries of their services. Their financial statements (balance sheet and income statement) are audited and certified by accountants and auditors. Those with a level of 5 diamonds, added to the characteristics of level 4 MFIs, use the rating systems provided by specialized agencies in the field of microfinance. For the period chosen, we have identified the time interval in which all the components of our sample represent their data in relation to the selected variables. We were not able to extend the date if we did not reduce the size of our sample, as in subsequent years the data are not always available for all MFIs studied. All the encrypted elements used in our work come from the MIXMARKET database, which is considered to be the most consistent and reliable database by communicating information on MFIs internationally.

We adopt the DEA method to measure the performance of MFIs in the Arab world. For the application of this procedure, the output and input variables must first be determined. The choice of outputs and inputs is influenced by an understanding of the primary activity of the financial institution under study. MFIs are not ordinary financial institutions. They have a dual social and financial mission. In this sense, these institutions are required to maintain a goal of sustainability through sustainable financial performance, while facilitating access to financial services for the poor. An MFI can only be considered efficient when it optimizes the resources it has to achieve its social and financial objectives. In our selection of data, we chose the "labour" input made up of the number of employees of the institution, and the "capital" input defined by the total amount of MFI assets. Based on these specifications, we can say that the objective of an MFI is to optimize the selected inputs, which are "capital" and "labour", to ensure access to credit for

marginalized populations. Given the lack of consensus on the identification of social indicators that everyone can use and the lack of data on this subject, we will use proxies. We can determine the scope and depth of a microcredit program using the data presented by MIX MARKET. Lapenu et al. (2001) introduce three proxies that can be used to measure the depth of the program: the percentage of women in borrowers, the average loan amount and the average amount of deposits. In our case we chose to use the number of active borrowers. This indicator reflects the scope of the program, that is, the ability of the MFI to use its resources to serve its clients as best as possible. In terms of measuring the profitability and financial viability of our sample, we will use the Return On Asset (ROA) economic profitability ratio. This indicator makes it possible to evaluate the way in which the resources available to the IMF are manipulated to achieve returns through its activity.

Several authors combined the two DEA and PCA methods simultaneously with a view to comparing the EDR rankings provided by each. In microfinance, Gutiérrez-Nieto et al. (2005), as well as S.Cornée (2006, 2007), adopt this procedure for analysing the practices of MFI sampling. It is in this same perspective that we situate our work on MFIs in Arab countries in the MENA region. The PCA promotes the interpretation of efficiency scores obtained through the application of the DEA method. After calculating the efficiency scores corresponding to all possible specifications, we choose to perform the PCA on these scores in order to make a selection of the factors and subsequently interpret the main components selected.

IV. RESULTS

4.1. DEA Results

The table below shows all the inputs and outputs used in our study. In this work we identified 18 Arab MFIs over a period from 2007 to 2012, for which we used the averages of our variables over the 6 years studied, then we calculated the mean of each series.

Table 1 : Model specification, input and output selection

MFI		**Legal status**	**Input A**	**Input B**	**Output 1**	**Output 2**
DMU 1	Enda	NGO	600	56665538	140541,667	6,51833333
DMU 2	Alkarama	NGO	100	5316098	14795,1667	3,094
DMU 3	Attadamoune	NGO	159	9057742	16820,3333	-0,23666667
DMU 4	Fondep	NGO	853	90818114	125536	4,29
DMU 5	ABA	NGO	910	68229532	150243,167	7,00166667
DMU 6	Altadamun	NGO	277	12229391	65084,5	17,2583333
DMU 7	CEOSS	NGO	115	7870690	38670,1667	13,175
DMU 8	DBACD	NGO	548	33972080	99394	9,91666667
DMU 9	Lead foundation	NGO	842	34878868	152154,167	4,57333333
DMU 10	SBACD	NGO	513	15738022,8	28922,5	3,52
DMU 11	Asala	NGO	37	4376634	3099,5	-5,005
DMU 12	Faten	NBFI	65	24610545	9772,66667	3,12166667
DMU 13	Alwatani	NBFI	134	22134034	24456,3333	9,78166667
DMU 14	DEF	Other	99	60794617	22864,5	2,49666667
DMU 15	MFW	NBFI	217	22582350	52529,8333	7,84333333

DMU 16	Tamweelcom	NBFI	184	21260147	45868	6,555
DMU 17	Almajmoua	NGO	129	20194604	21360	8,98166667
DMU 18	National microfinance foundation	NGO	104	7179885	11069,8333	3,08616667
Mean			327	28772716,2	56843,463	5,88732407
min value			37	4376634	3099,5	-5,005
Max value			910	90818114	152154,167	17,2583333
Extent			873	86441480	149054,667	22,2633333

Source : The author.

