Assessing the potential for the establishment of monetary union among GCC countries

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Abstract: Oil rich, interest ('riba') free economy of GCC region supported by close proximity of the member states, historically homogenous culture and visa-free movement between the states favors adoption of single regional currency. It is proposed that such a currency would not suffer from inflation. The proposed currency being free from the negative effects of usury, exchange rate uncertainty, inflation with reduced transaction costs, less competitive devaluations, and better fiscal discipline will prove to be one of the strongest currency of the world. Motivated by the above mentioned factors, this study is conducted to assess the feasibility for the establishment of a common currency among the six GCC states. Stratified Proportionate Random sampling technique was used by personally administering questionnaires to the respondents. Secondary data was collected from various authentic sources that include yearly financial data from banks, business firms, documents published by a number of government and private sector agencies. Statistical analysis was also conducted using Multidimensional Scaling (MDS), Scree Tests, and regression and correlation analysis under varying scenarios. Hofstede Cultural Index was also used to study the cultural homogeneity of the GCC countries. The study concluded that the conditions in GCC countries are highly favorable for accepting a single Gulf currency for the whole region.
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1. Introduction

Origin of "currency" can be traced back to 600 BC when the coin minted from a mixture of silver and gold was officially declared as currency by Lydia's King Alattes. This currency was used as a primary medium of exchange between states, and it kept on changing its shape as well as material from it was prepared; from coin to bank to plastic money etc. Depending upon economic strength of the state's exchange rates of the currency in relation to one another has also been varying. Considering exchange rate as a vital component of a country economy, researchers started investigating various factors that could lead to determination of exchange rate acceptable to the world. Previous studies that are mostly referred in this regards are published by Friedman (1953) and Meade (1957). Mundell's (1961) focused his research by limiting its geographical boundaries to a specific region that he named as Optimum Currency Area. European Monetary Union (EMU) is the real example of his theory. Mundell was honored with the title of "intellectual father of EMU" and also awarded Nobel prize for his research work on OCA.

The concept of regional currency was renewed after the formation of European Union. The Euro currency is now world's second highest world reserve currency after United States Dollar (USD) which shows the strength of unity in monetary and economic affairs. In recent years, the pursuit and interest of monetary union has become an important phenomenon in economic development (Kamaludin et. al. 2013). Alexei et. al (2014) also argues in his research for revamping of currency system he writes "Nowadays USD remains a dominant world currency without any worthy alternative even though the trust in this currency has decreased. Thus, we can see the prerequisites of the rebuilding of the existing currency system". According to Frankel (1999) Monetary union arrangements are less susceptible to speculative attacks.

The six rich oil states also established Gulf Cooperation Council (GCC) in 1981. The member states of GCC are i) The Kingdom of Saudi Arabia, ii) Kuwait, iii) Qatar, iv) The Sultanate of Oman, v) The United Arab Emirates (UAE) and, vi) The Kingdom of Bahrain. These countries have more similarities among member states than the European Union. They have similar culture, religion, language and even weather which is not found in EU states. To enhance economic and trade relationships the GCC council in 2001 decided to form a regional currency which was supposed to be implemented in 2010. The GCC dream of establishing a common currency did not come true but still the GCC states did not give up and are working hard to achieve it. The GCC council decided in 2003 to peg its currencies with USD as a first step towards achieving common currency in 2010.

Currently all the GCC states are pegged with USD except Kuwait which is also pegged with a basket of currency which includes USD.

This paper assesses the feasibility of developing a common currency area in GCC region. Primary data is collected through a questionnaire that was administered to the respondents living in GCC countries by the researcher. Secondary data was collected from various authentic sources that include yearly financial data from banks, business firms, documents published by a number of government and private sector agencies. Stratified Proportionate Random sampling technique was used for primary data collection. Statistical analysis was also conducted using Multidimensional Scaling (MDS), Scree Tests, and regression and correlation analysis under varying scenarios. Hofstede Cultural Index was also used to study the cultural homogeneity of the GCC countries. The study concluded that the conditions in GCC countries are highly favorable for accepting a single Gulf currency for the whole region.

2. Literature Review

Many researcher conducted different studies to evaluate the interest of GCC members to adopt a common currency. Some of the researcher concluded that GCC countries are not prepared to form a monetary union and contrary some concluded that GCC countries are ready to form a monetary union.

In 2002 Jadresic's research concluded introducing a common currency for the GCC countries will have a number of benefits, still it is not useful to have a successful economic integration. He argued that to achieve this goal removal of domestic and cross-border distortions that hinder trade and investments, coordinating policies, and increasing the political unification are necessary steps that should be taken in order to achieve a successful integration.

Laabas and Limam (2002) evaluated the readiness of GCC countries to develop a monetary union. They conducted a formal test based on generalized purchasing power parity. They concluded that the GCC countries have not yet met the pre-requirements to establish a monetary union due to the fact that the GCC economies are oil-dependent, have little intra-trade, lack convergence in macroeconomic fundamentals, and lack synchronization in business cycles. In contrast, the authors mentioned that the GCC countries are more likely to satisfy the monetary union criteria ex-post rather than ex-ante. To have a monetary union might align business cycles to increase intra-trade among the GCC countries. They claimed that for having acceleration in progress towards the monetary union, restrictions on factors mobility have to be eliminated along with many more political unification.

The research conducted by Fasano and Schacchter (2003) concluded in favor of the monitory union of the GCC. In this regard his major arguments were that, firstly, such union combines perfectly suitable macroeconomic as well as structural policies; secondly, it can enhance financial services efficiency; thirdly, it squeezes transactions costs; fourthly, it increases precision in costs of goods as well as services; fifthly, it encourages appropriate investment decisions; and finally it promotes the distribution of resources within region.

The study of Hakura (2004) reveals that the average level of trade openness among the GCC members during 1980-2000 has gone up to 113.6. In case of EU, the high degree intra-euro trade the EU members could not get expected openness with rest of the world to create some level of desired difference as per exchange rate regime.

Darrat and Al-Shamsi (2005) examined if GDPs, inflation rates, exchange rates monetary bases and socio-political factors favors formation of monetary union among GCC. He concluded that all these factors favor establishment of GCC monetary union except socio-political factor that needs attention of policy makers..

The study conducted by Shotar and Shams (2005) also supports Darrat and Al-Shamsi and conclude that due to political preference among GCC member states, there are major differences in their economic policies. In spite of the fact that other factors favor formation of GCC monetary union, difference in economic policies, if not resolved, will limit the expected benefits of the monetary union.

Hebous (2006) examined cost reduction as a factor for forming a monetary union in the GCC. He concluded that some notable degree of convergence that the GCC countries have been achieved in terms of the convergence criteria.

