Master Program in Economic Development and Growth

Is There a Resource Curse in Financial Development ? Empirical Study on Middle East and North Africa

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Abstract : This paper empirically investigates the impact of natural resource dependence and abundance on financial sector development in MENA for the period 1980-2009. The link established provides a new explanation for the different levels of financial development across the region, which may influence the pace of economic growth. Using fixed effect estimator, the model makes an explicit differentiation between resource abundance and dependence. We go beyond conventional measures of financial development and include other crucial aspects to the financial sector ; efficiency and stability to provide a holistic assessment of the financial sector. In addition, we include an institutional quality variable to evaluate if natural resource dependence impacts financial development differently when institutions are of a better quality. Our main findings point to the sensitivity of banking size (especially private credit and M2) which is more adversely affected by dependence on oil rents than financial efficiency and stability for the whole region and to a larger extent in GCC countries. Moreover, better institutional quality of government plays an important role in changing the interacting relationship between resource dependence and financial sector development, as it reduces the unfavourable effect that resource dependence has on the size and soundness of the financial sector but no significant marginal effect on intermediaries stability

Key word : Financial development, Natural resources, Institutions, MENA

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Any mistakes or inaccuracies are my sole responsibility

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"All in all, I wish we had discovered water" - Sheik Ahmed Yamani, Saudi
Minister of Petroleum and Mineral Resources (1970)

1.   Introduction:

During the last decade, a rapidly expanding interest in the relationship between natural resource abundance and economic growth for low and middle income countries has generated debate among scholars and policymakers alike. The "resource curse"[1] has become a term associated with the abundance of natural resources and a lagging performance of countries with large endowments of natural resources such as oil, natural gas, mineral, diamond, etc, compared to countries with fewer resources. Paradoxically, despite the prospects of wealth and opportunity that accompany the discovery and extraction of nonrenewable natural resources, such endowments often impede rather than further promote sustainable social, economic development, good governance, income equality and democracy. The curse is exemplified by the fall of average per capita income for the oil exporting countries by 29 % over the period 1975-2000 compared to the rest of the world whose average per capita income has increased by 34 % during the same period (Nili and Rastad ,2007). The effect is more apparent in countries that lack strong institutional foundation especially law enforcement, defined property rights laws and counter rent-seeking regulations. Meanwhile, the lack of natural resources has not been an obstacle to economic success as experienced by the Asian Tigers specially Taiwan, Singapore and Korea who managed to base their economic growth on a booming manufacturing industry and export sector without large natural resource reserves (Sachs and Warner, 1995).

While the literature provides several explanations to the curse and considerable empirical evidence on the negative association between natural resource abundance/dependence and various negative development outcomes, this evidence is by no means conclusive (see e.g. Sachs and Warner 1995, 2001; Auty 2001; and Gylfason 2001). Resource endowment by itself is not a negative factor. Even countries in the same geographic area would exhibit heterogeneous characteristics specially when it comes to managing their resource wealth, as is the case in Middle East and North Africa (MENA). Several factors contribute to the ability to realize gains from natural resources and the associated rents which countries like Botswana and Norway have managed to adopt to turn the curse into a blessing. The role of good economic and political institutions is emphasized to be a crucial determinant to the degree of

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[1] The term "resource curse" was first used by British economist Richard Auty in 1993, who is the pioneer on the topic

success to appropriate rent gains and counter any expected negative effects (Boschini, Pettersson, & Roine , 2007)

An important institution based on contractual trust and information is financial sector development , is strongly linked to enhanced economic growth, development, and diversification. An efficient financial market identifies investment opportunities , channels domestic funds to the private sector (mobilize savings), promotes innovation, exerts corporate control, facilitates risk management and therefore contributes to poverty and inequality reduction policies (Rajan,1998)[2]. Therefore, a well functioning financial market is a prerequisite for economic growth in both developed and developing countries. The finance – growth relationship has primarily focused on cross country evidence excluding resource rich countries which may have a different financial structure (Beck, 2011). An important link between financial development and natural resources is that resource rents or revenues can act as a substitute for private saving. Therefore if the financial structure is weak in resource rich countries, different forms of distortions could arise in the economy as a result of reinforcing the adverse effects of resource curse such as the inefficiency of investments. Moreover, a well developed financial system is likely to act as a buffer to fluctuations in world prices to which resource rich countries are vulnerable and are thus likely to better absorb shocks (Denizer, Iyigun & Owen, 2000).

Despite the vast literature on the effect of institutional quality on the natural resource curse; to the best of our knowledge, previous studies have paid little attention to the effect of natural resource abundance on financial development and to how institutions play a role in mitigating this effect. The Middle East and North Africa region (hereafter MENA) is an interesting case to test the theoretical and institutional hypothesis in the literature that tackled this issue, with sometimes conflicting results. The region is endowed with abundant natural resources (specifically minerals, oil and natural gas)[3] but with stagnating growth in real GDP per capita between 1980 and 2000, as other comparable regions have outperformed them with overage annual growth of 4.1 percent in east Asia and 0.3 percent in all other developing countries over the same period (Hakura, 2004). In addition, MENA is a region characterized by

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[2] For a thorough review of the finance- growth literature, see Nili & Rastad, 2007; Beck & Levine, 2004; Benhabib & Spiegel, 2000; Levine et al., 2000).

3 MENA possess 55% and 29% of global oil and natural gas reserves respectively (Arezki et al., 2012) in addition oil-poor Arab countries have achieved a higher GDP per capita growth rate during the period 1961-2001 , averaging 2.5 % compared to only 1.4 % for the oil-rich economies

consistently negative saving rate and high dependence on natural resource extraction compared to other regions during the period (1980-2010)[4]. The average natural resource rents as a percentage of GDP is by far higher than any other region in the world. For example, the average resource rents in 2005-2010 in MENA reached 35.58% compared to 10.30% in Sub-Sahara, followed by Latin America and Caribbean with 10.02% , and last is East Asia, Pacific and Europe with an average share of 3.75% and 3.61% respectively (World Development Indicators,2012)

Meanwhile, the financial sector is relatively weak which is reflected in inadequate banking competition, lack of alternative banking institutions for finance ,limited coverage of credit information and weak creditor rights. Banks focus on large and well connected enterprises at the expense of small and medium enterprises can undermine the potential of growth (World Bank, 2011). Relatively low and non-inclusive growth, and high levels of macroeconomic volatility for the period 1970 – 2008 is what characterizes resource rich countries in MENA (Arzeki & Nabli, 2012) as they followed a mineral-led development model based on inefficient state intervention, concentration of state owned banks and dependency on external windfalls.

This paper extends the debate on the resource curse by focusing on an under researched mechanism which is financial development. Acknowledging heterogeneity of the region in terms of the resource abundance and degree of dependence, we provide a better understanding of the different levels of financial development in MENA through links related to natural resource wealth especially oil and minerals. In specific, we aim at answering , *what is the impact of natural resource dependence on financial development in the region ?* . To achieve a more thorough analysis of the financial sector , we focus on three characteristics of the financial sector: financial depth, efficiency and stability. Furthermore, we exploit the rich theoretical and empirical literature on the importance of institutional quality for financial development to extend the research a step further. Particularly, *to what extent does institutional quality matter for the relationship between resource dependence and financial development?*.

The analysis is conducted on a panel of 17 countries from the region for the period 1980 – 2009 using intervals of 5 years average due to availability of data and institutional change in

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[4] Refer to Figures (1A) and (2A) respectively in Appendix for a graphical elaboration

the oil industry that dictated government control of the resource returns. Initially, we conduct a pooled ordinary least square (OLS) regression of resource dependence first on the different indicators of financial depth, efficiency and stability; followed by testing the resource abundance variables in the same manner as before. Finally, we apply a fixed effect model for a better specification to overcome some drawbacks of the pooled OLS estimation. The theoretical framework for our purpose is the one provided by Beck (2011) , who provided the seminal work on our topic.

The contribution of the research is fourfold : *First*, the link established between financial development and natural resources provides a new explanation for the different levels of financial development across the region, which may influence the pace of economic growth.

We are inspired by theory and empirics to carry out this research in a new light as no previous paper has linked the three elements of financial development, natural resources and institutions together in one investigation. Thus , our study is an initial effort to fill this gap by focusing on MENA. *Second*, it adds to the literature on the determinants of financial development with specific focus on role of natural resources and institutions in MENA. *Third*, the present paper introduces methodological and data improvements over previous studies. We go beyond conventional measures of financial development that only focus on intermediary size or activity and include other aspects crucial to the financial sector like intermediary efficiency and stability to assess potential links with resource dependence and abundance. We thus provide a holistic assessment of the financial sector with the use of a wide variety of indicators. *Fourth*, we make an explicit distinction between resource abundance and resource dependence; guided by Isham , Woolcock, Pritchett & Busby (2002) and Stijns (2005) who find positive growth effects from resource abundance but the opposite from resource dependence. Consequently, we test the effect of both terms successively on our financial development measures. In addition, we include an institutional quality variable to evaluate if natural resource dependence impacts financial development differently when institutions are of a better quality.

The paper is organized as follows, section 2 reviews the literature on natural resource curse and growth , in particular the range of hypotheses that are consistent with a link between resource dependence and financial development. The dataset used and empirical methodology are discussed in Section 3. In section 4, we present the empirical methodology and results of the econometric model and interpretation. Section 5 concludes the research.

We first introduce the overall structure of MENA's financial systems and the evolution of the mineral resource sector.

1.1 Overview on MENA's Financial Landscape and The Oil Sector:

It is important to understand the structure of the financial sector in the MENA region and how it developed over time compared to other regions. An index constructed by the international monetary fund based on an aggregate measure of four variables[5] to capture the size of the financial sector, ease of channeling private funds and the concentration of funds to private sector compared to public sector (Creane, Goyal, Mobarak & Sab ,2004). As shown in Figure (1) , MENA had improved the index score from the 1960s through the 1980s, surpassing newly industrialized economies (including southeast Asia), Latin America and Sub-Saharan Africa. However, financial deepening worsened afterwards due to slow rate of development because of political turbulence and other shocks , thus the index fell compared to other regions but with exceptions in some countries that have made advancements and reform since 1960s like Egypt, Tunisia , Morocco and Jordan (Creane et al., 2004)

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[5] The variables included are : (1) ratio of broad money (M2) to GDP; (2) ratio of the assets of deposit money banks to assets of the central bank and deposit money banks; (3) reserve ratio; and (4) ratio of credit to private sector by deposit money banks to GDP

Figure (1) : Financial Development Index: Regional comparison (1960-1990)
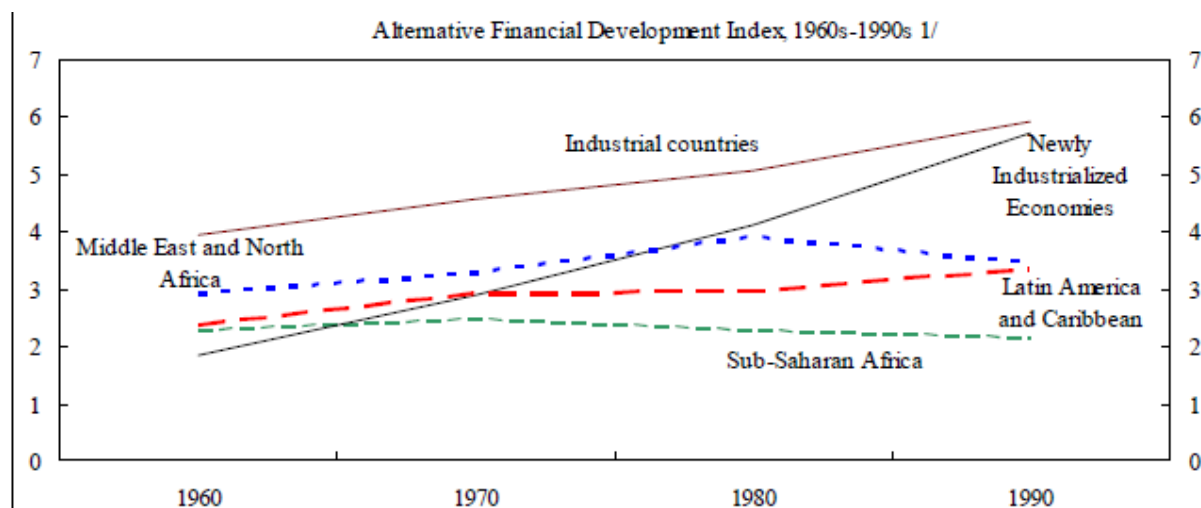
Source: Creane et al. (2004)

The performance of countries in the region is not homogenous. Countries in the Gulf cooperation council (GCC)were major providers of official and private funds to global markets between 1970s and 1980s as they were running a current account surplus. The rest of MENA countries were dependent on workers' / emigrants' remittances and capital flow to restore their fiscal imbalances (Chalk, Jbili, Treichel, & Wilson,1996). The financial sector until the 1980s was heavily regulated, dominated by large financial institutions which are generally large, while nonbanking financial entities like savings and credit cooperatives, mutual funds and insurance companies were almost negligible. Various reforms have been initiated over the past decade to address several problems especially the lack of competition, lack of financial infrastructure and the limited coverage and depth of credit information. However, the government measures are not being taken with the sufficient pace to cope with the changing business environment (World Bank, 2011b) which can have consequence on long run economic growth especially in the wake of financial liberalization and market integration.

Considering the fact that the region is heavily endowed with natural resources and specially oil, the question to ask would be if the capital intensive oil sector has an impact on overall growth potential in general and on financial sector reform in particular. The Middle East region alone holds approximately 48% of global proved reserves of oil at the end of 2011 and thus the oil sector is considered to be the dominant source of revenue and wealth (World Bank, 2011a). Such wealth is accompanied with several political challenges, due to the

concentration of rents under the control of government and tendency to observe autocratic regimes in the region.

According to World Bank development and economic prospects report (2006) ,resource rich countries have achieved slower progress in financial reform, trade liberalization, diversification and improving business climate compared to resource poor ones in the region over the last decade. Moreover, The historical event of the Arab embargo in 1973 has contributed to the surge in revenues as world oil prices have quadrupled since then to reach a record price again after the 1979 shock due to Iranian revolution and the cut of production. Resource rents although volatile, have thus enabled some countries in the region to initiate infrastructure, reform projects on the economic front and to raise standards of living due to the large financial flow of foreign exchange (Okogu, 2003).

2.   Conceptual Framework

This section will be divided into two parts , in which part one shall review the different theories and empirics on the natural resource curse. Part two follows up the discussion by specifically focusing on the links between natural resource dependence/abundance and financial development.

2.1 Theory and Empirics of Resource Curse :

Since the late 1980s, sizable literature emerged that challenges the view that natural resources are generally seen as a blessing for developing countries. In fact, this view advocates that natural resources are one of the factors that increase the likelihood of adverse political and economic outcomes and hence, the term "resource curse" emerged. The main reasons why resource-based models of development can inhibit long run economic growth are traced to the Dutch disease, rent seeking, weak institutions, failures of economic policy and neglect of education[6].

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[6] An extensive examination of the validity of natural resource paradox and the different explanations is given by Caselli and Cunningham (2009), Rosser (2006), Sachs and Warner (1995) and van der Ploeg and Venables

Following the seminal and influential studies of Sachs and Warner (1995,2001) who examined a large panel of natural resource economies between 1970-1989 found that natural resource abundance is negatively correlated with economic growth; revealed when controlling for the effect of other economic and policy variables like trade openness and quality of institutions. A large volume of subsequent research has thus been inspired to examine the direct and indirect channels through which resource rich economies might be subject to this curse[7].