Input A and Input B represent respectively the number of staff and the amount of assets, and Output 1 and Output 2 represent respectively the number of active borrowers and the ROA as a percentage. This table shows that the highest values are shown in the two columns that represent Input B and Output 1. However, the lowest values are shown in the last column Output 2 for all MFIs studied. The highest value of the Input A variable is for Lead foundation for a value equal to 842. The average value of this variable across the 18 MFIs studied is 327. This variable fluctuates in a well-defined positive zone between 37 and 910. We note that the values of input B and output 1 are very high compared to input A and output 2. This is more explained by the calculated averages as they are : 327 for input A, 28772716 for input B, 56843,463 for output 1 and 5.84 for output B.

The DEA method allowed us to determine the efficiency scores of the different MFIs selected as well as their own returns to scale. However, this method has certain limitations, notably concerning the choice of inputs and outputs, which is problematic. In addition, the efficiency scores estimated vary according to the model chosen, which complicates the interpretation of the results obtained. For this reason, in the following we will use a recently developed method that consists of calculating efficiency scores for all possible specifications. We will then interpret the results using a principal component analysis (PCA), in order to analyse the performance of the MFIs and their orientations.

4.2. The problem of specifying the model using the DEA method

The difficulty of specifying the model is one of the major problems with the DEA approach. We test this hypothesis by using the Spearman coefficient. This is a statistical index between -1 and +1 that expresses the intensity and direction (positive or negative) of the monotonic (order) relationship between two ranked variables X and Y. The procedure followed consists in assigning to each individual (or object) a rank ranging from 1 to n, where n represents the number of elements to be classified. The rank correlation coefficient, known as the Spearman coefficient, is used to verify the existence of a link between the rank of observations of two variables X and Y. This makes it possible to detect whether there are monotonically increasing or decreasing relationships, regardless of their precise form (linear, exponential, power, etc.). To test the quality of this relationship, Spearman proposed to calculate the correlation coefficient on the ranks R(xi) calculated on all observations xi, and the ranks R(yi) on all observations yi. There are three cases: if the monotonicity property is strictly respected, the values R(xi) and R(yi) will be identical; if the correlation is monotonically increasing, the correlation coefficient will be equal to 1; if the relationship is monotonically decreasing, the correlation coefficient will be equal to -1. We will apply the Spearman correlation coefficients between four different specifications obtained. Since Rs denotes the Spearman correlation coefficient, $D^2i = [R(yi) - R(xi)]^2$ and n is the number of observed MFIs. In our case, the Spearman correlation coefficient Rs is suitable for measuring differences in ranking due to different model specifications. We consider four rankings based on four different model specifications represented by A12, AB12, AB2 and B12. The efficiency scores obtained for all these specifications are calculated using the CCR model.

Before calculating the efficiency score for the different model specifications, we will first give the example of calculating the Rs coefficient for the two combinations A12 and AB12. The calculation of the Spearman coefficient allows us to obtain the following results

Table 2 : Calculation of the Spearman coefficient

MFI	A12	AB2	Absolute value	Spread	Squared spread
Alwatani	1	4	3	3	9
SBACD	2	6	4	4	16
Tamweelcom	3	8	5	5	25
MFW	4	17	13	13	169
DEF	5	11	6	6	36
National microfinance foundation	6	14	8	8	64
Faten	7	5	2	-2	4
Lead foundation	8	10	2	2	4
DBACD	9	1	8	-8	64
Alkarama	10	7	3	-3	9
Almajmoua	11	12	1	1	1
CEOSS	12	16	4	4	16
Enda	13	13	0	0	0
ABA	14	9	5	-5	25
Fondep	15	2	13	-13	169
Attadamoune	16	18	2	2	4
Asala	17	3	14	-14	196
Altadamun	18	15	3	-3	9
Moyenne	9,5	9,5	5,33333333	0	45,5555556
Sum of d^2					820
Spearman's coefficient Rs					0.653