To investigate if the time is ripe for formation of monetary union in GCC region, Abu-Bader and Abu-Qarn (2006) applied three different methods. First method was used to answer two questions; i) does a member state encounter demand and supply shocks?, ii) are these shocks symmetrical in nature? Second method called "co-integration tests" was used to investigate whether long-term relationships of real GDP existed between all the possible pairs of member countries. Third method was used investigate existence of common business cycles among GCC countries. The result of all three methods did not favor formation of monetary union in GCC region.

As per the findings of the research conducted by Elhag Sherine, (2007), the application of OAC to the GCC countries most criteria were not found in support of their monitory union plan. Among those criteria Commodity Diversification, Factor Mobility, Degree

of Openness and Price and Wages rigidity in GCC: they were not able to absorb the asymmetric shocks while there would be no exchange rate variability.

In his study Buiter Willem H, (2007), came to conclusion that the GCC monitory union do has an economic case but not a strong one. To Buiter, there was little economic harmony and coordination among GCC members but still there are certain advantages to the GCC members in economic as well as security areas even in absence of monitory union. It could be achieved by having more economic integration by creating a reliable common market regarding commodities, services and monitory and economic resources to develop stronger political harmony.

In his study Bacha Obiyathulla Ismath, (2008), found firm bonds among monitory variables among GCC countries which reveal strong integration in monitory sector.

The results of the study conducted by Merza E. and Cader H., (2009) are in favor of the researcher as the GCC countries have many ingredients including having political will, that are necessary for the establishment of monetary union.

According to Ahmad A., and Ali A., (2010), "The objections to the idea of a common currency system for GCC countries are chiefly based on the oil dependence, low volume of intra-trade, lack of convergence in macroeconomic fundamentals, and lack of synchronization in business cycles among GCC monetary union."

The economic integration process takes a very long time and follows some systematic stages. There are five stages of economic integration, namely: free trade zone, custom union, common market, economic union and political union (Mutusa, 2003). The GCC has reached the fourth stage which a common monetary policy, single currency, budgetary and fiscal policies as well as socio-cultural policies that would boost the integration process (Laabas and Limam, 2002; Patrick, 2011; Al- Aljadani, 2014).

Lohade (2013) writes "Till now (April 2014) the common currency project has become elusive. The major reason is mutual suspicion and fear of domination by some elements especially Saudi Arabia in the GCC".

So, as per the literature review, the majority of authors are in favor of formation of monetary union, generally as well as in case of GCC states.

3. Methodology

3.1 Data and samples

Appropriate data collection is inevitable for any research. In the present study questionnaire strategy is used to collect the opinion of GCC nationals. Different authentic sources like central banks of GCC countries and IMF reports are used to collect financial data. The questionnaire was distributed to all the GCC countries nationals. Stratified Random sampling was used for sampling in which strata is six GCC countries. (Levin R.I, et.al., (2013) also used the Stratified sampling strategy for his research on GCC countries.

3.2 Population Size:

Estimation of the sample size as a proportion of the total population of the GCC countries for the survey, is done by statistical methods. The estimator of a proportion is $\hat{p} = X/n$, where X is the number of people with certain characteristic out of the number of sampled people (n). When the observations are independent, this estimator of proportions $\hat{p}$ follows binomial distribution. According to the central limit theorem, when n is very large 'n', like population of GCC countries, the distribution of the estimator of proportion $\hat{p}$ can be safely approximated by a normal distribution. Using this approximation, it can be shown that around 95% of this distribution's probability lies within 2σ (standard deviations of the mean). Under this approximation the sample size can be obtained using the following formula:

$$n = \left(\frac{z}{\nabla}\right)^2 * p(1-p)$$

Where p is the proportion of the occurrence of certain phenomenon, z is the confidence level related value of the standard Normal distribution score; and ∇ is the tolerable level of error in estimating p that the researcher regards as reasonable. To use the above mentioned formula, it is required to have a prior knowledge of the value of p. Unfortunately, this is not possible due to the absence of any previous published studies of the proportions which are investigated in this study. To remedy this, it was decided to determine the sample size based on the highest possible value of sample size given a predetermined level of confidence and tolerable error. This implies that n should be identified based on the maximum possible value of the expression p(1-p) which can be yielded by trying all possible values of p within the range 0 to 1. As can be seen from Table 3-1, the maximum possible value of the expression p(1-p) is 0.25 which is associated with a p value of 0.5. Consequently, whatever the true value of the unknown p, the largest sample size will be associated with a p value of 0.5.

Table 1: The largest value of the expression p(1-p)

p	0	0.1	0.2	0.3	0.4	0.5
(1-p)	1	0.9	0.8	0.7	0.6	0.5
P*(1-p)	0	0.09	0.16	0.21	0.24	0.25

To obtain the largest sample size needed for this study, p was set at 0.5. Regarding the z value, it was deemed appropriate to have a confidence level of 95% which is associated with a z-value of 1.96. As per the tolerable error, several experts in the field were consulted in this regard and it was found that any error value between 4 to 5% is admissible. Substituting the aforementioned values in the sample size equation, it was found that when an error value of 4% was used, the required sample size was 600 whereas this value becomes 384 when an error value of 5 is used. This indicates that any sample size between 384 and 600 is acceptable. Considering the available time, it was decided to use a sample size of 500 which corresponds to an error value of 4.385% which is very close to the minimum value of the tolerable error (4).

Having decided the appropriate sample size for the investigation, the next question was to identify the proportion of the sample size that should be allotted to each of the GCC countries. To this end, a fair and representative allocation can be obtained by finding the proportion of each country population with respect to the total population of the of the GCC countries. Based on this, Table 3-2 shows the way in which the sample of 500 was stratified based on the size of GCC countries populations. Clearly, the maximum number of respondents (342) is from Saudi Arabia whereas the minimum is from Bahrain.

Table 2: Population sizes

Country	Population	% of Population	Proportionate Sample Size
Saudi Arabia	26,939,583	64.78	342
UAE	5,473,972	13.16	66
Oman	3,154,134	7.58	38
Kuwait	2,695,316	6.48	32
Qatar	2,042,444	4.91	25
Bahrain	1,281,332	3.08	15
Total	41,586,781	100.00	500

The collected questionnaire were randomly numbered and examined for completeness. Out of 1350 questionnaires that were administered, only 529 were complete and suitable to be used for the study. Data from these questionnaires were then entered in MS Excel, Minitab and SPSS for desired investigations.

3.3 Data Analysis Techniques:

Various data analysis techniques were used to analyze the data collected from questionnaire and financial institution of GCC countries. Following are the techniques used to analyze the homogeneity of GCC countries.