The most popular explanation in the literature for the curse is the "Dutch disease effect". The Dutch disease models (Van Wijnbergen, 1984) predict that natural resource revenues cause appreciation of real exchange rate as a result of a spending effect on non tradeables, speculative capital inflows and higher inflation due to domestic spending of resource-related revenues (Auty 1993, 1997 and 2001a , Corden and Neary1982; Corden 1984; Gelb 1988; Gylfason 2001a and 2001b; Gylfason, Herbertsson & Zoega, 1999; Humphreys Sachs & Stiglitz, 2007; Rodriguez and Sachs 1999; Ross 1999; Sachs and Warner 1995 and 2001) . This undermines competitiveness of the manufacturing sector[8] and consequently impedes diversification. Therefore countries become more exposed to macroeconomic volatility and shocks. The reallocation of resources from high skill manufacturing sector to low skill sectors[9] can adversely affect economic growth due to reduced 'learning by doing' especially if specialization in primary product exports is being reinforced for a long period of time . "All in all, the extraction of natural resources sets in motion a dynamic that gives primacy to two domestic sectors: natural resource and the non- tradeables sector at the expense of the export sectors" (Humprehys et al., 2007: 5). Consequently, this changes the composition of production to one that determines the growth rate of the economy harms welfare[10] and long run productivity. For mineral economies, Nankani (1979) argues that they perform worse on competitive measures , export diversification and inflation compared to non mineral ones. In

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[7] (2009). The main aim of our research is not the empirical scrutiny of those theories in particular and hence they are not discussed in details in the paper.

[7] For an excellent survey, see Frankel (2010)

[8] This is also known by the spending effect (Humphreys et al.,2007)

[9] This effect is known by resource pull effect (Humphreys et al.,2007)

[10] High levels of inequality is observed in resource rich countries as a result of income distribution being skewed in favor of the natural resource sector that suffers from less equitable distribution of returns (Sachs and Warner,2001)

addition, they tend to experience more volatility in export earning, high unemployment and high external indebtedness.

The Dutch disease is not the only channel through which growth is affected by the resource windfall. Equally important are the incentives that windfalls create for rent seeking along with ill-defined property rights and loose legal structures and thus the revenues generated are independent of how well the economy is performing which incentivize rent seeking opportunities and engaging in unproductive activities (see Baland and Francois 2000; Mehlum, Moene & Torvik,2006; Torvik 2002). This has disastrous consequences beyond the economic structure of a country, as the competition for rent[11] can increase the probability of civil conflicts and corruption (Collier and Hoeffler 2005; Leite and Weidmann, 2002). Moreover , when the state has full authority on the redistribution of those rents , it maintains a kind of social and political control over citizens which can have important implications for future institutional development and policy making framework setting ,weakening the state-societal relations (Auty,1993). Rentier states usually exploit their fiscal independence and are geared towards maintaining their power to appoint government jobs, contracts or grants in return for political favors and social support from their networks (Auty,1993) rather than promoting private investment, economic growth or developing a strong institutional base. This paves the way for certain interest groups (mainly international companies) or social groups in the resource sector to posses relatively strong bargaining power.Consequently, such entities can to challenge the state, should it attempts to undergo reforms that endanger the interests of the oil / mineral led development model. Among the formal models of rent seeking, Tornell and Lane (1999,2000) and Torvik, (2002) show that in the presence of multiple interest groups , resource windfalls create dynamics known as "the verocity effect" . These result in fiscal imbalances in the form of current account deficits and disproportionate fiscal redistribution in the context of weak legal and political infrastructure.

However, evidence suggests that not all resource rich countries undergo this similar fate. An important proposition as to why some resource rich countries have prospered while others have fallen behind is due to the interaction between institutions and resources. Countries with institutions that promote accountability, control corruption, protect property rights and state

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[11] Rents are defined as the revenues in excess of production costs and the return on capital

competence will tend to positively gain from resource booms since these institutions shape policy outcomes. This is exemplified by the successful experience of Norway (Mehlum et al.,2006) as proper institutions increase the cost of non productive activities. Leite and Weidman (1999) found that natural resource abundance tends to worsen corruption especially in less developed economies where rule of law and institutions in general are slothful because of rent seeking activities. However, some scholars argue that institutions are more critical for point resources[12] like oil, diamonds, minerals than for diffuse resources as rice and wheat which show insignificant correlation with institutional quality and economic growth in the 1980s and 1990s (Bulte, Damania & Deacon 2005; Boschini et al. 2007; Isham et al. 2002; Sala-I-Martin and Subramanian 2003). The economic and political institutional quality is gaining more grounds in explaining the resource curse.

The legal institution in particular is among the factors that shape financial development in resource rich countries. So much that the main functions of the financial sector are better executed in the presence of private property rights protection, contract enforcement and effective corporate governance.

Gylfason (2001a) contributed to this literature by explaining the effect natural resource abundance has on human capital; as there is diminished public and private incentive for accumulation of human capital due to a high level of non-wage income. This is asserted from the empirical evidence of Gylfason et al. (1999) who find an inverse relationship between secondary school enrolment and primary sector employment. This contradicts the results of Bravo-Ortega, De Gregorio & Paraguay (2005) as they find that higher educational attainments can counter act the negative effects of resource abundance. The "crowding out" of human capital by resource abundance can therefore undermine growth potential. In addition, Gylfason and Zoega (2001) show empirically using a sample of 85 countries for the period 1965 to 1998 that abundant natural resources crowd out physical capital in the form of lower optimal saving and investments (small capital- output ratio) as well as slowing down the emergence of a well-developed financial system. This is congruent with Atkinson and Hamilton's (2003) findings of lower saving rates on average in resource abundant countries than in resource poor countries.

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[12] There are called point resources as they are extracted from a narrow geographic or economic base.

Therefore, even though the negative relationship between natural resource abundance and various economic outcomes is confirmed; the empirical evidence is not "bulletproof" (Sachs and Warner, 2001) as there remains some controversy among scholars. Some strands in the literature actually argue that the resource curse does not exist, and that resource abundance positively affects economic growth (Boyce and Emery 2005; Brunnschweiler and Bulte, 2008; Esfahani et al. 2009 ; Davis 1995 and Herb 2005). Even in the case of mineral rich countries; Alexeev and Conrad (2009) found that large endowments of oil or other minerals do not slow down long term economic growth when controlling for several initial conditions and regional dummies. Stijns (2005) pointed towards the idea that it does not make much difference which natural resource the country is endowed with or the leading sector that affects growth , but rather how it produces and the kind of knowledge accumulation process. In addition, he found that when natural resources are measured in terms of levels of production or reserves rather than exports, there is no statistical significant effect on growth.

The origin of the mixed empirical result stems from the several factors. First, the variable used as a measure of resource abundance or dependence is different. Sachs and Warner (1995) have used the ratio of primary exports to GDP as a measure of resource abundance but in fact this measure is for resource dependence instead which is supported by Brunnschweiler and Bulte (2008). Very few studies have differentiated between the type of resource endowed (whether point resources or not) and was aggregated into one variable , which would give a misleading result of the effect of natural resources on growth as the physical characteristics of the resource can make a difference.

From the econometric point of view; different estimation techniques have been used that range from simple cross sectional approach to sophisticated panel data techniques like the generalized method of moments (GMM) . Much criticism has been directed towards the cross sectional method as it does not take into account the time dimension of the data and suffers from endogeneity. Consequently, the statistical robustness of the effect of natural resources on growth is doubtful or ambiguous.

Davis (1995) has taken a different track and showed that economic growth in particular is not the only measure that should be examined when assessing the economic performance of resource rich countries, as mineral economies between 1970s and 1990s have outperformed non mineral economies on some social and economic measures as average GNP per capita,

infant mortality, life expectancy, calorie supply per capita and the human development index. This would raise the viable question of whether studies show correlation rather than causation. It could instead that the causation runs from development to natural resource dependence in the sense that extensive reliance on resource is a result of underdevelopment rather than the opposite (Rosser, 2006)

Taking into account the importance of social and political variables in shaping outcomes of natural resource wealth; the focus of current research is thus being directed towards investigating what political and social conditions enable some resource abundant countries to utilize their natural resources to promote development. This would underpin the prerequisites at which resource wealth is associated with good development outcomes, and therefore constructive policy recommendations.

2.2 Theoretical Foundation and Empirical Evidence of the link between Natural Resources and Financial Development:

From the above, we have discussed that despite ongoing debates in the literature, resource dependence is linked to the appearance of a 'curse'. Particularly so for mineral rich countries as MENA. Consequently, more recent strands in the literature, based on modern economic theory, provide an intellectual framework for understanding how natural resource abundance/dependence can influence the pace of financial development. Beck (2011) explained that there are demand and supply side explanations for the effect of natural resource abundance on financial development. On the one hand, regarding the demand side, as discussed earlier , Dutch disease can lead to the expansion of consumer credit as a result of more demand for financial services. Another potential and quite opposite effect is the lower demand for external finance in resource-based economies, as well as for financial services, due to lower savings and investment rates[13]in resource-based economies previously highlighted . On the other hand, from the supply side, a resource abundant economy can crowd out investment and skills in the financial sector. In addition, the resource curse in the institutional setting undermines financial development due to loss of credibility .

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[13] Resource rents can act as a substitute for private saving and therefore if the financial structure is weak , different forms of distortions could arise in the economy such as the inefficiency of investments (Beck,2011)

It is therefore critical to understand the channels through which resource abundance can influence the pace of financial development. Three key linkages between abundant natural resources and financial development have been described in the literature, and on which we shall include in our empirical model in later stage of the paper:

Firstly, as previously described , the over exploitation of natural resources would tend to shift factors of production (i.e labour and capital) away from the manufacturing sector and therefore shrinking the manufacturing or traded sector as they lose competitiveness (Van Wijnbergen, 1984; Gylfason et al., 1999). However, trade is one of the determinants of financial development especially in developing countries (Baltagi, Demetriades & Law ,2009). But "the strengthening of promoter relative to opponent industries resulting from liberalization is a good predictor of subsequent financial development" (Braun and Raddatz, 2008) as interest groups have conflicting incentives to support or oppose financial development (Rajan and Zingales,2003). Therefore, resource abundance, which weakens the traded sector, may also have a negative impact on the pace of financial development

Secondly, the accompanied resource rents may increase opportunities for rent-seeking and corruption which undermines confidence and credibility in governments policies. These two components are important pillars for any financial reform implemented. In developing resource countries, when the initial proportion of entrepreneurs to rent seekers is low, a resource boom will reduce entrepreneurs. They are the ones who demand external finance and hence are promoters of financial development (Baland and Francois, 2000). In that case, financial development is weakened due to lower demand.

Thirdly, as physical and human capital is crowded out by resource rents, social capital is crowded out by the false sense of security and lack of good economic management which endangers the level of trust in the economy. Indeed, social capital is crucial for financial development as financial contracts are trust based. Therefore, if social capital is reduced by resource boom, one can expect the pace of financial development to be affected.

One of the few attempts that try to study the link between natural resource abundance and financial development, is Gylfason and Zoega (2001).They used a sample of 85 countries and seemingly unrelated regression (SUR) method, they supported the argument that higher dependence on natural resources is correlated with lower degree of financial development. In

their model this is captured by the variable (M2/GDP) which is a common proxy in the literature for financial depth. Through the systems of equation, they showed an inverse association between natural resources and economic growth through investment in physical capital, education and savings.

The theoretical and empirical politico-economic models developed by Bhattacharyya and Hodler (2010) have also been an important departure point for our empirical framework. This paper is inspired to test the institutions effects in MENA from their findings. Their model is based on a panel data covering 133 countries for the period 1970 to 2005, their findings confirm that the quality of political institutions affects the interacting relationship between resource revenues and financial development. Resource rents act as a disincentive for the government to initiate reforms of the financial sector or to promote contract enforcement resulting in financial underdevelopment. However, when controlling for strong institutions, this effect is minimized.

In a more in depth study by Beck (2011) not only is the performance of the financial system examined, but also the development of the stock market in resource rich countries is tested. Using cross sectional analysis where data is averaged for the period 2000-2007 and controlling for economic development for a panel of countries , he found that countries which rely more on natural resource exports have lower levels of private credit. A one standard deviation higher natural resource exports implies 10 percentage points lower private credit. Besides, other variables for financial development were used to test the sensitivity of results such as loan deposit ratio, stock market capitalization to GDP and stock market turnover. Beck (2011) pointed out that Banks in resource rich countries are better capitalized and profitable but they impose more supply constraints on loans to enterprises rather than to households compared to resource poor countries. He also show a clear example of the Dutch disease, the crowding out of non resource exports. In this study, the resource curse in financial development is mainly channeled through the Dutch disease effect on real exchange rate appreciation. This article thus marks an important reference for later work as it is the first attempt on this topic with such a broad analysis of the financial sector. Besides, we have depended on this analysis for a better understanding of the different financial indicators and their significance to address our research question.

A different approach focusing on China , Yuxiang and Chen (2011) used provincial panel data over the period 1996-2006 and applied a system GMM estimator. They found that mineral resource abundance is an important determinant of financial development relying on the our previously explained linkages (trade openness, rents, social capital and investment). In addition, financial development is a statistically significant variable for long run growth after controlling for the effect of investment. In a recent study by Kurronen (2012) on 133 countries after controlling for important determinants of financial development using pooled and fixed effect estimator ; it is found that the banking sector tends to be smaller in resource-dependent countries as well the threshold at which increased dependence would have an adverse effect on the financial sector. Moreover, a small financial sector that serves the resource sector solely, would undermine growth potential of business ventures for small and medium enterprises; hence low economic diversification (Lin, Sun & Jiang, 2009).

Barajas and Yousefi (2012) go beyond traditional empirical studies and examine heterogeneity in growth performance that could be related to a finance related resource curse through three dimension: on income level, on regional level and oil exports. Using a GMM dynamic panel methodology for 146 countries over the period 1975-2005, they find that positive gains financial deepening on growth exhibits heterogeneity, in which it is smaller in oil exporting countries especially in MENA. The region lacks ability to convert back deposits to credit to the private sector which is termed by the authors as 'quality gap'. The contribution of this paper which is related to our interest, is that it recognizes the sub-group differences within MENA. Their result suggest that non-GCC countries are the ones driving the negative and statistically significant interaction coefficient for the whole region; while for GCC countries it is insignificant. Hence, the evidence for a finance channel for the resource curse is stronger in non-GCC. In addition, within the non-GCC that are oil producers , they tend to do relatively well compared to an equally dependent oil country outside the region.

2.3 Theoretical Reflections

In this research, we study the effect of natural resources on the financial sector development in MENA and the extent to which institutional quality matters for relationship between financial development and natural resources. The theoretical framework for our purpose is the one provided by Beck (2011) , who provided the seminal work on our topic. In addition, we make use of the work by Barajas & Yousefi (2012) and Yuxiang & Chen (2011), however with the focus on the MENA region, and employ a quite different estimation strategy due to sample size constraints. In exploring if there is a resource curse in financial development in MENA , this paper builds on theoretical foundation and literature on the determinants of financial development relating to natural resources to determine if variables of financial development are indeed negatively affected.

Including other characteristics of the financial sector (i.e efficiency and stability) and their corresponding variables is motivated by the fact that banking depth (size) alone is not a sufficient indicator for a well functioning system. The expansion of the financial sector needs to be accompanied by financial efficiency and stability to ensure good management of resource revenues and efficient channeling to the real economy (Rocha et al.,2011).This intermediary function depends critically on the state of the financial system and is one of the region's challenges. Also as clearly explained by Ayadi, Arbak, Ben-Naceur & Pieter (2013) and Creane, Goyal,Mobarak & Sab (2004) that financial sector development is a multidimensional concept that involves other criteria like competitiveness, supervision, financial openness and institutional capacity just to mention a few and not only the standard monetary aggregates that matter. Thus, including more measures of financial development, as we do, gives a richer picture of the banking sector in MENA as little is known about bank efficiency and stability in the region. In addition, gaining more insights would prioritize policy measures of financial reform.

In considering resource dependence , we are guided by Isham et al. (2002) to use mineral and oil resource rents rather than other measures (like food exports as percentage of GDP) as they are the ones generally associated with the resource curse. Moreover, we consider a number of areas in which the literature has identified as potential links affecting financial development.