Source : The author

Table 3 : Matrix of Spearman correlation coefficients

	A12	**AB2**	**AB12**	**B12**
A12	1.00	0.63	0.96	0.73
AB2	0.63	1.00	0.56	0.33
AB12	0.96	0.56	1.00	0.85
B12	0.73	0.33	0.85	1.00

Source : The author

These coefficients are generally low, varying between 0.33 and 0.96, and are always lower than 1. This result demonstrates the difficulties of specifying the model in the DEA approach. We can say that there is not a strong correlation between the different combinations studied. In this respect, in the next step we will calculate the efficiency scores for the 9 possible combinations through the CCR model, and then we will apply the PCA (Principal Component Analysis) technique in order to interpret the efficiency scores of the 18 MFIs in our study. The 9 possible combinations are : A1, A2, A12, AB1, AB2, AB12, B1, B2, B12.

The following table summarises the different efficiency scores of the 18 MFIs examined.

Table 4 : Efficiency score of the 18 MFIs under the 9 possible specifications

IMF	A1	A2	A12	AB1	AB2	AB12	B1	B2	B12
Alwatani	0.12	0.05	0.011	0.09	0.14	0.10	0.31	0.42	0.11
SBACD	0.31	0.15	0.07	0.17	0.07	0.14	0.35	0.27	0.04
Tamweelcom	0.07	0.46	0.11	1.00	0.17	0.09	0.18	0.08	0.23
MFW	0.42	0.54	0.03	0.25	0.34	0.24	0.15	0.35	0.15
DEF	0.33	0.26	0.15	0.234	0.23	0.16	0.18	0.41	0.10

National microfinance foundation	1.00	0.47	0.23	0.15	0.85	0.13	0.24	0.37	0.41
Faten	0.44	0.73	0.21	0.39	0.44	0.51	0.34	0.40	0.32
Lead foundation	0.74	0.22	0.26	0.01	0.27	0.36	0.54	0.41	0.27
DBACD	0.65	0.35	0.07	0.42	0.32	0.08	0.34	0.35	0.08
Alkarama	0.24	0.43	0.08	0.18	0.11	0.28	0.09	0.34	0.36
Almajmoua	0.02	1.00	0.34	0.05	0.39	0.41	0.24	0.05	0.042
CEOSS	0.11	0.11	0.17	0.09	0.34	0.28	0.35	0.54	0.31
Enda	0.68	0.48	0.24	0.18	0.01	0.42	0.22	0.27	0.37
ABA	0.36	0.19	0.36	0.11	0.05	0.37	0.35	0.67	0.22
Fondep	0.91	0.68	0.27	0.35	0.12	0.14	0.27	0.04	0.26
Attadamoune	0.12	0.91	0.65	0.14	0.34	0.28	0.34	0.13	1.00
Asala	0.58	0.56	0.44	0.24	0.22	0.20	0.57	0.43	0.34
Altadamun	0.37	0.28	0.21	0.36	0.36	0.14	0.17	0.09	0.38
Moyenne	0,415	0,437	0,216	0,245	0,265	0,24	0,29	0,31	0,27

Source : The author

The first two combinations A1 and A2 present the best scores with respective averages of 41.5% and 43.7%. This shows that during the period under study, the MFIs in our sample have a low average efficiency score, which varies between 21% and 43%. Comparing the averages of the different efficiency scores, we find that all averages are below 0.5, such as the highest is 0.437 for A2, and the lowest for A12 with a value of 0.216. The MFIs with the highest efficiency scores over the study period are Attadamoune (91%), National microfinance foundation (100%), Fondep (91%) and Tamweelcom (100%).