- Multidimensional Scaling (MDS) is one of the techniques used for analysis. The objective of MDS scaling is to find out the relative positions of the GCC countries based on selected financial performance measures. SPSS software package was used to plot the Euclidean distance model after scaling to check the relative proximities of GCC countries.
- A number of researchers have used regression analysis in financial and business areas. Edwards S. and Magendzo I., (2003) used regression analysis to determine the effects of "common currencies" on a group of macroeconomic variables. Abbey B.S. and Doukas J. A. (2012), used regression analysis and determined that those currency traders who use technical indicators underperform when compared to their peers who do not depend upon such trading strategies. In this study regression analysis is used to analyze the homogeneity among GCC countries among different financial factors. Nine different regression models are developed with the different combinations of questionnaire data and financial factors.
- Geert Hofstede is a renowned Dutch Social Psychologist and Organizational Anthropologist. In an IBM-funded research during 1970s, he created a new paradigm for the study of cultural differences. The author used Hofstede index to analyze the cultural homogeneity among GCC country. In a study conducted by Andrew K. Rose & Charles Engel (2002) the authors concluded that members of a common currency area are more economically integrated than non-currency union members. Hezel F. X., (2009) argues that economic growth is not just a combination of investment capital, latest

technology, or dependable political and economic institutions. Cultural values are critical factors, although no one has identified these values with precision. Model 10 and 11 were developed by integrating Hofstede index values with financial values.

- Scree plot is also developed which is used to displays the Eigen values associated with a component or factor in descending order versus the number of the components or factors. We can say that it is a plot between S-Stress values against the various factors in extraction order.
- A very important research was conducted to study the effect of 'Dollarization', by Rose A. K., and Engel C. (2002), who used correlation analysis and found that countries that are members of a common currency union tend to have more highly synchronized business cycles; the correlation is perhaps 0.1 higher on average for currency union members than for non-members. Similarly using correlation analysis Kazerooni A., and Razzaghi S., (2014) found that the positive correlation between structural shocks (supply, demand and monetary shocks) shows the symmetry of shocks whereas negative correlations show asymmetric shocks. As the correlation coefficient increases these economies would be more inclined to go for an Optimum Currency Area (OCA).

All these above mentioned techniques are used to confirm the appropriateness of GCC common currency

4. Questionnaire Analysis:

The designed questionnaire was printed on A3 page size to create a two page folded sheet. Total 1350 questionnaires were distributed among random samples in all GCC countries based on their population.

The collected questionnaire were randomly numbered and examined for completeness. Out of 1350 questionnaires that were administered, only 529 were complete and suitable to be used for the study. Data from these questionnaires were then entered in MS Excel, Minitab and SPSS for desired investigations. Following are the graphical representation of the questionnaire analysis.

Table 3: Demographic Data Analysis of the respondents

Part A- Nationality of Respondents							
Nationality	Saudi	UAE	Bahrain	Oman	Qatar	Kuwait	Non-GCC
Number	172	108	42	60	40	74	33
Percentage (%)	32.5	20.4	7.9	11.3	7.6	14	6.2
Part B- Age Group of respondents							
Age	below 15 Years	15 to 20 Years	20-30 Years	30 to 40 Years	40 to 50 Years	Above 50 Years	
Number	1	11	248	208	45	18	
Percentage (%)	0.2	2.1	46.7	39.2	8.5	3.4	
Part C- Profession of respondents							
Profession	Education	Medical	Engineering	Construction	Business	Banks & Finance	Industry
Number	126	61	198	11	88	24	15
Percentage (%)	24.1	11.7	37.9	2.1	16.8	4.6	2.9
Part D- Education Level of Respondents							
Education Level	PhD	Masters	Bachelor	High School	Sec. School	Primary Education	No formal Edcn
Number	20	158	313	32	1	1	0
Percentage (%)	3.8	30.1	59.6	6.1	0.2	0.2	0
Part E - Income Band of respondents							
Income Band	< 5000	5000 - 10000	10000 - 15000	15000 - 20000	> 20000		
Count	214	91	50	54	117		
Percentage (%)	40.7	17.3	9.5	10.3	22.2		

4.1 Demographic Data Analysis:

As displayed in Table 3, Part A out of the 529 respondents, 33% were from Saudi Arabia. Respondents from UAE were 20%, 14% from Kuwait, 11% from Oman, 8% from Qatar and 8% non-GCC nationals employed in GCC countries. Table 3 Part B 16 exhibits the age distribution of the respondents. Majority (about 47%) of the respondents was from the 20 to 30 years of age. 39% was from the age group of 30 to 40 years. This makes almost 86% of the total number of respondents (456 out of 531) in the age group of 20 to 40 years. **Table 3, Part C exhibits** the professional qualifications of the respondents. Most of them are from engineering, business and education fields. Undoubtedly quality education is essential in the economic development and growth of a nation. Table 3, Part D exhibits the educational qualifications of the respondents. It can be observed from the table that majority fell in the graduate and post graduate levels. The number of respondents who had secondary school education was very low.

It was essential that majority of the respondents belonged to a group of middle to high income groups so that they would be in a better position to provide precise answers for most of the questions in the survey form which were related to financial matters. Besides, their experience in money transactions, visits abroad, and dealings in foreign currencies would have positive impact on their attitude towards the economic stability in the region. Therefore income bands of the survey respondents were noted during the survey. It can be seen from the Table 3,Part E that 16.1% of the respondents in Saudi Arabia are below SAR 5000 band and 15.341% are under the income band of more than AED 20000. There are 9.47% under the income band of less than OMR 5000. As much as 15.34% of the respondents in UAE has income more than AED 20000. An obvious reason for this is because the cost of living and hence the salary structure in United Arab Emirates is much higher than that in Saudi Arabia and other GCC states.

4.2 Opinion towards Common Gulf Currency

Table 4: Opinion towards Gulf Currency

Part I- Opinion About Common Gulf Currency							
	Very Beneficial	**Beneficial for some countries**	**Not beneficial for my country**	**Beneficial for my country**	**Beneficial for Other Countries**		
Number	330.00	176.00	11.00	1.00	5.00		
Percentage (%)	63.1	33.7	2.1	0.2	1.0		
Part II- Opinion Impact of Common Gulf Currency on Interest							
	Yes	**No**	**Not Sure**				
Number	293	102	72				
Percentage (%)	62.7	21.8	15.4				
Part III- Preference of Operating Currency							
	AED	SAR	KWD	BHD	QAR	OMR	USD
Number	111	199	76	36	39	60	8
Percentage (%)	21	37.6	14.4	6.8	7.4	11.3	1.5
Part IV –Currency Preferred for Transactions							
	USD	EURO	YEN	POUND	NOT SURE	OTHER	
Number	279	61	1	9	33	97	
Percentage (%)	58.1	12.7	0.2	1.9	6.9	20.2	
Part V –Preference of Single Global Currency							
	Yes	No	Desirable	Not Desirable	Don't Know	No Answer	
Number	149	68	40	192	76	1	
Percentage (%)	28.3	12.9	7.6	36.5	14.4	0.2	

The attitude of the people towards a common currency in the region is very crucial for the successful implementation. There are ethnic, social, cultural, economic, political and historical factors which may influence people's attitude. Fortunately, GCC countries have many things in common and it mitigates the impact of most of these factors.