From the literature review section, some of the indirect effects of revenue windfall are high inflation, large public sector and inefficient investment. High inflation in resource rich countries reflects macroeconomic instability which weakens intermediaries' allocative and lending capacities and tend to have smaller and less liquid equity markets (Boyd, Levine & Smith 2001; Davis, Ossowski & Fedelino 2003). The political economy approach presented by Rajan and Zingales (2003) is considered as a framework under which rents would shape interest groups and elite incentives to weigh benefits of a better developed financial system and more access to credit. Thus we take into account all previous factors, as they represent some of the negative channels of transmission of natural resource dependence on the macroeconomy.

In regards to the second research question, several institutional variables have been used in the literature, however, the concept of institutions is a broad one. For financial development, there is interaction between the legal system that protects property and enforces law; the economic institution that sets rules of the market and allocation of resources; the political system and the social institution (Rachdi and Mensi, 2012) which shall be captured by the quality of government variable.

Therefore, our empirical model builds on theory and previous studies using a set of panel regressions that seeks to explore the impact of resource wealth on our indicators of financial depth, efficiency and stability in the first section. The second section attempts to examine the extent to which institutional quality matters for relationship between financial development and natural resources in MENA as shall be elaborated later.

3. Data and Method

3.1 Data Description and Sources

Based on our research questions outlined above, our data is classified into the three components which represent the three main elements in our study. The first component describes the variables we use for natural resource dependence and abundance. Secondly, we present our measures financial sector development with its different aspects; depth, efficiency and stability. Thirdly, we explain the variables that capture the institutions related to financial

development in resource rich countries. Data is gathered mainly from the World Bank development indicators (WDI) unless otherwise stated.

The time period covered is from 1980 to 2009, as much of the available data on our important dependent variables does not exist prior to 1980. To avoid capturing fluctuations of economic cycles, and due to irregular data availability over the whole period; the data is filtered into five year periods on average, with six sub- periods being 1980- 84, 1985-89, 1990-94, 1995-99, 2000-04 and 2005-09. By this manner, we avoid the sample domination stemming from countries with more observations. Moreover by focusing on these issues, we also avoid the oil price booms and the accompanying fluctuations on the macroeconomic level that took place mid 1970s. In addition, the beginning of this period marks major institutional change in the oil sector in the region. After 1973, controls were put on exploitation of international oil companies by transferring property rights to the host countries (Okugu,2003). Oil companies had to negotiate for royalties or concession to extract oil. This new transformation poses challenges for the governments on the economic and political fronts.

 The dataset of the study covers an unbalanced panel of 17countries from the Middle East and North Africa region namely; Algeria, Bahrain, Egypt, Iran, Israel, Jordan , Kuwait , Libya , Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, Turkey , United Arab Emirates and Yemen . Even though there are other countries in the region; they are excluded due to insufficient observations for the whole period on several important variables which limits the scope of country coverage of our investigation

3.1.1 Natural Resources Variables

We make the distinction between resource abundance and resource dependence measures as both terms could be used interchangeably in a wrong way. As explained by Brunnschweiler and Bulte(2008), a favorable effect of resource abundance exists for financial deepening, however the opposite effect takes place for resource dependence . The term resource dependence refers to the degree to which the economy relies on resource rents. Conventional measures in the literature include share of rents in government revenues, exports or gross

domestic product (GDP). It is a function of extraction costs and resource price. Resource abundance on the other hand, refers to endowment of subsoil wealth or deposits of minerals, oil and gas which are finite. It is dependent on the country's geology as well as the technology to map and identify locations more efficiently.

There are three alternative indicators that we shall use for resource dependence and one measure for resource abundance. Data is from the World Bank adjusted net savings dataset and the world development indicators unless otherwise stated.

- *Resource Dependence*

RENT: Natural resource rents, is the log of rents from natural resources to GDP ratio.. This measure is widely used in studies to capture the importance of resource revenues mainly from oil, natural gas, ores , precious metals and forest rents (Bhattacharyya and Hodler, 2010; Collier and Hoeffler, 2009; Ross, 2006). It is an exogenous indicator as it is unlikely that financial development affects resource rents , as the latter depends on other factors like world price and the stock of natural resources available (Kurronen, 2012). Hence, this variable would overcome the concern of endogeneity usually present in growth regressions.

FUELEXPORT: share of fuel exports in total merchandise export. This is a commonly used indicator of resource dependence (e.g. Nili and Rastad 2007). According to WDI dataset, this variable is comprised of (i) petroleum, petroleum products and related materials, (ii) coal, coke and briquettes; (iii) manufactured and natural gas. The share of fuel in exports will measure the extent to which an economy's competitiveness is dependent on the natural resource sector, and mainly on fuel.

OIlRENT: Oil Rents are calculated as the difference between the value of crude oil production at world prices and total costs of production. This is an exogenous variable as oil price is determined by the international market and the extracted quantity change in response to other economic or political changes.

Resource Abundance

OILRES: Crude oil reserves per 1000 individuals, measured in barrels. This is a proxy for oil wealth and is a preferred measure than oil reserve per capita to allow for comparability between countries of different population sizes. In addition, this variable is an exogenous indicator of resource abundance. Data is from International energy statistics

3.1.2 Financial Variables

Following previous literature , several indicators for financial development have been used. However some may be more important than others depending on the expected role of the financial system in resource rich countries and the specific aspect that we are interested in capturing (Denizer et al. 2002). Accordingly we have chosen the following variables that would serve answering the research question with specific focus on financial depth, efficiency and stability. Data is gathered from Financial Development and structure Dataset, 2013 by the World Bank. All values are in real terms.

- *Financial Depth Indicators* :

CRED: private credit to GDP, that is the extent to which commercial banks and other financial institutions excluding the central bank channel credit to private sector activities (firms and households) excluding public sector enterprises. The credit could be in the form of loans, purchases of non equity securities, trade credits and other accounts receivable. It is the most commonly used market based measure of depth describing the banking sector size as well as banking activity (Beck 2011; Levine et al. 2000; Nili & Rastad 2007). It is directly related to the question of interest regarding financial intermediation between savers and investors. Higher level of credit to GDP means more financial interaction with the private sector and more credit is available for productive projects.

M2: Ratio of money supply (M2) to GDP , also known as broad money or the monetization ratio. This indicator comprises the sum of currency outside banks, demand deposits, and the time, savings, and foreign currency deposits of resident sectors other than the central government (IMF). It incorporates the public sector which is found to be usually huge in size in resource rich countries. Even though this variable is not a direct measure of capital mobilization, it is a proxy for size of the financial market (Levine et al, 2000). A higher M2 ratio means further expansion in the financial sector relative to the rest of the economy.

LIQLIA: liquid liabilities of the financial system as percentage of GDP , consist of currency plus demand and interest bearing liabilities of banks and non banking financial intermediary.

It is the broadest measure of the overall size of the formal intermediary sector[14] which is assumed to be positively correlated with more exchange activities (King and Levine, 1993). However, this measure does not distinguish between the use of liabilities.

- *Financial Efficiency* :

LDEPOSIT: This is the loan-deposit ratio which measures the ratio of total bank claims outstanding on domestic nonfinancial sector to total bank deposits. This captures intermediary efficiency in the banking sector and its short term viability. A higher ratio indicates less liquidity.

Spread: Net interest Spread is the difference between lending rate charged on loans to private sector and deposit rate offered by commercial banks. It measures the efficiency at which intermediary institutions channel funds from savers to investors and not a direct measure of profitability. This variable is available for only the period starting 1998

- *Financial Stability*:

Zscore : it is calculated as the sum of return on asset and equity to asset ratio , divided by the standard deviation of return on asset, and thus a higher value indicates a more stable banking system and lower probability of insolvency. Unfortunately, this variable is only available for the years 1998-2009.

It is noteworthy that even though each of the indicators used has shortcomings which are discussed in the literature, we used this range of indicators to provide a richer picture of financial development than would be the case if we used only one indicator and thus more in-depth analysis.

3.1.3 Institutions Variables

In order to address our second research question concerned with testing if the effect of natural resource dependence on financial development differs in the presence of higher quality of government institutions; we use the quality of government variable (*QOG)* of the international country risk guide (ICRG) as a proxy for capturing the institutional quality.

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[14] The formal intermediary sector consists of 3 institutions; the central bank, deposit money banks and other financial institutions

This variable is the mean value of the ICRG variables: corruption, Law and order and bureaucracy with a scale between 0 and 1. Values closer to 1 indicate a better governmental quality. The constituent component of corruption is an assessment of corruption within the political system which threatens investment. The Law and order sub-component is an assessment of the strength and impartiality of the legal system and the popular observance of the law. Bureaucracy quality sub-component evaluates the strength and expertise of the bureaucracy to govern without drastic changes in policy or interruptions in government services (The QOG standard dataset codebook, 2011). The institutional environment determines the quality and range of financial services. As pointed by Creane at al. (2004) depending on the judicial system, government bureaucracy/accountability, and political institutions; financial institutions would be unwilling to broaden their activities and offer loans

We use other control variables that are determinant for financial development as: average years of total schooling for people aged 15 and over which is a proxy for the level of human capital (Gylfason, 2001). We use the stock data from Barro and Lee Educational Attainment Dataset. Real trade openness which is the sum of exports and imports as a share of GDP , inflation of the consumer price Index $(2005 = 100)$[15] as a measure of macroeconomic volatility (Boyd et al, 2001) as resource rich countries tend to have higher inflation and it also affects financial aggregates (Sachs & Warner, 2001; Shan, Morris, & Sun, 2001), foreign direct investment as a percentage of GDP and Real GDP per capita measured in PPP with constant 2005 US dollars, are from the Penn World Tables version 7.1. The last two variables are used to account for the fact that financial development are likely to be more developed in higher income countries in the region. Government size measured by the share of government spending in GDP proxies fiscal resources under government's control that could be potentially captured by interest groups (Rosa, 2012). Data is collected from the WDI.

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[15] This is obtained by the logarithmic transformation of the annual percentage change in CPI plus 1 (i.e ln (1+ % Δ CPI) for smoothing the series and to dampen the effect of outliers

3.2 Stylized Facts and Data Inspection

This section is a preliminary exploration of our dataset , in which we discuss main highlights of the variables in the region as well as point out to some heterogeneous characteristics within MENA. This will become apparent in later stage of the analysis.

Table (1A) in the appendix reports summary statistics (mean, standard deviation, minimum and maximum) for the major variables used for the full sample of countries in MENA. The average natural resource rents is about 22.7% of GDP with a minimum of 0.007% for Israel in 1995-2000 and a maximum of 61.1% for Libya in 2005-2009. Fuel Exports as a percentage of merchandise exports has an average of 50% among countries across time, with a minimum of 0.004% in Jordan in1990-95 and maximum of 99% in Libya in 1980-1985 showing a high degree of dependency on that sector. Regarding financial development indicators, mean private creditor by financial institutions is about 40% with the lowest recorded is 4% for Algeria in 1995-2000 and highest for Israel in 2005-2009 with 90.3%.

From this quick overview of the data, we recognize the degree of heterogeneity within MENA and thus explore the two subgroups within MENA; countries in the Gulf cooperation council (GCC) and Arab Mediterranean Countries (hereafter AM). The former group includes six countries : Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates with the summary statistics in table (2A) and the later group includes the rest of the sample, with the statistics in table (3A). Moreover, we would suspect that GCC countries to exhibit quite different characteristics from the rest of the region for two reasons for reasons: 1) they are significant oil and mineral exporters due to their reserves and 2) They are classified by the World Bank as high income countries , while the rest of MENA is considered to be a lower middle income. The disparity of income level can be an important factor in dealing with resource wealth.

As postulated, the GCC countries possess quite different characteristics than the Arab Mediterranean countries; the mean natural resource rent is about 38.2% of GDP in GCC compared to just 13.7% for AM, fuel exports are 68.2% of merchandise exports compared to 39.9% in AM. Large endowment of oil and minerals is reflected in the crude oil reserves in GCC about five times higher than AM. For financial sector indicators, we can see that, GCC are performing poorly compared to the other group except on banks private credit. Private credit amounts to 50% percent of GDP in the GCC average, reflecting higher per capita

incomes and less domestic financing of government deficit. The Arab Mediterranean average is lower, at 36 percent of GDP, reflecting lower incomes and a larger volume of public sector financing. The average of loan to deposit ratio in GCC is relatively higher compared to non GCC (47.5% versus 44.5%) reflecting credit growth through external borrowing.

On the institutional aspect, there is no large difference in the quality of government. The GCC enjoys a higher level of GDP per capita on average compared to AM , which could be linked with their higher natural resource rents, and especially from oil.

It is worth noting the graphical representation of the correlation relationships of Table (1A) in the Appendix. The panels in figure (3A) to figure (5A) show the negative correlation between natural resource variables and our chosen measures of financial development except the panel in figure 3 which shows positive association between oil reserves per 1000 and private credit. This brief description of the data highlights some differences in the macroeconomic environment between GCC and AM countries. In order to provide more reliable indications of natural resource effects, we try to address the heterogeneity in the data estimating the model including dummy for GCC countries and two interaction terms, one with the rents and the other with quality of government variable. The estimation results for this sub-group is in the last section.

3.3 Financial Development and Natural Resources: Panel Estimation Procedure

3.3.1 Motivation

Some of the studies concerned with the growth - financial development relationship have resorted to cross sectional estimation techniques (see Beck,2011). However, we shall depend in this paper on estimation using panel data to overcome some shortcomings of the cross section data. The panel data takes into account how natural resource dependence/abundance may have an effect on a country's financial development over time. In addition, adding time-series dimension of the data enhances the variability of the data and adds more degrees of freedom. Previous research that depended on cross section data does not capture countries' unobserved time invariant beside ignoring heterogeneity of the sample. The cross section specification explicitly assumes identical production function and technology level across

countries. Thus a cross section regression suffers from omitted variable bias. The panel data set allows us to take into account the specific features of each country in the sample (such as cultural or political factors) that are not included in the analysis but may be correlated with the independent variable. This otherwise creates a problem of omitted variables and result in inconsistent estimators.

3.3.2 Methodology

As discussed in previous sections, existing studies provide the theoretical motivation for our research. Despite differences in mechanism that each empirical work has relied on , the sample size, time period and econometric technique employed; there is general consensus that natural resource dependence has an adverse effect on financial sector development in mineral and oil rich countries while effect of abundance is not as severe. A test of this prediction for MENA can be accomplished using the basic multivariate empirical framework in the form:

$$\ln{(fin)}_{it} = \alpha + \beta_1 \ln{(NR)}_{it} + \beta_j \ln{x_{it}} + \varepsilon_{it} \quad (1)$$

Such that fin are the dependent variables of the financial development indicators for which we shall test successively, i is the sub index for country such that $i=$ 1, 2, ….17 , t is sub-index for time period where $t=$ 1, 2,…..6 as we use period averages. NR stands for the natural resource variables that we test their effect alternatively on the financial sector indicators. The parameter estimate β_1 reflects the marginal effect that country-specific natural resource variable has on country-specific aspect of financial development depending on the variable used. x_j is a vector of control variables that represent the channels of transmission and are critical determinants to financial development as per capita GDP , schooling , investment, government size, inflation and trade openness, ε_{it} is the error term and is independent and identically distributed over i and t . All variables are in logarithmic form for smoothing the series and for interpreting coefficients as elasticities.

To address our research question, our main interest is in the magnitude, sign and significance of the coefficient on the different natural resource variables. Two methods have been used to present econometric estimation for this coefficient. *First*, a pooled OLS regression is

estimated using standard OLS method on equation (1) as it is the simplest approach and is a starting point for our analysis . The pooled OLS is considered as a restrictive model because it implicitly assumes that the coefficients and the intercept are the same for all countries[16]. Equation (1) is estimated by fitting a linear regression to the full dataset, ignoring information about how observations are grouped into units.