V. APPLICATION OF THE PCA

The PCA method is applied to numerical values such as the DEA scores obtained in the previous paragraph. The factor analysis determines principal components, which are synthetic variables that summarise the information provided by the data. Each component is associated with an eigenvalue, the first of which is always between 1 and the number of variables. It is equal to 1 when the variables are all uncorrelated two by two. It is equal to K in the case where there is a perfect linear link between all the variables. The objective is to achieve the best selection of the factors that will be analysed later. Through our results, we will apply various methods to select the number of variables.

- Kaiser's rule

Table 5 : Presentation of eigenvalues

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3,421	21,379	21,379	3,421	21,379	21,379
2	1,817	11,357	32,736	1,817	11,357	32,736
3	1,441	9,008	41,744			
4	1,337	8,359	50,103			
5	1,238	7,739	57,842			
6	1,031	6,446	64,288			
7	,936	5,849	70,136			
8	,830	5,184	75,321			
9	,718	4,489	79,810			

Source : The author

Kaiser's rule suggests that only principal components with an eigenvalue greater than 1 should be retained. The variable synthesises less data than a single variable if its eigenvalue is less than 1. More care should be taken when interpreting a factor with an eigenvalue of less than 1. Based on this rule, we will retain only the two components 1 and 2 in our case.

- The "scree" rule

The eigenvalue diagram is used to analyse the pattern of their decay. Its reading follows the following principle: if two

factors have almost equal eigenvalues, this means that they represent the same share of variability, so there is no need to retain one or the other in our interpretation. Whereas a large decrease between two successive eigenvalues refers to the use of the factors that precede this decrease in the appropriate analysis approach

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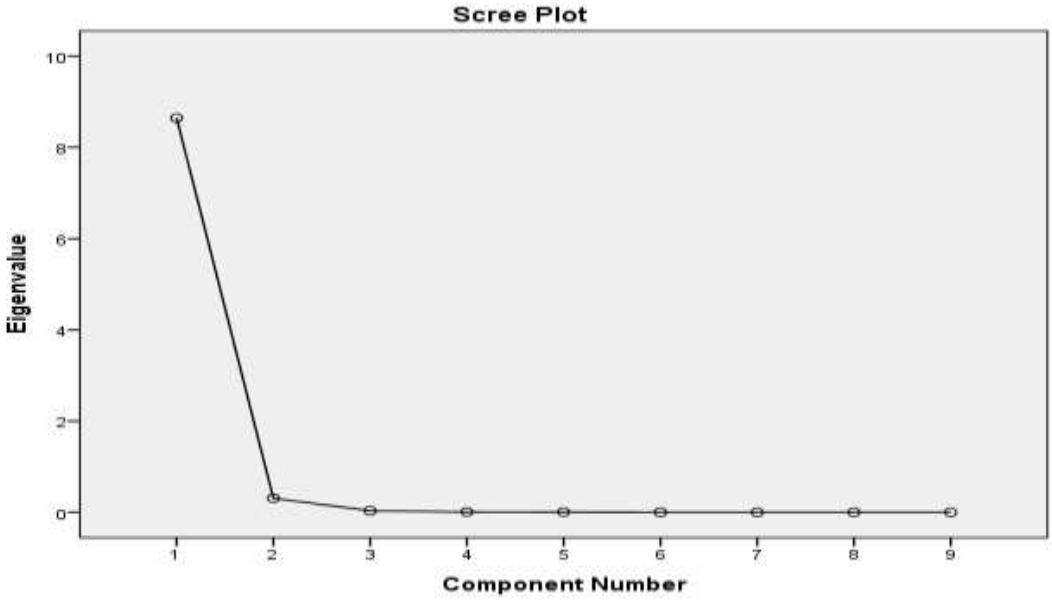

Figure 1 : Eigenvalues graph

It appears that the first two eigenvalues show an irregular decrease, and then this trend becomes much more regular. The shape of our graph shows that each of the first two factors corresponds to irregularities in the shape of the scatterplot studied, which must be considered in our interpretation. This indicates that the other factors constitute the noise that accompanies any statistical observation. Applying the principles of this rule, we keep in our interpretation only the first two factors.