In this research data were collected on some of these factors and the general attitude of people. In Table 4 Part I, out of 523 respondents, 63% thought

that a Common Currency for the Gulf countries would be very beneficial. 33.7% respondents was skeptic about the common currency being useful for the whole region homogeneously and instead they felt that some member countries would benefit more out of it. Even so it was extremely refreshing to note that most of the people were maintaining a positive attitude towards its implementation. Being a Muslim dominated region, it was pertinent to know the implications of a common Gulf currency on bank interest in GCC countries. Table 4 Part II exhibits the opinion of respondent about interest rate. 56% of the respondents believed that a common currency would solve the evils of interest to a great extent. 19% didn't feel so. Many were uncertain about such an outcome. But most of them didn't know how it would affect bank interest. Table 4 Part III displays the currency with which most of the respondents carry out their transactions. It was found that almost 37.62% of them transacted in AED, while 20.98% operated in SAR. Kuwait Dinar was used by 14.37%. A very small percentage of them operated their daily transactions using USD, 1.51% too. In spite of the fact that most of the respondents transacted their daily accounts in AED and Saudi Riyals, it is amusing to know that many preferred USD as the currency for personal transactions. As much as 52.84% of the people want USD to be their transaction currency. AED comes next with 18.37% and Euro 11.55% Table 4 Part IV. On the other hand, the distribution of the next currency preferred for transactions, is more or less shared by AED, Euro, QAR and SAR. Obviously people want to peg their currency with a Common currency instead of a mere tie-up. Most of the GCC countries have their currencies pegged with USD except Kuwait which has a link with a basket of currencies including USD. A direct question was asked the respondents to provide an answer if they prefer single global currency. As displayed in Table 4 Part V, 28% strongly supported it, while 13% opposed. 8% found a common global currency desirable and 37% thought it undesirable. The skeptic view of most of the people of GCC countries on common global currency is probably due to fears founded on, feelings that some countries may dominate them. Such fears were expressed earlier during the implementation of Euro.

The two direct question to capture opinion regarding common currency displayed very positive results as displayed in figure 1 and 2. A total of 83% of respondents overwhelmingly supported the idea of a common currency, 17% opposed the idea. Apprehensions about loss of autonomy, monetary policy and fear of domination by more powerful member states within the GCC could likely be factors that has driven many people to opt against a common currency (Aljadani, A. et.al., 2014).

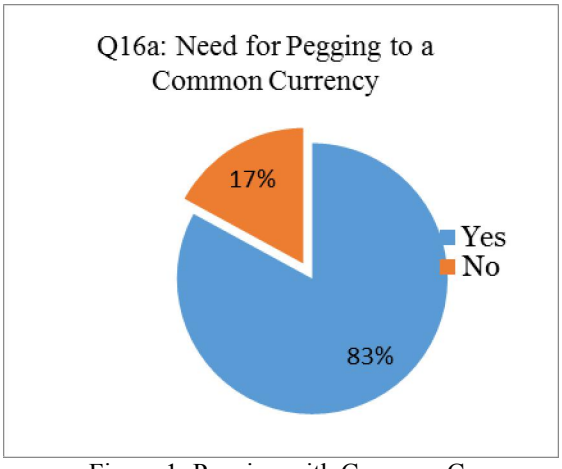

Figure 1: Pegging with Common Currency

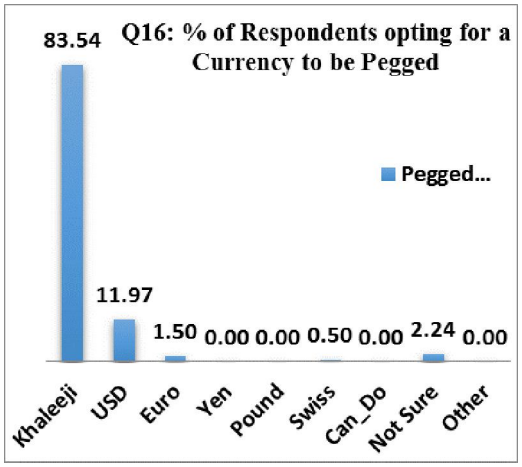

Figure 2: Pegging with Common Gulf currency

Figure 2 illustrate that 74% of the respondents thought that tie up among gulf currencies by means of a common currency will be helpful.

Even though 83% of the respondents supported the idea for the need for pegging their currency to a common currency (as indicated in Figure 1), they didn't differ much on the currency with which their currencies should be pegged. 83.75% of the respondents preferred a Common Gulf Currency as the currency to be pegged with (Figure 2). Although no name for GCC common currency is finalized yet but 'Khaleeji' (Arabic for "of the Gulf") was mentioned by many respondents as a name of proposed currency. USD is found to be the next currency preferred because of its stable and popular characteristics. Figure 2 presents a breakdown on the response pattern obtained on the most appropriate currency preferred by people of the Gulf nations.

It is noteworthy here that throughout the GCC countries, people prefer transacting in USD now. And hence preference for pegging their currency with USD is a natural outcome of the feelings towards better exchange rate arrangement. Probably the urge for regional integration is also hidden in this opinion (Jadresic, 2002).

Bill Conerly wrote in Forbes Magazine (Conerly B., 2013) that it was the Asian Financial Crisis of 1997-98 that taught many countries the real benefits of keeping large reserves of foreign currencies. So most countries have heavily invested in foreign exchange reserves and the U.S. dollar is believed to be the most common currency for international reserves.

4.3 Ranking of Gulf currencies:

In order to know the relative importance of the Gulf currencies assigned by the people of the region, the respondents were asked to rank the six Gulf currencies, namely, Saudi Arabia Riyal (SAR), Qatar Riyal (QAR), Kuwait Dinar (KWD), Omani Riyal (OMR), UAE Dirham (AED), and Bahraini Dinar (BAD). Table 5 show that 33.08% of the respondents ranked SAR first, while KWD stood next with 26.9% and AED with 20.13%.

Table 5:Ranking the Gulf Currencies

	Q19: Ranking of Currencies (% Respondents)					
	SAR	QAR	KWD	OMR	AED	BHD
Rank 1	33.08	10.02	26.90	9.44	20.13	5.20
Rank 2	36.56	16.97	20.08	4.72	20.75	7.47
Rank 3	17.99	18.81	25.54	4.72	29.77	8.82
Rank 4	6.77	29.45	17.54	17.98	12.16	9.05
Rank 5	2.13	13.29	8.97	38.43	12.37	18.78
Rank 6	3.48	11.45	0.97	24.27	4.61	50.23
Rank 7	0.00	0.00	0.00	0.22	0.00	0.00
Rank 8	0.00	0.00	0.00	0.22	0.21	0.45

Surely such a ranking by respondents is not merely a coincidental result. These figures give an idea about the feelings of the people about the currency most suitable for transactions, strength of the currency, and most suitable currency to be used as a Common currency. Even in Rank 2, SAR leads, which means that it has achieved an overwhelming support from the people of the GCC countries to replace USD. Additionally it may be deduced that if the dream of a common GCC currency does not materialize, then SAR has the chance to be the leading currency in the region.