Estimating equation (1) can result in biased and inconsistent estimators due to presence of unobserved heterogeneities, possible endogeneity and measurement error not accounted for in the pooled OLS (Wooldridge, 2002). Hence, a solution to deal with this issue , is to remove the unobserved fixed effect in the error term using the fixed effect transformation (FE), which is our *second* estimation strategy. The baseline fixed effect model is in the form:

$$ln\ (fin\ )_{it} = \alpha + \beta_1\ ln(\ NR)_{it} + \beta_j\ ln\ (x)_{it} + \mu_i + \varepsilon_{it} \qquad (2)$$

The composite error term $\mu_i + \varepsilon_{it}$ includes an unobserved country fixed effect μ_i and a time-varying component ε_{it} . The unobserved time invariant individual effects would be captured indirectly by equation (2). The variant of this equation from equation(1) is the individual term effect μ_i which accomodates heterogeneity as it varies across countries but not over time. By taking the average of equation (2) over time for each country, we get:

$$\ln\ (\ \overline{fin})_i = \beta_i + \beta_1\ ln(\overline{NR})_i + \beta_j\ ln\ (\bar{x})_i + \bar{\varepsilon}_i \qquad (3)$$

Subtracting this mean from equation (2) yields the within model:

$$\ln\ (\ fin_{it} - \overline{fin}_i\ ) = \beta_1\ ln(\ NR_{it} - \overline{NR}_i\ ) + \beta_j\ ln\ (\ x_{it} - \bar{x}_i\ ) + (\ \varepsilon_{it} - \bar{\varepsilon}_i\ ) \qquad (4)$$

The within estimator provides a consistent estimate of the fixed effect model as it performs OLS on the mean differenced data using the variation over time as derived in equation (4). The individual effects might capture properties of the political and economic systems that we have not included as regressors in our analysis but could be highly correlated to some of our

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[16] Note the absence of subscript i for the intercept , denoting that it is the intercept does not vary among countries

important variables like GDP per capita, openness and investment. The latter method is an improvement over pooled OLS: it eliminates country specific effects that could have an effect on the differences in the level of financial development between countries and thus decreased bias. Such approach is important in the context of our research as we highlighted in our stylized facts section. GCC are expected to show different effects due to the high endowment of oil and minerals as well as their dependency compared to the other group of countries.The magnitude of the effect of natural resources on financial development could be different resting on the level of resource endowment and the extent of dependence.

Because of the time series dimension of the data, we conduct a wooldridge (2002) test for serial correlation between the the individual effects and the regressors over time. Baltagi (2001) states that if correlation exists, then it will bias the standard errors and cause the estimators to be less efficient, thus it must be corrected or controlled for. Since the null hypothesis of no correlation for all model specification is not rejected, we correct it as well as control for heteroskedasticity using robust cluster standard error to for valid statistical inference following (Arellano,1987)

It should be noted that our methodology is not without drawbacks. Empirical research that relies on regional experience is often constrained by the quality and quantity of data available for the restricted number of countries in the sample as is the case in our research[17]. A small sample size minimizes the prospects for reliable generalization of a causal relationship between variables, and thus parameter estimates are imprecise. One source of imprecision is when some of the explanatory variables are either measured at infrequent intervals, or the variable show small year to year variation relative to changes in the dependent variable. The latter case is apparent in our dataset for three of our regressors: Schooling, oil reserves and quality of government variable. If the correlation between these variables and the individual effects is high, this can distort the effect of the independent variables and thus bias the estimates (Durlauf et al., 2005).

Another potential source of imprecision is the measurement error in variables which is compounded by the within groups transformation to eliminate the individual effects (Swaffield,2001). A particular concern is raised for the natural resource abundance variable; oil

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[17] We had to exclude two countries from the initial analysis : Iraq and Lebanon, due to insufficient number of observations.

reserves per 1000 is an estimated volume of oil in the ground. Despite new technology, advanced geologic and engineering techniques to measure the size and recoverability of the resource, uncertainties still remain on how accurate this variable is. In addition, the data disclosed by government could be adjusted for economic or political reasons.

The use of fixed effect estimation is less biased than the pooled OLS regression as we eliminate the unobserved time invariant characteristics. The reduction in bias typically comes at the expense of higher standard errors (Wooldridge,2001). Moreover, sample size limited our ability to apply a more sophisticated method that would address problem of endogeneity and time changing omitted variables simultaneously such as the GMM technique. Thus we resort to use within country variation of the fixed effect model.

4. Results and Discussion :

This section consists of two section, such that the first one presents the results of the pooled OLS regression followed by brief discussion. The second section is the fixed effect model estimation results.

4.1. Pooled OLS Regressions :

The effect of resource dependence on the three indicators of financial depth in MENA is shown in table (1.1). Each of the columns (a - c) uses a different measure of resource dependence and the only measure of resource abundance (Oil Reserves) is in column (d). It should be noted that these coefficients are based on averages of countries and provide a preliminary link between natural resources and financial development for the unbalanced panel.

Table 1.1: Pooled OLS Estimates: Financial Depth

Explanatory Variables	Private Credit				M2				Liquid Liability			
	(1a)	(1b)	(1c)	(1d)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(3c)	(3d)
Inflation	-0.215***	-0.221**	-0.180**	-0.200**	-0.00349	-0.00723	0.0193	0.0106	-0.0738*	-0.0806**	-0.0525	-0.0650*
	(0.0808)	(0.0846)	(0.0819)	(0.0829)	(0.0344)	(0.0355)	(0.0327)	(0.0346)	(0.0377)	(0.0379)	(0.0367)	(0.0379)
Real GDP	0.372***	0.346***	0.399***	0.399***	-0.0284	-0.0476	-0.00720	-0.00826	-0.0372	-0.0600	-0.0173	-0.0222
	(0.114)	(0.120)	(0.115)	(0.119)	(0.0474)	(0.0488)	(0.0452)	(0.0487)	(0.0517)	(0.0521)	(0.0500)	(0.0529)
Gov Exp	1.564**	1.680**	1.692**	2.122***	0.837***	0.895***	0.783***	1.105***	1.050***	1.062***	1.016***	1.329***
	(0.676)	(0.681)	(0.664)	(0.637)	(0.300)	(0.294)	(0.279)	(0.279)	(0.323)	(0.309)	(0.305)	(0.296)
Investment	0.344*	0.327*	0.318*	0.386**	-0.235***	-0.267***	-0.260***	-0.222***	-0.116	-0.173**	-0.135*	-0.0926
	(0.177)	(0.196)	(0.181)	(0.182)	(0.0713)	(0.0771)	(0.0686)	(0.0722)	(0.0793)	(0.0838)	(0.0775)	(0.0796)
Openess	0.136	0.00772	0.196	0.0467	0.615***	0.559***	0.681***	0.579***	0.494***	0.474***	0.569***	0.481***
	(0.224)	(0.219)	(0.228)	(0.218)	(0.0967)	(0.0937)	(0.0924)	(0.0933)	(0.106)	(0.0993)	(0.103)	(0.101)
Schooling	0.0614	0.200	0.0397	0.200	0.0782	0.164	0.0155	0.137	0.0631	0.139	-0.00440	0.106
	(0.276)	(0.265)	(0.269)	(0.259)	(0.110)	(0.102)	(0.101)	(0.0995)	(0.119)	(0.106)	(0.110)	(0.107)
Rents	-0.0787*				-0.0450**				-0.0301			
	(0.0449)				(0.0202)				(0.0217)			
Fuel Exports		-0.0502				-0.0276*				-0.0178		
		(0.0344)				(0.0149)				(0.0157)		
Oil Rents			-0.0521**				-0.0415***				-0.0318***	
			(0.0259)				(0.0109)				(0.0120)	
Oil Reserves				-0.0201				-0.0180*				-0.00818
				(0.0214)				(0.00950)				(0.0101)
Constant	-8.296**	-8.235**	-9.432***	-10.98***	-1.473	-1.378	-1.602	-2.732*	-2.163	-1.877	-2.400	-3.628**
	(3.549)	(3.800)	(3.501)	(3.545)	(1.565)	(1.626)	(1.464)	(1.540)	(1.680)	(1.706)	(1.591)	(1.634)
Observations	79	75	78	78	91	87	90	90	86	82	85	85
Adj. R-squared	0.4096	0.3959	0.4194	0.3936	0.5215	0.5233	0.5742	0.5203	0.4967	0.5173	0.5406	0.5029

Standard errors in parentheses , *** Statistically significant at 1% , ** statistically significant at 5%, * statistically significant at 10 %

Natural resource variables in general have a negative effect on measures of financial depth , however, not always statistically significant. Holding all factors constant, an increase of one percent in natural resource rents of GDP would lower banks credit to the private sector by 0.079% while oil rents in specific would affect it by -0.052% with significance level of 10% and 5% respectively. Although fuel exports have a negative effect on private credit expansion, it is statistically insignificant. Resource rents and fuel exports have a weaker effect on M2 and Liquid liability than on private credit. Oil rents are highly statistically significant for all three measures , with stronger impact on private credit. This results is in line with findings of previous studies that find adverse impact of mineral and oil rent on financial deepening (Beck 2011; Kurronen 2012).

Resource abundance, proxied by oil reserves per 1000 has a very small negative effect. An increase in oil reserves by 1% , would decrease the monetization ratio by 0.018% with a significance level of 10%. In agreement with Barajas et al. (2012), large endowment in oil as

well as dependence on its rents would lead to expected shrinking in the size of the financial sector in MENA relative to the rest of the economy; yet our result is much lower..

Regarding the other determinants of financial sector depth, they are mostly as expected and in line with previous studies. Inflation generally has the hypothesized negative sign on all dependent variables with very negligible and statistically insignificant effect on M2. Financial institutions would lend less and allocate capital less effectively to the private sector, an expected drop between 0.18% and 0.22 percent in private credit.

Government dependence on resource rents, which is a safe asset and a major source of spending does not crowd out private credit; as intermediary institutions take more risk and increase their lending to the private sector as shown in columns (1a-1d) . This is contrary with previous finding of Emran and Farazi (2009) who find that a $1.00 more borrowing by government reduces private credit by about $1.40 on a panel of 60 developing countries.

Investment is positive and statistically significant for private credit but negative for the other variables. More investments spur more demand for external finance from intermediaries which would enhance the activity of the financial sector between the range 0.318% and 0.386% but at the same time shrinking its size. We thus infer from this that financial activity is most likely concentrated among few institutions that are large in size. Trade openness has a statistical significance and large economic impact on M2 and liquid liability but statistically insignificant and smaller one on private credit expansion. This result is in accordance with previous studies in the more open economies for trade and capital flows are more financially developed than closed ones (see Rajan and Zingales , 2003; Baltagi et al. , 2009). Consequently, higher human capital is a favorable determinant for a deeper financial sector , yet it loses significance for all the variables.

Overall, we see from this analysis that resource dependence has a stronger impact of financial depth compared to resource abundance. However, the magnitude and significance of the coefficient varies across variables. Oil rents are consistently significant, while fuel exports are insignificant except for M2. Private credit and M2 are the most affected by resource wealth compare to liquid liability.

Exploring the impact of natural resource dependence and abundance on the other two characteristics of the financial sector (efficiency and stability) would give a more elaborate

picture. We show the results of the regressions in Table (1.2) where both variables of Loan – deposit ratio and spread are measures of intermediary efficiency, while Z-score is a measure of stability.

Table 1.2 : Pooled OLS Estimate: Financial efficiency and Stability

Explanatory Variables	Loan- Deposit Ratio				Spread				Z-Score			
	(1a)	(1b)	(1c)	(1d)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(3c)	(3d)
Inflation	-0.0375	0.0135	-0.00411	-0.0299	0.386***	0.400***	0.421***	0.378***	-0.0301	-0.00580	-0.00551	-0.0364
	(0.0569)	(0.0535)	(0.0536)	(0.0553)	(0.119)	(0.119)	(0.115)	(0.115)	(0.176)	(0.167)	(0.173)	(0.174)
Real GDP	-0.0204	0.0519	0.0686	0.0108	-0.165	-0.159	-0.115	-0.170	0.109	0.0893	0.152	0.0628
	(0.0839)	(0.0779)	(0.0801)	(0.0810)	(0.160)	(0.158)	(0.155)	(0.154)	(0.222)	(0.211)	(0.227)	(0.218)
Gov Exp	0.722	0.599	0.855**	0.640	-0.173	-0.254	-0.604	-0.742	0.0735	-1.080	-0.224	-0.503
	(0.453)	(0.434)	(0.413)	(0.463)	(0.943)	(0.939)	(0.871)	(0.945)	(1.395)	(1.326)	(1.271)	(1.395)
Investment	-0.245*	-0.252**	-0.218*	-0.209*	0.0118	-0.0300	-0.163	-0.0683	0.338	-0.0318	0.108	0.140
	(0.128)	(0.115)	(0.115)	(0.118)	(0.239)	(0.240)	(0.239)	(0.229)	(0.432)	(0.398)	(0.408)	(0.399)
Openess	0.539***	0.753***	0.596***	0.644***	0.235	0.383	0.325	0.486	0.961*	1.335**	0.944*	1.300**
	(0.144)	(0.146)	(0.139)	(0.150)	(0.374)	(0.387)	(0.358)	(0.379)	(0.570)	(0.555)	(0.544)	(0.608)
Schooling	0.327*	0.113	0.222	0.206	0.872**	0.836**	0.783**	0.655*	-0.454	-0.742	-0.444	-0.566
	(0.166)	(0.167)	(0.158)	(0.179)	(0.354)	(0.361)	(0.332)	(0.367)	(0.605)	(0.558)	(0.549)	(0.594)
Fuel Exports	-0.0408*				-0.0435				-0.0729			
	(0.0227)				(0.0498)				(0.0946)			
Oil Rents		-0.0571***				-0.0354				-0.113**		
		(0.0166)				(0.0367)				(0.0543)		
Oil Reserves			-0.0421***				-0.0714**				-0.0667	
			(0.0137)				(0.0331)				(0.0543)	
Rents				-0.0659**				-0.120*				-0.125
				(0.0301)				(0.0649)				(0.102)
Constant	-1.355	-2.124	-2.497	-1.614	0.563	0.314	3.183	2.886	-2.772	2.567	-0.326	-0.307
	(2.558)	(2.276)	(2.298)	(2.427)	(5.417)	(5.030)	(4.982)	(5.125)	(7.792)	(7.142)	(7.432)	(7.432)
Observations	73	76	76	77	63	64	64	64	46	47	47	47
Adj. R-squared	0.4222	0.491	0.476	0.4281	0.23	0.2333	0.2802	0.347	0.0405	0.1115	0.0501	0.0503

Standard errors in parentheses, *** Statistically Significant at 1%, ** Statistically significant at 5%, * Statistically significant at 10%

Regarding intermediary efficiency, resource dependence (fuel exports , oil rents and rents in column 1a, 1b and 1d respectively) has a negative and statistically significant effect on loan-deposit ratio. The biggest impact from resource rents is that a 1% increase in rents share of GDP would decrease loan-deposit ratio by 0.066% with significance level 5%. A very high ratio is interpreted as a liquidity risk for banks to meet depositors' claims, while a low ratio indicates excess liquidity and a stagnant financial activity which eventually leads to low profits. Again, resource rents is the major driving variable among resource dependence variables with considerably large and negative effect on net interest spread; a 1% increase in rents would lower the spread by 0.120%. In addition, resource abundance has a similar but a weaker effect on efficiency. Concerning financial sector stability, from column (3a - 3d) , the

only significant variable is oil rents as shown in column (3b), in which more oil rents as share of GDP is likely to affect bank soundness and solvency position. The number of observations for this variable is quite small as it is available only since 1998.Hence, there is a lower goodness of fit of the model compared to other model specifications.

From the above, we can conclude that in accordance with the literature ; we find that oil rich countries and which are also dependent on rents in MENA have a less developed financial sector. This is measured with regards to the size of its activity and efficiency in intermediating credit from savers to investors and its stability. Banks stability are to a lesser extent linked to resource dependnce due to a weak effect.