- Percentages of inertia extracted by factors

The ratio between the inertia associated with the factor (eigenvalue) and the total inertia of the cloud studied gives the percentage of inertia determined by a factor, which makes it possible to measure the relative importance of the factor in the table. In our case, the percentage of cumulative inertia from the first two factors is 32.736%, and 41.744% from the first three factors. Based on the statistical criteria given by the three previous methods, we will retain in our analysis only the first two factors.

5.1. Analysis of PCA results

- Interpretation of factors

The second factor shows a positive correlation with all the variables, which means that this factor allows for an overall measurement of the efficiency of the MFIs examined. The full model (AB12) shows the strongest correlation with axis 2, followed by the specification that includes the two outputs selected at the beginning of our work, noted A12. This principal component may represent the overall performance of the MFI.

Table 6 : Matrix of components

	Component	
	1	2
A1	,561	,759
A2	,430	,683
A12	-,669	,859
AB1	,262	,421
AB2	,839	,728
AB12	-,289	,963
B1	-,688	,847
B2	,391	,562
B12	,716	,728

Source : The author

To interpret axis 1 (vertical axis: factor 1) (see Figure 1 in Annex 1), we need to rely on both the size and the sign of the contributions. The component matrix table shows that the combinations A2, AB2 and B2 are positively related to the first factor, whose strong correlation is associated with the specification named AB2. While models A12, B1 and AB12 are negatively related to this factor. This principal component may indicate whether the MFI is motivated by financial performance or by social performance.

- Interpretation of graphs

The attached graph (Graph 1: Appendix 1) provides a good representation of DEA efficiency in that the first two factors explain 32.736% of the variance. The location of the MFIs on the horizontal axis associated with factor 2 seems to correspond to the classification of models AB12, A12. The MFIs that occupy the upper part of the graph have a better overall performance than those positioned in the lower part. We can see from this graph that more than half of the MFIs in our sample (61%) are located in the northern part. We can therefore say that these MFIs, such as DBACD, Attadamun and DEF, were able to achieve a better overall performance. According to the following figure (figure 2 in appendix 2), the positioning of the MFIs in relation to axis 1 (vertical) allows us to determine the orientation chosen by the MFIs. We can verify whether they aim for a better social impact, or on the contrary, whether they give priority to their financial profitability. The MFIs on the right of the vertical axis are oriented towards financial performance, while those on the left aim for a better social performance. If we replace the MFIs by their legal status (figure 2 in appendix 2), we can see that there is a "status" effect. This means that the legal form of the MFI influences its chosen orientation (social performance or financial profitability). We can see from the analysis of our graph (see appendix 2) that there is a grouping of MFIs by status. We distinguish between NGOs, non-bank financial institutions (NBFIs) and other. This result is in line with the one found by Gutiérrez-Nieto et al (2005), who found an "NGO" effect, despite the fact that the authors used a different specification of the model.

5.2. Interpretation of PCA results

NGOs are registered as non-profit organisations and their activities focus on the most vulnerable populations. As far as NBFIs are concerned, they represent a kind of company formed by private capital from shareholders who produce goods and services, with the aim of generating returns that they will share. In their mature stage, several NGOs aim to become NBFIs in order to strengthen their funding capacity.

Our examined institutions include 13 NGOs, 4 NBFIs, and 1 Other. By replacing the MFIs by their legal status in the second graph, we can see the existence of a "status" effect and more precisely an "NGO" effect. Graph 2 (Appendix) shows a clustering of socially successful NGOs (about 8 out of 13 MFIs). This phenomenon indicates that the type of institutional status guides the mission of the MFI. These results confirm the "NGO" effect introduced by welfarists and presented in the work of Cornée S. (2007) and Adair P. & al. (2010).

Looking at the vertical axis, which represents the 1st factor, we notice that 11 out of the 18 MFIs in our sample are oriented towards financial profitability rather than social impact, such as : Enda ; Lead foundation ; MFW ; Alwatani ; etc.

By replacing each MFI by its legal status, in the 2nd graph, we can draw the following conclusions :

- All NBFIs are oriented towards financial performance. Among them there is only one institution that has a good overall performance, which is Tamweelcom.
- For NGOs, 77% of them managed to achieve their overall performance. Among these NGOs, 7 are socially oriented while the other 6 are more financially oriented.
- Finally, we have only one MFI that has Other legal status. This MFI is characterised by a good overall performance. It is oriented towards profitability rather than social performance.