In order to ascertain the validity of this ranking correlation analysis was done on the ranking and it was found that there was very strong correlation of SAR with KWD and AED; and similarly KWD with QAR. Understandably these three currencies are the most stable and strong currencies in the region (Table 6).

Table 6:Correlation Matrix of the Rankings

	SAR	QAR	KWD	OMR	AED	BHD
SAR	1					
QAR	0.15686	1				
KWD	0.78554	0.51409	1			
OMR	-0.4593	0.21309	-0.3020	1		
AED	0.70969	0.47511	0.91679	-0.23204	1	
BHD	-0.3583	0.00834	-0.4808	0.58965	-0.3258	1

5. Statistical analysis:

To have a statistical analysis of the data collected in this research, and to have purposeful results, the researcher applied two multivariate analysis techniques on the data. They are multidimensional scaling (MDS) and regression analysis.Gyslain G., (2006) also recommend MDS in his study. Simultaneously rigorous analyses employing statistical methods such as correlation, and hypotheses testing are also conducted. The following sections present such analyses performed by the researchers. MDS plots known as Derived Stimulus plots are used to get a precise view of the acceptability of the proposed common currency in the GCC countries.

On the other hand correlation analysis on the variables was done to determine the interdependence among variables. The sections below briefly explain these techniques and present the results.

5.1 Correlation Analysis

Table 7 presents the list of the financial variables used in the correlation analysis model. Table 8 shows the correlation matrix obtained using SPSS.

The entire exercise of correlation analysis, and MDS analysis was to determine that the chosen variables determine the strength of economy of a GCC country. Bureau of Economic Analysis, BEA (2014) report presents, seven National Income and Product Accounts (NIPA) measures in terms of production-related activities and income in various economic sectors.

Table 7: The variables used in the models

	Nominal_GDP_$Bn	Real_GDP_Perc	Budget_Balance	Current_Acct_Bala	Consumer_Price	BHD_Per_USD	Repo_Rate_Perc	Currency_Ranking	Relative_Pref	Opera_currency	Approp_Currency
Bahrain	30.3	3.4	-2	7.3	2.8	0.38	2.25	0.09	0.02	6.81	0.02
Kuwait	182.2	6.5	28.5	43.6	2.9	0.28	2	0.22	0	14.37	0
Oman	78	5.4	10.7	14	2.9	0.39	1	0.1	0.05	11.34	0.05
Qatar	192.2	6.2	7.4	32.4	1.9	3.64	0.75	0.16	0.2	7.37	0.2
KSA	727.3	6.8	13.7	22.5	2.9	3.75	2	0.25	0.19	37.62	0.19
UAE	383.8	4.4	6	17.3	0.7	3.67	1	0.19	0.55	20.98	0.55

On the basis of this information, the researcher collected data related to these measures. Additionally primary data related to key financial performance measures were also collected.

Correlation analysis of the 11 financial variables was conducted using Minitab. The results are shown in Table 8.

Table 8: Correlation Matrix of the independent variables used in the models.

	Nominal_GDP_$Bn	Real_GDP_Perc	Budget_Balance	Current_Acct_Bala	Consumer_Price	BHD_Per_USD	Repo_Rate_Perc	Currency_Ranking	Relative_Pref	Opera_currency	Approp_Currency
Nominal_GDP_$Bn	1										
Real_GDP_Perc	0.497912	1									
Budget_Balance	0.196581	0.757534	1								
Current_Acct_Bala	0.121965	0.760428	0.831678	1							
Consumer_Price	-0.14125	0.296282	0.326669	0.071026	1						
BHD_Per_USD	0.728777	0.283274	-0.19365	0.078907	-0.61999	1					
Repo_Rate_Perc	0.122305	-0.08096	0.171454	-0.03309	0.606174	-0.41278	1				
Currency_Ranking	0.820853	0.702213	0.635746	0.627582	-0.10904	0.53317	0.178872	1			
Relative_Pref	0.469101	-0.15728	-0.28088	-0.14445	-0.92719	0.769958	-0.50718	0.314244	1		
Opera_currency	0.963562	0.45243	0.266068	0.042619	-0.00072	0.538224	0.248686	0.776301	0.358763	1	
Approp_Currency	0.469101	-0.15728	-0.28088	-0.14445	-0.92719	0.769958	-0.50718	0.314244	1	0.358763	1

Table 8 displays the correlation coefficients between variables, a few being Nominal GDP and Operating Currency, relative preference and consumer price etc. are highly correlated.

5.2 Scree Test

Using SPSS, the researcher tested the stress induced in the MDS with addition of variables. The ten variables were considered by the researcher for building the MDS plot. They were Nominal_GDP, Real_GDP, Budget_Bal, Current_Acc_Bala, Consumer_Price, Currency_USD, Repo_Rate, Opera_Currency, Currency_Rank, and Relative_Pref.

SPSS calculates S-Stress values using Young's S-Stress formulae. With 10 iterations of changing the number of variables from 1 to 10, as shown in Table 9, it is found that as the number of dimensions increase the S-Stress values decrease.

The Table 9 also displays the improvement in the 'stress reduction' on the addition of more dimensions. It is found that after 9 iterations the

improvement is very low. It may reach up to zero. However, here the iterations are curtailed at 10 iterations. Figure 3 displays this stress reduction graphically.

Referring to the Figure 3, it is clear that there is a steep fall from 1 to 4 dimensions. Beyond this, the slope of the fall reduces and almost flattens after 8 variables. Thus the optimal number of dimensions can be assumed 4 or 5.

5.3 Multidimensional Scaling (MDS) Model:

The objective of MDS scaling was to find out the relative positions of the GCC countries based on these financial performance measures. SPSS software package was used to plot the Euclidean distance model after scaling as seen in Figure 4. All variables were used for the analysis.