4.2 Fixed Effect Regressions :

To eliminate the unobserved heterogeneity bias as explained in detail earlier, we run an OLS on the within model of equation (4). Tables (2.1) and (2.2) show the estimation results of the fixed effect model in the same sequence of the previous sub-section. Regarding financial depth which is in table (2.1), our variables of interest for resource dependence in columns (a, b, c) have the most statistical significant impact on private credit compared to M2 and liquid liability. Both natural resource rents and oil rents as a percentage of GDP are the leading variables among natural resource indicators with higher values of coefficients as well as their standard errors compared to the pooled OLS estimates. So much so that an increase of one percent in share of rents is associated with a decrease in private credit, M2 by 0.144% and 0.076% respectively. The effect of oil rents is more pronounced on three indicators, reflected in the drop by 0.23%, 0.077% and 0.078% in private credit, M2 and liquid liability respectively for an increase in oil rents share of GDP by 1%.

Fuel exports are not statistically significant on any of the financial depth variables , and hence it can be argued that there is a weak link between financial development and the structure of the export concentration in the resource sector. This finding is contrary to Kurronen (2012) ,where the share of fuel exports exceeds 5.8% as the threshold, private credit is affected by -0.06% for every percentage change in fuel exports, while the effect on M2 is negligible.

Resource abundance is negatively and highly statistically significant for private credit and M2, such that more endowment in oil reserves is associated with lower level of credit to

private sector and smaller size of the financial sector. This can be interpreted as the oil wealth (although still in the ground) is a disincentive to engage in the non resource sector due to the guaranteed source of income (in the form of rents) which creates low demand for external finance from commercial banks. Both the size and activity of the financial sector is adversely affected by natural resource dependence and abundance. Our estimate is close to the results found in Chinese provinces by Yuxiang and Chen (2011). Control variables are still consistent with expectation in terms of sign but not necessarily in terms of significance, for instance real GDP per capita and investment lost their significance while trade openness and education gained more importance. Trade openness creates opportunities to be engaged in the non resource sector and thus encourages entrepreneurship which result in the expansion of the size of the financial sector and more credit to the private sector. A well educated population seems to prefer to hold their wealth in the form of financial assets rather than physical assets due to more access to information. More savings are likely to stimulate the credit creation ability of banks and more transactions.

The effect of resource dependence and abundance on the other characteristics of financial sector efficiency and stability is shown in Table (2.2) with the estimation results. Natural resource dependence variables are more negatively significant for loan-deposit ratio and spread but insignificant for Z-score. The biggest impact is from natural resource rents and oil rents on banks' spread rate as shown in columns (2a, 2c), as a 1% increase in rents share in GDP is correlated with a drop in banks' spread by -0.716% with significance level of 1%.

Countries with higher resource rents especially oil rents would tend to have financial institutions whose net interest spread are low, and thus less efficient in intermediating funds between savers and investors. Again, fuel exports are insignificant for all the variables of efficiency and stability confirming the weak link between competitiveness of the trade sector and financial sector efficiency and stability.

Contrary to the result of the pooled OLS regression, resource abundance (i.e oil reserves per 1000) have a negligible effect on all financial variables in this model specification, which points to a weak channel between resource endowment and banks efficiency and stability.

Interestingly, stability of the intermediary sector proxied by Z-score in columns (3a-3d) is not affected by neither natural resource dependence nor abundance, and very weakly affected by the other variables in the model. This can be explained by government banking regulations

and supervision closely linked to stability and the effective reform approach recommended by IMF which was followed by some countries in the 1990s to build market institutions , improve investment climate and develop the financial sector to improve economic efficiency and tackle youth unemployment, which is one of the important challenges of the region. Besides, the soundness and stability of the financial system is important to face any economic downturn associated with a financial bottleneck or crisis.

Turning to the effect of other macroeconomic variables, inflation has an adverse effect on loan- deposit ratio which is significant at 1% , this is in accordance with previous literature (e.g. see Denize et al, 2000). The effect of fluctuations in the business-cycle accompanied by unanticipated inflation would increase asymmetry of information and change pricing of loans and deposits. The slow adjustment of monetary aggregates and response of banking sector to adjust interest rates creates a possibility for costs to exceed bank revenues, hence unfavorable impact on banks efficiency and profitability (Ben Naceur and Omran, 2008). Inflation shocks seem to be passed through the deposit rates and jeopardizing solvency, as shown in columns (1a-1d) and (3a-3d) with a high significance level. Real output on the other hand, does not appear to influence banks loan-deposit ratio, but has very high and significant impact on bank efficiency, reflected in a decrease in spread by 2.576% as real output increases by one percent. Government size has no effect on any of our efficiency and stability measures.

To summarize , using the Fixed Effect model, the results show that resource dependence variables has a dampening effect on financial depth except fuel exports which are insignificant. Oil rents in particular, are highly significant for all three depth measures , with stronger impact on private credit. Resource abundance is thus associated with lower level of credit to private sector and smaller size of the financial sector.

Regarding efficiency and stability, natural resource rents and oil rents are more negatively significant for loan-deposit ratio and spread but insignificant for Z-score. While fuel exports do not seem to have any effect on any of the dependent variables.

Table (2.1) : Fixed Effect Estimates : Financial Depth

Explanatory Variable	Private Credit				M2				Liquid Liquidity			
	(1a)	(1b)	(1c)	(1d)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(3c)	(3d)
Inflation	-0.1064**	-0.0735*	-0.1523**	-0.1292**	-0.0300	-0.0245	-0.00683	-0.0260	-0.0765**	-0.0641*	-0.0491	-0.0719**
	(0.0502)	(0.036)	(0.0655)	(0.0495)	(0.0245)	(0.0224)	(0.0294)	(0.0266)	(0.0329)	(0.0314)	(0.0342)	(0.0328)
Real GDP	1.094	1.099	1.230	1.235	0.0481	0.0358	0.116	0.146	0.156	0.192	0.226	0.260
	(0.707)	(0.679)	(0.712)	(0.776)	(0.238)	(0.225)	(0.235)	(0.247)	(0.292)	(0.287)	(0.269)	(0.280)
Gov Exp	0.0158	0.219	0.0501	0.162	0.839***	0.851***	0.804***	0.921***	0.553**	0.569**	0.520	0.677**
	(0.774)	(0.648)	(0.772)	(0.837)	(0.248)	(0.258)	(0.258)	(0.250)	(0.257)	(0.261)	(0.306)	(0.253)
Investment	0.402	0.323	0.107	0.336	0.0430	0.0266	0.0282	0.0269	-0.0665	-0.114	-0.0832	-0.0919
	(0.260)	(0.197)	(0.243)	(0.274)	(0.0974)	(0.0791)	(0.0977)	(0.102)	(0.130)	(0.118)	(0.126)	(0.132)
Openess	0.8354**	0.448	0.766**	0.466	0.327**	0.303**	0.373***	0.363**	0.396**	0.382**	0.447***	0.430***
	(0.375)	(0.403)	(0.381)	(0.403)	(0.132)	(0.131)	(0.110)	(0.126)	(0.138)	(0.142)	(0.112)	(0.129)
school	0.621**	0.523**	0.732**	0.744**	0.186	0.287	0.434**	0.377*	0.389	0.0433	0.172	0.064
	(0.251)	(0.235)	(0.272)	(0.23)	(0.219)	(0.234)	(0.195)	(0.213)	(0.245)	(0.275)	(0.205)	(0.220)
Rents	-0.144**				-0.076**				-0.0243			
	(0.0677)				(0.0348)				(0.0323)			
Fuel Exp		0.0145				-0.0127				-0.0134		
		(0.0582)				(0.0168)				(0.0175)		
Oil Rents			-0.231***				-0.0774*				-0.0725*	
			(0.0878)				(0.0438)				(0.0410)	
Oil Reserves				-0.1995***				-0.056**				-0.0782
				(0.0500)				(0.0265)				(0.0338)
Constant	-5.924	-5.122	-6.644	-7.547	-2.019	-1.977	-2.434	-3.463	-1.188	-1.557	-1.649	-3.219
	(7.277)	(7.472)	(7.536)	(8.555)	(2.499)	(2.408)	(2.602)	(2.745)	(2.522)	(2.540)	(2.562)	(2.801)
Observations	79	75	78	78	91	87	90	90	86	82	85	85
R-squared	0.179	0.189	0.242	0.207	0.343	0.383	0.417	0.391	0.345	0.381	0.429	0.404
Number of Countries	17	17	17	17	17	17	17	17	17	17	17	17

Robust standard errors in parentheses, *** Statistically significant at 1% , ** Statistically significant at 5%, * Statistically significant at 10%

Table (2.2) : Fixed Effect Estimates: Financial Efficiency and Stability

Explanantory variable	Loan Deposit Ratio				Spread				Z-score			
	(1a)	(1b)	(1c)	(1d)	(2a)	(2b)	(2c)	(2d)	(3a)	(3b)	(3c)	(3d)
Inflation	-0.0855***	-0.0871***	-0.0667***	-0.0712***	0.407	0.406	0.339*	0.389	-0.538**	-0.549**	-0.593**	-0.122
	(0.0191)	(0.0175)	(0.0197)	(0.0184)	(0.235)	(0.242)	(0.168)	(0.225)	(0.254)	(0.258)	(0.246)	(0.259)
Real GDP	0.0347	-0.0237	0.189	0.198	-2.576**	-2.590**	-2.317**	-2.539**	0.741	-0.298	0.324	0.645
	(0.296)	(0.258)	(0.275)	(0.284)	(1.052)	(0.974)	(1.034)	(1.000)	(1.340)	(0.768)	(1.182)	(0.910)
Gov Exp	0.284	0.273	0.332	0.381	0.412	0.432	0.741	0.368	0.257	0.556	-0.129	0.288
	(0.295)	(0.314)	(0.315)	(0.294)	(1.013)	(1.038)	(1.078)	(0.992)	(0.804)	(0.807)	(0.688)	(0.801)
Investment	0.221**	0.197**	0.215**	0.069	0.471	0.496	0.424	0.519	0.340	0.909	0.708	0.426
	(0.0978)	(0.0872)	(0.101)	(0.105)	(0.297)	(0.309)	(0.338)	(0.335)	(0.516)	(0.565)	(0.709)	(0.536)
openess	0.503***	0.455***	0.539***	0.533***	0.106	0.142	0.101	0.116	0.719	0.763	1.112	0.591
	(0.125)	(0.110)	(0.124)	(0.124)	(0.967)	(0.831)	(0.883)	(0.847)	(1.048)	(0.912)	(1.138)	(0.819)
school	0.452*	0.522*	0.324	0.336	3.801**	3.863**	3.814**	3.871**	0.241	0.515	0.907	0.231
	(0.242)	(0.259)	(0.214)	(0.227)	(1.402)	(1.410)	(1.391)	(1.441)	(0.722)	(0.630)	(0.832)	(0.603)
Rents	-0.088***				-0.716***				-0.0573			
	(0.0198)				(0.144)				(0.149)			
Fuel Exp		-0.00267				-0.0298				0.167		
		(0.0109)				(0.0633)				(0.140)		
Oil Rents			-0.042*				-0.528*				-0.672	
			(0.0232)				(0.294)				(0.632)	
Oil Reserves				-0.0157				-0.212				-0.100
				(0.0405)				(0.146)				(0.243)
Constant	-0.752	-0.0850	-2.200	-2.842	14.67*	14.71*	10.81*	16.16*	-9.588	-4.384	-7.554	-7.253
	(2.772)	(2.612)	(2.786)	(2.924)	(8.257)	(7.302)	(5.651)	(8.446)	(12.82)	(7.246)	(10.46)	(9.731)
Observations	77	73	76	76	64	63	64	64	47	46	47	47
R-squared	0.569	0.609	0.593	0.594	0.393	0.393	0.410	0.406	0.159	0.199	0.213	0.158
Number of Countries	15	15	15	15	15	15	15	15	16	16	16	16

Robust standard errors in parentheses, *** Statistically significant at 1%, ** Statistically significant at 5%, * Statistically significant at 10%

4.3 Natural Resources and Institutions : Do They Matter ?

Economic and political institutions shape the incentives of key economic actors (i.e private sector and multinational enterprises). In particular, they influence investments in physical and human capital, the organization of production and efficiency of allocation of resources. Institutions have been emphasized in the literature as the main cause of differences in economic development and growth (Acemoglu, 2005), as well as depth of financial markets, which are more developed in some countries than in others . A large body of research[18] has shown that institutional environment has a crucial impact on the performance of the financial sector. An extension to this consensus is on the importance of the interactions between resource endowments/dependence and institutional quality in shaping economic and political outcomes (Barma et al. 2010). We take the analysis a step further to examine the extent to which institutional quality matters for the relationship between resource dependence and financial development in MENA. Thus we add to our model in equation (4) an interaction term $(NR * INST)$ where $INST$ stands for quality of government institutional variable (QOG) and NR is our resource rents variable, following Bhattacharyya and Roland (2010). The interaction term allows the marginal effect of natural resources, NR (resource rents)[19] on financial development to vary as a function of institutional quality. The total effect of better institutional environment is thus calculated by examining the partial derivative of financial development with respect to institutional quality.

To the extent that higher quality of government improving the functioning of the financial sector it is expected to weaken the link between resource rent and financial development. This hypothesis is examined by the magnitude of the interaction term on financial development variables. Based on the evidence of the previous section, we narrow the analysis of the financial sector to only depth and efficiency , as it was found out that banks stability are unaffected by neither natural resource dependence or abundance. Therefore, we drop banks stability from the

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[18] For example, see Rachdi & Mensi (2012), Tressel & Detriagiache (2008) and La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997)

[19] We decided to focus on just natural resource rents to include in this model specification due to the theoretical and empirical foundation between rents in specific and institutions. In addition, the other variables of natural resources show perfect multicollinearity with the interaction terms and are insignificant and thus is dropped from the model for better interpretation of the output.

analysis presented below. The next section is divided into two parts depending on grouping of the sample; first we use the whole sample of 17 countries in MENA. Then, we explore heterogeneity in the region by specifically looking at GCC countries.

The results in tables (3.1 – 3.2) shows significant difference in the rents-financial sector relationship linked with the institutional quality , especially for private credit and loan – deposit ratio as highlighted in columns (1) of table (3.1) and (3.2) respectively, as the coefficient on the interaction term enters negatively with a lower value and insignificantly.

Table (3.1) : Quality of government and Financial Depth

Explanantory Variables	Private Credit	M2	Liquid Liability
	(1)	(2)	(3)
Inflation	-0.0280	-0.065***	-0.0954***
	(0.0554)	(0.0244)	(0.0211)
Real GDP	1.422**	0.0107	0.105
	(0.661)	(0.225)	(0.237)
Gov Exp	0.0895	0.875***	0.647**
	(0.766)	(0.259)	(0.242)
Investment	-0.216	0.111	0.00603
	(0.313)	(0.104)	(0.105)
Openess	0.417	0.344**	0.394**
	(0.355)	(0.130)	(0.142)
School	1.074	0.257	0.107
	(0.860)	(0.206)	(0.207)
QOG	1.055**	0.371**	0.167
	(0.482)	(0.138)	(0.153)
Rents	-0.146**	-0.0818**	-0.00661
	(0.0666)	(0.0339)	(0.0340)
QOG * Rents	-0.107*	-0.000760	0.0205
	(0.0591)	(0.0280)	(0.0289)
Constant	-5.396	-1.994	-1.629
	(6.897)	(2.713)	(2.329)
Observations	78	89	84
R-squared	0.250	0.395	0.431
Number of Countries	17	17	17

Robust standard errors in parentheses, *** Statistically significant 1%, ** Statistically Significant at 5%, * statistically Significant at 10 %

Starting with financial depth in table (3.1), schooling and investment have lost significance for private credit and M2. Institutions could have overridden their importance as the quality of government is highly significant and has a positive effect specially on private credit and a lower effect in magnitude on M2, with significance level of 5% but no effect on liquid liability. The point estimates of resource rents is -0.146 and -0.0818 on private capital and M2 which is statistically significant at 5% and slightly higher than the specification without institutions. The interaction term (QOG * Rents) shows inconsistency in magnitude and significance between variables; for private capital, the effect is negative and significance with an estimate of -0.107% while negative and insignificant for M2, and insignificantly positive for Liquid liability. Holding other control variables constant, an increase in institutional quality by 1% is associated with an increase in private credit by 1.05% and 0.37% in M2.