CONCLUSION

The microfinance sector in the Arab world is growing rapidly. Despite its youth, it is developing faster than in other regions. The microfinance market in the Arab world is characterized by its maturity, with developed human and material capacities, and an evolving regulatory environment. However, the funding of Arab MFIs from private investors is still moderate. Our research focuses on 18 MFIs located in 7 Arab countries, during 6 years (2007-2012). The data used in this study is obtained from the Microfinance Information eXchange (MIX) and Sanabel. Our work consists of analysing the performance of this sample. The DEA method allowed us to determine the efficiency scores of the different MFIs selected in our study, as well as their own returns to scale. The efficiency of the MFIs studied varies according to their legal status, with NBFIs showing the highest scores on this indication, while NGOs are still the least efficient. MFIs have a dual social and financial mission. Insofar as they have to achieve their sustainability through sustainable financial performance, while at the same time enabling access to financial services for the vulnerable. An MFI is only efficient if it has optimal resources to meet its social and financial objectives. We applied PCA to the efficiency scores obtained from the DEA method, in order to determine the orientation of each MFI. The application of PCA on the efficiency scores calculated via the DEA method, allowed us to deduce that most of the institutions in our sample are oriented towards financial profitability more than social performance,

especially the NBFIs. Even NGOs, we found that many of them are performing better financially than socially. This is because these organisations are now undergoing a transformation in order to attract more equity capital.

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APPENDIX

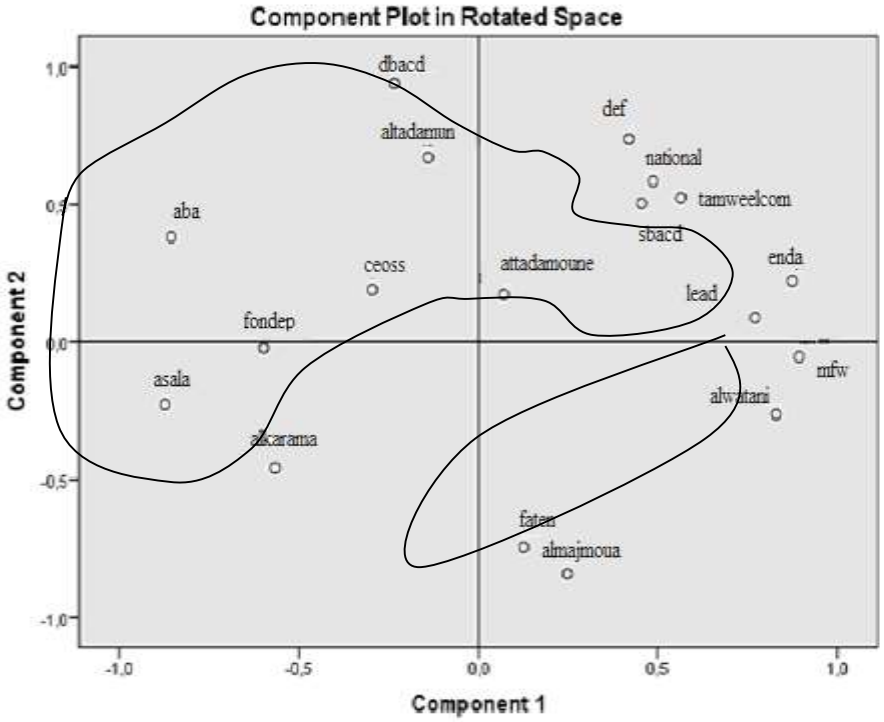

Figure 2 : Graphical representation of the "status" effect

- [Almajmoua : NGO] ; [Tamweelcom : NBFI] ; [DEF : Other].
- [Asala, Alkarama, Fondep ; Lead foundation, Enda, CEOSS, Attadamoune,
- SBACD, National microfinance foundation, Altadamun, DBACD, ABA : NGO].
- [Faten, Alwatani, MFW : NBFI].