Table 9: Improvement Table

Iteration No	S- Stress	Improvement
1	0.16612	
2	0.12594	0.04018
3	0.10499	0.02095
4	0.09159	0.01339
5	0.08235	0.00924
6	0.07578	0.00657
7	0.07106	0.00472
8	0.06763	0.00343
9	0.06511	0.00253
10	0.06321	0.0019

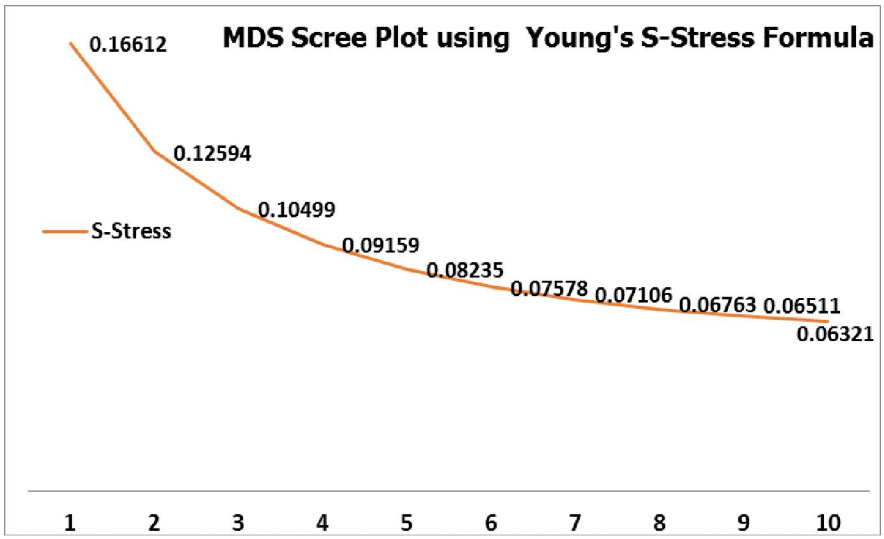

Figure 1: MDS Scree plot for 10 dimensions

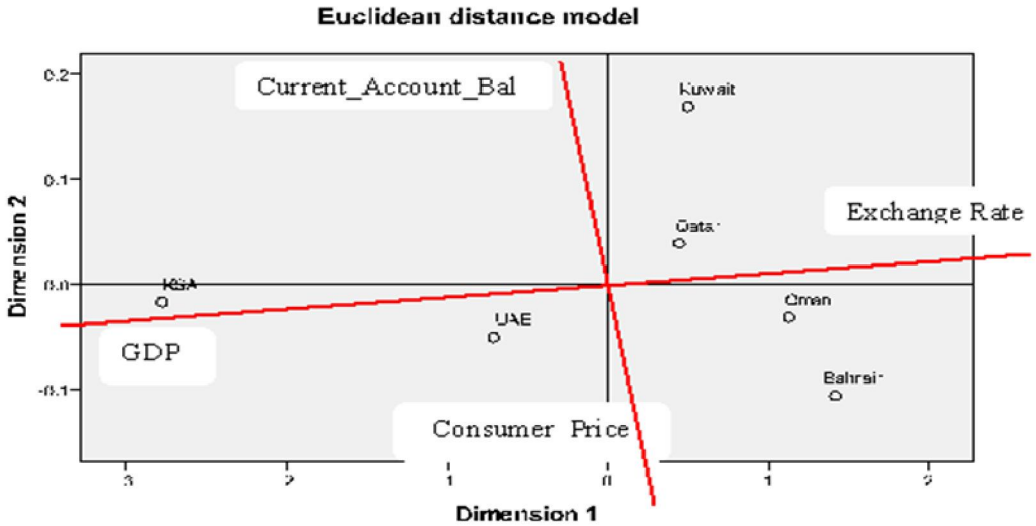

Figure 2: MDS Plot of GCC

The researcher has done an Orthogonal Rotation by hand using SPSS output's graph options. The reference axes measure the high and low exchange rates, high and low consumer price, high and low current account balance, high and low GDP. Thus the four groupings of the countries positioned in the four quadrants are as follows:

1. High Exchange Rates/High Current Account Balance: Kuwait and Qatar
2. High Exchange Rates/Low Current Account Balance/High Consumer price: Oman, Bahrain
3. Low Exchange Rates/ Medium Current A/C Balance/High GDP: Saudi Arabia
4. Low Exchange Rates/High GDP/ Medium Current Account Balance: UAE

In place of 'the goodness of fit' concept, MDS may use 'the badness of fit' where, the accuracy of the MDS scaling is enhanced with increasing number of dimensions (Gyslain G., 2006). The grouping is considered as a basis in analyzing the relative competencies of these countries to implement a common gulf currency. In addition to the positions of these countries in the four sectors, their distances from the origin also measure the strength of the variable values. SAR is very strong in GDP and Current Account Balance while KWD is strong in Current Account Balance and Exchange rates. The reluctance of Kuwait to go for a common Gulf Currency and its absence from many meetings for discussing common currency were probably stemming out of this fact.

5.4 Regression Models

In this research, the regression econometric model was used with the objective of evaluating the relation between the financial standing of GCC countries based on their financial performance measures. This also further strengthens the confidence in the positioning of the GCC countries using MDS Regression analysis and correlation analysis. Eleven regression models were developed in all using different combinations of financial performance measures. In last two models Hofstede index values were used to include the cultural homogeneity. Other financial data on these variables were collected from the Saudi Arabian Stock Exchange web site and the survey questionnaire.

The six Gulf Economies are taken as the dependent variable and the independent variables are Currency Ranking, Relative Preferences, Consumer price, Nominal GDP, Real GDP, Budget balance, Current Account Balance, Exchange Rates, Repo Rates etc. The models discussed below took variables from this list displayed in Tables 7.

In all models Nation Economy was considered as the response variable or the dependent variable. The hypothesis statements for all models were as stated below:

HO: The selected independent variables do not have any effect on the GCC economy.

HA: The selected independent variables do have effect on the GCC economy.

In all models the economy or the country was considered as the dependent variable. The independent variables were chosen randomly from the list in Table 7.

Table 10 displays the equations of eleven regression models.

Table 10: Model equations

Model1	Economy= 2.719638+ 0.278835* Real_GDP_Perc - 0.69985* Consumer_Price + 0.600223* Exchange Rate - 0.20406*Repo Rate
Model2	Economy = 2.902+ 0.499* Exchange_Rate – 0.668* Consumer_Price + 11.613* Currency_Ranking - 0.035*Current_Acc_Bala
Model3	Economy = -4.5396 - 0.04387* Nominal_GDP_$Bn + 0.048264 * Current_Acct_Bala+ 2.57692* Exchange_Rate+0.815596* Opera_currency
Model4	Economy = -1.061 + 0.664* Real_GDP_Perc + 8.063* Relative_Pref – 4.195* Currency_Ranking + 0.145* Exchange_Rate_USD
Model5	Economy = - 2.28907+ 0.031569* Budget_Balance+ 1.225748 * Consumer_Price + 0.368757* Exchange_Rate + 10.84739 * Approp_Currency
Model6	Economy = 5.063979 + 0.004796* Nominal_GDP_$Bn - -1.05404* Consumer_Price+ 0.166044* Exchange_Rate- - 4.1355* Currency_Ranking
Model7	Economy = -0.54548+ 0.403337* Real_GDP_Perc+ 7.020091* Relative_Pref+ 0.122886* Exchange_Rate+ 0.025438* Opera_currency
Model8	Economy = 1.221662 + 0* Relative_Pref + 0.050283* Opera_currency + 1.865927* Currency_Ranking+ 6.765368* Approp_Currency
Model9	Economy = -2.218+1.033*Real GDP+8.567*Approp_Currency-0.057*Current_Acct_Bala-0.004*Opera_currency
Model10	The_Economy_No = 0.00120035 Nominal_GDP_$Bn - 0.679496 Exchange_Rate_1 + 0.0663853 Avg_hofstede
Model11	The_Economy_No = 0.000189576 Nominal_GDP_$Bn + 0.0213068 Avg_hofstede + 0.0396862 Current_Acct_Bala