To summarize, institutions slightly change the marginal effect of resource dependence on financial sector activity especially private credit expansion. Countries that are highly dependent on resource rents as a percentage of GDP tend to have a less damaging effect on financial depth conditional on better quality of government as captured by the lower coefficient of the interaction term. High quality institutions are crucial for financial sector to enforce law and protect creditors' rights.

Regarding other aspects of the financial sector, in tables (3.2) we show estimation results for financial efficiency[20].

Table (3.2) : Quality of Government and Financial Efficiency

Explanatory Variables	Loan - Deposit	Spread
	(1)	(2)
Inflation	-0.0714***	0.374
	(0.0206)	(0.234)
Real GDP	0.164	-3.776***
	(0.285)	(1.135)
Gov Exp	1.307***	0.0731
	(0.302)	(0.964)
Investment	0.277**	1.051***
	(0.113)	(0.297)
Openess	0.528***	-0.421
	(0.122)	(0.957)
School	0.340	4.367***
	(0.243)	(1.361)
QOG	0.0210	1.511
	(0.132)	(1.087)
Rents	-0.078***	0.0289
	(0.0226)	(0.163)
QOG * Rents	-0.074*	-0.291
	(0.0408)	(0.196)
Constant	-2.782	30.38**
	(2.815)	(10.80)
Observations	76	63
R-squared	0.598	0.462
Number of Countries	15	15

Robust standard errors in parentheses, *** statistically significant at 1%, ** Statistically significant at 5%, * Statistically significant at 10 %

We find that there is inconsistency in significance and sign for some of the explanatory variables as inflation, real GDP per capita and trade openness. Higher inflation generates excess liquidity but increases efficiency. Investment is consistently positive and significant with more effect on banks spread. More investment stimulates demand for financial services, spurring competition among banks and enhancing efficiency.

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[20] We do not test the effect on financial institution stability as the number of observations available is quite small (46 observations only) , and hence when the model is run, all variables are jointly insignificant, thus this variable is dropped from analysis.

The quality of institutions is not significant for intermediation efficiency measures, yet is still positive and higher for spread. Resource rents are significant at 1% with point estimate of -0.078 on loan-deposit ratio which is slightly lower in the specification without institutions. However, when institutions interact with resource rents , the coefficient is negatively significant and has a smaller marginal effect on loan deposit ratio while no effect on spread. The change of impact of rents on banks efficiency in the presence of better institutions is very small.

We can conclude from this section, that in general there is no strong evidence that cross-country differences in quality of institutions significantly affect the marginal impact that natural resource rent has on financial efficiency but a strong impact on financial sector depth within the context of our sample size limitation and period of study. The insignificance of the interaction term is interpreted as indicating that quality of government does not have a favorable impact on the adverse role of resource rents on efficiency.

The now proceed to tackle the heterogeneity in country specific characteristics. As we mentioned earlier, we expect some differences between GCC and rest of MENA , hence we conduct the same analysis as before but using a dummy variable for GCC countries and constructing two interaction variables, (Gcc*Rents) and (Gcc*Qog)[21] following Barajas et al. (2012). Tables (3.3) and (3.4) show the estimation results for financial depth and efficiency. Such that, columns (a) show the first interaction term to test if rents effect on financial depth is different in GCC than in all the region without the institutional variable. Columns (b) introduces the quality of government variable and column (c) presents the full specification with the two interaction variables.

Starting with table (3.3), The negative effect of resource rents is more pronounced in GCC than in the rest of the region. The coefficient on the interaction of rents with the GCC dummy is more negative, but is only significant for M2. An increase in rents share of GDP by 1% is associated with a drop of M2 by 0.086% in the whole region compared to 0.311% in GCC. Quality of government does not seem to have an effect on any of the financial indicators as it is statistically

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[21] It is not possible to just use the GCC countries in the regression as there are only 6 countries in this sub-group. Thus for sample size constraints and for comparability purposes , it was better to run the model with the interaction term.

insignificant in MENA, yet it is positive. This is contrary to our results interpreted earlier from table (3.1). However, it is statistically significant at 10% level in GCC countries for M2 and liquid liability as in columns (2c) and (3c) with a positive correlation of 0.857% increase in M2 and 0.7246% increase in liquid liability in GCC compared to 0.655% increase and 0.631% in all MENA.

Exploring the last specification of this section, where loan-deposit ratio and spread are the dependent variables, is shown in table (3.4). Resource rents are negative but insignificant for neither variables. Besides, the interaction term with GCC is surprisingly positive and insignificant. Institutional quality is statistically significant at 5% on loan-deposit ratio only and is higher for GCC compared to the whole region, such that there is a 1.25% increase in deposit ratio in GCC compared to 0.411% for a one percentage increase in institutional quality as shown in column (1c).

 The overall conclusion from the last section is that, a better quality of government is more important for a sound financial sector in general; particularly so for GCC than for the whole MENA region. This is intuitive, as the negative effect of resource rents is more pronounced in GCC due to their oil and mineral wealth. The size and activity of the financial sector is expanded in the presence of higher quality institutions in GCC. In addition, it is statistically significant at 5% on loan-deposit ratio (measuring efficiency) and is higher for GCC compared to the whole region.

Table (3.3) : Institutions and Financial Depth in GCC :

Explanantory Variables	Private Credit			M2			Liquid Liability		
	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)	(3a)	(3b)	(3c)
Inflation	-0.0141	-0.037	-0.0404	-0.0269	-0.0477*	-0.0396	-0.0594	-0.0919***	-0.0824**
	(0.0934)	(0.0966)	(0.105)	(0.0268)	(0.0263)	(0.0291)	(0.0391)	(0.0255)	(0.0286)
Real GDP	1.243	1.129	1.207	0.0608	-0.129	-0.0892	0.226	0.00462	0.0561
	(0.809)	(0.674)	(0.700)	(0.240)	(0.214)	(0.205)	(0.325)	(0.289)	(0.290)
Gov Exp	0.537*	0.263	0.281	0.805**	0.856**	0.753**	0.386	0.478*	0.344
	(0.296)	(0.246)	(0.259)	(0.354)	(0.339)	(0.319)	(0.290)	(0.270)	(0.224)
Rents	-0.105*	-0.0367	-0.093*	-0.086**	-0.00680	-0.097***	-0.0209	-0.0167	-0.0154
	(0.0621)	(0.0524)	(0.0516)	(0.0349)	(0.0365)	(0.0373)	(0.0301)	(0.0318)	(0.0324)
Investment	0.313	0.375	0.621*	0.0418	0.139	0.180*	0.0021	0.0335	0.0804
	(0.293)	(0.346)	(0.348)	(0.0962)	(0.0943)	(0.100)	(0.134)	(0.111)	(0.112)
Openess	0.441	0.396	0.384	0.332**	0.299**	0.308**	0.422**	0.369**	0.373**
	(0.413)	(0.365)	(0.357)	(0.135)	(0.131)	(0.123)	(0.145)	(0.149)	(0.144)
School	0.222	0.381	0.409	0.174	0.242	0.190	0.374	0.349	0.181
	(0.877)	(0.877)	(0.942)	(0.230)	(0.214)	(0.198)	(0.281)	(0.262)	(0.261)
Gcc * Rents	-0.428	-0.537	-0.682	-0.225*	0.0608	-0.423*	-0.236	-0.112	-0.369*
	(0.579)	(0.603)	(0.689)	(0.206)	(0.235)	(0.242)	(0.231)	(0.214)	(0.211)
Gcc* QOG			-1.680			0.655*			0.631*
			(1.476)			(0.361)			(0.371)
QOG		0.600	0.809		0.0997	0.202		0.0087	0.0936
		(0.510)	(0.642)		(0.155)	(0.171)		(0.177)	(0.191)
Constant	-5.295	-3.493	-3.377	-1.925	-0.748	-0.705	-0.801	0.406	0.491
	(6.938)	(5.501)	(5.542)	(2.636)	(2.481)	(2.302)	(2.202)	(2.195)	(1.979)
Observations	79	79	79	91	90	90	86	85	85
R-squared	0.191	0.236	0.265	0.344	0.355	0.401	0.358	0.380	0.418
Number of Countries	17	17	17	17	17	17	17	17	17

Robust standard errors in parentheses, *** Statistically Significant at 1%, ** Statistically Significant at 5%, * Statistically significant at 10%

Table (3.4): Institutions Financial Efficiency in GCC

Explanatory Variables	Deposit			Spread		
	(1a)	(1b)	(1c)	(2a)	(2b)	(2c)
Inflation	-0.0751**	-0.0703**	-0.0624*	0.412	0.379	0.321
	(0.0301)	(0.0311)	(0.0308)	(0.242)	(0.272)	(0.248)
Real GDP	0.0805	0.0595	0.114	-2.566**	-3.972***	-4.399***
	(0.341)	(0.322)	(0.319)	(1.083)	(1.132)	(1.043)
Gov Exp	0.193	0.181	0.0864	0.340	0.499	1.141
	(0.331)	(0.351)	(0.229)	(1.232)	(1.183)	(0.975)
Investment	0.0113	0.0292	0.0662	0.471	1.021***	0.914**
	(0.106)	(0.111)	(0.102)	(0.291)	(0.329)	(0.375)
Openess	0.515***	0.508***	0.504***	0.486	0.528	0.461
	(0.136)	(0.129)	(0.126)	(0.971)	(0.880)	(0.921)
School	0.415	0.399	0.317	3.781**	4.449***	4.890***
	(0.287)	(0.288)	(0.286)	(1.465)	(1.349)	(1.301)
QOG		0.488***	0.411**		1.231	0.812
		(0.129)	(0.149)		(0.986)	(0.915)
Rents	-0.123	-0.140	-0.227	-0.106	0.353	0.866
	(0.193)	(0.198)	(0.205)	(0.641)	(1.068)	(1.068)
Gcc* Rents	0.00710	0.00936	0.0115	-0.0111	0.112	0.120
	(0.0187)	(0.0176)	(0.0178)	(0.145)	(0.139)	(0.121)
Gcc * QOG			0.804**			3.498**
			(0.368)			(1.602)
Constant	-0.616	-0.308	-0.333	15.02	27.59**	28.78**
	(2.618)	(2.478)	(2.198)	(8.596)	(10.30)	(9.750)
Observations	77	77	77	64	63	63
R-squared	0.571	0.575	0.607	0.393	0.442	0.494
Number of Countries	15	15	15	15	15	15

Robust standard errors in parentheses, *** statistically significant at 1%, ** Statistically significant at 5%,
* Statistically significant at 10%

5. Conclusions

The paper empirically investigated a thus far neglected channel through which natural resources might affect MENA economic growth through a deterioration in the financial sector. The paper analyzed two inextricably intertwined broader issues. First, the impact of natural resource dependence and abundance on financial intermediaries' depth, efficiency and stability. Second, the role of good quality institutions in affecting the relationship between resource dependence and financial development. We covered 17 countries from the MENA region due to data availability for the period 1980-2009. Our empirical model is built on a fixed effect estimator and focuses on three aspects of the financial sector as the dependent variables , several measures of resource dependence and one measure of resource abundance as the independent variables. In addition, we controlled for standard factors associated with financial development across countries, like income per capita, trade openness, inflation, government size and schooling. The results obtained in this cross-country study have to be considered with cautious as they represent averages among countries. Potential measurement error and endogeneity of some variables could affect the result. Other techniques like the Generalized Method of Moments (GMM) by Arellano and Bond (1991) is suitable to deal with problem of endogeneity in cross country regressions; it is built on using lagged values of independent variable as instruments. We could not use this method as it requires large number of observations which is not available for our sample.

This section summarizes our main findings from the analysis to answer the main research questions:

- Natural resource rents and oil rents as a percentage of GDP are the leading variables among natural resource indicators on financial depth with higher values of coefficients in the fixed OLS model compared to the pooled OLS estimates

- More endowment in oil reserves is associated with lower level of credit to private sector and smaller size of the financial sector in general. This can be interpreted as the oil wealth acts as a disincentive to engage in the non resource sector due to resource rents which create low demand for external finance from commercial banks

- Natural resource dependence variables are more negatively significant for banks efficiency but insignificant for stability.

- There is weak channel between resource endowment and banks efficiency and stability,

- Regarding the marginal effect of better institutions, there is significant difference in the rents-financial sector relationship linked with the institutional quality, especially for private credit and loan – deposit ratio. However, the change of impact of resource rents on banks efficiency in the presence of better institutions is very small

- A better quality of government is more important for GCC than for the whole region for a sound financial sector in general. The size and activity of the financial sector is expanded in the presence of higher quality institutions in GCC as well as increased efficiency.

From the previous points, we conclude that the there is a resource curse in financial development in MENA for the period 1980-2009. The extent and significance can differ depending on the resource measure we use as dependent variable , and the financial indicator as independent variable. Measures of financial depth (especially private credit and M2) are more adversely affected by resource dependence than measures of financial efficiency and stability.

Moreover, as a step beyond the analysis, we also found that it is clearly indicated that GCC countries suffer more negative effects of resource rents, being major oil and mineral producers.

Better institutional quality of government is more likely to reduce the unfavorable effect on the size and soundness of the financial sector, hence it plays an important in the interacting relationship between resource dependence and financial sector by fostering contract enforcements and emphasizing government accountability.

References :

Acemoglu, D. , Simon J. & James R. (2005). Institutions as the fundamental cause of long run growth, in P. Aghion & S. N. Durlauf, (eds.), *Handbook of Economic Growth*, Vol. 1A, Chapter 6 , pp. 385-472, North-Holland: Amsterdam

Arellano, M. (1987). Computing Robust Standard Errors For Within Groups Estimators, *Oxford bulletin of Economics and statistics*, Vol. 49, no.4, pp.431- 434

Arellano, M. & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations, *Review of Economic Studies,* Vol. 58, pp. 277-297

Arezki, R. & Nabli, M. (2012). Natural Resources, Volatility, and Inclusive Growth: Perspectives from the Middle East and North Africa , International Monetary Fund Working Paper WP/12/111

Aten, B., Heston, A. & Summers, R. (2012), Penn World Table Version 7.1, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, Available online: https://pwt.sas.upenn.edu/php_site/pwt_index.php.

[Accessed 24th April, 2013]

Alexeev, M. & Robert C. (2009). The Elusive Curse of Oil, *Review of Economics and Statistics*, Vol. 91, no. 3, pp. 586-98

Atkinson, G. & Hamilton, K. (2003). Savings, Growth and the Resource Curse Hypothesis, *World Development*, Vol. 31, pp. 1793-1807

Auty, R. (2012). Oil and Development in the Middle East, BRISMES Annual Conference 2012 Revolution and Revolt: Understanding the Forms and Causes of Change, London School of Economics and Political Science Available online at: http://brismes2012.files.wordpress.com/2012/02/richard-auty-oil-and-development-in-the-middle-east.pdf .[Accessed 20th May, 2013]

───────── (2001). The Political Economy of Resource-Driven Growth*, European Economic Review*, Vol. 45, no.(4–6), pp.839–846

───────── (1997). Natural Resource Endowment, the State and Development Strategy, *Journal of International Development*, Vol. 9, no.4, pp. 651–663

Auty, R. (1993). *Sustaining Development in Mineral Economies: The Resource Curse Thesis*, , London: Routledge

Ayadi, R., Arbak, E., Ben-Naceur, S. & Pieter,W. (2013). Financial Development, Bank Efficiency and Economic Growth across the Mediterranean, MEDPRO Technical Report No. 30.