The models were exhibiting cultural and economic homogeneity of the GCC region and were showing deep impacts on the variations. On the other hand under certain scenarios as shown in Model 3 and 9 it was found that the model had significant effect. Keeping aside combination set of variables, it can be concluded that most GCC countries seem adjusted to welcome a common currency due to the synchronized economic growth they commonly have. And the financial factors of GCC countries don't have major impact on the economy.

It is determined by the researcher that it would be relevant to judge the relative advantages and disadvantages of a common currency in the region with the present set up especially keeping in view recent crisis faced by Euro and challenges of China against Dollarization. The next section will present advantages and disadvantages of the common Gulf currency.

6. Advantages and disadvantages of Common Gulf Currency

6.1 Advantages of Common Gulf Currency

Following are few advantages put forward by a number of sources in researcher's survey are:

1. While dealing with only one currency, the cost of converting one currency into another will be remarkably reduced. Indeed this will immensely benefit industrial and trading businesses as well as the hotel and tourism industry.
2. Overall transaction costs incurred by the GCC citizens, tourists, business people and financial and banking firms will be reduced.
3. As of now, there exists uncertainty about the exchange rates from time to time. Industrialists and business people find it difficult to plan their activities in advance because of this precarious situation they are frequently thrown into. If exchange rates among Gulf countries are absolutely taken out, the risks of this uncertainly, possible devaluations and revaluation of one currency against the other in the same region will be eliminated.
4. The direct comparability of prices and wages in vogue in different GCC countries will increase competition among the business firms across the Gulf region, leading to healthier and lower prices for consumers and improved investment opportunities for business firms. In other words much transparency and open competition will be brought to the arena.
5. In comparison with other currencies used in the world at large, GCC currency is definitely pitched for a major leap forward, due to the unique situations prevailing in the economic and regional fronts. The new currency can be expected to be one among the strongest currencies in the world, along with the US Dollar, Euro and the Yen.
6. Probably a major positive factor that supports the idea of a common currency is the larger Gulf currency zone that will come to existence. Such a currency zone can integrate the national capital markets, financial markets, leading to higher effectiveness and efficiency in the allocation of capital in the Gulf region.
7. Many a times, nations fight each other on the economic front during cold war. On such occasions quite often the possibility of devaluation in one country's currency against another country takes place. This may be done to increase the competitiveness of its exporters. Such unethical and competitive devaluations will not take place in a common currency zone.
8. When a single currency is used, other governments will have an interest to bring countries with a lack of fiscal discipline into line. The best example for this is perhaps the crisis in Europe in connection with the terms of its international bailout for Greece. Under those terms, EU, IMF and European Central Bank promised support to Greece with an aid of €240bn (£188bn) and in turn Greece is expected to revamp its budget and economic reforms. The German government which came forward for the support of Greece expects that Greece will fulfill its contractual obligations to the terms. Germany also feels that the once-troubled countries of Ireland and Portugal have made good progress in intensifying their economies (www.bbc.com/news/business-30672182 Accessed on 04-01-2015).
9. A very attractive outcome from implantation of a common currency systems would probably be a unique identity for the Gulf Region in the Economic World. A Gulf International currency can strengthen the Gulf identity.

6.2 Disadvantages of Common Gulf Currency:

As this is a pure research study, and though the advantages of a Common Gulf Currency supersede the disadvantages, it is worth mentioning the disadvantages too.

1. The cost of introducing a new currency cannot be inexpensive. All the businesses and consumers need to convert their transactional documents, bills and coins into the new formats, and adapt all prices and wages to suit the new order. It will incur costs as banks and businesses need to update computer software for accounting purposes, update price lists, and so on.
2. In spite of maintaining an optimistic view on the success of a common currency area, many researchers feel that the Gulf may not make up an optimum currency area. According to them, this is simply because the business cycles across the member countries need not move in synchronously, especially in the initial stages.

3. When some of the member countries that increase their debt will raise the interest rates in all other countries, too. Gulf countries may have to increase their intra-Gulf transfer payments to help regions in need. Such Fiscal Policy Spillovers are found in Euro zone too. As Rosenthal J., (2012) writes on a similar issue in Euro zone, the current account balance of the "PIGS" countries (Portugal, Italy, Greece, and Spain, sometimes written as "PIIGS" to include Ireland) suffered a severe and a progressive deterioration following the adoption of the euro. People of the other Euro zone countries even started using expressions such as "lazy, profligate, scheming Greeks versus honest, thrifty, industrious Germans", "can Greeks become Germans?", "Southern vice Vs Northern virtue" and so on.

4. Devaluation is needed some times to stabilize an economy. During a recession time, a country can no longer keep its economy dynamic by devaluing its currency and increasing exports. In other words, no competitive devaluations will be possible.

5. As it is happening in Europe now, other governments may exert pressure on a monetarily weaker government to reduce borrowings, and pay fines if the budget deficit exceeds a bottom line. This may eventually lead to strained relations, and may have the vicious effect of increasing an existing economic imbalance or deepening a recession.

Most of all, the researcher feels that 'People' are mainly the deciding factor for the success of a common currency in use. While observing the heterogeneity of the European people with the homogeneity of GCC or Arab people, it is pretty easier to think of a Common Gulf Currency than pondering over a Common European Currency because of a variety of reasons as discussed above.

Conclusion:

The overall results of this research reveal the majority of the GCC nationals are in favor of introducing single currency among the GCC countries. The questionnaire analysis clearly depicts that the overwhelming majority of the GCC nationals are in favor of the establishment of monetary union among GCC countries as 83% of the respondent are in favor of GCC monetary union. On the other hand most GCC nationals are not in favor of the idea of global common currency system. The regressions models also clearly indicate the cultural and economic homogeneity in the whole Gulf region. In this regard the research found that almost all models were exhibiting insignificant effects on the variations except model 3, and 9. Clustering by MDS is also favorable for the establishment of monetary union. In addition, the similarity of political systems, oil based resources; economic structures, development goals, as well as geographical location make the monetary union idea more striking and attainable. Other factors such as common historical uniformity, common religion and common language form a wonderful unity shared by GCC countries are also favorable for a common currency system.

References:

1. Abbey B.S & Doukas J. A., 2012. Is Technical Analysis Profitable for Individual Currency Traders? *Journal of Portfolio Management*, 1(39), pp.142-50.
2. Abu-Bader, Suleiman and Abu-Qarn, Aamer (2006), "On the Optimality of a GCC Monetary Union: Structural VRA, Common Trends and Common Cycles Evidence" (Ben-Gurion University of the Negev).
3. Ahmed, A. & Ali, A., 2010. GCC monetary union. *IFC Bulletin*, (32), pp.17-51.
4. Aljadani, A., Mear, F. And Raimi, L (2014) Exploring the Potentials of Optimum Currency Area and the Political Will of the Gulf Cooperation Council, Working Paper (Unpublished yet) *Forthcoming*.
5. Aljadani, A., Mear, F. and Raimi, L. 2014, Strategically Using the Issue Affecting the Adoption of a Common Currency for Uniting and Developing the Arab Gulf Region, *Conference Proceeding presented at the World Finance Conference*, July 2-4, Venice, 2014.
6. Arkhipov A.Y., Ishkhanov A.V., Linkevich E.F. Global monetary system: from past to future. Life Sci J 2014;11(11):548-553 (ISSN:1097-8135).
7. Bacha ObiyathullaIsmath, (2008), " A common currency area for MENA countries?A VAR analysis of viability", *International Journal of Emerging Markets,* Vol. 3 No. 2, pp. 197-215.
8. Buiter Willem H, (2007), "Economic, Political, and Institutional Prerequisites for Monetary Union among the members of the Gulf Cooperation Council", Paper prepared for presentation.
9. Bureau of Economic Analysis, (BEA), 2014. *Measuring the Economy: A Primer on GDP and the National Income and Product Accounts*. [Online] Available at: http://www.bea.gov/national/pdf/nipa_primer.pdf [Accessed 17 October 2014].
10. Conerly, B., 2013. *Future Of The Dollar As World Reserve Currency*. [Online] Available at: http://www.forbes.com/sites/billconerly/2013/10/25/future-of-the-dollar-as-world-reserve-currency/ [Accessed 27 July 2014].
11. Darrat, Ali; Al-Shamsi, Fatima (2003), "On the Path to Integration in the Gulf Region: Are the Gulf Economies Sufficiently Compatible?"
12. Edwards, S.a.I.I.M., 2003. A Currency of One's Own? An Empirical Investigation on Dollarization

and Independent Currency Unions. *NBER Working Paper 9514*.
13. EL HAG Sherine, (2007), "GCC's Countries Common Currency and its relationship to the Optimum Currency Area", *European Journal of Scientific Research*, Vol 17 N°3, pp-329-337.
14. Fasano-Filho, Ugo and Andrea Schaechter (2003). "Monetary Union Among Member Countries of the Gulf Cooperation Council," *IMF Occasional Papers* 223, International Monetary Fund.
15. Frankel, Jeffrey (1999), No Single Currency Regime Is Right For All Countries Or At All Times, Essays In International Finance, No. 215, August 1999, Princeton University, New Jersey.
16. Friedman, M., 1953. The Case for Flexible Exchange Rates. Chicago, 1953. University of Chicago Press.
17. Gyslain, G., 2006. Collecting and analyzing data in multidimensional scaling experiments: A guide for psychologists using SPSS. *Tutorials in Quantitative Methods for Psychology*, 2(1), pp.26 - 37.
18. Hakura, Dalia S. (2004), "Growth in the Middle East and North Africa", IMF Working paper no. 04/56.
19. Hebous, Shafik (2006), "On the Monetary Union of the Gulf States", (The Kiel Institute for the World Economy).
20. Hezel Francis X., S., 2009. The Role of Culture in Economic Development Micronesian Counselor. *Pohnpei,* (77).
21. Jadresic, E., 2002. On a Common Currency for the GCC Countries. *IMF Policy Discussion Paper (PDP/02/12)*.
22. Jadresic, Esteban (2002), "On a Common Currency for the GCC Countries", IMF Policy Discussion Paper.
23. Kazerooni A. and Razzaghi S., 2014. Assessing the Feasibility of Common Currency Area among D-8 Group Members: Structural VAR Model Approach. *The International Journal of Applied Economics and Finance*, (8), pp.17-28.
24. Laabas, B., & Limam, I. (2002). Are GCC countries ready for currency union? *Arab Planning Institute, Kuwait*.
25. Laabas, Belkacem and ImedLimam (2002), "Are GCC Countries Ready for Currency Union?" (Arab Planning Institute- Kuwait).
26. Levin R.I, Rubin D.S, Rastogi S., Siddiqi M.H., (2013) Statistics for Management. 7th Edition. Pearson Education. ISBN: 978-81-317-7450-2.
27. Lohade, N. (2013) Gulf Common Currency Chatter Returns Again. The Wall Street Journal (WSJ), December 3 Edition. Available: http://blogs.wsj.com/middleeast/2013/12/03/gulf-common-currency-chatter-returns-again/ (Accessed: 2 March, 2014).
28. Meade, J., 1957. The Balance of Payments Problems of a European Free Trade Area. *The Economic Journal*, 67, pp.379-96.
29. Merza E. and Cader H., 2009. Determining the Exchange Rate of the Common GCC Currency under a Fixed Exchange Rate Regime. *International Review of Business Research Papers*, 5(4), pp.192 - 99.
30. Mutasa, C. (2003) Regional Integration and Debt in Africa: A Comparative Report of Africa's Regional Groupings. AFRODAD Research Series
31. Patrick, N. (2011) The GCC: Gulf State Integration or Leadership Cooperation? Research Paper, Kuwait Programme on Development, Governance and Globalisation in the Gulf States. Kuwait Programme on Development, Governance and Globalisation in the Gulf States, No. 19. Available: http://eprints.lse.ac.uk/55660/1/__lse.ac.uk_storage_LIBRARY_Secondary_libfile_shared_repository_Content_Kuwait%20Programme_Partrick%202011%20paper.pdf (Accessed: 1 March, 2014).
32. Rose Andrew K., E.C., 2002. Currency Unions and International Integration. *Journal of Money, Credit, and Banking*, 34(3).
33. Rose Andrew K., E.C., 2002. Currency Unions and International Integration. *Journal of Money, Credit, and Banking*, 34(3).
34. Seminar "*Preparing for GCC Currency Union: Institutional Framework and Policy Options*", November 20 -21, 2007 in Dubai.
35. Sheikh KA, ZarinahYusof, Mohamed Aslam Gulam. The Prospects for Monetary Union in East African Community: Structural Vector Auto-regression Model. J Am Sci 2013;9(7):241--246. (ISSN: 1545-1003).
36. Shotar, Manhal and K haild Shams (2005) "Economic Policies and the Possibilities of Unified GCC Currency" (in Arabic) (University of Qatar).

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