Available online at: www.medpro-foresight.eu [Accessed on: 19th May, 2013]

Baland, J. & Francois, P. (2000). Rent-Seeking and Resource Boom, *Journal of Development Economics,* vol. 61, pp. 527-542

Baltagi, B.H., Demetriades, P.O. & Law, S.H. (2009). Financial Development and Openness: Evidence From Panel Data"*, Journal of Development Economics*, Vol.89, pp. 285–296

Baltagi, B. H. (2001). *Econometric Analysis of Panel Data*. 2nd edition. New York: Wiley, John & Sons

Barajas, A., Chami R. & Yousefi R. (2012). The Finance and Growth nexus Re-examined: Are there cross region differences?, Unpublished (Washington: international monetary fund)

Barma, N., Kaiser, K., Minh Le, T. & Vinuela, L.(2011). Rents to Riches? The Political Economy of Natural Resource Led Development, Washington, DC: World Bank Press, (*forthcoming*).

Barro, R. and J.W. Lee (2013) , Educational Attainment for total population, 1950 – 2010 , V.13, 04/13 A. Available online at: http://www.barrolee.com/data/full1.htm . [Accessed on 23rd April 2013]

Beck, T., & Levine, R. (2004). Stock markets, banks, and growth: Panel evidence. *Journal of Banking & Finance,* Vol. 28, no. (3), pp. 423-442

Beck, T. (2011). Oil and Finance: Is There a Resource Curse?, in R. Arezki, T. Gylfason, &A. Sy, (eds), *Beyond the Curse: Policies to Harness the Power of Natural Resources*, Chapter 5, pp. 81- 106, Washington, DC: International Monetary Fund

Beck, T. & Demigruc- Kunt, A. (2009). Financial Institutions and Markets Across Countries and over Time: Data and Analysis, World Bank Policy Research Working Paper No. 4943

Beck, T. , Demigruc- Kunt, A. & Levine, R. (1999). A New Database on Financial Development and Structure, World Bank Policy Research Working Paper No 2146

Benhabib, J., & Spiegel, M. (2000). The Role of Financial Development in Growth and Investment, *Journal of Economic Growth,* Vol. 5, pp. 341-360

Ben Naceur, S. & Omran, M. (2008).The Effects of Bank Regulations, Competition and Financial Reforms on MENA Banks' Profitability , *Economic Research Forum* working Paper 449

Bhattacharyya, S. & Roland H. (2010). Do Natural Resource Revenues Hinder Financial Development? The Role of Political Institutions, CSAE WPS/2010-40, Centre for the Study of African Economies, Department of Economics , University of Oxford, UK

Bornhorst, F., Gupta, S., & Thornton, J. (2009). Natural resource endowments and the domestic revenue effort, *European Journal of Political Economy*, Vol. 25, no.4, pp. 439–446.

Boschini, A., J. Pettersson, and J. Roine. (2007). Resource Curse or Not: A Question of Appropriability, *Scandinavian Journal of Economics*, Vol.109 , no.3, pp. 593-617

Boyce, J., and J. Emery, (2005). A Hotelling Explanation of The Curse of Natural Resources, University of Calgary, Department of Economics Discussion Paper 2005-06

Boyd, J. , Levine ,R. & Smith B. (2001).The Impact of Inflation on Financial Sector Performance , *Journal of Monetary Economics*, Vol.47, pp. 221-248

Braun, M. & Raddatz, C. (2008). The politics of financial development: evidence from trade liberalization, *Journal of Finance* , Vol. 63, pp. 1469–1508.

Bravo-Ortega, C., De Gregorio , J. & Paraguay, D. (2005). The Relative Richness of the Poor? Natural Resources, Human Capital, and Economic Growth, The World Bank: Policy Research Working Paper Series 3484

Brunnschweiler, C. N. & Bulte ,E. H. (2008). The Resource Curse Revisited and Revised: A Tale of Paradoxes and Red Herrings, *Journal of Environmental Economics and Management* , Vol. 55, no.3, pp. 248- 264

Bulte, E., Damania, R. & Deacon , R. (2005), Resource Intensity, Institutions, and Development. *World Development*, Vol.33, no.7, pp. 1029-1044

Caselli, F. & Cunningham ,T. (2009) Leader Behaviour and the Natural Resource Curse, Oxford Economic Papers, Vol. 61, no.4 , pp.628-650

Chalk, N., Jbili, A., Treichel,V., & Wilson, J. (1996). Financial Structure and Reforms, in *Building on Progress: Reform and Growth in the Middle East and North Africa,* pp.35- 50 (Washington: International Monetary Fund)

Collier, P., Hoeffler, A.(2005). Democracy and Natural Resource Rents, Working paper GPRG-WPS-016, Department of Economics. Oxford University, Oxford

Corden, W.M. (1984). Booming sector and Dutch disease economics: survey and consolidation , *Oxford Economics Papers* 36, pp. 359–380.

Corden, W.M., Neary, J.P. (1982). Booming sector and Dutch disease economics: a survey. *Economic Journal*, Vol. 92, pp. 825–848.

Creane, S., Goyal, R. , Mobarak, A. & Sab, R. (2004), Financial Sector Development in the Middle East and North Africa, IMF Working Paper 04/201

Davis, G. (1995). Learning to Love the Dutch Disease: Evidence from the Mineral Economies, World Development, Vol.23, pp. 1765-79

Davis, J.M., Ossowski, R. and Fedelino, A. (eds) (2003). Fiscal Policy Formulation and Implementation in Oil-Producing Countries, Washington, DC: International Monetary Fund

Denizer , C.,Iyigun, M. & Owen , A. (2000). Finance and Macroeconomic Volatility, World Bank Policy Research Working Paper 2487.

Drukker, D. (2003). Testing for serial correlation in linear panel-data models, The Stata Journal, Vol.3, No. 2, pp. 168–177

Durlauf, S. N., Johnson, P. A., and Temple, J. R. W. (2005). Growth Econometrics, in P. Aghion & S. N. Durlauf, (eds.), *Handbook of Economic Growth*, Volume 1A, North-Holland: Amsterdam, pp. 555-677

Emran, S. and Farazi ,S. (2009). Lazy Banks? Government Borrowing and Private Credit in Developing Countries, Social Science research Network working paper No. 1418145

Esfahani, H. S., Mohaddes K. & Pesaran, H. (2009), Oil Exports and the Iranian Economy , Cambridge Working Papers in Economics 0944.

Frankel, J.F. (2010). The Natural Resource Curse: A survey , *NBER* working paper No. 15836

Gelb, Alan and Associates (1988). Oil Windfalls: Blessing or Curse?, New York: Oxford University Press

Gylfason, T. (2001a). Natural Resources, Education, and Economic Development, *European Economic Review* ,Vol. 45, pp. 847–859

———————— (2001b) . Nature, Power, and Growth , *Scottish Journal of Political Economy* , Vol.48, no.5 , pp. 558–588

————————(2004) . Natural resources and Economic Growth: from Dependence to Diversification , *CEPR* discussion paper No. 4804 (London Centre for Economic policy Research)

Gylfason, T., Herbertsson, T.& Zoega, G. (1999). A Mixed Blessing: Natural Resources and Economic Growth, *Macroeconomic Dynamics*, Vol. 3, pp. 204–225

Gylfason, T. & Zoega, G. (2001). Natural Resources and Economic Growth: The Role of Investment , Economic Policy Research Unit, Institute of Economics, University of Copenhagen, Denmark

Hakura, D. (2004). Growth in the Middle East and North Africa, *IMF* Working Paper 04/56 (Washington: International Monetary Fund).

Herb, M. (2005).No Representation without Taxation? Rents, Development and Democracy, *Comparative Politics ,* Vol. 37, No. 3, pp.297-317.

Humphreys, M. , Sachs J. & Stiglitz, J. (2007). *Escaping The Resource Curse*, New York : Columbia University Press

IMF (2008). Regional Economic Outlook: MENA and Central Asia, Washington DC: IMF.

_____ (2011a) .Economic Transformation in MENA: Delivering on the Promise of Shared Prosperity, Washington DC: IMF

International Energy Statistics . U.S Energy Information Administration. Available online at: http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=5&pid=57&aid=6 . Accessed on [24th April, 2013]

Isham, J., Woolcock, M., Pritchett, L. & Busby, G. (2002). The Varieties of Rentier Experience: How Natural Resource Export Structures Affect the Political Economy of Economic Growth. *The World Bank Economic Review* , Vol.19, no. 2 , pp. 141-174

Karl, T.L. (1997).The Paradox of Plenty: Oil Booms and Petro-States, Berkeley: University of California Press.

King, R.G. & Levine, R. (1993). Finance and growth: Schumpeter might be right, *Quarterly Journal of Economics*, Vol.108, pp. 717- 738

Kurronen, S. (2012). Financial Sector In Resource-Dependent Economies, Bank of Finland discussion paper 6. BOFIT Institute for Economies in Transition.

La Porta, R., Lopez-de-Silanes, F., Shleifer ,A.& Vishny, W.(1997). Legal Determinants of External Finance, *The Journal of Finance*, Vol. LII, no. 3, pp.1131–1150

Leite, C. and M. Weidmann (1999). Does Mother Nature Corrupt? Natural Resources, and Economic Growth, IMF Working Paper No. 99/85 (Washington: International Monetary Fund).

Levine, R., Loayza, N., & Beck, T. (2000). Financial Intermediation and Growth: Causality and Causes", *Journal of Monetary Economics*, Vol.46, pp. 31-77

Lin, J.Y., Sun, X. & Jiang, Y. (2009). Toward a Theory of Optimal Financial Structure, World Bank Policy Research Working Paper, Vol. 5038

Mehlum , H., Moene, K. and Torvik, R. (2006). Institutions and the Resource Curse. *The Economic Journal*, Vol.116 , no. 508, pp. 1-20.

Nankani, G. (1979). Development Problems of Mineral Exporting Countries, Staff   Working Paper 354 , Washington, DC: World Bank

Nili, M., & Rastad, M. (2007), Addressing the growth failure of the oil economies: The role of financial development, *The Quarterly Journal of Economics and Finance,* Vol. 46, pp.726-740

Okogu, B. (2003). The Middle East and North Africa in a Changing Oil Market, The International Monetary fund.

Rachdi, H. & Mensi, S. (2012). Does institutions quality matter for financial development and economic growth nexus? Another look at the evidence from MENA countries. Economic Research Forum (ERF), Working paper No. 705

Rajan, R.G.& Zingales, L.(2003). The great Reversals: The Politics of Financial Development in the Twentieth Century*", Journal of Financial Economics,* Vol.69, pp. 5–50

Robinson, J. , Torvik, R. & Verdier T.(2006). Political Foundations of the Resource Curse, *Journal of Development Economics,* Vol.79, pp. 447-468.

Rocha,R., Arvai,S. & Farazi,S. (2011). Financial Access and stability : A Road map for the Middle East and North Africa, World Bank. Available at: http://go.worldbank.org/CEN5ZT0MI0

Rodriguez, F. & Sachs, J. (1999).Why Do Resource- Abundant Economies Grow More Slowly?, *Journal of Economic Growth*, Vol. 4, pp. 277–303.

Rosa , D., Iootty, M. (2012). Are Natural Resources Cursed?: An Investigation of the Dynamic Effects of Resource Dependence on Institutional Quality , World Bank Policy Research working paper No. 6151

Ross, M. (1999). The Political Economy of the Resource Curse, *World Politics*, Vol. 51, pp.297–322.

Ross, M. , Mazaheri, N. & Kaiser, K. (2011). The Resource curse in MENA? Resource Wealth, Economic Shocks , and conflict risk , World Bank Policy Research Working Paper No. 5742, Washington: World Bank

Rosser , A. (2006) .The political economy of the Resource Curse : A literature survey, *Institute of Development Studies* , Sussex University Working Paper 268

Sachs, J., & Warner, A. (1995).Natural Resource Abundance and Economic Growth, Harvard Institute for International Development, Development Discussion Paper 517a

———————— (2001).The Curse of Natural Resources, *European Economic Review*, Vol.45, pp. 827–838

Sala-I-Martin, X. & Subramanian, A. (2003). Addressing the Natural Resource Curse: An Illustration from Nigeria, *IMF Working Paper WP/03/139*.

Shan, J., Morris, A. & Sun, F.(2001).Financial Development and Economic Growth: An Egg-and-Chicken Problem, *Review of International Economics,* Vol. 9, no. 3, pp. 443 - 454

Stijns , J. (2005). Natural Resource Abundance and Economic Growth Revisited, *Resource Policy* , Vol. 30 , pp. 107-130

Swaffield, J. (2001) . Does Measurement Error Bias Fixed-Effects Estimates of the Union Wage Effect?, *Oxford Bulletin of Economics and Statistics* , Vol.63,no. 4, pp.437-457

Teorell, J., Samanni ,M., Holmberg ,S. & Rothstein, B. (2011).The QoG Standard Dataset version 6th Apr11. University of Gothenburg: The Quality of Government Institute, available online at: http://www.qog.pol.gu.se [Accessed: 24th April, 2013]

The World Bank (2013). World Development Indicators. Available Online: http://databank.worldbank.org/data [Accessed: 15th April, 2013]

Tornell, A. & Lane, P. (2000). Are Windfalls a Curse? A Nonrepresentative Agent Model of the Current Account," *Journal of International Economics* , vol. 44, 83-112

───────── (1999).The Verocity Effect , *American Economic Review,* Vol.89, no. 1, pp. 22-46.

Torvik , R. (2002). Natural resources, rent seeking and welfare, *Journal of Development Economics* , Vol.67, pp.455-470

Tressel, T. & Detriagiache ,E. (2008). Do Financial Sector Reforms Lead to Financial Development? Evidence from a New Dataset, IMF Working Paper 265.

Van der Ploeg, F. & Poelhekke, S. (2010). The Pungent Smell of "Red Herrings": Subsoil Assets, Rents, Volatility and the Resource Curse, *Journal of Environmental Economics and Management,* Vol. 60, no.1, pp.44- 55.

Van der Ploeg, F. & Venables, T. (2009).Symposium on Resource Rich Economies Introduction, Oxford Economic Papers, Vol.61, no. 4, pp. 625-627

Van Wijnbergen, S.(1984).The Dutch disease : a disease after all?, *Economic Journal* , Vol. 94 , pp. 41–55

Wooldridge, J. (2002). Econometric Analysis of Cross Section and Panel Data, The MIT press

World Bank (2006). Economic Development and Prospects: Financial Markets in a New Age of Oil, Washington, DC: World Bank

───────── (2009). From Privilege to Competition: Unlocking Private-Led Growth in MENA, Washington DC: World Bank

─────────(2011a).The Changing Wealth of Nations, Washington, DC: World Bank

───────── (2011b). Middle East and North Africa Economic Developments and Prospects: Sustaining the Recovery and Looking Beyond. Washington, DC: World Bank
https://openknowledge.worldbank.org/handle/10986/12438

———————— (2011c) MENA and Dependence on the Capital-Intensive Hydrocarbon Sector, MENA Quick Note Series 36, Washington DC: World Bank. https://openknowledge.worldbank.org/handle/10986/10898

Yuxiang, K. & Chen Z. (2011). Resource Abundance and Financial Development: Evidence from China , *Resources Policy,* Vol.36 , pp.72–79
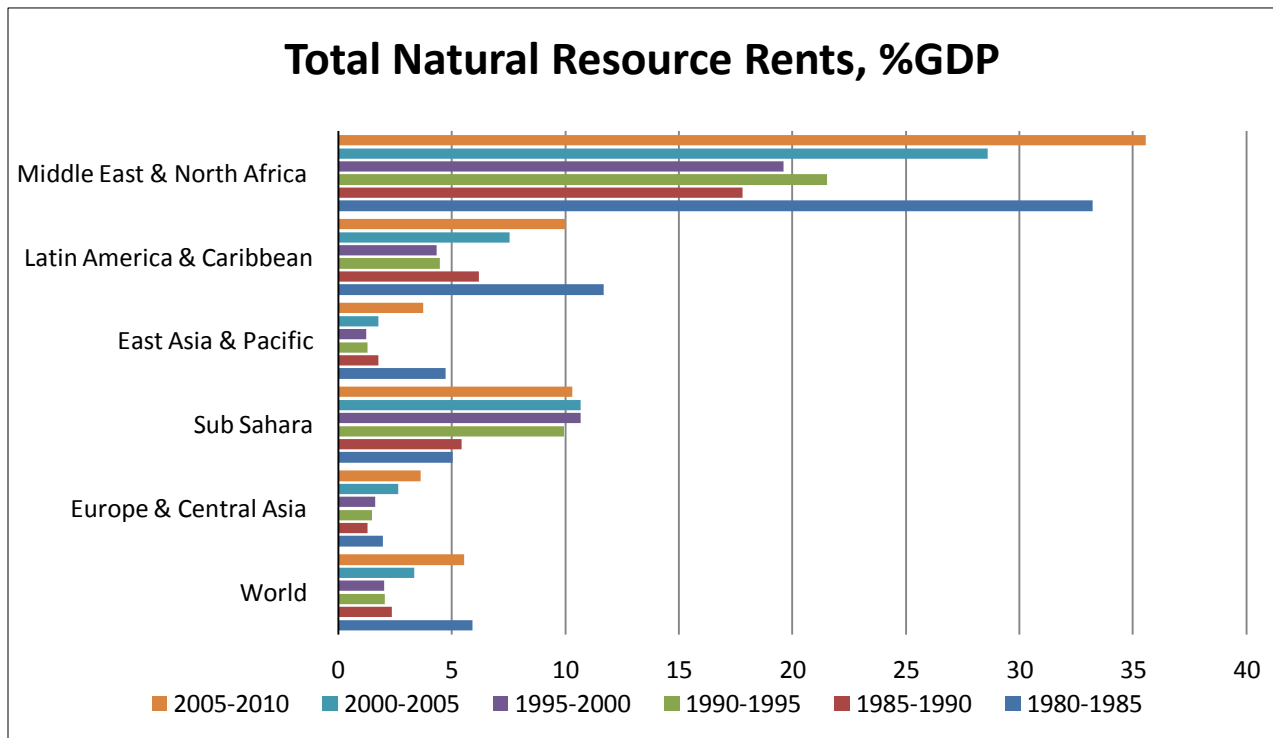
Appendix:

Figure (1A) : Genuine Saving Rate by Regions
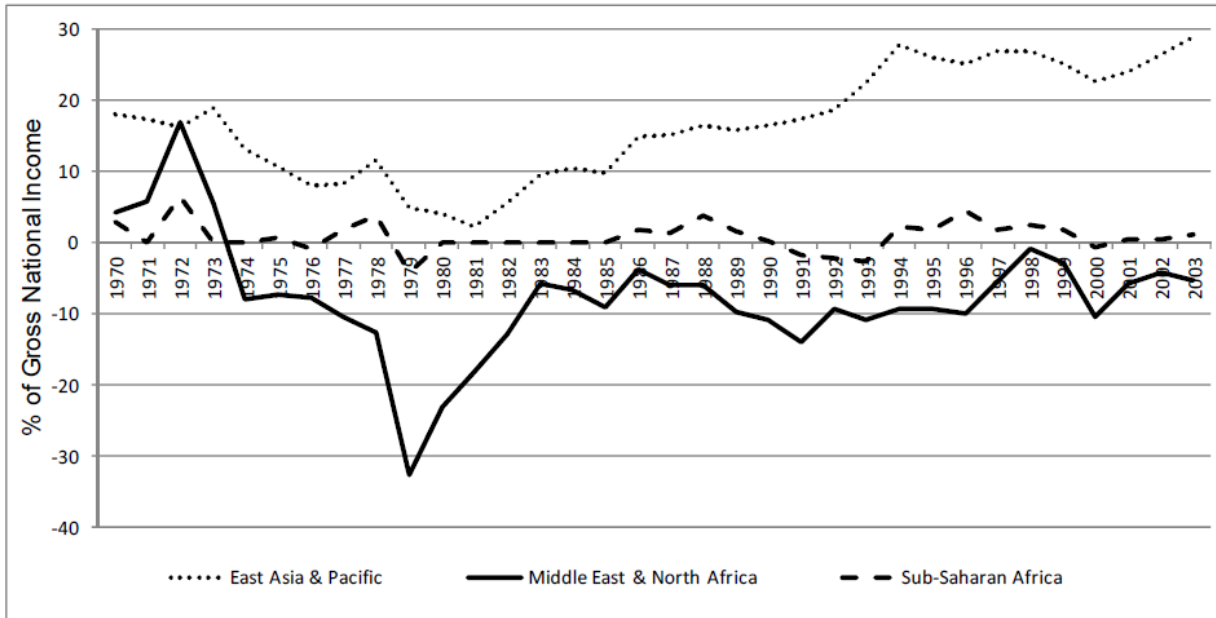
Source: World Bank (2006).

Figure (2A) : Total Natural Resource Rents (% GDP) across Regions (1980 -2010):

Source: World Development Indicators, 2012.

Table 1A: Summary Statistics and Correlations

	Rents, % GDP	FuelExp	OilReserves	Private	M2	LIQLIA	Deposit	spread	zscore	Qog	Polity2	RealGDP/ capita ,
Descriptive Statistics												
Mean	2.27E+01	50.36094	3.25E+07	40.5691	59.54865	55.6588	45.25258	8.28713	21.6834	0.524008	2.675741	16387.46
Std. Dev.	1.81E+01	40.01189	6.11E+07	22.7263	24.54147	23.47286	22.7512	27.6336	11.741	0.115204	2.239368	18299.22
Min	0.0076816	0.0039698	0	4.62351	20.78909	14.98558	9.137694	0.3	0.76057	0.201389	0.25	533.3752
Max	6.11E+01	99.21243	2.65E+08	90.2614	132.314	118.6766	97.39084	218.979	47.5759	0.820139	9.583334	96283.38
Obs	98	95	102	80	98	95	78	70	48	98	100	102
Correlations												
Rents, % GDP	1											
FuelExp	0.8915	1										
OilReserves, per 1000	0.5972	0.4721	1									
Private	-0.4802	-0.6873	0.0167	1								
M2	-0.6646	-0.7493	-0.1021	0.7827	1							
LIQLIA	-0.7221	-0.7962	-0.1343	0.7532	0.9864	1						
Deposit	-0.5438	-0.672	0.0296	0.8953	0.9469	0.922	1					
spread	-0.3489	-0.3669	-0.3692	0.1301	0.0867	0.1215	0.0896	1				
zscore	-0.4045	-0.5393	-0.1468	0.4177	0.4193	0.436	0.4143	0.4589	1			
Qog	-0.4634	-0.6757	-0.0112	0.7386	0.4895	0.5106	0.5806	0.1392	0.1406	1		
Polity2	-0.4566	-0.4563	-0.1015	0.5289	0.3602	0.3761	0.4212	-0.0329	0.1512	0.5245	1	
RealGDP/ capita USD	0.5015	0.2703	0.7798	0.3609	-0.0266	-0.0808	0.2123	-0.3109	-0.1981	0.3839	0.1924	1

Table 2A: GCC Summary Statistics

	Rents, % GDP	FuelExp	OilReserves	Private	M2	LIQLIA	Deposit	spread	zscore	Qog	Polity2	RealGDP/ capita, USD
Descriptive Statistics												
Mean	38.16485	68.24136	6.93E+07	50.40511	52.86752	50.95586	47.51144	3.400758	18.55764	0.5649	1.448365	33923.16
Std. Dev.	12.46902	33.99861	8.53E+07	16.30242	21.72643	19.31033	26.38614	1.687101	5.529184	0.071565	0.784081	20292.13
Min	17.37294	0.023831	86364	19.93741	20.78909	16.85276	9.137694	0.922833	9.974194	0.361111	0.416667	12186.82
Max	60.99831	99.08142	2.65E+08	89.10474	119.014	94.44885	86.84914	6.813747	28.34242	0.734259	3.564015	96283.38
Obs	36	35	36	23	36	32	20	25	18	34	36	36

Table 3A: Non GCC : Arab Mediterranean Summary Statistics

	Rents, % GDP	FuelExp	OilReserves	Private	M2	LIQLIA	Deposit	spread	zscore	Qog	Polity2	RealGDP/ capita, USD
Descriptive Statistics												
Mean	13.71059	39.93069	1.24E+07	36.60011	63.42802	58.04759	44.47367	11.00179	23.55888	0.502284	3.366139	6822.53
Std. Dev.	14.51444	39.80278	2.69E+07	23.84184	25.40174	16.85276	9.137694	0.922833	9.974194	0.361111	0.416667	12186.82
Min	0.007682	0.00397	0	4.623508	23.26026	14.98558	15.78072	0.3	0.760575	0.201389	0.25	533.3752
Max	61.0587	99.21243	1.34E+08	90.26139	132.314	118.6766	97.39084	218.9792	47.57588	0.820139	9.583334	24659.88
Obs	62	60	66	57	62	63	58	45	30	64	64	66

Figure 3A: Correlations between Resource Rents and selected financial indicators:
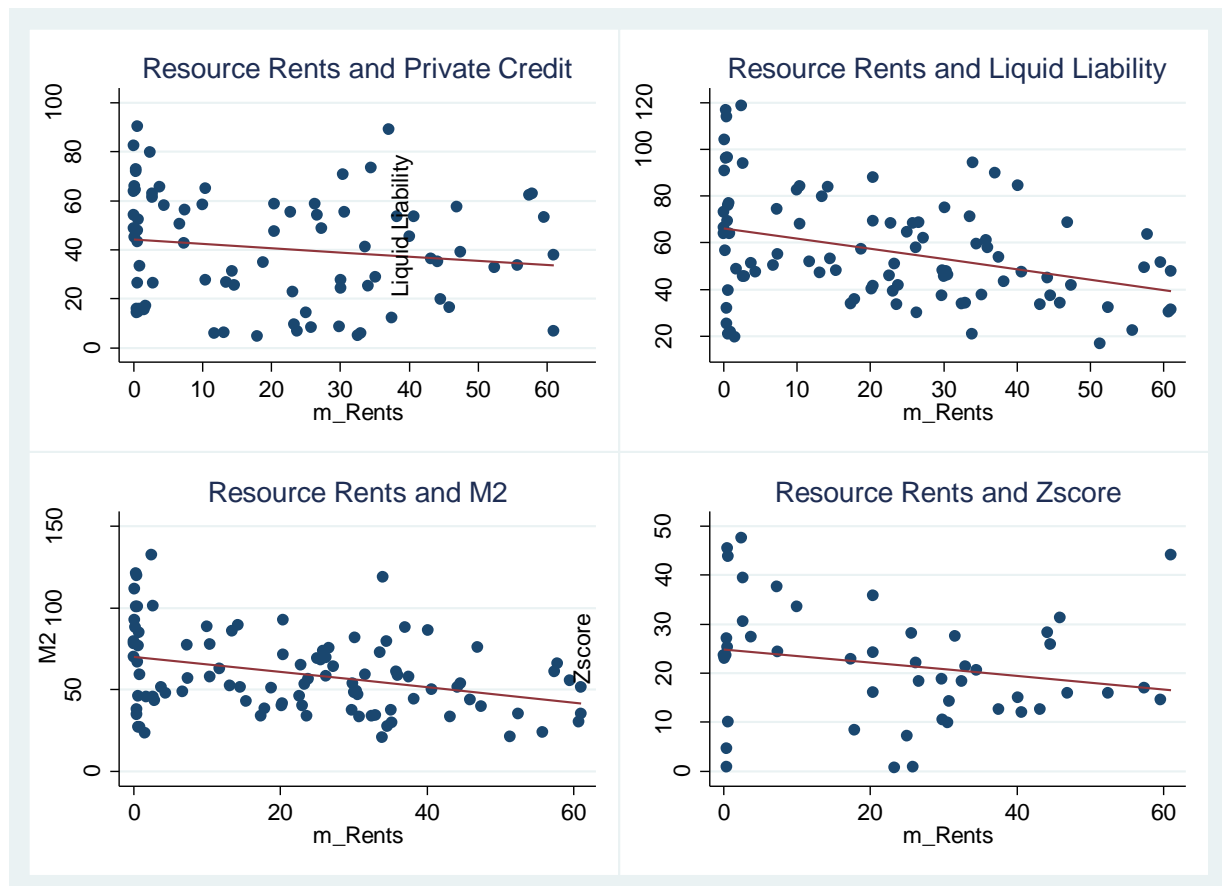
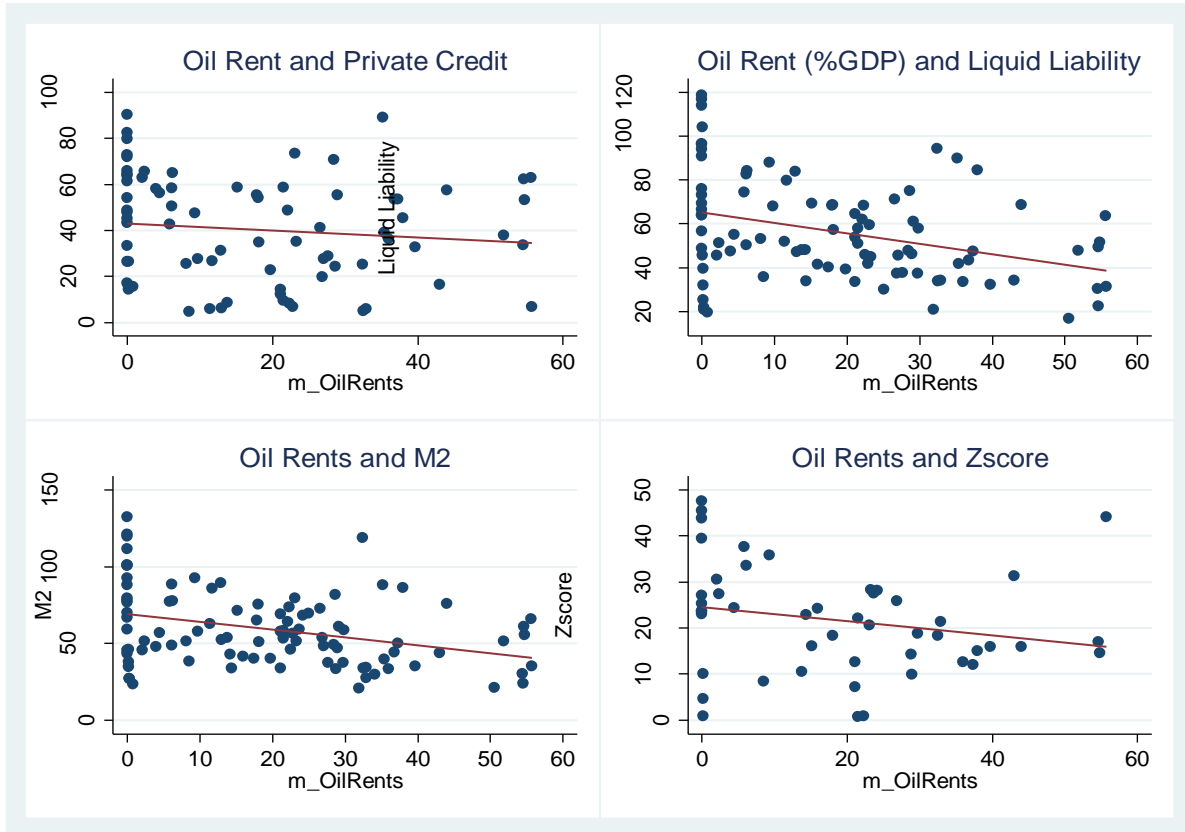Figure 4A : Correlations Oil Rent(% GDP) and selected financial indicators:

Figure 5A : Correlations Oil Reserves and selected financial indicators